

Forte[®]

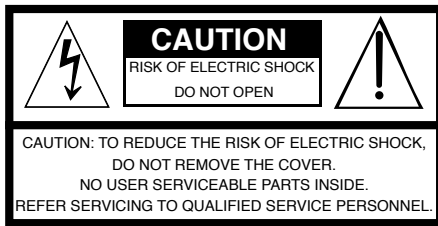
MUSICIAN'S GUIDE

Including ***Forte***[®]?

FLASH  PLAY[™]

KURZWEIL[®]

It's the **sound.**[®]



The lightning flash with the arrowhead symbol, within an equilateral triangle is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the product.

IMPORTANT SAFETY & INSTALLATION INSTRUCTIONS

INSTRUCTIONS PERTAINING TO THE RISK OF FIRE ELECTRIC SHOCK , OR INJURY TO PERSONS

WARNING: When using electric products, basic precautions should always be followed, including the following:

1. Read all the Safety and Installation Instructions and Explanation of Graphic Symbols before using the product.
2. This product must be grounded. If it should malfunction or break down, grounding provides a path of least resistance for electric current to reduce the risk of electric shock. This product is equipped with a power supply cord having an equipment-grounding conductor and a grounding plug. The plug must be plugged into an appropriate outlet which is properly installed and grounded in accordance with all local codes and ordinances.

DANGER: Improper connection of the equipment-grounding conductor can result in a risk of electric shock. Do not modify the plug provided with the product – if it will not fit the outlet, have a proper outlet installed by a qualified electrician. Do not use an adaptor which defeats the function of the equipment-grounding conductor. If you are in doubt as to whether the product is properly grounded, check with a qualified serviceman or electrician.
3. Do not use this product near water – for example, near a bathtub, washbowl, kitchen sink, in a wet basement, or near a swimming pool, or the like.
4. This product should only be used with a stand or cart that is recommended by the manufacturer.
5. This product, either alone or in combination with an amplifier and speakers or headphones, may be capable of producing sound levels that could cause permanent hearing loss. Do not operate for a long period of time at a high volume level or a level that is uncomfortable. If you experience any hearing loss or ringing in the ears, you should consult an audiologist.
6. This product should be located so that its location or position does not interfere with its proper ventilation.
7. The product should be located away from heat sources such as radiators, heat registers, or other products that produce heat.
8. The product should be connected to a power supply only of the type described in the operating instructions or as marked on the product.
9. This product may be equipped with a polarized line plug (one blade wider than the other). This is a safety feature. If you are unable to insert the plug into the outlet, contact an electrician to replace your obsolete outlet. Do not defeat the safety purpose of the plug.
10. The power supply cord of the product should be unplugged from the outlet when left unused for a long period of time. When unplugging the power supply cord, do not pull on the cord, but grasp it by the plug.
11. Care should be taken so that objects do not fall and liquids are not spilled into the enclosure through openings.
12. The product should be serviced by qualified service personnel when:
 - A. The power supply cord or the plug has been damaged;
 - B. Objects have fallen, or liquid has been spilled into the product;
 - C. The product has been exposed to rain;
 - D. The product does not appear to be operating normally or exhibits a marked change in performance;
 - E. The product has been dropped, or the enclosure damaged.
13. Do not attempt to service the product beyond that described in the user maintenance instructions. All other servicing should be referred to qualified service personnel.
14. **WARNING:** Do not place objects on the product's power supply cord, or place the product in a position where anyone could trip over, walk on, or roll anything over cords of any type. Do not allow the product to rest on or be installed over cords of any type. Improper installations of this type create the possibility of a fire hazard and/or personal injury.

RADIO AND TELEVISION INTERFERENCE

WARNING: Changes or modifications to the instrument not expressly approved by Young Chang could void your authority to operate the instrument.

IMPORTANT: When connecting this product to accessories and/or other equipment use only high quality shielded cables.

NOTE: This instrument has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This instrument generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this instrument does cause harmful interference to radio or television reception, which can be determined by turning the instrument off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.

- Increase the separation between the instrument and the receiver.
- Connect the instrument into an outlet on a circuit other than the one to which the receiver is connected.
- If necessary consult your dealer or an experienced radio/television technician for additional suggestions.

The normal function of the product may be disturbed by strong electromagnetic interference. If so, simply reset the product to resume normal operation by following the instructions in the manual. If normal function does not resume, please use the product in another location.

NOTICE

This apparatus does not exceed the Class B limits for radio noise emissions from digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communications.

AVIS

Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de la class B prescrites dans le Règlement sur le brouillage radioélectrique édicté par le ministère des Communications du Canada.

SAVE THESE INSTRUCTIONS

IMPORTANT SAFETY INSTRUCTIONS

- 1) Read these instructions.
- 2) Keep these instructions.
- 3) Heed all warnings.
- 4) Follow all instructions.
- 5) Do not use this apparatus near water.
- 6) Clean only with dry cloth.
- 7) Do not block any of the ventilation openings. Install in accordance with the manufacturer's instructions.
- 8) Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
- 9) Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet
- 10) Protect the power cord from being walked on or pinched, particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.



- 11) Only use attachments/accessories specified by the manufacturer.
- 12) Use only with a cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.
- 13) Unplug this apparatus during lightning storms or when unused for long periods of time.
- 14) Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.

Warning: To reduce the risk of fire or electric shock, do not expose this apparatus to rain or moisture. Do not expose this equipment to dripping or splashing and ensure that no objects filled with liquids, such as vases, are placed on the equipment.

To completely disconnect this equipment from the AC Mains, disconnect the power supply cord plug from the AC receptacle.

PROP 65 WARNING:

This product contains chemicals known to the State of California to cause cancer, or birth defects or other reproductive harm.

As with most electronic equipment, the outer cables may contain phthalate and the copper alloy power plug contains lead. Wash hands after handling.

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U.S. Patents 6,806,413, 6,978,288, 8,263,849

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Kurzweil International Contacts

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www.youtube.com/user/KurzweilTutorials

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Chapter 1

Introducing the Forte

Congratulations on your purchase of a Kurzweil Forte® Stage Piano! Keep the manual on hand as you continue to familiarize yourself with the features and functions of your instrument.



Using this Guide with the Forte7

This manual is designed to cover both the Forte® and Forte®7 pianos. These instruments share common features and the term “Forte” is used to cover a description of both. Where there are differences, we use the name “Forte7” to help instruct owners of that instrument.

Introduction

The Forte Stage Piano is the most advanced keyboard to ever bear the Kurzweil logo. Featuring Flash-Play technology and a high resolution color display, the Forte boasts hundreds of excellent preset sounds, with a massive 16GB of ROM and 128 voice polyphony. The Forte’s new sounds are modeled after Steinway Hamburg D and Vintage Yamaha C7 pianos, classic Tine (‘73 and ‘77) and Reed electric pianos, Clavinet D6 (rhythm and treble pickups) and French Harpsichord (five dispositions).

Introducing the Forte

Introduction

The Forte's new piano sounds offer a full range of dynamics, from the most delicate pianissimo to the full-on thunder of the heaviest fortissimo. These piano sounds utilize long unlooped samples allowing for beautiful harmonic interplay between sustained notes.

String Resonance (KSR), mechanical key release and pedal samples provide added realism. The Forte's Piano programs can also be played with "Half Damper" sustain pedal techniques (this requires a continuous switch pedal, see "Connecting a Half Damper Pedal" on page 2-8 for details).

Also included are rich new orchestral percussion instruments such as Celeste, Bells, Glockenspiel, Chimes, and Crotales (hit and bowed).

Forte also includes our fully featured Kurzweil KB3 ToneReal™ organ simulator designed to emulate classic tone wheel organs like the Hammond B3, as well as Farfisa and Vox organs.

The Forte is also a very capable MIDI controller ideally suited to controlling additional sound modules and as input to a sequencer.

Features

- New German & Japanese Grand Pianos (with KSR, Kurzweil String Resonance)
- Classic Tine ('73 and '77) and Reed electric pianos, Clavinet D6 (rhythm and treble pickups) and French Harpsichord (five dispositions)
- New Orchestral Percussion: Celeste, Bells, Glockenspiel, Chimes, and Crotales (hit and bowed)
- Selected sounds from our acclaimed PC3/Artis series & Kore64 expansion
- 16GB ROM used with our highly acclaimed FX Engine
- 3.375GB of user sample memory for loading samples from WAV, AIF, P3K, and K series files
- KB3 ToneReal™ organ simulations with 9 sliders as drawbars (Hammond™ simulation uses 0 voices of polyphony)
- More than 300 Factory Programs divided into 20 Categories
- 3072 User IDs to save your own Programs
- More than 150 Factory Multis
- 3072 User IDs to save your own Multis
- MP3 player audio input jack with FX
- Full 128 voices of polyphony

Keyboard and Controllers

The Forte has an 88-key fully-weighted hammer action keyboard that provides you with a piano-like feel without adding excessive weight to the instrument. The array of physical controllers includes:

- 9 assignable sliders (with LED ladders)
- 9 switches (assignable/zone mutes/KB3 control)
- A pitch wheel
- A modulation wheel
- 1 Variation switch
- 1 Tap Tempo switch
- 2 Transpose switches
- Monopressure (Aftertouch)
- 3 jacks on the rear panel for switch pedals: SW1 (Sustain), SW2 & SW3
- 2 jacks on the rear panel for optional continuous controller pedals: CC1 (Volume) & CC2

Pedals (Optional)

As described above, the Forte has five jacks on the rear panel for optional pedal controllers.

Three jacks for switch pedals, which are typically used to control two-state (i.e., on / off) parameters such as sustain, sostenuto, and soft. A Half Damper pedal (also known as a continuous switch pedal) can be used to allow for “half pedaling” sustain techniques when playing Forte piano programs.

The remaining two jacks are for continuous control (or CC) pedals typically used to control multi-state (i.e., “continuous”) parameters such as volume and wah.

Your Kurzweil dealer stocks the following pedals:

- KP-1 Single piano-style switch pedal
- KP-1H Single piano-style Half Damper pedal
- CC-1 Continuous pedal

Keeping the Forte/Forte7 up to date

Be sure to check the Kurzweil Music Systems website at www.kurzweil.com for new documentation and the latest software updates for Forte. See the Info page in Global mode to check the currently installed OS version. See the software version printed on the front cover of this manual to check which OS and software release it was written for.

Introducing the Forte

Do You Have Everything?

Do You Have Everything?

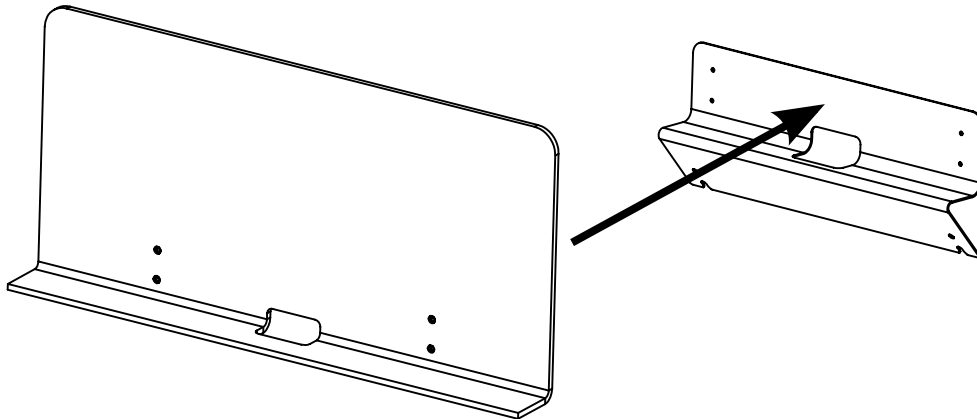
Your Forte package should contain the following in addition to your instrument:

- Power cable
- Switch pedal
- USB cable (Type-A-to-Type-B)
- 4 self adhesive feet (see page 2-1)
- Forte Getting Started manual

If you don't have any of these components, please contact your Kurzweil / Young Chang dealer to get them.

Music Rack (Optional)

The optional KMR2 Music Rack attachment is a holder for sheet music or a computer tablet device. Contact your Kurzweil dealer for the KMR2 Music Rack. Please refer to the instructions that come with the KMR2 on attaching the music rack to the Forte.



Chapter 2

Getting Started

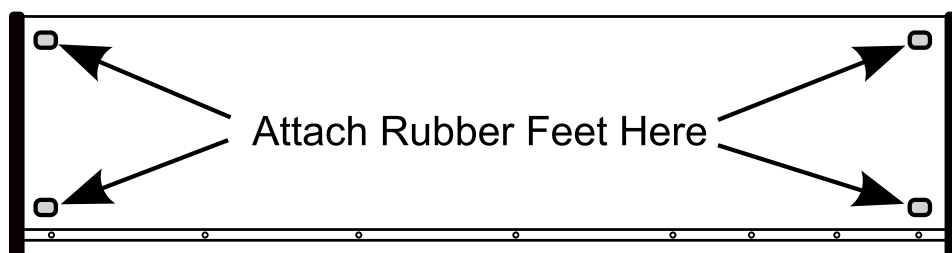
As the excited owner of a brand-new keyboard, you've probably already unpacked your Forte and want to check it out. This chapter will help you to hook the Forte or Forte7 up to both your audio and MIDI systems, give you a quick overview of how it works, and show you how to start making great sounds with your new instrument.

Before You Start...

Don't connect anything until you make sure the Forte is properly and safely situated. If your Forte keyboard has been out in the cold, give it time to warm up to room temperature before starting it, since condensation may have formed inside.

Setting up the Forte

1. Set the keyboard on a hard, flat, level surface.
2. Four adhesive-backed rubber feet are provided with your Forte. Carefully turn the keyboard over onto a soft surface, remove the paper backing from the rubber feet and attach them.



NOTE : Unless the instrument will always be used with a keyboard stand, attachment of the rubber feet is strongly advised. Otherwise protruding screws may scratch the tabletop.

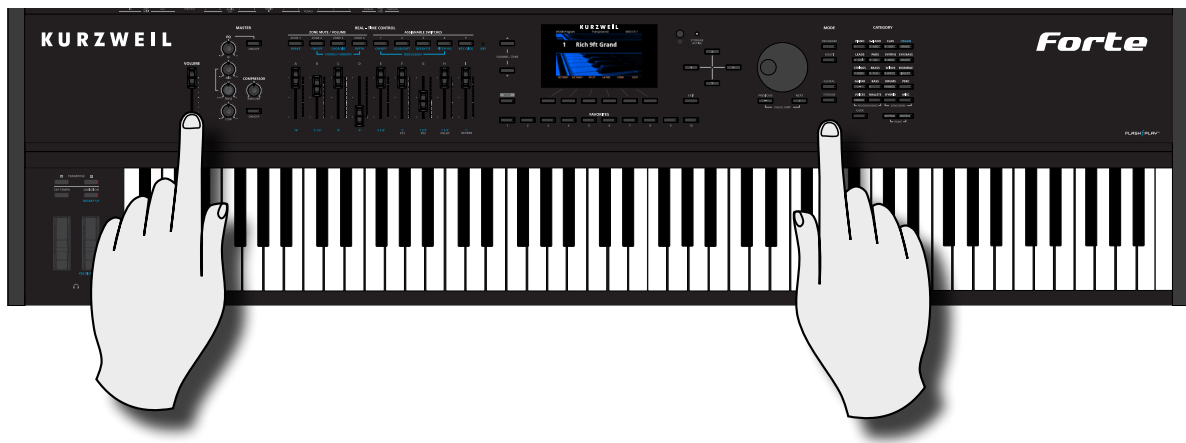
Getting Started

Setting up the Forte

3. Connect the AC power cord to the Forte. Before plugging the cable into a power outlet, check that your power source is compatible with the Forte. The Forte runs on AC power and works with voltages from 100-240 volts at 50–60 Hz. The voltage level is detected and set automatically by the Forte. If your power source does not have the standard three hole outlet, you should take the time to install a proper grounding system. This will reduce the risk of a shock. If your power outlet is not within these ranges it is recommended you use an appropriate adaptor.
4. Plug the power cable into the wall.
5. Plug the Switch Pedal into the marked SW1 (Sustain) Pedal jack on the Forte rear panel.
6. Connect stereo headphones to the headphone jack on the front left panel, or connect the audio outputs to your mixer or amplifier inputs using standard (1/4-inch) audio cables (use the Left out for mono). Balanced (“TRS” or “Stereo”) cables are recommended if your mixer or amp supports balanced inputs.
7. Make sure your sound system is at a safe volume level. Also make sure that the Forte Master Volume slider (on the far left side of the front panel) is all the way down.

Using the Forte/Forte7

1. Power up the Forte using the power switch on the rear left side of the instrument, and then raise the Master Volume slider, and mixer/amp volume. Your Forte keyboard starts up in Program Mode by default. Press one of the buttons under the “Mode” label to the right of the display to switch Modes.



Master Volume Slider

Mode Selection

2. If you are connected to a mixing board and hear distortion, reduce the gain level on your mixing board, or use the pad (*a switch that decreases the input audio signal level, typically by 20dB*) if it has one.
3. To hear the capabilities of the Forte, you can play the demo songs. Press the Hybrid and Misc Category buttons simultaneously to listen to a demo song.
4. In Program Mode, scroll through the Programs using the Alpha Wheel, the Previous and Next buttons, or press a Category button to audition the sounds in the Forte. The Forte has short demos for each of the factory Programs. To hear a Program Demo for the current Program, press the Voices and Mallets Category buttons simultaneously.

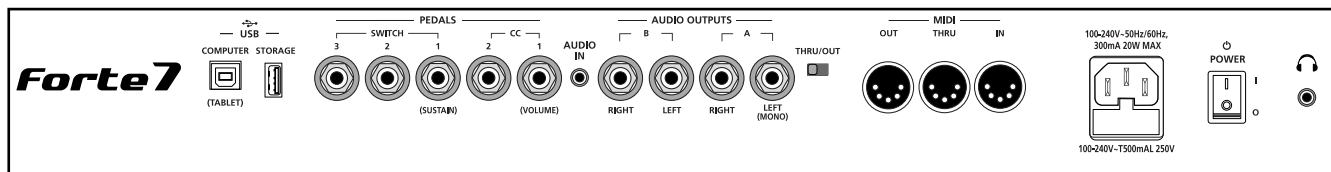
Getting Started

The Rear Panel

The Rear Panel

The power switch and most of the Forte/Forte7 connections are located on the rear panel.

NOTE: The Forte headphone connection is *not* on the rear panel. It is located on the front left side underneath the Pitch & Modulation wheels for easy access.



The AC Power Jack

Please refer to [Setting up the Forte on page 2-1](#).

The USB Ports

Use the “Computer” USB ports to connect the Forte to a computer/tablet in order to do the following:

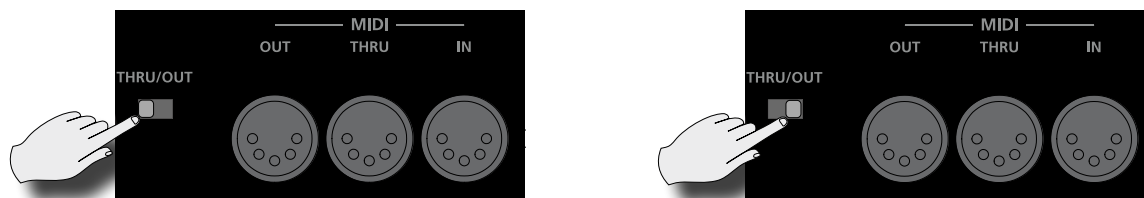
- Use the Forte as a MIDI controller to play software instruments on a computer.
- Use a computer program to sequence multitrack songs on the Forte.
- Use a computer/tablet to manage the user data contents of the Forte.
- Update the software and sounds of the Forte.

Use the “Storage” USB Port to store custom Programs and Multis on a USB flash drive.

Be sure to check the Kurzweil Music Systems website at www.kurzweil.com for new documentation and software updates before using your new instrument.

The MIDI Ports (IN / THRU / OUT)

Use the MIDI ports to communicate with other MIDI modules and controllers. The Out port is the MIDI transmitting port, and the In port is the MIDI receiving port. Use the Thru port to pass MIDI data through the Forte to other instruments or modules.



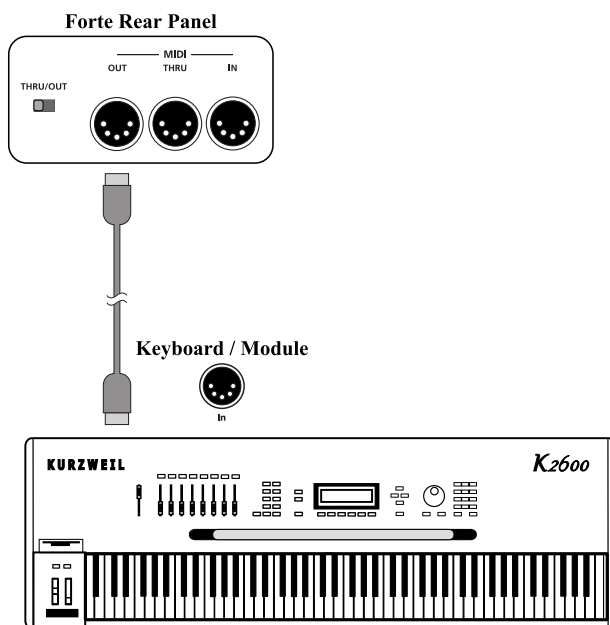
By sliding the switch on the rear panel from Thru to Out, the Forte sends MIDI Out messages on both the Thru and Out ports. The USB ports can also be used to transmit MIDI messages.

Basic MIDI Hookup

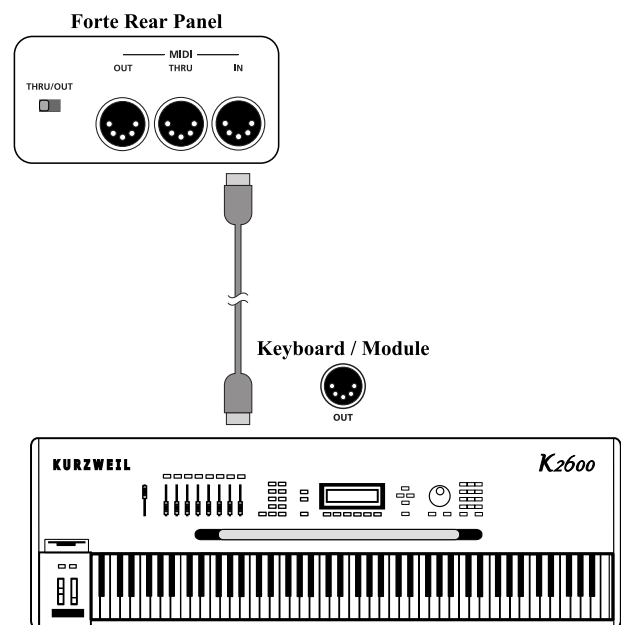
To use the Forte as a MIDI controller for another sound module, use a MIDI cable to connect the MIDI port marked “OUT” to the MIDI input port of the module that you want to control.

To control the Forte using another MIDI controller, use a MIDI cable to connect the MIDI port marked “IN” to the MIDI output port of the controller that you will be using.

Using Forte MIDI Out



Using Forte MIDI In



Connecting More Sound Modules

In order to connect multiple sound modules to be controlled by a single MIDI controller, the Forte can either be :

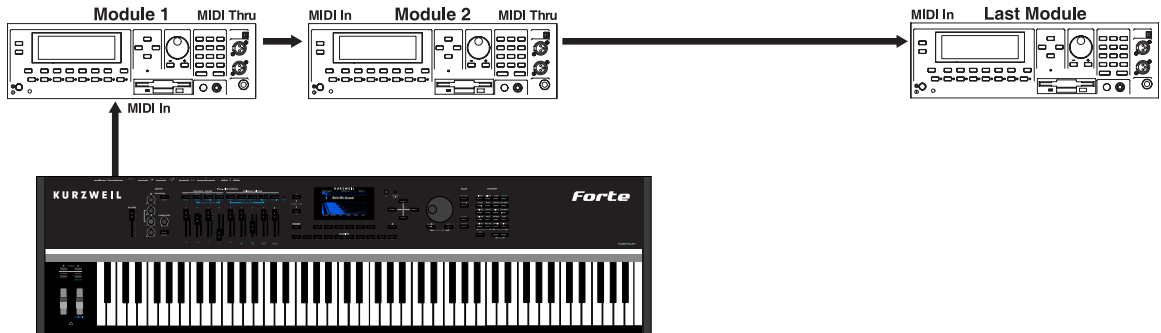
- (1) Used as the controller.
- (2) Or as a module in the MIDI daisy chain.

If the Forte is in the middle of the MIDI daisy chain, ensure that the MIDI Thru/Out selector is set to Thru.

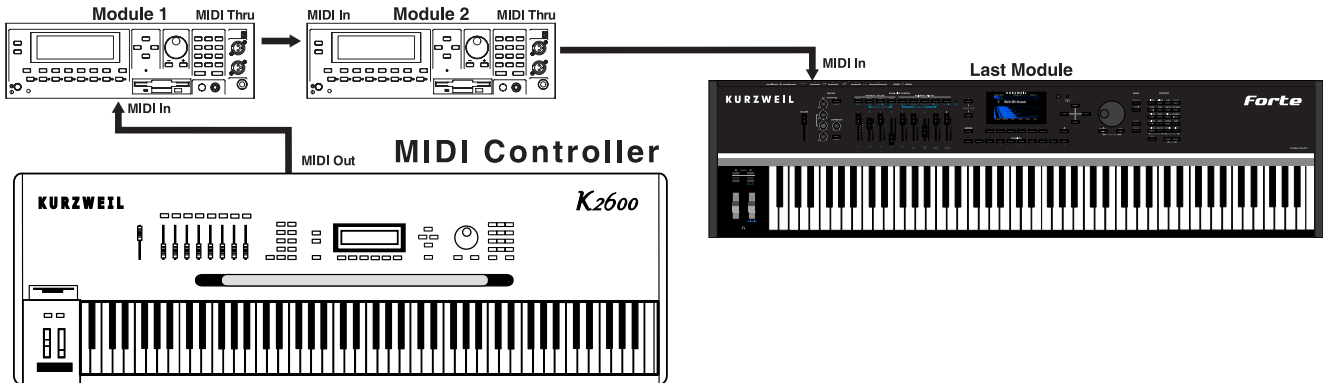
Getting Started

The Rear Panel

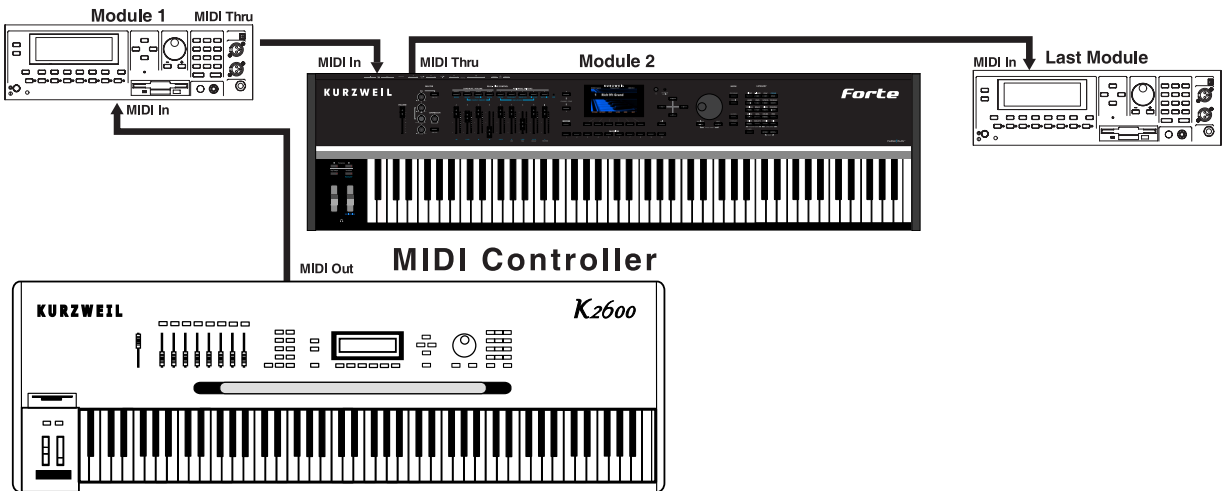
Scenario 1: Forte as the MIDI controller



Scenario 2: Forte as the last module in the MIDI chain

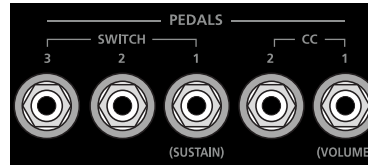


Scenario 3: Forte in the middle of the MIDI chain



The Pedal Jacks

Use the five pedal jacks to connect controller pedals to the Forte.



Although optional Kurzweil pedals are recommended, it is possible to use most switch or controller pedals that adhere to the following specifications.

Switch Pedals	1/4 inch tip-sleeve (mono) plug
Continuous Control (CC) Pedals	10-kOhm linear-taper potentiometer, 1/4 inch tip-ring-sleeve (stereo) plug with the wiper connected to the tip.

Pedals are all independently assignable within each Zone of every Multi.

On the back panel the Pedals are labeled as SWITCH 1/2/3, corresponding to the SW 1/2/3 labelling on the top panel. In this manual the Switch Pedals will be referred to as per the top panel (SW1, SW2 and SW3).



Here are the default control settings for the five pedals used by the Forte:

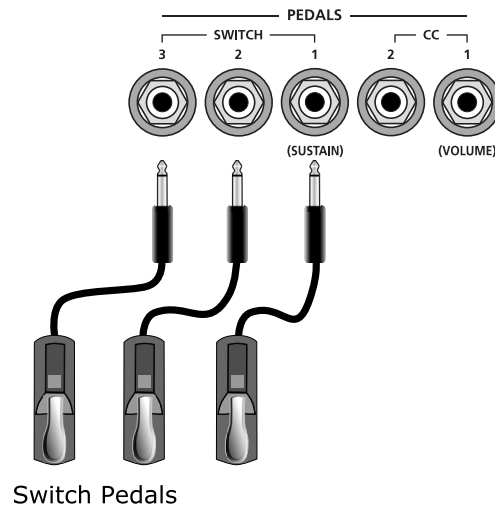
Switch Pedal 1 (SW1)	Sustain (MIDI 64)
Switch Pedal 2 (SW2)	Sostenuto (MIDI 66)
Switch Pedal 3 (SW3)	Soft (MIDI 67)
CC Pedal 1 (CC1)	Expression (Volume) (MIDI 11)
CC Pedal 2 (CC2)	Foot (MIDI 4)

The SW1 (Sustain), SW2 and SW3 Jacks

Use the pedal jacks to connect switch pedals. A switch pedal is a physical controller typically used to control two-state (i.e., “on / off”) parameters, such as sustain, sostenuto, soft and Mute Zone.

Getting Started

The Rear Panel



NOTE : Do not step on the switch pedals when powering up the Forte, as the state of the pedal is detected as part of the power up sequence.

The Forte supports a single switch pedal or half-damper pedal on each of the SW1, SW2 and SW3 jacks.



NOTE : Pugging CC pedals into the SW inputs is not recommended. Due to the flexible switch pedal support, CC pedals may not operate as expected in these inputs.

If you are not using a Kurzweil switch pedal, make sure it's connected before you turn on the Forte. This ensures that the pedal will work properly (it might function in reverse—off when it's down and on when it's up—if you turn on your Forte before plugging in the pedal). Similarly, don't press any of your switch pedals while powering up, as the Forte verifies each pedal's orientation during power-up. If you're pressing a pedal, you might cause it to work in reverse.

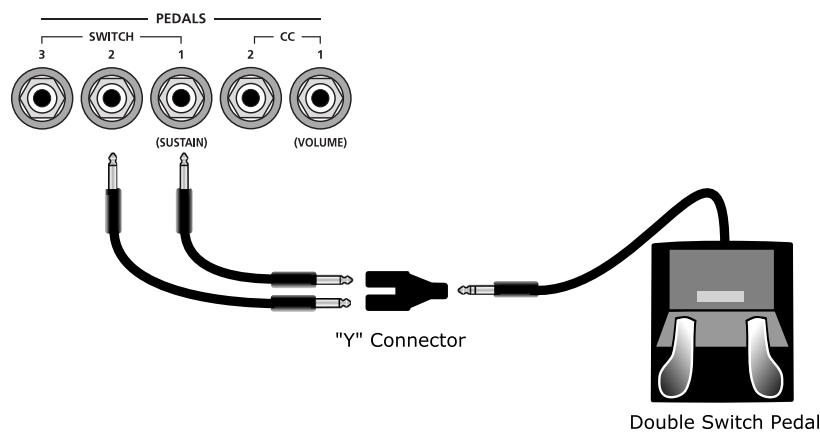
Connecting a Half Damper Pedal

Half Damper pedals where the wiper is connected to the tip (such as the Kurzweil KP-1H) can be connected to the SW1, SW2, and SW3 inputs on the rear panel. Some pedals have the wiper connected to the ring, and these pedals will require an adaptor to work with the Forte. When connected to the SW1 jack, a Half Damper pedal enables finer control of

sustain than a standard switch pedal. Half Damper control is enabled for programs in the Piano category. Programs outside of the Piano category will respond to Half Damper pedals as if they are standard switch pedals. Half Damper pedals can also be used to control external software and sound modules via MIDI.

Connecting a Dual Switch Pedal

You can connect a dual switch pedal with a single stereo plug, such as the Kurzweil KFP-2S, into the SW1 and SW2 jacks. You will need a Y adapter with a stereo ¼-inch jack and two mono ¼-inch plugs. Plug the Y adapter into the SW1 and SW2 jacks, then connect the dual switch pedal to the Y adapter. If the Sustain and Sostenuto functions are swapped, then swap the two mono plugs.



If you're not familiar with traditional piano technique, the sostenuto (center) pedal on a grand piano allows one to hold chords in the bass while continuing to play the melody without the latter notes sustaining. Any keys that are down when you depress the pedal will sustain when you let go of the keys, but new notes played afterward will not be sustained. Releasing the pedal puts things back to normal. Of course it can be programmed to do other functions as well.

The CC1 (Volume) and CC2 Jacks

Use the CC pedal jacks to connect continuous control (or CC) pedals. A CC pedal is a physical controller typically used to control multi-state (i.e., “continuous”) parameters such as volume or wah.

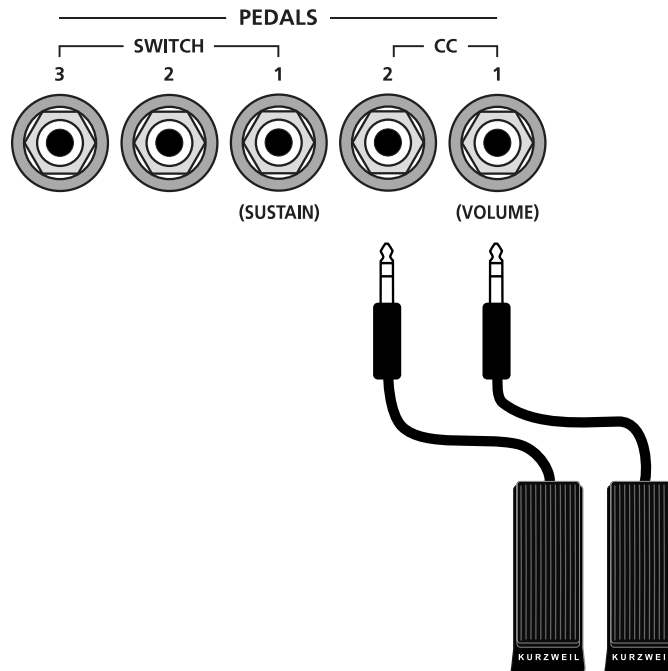
The Kurzweil CC-1 continuous control pedal will work best with Forte, but it is also possible to use some third-party continuous control pedals designed for synthesizers.



NOTE : Only CC pedals should be connected to the CC pedal input.

Getting Started

The Rear Panel



Continuous Control Pedals

The Audio Jacks (A & B Audio Outputs)

Please refer to [Connecting to Your Audio System](#) below.

The Headphones Jack

Use the Headphones jack to listen to the Forte on stereo headphones. The headphone jack is located at the front left of the instrument, under the Pitch & Modulation wheels.

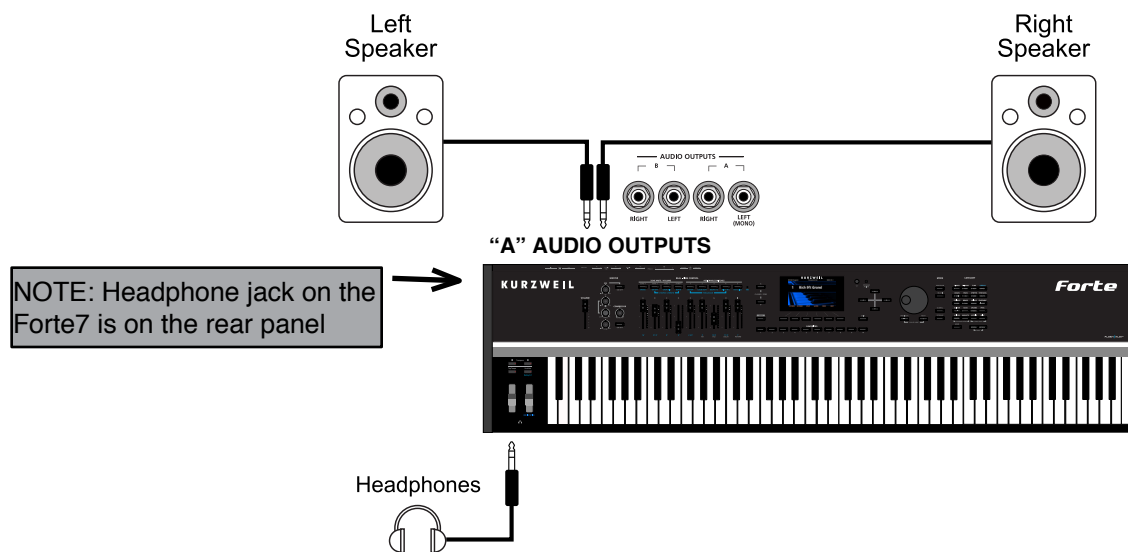
You will need a 1/8-inch-to-1/4-inch adapter in order to use headphones that have a smaller mini plug connector.

Connecting to Your Audio System

After you've turned down the level on your sound system, connect the Forte analog audio outputs to your sound system using a pair of balanced (TRS or "stereo") or unbalanced (TS or "mono") audio cables. Unbalanced cables will always work, but if you're going into balanced inputs, use balanced cables for a better signal-to-noise ratio and a bit more volume. The Forte analog outputs are balanced.

You'll find four 1/4-inch balanced audio output jacks on the rear panel, the "A" Audio Output pair and the "B" Output pair. Connect one end of each audio cable to the "A" Audio Output jacks found on the rear panel of the Forte marked "Left (Mono)" and "Right," and the other end to your mixing console or PA system inputs. If you have only one input available, use the Forte's Left (Mono) output to get the full signal in mono. Use the jack marked Headphones (located on the front/left of the instrument) to listen to Forte on headphones. When headphones are plugged in, sound still comes through the Left and Right audio jacks.

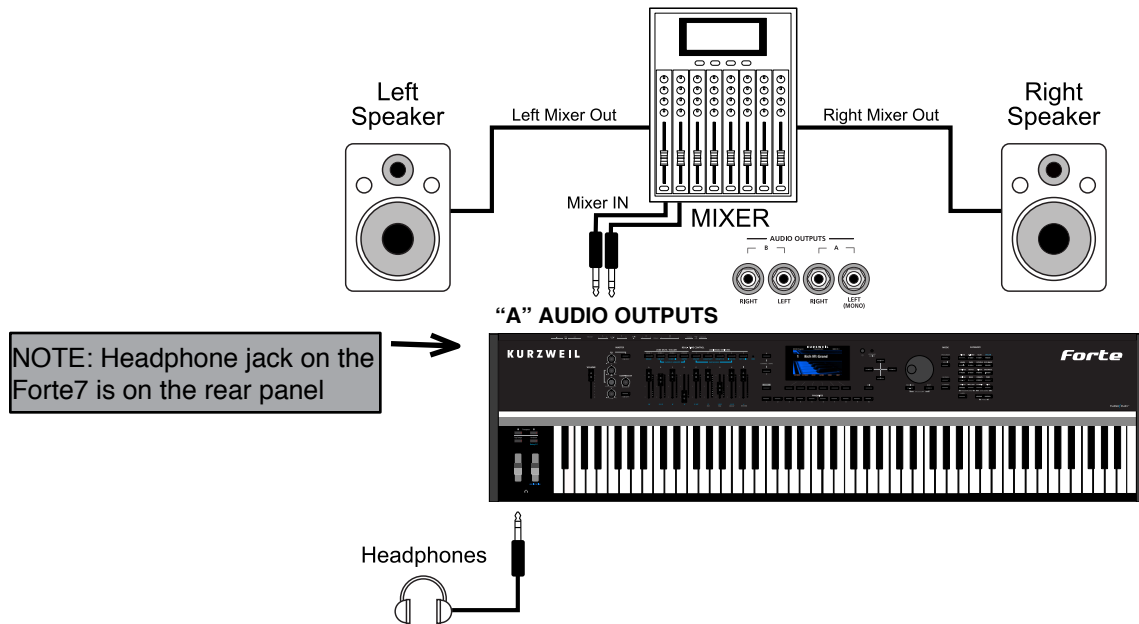
Forte connected to powered speakers and headphones



Getting Started

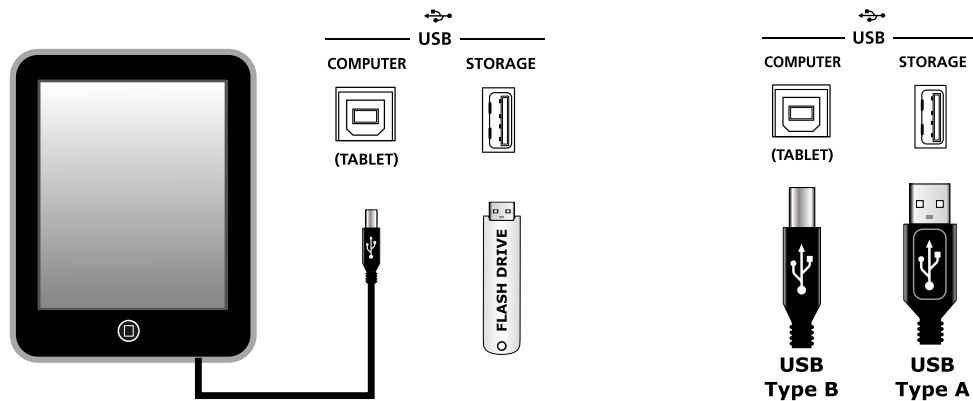
Connecting to Your Audio System

Forte connected to a mixer, powered speakers and headphones



Connecting to a Computer

To connect the Forte to a computer/tablet, simply connect the provided USB cable from the Forte's USB Computer (Tablet) port to a USB port on your computer. If you wish to use your own cable, make sure that it is a Type-A-to-Type-B USB cable (the USB Computer (Tablet) port of Forte being Type B).



NOTE : Some devices like the iPad® will require you to purchase adaptors to connect a USB cable.

Selecting Programs and Multis

The Forte supports two types of sounds. The first type is a Program, and these are normally a single instrument, such as a piano, or an organ. A Program is similar to a “preset” or “patch” on other synthesizers. The Forte has an extensive range of factory Programs, and additional memory for further user Programs. Both factory and user Programs are arranged into 20 categories.

The other type of sound is the more complex Multi. A Multi is a combination of Programs arranged as layers and splits across the keyboard. They are similar to setups, from the Kurzweil PC series, SP series and K2 series, and are similar to Combis or Multis from other synthesizers. The Forte has a range of factory Multis and additional memory for further user Multis.

The Forte has been designed so that it is quick and easy to select Programs and Multis from the front panel.

Use the following guide to audition the factory sounds on the Forte.

Selecting Programs

The Forte always powers up in Program Mode, with selection by Category as the default. Use the Alpha Wheel or Previous/ Next buttons to browse programs in the current category. Each Category has a factory default program, generally the first in each Category. However, the user can set the Category default by selecting the desired program, pressing and holding the current Category button for a few seconds until the display indicates that the Category default program has been saved.

You can also enter specific program numbers in Keypad mode by pressing the Keypad button (the Keypad button LED will light) beneath the Category section. In this mode the Category buttons function like a standard alphanumeric keypad. In Keypad mode the list of Programs is sorted by ID number only, instead of by Category and ID. Using the Alpha Wheel or Previous/ Next buttons will select the previous or next used Program ID, regardless of category. To exit Keypad mode press the Keypad button again. The Keypad LED will turn off and the Forte reverts back to Category mode.

Another useful feature in the Forte is the ability to access a short demo song for the currently selected Program by Pressing the Voices and Mallets Category buttons simultaneously.

To return to Program Mode from a different mode, simply press the Program Mode button.

In Program Mode, pressing a Category button will select a Category Default Program for that Category. The Category Default Program can be set by the user for each Category. By default the Forte has the Category Default Program for each Category set to the first Program of each Category. To change the Category Default Program, first select the desired Program. Next, press and hold the Category button of the currently selected Category for a few seconds until the display indicates that the Category Default Program has been saved.

Selecting Multis

To play a Multi, simply press the Multi Mode Button and the Multi Mode Button LED will light. Use the Alpha Wheel or Previous/Next Buttons to browse Multis, or enter a Multi ID number by using the Category buttons as a numeric keypad. Multis are not categorized, so the Keypad button's LED is always lit in Multi Mode and the Category buttons will always function as a numeric keypad.

User Programs and Multis

In Program or Multi Mode, press the User button to view User edited Programs or Multis that you have saved or loaded to the Forte. The LED on the User button will light, you can then use the Alpha Wheel or Previous/Next buttons to scroll through only user Programs or Multis. Press the User button again to stop viewing only user Programs or Multis, or press a Category button or use keypad mode to enter a factory ID number.

Controller Info

The Sliders, Wheels, Pedals and Switches can control each of the factory Programs and Multis, to produce variations to the sound. When one of these controls is used the Forte LCD will display information about the parameter that control is assigned to. Don't forget to try out these controls as you explore the factory sounds on the Forte.

Favorites

The Forte also features Favorites Buttons to quickly recall your favorite sounds. The Favorites buttons store a set of 10 Programs and/or Multis. To assign the currently selected Program or Multi to a Favorites button, press and hold the desired Favorites button for a few seconds until the display indicates that the Favorite has been saved. To recall a Favorite Program or Multi, simply press one of the Favorites buttons. The Favorites buttons will work from whichever mode you are currently in, changing to Program Mode or Multi Mode automatically if required.

To view the names of Programs and Multis stored as favorites, press the View soft button until you see the Favorites listed at the bottom of the display. You can also access additional Banks of 10 Favorites each when User Type is set to Advanced. See [Favorites View and Favorites Banks on page 6-9](#) for details.

Modes

The Forte has six main modes; Program Mode, Program Edit, Multi Mode, Multi Edit, Global Mode and Storage Mode.

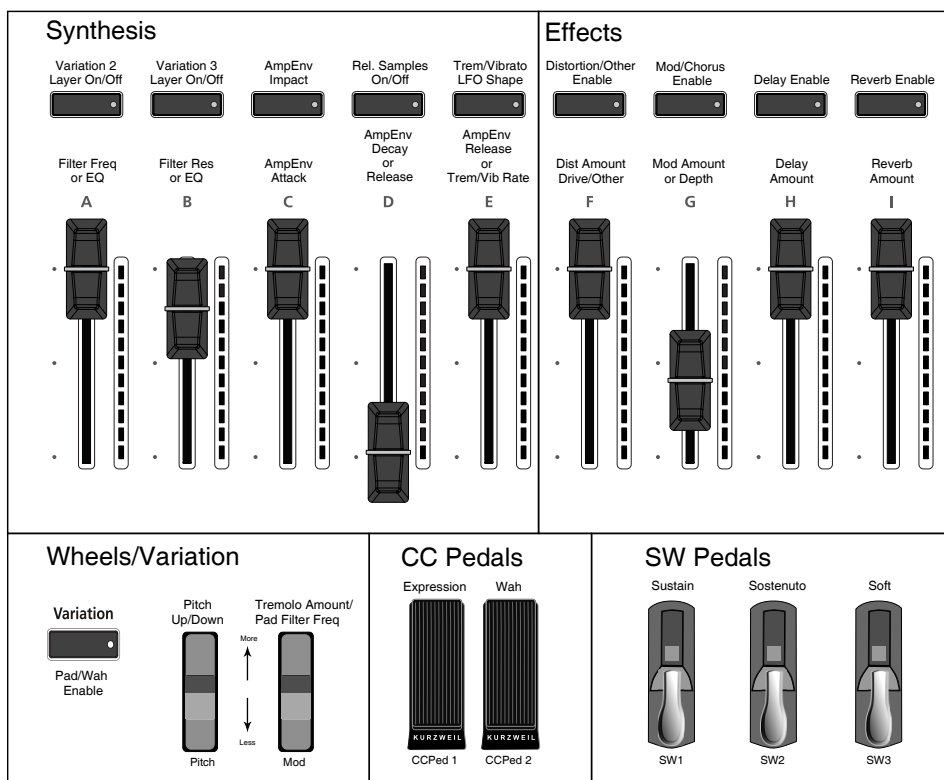
Program Mode

The Forte always powers up in Program Mode, and this is where single sounds can be played straight from the keyboard, or multitimbrally via MIDI.

Controller Conventions

Generally the factory Programs have the following controllers assigned.

Forte Controller Conventions



Saving Programs

If you make changes to the current Program using any of the controllers (Sliders, Wheels or Switches), the Save button's LED lights to indicate that a change has been made to that Program. The Save button is located left of the display. To save a copy of the Program with the changes you've made, press the Save button once. The Save button's LED begins to blink and it calls up the Save Dialog. The Save Dialog allows you to choose an ID number and name that will be associated with the program you are saving.

Splits and Layers

Programs can be Split into Multis, so that keys in one region of the keyboard play a different program than another region. Programs can also be Layered into Multis, so that more than one Program can be played by striking one key. Press the Split or Layer soft button to create a Split or Layer Multi containing the current Program. You will then be able to add up to three additional programs to create a Split or Layered Multi containing up to four Programs.

Program Edit Mode

Program Edit Mode allows you to change the parameters of a Program and save a customized version as a user Program. Synthesis and effects parameters can be edited or assigned to controllers. Also, Insert and Aux effects Chains can be selected.

Multi Mode

Multi mode allows you to play Multis, which are arrangements of up to 4 Programs split and/or layered in Zones across selected ranges of the keyboard (up to 16 Zones when Global Mode User Type is set to Advanced). The volume of the Program in each Zone can be easily adjusted while you are playing by using sliders A through D, and each Zone can be muted and enabled by using the Zone Mute buttons above these sliders. You can create custom assignments for the remaining sliders, buttons and foot controllers to control effects and synthesis parameters of each Program.

Multi Edit Mode

Multi Edit Mode is used to modify the many parameters that make up Multis, including Program Selection, Volume, Pan, Controller assignments, effects and the layering and split options. Multi Edit Mode allows for powerful customizations of the many built in sounds available on Forte and allows you to make new and unique sound combinations for your own performances and compositions.

Global Mode

Global Mode gives you access to the global parameters of the Forte. It allows you to edit the master settings of the unit. It also allows you to restore factory defaults on the unit by performing a Hard Reset. Some of the more common settings are summarized below.

MIDI Settings

MIDI channels, modes and other parameters related to transmitting and receiving MIDI are set within the MIDI pages.

Getting Started

Updating the Forte/Forte7

Info

The Info page displays the currently installed operating system and object versions. Use this page to check if your Forte is up to date with the most recent software and sounds posted at kurzweil.com.

System Reset

In the unlikely event that something goes wrong with the settings or software of your Forte, or if you just want to start fresh, you can return the Forte to the factory default state by doing a System Reset.



NOTE : System Reset will erase ALL of the USER Programs and Multis, so it is important to back up your sounds before attempting to reset Forte. Factory Program/Multis are not affected.

Storage Mode

Storage Mode facilitates loading and saving objects for the Forte.

Saving to External Storage

Programs and Multis that you have created can be saved to a USB Flash Drive or a computer/tablet.

Loading from External Storage

Programs and Multis can be loaded onto the Forte from USB Flash Drives or a computer/tablet. This allows you to load new sounds from Kurzweil or other developers, or to load sounds that you have previously saved.

Updating the Forte/Forte7

Please check online at www.kurzweil.com for Forte updates. Detailed instructions on updating the Forte are available with the update package. It is important that these instructions are followed closely for trouble free updating of the Forte. See the software version printed on the front cover of this manual to check which OS and software release it was written for. See the Tools page in Global mode ([INFO on page 12-28](#)) to check the currently installed OS version.

Chapter 3

Features of the Forte and Forte7

This chapter will help familiarize you with the features of the Forte. Many of these features have both general functions and mode-specific functions. For more in-depth descriptions of these features, refer to the chapters on the individual modes.

Power Up Defaults

Powering up the Forte always resets the Transpose setting to 0 steps. (This is the transpose setting controlled by the Transpose buttons above the pitch and mod wheels, or with the OCTAVE- and OCTAVE+ soft buttons on the Program and Multi mode main pages. This does not apply to the Transpose parameter on the Global Mode Main page).

Other parameters can have their settings saved as power up default settings. Settings for the following parameters can be saved as power up default settings by pressing the Exit button while in Global Mode:

- Currently selected MIDI Channel in Program Mode.
- Currently selected Program per MIDI Channel in Program Mode.
- Currently selected Multi.
- Display View Mode.
- Master EQ & Compressor switch settings.
- Global Mode parameters.

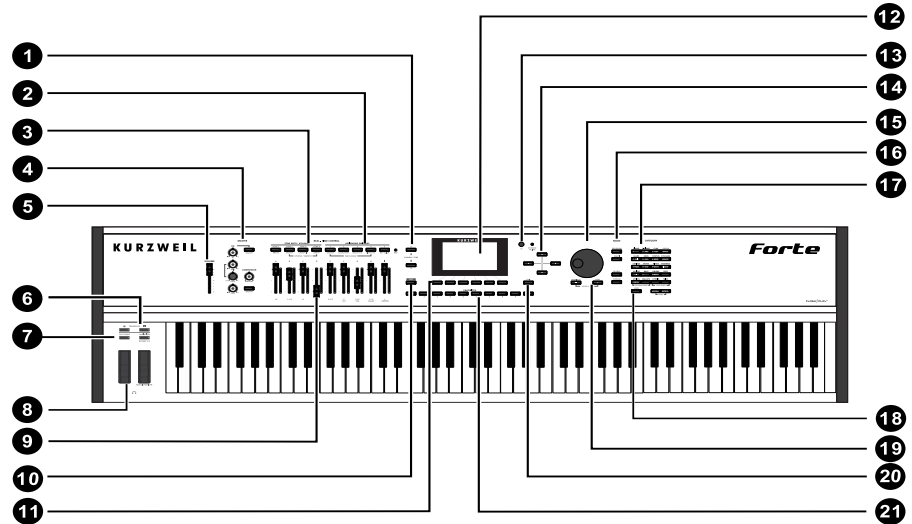
Features of the Forte and Forte7

The Front Panel

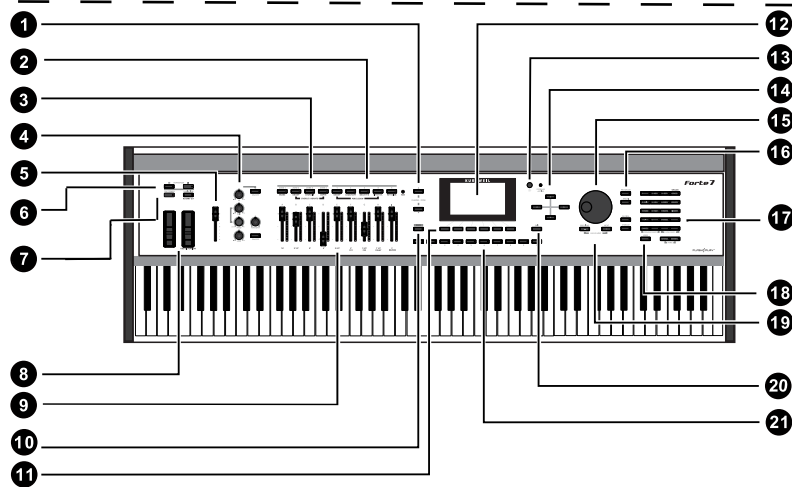
The Front Panel

All the controls for Forte and Forte7, both musical and navigational, are on the front panel.

Forte[®]



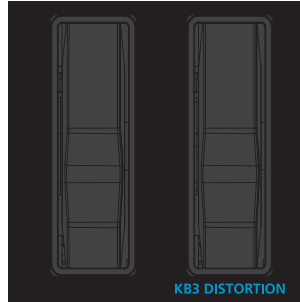
Forte7[®]



1	Channel/Zone buttons
2	Five programmable switches
3	Multi Zone mute buttons
4	Master EQ/Compressor
5	Volume slider
6	Transpose buttons
7	Tap Tempo & Variation buttons
8	Pitch & Modulation wheels
9	Nine programmable sliders
10	Save button
11	Soft Buttons

12	LCD display
13	LCD brightness adjust
14	Navigation Buttons
15	Rotary dial (Alpha wheel)
16	Mode buttons
17	Category buttons
18	User button
19	Previous/Next buttons
20	Exit button
21	Favorites buttons

Pitch and Modulation Wheels



Pitch Wheel

The Pitch Wheel is the left most of the two wheels. It is spring-loaded, such that its center position is restored when it is not being used. That is because the Pitch Wheel is used for pitch-bending notes—its “off” position is in the center. Pushing the Pitch Wheel up bends the pitches of all notes up. Pulling the Pitch Wheel down bends the pitches of all notes down.

For some Programs the Pitch Wheel will not bend notes that are held by the sustain pedal. This is how many Guitar and Bass Programs are configured, allowing played notes to be bent over sustained notes.

For User Programs, you can program the bend amount for the Pitch Wheel using the BendRange Up and BendRange Down parameters on the EDIT: [The COMMON Page on page 7-18](#).

For User Multis, you can program the bend amount for the Pitch Wheel using the Bend Up ST/Bend Up Ct and Bend Down ST/Bend Down Ct parameters on [page 11-13](#).

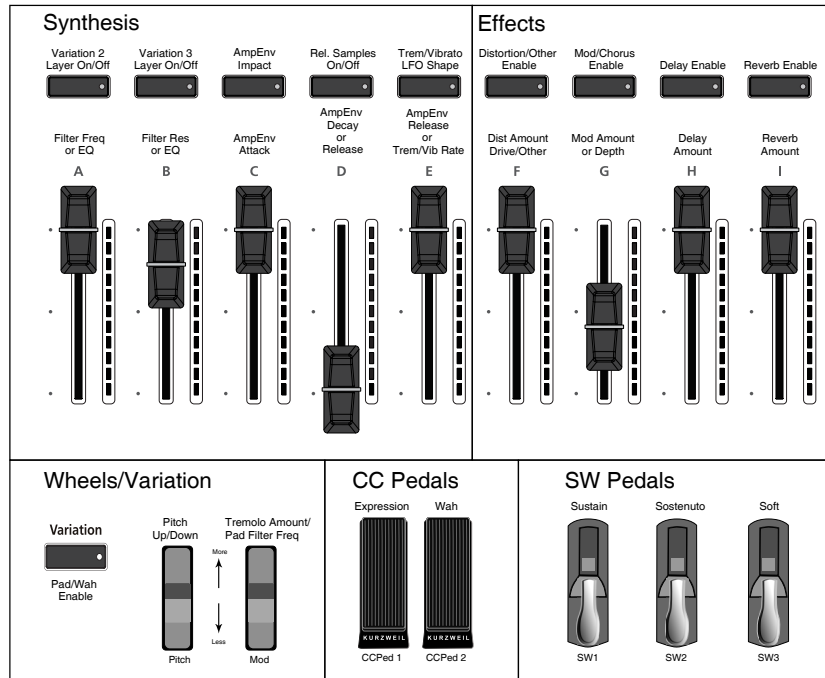
Modulation Wheel

The Modulation Wheel is the right most of the two wheels. Unlike the Pitch Wheel, the Modulation Wheel is not spring loaded, and can be set to and left in any position between fully up and fully down. Typically, the Modulation Wheel is assigned to a parameter that alters some aspect of the sound (e.g., vibrato, filter depth) when changed.

When a KB3 Program is in use, the Modulation Wheel is assigned to control distortion.

Real Time Control

Forte Controller Conventions



Sliders

The nine sliders on the left of the front panel are assigned to control different sound parameters and effects for each Program. In Multi Mode, Sliders A-D default to controlling volume for Zones 1-4. The sliders can also send MIDI continuous controller values to external MIDI equipment. Each slider has a handy visual LED ladder that indicates its current setting when a new Program or Multi is selected.

In Program Mode, most programs have Slider A assigned to a filter or EQ parameter in order to control the brightness of the sound. In all Programs and most Multis, Slider I controls reverb amount, while Slider H usually controls a second effect, such as delay/echo amount. The remaining sliders have different assignments depending on the selected Program/Multi. See the Controller Conventions diagram above for controller assignments commonly used by Programs. Moving a slider will briefly show the assignment name in the display. In Program mode, press the Edit soft button to view the Parameters page, where you can view a list of controller assignments for the current program. All Program Slider assignments can be changed in Program Edit Mode.

If you select a KB3 Program, the nine sliders act like tonewheel organ drawbars. The labeling below the sliders applies to the KB3 Programs, indicating the drawbar registers that are modified by the slider.

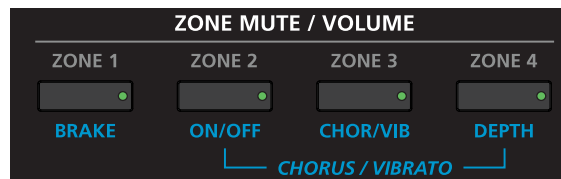
For KB3 Programs, the sliders operate in a similar way to a Hammond organ, i.e. pulling the slider towards you increases the drawbar amount. To help illustrate this, the Forte inverts the LED ladders to indicate the drawbar (slider) position.

For standard Programs the sliders have the minimum value when they are towards the player and maximum value when they are pushed away from the player.

LED Ladders

The LED Ladders show the current value of the slider. When you change Programs or Multis the LED Ladders show the default value of the parameter assigned to the slider, which may differ from the current physical position of the slider.

Zone Mute/Volume Buttons



Zones are the independent regions of the keyboard that make up a Multi, for additional information see [About Zones on page 10-6](#).

Pressing a Zone button will mute or unmute the Zone. An active/unmuted Zone button has a lit green LED. The LED of an inactive/muted Zone button is not lit.

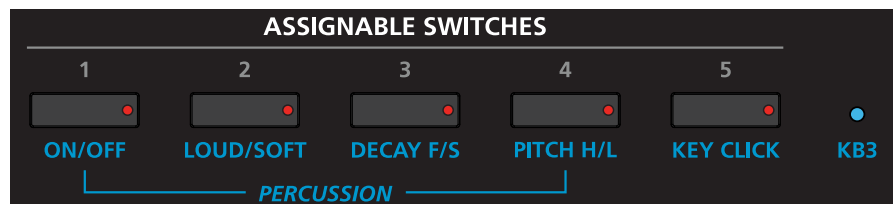
In Program Mode the Zone buttons can be used as additional switches to control parameters of a Program. They are identified in the Program PARAMS page as zone switches. When active in Program Mode it has a lit red LED. When inactive, it is not lit.

Switches

In Program Mode, the five Switch buttons are pre-assigned to change the sound in different ways. Factory programs generally use these switches to enable effects. Switch assignments can also be changed in Program Edit mode.

In Multi Mode, you can assign the Switch buttons to control Program and effects parameters, or send MIDI CC messages to external equipment.

The Switch Button LEDs illuminate red when the switch is active.

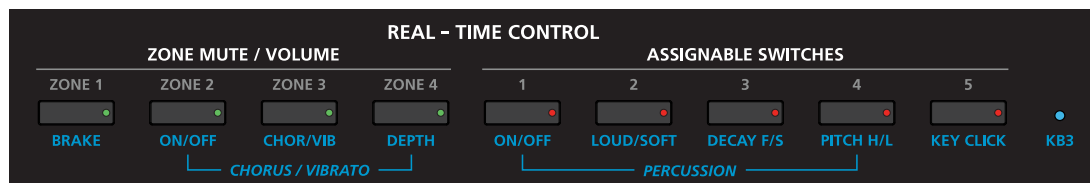


Foot Switches and Controllers

The Forte can support up to 3 Switch or Half Damper pedals as well as 2 Continuous Controller (CC) pedals. By default the Switch pedals control Sustain, Sostenuto, and Soft Pedal. The CC pedals control expression (program volume) and wah (if applicable) by default. Each pedal can also be assigned to a different function per Program or per Multi zone, or a Global mode pedal override can be set to change the default pedal functions for all Programs/Multis.

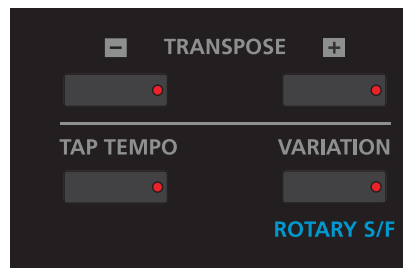
KB3 Buttons

For KB3 Programs, these buttons manipulate the KB3 sound, as per the blue labels below the button. When the LED of the button is red, the KB3 function is active.



Transpose Buttons

The Transpose and Variation buttons are located at the very end of the left side of the Forte keyboard, just above the Pitch & Modulation Wheels.



The Transpose buttons can be used to change the tuning of notes played on the Forte keyboard in semitones (ST), also known as half steps. This is a convenient way to change the key of a song without learning to play it in a different key. The Transpose buttons are located to the left of the keyboard, above the Pitch and Mod Wheels. The Transpose buttons also transpose MIDI notes sent to the USB and MIDI out ports.

Press the Transpose - or + buttons to transpose the Forte keyboard down or up by one semitone. The top line of the display shows the current transposition value. Pressing both Transpose - and + simultaneously will reset the transposition to 0. To transpose up and down by octave intervals (12 ST), press the OCTAVE- and OCTAVE+ soft buttons underneath the display.

The maximum transposition value possible is ± 36 semitones.

The LEDs of the Transpose buttons indicate whether the current Program is transposed up (Transpose + LED is lit) or transposed down (Transpose – LED is lit). When there is no transposition, neither Transpose button is lit.

Variation Button

The Variation Button is a MIDI controller (default MIDI CC#29) that is programmed in most Programs to modify the sound, such as adding a pad sound, changing the effects or some other variation suited to changing with a switch.

For KB3 programs, the Variation Button controls the Rotary Speaker speed, switching between fast and slow.

Tap Tempo Button

The Tap Tempo button is a dedicated button you can use in any mode to set the Forte's tempo. When the button is being tapped to set the tempo, a message appears on the screen indicating the current tempo. The message will disappear after a few seconds. The Tap Tempo button is useful for controlling the rate of tempo synced effects, such as Delay. Many factory Programs use effects Chains containing tempo synced effects.

Save Button

The Save button is located beneath the “Save” label on the left side of the LCD screen.



In Program Mode, pressing the Save button saves the current position of the sliders, switches and wheels as a User Program. (See Save User Programs on [page 6-20](#).)

In Multi Mode, pressing the Save button saves a copy of the current Multi. The copy is saved with the states of the Multi Zone Mute buttons but does not include the current state of the physical controllers (i.e. moved Sliders, Mod Wheel etc.). Other controller states can be edited in Multi Edit Mode. (See Saving a User Multi on [page 10-16](#).)

The Save button's LED is illuminated once you have made changes to the current Program or Multi to indicate that the Program or Multi has changed.

Master EQ & Compressor

Master EQ

The Master EQ allows you to have realtime control over the frequency response of all audio generated in either Program or Multi Modes. When the Master EQ On/Off button is “On”, the rotary knobs can change the high, middle and low frequencies of the audio.

If the LED on the Master EQ On/Off button is lit, this indicates that the Master EQ section is now “on”.

The HI and LOW EQ’s are shelving type filters, and the MID has an adjustable center frequency with a range of approximately 2 octaves up and down centered around approximately 1.4 kHz

	Frequency	Gain
HI	~6.6 kHz	-24dB to +15dB
MID*	~1.4 kHz	-24dB to +15dB
LOW	98 Hz	-24dB to +15dB

* center of range

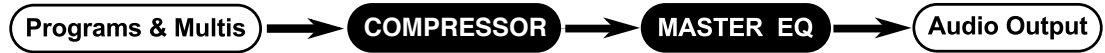


Compressor

Use the Master Compressor to add compression to all audio generated in either Program or Multi Modes. Press the Compressor On/Off switch to enable the master compressor. If the LED on the Master Compressor On/Off button is lit, this indicates that the Master Compressor is now “on”. Turn the Compressor knob to adjust the amount of compression (left is minimum, right is maximum).

Generally, a compressor listens to an audio input signal and outputs a continuously volume adjusted version of the input signal. A small amount of compression can help a sound to blend with a band or other instruments by making the volume of each note more consistent. Large amounts of compression act more like a special effect, reducing the attack volume of notes, and increasing the decay, sustain and release volume of notes.

The Master EQ and Compressor are arranged in the signal chain as per the diagram below. While it is not possible to swap the order of the compressor and Master EQ either or both of these effects can be bypassed by using the relevant On/Off button.

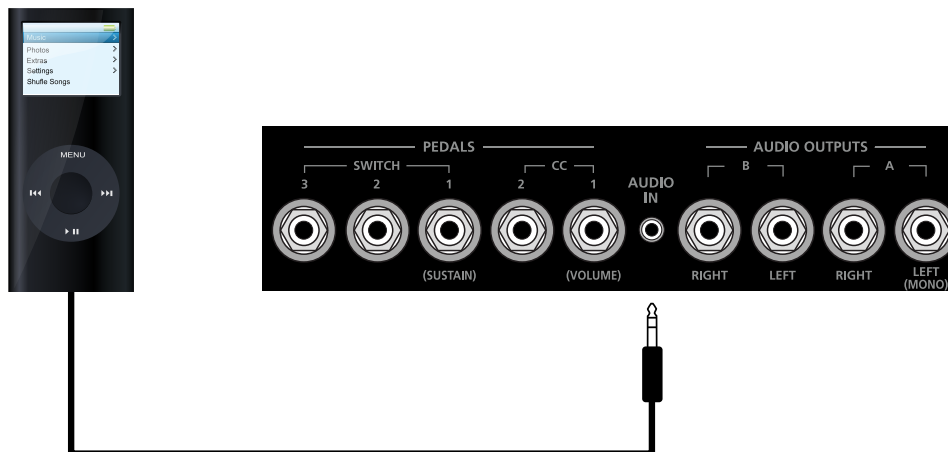


Features of the Forte and Forte7

Audio In

Audio In

On the back panel of the Forte you will find a 1/8" sized stereo audio jack labelled AUDIO IN.



You can plug your MP3 player into the Forte and play along with the recorded music. Volume and FX can be adjusted on the Global Mode MAIN1 page.

Mode Buttons

The Mode buttons are located beneath the “Mode” label on the right side of the Forte front panel.



Program Button

Pressing the Program button enters Program Mode (described in [Program Mode on page 5-1](#) and, in further detail, in [Program Mode on page Ch. 6 Program Mode](#)). In Program Mode, you can select and play different sounds (or “Programs”). This button’s LED is illuminated when you are in Program Mode. Program Mode is the default Mode — the Forte always boots up in this Mode.

Multi Button

Pressing the Multi button enters Multi Mode (described in [Multi Mode on page 5-2](#) and, in further detail, in [Ch. 10 Multi Mode](#)). In Multi Mode, you can select different configurations of Programs, controller assignments, and MIDI channel assignments.

This button’s LED is illuminated when you are in Multi Mode.

Global Button

Pressing the Global button enters Global Mode (described in [Global Mode on page 5-3](#) and, in further detail, in [Ch. 12 Global Mode](#)). In Global Mode, you can edit parameters that control the overall behavior of the Forte. These parameters include tuning, transposition and velocity as well as being able to reset the Forte back to a factory state.

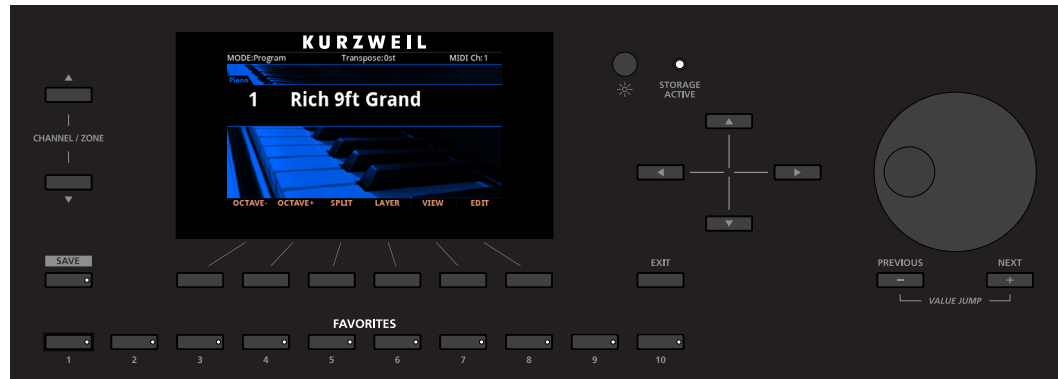
This button’s LED is illuminated when you are in Global Mode.



CAUTION: Performing a Reset will erase ALL User Program and User Multis, and will reset Global settings to a factory state.

Navigation

The navigation section of the Forte front panel includes the LCD display, Previous & Next buttons, Channel / Zone buttons, and the Alpha Wheel.



The Color LCD Display

The Forte features a high resolution color LCD display to present information and user changeable parameters.

In Program and Multi Mode, the top line of the display shows the current Mode, MIDI transposition, MIDI In/Out activity indicators, and MIDI channel (Program Mode only). The middle section of the display shows the current Program or Multi ID number and name, along with the Category name (Program Mode only) and background image. In Program Edit mode, the top line of the display shows the current mode and page name.

In Program and Multi modes, you can use the VIEW soft button to switch between three view modes: “Large” (default), “List”, and “Favorites”. By default, Large and Favorites view will also display controller parameter assignments when a controller is moved (Sliders, Switch buttons, Mod Wheel, and Pedals). Displaying controller parameter assignments can be disabled by using the Global Mode “Show Controllers” parameter.

In Multi Edit Mode, the top line of the display shows the current mode and page name. On the Multi Edit Main page and Controls page, the top line of the display also shows currently selected Zone number.

In Global Mode, the top line of the display shows the current mode and page name. The bottom line of the display shows the names of the Soft Buttons for the current page.

Previous (–) and Next (+) Value Buttons

Use the Previous and Next buttons to scroll through the list of values for the currently selected parameter. Pressing both the Previous and Next buttons simultaneously is referred to as the Value Jump double button press. Depending on the selected parameter, Value Jump can select the next Category default Program/Multi, jump to commonly used values, and reset parameters to default values. For more information, see Value Jump on [page 3-16](#).

Channel / Zone Buttons

In Program Mode, pressing the Channel / Zone Up button will change the MIDI transmit channel from the current channel to the next one; pressing the Channel / Zone Down button will change the MIDI transmit channel from the current channel to the previous one.

The top line of the display shows the current MIDI transmit channel. When the highest or lowest MIDI transmit channel is reached, the list will wrap back to the first or last MIDI transmit channel respectively.

Pressing the Channel / Zone up down buttons simultaneously in Program Mode will reset the MIDI Channel to 1.

In Program and Multi Mode, if Favorites view is selected and the Global Mode User Type parameter has been set to Advanced, the Channel / Zone up/down buttons will cycle through 16 banks of 10 favorite Programs/Multis. The current Favorites Bank number is displayed in the upper right hand corner of the screen.

In Multi Edit mode, pressing the Channel / Zone buttons will change the currently selected Zone on the Main page & Controls page.



NOTE : The Channel / Zone buttons are not used in Global Mode.

Alpha Wheel

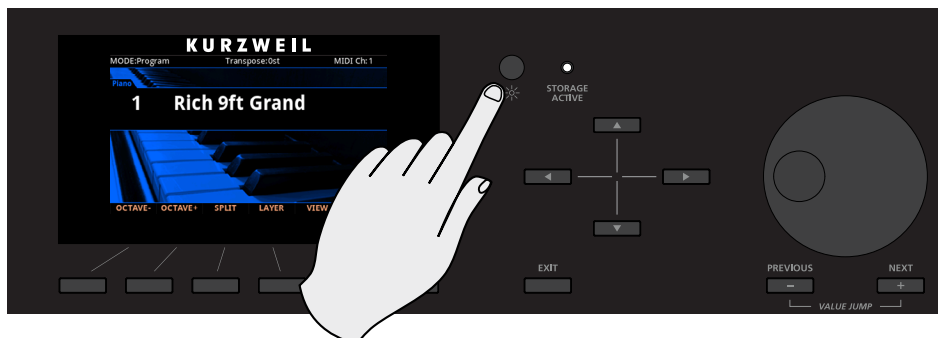
Use the Alpha Wheel to scroll through the list of values for the currently selected parameter—turning the Alpha Wheel counter-clockwise will select the previous value and turning the Alpha Wheel clockwise will select the next value. You can turn the Alpha Wheel slowly to change the value by one increment or turn it quickly to jump several increments.

Features of the Forte and Forte7

KB3 LED

Display Brightness Knob

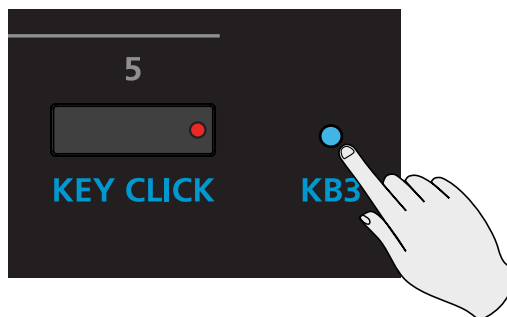
You can adjust the display brightness by turning this small knob.



KB3 LED

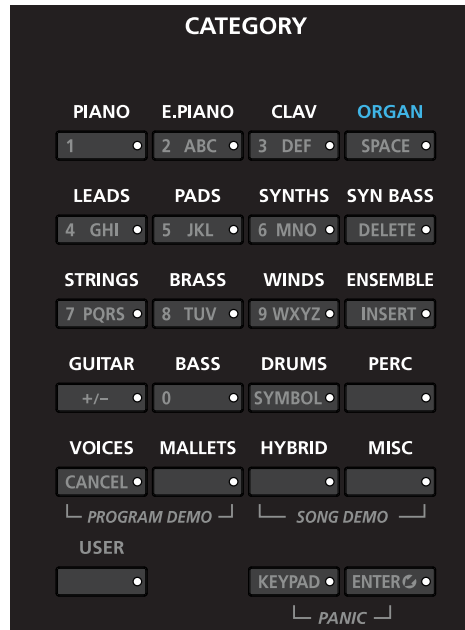
The KB3 LED is on the right side of the Assignable Switches.

If the currently selected Program is a KB3 program, the KB3 button's blue LED is lit. This indicates that the front panel KB3 controls (printed in blue) are active.



Category & Keypad

Depending on what mode you are in, the Category buttons on the Forte can be used for selecting sounds via their category, or can be used as a numeric keypad for data entry.



Category

The Forte makes it easy to select sounds by instrument type in Program mode. The 20 Category buttons are clearly labelled for you to choose easily. If a Category button is lit, you are currently in that selected Category.

Also, while in Multi Edit Mode with the Zone Program selected, the Category buttons will behave as they do in Program mode allowing you to select sounds by Category.

Keypad

In Program Mode, press the Keypad button to toggle between Category and Keypad functionality. If the Keypad button LED is lit, the category buttons will function as a numeric keypad. In Program Mode you can use the keypad function to select a Program by typing an ID number followed by the Enter button. The white print on the Category buttons indicates their secondary alphanumeric functions when used for data entry.

If the Keypad button LED is lit in Program Mode, the list of Programs is sorted by ID number only, instead of by Category and ID. Using the Alpha Wheel or Previous/ Next buttons will select the previous or next used Program ID, regardless of category.

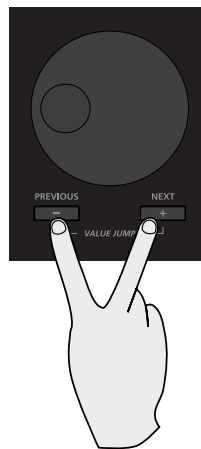
When saving files with Forte, or naming your Programs & Multis, the +/- button switches the alphanumeric buttons between lowercase and uppercase text.

Double Button Presses

Several pairs of the buttons on the Forte have time-saving secondary functions when pressed simultaneously—think of them as keyboard shortcuts. For convenience of reference, descriptions of all of the double-button press functions appear below.

Value Jump

In Program Mode, the Value Jump double button press selects the first Program of each Category, as well as the Category Default Program of each Category (if a Category Default Program has been set).

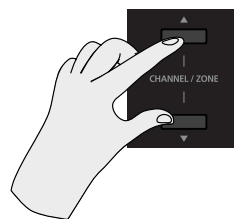


For more information on choosing a new Category Default Program, see [page 6-8](#).

In Multi Edit Mode, pressing the Value Jump double button press resets the current parameter to its default value, or jumps between multiple useful values.

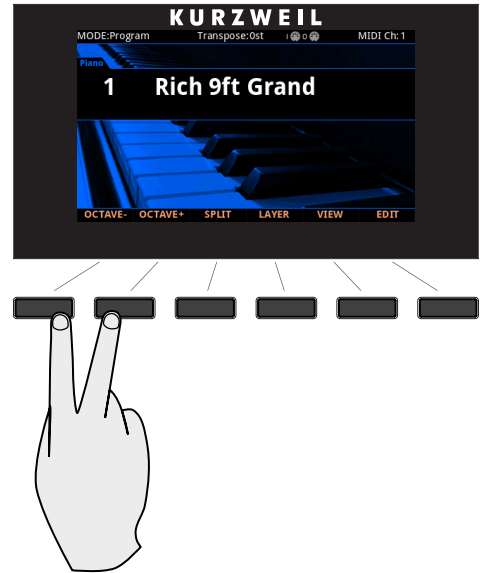
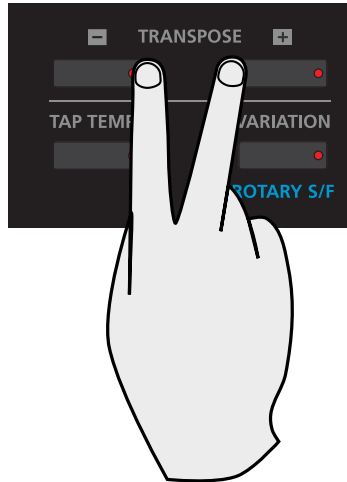
Channel / Zone Jump

In Program Mode, pressing both the Channel / Zone Up and the Channel / Zone Down button resets the current MIDI channel to 1.

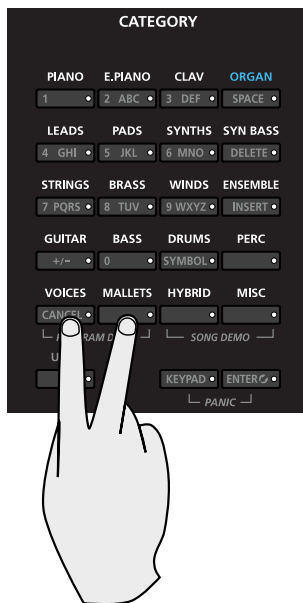


Reset Transposition

Pressing both Transpose + and Transpose - , or Octave + and Octave - (Soft Buttons) simultaneously will restore the current Program or Multi to having no transposition.



Program Demo



In Program Mode only, pressing the Voices & Mallets Category keypad buttons performs the Program Demo Function. The Program Demo Function plays the demo song for the currently selected Program.

The Voices & Mallets Category keypad button LEDs blink when using the Program Demo Function.

If you press these buttons from any other Mode, the display will give you a message indicating you are not in Program Mode.

Press the Cancel soft button to exit the Program Demo.

A label below the Voices & Mallets Category indicates the Program Demo double button press.

Features of the Forte and Forte7

Double Button Presses

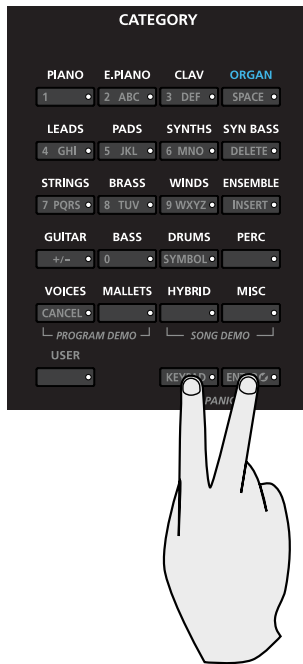
Song Demo



Pressing the Hybrid & Misc Category buttons performs the Song Demo Function. With the Song Demo Function selected, you can hear demonstration songs that showcase many of the features of the Forte.

A label below the Hybrid & Misc Category buttons indicates the Song Demo double button press.

Panic



Pressing the Keypad & Enter keypad buttons simultaneously deactivates all sounding notes and control messages and sends an “all notes off” message and an “all controllers off” message on all 16 MIDI channels.

A label below the Keypad & Enter buttons indicates the Panic double button press.



Search

There's a convenient way to find any term or string of characters within the currently selected list, or range of values. Hold the **Enter** button and press any of the numeric buttons. The **Search** page appears.

Type in the term or string of characters you want to find. For example, if you're looking at the program list and you want to find all programs containing the word "Horn," you would type h-o-r-n. This function is not case-sensitive; it will find upper and lower case characters regardless of what you type.

When you've typed the term you want to find, press **Enter**. The Forte searches through the current list of objects or values, finds all items that match the string of characters you typed, and displays the first one it finds. Hold **Enter** and press one of the **Plus/Minus** buttons to search for the next higher- or lower-numbered object that contains the string of characters.

The term you select remains in memory. You can store and select a string of characters with each of the numeric buttons. Hold **Enter** and press one of the numeric buttons at any time to select that term for a search. When the term appears, you can change it, or just press **Enter** to find that term.

Chapter 4

Terminology

This chapter provides definitions and descriptions for all of the Forte-specific terms used in this manual. Some of the terms are also used by other manufacturers.

Since there are no standard definitions for some of these terms, they are described here to avoid confusion. All of these terms appear with the first letter capitalized as proper nouns in this manual to make it easy to distinguish between the generic term and the Forte-specific term.

In addition to the terms below, and to avoid confusion, any Forte-specific feature, connector or control will have the first letter capitalized to distinguish it from the generic term.

Program	<p>A Program is an instrument sound that plays on a MIDI channel. The sound of each Program can be modified by parameters that are assigned to the controllers (Sliders, Switch Buttons, Mod Wheel, and Pedals).</p> <p>See Ch. 6 Program Mode for more information on Programs.</p>
Multi	<p>A Multi allows up to 16 instrument sounds (Programs) to be played from the keyboard at once. A Multi has a minimum of 4 Zones, each with its own keyboard range, Program, MIDI channel, and controller assignments.</p> <p>See Multi Mode on Ch. 10 Multi Mode for more information on Multis.</p>
KB3	<p>Kurzweil's organ-modeling simulation of the original Hammond B3 with Leslie rotary speaker emulation.</p>

Terminology

Zone	<p>A keyboard region of a Multi that has its own Program, MIDI channel, and controller assignments.</p> <p>See About Zones on page 10-6 for more information on Zones.</p>
Split	<p>A Split is a Multi containing at least two Zones that have keyboard ranges that don't overlap. This allows different keyboard ranges to play different instrument sounds.</p> <p>See The Split Function for more information on Splits.</p>
Layer	<p>A Layer is a Multi containing at least two Zones that have overlapping keyboard ranges. This allows a single keyboard range to play multiple instrument sounds.</p> <p>See The Layer Function on The Layer Function for more information on Layers.</p>
MIDI Bank	<p>A group of 128 Programs that can be navigated by MIDI compatible software or hardware.</p>
Mode	<p>An operating status with a unique group of operations.</p> <p>See Ch. 5 The Operating Modes for more information on Modes.</p>
Pressure	<p>Pressure applied to keys after a note is struck. It is also known as aftertouch, channel pressure, or mono pressure in other keyboards.</p>
Reset	<p>A process that returns Forte back to a Factory state. All User Programs and User Multis are erased. All Global Mode parameters are reset back to their default settings as well.</p>
Factory State	<p>The Factory State is the initial state of the Forte's Objects and Global Mode parameters when first purchased, or after performing a Reset.</p>
Object	<p>Anything that can be named, saved, deleted, or edited (i.e., a Program or a Multi).</p>
KUF file	<p>KUF (Kurzweil Unified File) file is a special file that has the objects and operating system combined that is used to update the Forte.</p>

Chapter 5

The Operating Modes

This chapter will help familiarize you with the operating Modes of the Forte.

Each of the six Modes (Program, Program Edit, Multi, Multi Edit, Global, Storage) has its own individual chapter.

The four Functions (Split, Layer, Program Demo, and Song Demo) are described in this chapter in [Functions on page 5-5](#).

Program Mode

Program Mode is the default Mode for the Forte.

In Program Mode, instrument sounds (Programs) can be selected and played. The sound of each Program can be modified by parameters that are assigned to the controllers (Sliders, Assignable Switch buttons, Zone buttons, Mod Wheel, and Pedals). Modified Programs can be saved as User Programs by pressing the Save button.

To enter Program Mode from another Mode, press the Program Mode button.



For more detailed information on Program Mode, see [Ch. 6 Program Mode](#).

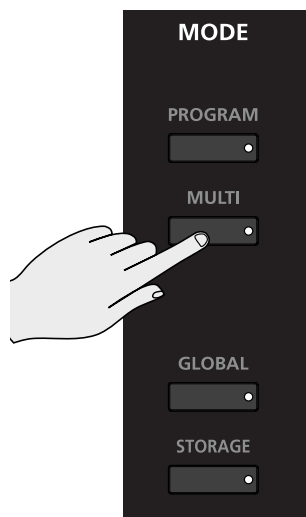
The Operating Modes

Multi Mode

Multi Mode

Multi Mode allows you to select and play Multis.

A Multi allows up to 16 instrument sounds (Programs) to be played from the keyboard at once. A Multi has a minimum of four Zones, each with its own keyboard range, Program, MIDI channel, and controller assignments. To enter Multi Mode from another Mode, press the Multi Mode button.



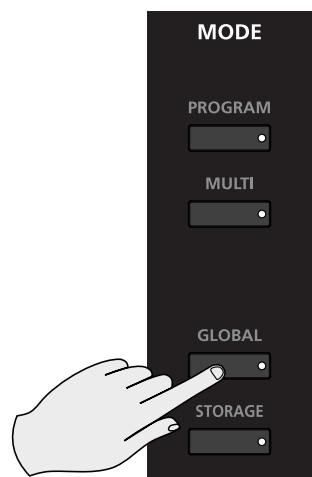
For more detailed information on Multi Mode, see [Ch. 10 Multi Mode](#).

Global Mode



CAUTION: THIS MODE CONTAINS CERTAIN OPERATIONS THAT CANNOT BE UNDONE. Read Global Mode on page 10-1.

Global Mode allows you to edit global parameters and MIDI settings, use diagnostic tools, view information, and restore the Forte back to factory default settings. To enter Global Mode from another Mode, press the Global Mode button.



For more detailed information on Global Mode, see [Ch. 12 Global Mode](#).

The Operating Modes

Storage Mode

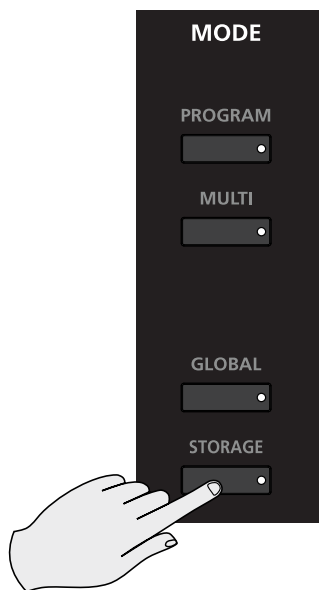
Storage Mode

Storage Mode allows you to load or store user-created Programs and Multis with a computer or a USB thumb drive.

To save the existing User Programs/Multis choose the STORE option.

To load a file containing existing User Programs/Multis choose the LOAD option.

Whenever a storage device is being accessed, the “Storage Active” LED will be lit.



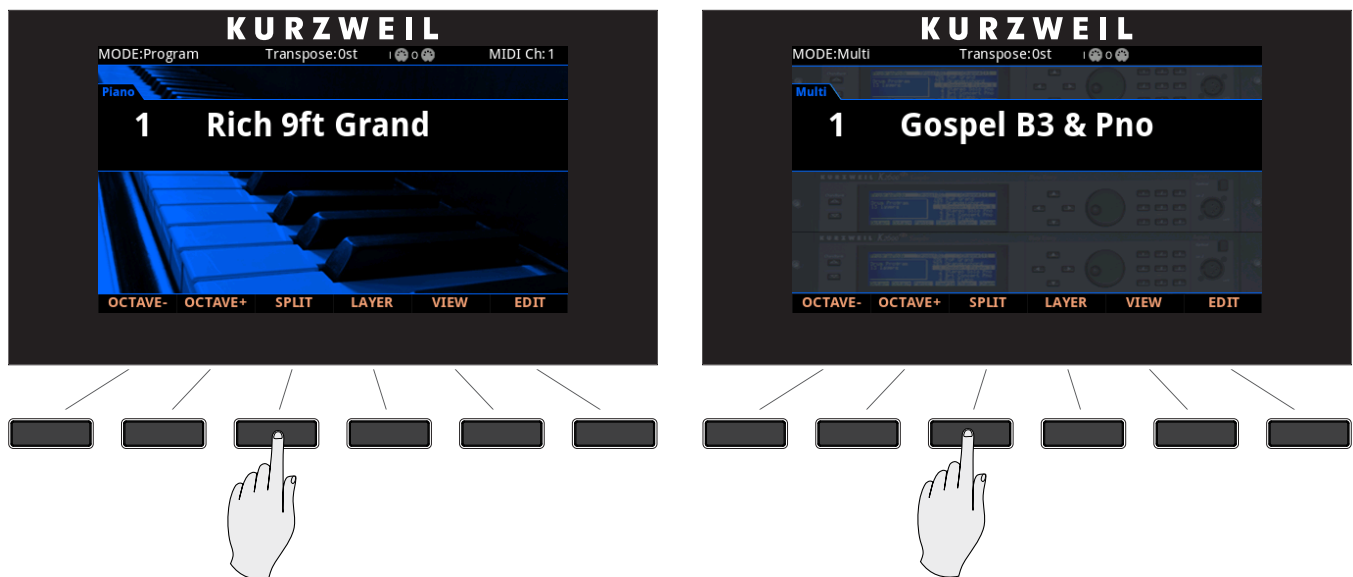
For more information on using Storage Mode, see [Ch. 14 Storage Mode](#).

Functions

In addition to the four primary Modes, there are six Functions. Some Functions are available through dedicated buttons; others are available as Soft Buttons accessed via the buttons under the LCD screen. These Functions are not as complex as the primary Modes and are described below.

The Split Function

Pressing the Split Soft Button while in either Program or Multi Mode performs the Split Function. The Split Function allows you to split Programs and Multis such that keys in one region of the keyboard produce different sounds than another region.



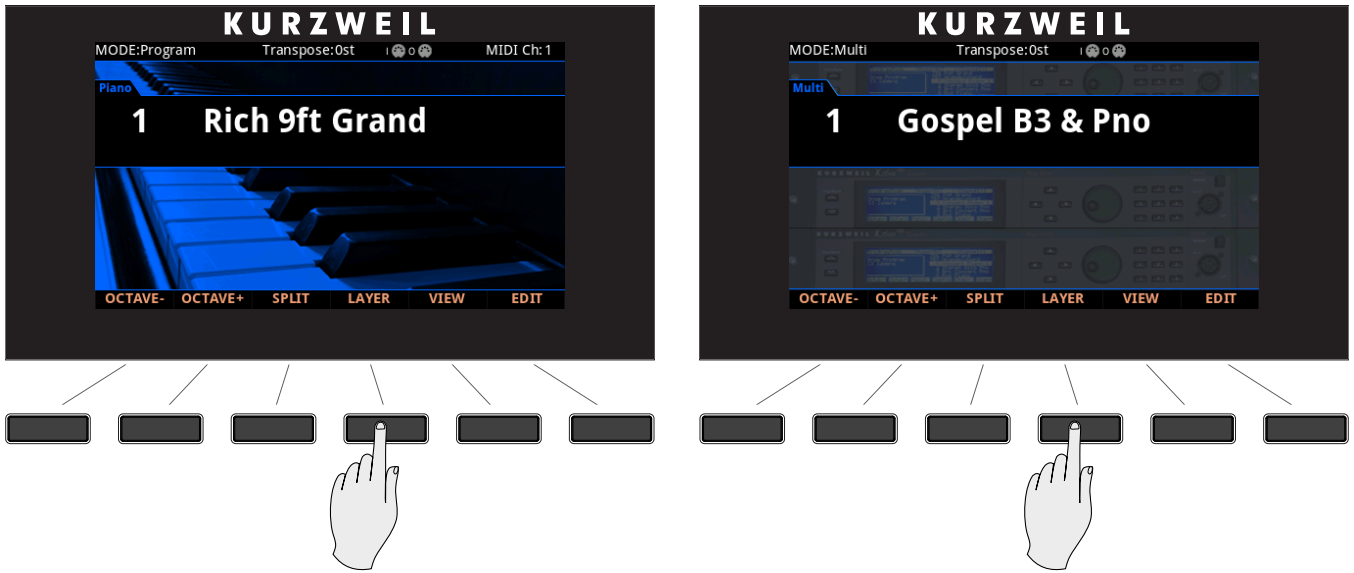
Creating Splits in Program Mode is slightly different from creating Splits in Multi Mode. See [The Split Function on page 6-13](#) (for Splits in Program Mode) and [The Split Function on page 10-9](#) (for Splits in Multi Mode).

The Layer Function

Pressing the Layer Soft Button while in either Program or Multi Mode performs the Layer Function. The Layer Function allows you to layer Programs and Multis such that more than one sound can be produced by striking one key.

The Operating Modes

Functions



Creating Layers in Program Mode is slightly different from creating Layers in Multi Mode. See [Ch. 6 Program Mode](#) (for Layers in Program Mode) and [The Layer Function on page 10-10](#) (for Layers in Multi Mode).

Song Demo Function

Pressing the Hybrid & Misc Category keypad buttons simultaneously performs the Song Demo Function.



Use the Song Demo Function to play built-in songs designed to demonstrate the capabilities of the Forte.

While using the Song Demo Function, the top line of the display shows the text “Song Demo”. The main display shows the ID number and name of the selected Song Demo.

Use the Alpha Wheel or Previous/Next buttons to select another demonstration song. The Hybrid & Misc Category keypad LEDs blink when using the Song Demo Function.

Press the Cancel Soft Button to exit the Song Demo Function.

Program Demo Function

Pressing the Voices & Mallets Category keypad buttons simultaneously performs the Program Demo Function.



In Program Mode, use the Program Demo Function to play a built-in demo song that demonstrates the selected Program. The Voices & Mallets Category keypad button LEDs blink when using the Program Demo Function.

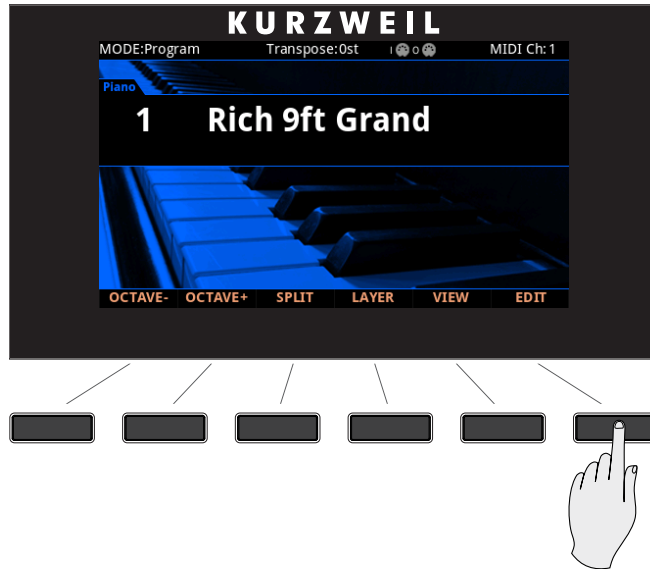
Press the Cancel soft button to exit the Program Demo Function.

The Operating Modes

Program Edit Mode

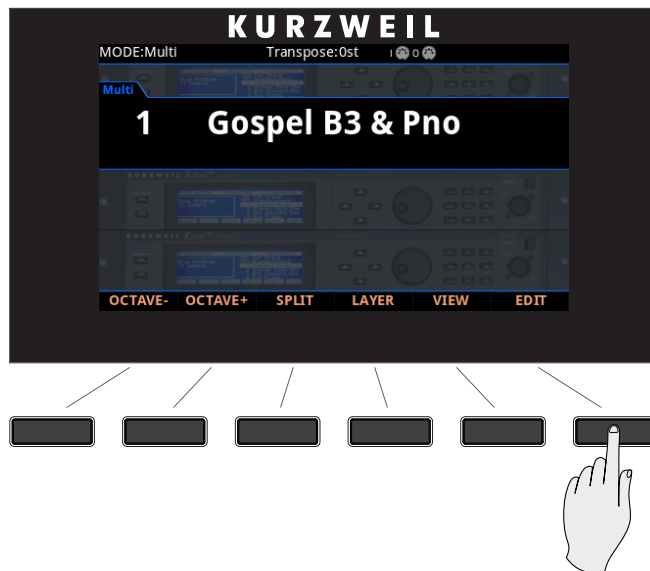
Program Edit Mode

Program Edit Mode allows you to edit pre-existing Programs. To enter Program Edit Mode press the Edit Soft Button while in Program Mode.



Multi Edit Mode

Multi Edit Mode allows you to edit pre-existing Multis. To enter Multi Edit Mode press the Edit Soft Button while in Multi Mode.



For more detailed information on Multi Edit Mode, see [Ch. 11 Multi Edit Mode](#).

Chapter 6

Program Mode

This chapter will help familiarize you with the features of Program Mode.

Programs are essentially the different sounds of a MIDI instrument—they are preset instrument sounds equivalent to the “patches,” “presets,” or “voices” that you find on other keyboards.

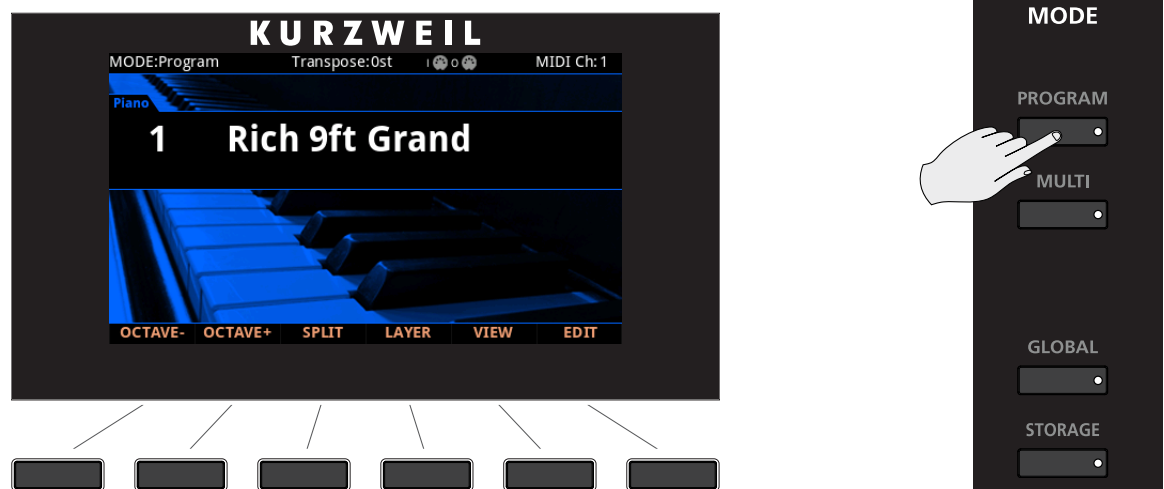
About Program Mode

Program Mode is the default Mode of the Forte. It will always boot up in this Mode.

To enter Program Mode from another Mode, press the Program Mode button. While you are in Program Mode, the Program button’s LED is illuminated.

The Forte starts up with Program 1 selected, or the Program that was selected the last time Global mode was exited.

If you enter Program Mode from another Mode, the current Program will be the last selected Program on the current MIDI Channel.



Selecting Programs

When you are in Program Mode, there are a few ways to select Programs.

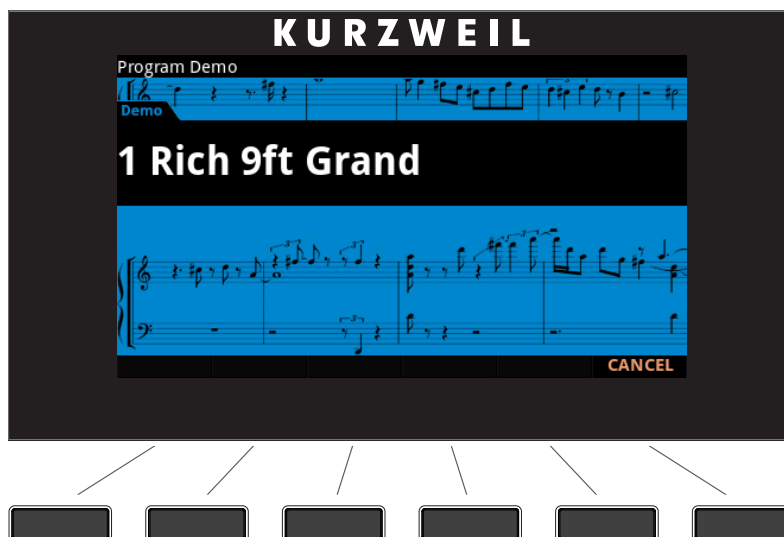
- To select a Program in the current Category, use the Alpha Wheel or the Next and Previous buttons.
- To select a Program in a different Category, press the Category button of choice and then use the Alpha Wheel or the Next and Previous buttons.
- To select the default Program from a Category, simply press the relevant Category Button.
- To browse saved user Programs, press the User button, then use the Alpha Wheel or the Next and Previous buttons. Press the User button again to stop viewing only user Programs, or press a Category button or use keypad mode to enter a factory ID number.
- The Alpha Wheel and the Next and Previous buttons allow you to advance through the Programs one at a time. When you reach the end of the Category, advancing further will go to the next Category.
- If a Program is assigned to a Favorite Button, pressing that button will go directly to the assigned Program.
- To select a Program by ID number, press the Keypad Button so that its LED lights. Use the numbers on the Category buttons to enter an ID number, then press the Enter button. In Keypad mode the list of Programs is sorted by ID number only, instead of by Category and ID. Using the Alpha Wheel or Previous/ Next buttons will select the previous or next used Program ID, regardless of category. Press the Keypad Button again to return to Category selection.

Program Demo

If you want to quickly hear what a Program sounds like, try the Program Demo Function.



In Program Mode only, pressing Voices & Mallets Category buttons simultaneously performs the Program Demo Function. The Program Demo Function plays a demo song for the currently selected Program.

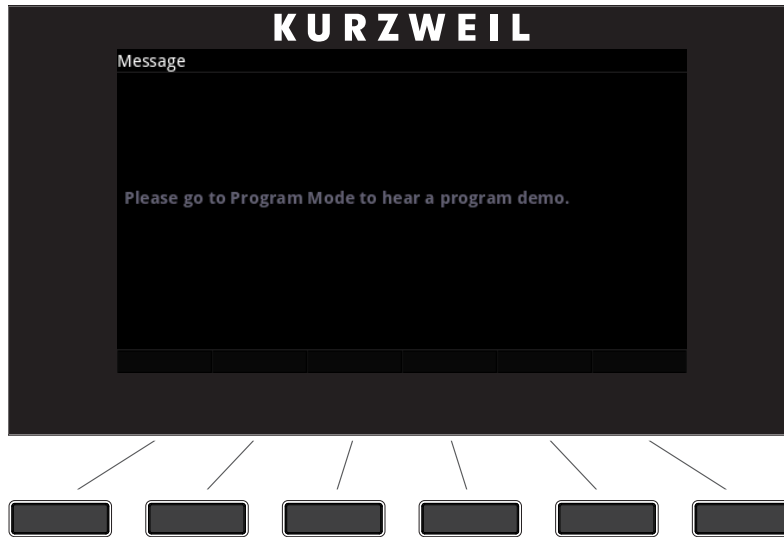


Press the Cancel soft button to exit Program Demo.

If you try to use the Program Demo Function from any other Mode, the display shows the “Please go to Program Mode to hear a Program Demo” message.

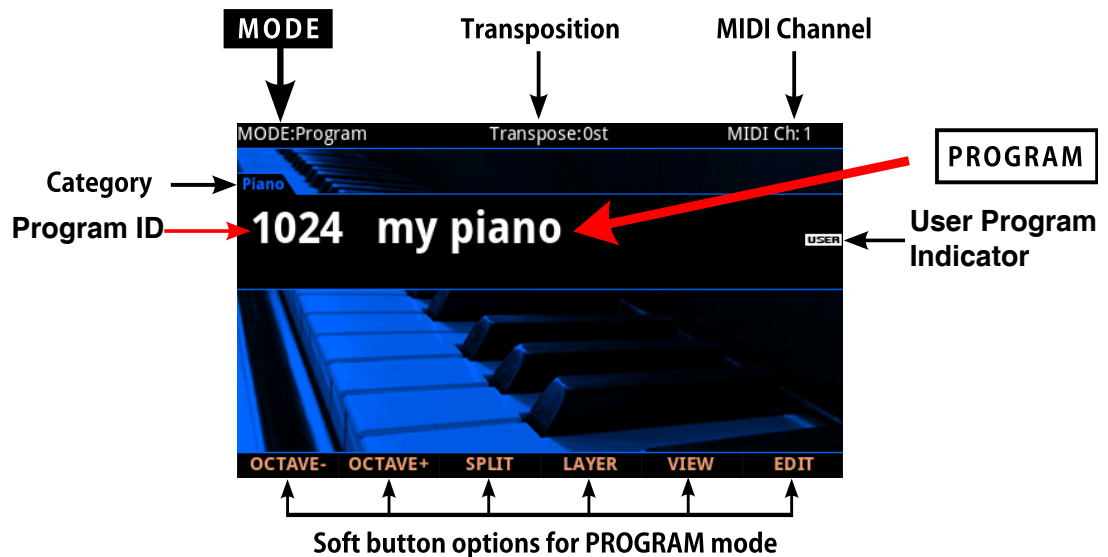
Program Mode

Selecting Programs



The Color Display

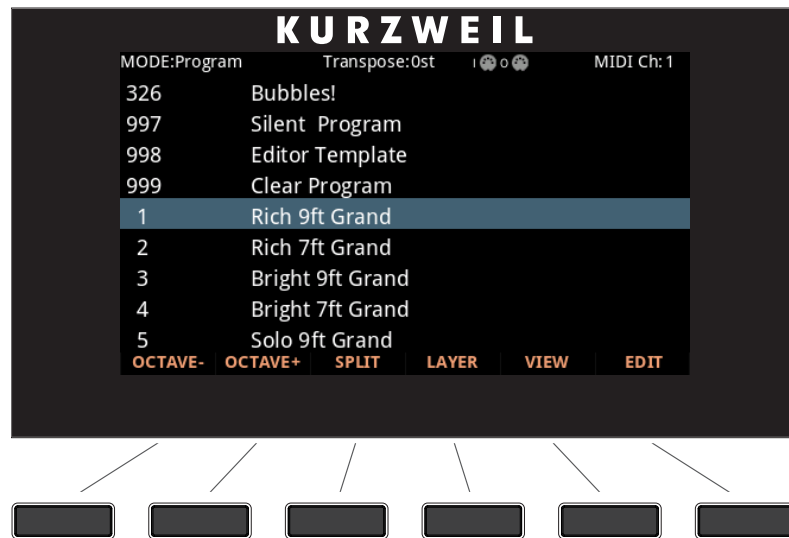
In Program Mode, the top line of the display shows the current Mode, MIDI transposition, MIDI In/Out activity indicators, and MIDI channel. If Favorites view is selected and the Global Mode User Type parameter has been set to Advanced, the current Favorites Bank number will be shown instead of the current MIDI channel.



The currently selected Program ID number and name are shown in the center of the display. If the selected program is a user program, a KB3 organ program, or if the program contains an FM layer or oscillator, the USER, KB3, or FM icons are displayed next to the program name.



NOTE : The display can be changed to an alternate layout by pressing the “VIEW” soft button, or changing the “Display” parameter in Global Mode.



Pop-Up Messages

Some actions cause the display to show pop-up messages. After a short time the display returns to show the current Program.

MIDI In/Out Activity Indicators

MIDI In/Out activity indicators are displayed at the top of the screen (shown as 2 MIDI port symbols with “I” for “in” and “O” for “out”). These indicators briefly light up when MIDI has been recently sent to or received by the Forte’s MIDI/USB ports. If the symbol is green, this indicates there has been MIDI activity on that port in the last few seconds. If the symbol is red, this indicates there has been communication with the external software editor on that port in the last few seconds. If the symbol is grey, this indicates there has been no MIDI activity on that port in the last few seconds.

Alpha Wheel & Previous (-) and Next (+) Value Buttons

Use the Alpha Wheel or the Previous (-) and Next (+) buttons, to the right of the display below the Alpha Wheel, to change the current Program. Turning the Alpha Wheel counter-clockwise or pressing the Previous button will select the previous Program and turning the Alpha Wheel clockwise or pressing the Next button will select the next Program.

Program Mode

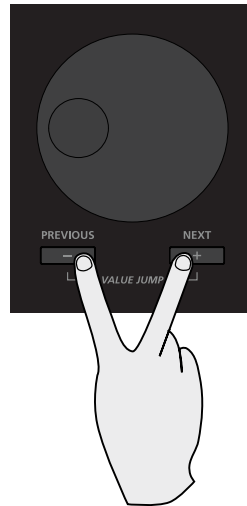
Selecting Programs



If the User button LED is not lit, the Alpha Wheel or the Previous (-) and Next (+) buttons will move through the Program list of each Category, showing both factory and User programs for each Category. If the User button LED is lit, the Alpha Wheel or the Previous (-) and Next (+) buttons will move through the Program list of each Category, showing only User programs for each Category. When the highest or lowest Program is reached, the list will wrap back to the first or last Program, respectively.

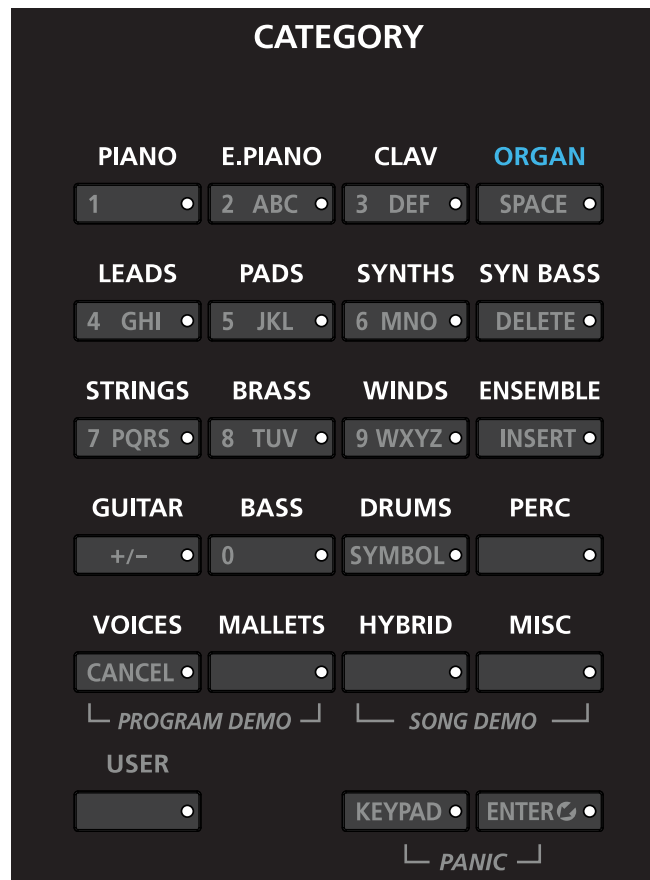
Value Jump Buttons

In Program Mode, the Value Jump double button press selects the first Program of each Category, as well as the Category Default Program of each Category (if a Category Default Program has been set). For more information on choosing a new Category Default Program for each Category, see [Choosing Category Default Programs](#). If the User button is selected, Value Jump works the same way.



Category Buttons

The Category buttons allow you to select Programs by instrument type simply by pressing a button. You can select one Category button at a time and the current Category button's LED is lit.



Each Category contains Programs of a single instrument type. ([Ch. 14 Appendix C](#) has a list of Programs and Categories).

You can also press one of the instrument Category buttons, then turn the Alpha Wheel clockwise or press the Next button to advance to the next Program in the Category. When you reach the end of a Category, the Forte automatically advances to the beginning of the next Category. This will also work in reverse if you turn the Alpha Wheel counter-clockwise or press the Previous button. In this case, when you reach the beginning of a Category, the Forte automatically advances to the end of the previous Category.

Keypad button

When the Keypad button is pressed and the LED is lit, the Category buttons no longer function in selecting categories. Instead, the secondary function of the Category buttons takes over and the numbers on the category buttons are now in effect.



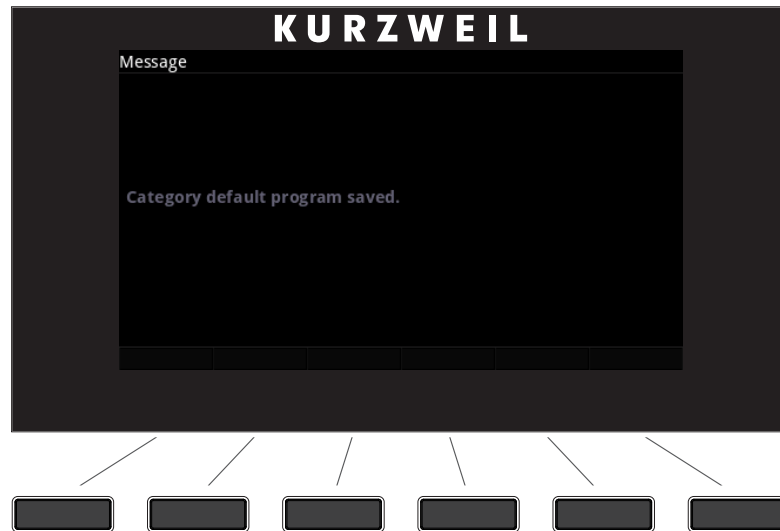
Program Mode

Selecting Programs

By having the Keypad button on, you can manually type in the Program ID number followed by the Enter number and the Forte will go to that Program if it exists. If a Program does not exist, the ID will be displayed along with “Not found!”. When the Keypad button and the User button are enabled, User programs are ordered by ID number instead of by category when scrolling through the Program list.

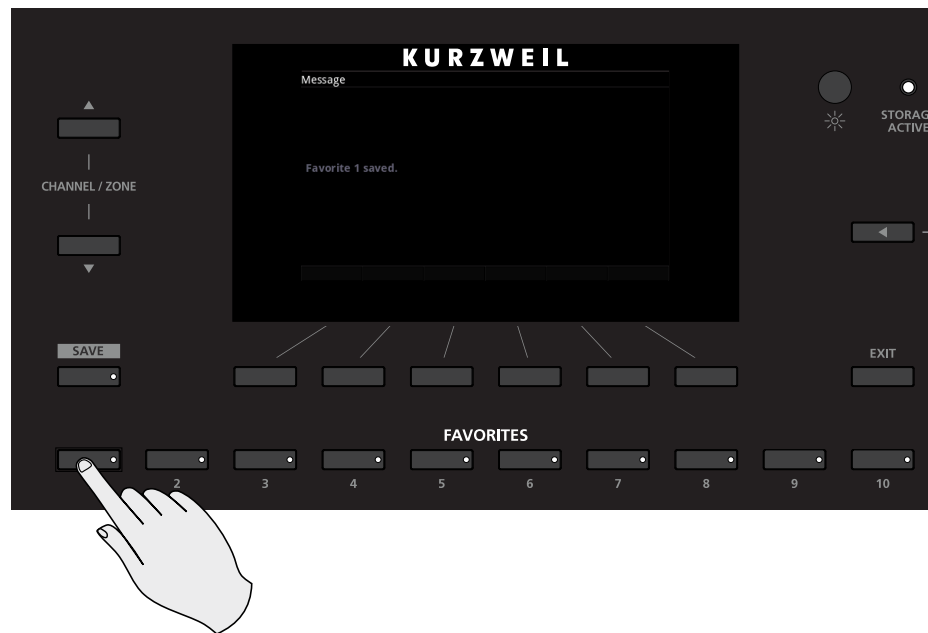
Choosing Category Default Programs

You can choose a “Category default program” from each Category that will be recalled each time you press that Category’s button. To save a Category default program, first select a Program using any Program select method (Alpha wheel, Previous/Next buttons, Category buttons). A Category button for the current Category will have a lit LED. Next, press and hold the currently lit Category button until the display shows the message “Category default program saved.” The Category default program has now been successfully saved.



Choosing Favorites

You can save ten Favorite Programs (or Multis) from any Category to the ten Favorite Buttons beneath the display. Once saved, these favorite Programs can be recalled from any Mode with a single button press. To save the currently selected Program to a Favorite Button, press and hold a Favorite Button until the display shows a message indicating the favorite has been saved.



Favorites View and Favorites Banks

To view the names of Programs and Multis stored as Favorites, press the VIEW soft button until you see the Favorites listed at the bottom of the display, or set the Global Mode “Display” parameter to “Favorites.”

If Favorites view is selected and the Global Mode User Type parameter has been set to Advanced, you can use the Channel/Zone buttons to scroll through up to 100 banks of 10 Favorites, allowing you to save and access 1000 Favorites. When Favorites view is selected and the Global Mode User Type parameter has been set to Advanced, the current Favorites Bank number will be shown in the upper right hand corner of the screen. A double press of the Channel/Zone buttons selects bank 1.

The Favorites bank name is also displayed. User edited Favorites banks can be renamed, for details see [Favorites Banks on page 12-29](#).

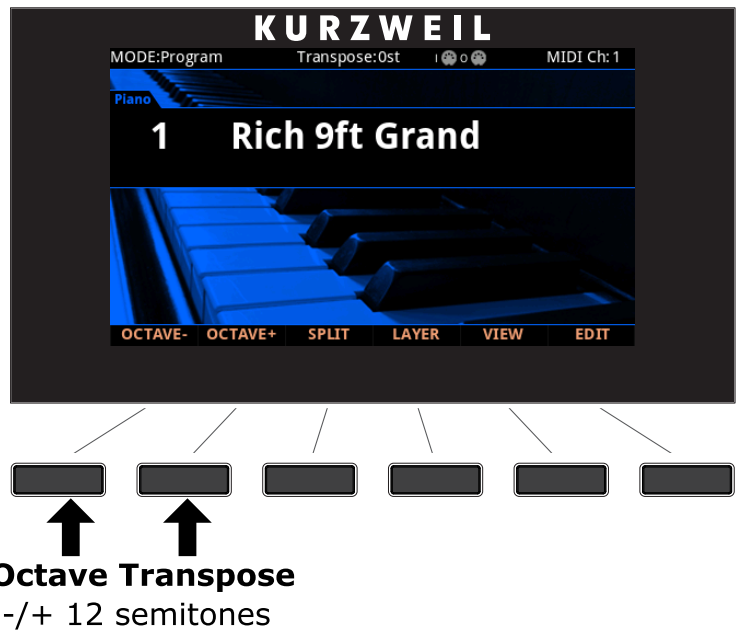
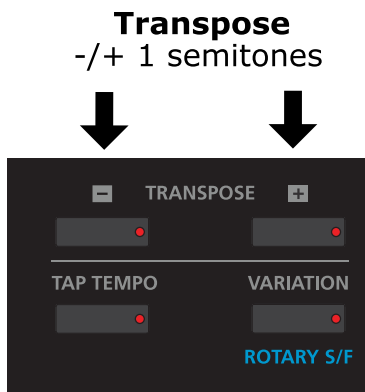
Transposition

The Transpose buttons can be used to change the tuning of notes played on the Forte keyboard in semitones (ST), also known as half-steps. This is a convenient way to change the key of a song without learning to play it in a different key. The Transpose buttons are located to the left of the keyboard, above the Pitch and Mod Wheels. The Transpose buttons also transpose MIDI notes sent to the USB and MIDI out ports.

Press the Transpose - or + buttons to transpose the Forte keyboard down or up by one semitone. The top line of the display shows the current transposition value.

To transpose up and down by octave intervals (12 ST), press the OCTAVE- and OCTAVE+ soft buttons underneath the display.

Pressing both Transpose - and +, or Octave - and + simultaneously will reset the transposition to 0.

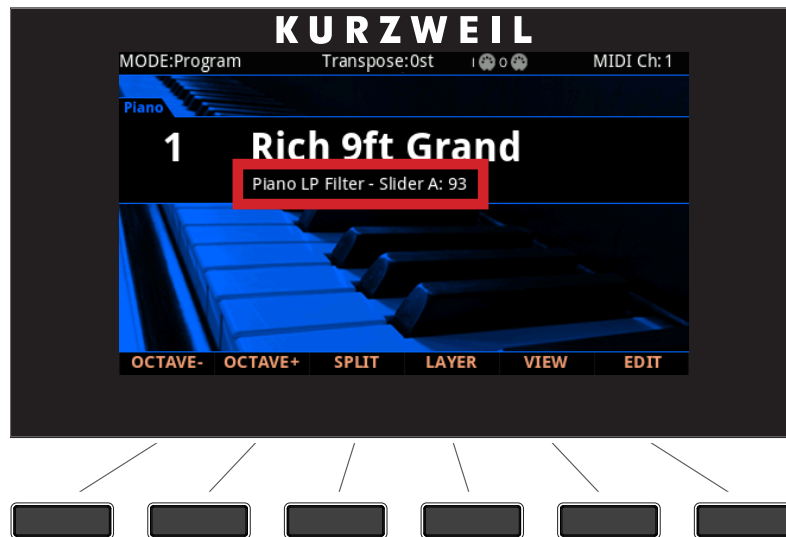



The maximum transposition value possible is +/-36 semitones.

The LEDs of the Transpose buttons indicate whether the current Program (or Multi) is transposed up (Transpose + LED is lit) or transposed down (Transpose - LED is lit). When there is no transposition, neither Transpose button is lit.

Controller Parameter Assignments

In Program Mode, each Program has factory-set Program and Effect parameters assigned to physical controllers (Sliders, Switch buttons, Mod Wheel, and Pedals). A controller parameter assignment can modify an instrument sound during a performance to add variation or expression. Moving a controller changes the value of the parameter. Any time you do this, the display shows the Controller name, assigned parameter, and value.



 **NOTE :** Parameter assignments may not be visible if the VIEW soft button has been pressed, or if the “Show Controllers” parameter in Global Mode has been set to No.

If you make changes to the current Program using any of the controllers, the Save button’s LED lights to indicate that a change has been made to that Program. For more information on the Save button, see [Save User Programs on page 6-20](#)



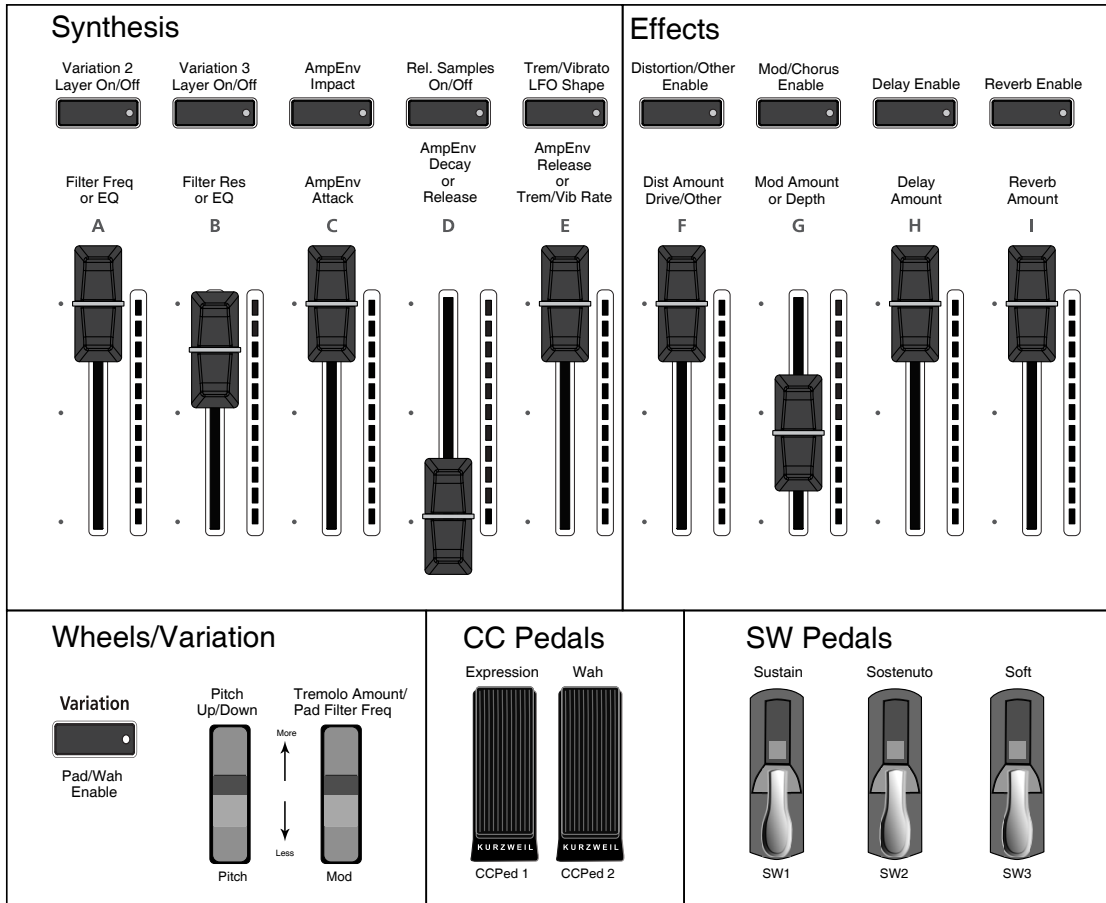
Program Mode

Controller Parameter Assignments

Controller Conventions

Generally the factory Programs have the following controllers assigned.

Forte Controller Conventions



The Split and Layer Soft Buttons

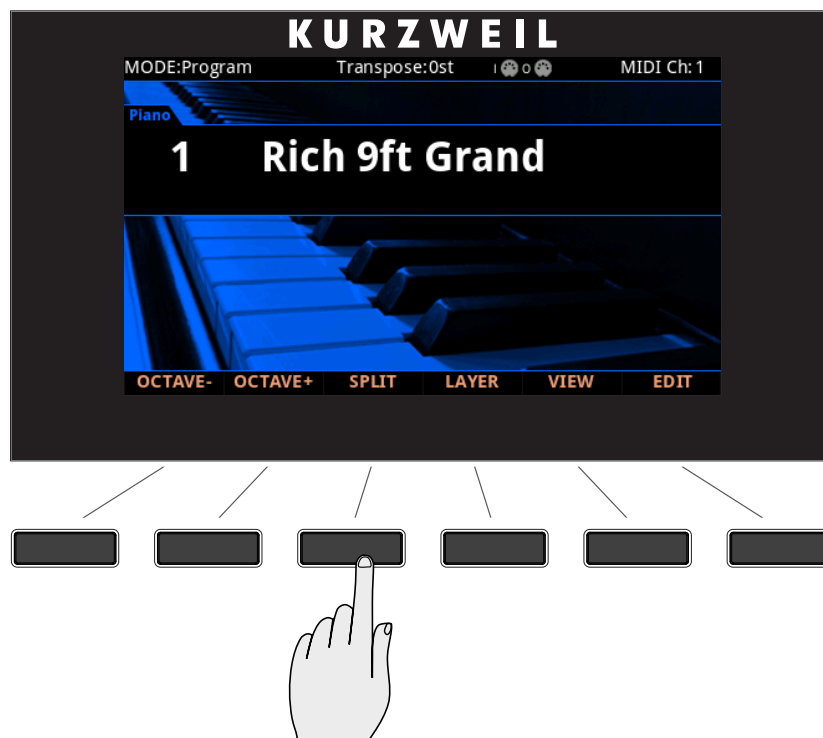
The soft buttons SPLIT and LAYER perform slightly different functions, but offer identical parameters.

The Split Function allows you to split Programs such that keys in one region of the keyboard produce different sounds than another region. The Layer Function allows you to layer Programs and Multis such that more than one sound can be produced by striking one key.

This is convenient, because you do not need to use Multi Edit Mode to configure Zone key ranges, Programs and volumes. Simply hit the soft button while in Program Mode to select the Function. You can then configure additional Zones, each of which may have its own Program and controller assignments. The result may be saved as a new Multi (see [Ch. 10 Multi Mode](#) for more information on Multis).

The Split Function

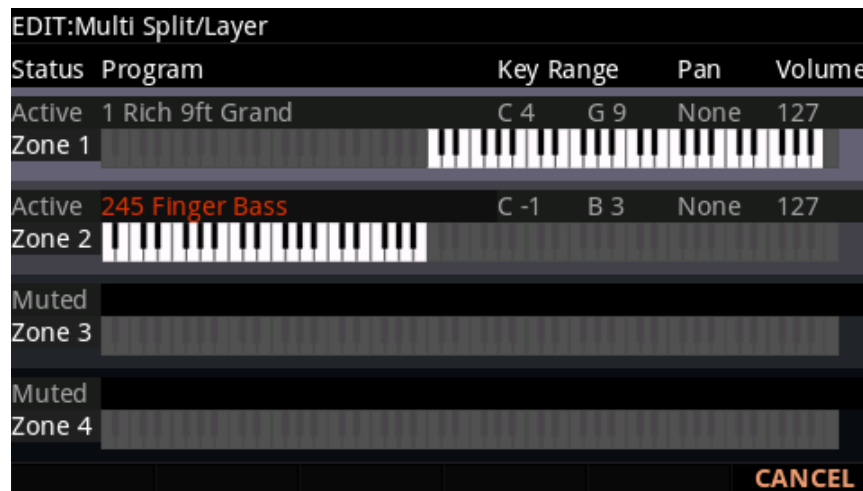
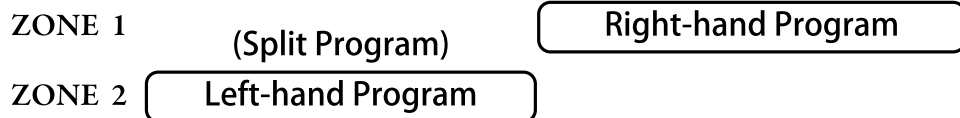
When you create a Split in Program Mode, you are in fact creating a Multi with two active Zones. Multis are configurations of multiple Zones, each of which may have its own Program and controller assignments.



Program Mode

The Split and Layer Soft Buttons

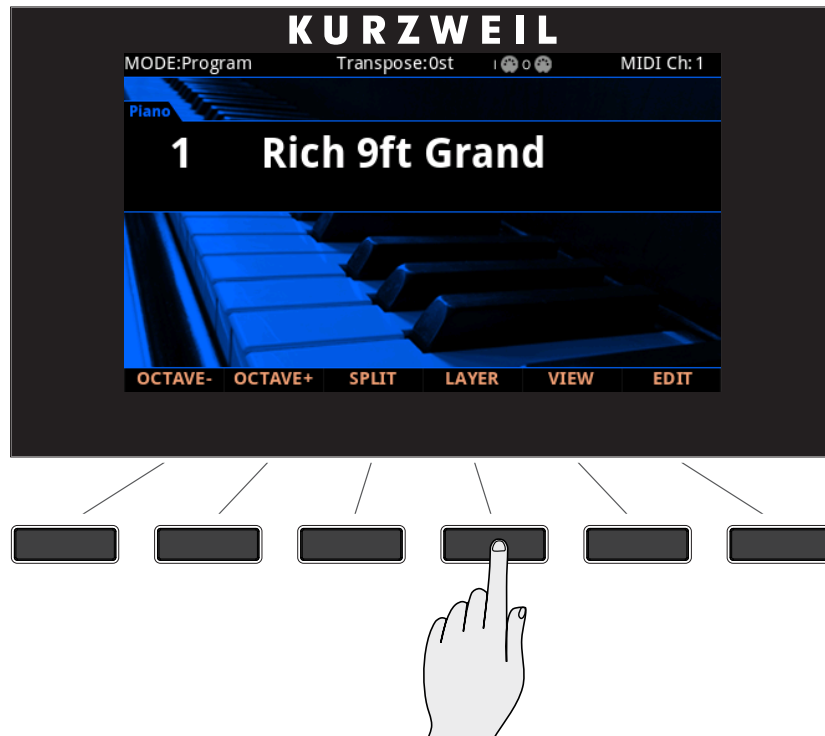
Simply hit the Split button, and the Forte automatically creates a Multi with two active Zones. The Program you were using in Program Mode is used in the right hand of the Split as the Program for Zone 1. After this you can choose a “Split Program” that will be used in the left hand of the Split as the Program for Zone 2. The Default split program is 245 Finger Bass.



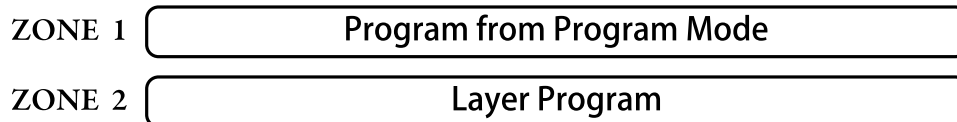
Once you have saved your Split as a Multi, you can continue to add Split or Layer Zones to the Multi until you reach the number of Zones allowed. The Forte will display a message if you have already reached the maximum active Zones.

The Layer Function

The Layer Function allows you to layer Programs and Multis such that more than one sound can be produced by striking one key.



When you create a Layer in Program Mode, you are in fact creating a Multi with two active Zones (see [Ch. 11 Multi Edit Mode](#), for more information on Multis). As previously described, Multis are configurations of multiple Zones, each of which may have its own Program and controller assignments.



Program Mode

The Split and Layer Soft Buttons

The Layer Function is convenient, as you do not need to use Multi Edit Mode to configure Zone key ranges, Programs, and volumes. You can simply hit the Layer button, and the Forte automatically creates a Multi with two active Zones. The Program you were using in Program Mode is used as the Program for Zone 1. It then allocates “152 Add a Pad 2” as the default program for Zone 2. Both of these Programs can be changed if needed.

Once you have saved your Layer as a Multi, you can continue to add Layer or Split Zones in Multi Mode until you reach the maximum number of active Zones. The Forte will display a message when you have reached the maximum number of active Zones. (See [Ch. 10 Multi Mode](#), for more information on Multis.)

Split and Layer Parameters

There are five parameters (described below) that determine the behavior of Splits and Layers. Use the cursor buttons to access each of the parameters for each active Zone.

Status (Zone Status)

Selecting Split or Layer makes Zone 2 active. You can continue to add Zones to by activating additional Zones with the Status parameter or the front panel Zone buttons. The Forte will display a message if you have already reached the maximum number of active Zones (see [Ch. 10 Multi Mode](#), for more information on Multi Zones).

Program

This parameter is selected by default. When performing the Split function the Program 245 Finger Bass will be applied; when performing the Layer function the Program 152 Add a Pad 2 will be applied. Choose a different Split Program using the Category buttons, the Alpha Wheel, the Previous/Next buttons, or enable the Keypad button and type an ID number followed by the Enter button.

Volume

To change the volume of a Zone, use the cursor buttons to select the Volume parameter for one of the Zones. To set a volume, use the Alpha Wheel, the Previous/Next buttons, or use the keypad function of the Category buttons to type a volume (0-127) followed by the Enter button.

A value of “None” will use the last volume value used by the Zone’s MIDI channel (often set by the expression pedal). A value of “None” can be entered by scrolling below 0, or by using the keypad function of the Category buttons to type negative 1 by pressing the small +/- button and then the 1 button, followed by the Enter button.

Key Range

You can adjust the boundary between the left and right hand Programs on the keyboard by adjusting the Key Range low and Key Range high parameters for each Zone. The keyboard display for each Zone shows a visual indication of the Key Range by dimming keys that are outside of the Key Range.

To change the Key Range of a Zone, use the cursor buttons to select the Key Range low or Key Range high parameters for one of the Zones. Key Range low and Key Range high are the left and right parameters, respectively, below the Key Range label. With one of these parameters selected, set the Key Range by using the Alpha Wheel, the Previous/Next buttons, or use the keypad function of the Category buttons to type a key number (0-127) followed by the Enter button. With Key Range low or Key Range high selected, the value can also be changed by holding the Enter button, then pressing the desired key.

Pan

To change the panning of a Zone (left/right stereo placement), use the cursor buttons to select the Pan parameter for one of the Zones. To set a Pan value, use the Alpha Wheel, the Previous/Next buttons, or use the keypad function of the Category buttons to type a pan value (0-127) followed by the Enter button. A value of 0 is full left, 64 is center, and 127 is full right. Other values will move the stereo placement in between these positions. A value of “None” will use the last pan value used by the Zone’s MIDI channel.

A value of “None” can be entered by scrolling below 0, or by using the keypad function of the Category buttons to type negative 1 by pressing the +/- button and then the 1 button, followed by the Enter button.

Saving a Split or Layer

After setting the Split or Layer parameters, your changes can be saved as a Multi that it can easily be recalled in Multi Mode. Press the Save button to the left of the display to begin the saving process. A Multi name is automatically created using half of the original Program name and half of the default Zone 2 program name. This name can be edited during the saving process.

See [Saving a User Multi on page 10-16](#) in the Multi Mode Chapter for details on saving. Once you have saved your Split as a Multi, you can continue to add Split or Layer Zones to the Multi until you reach the maximum number of active Zones.

See [The Split and Layer Soft Buttons](#) in the Multi Mode Chapter. Also, once you have saved your Split as a Multi, you can use Multi Edit Mode to edit controller assignments (like effects controls and sustain pedal per Zone), transposition per Zone, and other Multi parameters. (See [Ch. 11 Multi Edit Mode](#) for details.)

Program Mode

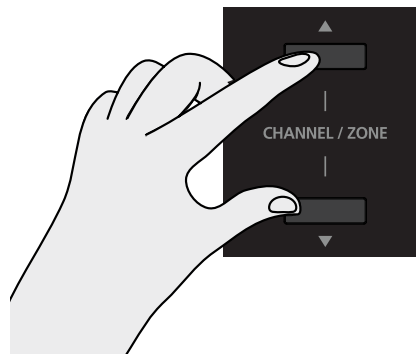
Changing the MIDI Transmit Channel

Changing the MIDI Transmit Channel

The current MIDI Transmit channel is shown on the right side of the top line of the display. Press the Channel / Zone Up or Down buttons to change the MIDI Transmit channel. A different Program can be selected for each MIDI Channel. All channels can be triggered simultaneously from an external MIDI sequencer or computer. The Aux FX Chains of the Program on the currently selected MIDI Channel are used for Programs on all Channels.

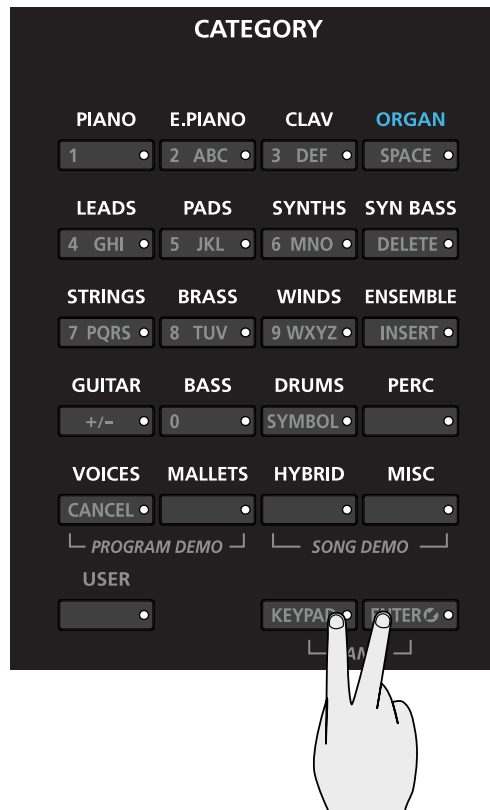


Pressing both Channel / Zone Up and Down buttons at the same time will reset the current MIDI Transmit channel to 1.



Panic

Pressing the Keypad & Enter buttons simultaneously deactivates all sounding notes and resets controller values by sending an “All Notes Off” message and a “Reset All Controllers” message on all 16 MIDI channels.



Program Mode

Save User Programs

Save User Programs

If you make changes to the current Program using any of the controllers, the Save button's LED lights to indicate that a change has been made to that Program.

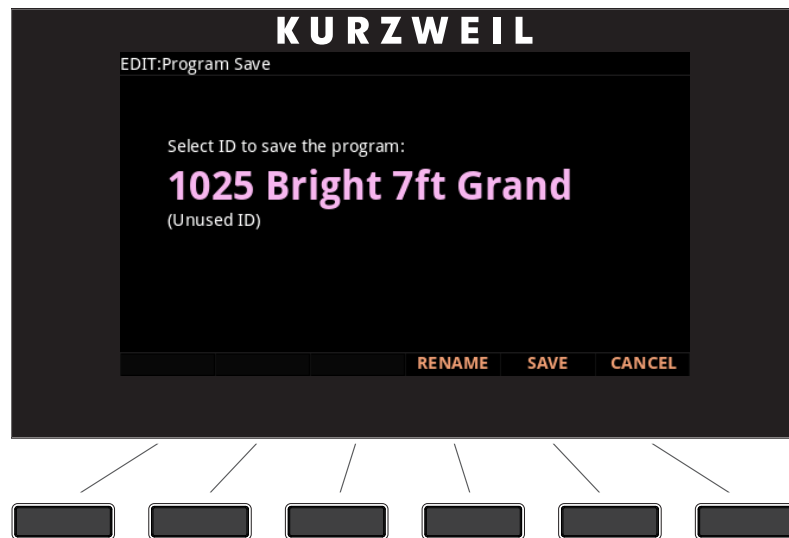


To save a copy of the Program with the changes you've made, press the Save button once to view the Save Dialog. The Save Dialog allows you to choose an ID number to that will be associated with the program you are saving. When viewing the Save Dialog, you can quickly save the Program to the displayed ID number by pressing the Save button again.

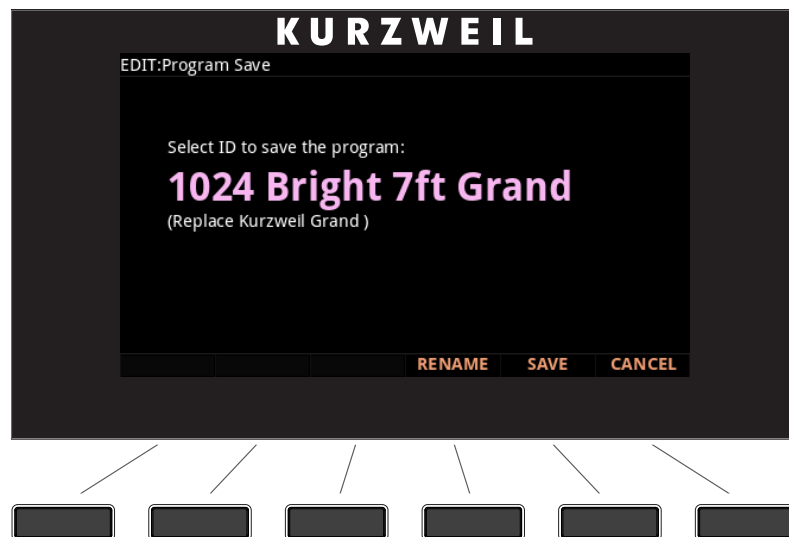
The display shows the first available ID number and the current Program name. User Programs can be saved to ID numbers from 1024 to 4095. If you are saving a Program that has not been previously edited, the next available unused ID number will be selected. If you are saving a previously edited User Program, the ID number that the Program was last saved with will be selected. Press the Value Jump double button press (Previous + Next) to toggle between selecting the ID number that the Program was last saved with and the next available unused ID number.

Changing ID Numbers

To change the ID number, turn the Alpha Wheel or use the Previous/Next buttons to select the new ID number. The label underneath indicates if it is an “Unused ID”. You can also use the keypad function of the Category buttons to type an ID number, followed by pressing the Enter button.



If you select an ID currently in use, the display will notify you that by saving you will “replace” the Program currently in that location. The Program name and ID is indicated.



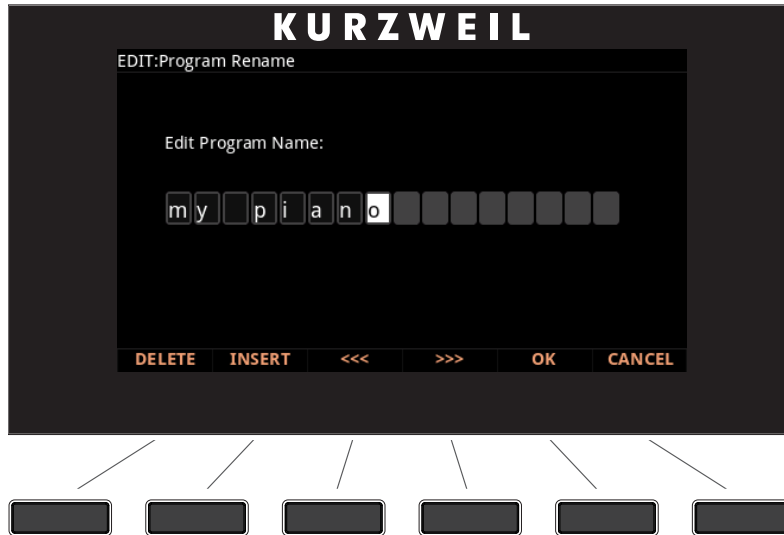
Confirm overwriting of the existing Program by pressing Save, or choose a different ID.

Program Mode

Save User Programs

Naming a User Program

To rename the Program, first press the RENAME soft button. You should see the following in the display:



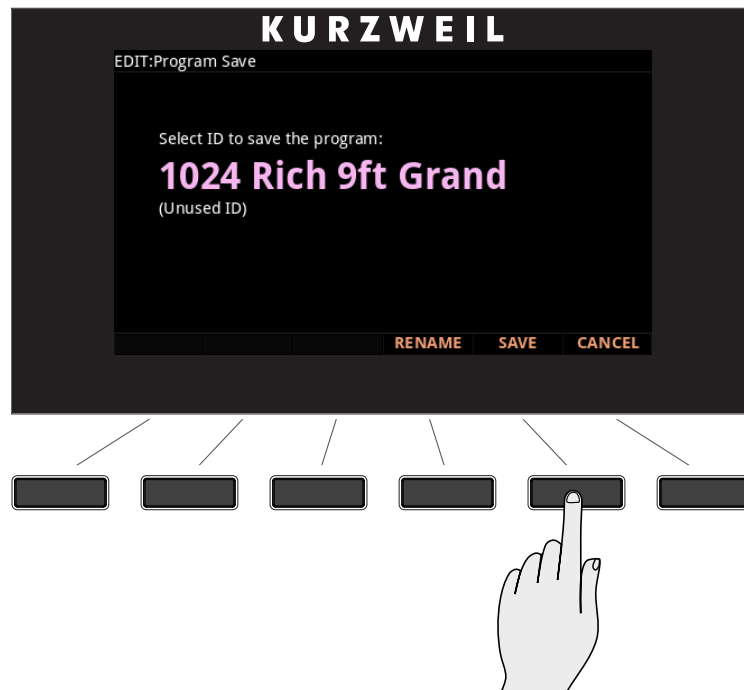
The display shows the current Program name. Program names can total 16 characters in length. Use the letters and numbers printed on the Category buttons to enter the new Program name. Rotating the Alpha Wheel or using the Value buttons can also change the Program name. The keypad button will be turned on automatically.

Use the Left/Right cursor buttons or <<< >>> soft buttons to move the cursor. Press the +/- button to switch between upper and lower case characters (all characters will be upper case until you press the +/- button again).

Use the Space button to change the current character to a space, the Insert button to insert a blank space (the selected character and all characters to the right will move one space to the right), and the Delete button to delete the current character (all the characters to the right will move one space to the left).

Saving a User Program

Press the Save button or Save soft button to complete the saving process, or press the Cancel soft button to exit without saving. After successfully saving, the Program will be selected in Program Mode. To find the Program again later, press the User button and scroll to the Program ID. You can also find the program by pressing the appropriate Category button and scrolling past the factory programs. Lastly, you can press the Keypad button so that its LED is lit, type the Program ID number, then press the Enter button.



Chapter 7

Program Edit Mode

This chapter will help familiarize you with the features of Program Edit Mode.

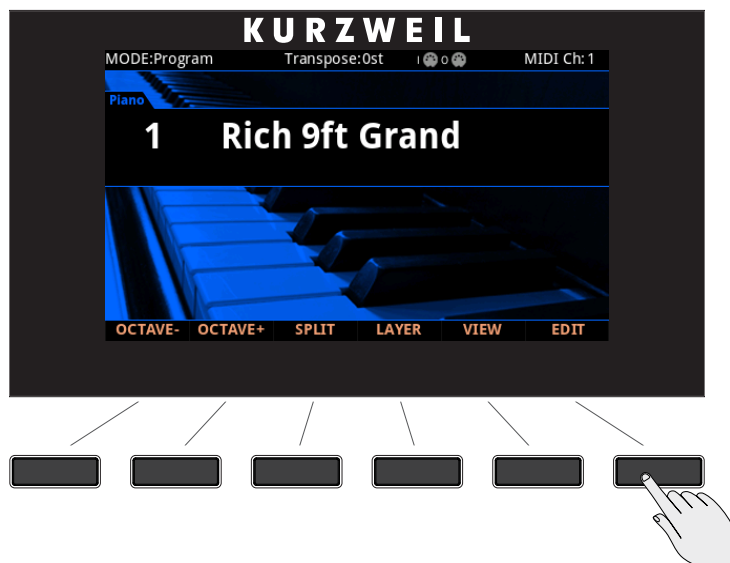
About Program Edit Mode



NOTE : Before you read this chapter, be sure to read **Program Mode** on [page 6-1](#) for a full description of Programs.

Program Edit Mode allows you to edit and customize Programs. It gives you access to a Program's parameter controller assignments, effects, and common settings.

Any Program can be edited in Program Edit Mode and saved to one of the 3072 User IDs.



Program Edit Mode

Differences Between Regular and Advanced User Type

To enter Program Edit Mode, first press the Program Mode button to enter Program Mode, then press the EDIT soft button.

Once you are in Program Edit Mode, press the soft buttons at the bottom of the screen to navigate to each of the Program Edit Mode pages. See the following sections for details on navigating and changing parameters.

All parameters apply only to the currently selected Program.

Differences Between Regular and Advanced User Type

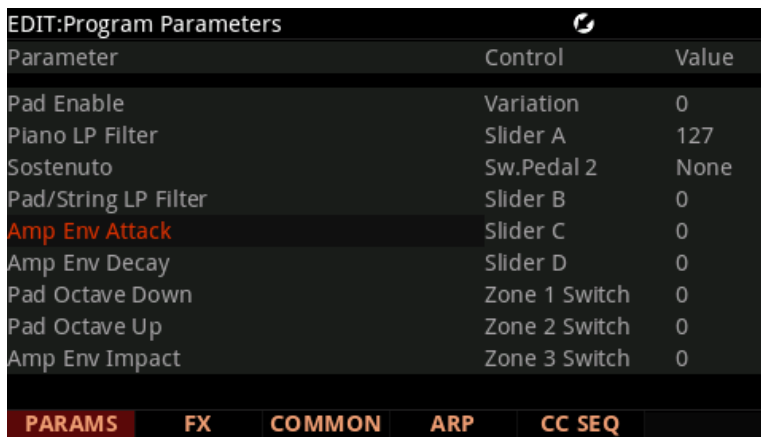
When the Global Mode User Type parameter is set to Regular, you can access a Program's parameter controller assignments, effects, arpeggiator, and common settings. When the Global Mode User Type parameter is set to Advanced, you can access the Regular User Type pages as well as additional VAST or KB3 pages. The User Type parameter can be selected in Global Mode on the MAIN1 page, see [User Type on page 12-6](#) for details.

When User Type is set to Advanced, some editing functions can be accessed by pressing the Favorites 1 button. This is indicated by a white "F1" appearing the top of the screen when the editable parameter is selected.

Selecting Parameters

The Display

In Program Edit Mode, the top line of the display shows the current Mode and Page. Use the cursor buttons to navigate to different rows and columns.



Parameter	Control	Value
Pad Enable	Variation	0
Piano LP Filter	Slider A	127
Sostenuto	Sw.Pedal 2	None
Pad/String LP Filter	Slider B	0
Amp Env Attack	Slider C	0
Amp Env Decay	Slider D	0
Pad Octave Down	Zone 1 Switch	0
Pad Octave Up	Zone 2 Switch	0
Amp Env Impact	Zone 3 Switch	0

PARAMS FX COMMON ARP CC SEQ

Alpha Wheel & Previous (–) and Next (+) Value Buttons

Use the Alpha Wheel or the Value buttons to the right of the display below the Alpha Wheel, to change the selected parameter value. Turning the Alpha Wheel counter-clockwise or pressing the Previous button will select the previous value and turning the Alpha Wheel clockwise or pressing the Next button will select the next value.

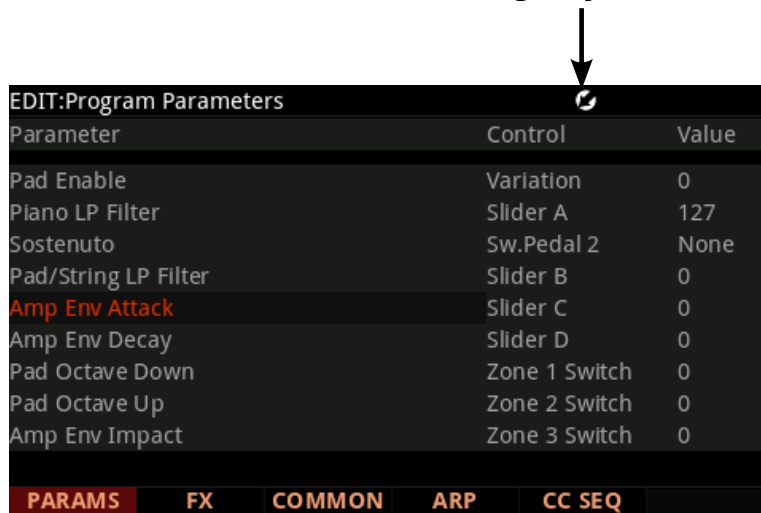
Assign

Assign is the secondary function of the Enter button. You can use the Assign function to quickly select parameters or set values for parameters by holding the Enter button while moving Forte controllers (Sliders, Switch buttons, Keys, Mod Wheel, and Pedals).



Parameters that can use the Assign function are indicated by showing the Assign symbol in the top right corner of the display when selected.

Assign symbol



Parameter	Control	Value
Pad Enable	Variation	0
Piano LP Filter	Slider A	127
Sostenuto	Sw.Pedal 2	None
Pad/String LP Filter	Slider B	0
Amp Env Attack	Slider C	0
Amp Env Decay	Slider D	0
Pad Octave Down	Zone 1 Switch	0
Pad Octave Up	Zone 2 Switch	0
Amp Env Impact	Zone 3 Switch	0

PARAMS FX COMMON ARP CC SEQ

Using Enter + Controller

Assign will function differently depending upon whether a parameter or its control is highlighted in the display.

Select any parameter in the Parameter column, hold the Enter button and move a controller (a Slider, Switch button, Mod Wheel or Pedal). Doing this will jump to selecting the parameter that is assigned to the moved controller (if a parameter is assigned to that controller).

Select the Control column for any parameter, hold the Enter button and move a physical controller (a Slider, Switch button, Mod Wheel or Pedal). Doing this will assign the selected parameter to be controlled by the moved controller.

VAST and KB3 Programs

It is important to understand the difference between VAST programs and KB3 programs.

VAST programs contain up to 32 layers, each of which contains a keymap or KVA oscillator. Keymaps consists of a number of samples assigned to a particular keyboard range. KVA oscillators use powerful DSP (digital signal processors) to generate a range of simple and complex waveforms. See [Editing VAST Programs With KVA Oscillators](#) for more details. See [VAST Program Structure](#) below for details on VAST programs.

KB3 programs use a much different architecture. There are no layers or algorithms, just a set of oscillators (designed to emulate the tonewheels in a Hammond Organ) that start running as soon as you select a KB3 program. See [KB3 Program Structure](#) for details on KB3 programs.

VAST Program Structure

[“Figure 7-1 VAST Program Structure” on page 7-5](#) depicts the hierarchy of a VAST program, from individual samples all the way up to Multis, which can contain up to 16 programs.

Every VAST program contains at least one layer. A layer consists of a keymap and an algorithm for processing the samples contained in the keymap. Each sample is a separate digital recording of some kind of sound: musical, vocal, industrial, any sound at all. Individual samples are assigned to specific key ranges (from A 2 to D 3, for example), and are also assigned to be triggered at specific attack velocities. These assignments constitute the keymap.

When you trigger a note, the Forte looks to the keymap of each layer of the currently active VAST program(s) to determine which samples to play. The sound engine then fetches the requested samples and generates a digital signal representing the sound of the samples. This signal first passes through the DSP functions that make up the algorithm. It then passes through the Forte’s effects processor, and finally appears—with some level of effects applied to it—at one or more of the audio outputs.

The layer is the VAST program’s basic unit of polyphony, that is, each layer constitutes one of the 128 voice channels the Forte can activate at any time. If you have a program that consists of two layers covering the note range from A 0 to C 8, each key you strike triggers two voice channels.

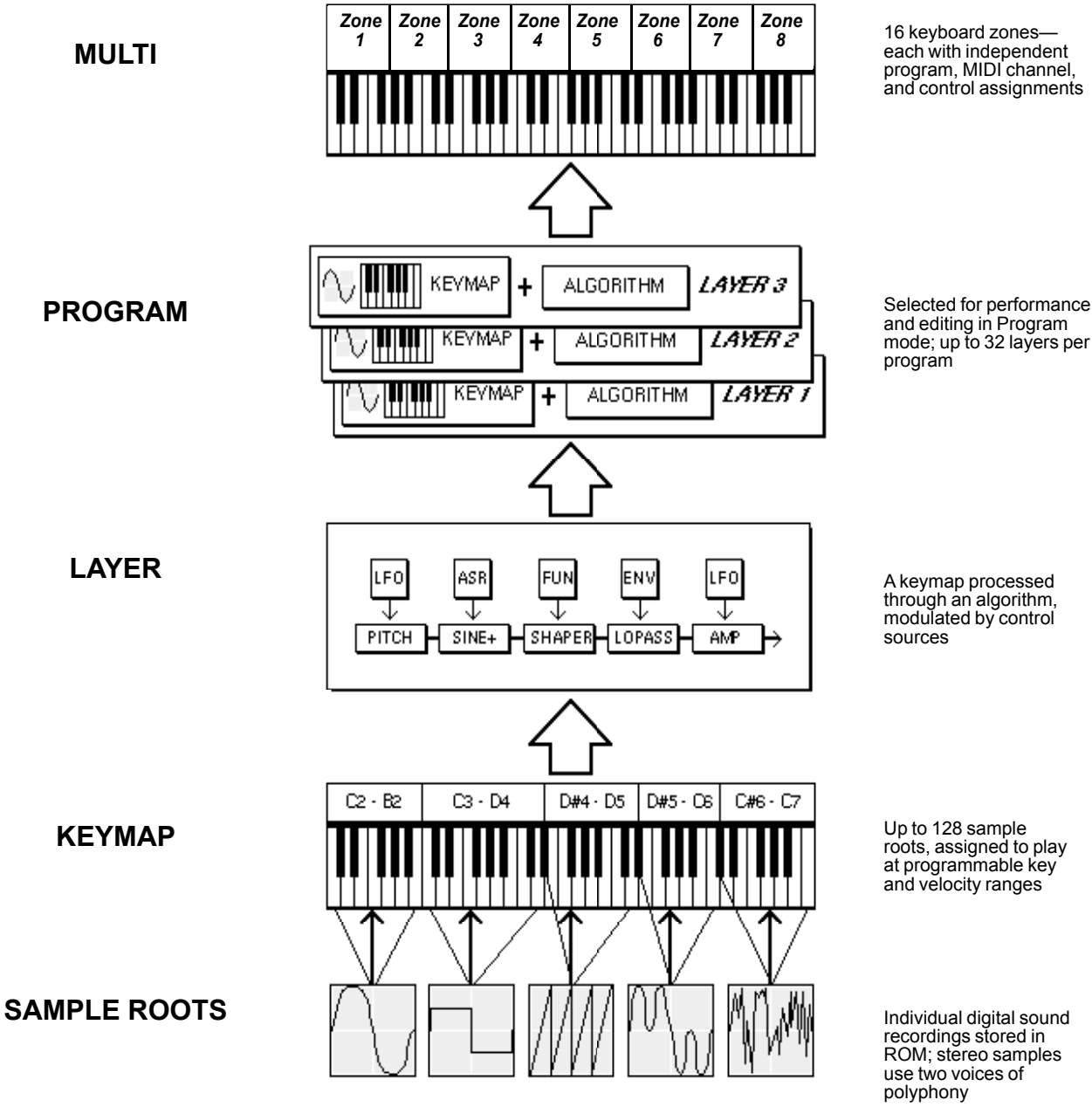


Figure 7-1 VAST Program Structure



Note: One exception to this structure is when using a KVA oscillator, the sound source for that layer is not derived from a keymap, but is generated at the algorithm stage (though keymap information is still used to set key range and maximum amplitude). After this, the structure is the same as described above. See [Editing VAST Programs With KVA Oscillators on page 7-77](#) for more details.

Editing VAST Programs

The Forte offers two powerful editing features: Cascade Mode and Dynamic VAST .

- **Cascade Mode** lets you route any layer of a program into the DSP of any other layer. Any of the 32 layers of a program can go into any other layer.
- **Dynamic VAST** lets you “wire” your own algorithms. You can combine different DSP functions in any order you like, including parallel and serial configurations.

The Program Editor is where you begin to modify the Forte’s resident sounds, and to build your own sounds around sample keymaps or KVA oscillators (see [Editing VAST Programs With KVA Oscillators on page 7-77](#) for some differences). There’s virtually no limit to the sounds you can create using the tools in the Program Editor.



Note: This section describes the Program Editor as it applies to VAST programs. See [Editing KB3 Programs](#) for information about editing KB3 programs.

The Soft Buttons in the Program Editor

There are more pages and functions in the advanced Program Editor than there are soft buttons. Therefore, two of the soft buttons are dedicated to scrolling through the list of pages and functions. If you don’t see the button for the page or function you want to select, press one of the soft buttons labeled **more**, and the labels will change. This doesn’t change the currently selected page, it merely changes the selection of available soft buttons.

Assigning VAST Parameters to Control Sources

Many Forte program parameters can be assigned to be controlled by the Forte’s physical controllers or by MIDI CCs from an external MIDI device. For details on controllable parameters of VAST programs, see the following sections:

For VAST programs, see the following sections:

[The DSP Modulation \(DSP MOD\) Page](#)

[The LFO+ Page](#)

[Envelope Control on page 7-66](#)

[The MOD Pages on page 8-3](#)

[FX LFO+ Page on page 8-5](#)

For KB3 programs, see the following sections:

[KB3 Editor: The PITCH Page](#)

[KB3 Editor: The AMP Page](#)

[KB3 Editor: The LFO+ Page](#)

[The MOD Pages on page 8-3](#)

[FX LFO+ Page on page 8-5](#)

For each program, the Program Editor can be used to assign the Forte's physical controllers or external MIDI controller CC numbers to control program parameters. When editing a factory program, the PARAMS page will list all parameters that have already been assigned to a physical controller or MIDI CC. To add additional controller assignments for parameters that are not listed on the PARAMS page, an assignment must be made on one of the VAST pages.

In the VAST editor pages, controllable parameters each have a source field. Make assignments to the source field for the desired parameter. Source fields are named differently depending on their page: Src1, Src2, RateCt, Trigger, Input a, Input b, and Source. Internal control sources can also be selected here such as LFOs, Envelopes, Key Number, Key Velocity, Key Pressure, FUNs, Clocks, and more. See [Search on page 3-19](#) for an easy way to find these internal control sources in each control source list.

To assign a Forte physical controller, select the source field for the parameter, hold the Enter button and move the controller.

To assign a CC number to a source field, enter a number from 1-31 or 64-95 with the alphanumeric pad, then press Enter. A CC number for an external controller can also be set by selecting the source field for the parameter, holding the Enter button, and sending a CC value from the external MIDI controller. The Forte's physical controllers each use one of the available MIDI CC numbers, so you must choose one of the other available CC numbers when using an external MIDI control source or else the parameter will also be controlled by a Forte physical controller. See the [The PARAMETER CONTROLS table on page 7-11](#) for a list of CC numbers used by the Forte's physical controllers. Some MIDI CCs are also hard wired to control certain program parameters or functions such as MIDI 5 (Portamento Time), MIDI 7 (Program Volume), MIDI 10 (Pan), MIDI 11 (Expression/Program Volume), MIDI 64 (Sustain), MIDI 66 (Sostenuto), so if you use one of these numbers the CC will always perform the hard wired function, in addition to any other assignment you make.

Names Displayed for VAST Sources

When assigning a physical controller or CC number to a source field, the source field will show a MIDI CC number, either followed by the name of an associated Forte physical controller (such as “12 Slider A”), or followed by “MIDI” and the CC number again (such as “3 MIDI 3”). By default, the Forte’s physical controllers are each associated with a specific MIDI CC number (see the Parameter Controls table below). Typically, assigning one of these associated CC numbers to a VAST source will assign the default associated Forte physical controller and display that name in the source field.

It is also possible for the associated Forte physical controller to be different from the default. For example, CC 12 is associated with Slider A by default. You could assign the DSP MOD page Pitch Src1 to “12 Slider A” for several layers of a Program. A “Pitch” parameter will appear on the Parameters page, with its Control set to Slider A. If the Control for this parameter is changed to Slider B on the Parameters page, the DSP MOD page Pitch Src1 fields will now show “12 Slider B”.

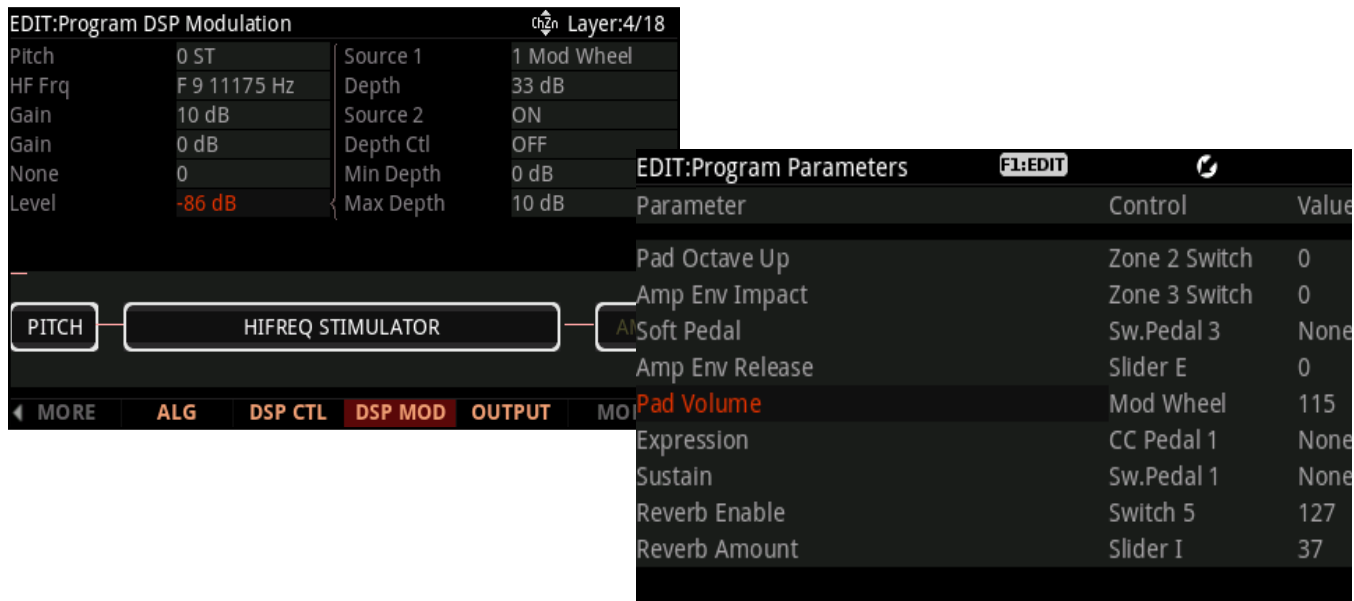
VAST Sources and the PARAMS Page

When assigning a physical controller or CC number to a source field, a Parameter is automatically added to the PARAMS Page with the name of the first assigned VAST parameter.

If you are assigning a physical controller or CC number that is already used by a parameter on the PARAMS page, a new parameter will not be added to the PARAMS page. The new assignment will share the existing Parameter on the PARAMS page (Name, Control assignment and initial Value). The previously existing Parameter’s name will not change based on the new assignment. If you have assigned one physical controller/MIDI CC to multiple VAST parameters, you may wish to edit the Parameter name to reflect this. Press the Favorites 1 button to access the parameter edit page. See [Parameter Edit on page 7-13](#) for details.

When a VAST mod source has been assigned to a physical controller or CC number, there will be an associated parameter on the PARAMS page (unless it has been manually deleted from the PARAMS page). To quickly find the associated parameter, select the VAST source field and press the Favorites 1 button to jump to selecting the associated parameter on the PARAMS page.

In the example shown below, Mod Wheel is selected on the DSP MOD page. Pressing **Favorites 1** jumps to the associated Pad Volume parameter on the Parameters page.



Relationship Between Controller Assignments on the PARAMS page and the VAST Pages

By default, when a new parameter is automatically added to the PARAMS page, the physical controller or CC number in the Control column will be the same CC number that was selected as a VAST source. If you select a different physical controller or CC number in the Control column of the PARAMS page, that physical controller or CC number will now control the VAST parameter, though the CC number that was originally selected as a VAST source will not change. For example, if you make your original VAST source assignment with MIDI 12 (shown as 12 Slider A), but then change Slider A to Slider B on the PARAMS page, Slider B will now control the VAST assignment, and the original VAST source will now show 12 Slider B.

On the PARAMS page, you can press the Favorites 1 button to see a Parameter's Destination field, which shows the CC number that it sends to parameters on the VAST pages. A parameter's Destination is automatically set when the Parameter is created, and can not be changed.

Alternatively, if you have changed Control assignments on the PARAMS page and are no longer sure which VAST source assignment goes with which Parameter on the PARAMS page, you can quickly find the associated parameter by selecting the VAST source field and pressing the Favorites 1 button.

The PARAMS Page

Parameter	Control	Value
Pad Enable	Variation	0
Piano LP Filter	Slider A	127
Sostenuto	Sw.Pedal 2	None
Pad/String LP Filter	Slider B	0
Amp Env Attack	Slider C	0
Amp Env Decay	Slider D	0
Pad Octave Down	Zone 1 Switch	0
Pad Octave Up	Zone 2 Switch	0
Amp Env Impact	Zone 3 Switch	0

PARAMS FX COMMON ARP CC SEQ

PARAMS Page Parameters

Column	Range Of Values
Parameter	Program / Effect Chain dependent
Control	Physical controller or MIDI CC
Value	None, 0 to 127

Press the PARAMS soft button to display the PARAMS page (see above).

The PARAMS page allows you to access all of the controllable parameters for the current The Parameters page shows a list of every parameter in the current program that has been assigned to be controlled by one of the Forte’s physical controllers (or by an external MIDI CC number). The Parameters page allows you to select a different controller assignment, set an initial MIDI value for each controller assignment, and edit the name displayed for each controller assignment (names can be edited when Global User Type is set to Advanced). All VAST, KB3 and FX parameters that have been assigned to a controller or MIDI CC number are shown. When controller or MIDI assignments are made on other Program or FX Edit pages, or if an FX Chain is selected which contains controller assignments, these parameters are automatically added to the Parameters page.

Parameter

The Parameter (left) column shows a list of every VAST parameter in the current program that has been assigned to be controlled by one of the Forte’s physical controllers (or by an external MIDI CC number). Effect Chain parameters are named with prefixes based on their effect type, either “INS” for parameters from Insert effects, “LFX” for parameters from layer effects, or “AUX1/AUX2” for parameters from Aux effects.

Use the navigation buttons to move up and down in the list. To quickly find a parameter that is already assigned to a controller, select the parameter column, hold the **Enter** button and move a controller to jump to it’s assigned parameter.

Control

The Control (middle) column determines which physical controller (or external MIDI CC number) will control the parameter in the selected row. To quickly assign one of the Forte’s physical controllers to a parameter, select the control column in the row of the desired parameter, hold the **Enter** button and move the desired controller. Alternatively, you can use the Alpha Wheel or the Value buttons to select a controller from the list, or type in the controller’s MIDI number followed by the Enter button. See below for a list of Forte physical controllers and their associated MIDI numbers.

If you want to disable the controller for a parameter, you can select a value of None by scrolling to the bottom of the controller list (using the Alpha Wheel or the Value buttons), or type -1 followed by the Enter button.

To choose an external MIDI CC number as a control source, you can enter the number of the controller followed by the **Enter** button, or use the Alpha Wheel or the Value buttons. The Forte’s physical controllers each use one of the available MIDI CC numbers, so you must choose one of the other available CC numbers when using an external MIDI control source or else the parameter will also be controlled by a Forte physical controller. The list below shows the available choices for the Control column. MIDI CC numbers associated with the Forte’s physical controllers are highlighted in bold type.

PARAMETER CONTROLS		
None	Slider E (MIDI 24)	Zone 1 Switch (MIDI 80)
MIDI 0	Slider F (MIDI 25)	Zone 2 Switch (MIDI 81)
Mod Wheel (MIDI 1)	Slider G (MIDI 26)	Zone 3 Switch (MIDI 82)
MIDI 2 to MIDI 3	Slider H (MIDI 27)	Zone 4 Switch (MIDI 83)
CC Pedal 2 (MIDI 4)	Slider I (MIDI 28)	MIDI 84
MIDI 5 to MIDI 10	Variation (MIDI 29)	Switch 1 (MIDI 85)
CC Pedal 1 (MIDI 11)	MIDI 30 to MIDI 63	Switch 2 (MIDI 86)
Slider A (MIDI 12)	Sw. Pedal 1 (MIDI 64)	Switch 3 (MIDI 87)
Slider B (MIDI 13)	MIDI 65	MIDI 88
MIDI 14 to MIDI 21	Sw. Pedal 2 (MIDI 66)	Switch 4 (MIDI 89)
Slider C (MIDI 22)	Sw. Pedal 3 (MIDI 67)	Switch 5 (MIDI 90)
Slider D (MIDI 23)	MIDI 68 to MIDI 79	MIDI 91 to MIDI 127

Table 7-1 The PARAMETER CONTROLS table

Important note about selecting a Control source

When you change the control source for a parameter, the new control source immediately sets its current value for the MIDI value of the current parameter. If the MIDI value of the parameter was set to None before changing the control source, changing the control source will set a new MIDI value, but the Value column for the parameter will still display None (see Important note about values of “None”, below). This can be troublesome if for example you were to change the Control Source for the Expression parameter, you may accidentally set the MIDI Value to 0, but wouldn’t know it because None would still be displayed. Also, if you set a MIDI Value to None by

Program Edit Mode

The PARAMS Page

scrolling below 0, the MIDI value will be 0 until you change the value with the assigned controller (though None will still be displayed). If you edit the parameters of a program and suddenly can't produce any sound from the program, this may be the cause. In this case, either set the Value for Expression to something other than None, or use the Control Source that you set for Expression to increase the Value.

Value

To change the value of a parameter, use the cursor button to highlight the right column. In the value column, use the Alpha Wheel or the Value buttons to enter a MIDI value from 0-127, or a value of None by scrolling below 0. You can also use the keypad function of the Category buttons followed by the Enter button to enter a MIDI value. If you set a MIDI Value to None by scrolling below 0, the MIDI value will be 0 until you change the value with an assigned controller (though None will still be displayed). A value of None can also be selected by using the keypad to type -1, followed by the Enter button.

Important note about values of "None"

For factory programs, standard parameters like Expression (program volume), Sustain, and Sostenuto are always set to **None** by default. If you change one of these values, either on the PARAMS page in the Program Editor, or with a physical controller from Program Mode (or the Program Editor,) **the same value will be used for any other program you select**, if you select another program that uses a value of **None** for the same parameter. **These values remain set even if you don't save the program.**

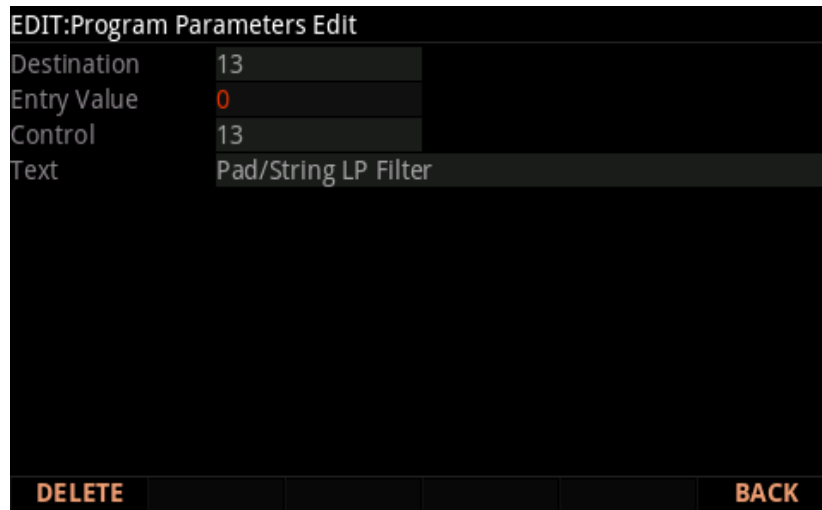
This can be useful, for example, when using an expression pedal to control program volume.

By default, all factory programs have their Expression parameter set to a value of **None**, and Expression (program volume) by default can be controlled by an expression pedal plugged into the CC 1 Pedal jack. With an expression pedal plugged into the CC 1 Pedal jack, you can control the volume of any factory program, but when you select another factory program, it will have the same volume that you set with the expression pedal in the last program. This way, the volume of your programs will stay consistent, and can always be changed by the expression pedal. If you want a program to have a default volume, you must set a Value other than **None** for the Expression parameter.

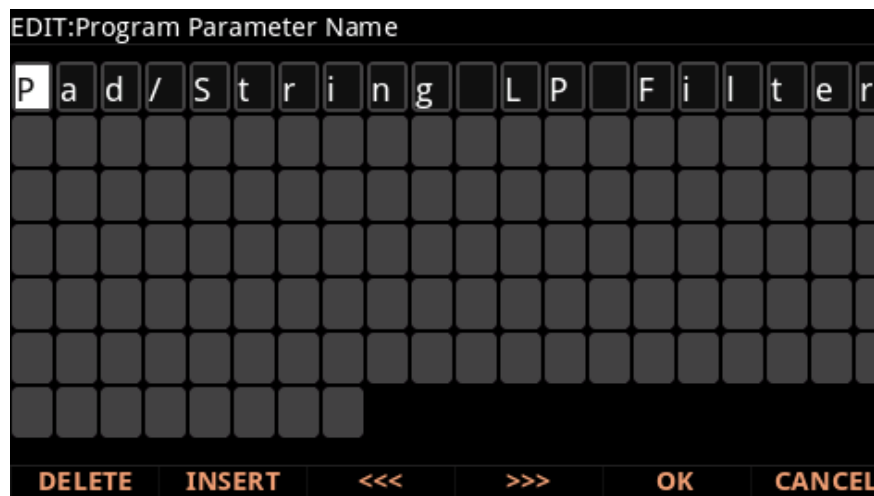
For all parameters with a Value of None, any values set with a physical control will not be saved when saving the program. You must set the Value column for that parameter to something other than None in order to set and save a value. These values will remain set until changed with a controller, or until a program is loaded on the current MIDI channel that does not have a value of None for these parameters.

Parameter Edit

When the global [User Type](#) is set to Advanced, press the **Favorites 1** button with a Parameter selected to view the Parameter Edit page. The Parameter Edit Page allows you to view the Parameter's Destination (MIDI CC that it sends to VAST parameters), as well as the currently assigned Control, Text name, and Value.



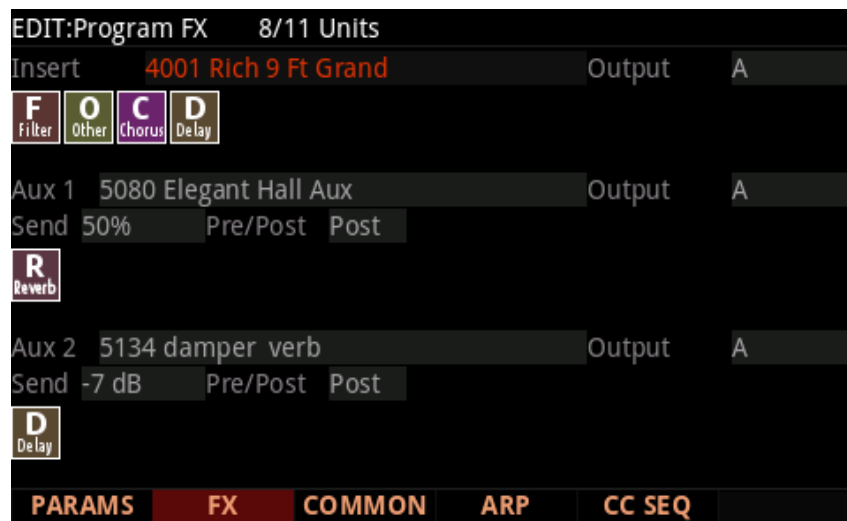
Use the Navigation button to step to the Text field, and press the **Favorites 1** button again to enter the Parameter Text page, where you can change the name displayed for the Parameter.



Press OK to save the new parameter name, or Cancel to return to the previous page.

You can also press the DELETE soft button to delete the current Parameter. Press the BACK soft button to return to the PARAMS page.

The FX Page



Press the FX soft button to view the FX page. Use this page to apply audio effects to a Program. You can select an Insert effects Chain and 2 Aux effects Chains, all of which apply to all layers in the Program (unless Layer FX are used, see below for details). In Program Mode, Programs on all MIDI channels share the Aux chains of the Program on the currently selected MIDI channel.

The Forte's Chains contain a variety of effects. Each Chain displays icons representing the type of effects contained in the Chain, as well as the order of effects in the Chain (signal flows from left to right). The Forte's Chains include different types of reverb, chorus, delay, flanger, phaser, tremolo, panner, leslie, distortion, EQ, compression, filter, envelope following filter, frequency stimulator, ring modulator, frequency offset, pitch LFO, and stereoizer.

When the Global Mode [User Type](#) is set to Advanced, the selected Chain can be edited by pressing the **Favorites 1** button. See [Ch. 8 The Effects Chain Editor](#) for details.

DSP Resources and DSP Units

A Program can have up to 8 Insert Chains (any combination of common and layer specific inserts) and 2 Aux Chains, sharing up to 32 DSP "Units." In the FX page shown above, note the "8/14 Units" in the middle of the top line of the page. The left-hand number indicates how many Units are being used by the highlighted Chain, and the right-hand number is the total number of Units being used by all Chains in the Program. If you attempt to use more than 32 DSP units, the Forte will notify you that you have done so, and no effects will be applied to the Program.

When sustaining notes while switching between 2 Programs, FX resources from the first Program may be “stolen” in order to load effects from the second Program. Because of this, you may hear a change in the sound of the first Program when switching to the second Program. If both Programs each use 14 DSP Units or less, then in most cases FX resources will not be stolen from the first Program, and you should not hear a change in the sound of the first Program.

FX Page Parameters

Parameter	Range Of Values	Default Value
Insert	Effect list (See Appendix F)	0 None
Aux 1	Effect list (See Appendix F)	0 None
Aux 1 Send	0 to 100%	0%
Aux 2	Effect list (See Appendix F)	0 None
Aux 2 Send	0 to 100%	0%
Aux 2 Send (Piano Programs)	Off, -95dB to 24dB	Off
Output	A, B	A
Pre/Post Ins	Post, Pre	Pre

Insert

Choose an effects Chain that will be applied to the current program. If you only need to use one Chain at a time on one MIDI channel, Insert effects may be all you need. If you plan to use multiple programs on different MIDI channels, it is best to use both Insert and Aux effects (see Aux below). Aux effects have the advantage of being available to all programs on each MIDI channel at the same time.

By default, when scrolling through the list of effects Chains for the Insert effect, only Chains with IDs from 4000-5000 will be shown. These Chains are used by the Forte factory programs, and each one will automatically apply controller assignments for effects parameters on the PARAMS page. Controller assignments for each of these Chains conform to the Controller assignments shown in the Forte Controller Conventions chart on [page 6-12](#). To access Chains outside of this range, enter an ID number using the keypad function of the Category buttons. With the Global Mode User Type parameter set to Advanced, Chain IDs in any range can be scrolled to. See [User Type on page 12-6](#) in the Global Mode Chapter.

Aux 1, Aux 2

Choose an effects Chain for each of the two auxiliary audio buses. An aux bus is an audio channel with a shared effects Chain that can be used by programs on any of the 16 MIDI channels. The aux effect is useful when you want to use the same type of effect for multiple channels (typically used for Reverb or Delay). You apply an aux effect to the program on a MIDI channel by “sending” the audio from that channel to an aux bus.

Program Edit Mode

The FX Page

Every channel is connected to the aux buses, but the aux buses don't receive the signal until you turn up the aux "send" level for that channel, which controls a channel's input level to the aux bus. On each MIDI channel you can control the aux send level for that channel's program, in turn controlling how loudly you can hear the aux effect applied to that channel's program. The aux send level is set by the Aux 1 and Aux 2 Send parameters on the FX page. Many Chains also have an additional Aux send, Wet/Dry, or Amount parameter that will appear on the PARAMS page. For Reverb and Delay Chains, send parameters are often assigned by default to Slider I or Slider H respectively.

By default, when scrolling through the list of effects Chains for the Aux effects, only Chains with IDs from 5000-6000 will be shown. These Chains are used by the Forte factory programs, and each one will automatically apply controller assignments for effects parameters on the PARAMS page. Controller assignments for each of these Chains conform to the Controller assignments shown in the Forte Controller Conventions chart on [page 6-12](#). To access Chains outside of this range, enter an ID number using the keypad function of the Category buttons. With the Global Mode User Type parameter set to Advanced, Chain IDs in any range can be scrolled to. See [User Type on page 12-6](#) in the Global Mode Chapter.

Output

The Output parameter specifies the rear panel analog output pair to which the selected aux bus is routed. Setting the Output to A routes the signal of the selected bus to output pair A. Setting the Output to B routes the signal of the selected bus to output pair B. This is useful if you want to control the processed Aux signal with an external mixer or process the signal with additional external effects.

Auxiliary Send, Type and Mod

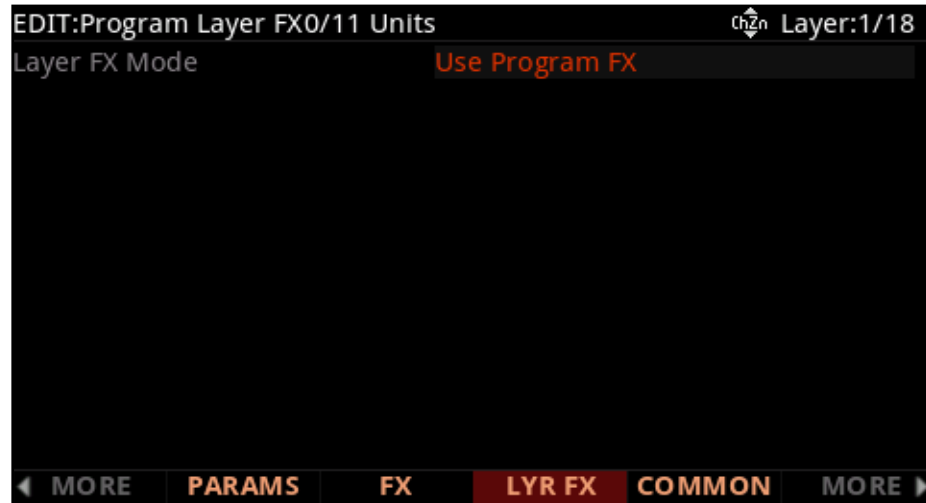
The Aux Send parameters determine how much of the Program's signal is sent to each Aux FX Chain. The send values are set either in dB or wet/dry percent. When Global Mode User Type is set to Advanced, the Type and Mod parameters appear. Type determines whether dB or percent is used, and Mod selects a physical controller which can scale the Aux send value.

When type is set to %, the Aux send works as a wet/dry mix, so that as you turn up the Aux send, the program's unprocessed signal is turned down. With an Aux send set to 50% you hear an equal amount of processed and unprocessed signal (called wet and dry, respectively). With an Aux send set to 100% you hear only the processed (wet) signal and none of the original unprocessed (dry) signal. Typically it's best to set Type to % when a continuous controller (like a Slider) is assigned to the Mod parameter, because it will give the controller more usable range than when set to dB.

When Type is set to dB, the Aux send level is set in dB and works more like a traditional send on an audio mixing board. Setting Type to dB is useful for setting a precise send value. The level of signal sent to the Chain is set in dB, the higher the value the more processed signal you will hear. When the Aux send level is set in dB, the unprocessed signal does not get turned down as the Aux send is turned up.

The Layer FX (LYR FX) Page

Press the LYR FX soft button to view the Layer FX page. On this page, you can apply layer-specific effects. There are three Layer FX Modes: Use Program FX, Layer-Specific FX, and Use Another Layer's FX.



Layer FX Mode

Use Program FX

With **Use Program FX** selected, the current layer will use the effects configured on the FX page. See [The FX Page](#) above for more information on program FX.

Layer-Specific FX

With **Layer-Specific FX** selected, you can configure the effects for the current layer. A Program can have up to 8 Insert Chains (any combination of common and layer specific inserts). This mode's parameters are the same as on the FX page, except they apply only to the current layer. See [The FX Page](#) above for more information on these parameters.

In this mode, the Aux parameters on this page apply to the Aux Chains selected on the FX page.

Use Another Layer's FX

With **Use Another Layer's FX** selected, you can put the current layer through the Insert Chain and Aux effects settings of another layer. Use the "Use FX From Layer" parameter to select the layer whose effects you wish to use.

The COMMON Page



The Common Page allows adjustment of a number of general parameters for the program. Notice that when the Monophonic parameter is set to its default value of **Off**, the four monophonic parameters do not appear on the page. Some global parameters will only appear when the global [User Type](#) is set to Advanced.

Parameter	Range Of Values	Default Value
BendRange Up	-7200 cents to +7200 cents	200 ct
BendRange Down	-7200 cents to +7200 cents	-200 ct
Output Gain	-96 to 24dB	0dB
Category	None, 20 Categories	per program
Intonation Map	Intonation Map list	0 None
Intonation Key	C - B	C
Tuning Map	Tuning Map list	0 None
Monophonic	Off, On	Off
Legato	Off, On	On
Portamento	Off, On	On
Portamento Rate	1-3000 Key/s	70 Key/s
Portamento Attk	Off, On	Off
MonoSamp XFade	Off, On	On

COMMON Page Parameters

BendRange Up & BendRange Down

Use these parameters to define how much the pitch will change when you move the Pitch Wheel. You can set either Bend parameter to bend by up to 72 half-steps up or down. Pitch values are set in cents, where 100 cents = 1 half-step (1 semitone).

For both Bend parameters, positive values will cause the pitch to bend up, while negative values will cause the pitch to bend down. Large positive values can cause samples to bend to their maximum upward pitch shift before the Pitch Wheel is fully up (or down). This will not happen when bending the pitch down.

Output Gain

Use the Output Gain parameter to cut or boost the final gain stage of the post-FX program signal. This is useful for adjusting the overall volume of a program.

Category

This parameter sets the category that the program will be grouped into when you press one of the Category buttons from the Program mode main page.

For example, if you were to edit a program in the Leads category that you want to use primarily as a Synth Bass, you could make it appear in the Syn Bass category by changing this parameter to SynBass. Set a category by using the Alpha Wheel or +/- buttons. In addition to the category set here, all edited programs can be viewed by pressing the User button.

Intonation Map

The Intonation Map parameter works just like the Global mode Intonation Map parameter, except the Intonation Map parameter on the Program Common page only applies to the current program. (The Global mode Intonation Map parameter applies to all programs.) The Intonation Map parameter on the Program Common page allows you to set a different map for each program. When the global [User Type](#) is set to Advanced, you can edit the currently selected map and save it as a user map by pressing the **Favorites 1** button. See [Editing Intonation Maps on page 12-15](#) for more details on intonation maps.



Program Edit Mode

The COMMON Page

Intonation Key

The Intonation Key parameter works just like the Global mode Int Key parameter, except the Intonation Key parameter on the Program Common page only applies to the current program. (The Global Mode Int Key parameter applies to all programs.) The Intonation Key parameter on the Program Common page allows you to set a different Intonation Key for each program. See [Editing Intonation Maps on page 12-15](#) for more details on intonation keys.

Tuning Map

Program tuning maps can be selected and edited for each Program, to set tuning offsets for each key in cents. When the global [User Type](#) is set to Advanced, you can edit the currently selected map and save it as a user map by pressing the **Favorites 1** button.

Program tuning maps can be used to emulate stretched tuning techniques which are commonly used for acoustic pianos and other acoustic keyboard instruments. Three tuning maps are included, Railsback (a common stretched tuning), E.Piano (based on a common electric piano service manual), and Grand Eight (based on a grand piano). Note: Most of the Forte's factory piano samples and keymaps use stretched tuning by default, therefore when editing Forte factory piano Programs, tuning maps are useful for changing tuning to equal temperament, rather than applying stretched tunings. A few keymaps which include "440" in their name are tuned to equal temperament.

Monophonic

When the Monophonic parameter is set to "Off", the current edited program is polyphonic—it can play up to 128 notes at a time (or fewer notes at a time if each note plays multiple layers).

When the Monophonic parameter is set to "On", the program will play only one note at a time, and the Legato parameter and the four Portamento parameters will appear on the Program Common page. Only monophonic programs can use Legato and Portamento. The Monophonic, Legato and Portamento parameters are not available for KB3 programs.

Legato

The Legato parameter is only available when the Monophonic parameter is set to "On". The Legato parameter is useful for emulating legato techniques of various acoustic instruments. When the Legato parameter is set to "On", a played note will trigger a new amplitude envelope only if no other notes in the program are being held. Notes played while other notes are being held will use the previously triggered amplitude envelope of the first note that was played.

Portamento

The Portamento parameter is only available when the Monophonic parameter is set to "On". When the Portamento parameter is set to "On", notes played in a monophonic Program can glide from the pitch of the previously played note to the pitch of the currently played note.

Portamento is often used in synthesizer lead sounds, or to mimic acoustic instruments like violin and bass, where a pitch glide is achieved by sliding a finger along a vibrating string.

See Portamento Rate (below) to set the Portamento glide speed, and Attack Portamento (below) to set the way that Portamento responds to played notes. See the MonoSamp XFade parameter (below) to improve the sound of Portamento in programs that use multiple samples.

Portamento Rate

The Portamento Rate parameter determines how fast a note glides from the pitch of one note to the pitch of the next played note. The value selected for this parameter determines how many seconds a note takes to glide one semitone (half-step) toward the pitch of the next played note. For example, at a setting of 12 keys/second the pitch would glide an octave every second. Select a higher value for a faster pitch glide, or a lower value for a slower pitch glide. The list of values is nonlinear; that is, the increments get larger as you scroll to higher values.

Portamento Attk

This parameter toggles between two types of portamento. When set to **On**, the pitch always glides to each new note played from the pitch of the last note played. When set to **Off**, the pitch glides to each new note played only if the last note played is still being held. This is useful when you want only some notes to use portamento.

MonoSamp XFade

When applying portamento to programs that use multiple samples (Acoustic Guitar, for example), the Forte will play more than one sample root as the pitch glides from the starting pitch to the ending pitch. This may cause a small click at each sample root transition. You can eliminate clicks by setting the MonoSamp XFade parameter to On. When the MonoSamp XFade parameter is set to On, the Forte performs a crossfade at each sample root transition to eliminate clicks.

COMMON Parameters with Advanced User Type

Additional parameters can be accessed when global [User Type](#) is set to Advanced.



Parameter	Range Of Values	Default Value
Out Pan	-64 to +64	0
Out Pan Mode	+Midi, Fixed	+Midi
Global	On, Off	On
Demo Song	Demo Song list	0 None

Out Pan

Use the Out Pan parameter to adjust the left/right balance of the entire Program output signal (post-FX). Negative values pan the audio signal to the left channel, positive values to the right, and a value of zero pans to the center.

Out Pan Mode

When the Out Pan Mode is set to **Fixed**, the Out Pan position remains as defined with the Out Pan parameter, ignoring MIDI pan messages. When the Out Pan Mode is set to **+MIDI**, MIDI pan messages (MIDI 10) will shift the sound to the left or right of the Pan parameter setting. Message values below 64 shift it left, while those above 64 shift it right.

Globals

This parameter affects the control sources LFO2, ASR2, FUN2 and FUN4.

When the Globals parameter is set to **Off**, these control sources are **local**; they affect each note individually in the layers that use them as a control source. They begin operating for each note each time a note in that layer is triggered, and are not affected by other notes.

When the Globals parameter is set to **On**, these control sources become **global**, which means they affect every note in every layer of the current program, they're not specific to any one layer. When these control sources are global, they begin operating as soon as the program is selected. When Globals are on, LFO2, ASR2, and FUNs 2 and 4 will appear on the LFO+ page preceded by the letter G to indicate that they're global.

Local control sources are useful for affecting parameters independently for each note in a layer. Local control sources have the advantage of having a separate copy re-triggered for each note. Their disadvantage is that their parameters must be set separately for each layer if you wish to affect multiple layers.

Global control sources are useful for affecting many parameters in a program uniformly, because they share the same settings on all layers. Their disadvantage is that a separate copy is not re-triggered for each note.

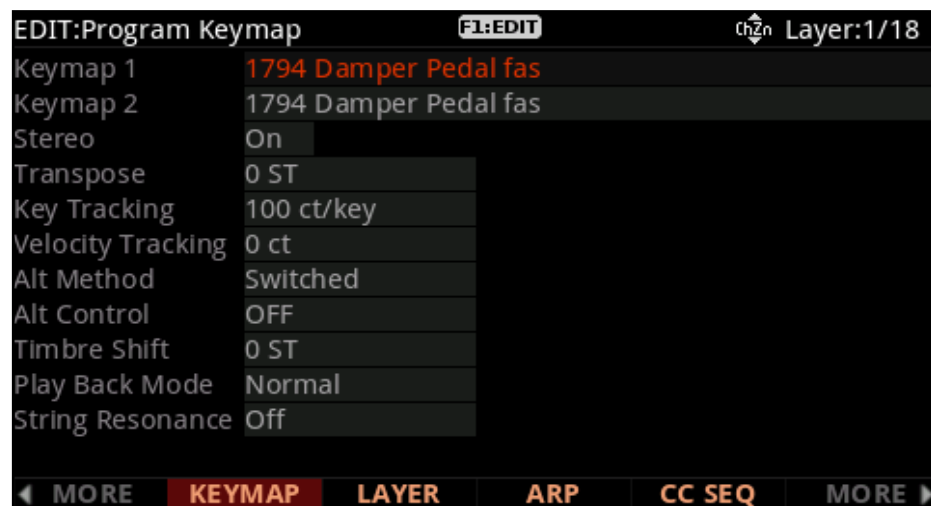
You'll use global control sources when you want to affect all notes in a program uniformly, and local control sources when you want to affect each note independently. For example, a global LFO is useful for controlling amplitude to create a tremolo effect, if you want the effect applied uniformly to all the notes you play. A local ASR is useful for controlling the frequency of a filter sweep, if you want the filter sweep to be independent for each note.

Demo Song

The Demo Song parameter allows you to choose the demo song for the current program. The demo song is a short, pre-programmed song that gives you a demonstration of the program in a musical context. You can play a program's demo song in Program mode by simultaneously pressing the Voices and Mallets Category buttons.

The KEYMAP Page

Press the **KEYMAP** soft button to call up the KEYMAP page. The parameters on this page affect sample root selection, i.e., which samples are played on which keys.



KEYMAP Page Parameters

Parameter	Range of Values	Default
Keymap	Keymap List	1 Piano f Left
Stereo	Off, On	Off
Transpose	-128 to 127 semitones	0
Key Tracking	± 2400 cents per key	100
Velocity Tracking	± 7200 cents	0
Alt Method	Switched, Continuous	Switched
Alt Control	Control Source List	Off
Timbre Shift	± 60 semitones	0
Playback Mode	Norm, Rvrs, Bidirectional, Noise	Normal
String Resonance	Off, On	Off

Keymap, Keymap 1, Keymap 2

Assign a keymap to the current layer. Keymaps are collections of samples assigned to note and velocity ranges. With the Keymap parameter selected, press the Favorites 1 button to enter the Keymap editor (see [Ch. 9 Keymap and Sample Editing](#) for details).

Stereo

You'll use this parameter when you're working with stereo samples. When you set this parameter to **On**, an additional Keymap parameter appears. The two keymap parameters are distinguished as Keymap 1 and Keymap 2. The KEYMAP page parameters will affect both keymaps. When the Stereo parameter is set to **On**, the OUTPUT page for the current layer will show an additional Pan parameter.

The Forte contains both stereo and mono samples. Keymaps designed for stereo use are labeled with names beginning with "Stereo" or ending in "Left", "Right", "L", or "R". For stereo keymap playback, set Stereo to "On" and assign corresponding Left and Right keymaps to Keymap 1 and Keymap 2 respectively. For keymaps beginning with "Stereo," assign the same keymap to both Keymap 1 and Keymap 2. If you select the same keymap for Keymap 1 and Keymap 2, the Forte automatically uses the left side for Keymap 1 and the right side for Keymap 2.

Once you have the keymaps assigned, go to the OUTPUT page and set the panning for each keymap as desired. Keep in mind that using stereo keymaps reduces the polyphony of the program. For example, if you had a two-layer program with stereo keymaps in each layer, each note you play would use 4 of your 128 voices, allowing a total of 32 notes before all the voices have been used.

If you're not using stereo samples, you should set this parameter's value to Off.

Transpose

Use the Transpose parameter to transpose the pitch of the current keymap up or down on the keyboard. For example, when Transpose is set to 12ST, the C4 key will play samples which are assigned in the keymap to play from the C5 key.

Key Tracking

Use the Key Tracking parameter to set the pitch interval between each keyboard key. The default value of 100 cents gives you the normal semitone (half-step) interval between each note (a cent is a hundredth of a semitone). Higher values increase the interval; lower values decrease it. Negative values will cause the pitch to decrease as you play higher notes.

The Key Tracking parameter on the KEYMAP page works in conjunction with Pitch KeyTrk parameter on the DSP CTL page. Unless you're looking for nonstandard note intervals, the values of these two parameters should add up to 100 cents.

Velocity Tracking

Use the Velocity Tracking parameter to change the pitch of the keymap based on velocity. Different attack velocities will play different pitches of the sample root assigned to each note range. If the pitch change is great enough, the next higher or lower sample root will be played, which in some cases (many drum programs, for example) will play an entirely different sound. Positive values will play higher pitches of the sample root as you play higher attack velocities, while negative values will play lower pitches as you play higher attack velocities.

Alt Method

Each sample root in a keymap can have an alternate sample start point. The sample start points in the selected keymap can be varied between the original and alternate start point by using an assigned physical controller or other control source. This can be useful for emulating legato playing of acoustic instrument sounds, by skipping the initial attack section of samples for legato notes.

When the Alt Method parameter is set to **Switched**, the Alt point will be used as the sample start point when the assigned controller is at a value greater than 64. When Alt Method is set to **Continuous**, the sample start point will vary between the original and alternate start point depending on the value of the assigned controller.

Alt Control

Each sample root in a keymap can have an alternate sample start point. The sample start points in the selected keymap can be varied between the original and alternate start point by using an assigned physical controller or other control source. This can be useful for emulating legato playing of acoustic instrument sounds, by skipping the initial attack section of samples for legato notes.

Use the Alt Control parameter to select a control source that will adjust the sample start point.

Emulating Legato Play

If you place the Alt point after the initial attack transients of a sample, you can use the Alt Switch to emulate legato playing in an acoustic instrument, by skipping the initial attack section of samples for legato notes.

Setting the Alt Control parameter to Chan St (Channel State) will cause the alternate sample start point to be used whenever another note is already being held. (Chan St sends a value of 127 whenever at least one note is being held in the program's MIDI channel.) This allows non-overlapping notes to use the sample's original start point, while overlapping notes will use the alternate start point.

Timbre Shift

This parameter works only on multi-sample keymaps, and changes the root selection for each key you play. A timbre-shifted note retains its original pitch, but its harmonics are those of the same timbre at a higher or lower pitch. Positive values for this parameter tend to brighten a sound, while negative values darken.

For example, if you shift the timbre up 4 semitones, playing C 4 will result in the *pitch* C 4, but will actually play the sample normally assigned to G# 3 with its pitch tuned up four semitones. This will increase the playback rate of the sample, so although the pitch remains normal, the timbre is brighter. You'd get the same effect by setting the Transpose parameter on the KEYMAP page to -4 semitones, then setting the Pitch parameter on the DSP CTL page to +4 semitones.

Playback Mode

This gives you numerous options for manipulating the samples in the current layer as you trigger them. Normal leaves the samples unaffected, while Reverse plays them in reverse. At a value of Reverse, the samples will continue to loop as long as notes are sustained. To play them just once in reverse, you would adjust the length of the layer's amplitude envelope (explained later in this chapter). BiDirect (bidirectional) causes the samples to loop infinitely, alternating between normal and reversed playback. Noise replaces the samples with a white noise generator.

String Resonance (Kurzweil String Resonance)

Sympathetic string resonance in an acoustic piano is the phenomenon of undamped piano strings resonating as a result of sound from other notes/keys. This can be observed if one plays a C, continues holding down the key after the sound has decayed, and then forcibly presses and quickly releases another C key. The undamped strings of the held-down C key will audibly ring, providing a highly tuned "echo", commonly known as sympathetic string resonance.

The String Resonance parameter works in conjunction with the FX preset "600 String Resonance" to emulate the sound of strings resonating in an acoustic piano. When combined, these two components create KSR (Kurzweil String Resonance). Factory programs in the Piano category are set up to use KSR, and they provide a good example of how the

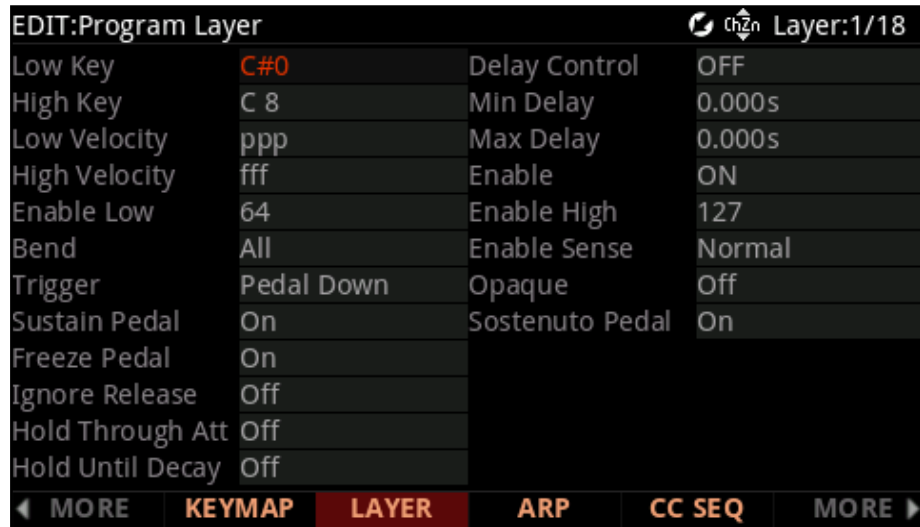
two components should be used. When making your own program with KSR, it may be easiest to use an FX Chain from one of these programs, since they already contain controller assignments for KSR. In these Programs and Chains the dry/wet mix of the KSR effect can be controlled with slider F, and the effect can be enabled or disabled with assignable switch 2. When making your own Chain, the FX preset “600 String Resonance” should be used for the first box of the Program’s insert Chain.

When a layer has the String Resonance parameter set to On, the FX preset “600 String Resonance” monitors which keys are being held on that layer and uses them to tune the algorithm in the FX preset. Any audio that passes through the FX preset while these keys are held will cause emulated strings to resonate based on this tuning. When using KSR, layers which contain samples of piano notes should have the String Resonance parameter set to On. Layers that do not play samples of piano notes (such as layers for mechanical key release noise, pedal noise, string/synth layers etc) should have the String Resonance parameter set to Off. (Layers set to Off will still resonate any other strings that have been emulated.) If more than one layer in a program is set to play piano notes for the exact same velocity and key range, the FX preset will function the best if only one of those layers has the String Resonance parameter set to On.

In an acoustic piano, it is possible to strike and hold a key very lightly so that a note is not played, but the key’s strings will still become undamped and will resonate when other keys are played. KSR can simulate this behavior. To do so, select the layer in the program which has the lowest velocity range and which has the String Resonance parameter set to On. On the Layer page, set the Enable parameter to GAttVel, and set the Enable Min parameter to 2. This will allow notes played with a velocity of 1 to tune the algorithm in FX preset “600 String Resonance” without playing a note. (This only works for velocities of 1. Velocities above 1 will not tune the algorithm without playing a note, even if the Enable Min parameter is set to a higher value.)

The LAYER Page

Use the Layer page to set the current layer’s keyboard range, velocity range, and other layer specific parameters.



LAYER Page Parameters

Parameter	Range of Values	Default
Low Key	C -1 to G 9	C 0
High Key	C -1 to G 9	C 8
Low Velocity	ppp to fff	ppp
High Velocity	ppp to fff	fff
Enable Low	± 127	64
Bend	Off, Key, All	All
Trigger	Normal, Reversed, Pedal Down, Pedal Up	Normal
Sustain Pedal	Off, On, On2, On3	On
Freeze Pedal	Off, On	On
Ignore Release	Off, On	Off
Hold Through Attack	Off, On	Off
Hold Until Decay	Off, On	Off
Delay Control	Control Source list	Off
Minimum Delay	0 to 25 seconds	0
Maximum Delay	0 to 25 seconds	0
Enable	Control Source list	On
Enable Sense	Normal, Reversed	Normal
Enable High	± 127	127
Opaque	Off, On	Off
Sostenuto Pedal	Off, On	On

Low Key, High Key

Use the Low Key and High Key parameters to set the key range for the current layer. The Low Key and High Key parameters set the lowest and highest active notes for the current layer. The standard MIDI key range is C 1—G 9 (0-127). Middle C is C 4.

Low Velocity, High Velocity

Use the Low Velocity and High Velocity parameters to set the velocity range for the current layer. The Low Velocity and High Velocity parameters set the lowest and highest active velocities for the current layer.

Velocity values are set in 8 standard musical dynamics markings (ppp-fff). The 8 available dynamic levels each account for a range of 14-16 velocities out of velocities 1-127. This allows for velocity switching between up to eight layers.

For finer control of velocities levels or velocity switching between up to 32 layers, follow these steps:

1. Set the Low Velocity to ppp, and High Velocity to fff.
2. Set the Layer page Enable parameter to GAttVel (Global Attack Velocity).
3. Set the Layer page Enable Sense parameter to Normal.
4. Set the layer's velocity range in values 1-127 using the Enable Low and Enable High parameters.

Pitch Bend Mode (Bend)

The Bend parameter determines how Pitch bend control messages will affect the current layer. To apply the same Bend setting to the entire program, set the same value for each layer.

When Bend is set to All, pitch bend is applied to all notes.

When Bend is set to Key, pitch bend is applied only to held notes (pitch bend is not applied to notes held with the sustain pedal). This is useful for emulating guitar string bending techniques. For example, you can play and release a sustained note held with the sostenuto pedal (as a guitarist might with an open string), then play pitch bent notes over the sustained note; the note held with sostenuto will not bend.

When Bend is set to Off, pitch bend is disabled for the current layer.

Trigger

When the Trigger parameter is set to Normal, notes are triggered when a key is pressed down and a MIDI note on message is received by the layer.

When the Trigger parameter is set to Reverse, notes are triggered when a key is released and a MIDI note off message is received by the layer (velocity is determined by the release velocity of the released key).

Program Edit Mode

The LAYER Page

When the Trigger parameter is set to Pedal Down or Pedal Up, notes are triggered when the sustain pedal is pressed down or released (typically used for triggering piano pedal noise samples). The sustain pedal will trigger MIDI note 60 with a velocity of 64.

Delay Control

The delay parameters allow you to set an adjustable delay time to delay the start of each note triggered in the current layer.

Use the Delay Control parameter to select a physical controller or other control source that will adjust the delay time. The delay time will be adjusted with the range set by the Min Delay and Max Delay parameters.

Minimum Delay, Maximum Delay

The delay parameters allow you to set an adjustable delay time to delay the start of each note triggered in the current layer. Use the Min Delay and Max Delay parameters the range of the delay time in seconds.

If the Delay Control parameter is set to OFF, the Min Delay setting is used. If the Delay Control parameter is set to ON, the Max Delay setting is used.

Enable, Enable Low, Enable High, Enable Sense

Use the Enable parameters to determine when the layer will be active, based on the value of a physical controller or other control source. For details on using the Enable parameters with key velocity, see [“Low Velocity, High Velocity” on page 7-29](#).

Use the **Enable** parameter to select a control source that can activate or deactivate the layer. Some local control sources (KeyNum and AttVel, for example) are not valid for the Enable parameter. In these cases, you should use the global equivalent (GKeyNum and GAttVel in this example).

Use the **Enable High** and **Enable Low** parameters to select a control source value range that can activate or deactivate the layer.

When the **Enable Sense** parameter is set to Normal, the layer will become active when the control source is in the range set by Enable High and Enable Low. The layer will be deactivated when it is out of this range.

When the **Enable Sense** parameter is set to Reverse, the layer will become active when the control source is out of the range set by Enable High and Enable Low. The layer will be deactivated when it is in this range.

Opaque

An opaque layer blocks all higher-numbered layers in its key and velocity range, allowing only the opaque layer to play. This is an easy way to change a small range of notes in a program, leaving the original sound playing above and below the new sound. For example:

1. Edit a one-layer program, and create a new layer (Layer 2) with the **NEW LYR** soft button.

2. On the Layer 2 Keymap page, select a keymap with a different instrument sound.
3. On the Layer 2 Layer page, set Low Key C 3 and High Key to D 3.
4. On the Layer 2 Layer page, set the Opaque parameter to **On**.
5. Go back to Layer 1 and duplicate it by pressing the **DUP LYR** soft button. The duplicate layer becomes Layer 3. You now have a three-layer program.
6. Delete Layer 1 (the original layer). Layer 2 (the layer you created with NEW LYR) becomes Layer 1, and Layer 3 (the layer you create with DUP LYR) becomes Layer 2. Now Layer 1 blocks out Layer 2 at the notes C 3–D 3.

Sustain Pedal

The Sustain Pedal parameter determines how the layer will respond sustain messages (MIDI CC 64), typically sent from the sustain pedal (the Switch 1 SUSTAIN jack).

When the Sustain Pedal parameter is set to **Off**, notes will not respond to sustain messages.

When the Sustain Pedal parameter is set to **On**, any note that is played or is already playing when the pedal is pressed and held will be sustained for as long as the pedal is held. This setting is useful for piano sounds that do not respond to half damper pedal techniques.

When the Sustain Pedal parameter is set to **On2**, any note that is played while the pedal is pressed and held will be sustained for as long as the pedal is held, unless the notes have been released. Notes that are already playing the release segment of their amplitude envelope will not be sustained. This is useful for most instrument sounds other than piano, where notes may have a long amplitude envelope release time. For example, for a string or synth sound that may have a long release time, use On2 to prevent previously released notes from being sustained.

When the Sustain Pedal parameter is set to **On3**, any note that is played or is already playing when the pedal is pressed and held will be sustained for as long as the pedal is held. The On3 setting also enables the use of half damper pedal techniques when using a compatible continuous switch pedal (such as the Kurzweil KP-1H). On3 emulates the behavior of an acoustic piano's sustain pedal by increasing the release portion of the current layer's amplitude envelope as the pedal is pressed down, before becoming fully sustained. This allows you to use a sustain pedal to control note release length and sustain. This setting is useful for piano sounds that respond to half damper pedal techniques.

Sostenuto Pedal

The Sostenuto Pedal parameter determines how the layer will respond sostenuto messages (MIDI CC 66), typically sent from the sostenuto pedal (the Switch 2 jack).

When the Sostenuto Pedal parameter is set to **Off**, notes will not respond to sostenuto messages.

Program Edit Mode

The LAYER Page

When the Sostenuto Pedal parameter is set to **On**, any keys that are being held when the pedal is pressed and held will sustain for as long as the pedal is held. Notes played after the pedal is already down do not get sustained.

Freeze Pedal

The Freeze Pedal parameter determines how the layer will respond freeze messages (MIDI CC 69).

When the Freeze Pedal parameter is set to **Off**, notes will not respond to freeze messages.

When the Freeze Pedal parameter is set to **On**, any note that is played or is already playing when MIDI CC 69 is received with a value of 64-127 will sustain without decay, until MIDI CC 69 is received with a value of 0-63. If a note is already decaying, it will freeze at that level.

Ignore Release

When the Ignore Release parameter is set to Off, the layer responds normally to Note Off messages.

When the Ignore Release parameter is set to On, the layer will ignore all Note Off messages that it receives. This should be used only with sounds that decay to silence when a note is held, otherwise the sounds will sustain forever (press PANIC to stop sustained notes).

Hold Through Attack (Hold Through Att)

When the Ignore Release parameter is set to Off, the layer responds normally to Note Off messages.

When the Ignore Release parameter is set to On, the layer will ignore all Note Off messages that it receives. This should be used only with sounds that decay to silence when a note is held, otherwise the sounds will sustain forever (press PANIC to stop sustained notes).

Hold Until Decay

When the Hold Through Att parameter is set to Off, a note will enter the release segment of the amplitude envelope as soon as a key is released.

When the Hold Through Att parameter is set to On, a note will always play the entire first attack segment of the amplitude envelope, even if a key is released. This is useful for layers which have a long amplitude envelope attack segment, or an attack that's delayed with the layer delay parameters. Setting this parameter to On will cause notes to reach full amplitude even if each key is only held for a short time.

The Arpeggiator (ARP) Page

Use the Arp page to adjust settings for the Program's Arpeggiator. The Arpeggiator takes note input from the keyboard (or via MIDI) and outputs a rhythmic and/or melodic pattern of MIDI notes. The Arpeggiator can affect both the internal programs and external MIDI instruments.

Press the front panel EXIT button to exit the Arpeggiator page.



The Arpeggiator processes notes by playing them repeatedly, and/or transposing them up and down the keyboard. You have control over note output velocity, order, duration, transposition, and more. In Multi Mode, you can assign controllers to control several arpeggiator parameters in real time (see Multi Controller destinations 147, 150-160 and 170-178 in [The Controller Destination List on page 11-26](#)). You can also select and edit patterns for note shifting, velocity shifting, and duration, either as independent patterns, or as a combination of all three in Step Sequencer mode. The Arpeggiator also has several different “latch” settings, which allows the arpeggiator to respond to played notes in different ways, such as continuing to play after you have released the keys.

Certain editing capabilities are only available when the Global User Type is set to Advanced, such as additional Latch and Limit Option settings, as well as independent Shift, Velocity, and Duration pattern editing. The User Type parameter can be selected on the Global Mode MAIN1 page, see [User Type on page 12-6](#) for details.

See [S.Buttons 1-2 on page 12-13](#) for an easy way to control the arpeggiator State and Latch switch in Program and Multi Mode.

Arpeggiator Common Parameters

The following common parameters are used by the Arpeggiator in both Classic and Step Sequencer mode.

Parameter	Range of Values	Default
Arp Preset	Arp Preset List	1 Default Arp
State	On/Off	Off
Arp Mode	Classic, Step Sequencer	Classic
Tempo	System, 20-320 bpm	System
Latch	Standard, Overplay, Arpeg, Add, Auto, AutoHold, 1NoteAuto, 1NoteAutLo, 1NoteAutHi	Standard
Latch Type	Latch Sustain, Latch2 Sost	Latch Sustain
Limit Option	Stop, Reset, Unipolar, Bipolar, FloatRst, Float Uni, Float Bip	Unipolar
KeyRange	C-1 to G9	C1 - G9

Arp Preset

Use the Arp Preset parameter to recall factory or user created Arpeggiator settings. An Arp Preset contains settings for all of the parameters on the ARP page (except for the State and KeyRange parameters, which are stored with the Program/Multi). Scrolling through the Arp Presets is an easy way to discover the different possibilities of the arpeggiator, or to find a preset similar to what you want and continue to edit it from there.

You can save your current settings as an Arp Preset by pressing the SAVE ARP soft button. If you select a different Arp Preset before saving your current Arpeggiator settings, the current Arpeggiator settings will be replaced by the settings from the preset without showing a warning. Be sure to save your settings as an Arp Preset if you want to be able to recall them after making additional changes. Even if you don't save the current Arpeggiator settings as an Arp Preset, the most recent settings will always be saved with the Program or Multi when the Program or Multi is saved. Changing any of the Arp parameters will change the Preset to "0 Edited Arp", to indicate that the previous preset settings are no longer being used.

State

Use the State parameter to turn the Arpeggiator On or Off. See [S.Buttons 1-2 on page 12-13](#) for an easy way to control the arpeggiator State in Program and Multi Mode. In a Multi, this parameter can also be controlled with Controller Destination 147 (Arp On/Off).

Arp Mode

The two Arpeggiator modes, Classic and Step Sequencer, offer different means of shaping and editing Arpeggiator patterns. Depending upon this mode, the ARP page will provide access to different options and editable patterns.

In **Classic** mode, the ARP page will offer algorithmic options, as well as independent note-Shift, Velocity and Duration patterns. These patterns are editable when the global [User Type](#) is set to Advanced. See [Arpeggiator Classic Mode Parameters on page 7-38](#) for details on Classic mode parameters.

In **Step Sequencer** mode, you can edit sequences step-by-step, specifying Note, Velocity, Duration and Beat for each step in a sequence. See [Arpeggiator Step Sequencer Mode Parameters on page 7-46](#) for details on Step Sequencer mode parameters.

Arp Mode can also be set to **Off**. In Multi Mode, set the Arp Mode to Off for any Zones which you don't want to control with the ARP ON and LATCH soft buttons (see [S.Buttons 1-2 on page 12-13](#) for details).

Tempo

The Tempo parameter specifies the arpeggiator tempo in beats-per-minute. If a specific Arpeggiator tempo is saved with an Arp Preset, the Global tempo will be set to that value when the preset is selected.

When arp Tempo is set to System, the arpeggiator will use the value set on the TEMPO page in Global Mode (see [TEMPO on page 12-25](#) for details). For quick access to the Global TEMPO page from any other page, press the left and right navigation buttons simultaneously.

In Multi Edit Mode, the arp Tempo parameter is not shown, and the arpeggiator tempo is determined by the Tempo parameter on the Common page.

Latch

The Latch parameter allows you to control how and when notes played on the keyboard (or via external MIDI) will be arpeggiated. For example, some latch settings allow notes to continue arpeggiating after keys have been released (these are called latched notes), and some settings only arpeggiate certain notes. **Keep in mind, notes played outside of the Arp KeyRange are never latched or arpeggiated.**

Some Latch settings require using the Latch switch. The Latch switch can be assigned to a soft button by setting the Global Mode S.Buttons 1-2 parameter to "Arp" (see ["S.Buttons 1-2" on page 12-13](#)), or to a switch pedal by setting one of the SW Override parameters to Arp Latch on the Global Mode Main 2 page (see [Switch Pedal Overrides on page 12-16](#)). In Multi Mode, you can also control the Latch switch by assigning a switch to destination 157 (Latch) (values 0-63 = off, 64-127 = on).

Each of the Latch settings are described below. To access all of the Latch settings, the Global Mode User Type parameter must be set to "Advanced" (see ["User Type" on page 12-6](#) for details).

Program Edit Mode

The Arpeggiator (ARP) Page

Keys: If the Latch switch is turned off, notes are arpeggiated only when keys are held. As you hold different notes, they get added to the arpeggiation, and as you release notes, they get taken out.

When Latch is set to Keys, the Latch switch can be used to latch played notes so that they will arpeggiate even after they are released. See above for details on controlling the Latch switch with a soft button.

In Program Edit Mode, when the Keys setting is selected, the **Latch Type** parameter appears. The Latch Type parameter determines the behavior of the Latch switch. When the Latch Type parameter is set to Latch Sustain, if the Latch switch is turned on, any played notes will become latched. When the Latch Type parameter is set to Latch2 Sost, any played notes will become latched, **only** when the Latch switch is turned on while notes are held. Latched notes will arpeggiate until the Latch switch is turned off.



Note: In Multi Edit Mode, when the Keys setting is selected, the Latch Type parameter does not appear. In Multi Mode, the Latch switch soft button behaves as if Latch Type is set to Latch Sustain (if the Latch switch soft button is turned on, any played notes will become latched). To use the equivalent of Latch Type Latch2 Sost in Multi Mode, use the Multi Edit Mode Controls page to assign a switch to Destination 158 Latch2 Sost. For details see [“Switch Controllers” on page 11-17](#).

Overplay: Notes are arpeggiated **only** when the Latch switch is turned on while notes are held. Overplay latches any keys that are being held when the Latch switch is turned on. Latched keys continue arpeggiating after they are released until the Latch switch is turned off. Any notes that you play after the Latch switch is turned on do not get arpeggiated.

Arpeg: Notes are arpeggiated **only** when the Latch switch is turned on while notes are held. Arpeg latches any keys that are being held when the Latch switch is turned on. Latched keys continue arpeggiating after they are released until the Latch switch is turned off. Any notes that you play after the Latch switch has been turned on become part of the arpeggiation, and they drop out of the arpeggiation as soon as you release them.

Add: Notes are arpeggiated **only** when the Latch switch is turned on while notes are held. Add latches any keys that are being held when the Latch switch is turned on, and also latches any notes played after this. Latched keys continue arpeggiating after they are released until the Latch switch is turned off.

Auto: Every note you play is automatically latched, and the Arpeggiator runs as long as you hold at least one arpeggiated note. As long as you keep holding on at least one note (it doesn't have to be the same note the whole time), every note you play in the arpeggiation range gets latched.

Autohold is similar to Auto. Holding at least one arpeggiated note on and playing other notes latches those notes. Unlike in Auto mode, if you stop holding at least one arpeggiated note on, the arpeggiation continues playing (although you can't latch any more notes). In this case, if you strike another key within the arpeggiation range, you start a new arpeggiation

sequence. Autohold is useful for arpeggiating chords: when you play a chord, it gets latched, and continues arpeggiating after you release the chord. When you play another chord, the previous chord gets unlatched, and the new one gets latched. You can use the ARP ON soft button to stop arpeggiation at any time (see [S.Buttons 1-2 on page 12-13](#) for details).

1NoteAuto is similar to Autohold, except only the last note played is latched (even if previously played notes are still being held). 1NoteAuto is specifically designed for use with Shift Patterns (see [“Shift Pattern” on page 7-39](#)) because Shift Patterns are designed to be played from one note at a time (though you can use 1NoteAuto without a Shift Pattern as well). Using 1NoteAuto ensures that Shift Patterns will sound correct by only allowing one note at a time to trigger the pattern. You can use the ARP ON soft button to stop arpeggiation at any time (see [S.Buttons 1-2 on page 12-13](#) for details).

1NoteAutoLow and **1NoteAutoHi** are also designed for use with Shift Patterns. They work similarly to 1NoteAuto, except 1NoteAutoLow always latches the lowest note when holding multiple notes, and 1NoteAutoHi always latches the highest note when holding multiple notes. You can also use these latch types without a Shift Pattern if desired. You can use the ARP ON soft button to stop arpeggiation at any time (see [S.Buttons 1-2 on page 12-13](#) for details).

Limit Option

This parameter determines what the Arpeggiator does when it has shifted the currently arpeggiated notes up (or down) to the value set by the Shift Limit parameter. To access all of the Limit Option settings, the Global Mode User Type parameter must be set to “Advanced” (see [“User Type” on page 12-6](#) for details).

Stop causes the Arpeggiator to stop when it reaches the shift limit.

Reset causes the Arpeggiator to return to its original pitch and repeat the cycle of notes.

Unipolar means that after a note reaches the shift limit, the note is shifted in the opposite direction, until it reaches the original pitch, where it reverses direction again. If Shift Amount is set to a positive value, a note will never be shifted below its original pitch. If Shift Amount is set to a negative value, a note will never be shifted above its original pitch.

Bipolar means that after a note reaches the shift limit, the note is shifted in the opposite direction, until it reaches the shift limit in the *opposite* direction, where it reverses again.

FloatRst (float reset) means that when the Arpeggiator reaches the shift limit, it looks at the first note that would exceed the shift limit, and calculates the interval between that note and the shift limit. It then restarts the cycle of latched notes, transposing the entire cycle by the interval it just calculated, then shifting each subsequent cycle by the value of Shift Amount, until it reaches the shift limit again.

Program Edit Mode

The Arpeggiator (ARP) Page

Here's a very simple example. Suppose that the only note in the Arpeggiator cycle is C₄, Shift Amount is 4 (a third), and Shift Limit is 7 (so notes won't get shifted above G₄). The Arpeggiator plays C₄, then E₄. The next note should be G₄, but that's above the shift limit—so the Forte calculates the difference between that G₄ and the shift limit (G₄): one semitone. It adds that difference to the original starting note (C₄) and plays that note next—C₄. The next note (F₄) is within the shift limit, but the next note (A₄) isn't, so it gets translated into D₄—and so on.

FloatUnip uses the same concept as FloatRst and applies it to Unipolar mode: when the Arpeggiator reaches the shift limit, it calculates the difference between the next note and the limit, and transposes the next cycle of notes down by that interval, then shifts each subsequent cycle down until it reaches the original pitch.

FloatBip is similar to FloatUnip, but the downward shift limit isn't the original pitch, it's the negative of the Shift Limit value.

Key Range (Low Key and High Key)

The Arpeggiator processes notes within the range of these parameters. Notes outside the specified range play normally, and do not become part of the arpeggiation sequence. When the Low Key or High Key parameter is selected, you can easily set the value by holding the Enter button and striking the desired key. Key Range is not saved with each Arp Preset, but instead is saved as part of each program (or Multi Zone). This allows you to try different presets while maintaining the same Key Range.

Arpeggiator Classic Mode Parameters

Parameter	Range of Values	Default
Beats	1/1 (Whole Notes) to 1/384 (96 notes per beat)	1/16 (16th Notes)
Shift Mode	Alg (algorithm) or Patt (pattern)	Alg
Shift Limit	0-60 semitones	24
Shift Amount Shift Pattern	± 88 Semitones Shift Pattern List	0 0 None
Play Order	Played, Upwards, Downwards, UpDown, UpDown Repeat, Random, Shuffle, Walking, Simultaneous	Played
Velocity	First, Played, Last, Aftertouch, MIDI109, Fixed, Pattern, Human1-4, Chimp1-4, MissNotes1-9	First
Velocity Fixed Velocity Patt	0-127 Velocity Pattern List	100 0 None
Duration Mode	Fixed, Pattern	Fixed
Duration Duration Patt	0-100% Duration Pattern List	100% 0 None

Beats

The Beats parameter sets the number of notes per beat. The tempo is based on quarter notes. Therefore, if you set Beats to 1/4, you will get one note per beat of the clock. At 1/16, you will get 4 notes per beat, and so forth. The maximum value is 96 notes per beat (1/384), but at most tempos, divisions smaller than 1/64 will sound pretty much the same.

To find a Beats value, multiply the notes you want per beat by 4. For example, 4 notes per beat (16th notes) would be $4*4=16$, a Beats value of 1/16. Three notes per beat (8th note triplets) would be $3*4=12$, a Beats value of 1/12. Six notes per beat (16th note triplets) would be $6*4=24$, a Beats value of 1/24.

Shift Mode

Use the Shift Mode parameter to set how the arpeggiator will shift the pitch of played notes. The **Alg** (algorithm) setting will let you create note sequences based upon a fixed Shift Amount. When you select **Patt** (pattern), the **Shift Pattern** parameter will appear, allowing you to select a preset or user defined shift pattern. See Shift Pattern below for details.

Shift Limit

When the Shift (Shift Amount) parameter is set to a value other than 0, **Shift Limit** determines how far up or down the Arpeggiator can shift the arpeggiated notes. Try setting Shift Limit to 12 or 24 to create an arpeggio that repeats the same pattern of notes in different octaves. This works well when Shift (Shift Amount) is set to 12 or when a Shift Pattern is selected.

Shift Amount

When the Shift Mode is set to Alg, **Shift Amount** appears. Shift Amount determines how much transposition will occur for each cycle of notes. Try setting Shift Amount to 12, and Shift Limit to 12 or 24 to create an arpeggio that repeats the same pattern of notes in different octaves.

Shift Pattern

When Shift Mode is set to Pattern, the **Shift Pattern** parameter appears, which allows you to select a step sequence for arpeggiator note patterns. The note number of each played key is shifted according to a sequenced pattern, thus "Shift Pattern." There are pre-programmed shift patterns including many useful chords, intervals, and rhythms. You can also create a custom user pattern using the pattern editor (see below for details).

Shift Pattern steps are played back at the rate set for **Beats**. Keep in mind that Shift Patterns are affected by every parameter on the ARP page, which can be the cause of unexpected variation, or a way to add interesting variation to a pattern.

Shift Patterns are most easily used and understood when triggered by only one key at a time. One way to prevent triggering from multiple keys is to use one of the Latch types 1NoteAuto, 1NoteAutoLow, or 1NoteAutoHi when using a shift pattern. Triggering shift patterns from one key allows the pre-programmed patterns to sound like what you would

Program Edit Mode

The Arpeggiator (ARP) Page

expect from their names (otherwise the results can be unpredictable). If no other keys are playing, patterns will start over each time a key is pressed (there are some exceptions to this when using Arpeggiator Latch settings other than “Keys,” though a newly triggered pattern will always start at step 1).

Editing Shift Patterns

When the Global User Type is set to Advanced, you can edit the highlighted pattern by pressing the Favorites 1 button. (The User Type parameter can be adjusted on the Global Mode MAIN1 page, see [User Type on page 12-6](#) for details). You can create a new user pattern by editing an existing pattern and saving it to a user ID.



In the Shift Pattern editor, pressing STEP- removes the last step in the list, pressing STEP+ inserts a new note step at the end of the list. Use the cursor to move between pattern steps, use the alpha wheel, alphanumeric pad, or plus/minus buttons to enter the note shift amount for each step. You can set a step to a value of “none” by entering -127 and then scrolling down one more step. A step with the value “none” causes the arpeggiator to play nothing for that step, allowing you to create rhythmic patterns by using “none” to leave spaces.

Use the channel up/down buttons to change the direction in which pattern steps are played (indicated by **Up**, **Down**, or **Flat** on the right of the top line). With pattern direction set to **Up**, the pattern plays starting at step one and moving up through each step towards step 48. With pattern direction set to **Down**, the pattern starts at step one, but then moves to the last step and continues to move backwards through the steps down towards step 1 in the octave below the first note played. When the pattern direction is set to Up or Down, the pattern will repeat transposed in the next higher or lower octave (limited by the ARP page Shift Limit parameter). Patterns set to **Flat** play without transposition, in which case the Shift Limit parameter can be used to restrict note range.

To save an edited pattern, press the front panel **Save** button to view the save dialog and select a user ID. You can also rename the pattern if desired. Press DELETE to delete a user pattern from memory. Press **Exit** to return to the ARP page.

Play Order

When the Shift Mode is set to Alg, **Play Order** appears. Play Order determines the order in which the arpeggiator plays notes.

Played causes them to play back in the chronological order in which you played them.

Upwards means that notes play in ascending pitch order.

Downwards means that notes play in descending pitch order.

UpDown causes notes to play from lowest pitch to highest, then from highest pitch to lowest, repeating the cycle until you stop the arpeggiation. The notes at the very top and very bottom only play once.

UpDownRep is similar to UpDown, except that the notes at the top and bottom play *twice* when the Arpeggiator reverses direction.

Random plays the notes in random order.

Shuffle plays them at random, but keeps track of the notes so that no note repeats until all of the others have played.

Walk is a “random walk” order: each successive note is either the next or previous note (in chronological order). For example, suppose you’ve played four notes—G⁴, B⁴, D⁵, and F⁵—in that order. The first note the Arpeggiator plays is the G⁴. The second note will be either B⁴ (the next note chronologically), or F⁵ (the “previous” note chronologically—that is, the last arpeggiated note). If the second note is B⁴, the third note will be either D⁵ or G⁴. If the second note is F⁵, the third note will be either G⁴ or D⁵.

Simultaneous makes the Arpeggiator repeat each note simultaneously. If you play a C and hold it while you play an E and a G, the Arpeggiator will play all three notes at the same time and at the same tempo. **Simultaneous** also works well with Shift and Limit, allowing you to shift multiple notes simultaneously.

Velocity

Velocity sets the attack velocity of the played notes.

With Velocity set to **First**, all notes play at the velocity of the first played note.

With Velocity set to **Played**, each note repeats with the same velocity you played it at.

With Velocity set to **Last**, all notes play at the velocity of the most recently played note.

With Velocity set to **Aftertouch**, the velocities are controlled by keyboard pressure: as you hold and push down on any key, the velocities get higher, and as you ease up they get lower.

With Velocity set to **MIDI109**, all notes play with the same velocity. The default MIDI109 velocity is 100. In Multi Mode, you can control the velocity in real-time by assigning a controller to Destination 109.

Program Edit Mode

The Arpeggiator (ARP) Page

With Velocity set to **Fixed**, all notes play with the same velocity. The Velocity Fixed field appears, which allows you to set a specific velocity. In Multi Mode, you can control the velocity in real-time by assigning a controller to Destination 175 VelFixed.

When you select **Pattern**, the **Velocity Patt** parameter will appear, allowing you to select a preset or user defined velocity pattern. See Velocity Patt below for details.

The Velocity Modes **Human1** through **Human4** randomly change played note velocity within a range in order to make arpeggiation sound more human like, with each note varying slightly in velocity. The Human settings use the velocity received from the first note played as the center of the randomization range. Each note of the arpeggiator will randomly choose a velocity within the given range. (See the table below for velocity ranges.)

The Velocity Modes **Chimp1** through **Chimp4** function in a similar fashion to the Human settings (see above). Like the Human settings, the Chimp settings randomly change played note velocity within a range, but the Chimp settings have larger randomization ranges. The Chimp settings use the velocity received from the first note played as the center of the randomization range. Each note of the arpeggiator will randomly choose a velocity within the given range. (See the table below for velocity randomization ranges.)



Note: For Human and Chimp modes, if the velocity of the first played note is low enough that the selected randomization range could result in a velocity of zero, some notes may have a velocity of zero and therefore produce no sound.

Velocity Setting	Velocity Randomization Range
Human1	± 3
Human2	± 6
Human3	± 10
Human4	± 15
Chimp1	± 25
Chimp2	± 35
Chimp3	± 50
Chimp4	± 64

Velocity Modes **MissNotes1** through **MissNotes9** makes the Forte randomly miss playing a percentage of inputted notes. See the table below for percentages and their equivalent settings. Each of these settings also randomly changes some of the inputted velocities in a range of ± 5, with the purpose of simulating a more human played sound.



Note: Missed Notes are actually output as notes with a velocity of zero.

Velocity Setting	Approximate % of Notes Missed
MissNotes1	% 10
MissNotes2	% 20
MissNotes3	% 30
MissNotes4	% 40
MissNotes5	% 50
MissNotes6	% 60
MissNotes7	% 70
MissNotes8	% 80
MissNotes9	% 90

Velocity Patt

When Velocity is set to **Pattern**, the **Velocity Patt** parameter appears, which allows you to select a step sequence for arpeggiator velocity patterns. A Velocity Pattern shifts the velocity of each arpeggiated note according to a sequenced pattern. Select a factory pattern, or create a custom user pattern using the pattern editor (see below for details).

Velocity Patterns use the velocity received from the first note played as the center position to shift velocities up or down from. Velocity Pattern steps are played back at the rate set for **Beats**. Rhythms can be created by using velocity values of -127 or “none” to leave rests in the arpeggiation.

If no other keys are playing, patterns will start over each time a key is pressed (there are some exceptions to this when using ARP Latch parameters other than “Keys,” though a newly triggered pattern will always start at step 1). When triggering velocity patterns from more than one key at a time, each consecutive step of the pattern shifts the velocity from a different inputted key, the order of which is decided by the Play Order parameter on the ARP page.

Editing Velocity Patterns

When the Global User Type is set to Advanced, you can edit the highlighted pattern by pressing the Favorites 1 button. (The User Type parameter can be adjusted on the Global Mode MAIN1 page, see [User Type on page 12-6](#) for details). You can create a new user pattern by editing an existing pattern and saving it to a user ID.

Each pattern can have up to 48 steps, and each step can shift velocities by ± 127 steps. You can insert a step with a value of “none” by entering -127 and then shifting down one more step. A step with the value “none” causes the arpeggiator to play nothing for that step, allowing you to create rhythmic patterns by using “none” to leave spaces. Pressing STEP- removes the last step in the list, pressing STEP+ inserts a new velocity step at the end of the list (the pattern editor remembers the values of removed steps until you save or exit). Use the navigation buttons to move between pattern steps, use the Alpha Wheel, or Previous-/Next+ buttons to enter the velocity shift amount for each step.

Program Edit Mode

The Arpeggiator (ARP) Page

EDIT:Arp Velocity Pattern			
Step 1	0	Step 13	-1
Step 2	16	Step 14	-15
Step 3	32	Step 15	-33
Step 4	16	Step 16	-19
Step 5	0	Step 17	-2
Step 6	-16	Step 18	16
Step 7	-32	Step 19	33
Step 8	-16	Step 20	18
Step 9	1	Step 21	0
Step 10	18	Step 22	-16
Step 11	34	Step 23	-28
Step 12	14	Step 24	-12

STEP- STEP+ DELETE



Note: For patterns with negative velocity values, if the velocity of the first played note is low enough that a pattern step could result in a velocity of zero, some notes may have a velocity of zero and therefore produce no sound.

To save an edited pattern, press the front panel **Save** button to view the save dialog and select a user ID. You can also rename the pattern if desired. Press **DELETE** to delete a user pattern from memory. Press **Exit** to return to the ARP page.

Duration Mode

Use the Duration Mode parameter to set how the arpeggiator will control the duration of played notes. When Duration Mode is set to **Fixed**, the Duration parameter appears which allows you to set a fixed duration that will be applied to all arpeggiated notes. See the Duration section below for details. When **Pattern** is selected, the **Duration Pattern** parameter will appear, allowing you to select a preset or user defined duration pattern. See the Duration Pattern section below for details.

Duration

Duration determines how long each arpeggiated note plays based on the current arpeggiator Beats value. 100% means that a note sustains until the next one sounds—very legato. 50% means that the note fills half the space between itself and the next note. The lowest value is 0%—*staccatissimo*. This parameter has no effect on percussion sounds or other sounds whose duration is fixed.

Duration Patt

When Duration Mode is set to **Pattern**, the **Duration Patt** parameter appears, which allows you to select a step sequence for arpeggiator duration patterns. A Duration Pattern sets the duration of each arpeggiated note according to a sequenced pattern. Duration Pattern steps are played back at the rate set for **Beats**. The duration of each note is a percentage of the current arpeggiator Beats value. Select a factory pattern, or create a custom user pattern using the pattern editor (see below for details).

Editing Duration Patterns

When the Global User Type is set to Advanced, you can edit the highlighted pattern by pressing the Favorites 1 button. (The User Type parameter can be adjusted on the Global Mode MAIN1 page, see [User Type on page 12-6](#) for details). You can create a new user pattern by editing an existing pattern and saving it to a user ID.

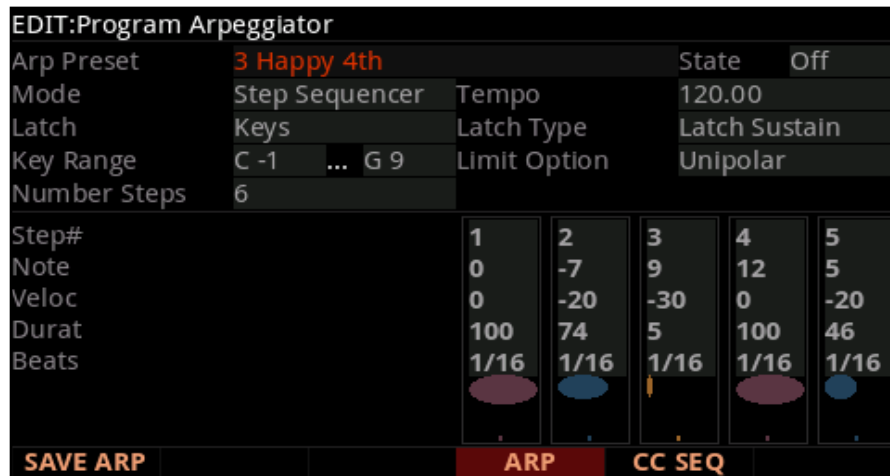
Each step can have a duration from 0-100% of the current arpeggiator Beats setting. Each pattern can have up to 48 steps. Pressing STEP- removes the last step in the list, pressing STEP+ inserts a new note step at the end of the list (the pattern editor remembers the values of removed steps until you save or exit). Use the navigation buttons to move between pattern steps, use the Alpha Wheel, alphanumeric pad, or Previous-/Next+ buttons to enter the duration amount for each step.



To save an edited pattern, press the front panel **Save** button to view the save dialog and select a user ID. You can also rename the pattern if desired. Press DELETE to delete a user pattern from memory. Press **Exit** to return to the ARP page.

Arpeggiator Step Sequencer Mode Parameters

In Step Sequencer mode, the ARP page will give you the ability to create a unique Arpeggiator pattern step-by-step.



Select a parameter using the up/down navigation buttons. To change steps, select the Step# parameter, then press the left or right navigation buttons.

Parameter	Range of Values	Default
Number Steps	1-48	3
Step#	1-48	1
Note	-128 to +127	0
Veloc (Velocity)	-128 to +127	0
Durat (Duration)	0-100	100
Beats	1/1 to 1/96	1/16

Use the **Number Steps** parameter to set the number of steps in the current sequence.

The **Step#** parameter shows the number of each step in the sequence, and can be used to navigate between the steps.

The Step Sequencer specifies four parameters for each step: Note, Veloc (Velocity), Durat (Duration) and Beats. Use the navigation buttons to move between pattern steps, use the Alpha Wheel, alphanumeric pad, or plus/minus buttons to enter the parameter values for each step.

Note values create the shift pattern for the Step sequence. Notes are specified in half-steps from the last latched note (represented as 0). Thus, this series of notes: 0, 4, 7 will play a triad in sequence. Note values can range from -128 to +127, with negative numbers shifting below the latched note.

Veloc (Velocity) values shift the velocity of each step up or down from the last latched note. Velocity can be shifted -127 to +127 from the original value of the last latched note.

Durat (Duration) determines how long each step is sustained, based on the Beats value of each step. The duration range is 0-100, which represents a percentage of the Beats value of each step. A setting of 100 will sustain the note for the entire length of the step.

Beats sets the length of time between each step in the sequence, which allows you to alter the rhythm of a sequence. Beats is set in fractions of a 4 beat measure, whose rate is set by the Tempo parameter. A step with Beats set to 1/4 will play a quarter note based on the current Tempo setting.

To find a Beats value, multiply the notes you want per beat by 4. For example, 4 notes per beat (16th notes) would be $4*4=16$, a Beats value of 1/16. Three notes per beat (8th note triplets) would be $3*4=12$, a Beats value of 1/12. Six notes per beat (16th note triplets) would be $6*4=24$, a Beats value of 1/24.

Colored oval graphics provide a quick visual interpretation of the Step Sequence, where: color=**Note** number, height=**Velocity** level, and width=**Duration**. The line under each oval changes length depending on the **Beats** value for the current step.

The SAVE ARP Soft Button

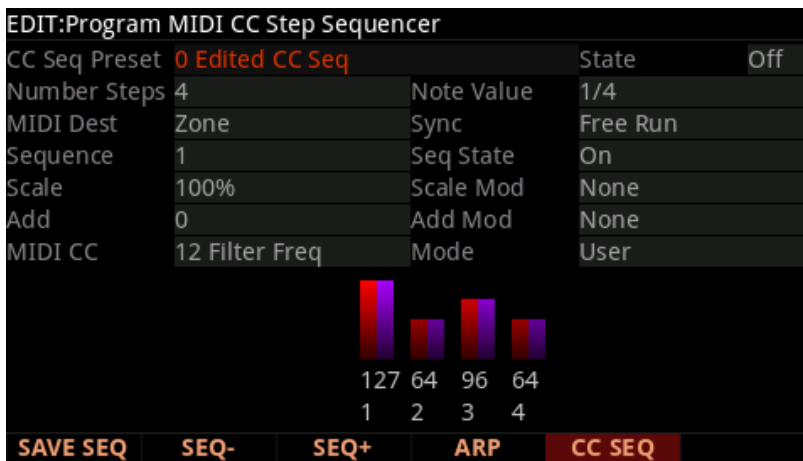
If you have adjusted any Arpeggiator settings, you have the option of saving a new Arp Preset to a User location, where it will be available to use with other Programs and Multis. All settings on the ARP page are saved as part of the arp preset, except for the State and KeyRange parameters, which are stored with the Program/Multi. If you don't save an arp preset, the arp settings will still be saved with the current Program or Multi.

Press the SAVE ARP soft button to initiate a save. You will have the option to select the ID number and name for your Arp Preset.

The CC Sequencer (CC SEQ) Page

The CC Sequencer allows you to rhythmically modulate up to 4 program parameters (such as filter frequency) based on preset or user patterns. CC is short for continuous controller, which is a type of MIDI message that can be used to control assigned parameters. The CC Sequencer can affect both internal programs and external MIDI instruments.

Press the front panel EXIT button to exit the CC Sequencer page.



CC Seq Preset

Use the CC Seq Preset parameter to recall factory or user created CC Sequencer settings. A CC Seq Preset contains settings for all of the parameters on the CC SEQ page (except for the State parameter, which is stored with the Program/Multi). Scrolling through the CC Seq Presets is an easy way to discover the different possibilities of the CC Sequencer, or to find a preset similar to what you want and continue to edit it from there.

You can save your current settings as a CC Seq Preset by pressing the SAVE SEQ soft button. If you select a different CC Seq Preset before saving your current CC Sequencer settings, the current CC Sequencer settings will be replaced by the settings from the preset without showing a warning. Be sure to save your settings as a CC Seq Preset if you want to be able to recall them after making additional changes. Even if you don't save the current CC Sequencer settings as a CC Seq Preset, the most recent settings will always be saved with the Program or Multi when the Program or Multi is saved. Changing any of the CC Sequencer parameters will change the Preset to "0 Edited CC Seq", to indicate that the previous preset settings are no longer being used.

State

Use the State parameter to turn the CC Sequencer On or Off. In a Multi, this parameter can also be controlled with Controller Destination 148 (CC Seq On/Off).

Number Steps

Use the Number Steps parameter to set the number of steps in the sequence.

Sync

When the State parameter is set to On, the Sync parameter determines when the CC sequence will re-start.

When the Sync parameter is set to **Free Run**, the sequence begins playing as soon as the program is selected, and it restarts whenever it reaches the end of the sequence.

When the Sync parameter is set to **Every Note**, the sequence begins playing as soon as the program is selected, and it restarts whenever it reaches the end of the sequence, or whenever a new note is played.

When the Sync parameter is set to **All Keys Up**, the sequence begins playing as soon as the program is selected, and it restarts whenever it reaches the end of the sequence, or whenever all keys have been released.

When the Sync parameter is set to **Arp**, the sequence begins playing only when the program's arpeggiator is playing, and it restarts whenever it reaches the end of the sequence.

When the Sync parameter is set to **Arp with Reset**, the sequence begins playing only when the program's arpeggiator is playing, and it restarts whenever it reaches the end of the sequence, or whenever the program's arpeggiator restarts its sequence.

The **AnyOther CCSeq** setting only applies to Multi Mode. When the Sync parameter is set to AnyOther CCSeq, the sequence begins playing as soon as the Multi is selected, and it restarts whenever it reaches the end of the sequence, or whenever a CC Sequence for a program in another Zone begins or restarts.

Note Value

The Note Value parameter sets the number of steps that will be played per beat. The tempo is based on quarter notes. Therefore, if you set Note Value to 1/4, you will get one step per beat of the clock. At 1/16, you will get 4 steps per beat, and so forth.

MIDI Dest

The MIDI Dest parameter sets the MIDI destination for the CC messages generated by the CC Sequencer. You can send CC messages to a Forte Program, to the MIDI Out ports, to the USB port, or to any combination of these destinations.

By default, CC messages are sent to all possible destinations. When using the Forte to control or layer with external MIDI instruments, you may wish to send CC messages only to certain destinations.

Program Edit Mode

The CC Sequencer (CC SEQ) Page

In Program Mode, when the MIDI Dest parameter is set to Zone, the CC messages will be sent to the Forte Program and to the MIDI and USB ports.

In Multi Mode, when the MIDI Dest parameter is set to Zone, the CC messages will be sent to the destination set by the Zone's Main page Destination parameter.

Seq State

The CC Sequencer can play 4 simultaneous sequences which can each control a different parameter or CC number. Use the Seq State parameter to turn the selected sequence On or Off.

Sequence

The CC Sequencer can play four simultaneous sequences which can each control a different parameter or CC number. Use the Sequence parameter to select one of four sequences to edit. You can also use the SEQ- and SEQ+ soft buttons to select one of the four sequences.

Each of the four sequences uses the same settings for the State, Number Steps, Sync, Note Value, and MIDI Dest parameters. All other CC Sequencer parameters can be adjusted independently for each of the four sequences.

Scale

Use the Scale parameter to change the range of CC values sent by the sequence (in combination with the Scale Mod, Add, and Add Mod parameters). The Scale parameter multiplies the CC values sent from the sequence. CC messages are limited to sending values from 0-127, even if the Scale and Add parameters are set to produce values outside of this range.

Each step in a CC Sequence can send CC values 0-127. These values can be multiplied by the percent value of the Scale parameter in order to change the range of CC values. For example:

When when Scale is set to 100% the sequence can send CC values 0-127.

Scale values 1-99% make the sequence send a smaller range of CC values. When Scale is set to 50% the sequence is limited to sending CC values 0-63.

Scale values 101-200% multiply each sequencer step CC value to send higher CC values. For example, when Scale is set to 200% a CC sequencer value of 62 will be sent as 126.

Scale Mod

Use the Scale Mod parameter to change the range of CC values sent by the sequence using a physical controller (in combination with the Scale, Add, and Add Mod parameters).

The selected physical controller will use values 0-127 to multiply the CC values sent from the sequence by 0%-200%.

Add

Use the Add parameter to change the range of CC values sent by the sequence (in combination with the Scale, Scale Mod, and Add Mod parameters). The Add parameter adds a value to the CC values sent from the sequence. CC messages are limited to sending values from 0-127, even if the Scale and Add parameters are set to produce values outside of this range.

Add Mod

Use the Add Mod parameter to change the range of CC values sent by the sequence using a physical controller (in combination with the Scale, Scale Mod, and Add parameters).

The selected physical controller will use values 0-127 to add -127 through 127 to the CC values sent from the sequence.

MIDI CC

Use the MIDI CC field to select a MIDI CC number and/or assigned program parameter to control with a CC Sequence. If a MIDI CC number is assigned to a program parameter, the program parameter name will be shown next to the CC number (for example “12 Filter Freq”).

Mode

Use the Mode parameter to select a preset or user pattern of CC Sequence steps.

When the Mode parameter is set to **User**, the user sequence is displayed. The CC value of each step is shown as a number as well as represented by the height of a red and purple bar. Use the navigation buttons to select each step and adjust each CC value. For each step, the purple bar shows an approximation of the step value that will be sent after the Scale and Add parameters have been applied.

The other Mode parameter settings each display a preset 16 step sequence. Each step of the sequence has a red dot representing a CC value from 0 to 127.

Program Edit Mode

The Wiring Algorithm (ALG) Page

Patterns with Random or Rand in the name will produce random values for each step. The possible range of random values for each step is shown by white arrows.

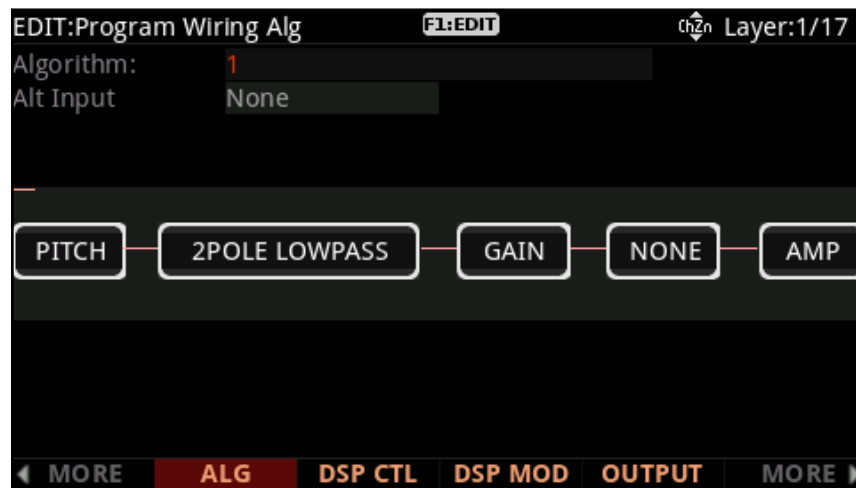
The SAVE SEQ Soft Button

If you have adjusted any CC Sequencer settings, you have the option of saving a new CC Seq Preset to a User location, where it will be available to use with other Programs and Multis. All settings on the CC SEQ page are saved as part of the CC Seq preset, (except for the State parameter, which is stored with the Program/Multi). If you don't save an CC Seq preset, the CC Sequencer settings will still be saved with the current Program or Multi.

Press the SAVE SEQ soft button to initiate a save. You will have the option to select the ID number and name for your CC Seq preset.

The Wiring Algorithm (ALG) Page

The Forte's algorithms are the core of VAST programs (Variable Architecture Synthesis Technology). Use the Wiring Alg page to select an algorithm and route DSP (digital signal processing) functions for the current layer. Several DSP functions are available including filters, equalizers, oscillators, amplifiers, mixers, panners, distortion, shapers, and aliasers. DSP functions contain adjustable parameters which can be set to a single setting, or controlled by a physical controller or other control source (such as an LFO or envelope).



Algorithm

Use the Algorithm parameter to select an algorithm by ID number. A diagram of the selected algorithm is shown in the center of the page, showing the selected DSP functions and audio signal flow wiring. In the diagram, the audio signal flows through each DSP block from left to right.

Depending on the algorithm, the signal may split into two wires, enabling part of the signal to bypass certain portions of the algorithm. Split wires may rejoin within the algorithm, or they may pass all the way through as split signals.

Each of the factory algorithms represents a preset signal path. See the [The Wiring Algorithm \(ALG\) Page on page 7-52](#) for details on making user algorithms with custom signal paths.



Note: Changing a layer's algorithm can affect the layer's sound drastically. It's a good idea to bring down the volume of your Forte or your sound system before changing algorithms.

Alt Input

When the Alt Input parameter is set to None, the Keymap of the current layer is used as the algorithm input signal.

When the Alt Input parameter is set to 1-32, the output of the selected layer number is used as the algorithm input signal. This feature is known as cascade mode, because the output of each layer can cascade into the input of another layer. This allows a single layer to be processed by up to 32 layers of algorithms.

DSP Functions

Several DSP functions are available including filters, equalizers, oscillators, amplifiers, mixers, panners, distortions, shapers, and aliasers. DSP functions contain adjustable parameters which can be set to a single setting, or controlled by a physical controller or other control source (such as an LFO or envelope).

The DSP functions are represented in the algorithm diagram as rectangular blocks.

Each DSP function has one or more parameters to which you can adjust and apply a variety of modulation sources on the DSP CTL and DSP MOD pages. For details see [“The DSP Control \(DSP CTL\) Page” on page 7-56](#) and [“The DSP Modulation \(DSP MOD\) Page” on page 7-58](#).

PITCH and AMP

Each algorithm contains a PITCH block at the input, and AMP block at the output. When the Alt Input parameter is set to None, the Keymap of the current layer is used as the algorithm input signal. In this case, the left-most PITCH block controls the pitch of the samples in the keymap. The right-most AMP block always controls the final amplitude of the signal.

Selectable DSP Functions

Between the PITCH and AMP blocks, up to 4 DSP functions can be selected.

DSP functions vary in size depending on their complexity and number of parameters. The smallest DSP function is a single DSP block, it can have a single adjustable parameter, and 4 of these DSP blocks can be fit in a single layer. The largest DSP function is a 4 block DSP function, it can have up to 4 adjustable parameters, and 1 of these DSP blocks can be fit in a single layer.

To select a DSP function, use the navigation buttons to select a block, then use the Alpha Wheel or PREVIOUS and NEXT buttons to select one of the DSP functions available for the selected block. Based on the selected block's size and wiring, different DSP functions will be available.

Some DSP functions are available in different block sizes, with larger block sizes generally offering more parameters or higher sound quality. For example, the one block LOPASS function is a low pass filter with a single parameter, LP Frq, while the two block 2POLE LOWPASS function is a low pass filter with two parameters, LP Freq and LP Res. Similarly, the one block SQUARE oscillator has a single parameter, Sqr Pch, while the two block SQUARE oscillator also has a single parameter, Sqr Pch, but provides higher sound quality through anti-aliasing.

In order to select a DSP function, you must first select an algorithm with the appropriate block size and wiring. Depending on the size and wiring of the selected block, different DSP functions may be available.

A diagram of the selected algorithm is shown in the center of the page, showing the selected DSP functions and audio signal flow wiring. In the diagram, the audio signal flows through each DSP block from left to right.

Depending on the algorithm, the signal may split into two wires, enabling part of the signal to bypass certain portions of the algorithm. Split wires may rejoin within the algorithm, or they may pass all the way through as split signals.

The Wiring Alg Editor (Dynamic VAST)

The Wiring Alg Editor allows you to access Dynamic VAST by editing the wiring of an algorithm. With Dynamic VAST, literally thousands of wiring schemes are possible.

To enter the Wiring Alg Editor, select the Algorithm parameter on the Wiring Alg page, select an algorithm, and press the Favorites 1 button.

Parameter	Range of Values	Default
Inputs	1, 2	1
Outputs	1, 2	1
Number of Blocks	1 to 4	2
Output Mode	Normal, Sep. L/R	Normal



In the Wiring Alg Editor, each function block has three editable parameters: number of inputs, number of outputs, and block size. (The Output Mode parameter applies to the entire algorithm.)

To select a block for editing, move the cursor down the display until no parameter field is highlighted; then, using the < and > buttons, highlight a block to edit. Press the ^ button to move the cursor back into the parameter fields, and then select a parameter to edit.

To edit the wiring signal path, select either an input of a block or an output of the entire algorithm. By scrolling with Alpha Wheel or the Previous- and Next+ buttons, you can see every possible wiring configuration for that selected signal path.

Inputs

Use the Inputs parameter to select the number of inputs for the currently selected DSP block.

Num Blocks

Use the Num Blocks parameter to select the number of blocks for the currently selected DSP block.

Outputs

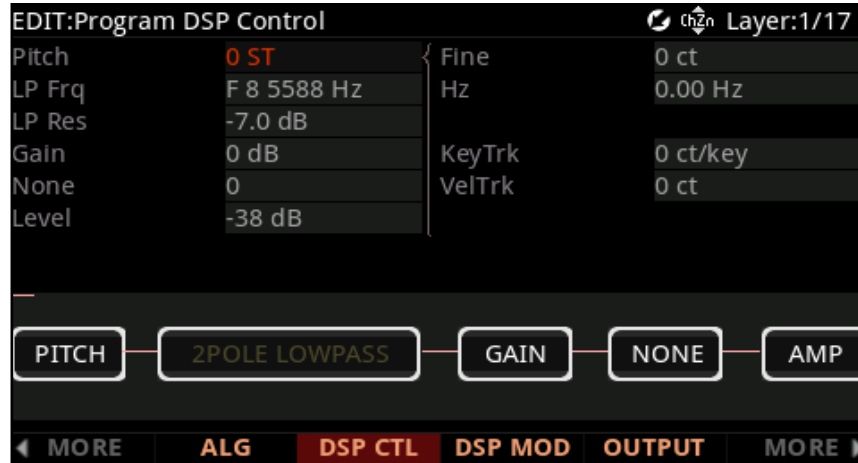
Use the Outputs parameter to select the number of outputs for the currently selected DSP block.

Output Mode

The Output Mode parameter determines the number of outputs from the algorithm. With Output Mode set to Normal, the algorithm has one output. With Output Mode set to Sep. L/R, the algorithm has two outputs, each of which is sent to a separate stereo channel.

The DSP Control (DSP CTL) Page

Use the DSP Control page to make coarse or fine adjustments to parameters of each DSP block in the algorithm, and to adjust parameters for hard-wired modulation sources.



Function	Parameter	Range of Values	Default
Pitch	Pitch	-128 to 127 semitones	0
	Fine Adjust	± 100 cents	0
	Hertz Adjust	± 10.00 Hertz	0
	Key Tracking	± 2400 cents/key	0
	Velocity Tracking	± 7200 cents	0
(Function)	(Function-Parameter)	(Depends on Function)	(Depends on Function)
(Function)	(Function-Parameter)	(Depends on Function)	(Depends on Function)
(Function)	(Function-Parameter)	(Depends on Function)	(Depends on Function)
(Function)	(Function-Parameter)	(Depends on Function)	(Depends on Function)
Level	Level	-96 to 24 decibels	-6
	Key Tracking	± 2.00 decibels/key	0
	Velocity Tracking	± 96 decibels	35

Function-parameter

The left-hand column of the DSP CTL page shows each function-parameter of the current layer's algorithm. You can coarsely adjust the selected function-parameter in these left-hand fields.

The function-parameters are listed along the left-hand side of the DSP CTL page and the DSP MOD page. The label of each function-parameter depends on its function in the current program's algorithm. For example, the Pitch function's function-parameter is labeled Pitch; and the two-block Lopass function's function-parameters are labeled LP Frq and LP Res.

Use each function-parameter to make coarse adjustments to each DSP function. Depending on the parameter, values may be set in semitones (ST), cents (ct), decibels (dB) or Hertz (hz). These adjustments are also combined with any modulation applied to each DSP function on the DSP CTL and DSP MOD pages.

Subpage Parameters

The right-hand side of the DSP CTL page shows a subpage with fine adjust and hard-wired modulation parameters for the selected function-parameter. To access the parameters on the subpage, highlight the function-parameter you wish to edit, and then press the > button to move the cursor into the subpage. The label of a function-parameter depends on its corresponding function-block in the current layer's algorithm.

Fine

Use the Fine parameter to make fine adjustments to the selected function-parameter. Not all function-parameters have a Fine parameter.

The default Pitch function-parameter has two fine adjust parameters. The Fine parameter changes the pitch in cents (100ths of a semitone). The Hz parameter changes pitch according to its frequency in Hertz (cycles per second).

Key Tracking

Use the KeyTrk parameter to modulate the selected function-parameter based on the MIDI note number of each note played.

Positive KeyTrk values will progressively increase modulation depth for each note played above middle C, and progressively decrease modulation depth for notes played below middle C. For example, with a positive KeyTrk value, playing middle C causes no change in modulation depth, playing each key further above middle C increases the modulation depth by the KeyTrk amount, and playing each key further below middle C decreases the modulation depth by the KeyTrk amount.

Negative KeyTrk values will progressively decrease modulation depth for each note played above middle C, and progressively increase modulation depth for notes played below middle C. For example, with a negative KeyTrk value, playing middle C causes no change in modulation depth, playing each key further above middle C decreases the modulation depth by the KeyTrk amount, and playing each key further below middle C increases the modulation depth by the KeyTrk amount.

For the default Pitch function-parameter, the value set for the KeyTrk parameter on the DSP CTL page is added to the value set for the key tracking parameter on the KEYMAP page.

Velocity Tracking

Use the VelTrk parameter to modulate the selected function-parameter based on the MIDI velocity of each note played.

Program Edit Mode

The DSP Modulation (DSP MOD) Page

Positive VelTrk values will progressively increase modulation depth for higher velocities. For example, with a positive VelTrk value, playing a velocity of 0 causes no change in modulation depth, playing each velocity further above 0 increases the modulation depth by the VelTrk amount.

Negative VelTrk values will progressively decrease modulation depth for higher velocities. For example, with a negative VelTrk value, playing a velocity of 0 causes no change in modulation depth, playing each velocity further above 0 decreases the modulation depth by the VelTrk amount.

Pad

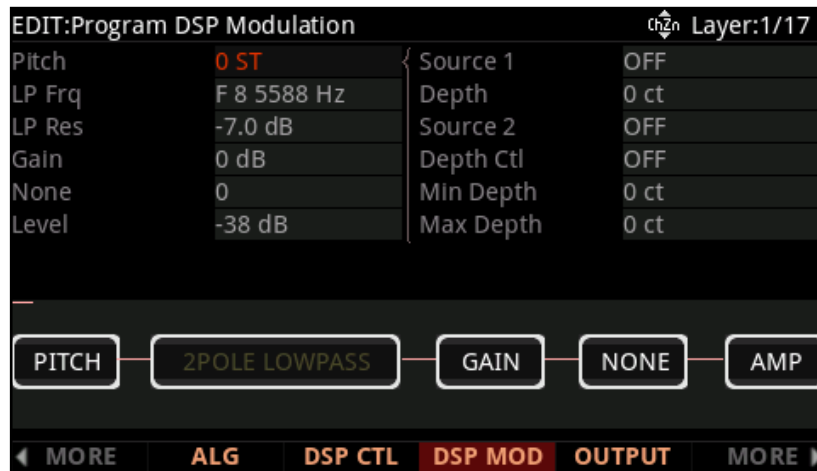
Use the Pad parameter to reduce the amplitude of the selected DSP function by 6, 12, or 18 dB. Not all DSP functions have a Pad parameter.

Osc. Key Sync

When an oscillator is selected, the “Osc. Key Sync” parameter be accessed by selecting the oscillator’s pitch (Pch) subpage. For details see [“Oscillator Key Sync” on page 7-85](#).

The DSP Modulation (DSP MOD) Page

Use the DSP Modulation page to make coarse adjustments to parameters of each DSP block in the algorithm, and to adjust parameters for selectable modulation sources.



Parameter	Range of Values	Default
Source 1	Control Source List	Off
Depth	<i>(Depends on Function)</i>	0
Source 2	Control Source List	Off
Depth Control	Control Source List	Off
Minimum Depth	<i>(Depends on Function)</i>	0
Maximum Depth	<i>(Depends on Function)</i>	0

Function-parameter

The left-hand column of the DSP MOD page shows each function-parameter of the current layer's algorithm. You can coarsely adjust the selected function-parameter in these left-hand fields.

The function-parameters are listed along the left-hand side of the DSP MOD page and the DSP CTL page. The label of each function-parameter depends on its function in the current program's algorithm. For example, the Pitch function's function-parameter is labeled Pitch; and the two-block Lopass function's function-parameters are labeled LP Frq and LP Res.

Use each function-parameter to make coarse adjustments to each DSP function. Depending on the parameter, values may be set in semitones (ST), cents (ct), decibels (dB) or Hertz (hz). These adjustments are also combined with any modulation applied to each DSP function on the DSP MOD and DSP CTL pages.

Subpage Parameters

The right-hand side of the DSP MOD page shows a subpage with selectable modulation sources for the selected function-parameter. To access the parameters on the subpage, highlight the function-parameter you wish to edit, and then press the > button to move the cursor into the subpage. The label of a function-parameter depends on its corresponding function-block in the current layer's algorithm.

Source 1

Use the Source 1 parameter to modulate the selected function-parameter with a physical controller or other control source.

Depth

Use the Depth parameter to set the maximum modulation depth of Source 1.

When a Source 1 control source is at its minimum value, Source 1 will have no effect on the function-parameter.

When a Source 1 control source is at its maximum value, Source 1 will apply the amount of modulation set by the Depth parameter.

Source 1 control source values between the minimum and maximum will scale the amount of modulation between no effect and the amount set by the Depth parameter

Source 2

Use the Source 2 parameter to modulate the selected function-parameter with a physical controller or other control source.

DptCtl (Depth Control)

Use the DptCtl parameter to modulate the Source 2 modulation depth with a physical controller or other control source.

When a DptCtl control source is at its minimum value, the Source 2 modulation depth will be set to the value of the MinDepth parameter.

When a DptCtl control source is at its maximum value, the Source 2 modulation depth will be set to the value of the MaxDepth parameter.

DptCtl control source values between the minimum and maximum will scale the Source 2 modulation depth between the values of the MinDepth and MaxDepth parameters.

MinDepth

Use the MinDepth parameter to set the minimum modulation depth of Source 2.

When a DptCtl control source is at its minimum value, Source 2 will apply the amount of modulation set by the MinDepth parameter.

MaxDepth

Use the MaxDepth parameter to set the maximum modulation depth of Source 2.

When a DptCtl control source is at its maximum value, Source 2 will apply the amount of modulation set by the MaxDepth parameter.

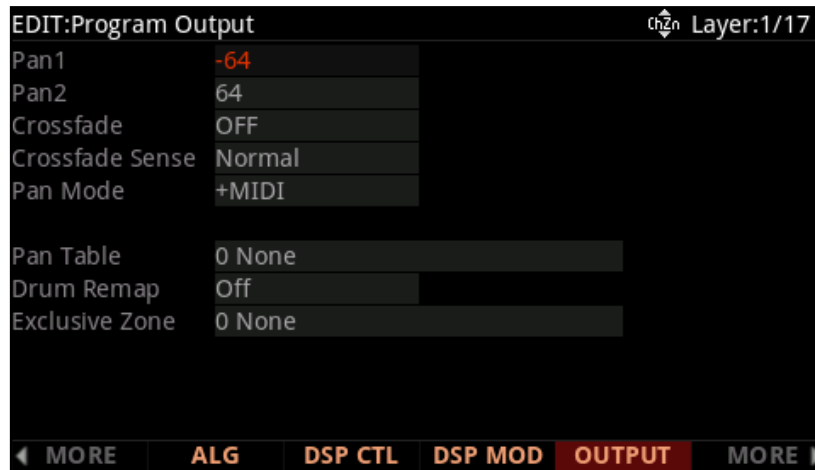


Note: The Forte features an easy shortcut for quickly assigning any of the realtime controllers (sliders, wheels, buttons, etc.) to a currently selected parameter (such as the Src1 and Src2 parameters above). Simply hold the Enter button and move the desired controller.

The OUTPUT Page

Use the Output page to adjust the left/right panning position and other panning settings for each layer. The Output page also contains parameters for remapping the notes of drum programs.

To control panning for all layers at once, use the Out Pan parameter on the Program Edit Common page.



Parameter	Range of Values	Default
Pan (or Pan 1)	± 64	0
(Pan 2)	± 64	63
Pan Mode	Fixed, +MIDI, Auto, Reverse	+MIDI
(Output Pan)	± 64	0
(Output Gain)	-96 to 48 decibels	0
(Output Pan Mode)	Fixed, +MIDI	+MIDI
Pan Table	Pan Table List	0 None
Crossfade Control	Control Source List	Off
Crossfade Sense	Normal, Reversed	Norm
Drum Remap	Off, Kurz1, Kurz2	Off
Exclusive Zone Map	Zone Map List	0 None

Pan and Pan2

Use the Pan parameter to adjust the panning of the current layer's *pre-FX* signal. Negative values pan the signal to the left channel, positive values pan to the right, and a value of zero pans to the center.

Program Edit Mode

The OUTPUT Page

When the Keymap page has the Stereo parameter set to On, the Pan2 parameter appears on the Output page. Use the Pan parameter to adjust the panning of the current layer's *pre-FX* signal for the left keymap (Keymap 1), and use the Pan2 parameter to adjust the panning of the current layer's *pre-FX* signal for the right keymap (Keymap 2).

To adjust a layer's *post* layer FX panning individually, see [Out Pan, Out Gain, and Out Pan Mode on page 7-62](#)).

Crossfade and Crossfade Sense

The Crossfade parameter lets you select a control source to fade the current layer's amplitude from zero to maximum. When CrossFadeSense is **Norm**, the layer is at full amplitude when the Crossfade control is at minimum. With CrossFadeSense set to **Rvrs**, the layer is at zero amplitude when the Crossfade control is at minimum.

To crossfade two layers in the same program, assign the same control source for the CrossFade parameters in both layers, then set one of their CrossFadeSense parameters to a value of **Norm**, and the other's to **Rvrs**.

These parameters are similar to the Src1 and Depth parameters for the Amp function on the DSP CTL and DSP MOD pages, but the attenuation curve for the Crossfade parameter is optimized specifically for crossfades.

Pan Mode

When Pan Mode is set to **Fixed**, the pan position remains as defined with the Pan parameter, ignoring MIDI pan messages.

When Pan Mode is set to **+MIDI**, MIDI pan messages (MIDI CC 10) will shift the sound to the left or right of the Pan parameter setting. Message values below 64 shift it left, while those above 64 shift it right.

When Pan Mode is set to **Auto** each note is panned based on its MIDI note number, using the position set by the Pan and Pan2 parameters as the center. Middle C (MIDI note number 60) is equivalent to the position set by the Pan and Pan2 parameters. Lower notes shift increasingly left, while higher notes shift increasingly right. MIDI pan messages (MIDI CC 10) will also affect the pan position

When Pan Mode is set to **Reverse**, panning behaves the same as the Auto setting, except that lower notes shift increasingly right, while higher notes shift increasingly left.

Out Pan, Out Gain, and Out Pan Mode

When the LYR FX page has the Layer FX Mode parameter set to Layer-Specific FX, the Out Pan, Out Pan Mode, and Out Gain parameters appear on the Output page.

Use the Out Pan parameter to pan the *post* layer FX signal of the current layer; negative values pan the audio signal to the left channel, positive values to the right, and a value of zero pans to the center.

When Out Pan Mode is set to **Fixed**, the pan position remains as defined with the Out Pan parameter, ignoring MIDI pan messages.

When Out Pan Mode is set to **+MIDI**, MIDI pan messages (MIDI 10) will shift the sound to the left or right of the Pan parameter setting. Message values below 64 shift it left, while those above 64 shift it right.

Use the Out Gain parameter to adjust the gain of the *post* layer FX signal of the current layer.

Pan Table

The factory preset pan tables are key-specific panning schemes by which the note that each key produces is uniquely panned. These tables are particularly useful for producing the stereo image of a drum set when creating percussion programs, or for producing the stereo image of a piano when creating piano programs.

Drum Remap

The Drum Remap parameter defines how drum programs are mapped, so that drum sounds can be properly remapped when using the General MIDI (GM) drum map.

The Kurz1 map designates that the current drum program was originally a PC2 program, and that it uses the PC2 drum map.

The Kurz2 map designates that the current drum kit uses a Forte drum map (all factory drum programs use this map). The Kurz2 map is similar to that of the PC2, except tom-tom sounds have been moved into octave C3-C4, so they are more easily playable with the main kick and snare drum sounds in that octave.

When editing a drum program, make sure to follow the layout of the drum map being used if you want to be able to properly remap the kit to the GM drum map. Programs that have the Drum Remap parameter set to Off will not be viewed by the Forte as drum programs and will not be affected when remapping to the GM drum map.

To remap drum to the GM drum map, set the Global Mode Drum Remap parameter to GM. For details see [Drum Remap on page 12-16](#).

Exclusive Zone

The Exclusive Zone parameter applies principally to drum programs. When using a drum program, you may want the closed hi-hat sounds to “cut off” open hi-hat sounds. Since you can remap the keymaps of drum programs, this parameter remaps “cut off keys” accordingly.

The Amplitude Envelope (AMP ENV) Page

Use the Amp Envelope page to adjust the amplitude envelope for each layer. The amplitude envelope controls the volume contour of each note played, determining how long it takes for each note to fade in when a key is pressed, and how long it takes for each note to fade to silence when a key is released.

Attack1	Attack2	Attack3	Decay1	Release1	Release2	Release3	Loop
0s	0.260	0.700	0.260	0.700	0s	0s	Off
100%	4%	12%	37%	3%	0%	User	Inf

	Adjust	Keytrk	VelTrk	Source	Depth
Attack	1.000x	1.000x	1.000x	OFF	1.000x
Decay	50.000	1.000x		64 Sw.Pedal 1	0.018x
Release	1.000x	1.000x		OFF	1.000x
Impact	0.0 dB	0.00 dB	0.0 dB	OFF	0.0 dB

Parameter Group	Parameter	Range of Values
Attack Segment 1, 2, 3	Time	0 to 60 seconds
	Level	0 to 100%
Decay Segment	Time	0 to 60 seconds
	Level	0 to 100%
Release Segment 1, 2, 3	Time	0 to 60 seconds
	Level	0 to 150% (Release Segment 3 is always set to 0%)
Loop	Type	Off, Forward, Bidirectional
	# of loops	Infinite, 1 to 31 times

Mode

When the Mode parameter is set to Natural, many of the amplitude envelope parameters are hidden, and a natural envelope is used.

Many factory ROM samples include a natural envelope, which is custom designed for each sample by Kurzweil engineers. A natural envelope contains more detail than a user envelope, and allow samples of acoustic instruments to sound more realistic.

When the Mode parameter is set to User, several amplitude envelope parameters appear. The User setting allows you to adjust several parameters for amplitude envelope attack, decay and release.

Attack1, Attack2, Attack3

When the Mode parameter is set to User, the Attack parameters appear.

The amplitude envelope includes 3 attack segments. Each segment has a field for time (how long it takes to play the segment), and a field for level (a percentage of the maximum possible level for the current layer). Level for the Attack segments can be set from 0 to 100%.

When a note is played, the volume goes from silence to the volume level set by Attack1. Use the two fields below the Attack1 parameter to set a time for Attack1 in seconds, and a volume level in percent.

After the Attack1 segment is played, the Attack2 segment is played. The volume goes from the volume level set by Attack1, to the volume level set by Attack2. Use the two fields below the Attack2 parameter to set a time for Attack2 in seconds, and a volume level in percent.

After the Attack2 segment is played, the Attack3 segment is played. The volume goes from the volume level set by Attack2, to the volume level set by Attack3. Use the two fields below the Attack3 parameter to set a time for Attack3 in seconds, and a volume level in percent.

Decay1

When the Mode parameter is set to User, the Decay1 parameter appears.

After the 3 attack segments are played, the volume goes from the volume level set by Attack3, to the volume level set by Decay1. Use the two fields below the Decay1 parameter to set a time for Decay1 in seconds, and a volume level in percent. To hear a note's decay segment, the note must remain held until after the attack section is completed, otherwise the release segment will be heard.

The Decay1 level sets the sustain level of the amplitude envelope. When a note is played and held, it will sustain at this level. This is analogous to the S (sustain level) of a classic analog ADSR envelope. To create a sustaining amplitude envelope, simply set the Decay1 level to a nonzero value. Level for Decay1 can be set from 0 to 100%.

Release1, Release2, Release3

When the Mode parameter is set to User, the Release parameters appear.

The amplitude envelope includes 3 release segments. Release segments 1 and 2 each have a field for time (how long it takes to play the segment), and a field for level (a percentage of the maximum possible level for the current layer). Release segment 3 only has a field for time. Level for Release segments 1 and 2 can be set from 0 to 150%.

When a note is played, the volume goes from the Decay1 level to the volume level set by Release1. Use the two fields below the Release1 parameter to set a time for Release1 in seconds, and a volume level in percent.

After the Release1 segment is played, the Release2 segment is played. The volume goes from the volume level set by Release1, to the volume level set by Release2. Use the two fields below the Release2 parameter to set a time for Release2 in seconds, and a volume level in percent.

Program Edit Mode

The Amplitude Envelope (AMP ENV) Page

After the Release2 segment is played, the Release3 segment is played. The volume goes from the volume level set by Release2, to silence. Use the time field below the Release3 parameter to set a time for Release3 in seconds.

Loop

When the Mode parameter is set to User, the Loop parameters appear.

The top Loop field determines the Loop type.

A value of Off disables looping for the current layer's amplitude envelope.

Values of seg1F, seg2F, and seg3F are forward loops. In each case, the amplitude envelope plays through the attack and decay sections, then loops back to the beginning of the first, second, or third attack segments, respectively.

Values of seg1B, seg2B, and seg3B, are bidirectional loops. The amplitude envelope plays through the attack and decay sections, then reverses and plays backward to the beginning of the first, second, or third attack segment, respectively. When it reaches the beginning of the assigned attack segment, it reverses again, playing forward to the end of the decay section, and so on.

When the top Loop field is set to a value other than Off, the bottom Loop field determines the number of times that the amplitude envelope will Loop.

A value of Inf makes the amplitude envelope loop until a note is released. A value of 1 through 31 determines how many times the loop will repeat after the amplitude envelope has played through once. Each note will stop looping and play its release segment when the note is released.

Envelope Control

The parameters on the bottom half of the AMP ENV page give you realtime control over the rates of each section of the amplitude envelope for both natural and user envelopes, as well as control over the Impact parameter.

The values for the various envelope control parameters are cumulative. For example, if you set attack to be controlled by KeyTrk and VelTrk, the resulting change on Attack would be affected by the combination of the values produced by KeyTrk and VelTrk.

The values of each of these parameters multiply the *rates* of the envelope sections they control. Values greater than 1.000x make the envelope sections run faster (they increase the rate), while values less than 1.000x make the envelope sections run *slower*. Say for example that on the current layer you had set the Decay section's time at 2.00 seconds, and its level at 0%. This sets the layer's amplitude to fade to silence two seconds after the completion of the last attack segment. The decay time is two seconds; the decay rate is 50% per second. Now if you set the Decay Adjust parameter to a value of 2.000x, you've increased the decay rate by a factor of two, making it twice as fast. The rate increases to 100% per second, and the decay time is now one second instead of two.

Parameter Group (Available for each of Att, Dec, Rel, Imp)	Range of Values
Adjust	0.018 to 50.000x (-24.0 to 24.0 dB for Imp)
Key Tracking	0.018 to 50.000x (-2.00 to 2.00 dB for Imp)
Velocity Tracking	0.018 to 50.000x (Not available for Dec or Rel; -24.0 to 24.0 dB for Imp)
Source	Control Source List
Depth	0.018 to 50.000x (-24.0 to 24.0 dB for Imp)



Note: Since 0 multiplied by any number equals 0, the envelope control parameters on this page will have no effect on any AMP ENV sections set to 0 seconds. A way around this is to change any AMP ENV sections set to 0 to 0.02 seconds.

There is an exception for the first attack segment: If the first attack segment is set to 0 seconds and an envelope control parameter is applied, an offset of .002 seconds will be applied internally when any of those envelope control values does not equal 0. This allows attack time to be controlled even when attack is set to 0 seconds.

Adjust

Use the Adjust parameter to offset the envelope rate of each amplitude section.

When a control source is selected for the Source field, use the Adjust and Depth fields to set the range of envelope control. When the control source selected for the Source field is at its minimum value, the Adjust amount is applied to the rate of the selected amplitude section. When the control source selected for the Source field is at any value above its minimum value, the Adjust amount is applied to the rate of the selected amplitude section and added to the control source's current value multiplied by the Depth parameter.

Keytrk

Use the Keytrk parameter to control the envelope rate of each amplitude section based on the MIDI note number of each key played. Applying Keytrk to the Release segment is useful for emulating acoustic string and percussion instruments, in which lower notes often have longer release times, and higher notes often have shorter release times.

Keytrk uses the MIDI note number of each key as a control source. When Keytrk is greater than 1.000x, notes above C 4 will make the envelope section run faster, while notes below C 4 will make it run slower. When Keytrk is less than 1.000x, notes above C 4 will make the envelope section run slower, and notes below C 4 will make it run faster.

VelTrk

Use the VelTrk parameter to control the envelope rate of the attack amplitude sections based on the MIDI velocity of each key played. Applying VelTrk is useful for emulating bowed acoustic string instruments, in which louder notes often have faster attack times, and softer notes often have longer attack times.

When the value of this parameter is greater than 1.000x, attack velocities greater than 64 make the attack section run faster, and attack velocities below 64 make it run slower.

VelTrk is not available for the decay and release segments, however you can achieve a similar control by selecting attack velocity (GAttVel) as a control source for the Decay or Release Source parameters.

Source

Use the Source parameter to assign a control source to control the envelope rate of each amplitude section. Use the Adjust and Depth fields to set the range of envelope control.

Depth

Use the Depth parameter to set the range of envelope control for the controller set in the Source field.

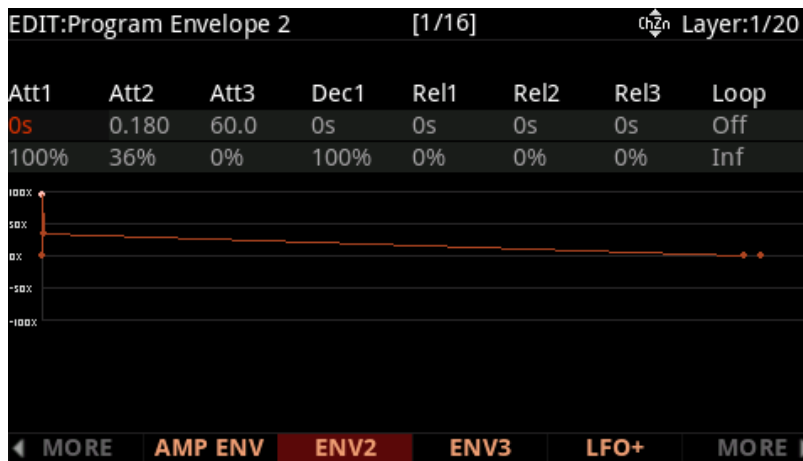
When a control source is selected for the Source field, use the Adjust and Depth fields to set the range of envelope control. When the control source selected for the Source field is at its minimum value, the Adjust amount is applied to the rate of the selected amplitude section. When the control source selected for the Source field is at any value above its minimum value, the Adjust amount is applied to the rate of the selected amplitude section and added to the control source's current value multiplied by the Depth parameter.

Impact

Impact can boost or cut note volume by up to 24 dB during the first 20 milliseconds of the attack of an envelope. This feature is an easy way to get more “thump” from your bass and drum sounds.

The Envelope 2 (ENV2) and Envelope 3 (ENV3) Pages

Use the Envelope 2 and Envelope 3 pages to adjust the envelopes 2 and 3 for each layer. Unlike the amplitude envelope, which always controls the volume contour of each note played, envelope 2 and 3 are control sources which have no affect until they are assigned to modulate a parameter in the layer. For example, envelope 2 is commonly used to modulate filter frequency, but can be assigned to modulate any parameter in the layer.



The envelope 2 and 3 parameters are the same as the amplitude envelope parameters, with a few exceptions:

ENV2 and ENV3 are bipolar, envelope values can be set from -100% to 100%.

The ENV2 and ENV3 attack segments are linear, meaning the attack segments increase at the same rate from start to finish. (AMP ENV uses an exponential attack, meaning the amplitude rises much faster at the end of the attack segment than it does at the beginning.)

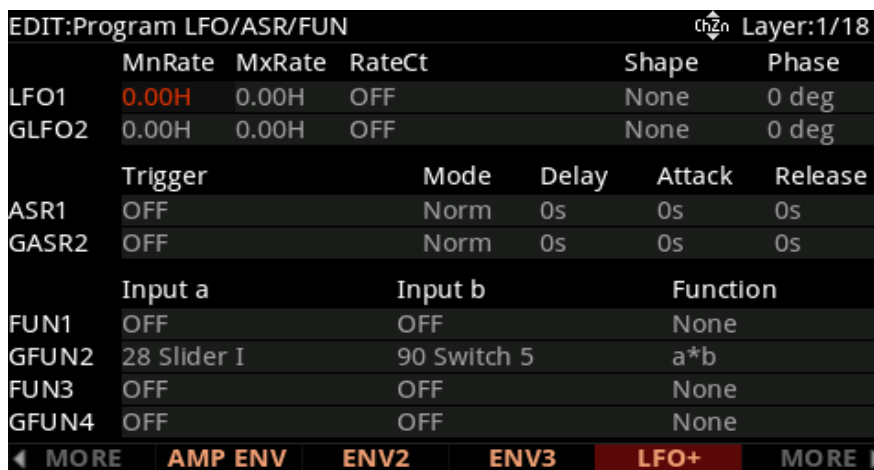
The ENV2 and ENV3 Rel3 segment can be set to values from -100% to 100%, unlike the AMP ENV Release3 segment which always returns to 0%.

ENV2 and ENV3 do not have envelope control parameters.

See [“The Amplitude Envelope \(AMP ENV\) Page” on page 7-64](#) for details on each envelope parameter.

The LFO+ Page

Use the LFO+ page to adjust LFOs, ASRs, and FUNs for each layer.



LFO Parameters

LFOs are low-frequency oscillators, periodic (repeating) control sources. LFOs are used to repeatedly modulate a parameter based on the shape and frequency of an audio waveform. You can control the LFO rate in real time (which defines how frequently the LFO repeats) in Hz, or in note values in order to sync with the program tempo. You can also select from many wave shapes, which defines the waveform of the modulation signal.

LFOs are commonly used for creating effects like vibrato (cyclic variation in pitch) and tremolo (cyclic variation in amplitude). Each LFO must be assigned to control some parameter before you'll hear the effect.

LFO1 is always local, meaning that it's triggered with each Note On event, and runs independently for each note in the layer.

LFO2 is local by default, but can be made global by setting the Common page Globals parameter to **On**. Global LFOs uniformly affect every note in each layer, and start running as soon as the program containing them is selected, even if you don't play any notes.

Parameter Group (Available for each of LFO1 and LFO2)	Range of Values	Default
Minimum Rate	1/16 nt to 1/4 nt, 0 to 24 Hz	0.00
Maximum Rate	0 to 24 Hz	0.00
Rate Control	Control Source List	Off
LFO Shape	LFO Shape List (Ref. Guide)	Sine
LFO Start Phase	0, 90, 180, 270 Degrees	0

Minimum Rate

The MnRate parameter sets the slowest rate at which the LFO runs. Each LFO runs at the minimum rate when its RateCt parameter is set to OFF, or when the control source assigned to RateCt is at its minimum value.

The values 1/4 nt, 1/8 nt, 1/8 tr, and 1/16 nt will sync the Minimum Rate with the program tempo (see [“Tempo” on page 7-35](#) for details). When a note value is selected, the LFO rate is fixed, and the MaxRate and RateCt field are hidden.

Maximum Rate

The MxRate parameter sets the fastest rate at which the LFO runs. Each LFO runs at the maximum rate when its RateCt parameter is set to ON, or when the control source assigned to RateCt is at its maximum value.

Rate Control

Use the RateCt parameter to assign a control source to modulate the LFO rate between the minimum and maximum rates.

Shape

Use the Shape parameter to select an LFO waveform shape. The LFO wave shape determines the nature of its effect on the signal its modulating. For example, the Sine waveforms move smoothly between values, while the Square waveforms jump abruptly between values.

Phase

Use the Phase parameter to determine the LFO's start point in the waveform.

When an LFO is local, the phase parameter determines the start point in the LFO waveform for each note. For example, you could make sure every vibrato started below the pitch you played instead of at the pitch you played. The LFO's phase also affects global LFOs, although it's often indistinguishable, since global LFOs start running as soon as the program containing them is selected, even if you don't play any notes.

One complete cycle of the LFO is 360 degrees, and each 90-degree increment in the phase represents a quarter-cycle of the LFO. For example, 0 degrees phase will play the LFO from the start of the waveform, 90 degrees phase will play the LFO from a quarter way through the waveform, 180 degrees phase will play the LFO from half way through the waveform, and 270 degrees phase will play the LFO from three quarters through the waveform.

ASR Parameters

ASRs are unipolar envelopes with three sections: attack, sustain, and release. The Forte's ASRs can be triggered in a variety of ways, and can also be looped for use as periodic (repeating) control sources, similar to LFOs.

Program Edit Mode

The LFO+ Page

ASR1 is always local, meaning that it's triggered with each Note On event, and runs independently for each note in the layer.

ASR2 is local by default, but can be made global by setting the Common page Globals parameter to **On**. Global ASRs uniformly affect every note in each layer, and start running as soon as the program containing them is selected, even if you don't play any notes.

Parameter	Range of Values	Default
Trigger	Control Source List	Off
Mode	Normal, Hold, Repeat	Normal
Delay	0 to 30 seconds	0 seconds
Attack	0 to 30 seconds	0 seconds
Release	0 to 30 seconds	0 seconds

Trigger

The Trigger parameter defines the control source that triggers the attack segment of each ASR. When a switch control source is selected, the ASR is triggered when the control value changes from off to on. When a continuous control source is selected, the ASR is triggered when the control value changes from below its middle point to above its middle point.

When the Trigger parameter is set to ON, a local ASR will be triggered for each note played in the layer, and a global ASR will be triggered immediately when you select a program is selected.

Mode

The Mode parameter determines what the ASR does after playing the attack section.

When the Mode parameter is set to Normal, the ASR will play the attack section, then will immediately play the release section. The sustain section of the ASR will not be played.

When the Mode parameter is set to Repeat, the ASR will play the attack section, then will immediately play the release section, then will loop repeatedly through the attack and release sections until the ASR's trigger switches off. The sustain section of the ASR will not be played.

When the Mode parameter is set to Hold, the ASR will play the attack section, then will sustain at the highest value until the ASR's trigger switches off. The ASR then plays its release section. If the ASR's trigger switches off before the attack section is complete, the ASR immediately plays its release section.

Delay

The Delay parameter can be used to set a delay time in order to add a delay before playing the attack section. When the ASR's trigger switches on, the ASR will wait the set amount of time before playing the attack section.

Attack

The Attack parameter sets how long the ASR attack section takes to ramp up from minimum to maximum value.

Release

The Release parameter sets how long the ASR release section takes to ramp down from its current value to its minimum value.

FUN Parameters

FUN is short for function. FUNs are mathematical functions that allow you to flexibly combine and modify modulation signals from multiple control sources.

Each FUN accepts input from two control sources, performs a selectable function on the two input signals, and sends the result as its output, which can be assigned like any other control source.

Input a, Input b

Use the Input a and Input b parameters to select two inputs for each function. Inputs can be control sources (MIDI controllers, LFOs, envelopes, etc) or constant values between -1 and +1.

All control source inputs to FUNs are scaled to a value in the range 0 to +1 (unipolar), or -1 to +1 (bipolar). Most inputs are unipolar, but some inputs (like envelopes and LFOs) may be unipolar or bipolar depending on their settings.

Most MIDI controllers are unipolar, so their 0-127 range gets scaled to 0 to +1. Some MIDI controllers can be bipolar as well. For example, the control source list has 2 choices for Mod Wheel: Mod Wheel (unipolar) and Bi-Mwl (bipolar).

For a unipolar input, a value of OFF equals a constant value of 0, and a value of ON equals a constant value of +1.

For a bipolar input, a value of -ON equals a constant value of -1, and a value of ON equals a constant value of +1.

Function

The Function parameter determines what mathematical function is applied to the two inputs.

The output of FUNs can act as unipolar or bipolar control sources, depending on the values of the inputs and the selected function. When the output of a FUN is used as a Mod control source, the -1 to +1 range of values is scaled based on the Depth setting of the Mod source. See the K2600 Musician's Guide at kurzweil.com for more details and a description of each available FUN.

The Layer Utility and HELP Functions

Some of the soft buttons in Program Edit Mode perform a function when pressed, as well as some of the Favorites buttons. The soft buttons described below appear when the global [User Type](#) parameter is set to Advanced.

New Layer (NEW LYR)

Press the NEW LYR soft button to create a new VAST layer. A new layer will be created numbered one above the highest layer in the Program. A VAST layer can use samples, oscillators, and various DSP functions.

Duplicate Layer (DUP LYR)

Create a copy of the current layer, duplicating the settings of all its parameters. The copy becomes the current layer, and is the highest-numbered layer in the program.

Import Layer (IMP LYR)

Use the IMP LYR button to go to the Import Layer page, where you can copy a specific layer from another program into the current program. Importing layers is a convenient alternative to creating layers from scratch. For example, if you have a favorite string sound, you can import its layers into the current program, preserving all envelopes and control settings.

On the Import Layer page, use the Source Program field to select a program to copy (use the alpha wheel or the **PROG-** or **PROG+** soft buttons to change the source program number).

The Import Layer page allows you to listen to the selected layer of the source program, along with all other layers in the current program (use the alpha wheel or the **LAYER-** or **LAYER+** soft buttons to change the source layer number). For each layer in the selected source program, you can view the layer number, keymap, key range, velocity range, and layer enable control source. Some source layers may not be heard if the layer enable control source causes the layer to be disabled.

To copy the selected layer from the source program into the current program, press the IMPORT soft button.

Delete Layer (DEL LYR)

Press this button to view the Delete Layer Page. You can select a Layer to delete by using the Channel/Zone buttons. Press the DELETE soft button to delete the selected Layer, or press the BACK soft button to cancel.

NEW FM

Press the NEW FM soft button to create a new FM layer. A new layer will be created numbered one above the highest layer in the Program. An FM layer contains a set of oscillators designed to emulate classic 6 operator FM synthesizers.

Delete

Press the DELETE soft button to delete the current Program (factory Programs can not be deleted). Press DELETE, and you will be given a choice to DELETE or CANCEL. Press DELETE again, and an “*Are You Sure?*” message will appear. Press YES to delete the Program, or CANCEL to cancel.

Help

Press the HELP soft button to view the Help page, where you can view a description of functions assigned to the Favorites buttons.

Favorites 1: Edit

The Favorites 1 button works as an Edit button while in the Program Editor. Press the Favorites 1 button to enter sub editors when the following fields are selected: Parameters on the PARAMS page, FX Chains on the FX or LYR FX pages, Intonation Map on the COMMON page, Keymaps on the KEYMAP page, Samples within the Keymap editor, Patterns on the ARP page (Shift, Velocity, and Duration), and Algorithm on the ALG page. The top line of the display will show the F1:EDIT icon when a sub editor is available.

When a VAST Mod source has been assigned to a physical controller or CC number, you can select the VAST source field and press the Favorites 1 button to jump to selecting the associated parameter on the Parameters Page. When a VAST Mod source has been assigned to an envelope, LFO, ASR or FUN, you can select the VAST source field and press the Favorites 1 button to jump to selecting an associated field on one of the envelope pages or the LFO+ page. The top line of the display will show the F1:JUMP icon when a jumpable parameter is selected.

Favorites 2: Compare On/Off

Press the Favorites 2 button to temporarily recall an unedited version of the program, allowing you to compare your edited program with the original program. Press the Favorites 2 button again to return to the edited version of the Program.

Favorites 3: Solo Current Layer

Press the Favorites 3 button to temporarily solo the currently selected Layer. Press the Favorites 3 button again to un-solo the currently selected Layer.

Program Edit Mode

The Layer Utility and HELP Functions

Favorites 4: Mute Current Layer

Press the Favorites 4 button to mute the currently selected Layer. Press the Favorites 4 button again to un-mute the currently selected Layer.

Favorites 5: Bypass FX

Press the Favorites 5 button to temporarily bypass the Insert and Aux FX Chains. Press the Favorites 5 button again to re-enable the Insert and Aux FX Chains.

Bypassing the FX is useful for checking the output level of a program with and without its FX Chains. If the output level of a program is the same with and without the FX being bypassed, it will prevent sudden jumps in volume that can occur when switching programs while notes are being held. When a new program is selected while notes from the last program are still being held, the FX Chains from the last program may be “stolen” by the new program if there are not enough FX resources for both programs. You may hear a sudden jump in volume if the output of a program is too quiet or too loud without its FX Chains. To fix this, usually the output gain in the last box of the Insert Chain should be adjusted until the program volume is the same with and without bypassing the FX. Afterwards, you may need to adjust the Common Page OutGain of the program to match its level with other programs.

Favorites 6: New Parameter

When assigning a physical controller or CC number to a VAST source field, a Parameter is automatically added to the Parameters Page (unless the physical controller/MIDI CC is already being used by an existing Parameter on the Parameters Page). In other cases it may be desirable to manually create a new Parameter. Press the Favorites 6 button to create a new Parameter. At the prompt, choose a Destination and then name the Parameter. The Parameter Destination is the default MIDI CC number that the Parameter will send to the Program. The Destination also becomes the default Control for the Parameter. Once the parameter is created, you can change its Control on the Parameters Page.

Favorites 7: Ignore Edits From Controllers

When the Favorites 7 button is pressed and lit, moving physical controllers which are assigned to parameters on the Parameters page will not change the Value set on the Parameters page. This allows you to edit a program and try different controller settings without losing the values that you had previously set on the Parameters page.

Favorites 8/9: FM Operator Down/Up

When the FM Operator page is selected in an FM Layer, press the Favorites 8 or 9 buttons to select the next lower or higher FM operator.

Favorites 9: Edit Description

Press the Favorites 9 button to enter the description editor, where you can edit the program description text. Program descriptions appear on the Parameters page at the bottom of the Parameters list. The program description can be useful for providing extra information about a program, keeping notes about parameter assignments, or adding your name when sharing programs.

Favorites 10: Help

Press the Favorites 10 button to jump to the Help page.

Editing VAST Programs With KVA Oscillators

The Forte uses KVA oscillators as another way to generate sounds in VAST programs. Unlike keymaps, which play samples, KVA oscillators create DSP-generated waveforms every time they are triggered. The KVA oscillators can create a range of waveforms, from high quality simple waveforms familiar to users of classic analog synths, to complex waveforms which take advantage of the Forte's internal processing power and complex signal routing capabilities. Though the Forte does have keymaps containing samples of basic synth waveforms, the use of KVA oscillators provides users with better portamento, more modulation options, higher sound quality, and other advantages which will be explained in this section. Learning to use KVA oscillators instead of keymaps (where appropriate) is simple and will increase the versatility of your VAST editing capabilities. VAST programs using layers with KVA oscillators can also be combined with other layers using keymaps.

Basic Use of KVA Oscillators

Minimal Settings for Basic Use of KVA Oscillators

These are the minimal settings that a KVA layer needs in order to function in the style of a classic analog synth:

1. Edit:Program Keymap Page: Set the Keymap parameter to 999 Silence.
2. EDIT:Program Amp Envelope Page: Set the Envelope mode to User, and adjust the amplitude envelope to your liking (see [The Amplitude Envelope \(AMP ENV\) Page on page 7-64](#)).
3. EDIT:Program Wiring Alg Page: Pick an Algorithm and set an Oscillator (see [Setting KVA Oscillator Type](#)).

Further basic VAST settings that you will likely want to adjust are:

- Monophonic On/Off (see [The COMMON Page on page 7-18](#))
- Level Velocity Tracking (see [The DSP Control \(DSP CTL\) Page](#))

Program Edit Mode

Editing VAST Programs With KVA Oscillators

Read the [Setting KVA Oscillator Type](#) section below to learn about how to set each type of oscillator. After doing this, you can experiment with making KVA programs by following the above settings, and then setting and listening to each type of oscillator. Once you understand how to do this, read on to the [Advanced Use Of KVA Oscillators](#) (see below) to learn how to make your KVA patches more expressive through the use of DSP modulation.

Pitch Settings for KVA Oscillators

Each oscillator (except for noise functions) has its own pitch parameters, and is unaffected by pitch settings that would normally affect keymaps (such as those on the Keymap page). On a program layer, the coarse pitch parameter for the oscillator in use can be found on both the DSP CTL and DSP MOD pages, in the parameters list below the standard Pitch parameter for keymaps. For each oscillator, its coarse pitch parameter is named by an abbreviation of the oscillator name followed by "Pch". For example, the coarse pitch parameter for a saw wave oscillator will be called Saw Pch. On the DSP CTL sub page for any oscillator Pch parameter, you can adjust fine pitch by cents and Hertz, as well as KeyTrk and VelTrk settings for pitch.



Note: Be sure to differentiate between the different pitch parameters, each used either only for keymaps or only for KVA oscillators. The Pitch parameter on the top left of the DSP CTL and DSP MOD pages always appears in VAST programs but only affects the pitch of keymaps. If a KVA oscillator is being used, this Pitch parameter will have no affect on the layer's pitch, in which case the oscillator Pch parameter described above must be used to control the pitch of the oscillator.

Setting KVA Oscillator Type

The Forte comes with 25 Different KVA oscillators, see the sections below for details on each type. The tables below list KVA oscillators by type and function block size. Before setting an oscillator, you must choose an algorithm which includes a block that matches the block size for the oscillator that you wish to use. See [The Wiring Algorithm \(ALG\) Page](#) for more on selecting algorithms. Once you have picked an algorithm with the desired block size, highlight the block and use the Alpha Wheel to scroll through the available functions until you find the desired oscillator.

Some oscillators are available in two versions, anti-aliased (free of digital artifacts) and aliased (exhibiting some digital artifacts in the higher octaves). The anti-aliased versions use more DSP resources, but the improvement in sound quality can be quite noticeable. We strongly recommend using the anti-aliased oscillators for most applications.

The SYNC SQUARE oscillator is an 8 block oscillator that requires the use of two layers (4 blocks each) and the Alt Input feature of cascade mode. See below for details on setting up the Sync Square oscillator.



Note: If you put more than one oscillator in an algorithm, you will only hear the output of the last oscillator in the algorithm, unless an algorithm is used to route the earlier oscillator around the last oscillator and into a MIX function block, or if the last oscillator processes its audio input.

Anti-Aliased Oscillators	
Size	Name/Type
1 Block	LPNOIZ (noise + low pass filter)
2 Blocks	SINE
	SINE+
	SAW
	RES NOISE (noise + low pass filter with resonance)
	SQUARE
3 Blocks	PWM (Pulse Width Modulation)
4 Blocks	SYNC SAW
	SUPER SAW
	TRIPLE SAW
8 Blocks	SYNC SQUARE (master) >>, >>SYNC SQUARE (slave) (4 blocks each)

Aliased Oscillators	
Size	Name/Type
1 Block	SINE
	SAW
	TRI
	SQUARE
	NOISE
	SINE+
	SAW+
	NOISE+
	SW+SHP (Sawtooth + Shaper)
	2 Blocks
PWM (Pulse Width Modulation)	
FM OPERATOR	
FM SAW OPERATOR	
	FM TRI OPERATOR

Setting Up The Sync Square Oscillator

The Sync Square oscillator is actually comprised of two oscillators, a master and a slave, set up to emulate the way sync square oscillators worked on classic analog synthesizers. To create a program using Sync Square, select **Program 998 Editor Template**. Select “none” on the KEYMAP page. Select “user” on the AMP ENV page for an amp envelope. On the ALG page, select Algorithm 5 at the top of the page. Use the cursor buttons to select the function block and use the alpha wheel to select the “SYNC SQUARE (master) >>” function. Next, press the DUP LYR soft button to duplicate the layer, creating layer 2. In layer 2, on the ALG page, change the function block to “>> SYNC SQUARE (slave)”, and set the Alt Input parameter to “Layer 1.” The final step is to go to Layer 1’s DSP CTL page and turn the Level parameter all the way down, to -96dB (this ensures that you will only hear the output of the slave oscillator on layer 2, which is the intended function of Sync Square).

Now the Sync Square oscillator should be working. The “Syncoff” parameter, Sync Offset, is the main parameter for shaping the tone of this sound. Syncoff sets the sync offset between the master and slave square waves in each corresponding oscillator, which changes the shape of the waveform output by the slave oscillator. The Sync Square oscillator is most expressive

Program Edit Mode

Editing VAST Programs With KVA Oscillators

when the Syncoff parameter is modulated during performance. Use the DSP MOD page to assign an envelope or continuous controller like the Mod Wheel for this parameter to hear the effect (see [The DSP Modulation \(DSP MOD\) Page](#), as well as [The DSP Control \(DSP CTL\) Page](#) for details on setting up modulation and other ways to control parameters, and see [The Envelope 2 \(ENV2\) and Envelope 3 \(ENV3\) Pages](#) for details on using envelopes as modulation sources). See [Advanced Use Of KVA Oscillators](#) below for some similar examples of how to set and control modulation for oscillator specific functions and other parameters.

To add a DSP function to the Sync Square oscillator, you'll need to use cascade mode. For example, to add a filter, duplicate one of the layers to create layer 3. On layer 3, select the ALG page and choose one of the cascade mode algorithms, algorithms 101-131. For this example, let's use alg 105 with the filter "4Pole Mogue LP" selected for the function block. For the Alt Input parameter, select Layer 2. This routes a pre-Level parameter copy of Layer 2's output into Layer 3. Go to layer 2's DSP CTL page and turn its level down to -96dB (otherwise the un-filtered sound from layer 2 will be audible as well as the filtered sound in layer 3). Now you can hear the Sync Square from layers 1 and 2 running through the filter in layer 3. See [Advanced Use Of KVA Oscillators](#) below for examples of how to set and control modulation of filter parameters.

Advanced Use Of KVA Oscillators

Read the KVA sections above before moving on to this section.

If you have tried the program described above in [Basic Use of KVA Oscillators](#), you may have noticed that there is no variation in the notes played aside from pitch. Layers and programs created with KVA oscillators can become much more expressive by introducing variation with DSP modulation. For a KVA oscillator layer, you can use DSP modulation just as you would for keymap layers (see [The DSP Modulation \(DSP MOD\) Page](#) and [The DSP Control \(DSP CTL\) Page](#)). Several KVA oscillators also have their own modulation parameters that must be accessed to control the oscillator's intended function. Aside from these methods, KVA layers can also be altered by using keymaps with natural amplitude envelopes. See below for details on each method.

Examples of Simple DSP Control and Modulation

Select the Program 998 Editor Template and press the EDIT soft button. Go to the KEYMAP page and set Keymap to 999 Silence. Next, go to the AMP ENV page and set the mode to User, set Att1 time to .002 and Rel1 time to 0.02 (this gives you basic control of attack and release envelopes with sliders C and D). Press the ALG soft button and select Algorithm 8. Select the leftmost empty function block and use the alpha wheel to scroll to the PWM oscillator. Play some notes to hear the sound of the PWM oscillator.

Select the rightmost empty function block and use the alpha wheel to scroll to the LOPASS block. You should immediately hear a difference in the sound of the program, because the LOPASS function is set by default to cut some of the high frequencies from any signal that passes through it, in this case the PWM signal is passing through. With the LOPASS

function still selected, press the Favorites 1 button. This brings you to the main parameter for the LOPASS object on the DSP CTL page, which is LP Frq (you can also reach this page using the DSP CTL soft button). Here you can adjust the initial value of the function, in this case it is cut off frequency for the low pass filter. For this example, leave this initial value set to its default. With the LP Frq parameter selected, press right on the cursor button to get to this function's sub page (the right half of the display). Select the Veltrk parameter and use the alpha wheel or alpha numeric pad to turn it all the way up to 10800ct. Now keyboard velocities will affect the LP Frq parameter. A velocity of 127 will cause the filter's cut off frequency to move up 10800 cents from its initial value, a velocity of 0 will have no effect on the cut off frequency, and values in between will increase the cut off frequency by a scaling between 0 and 10800 cents. Overall, this will cause higher played velocities to increase the cut off frequency, making the oscillator sound brighter, and lower velocities to lower the cut off frequency, making the oscillator sound duller. This method can be used to control any DSP function that is loaded into an algorithm.

Alternatively, you could assign cut off frequency to be controlled by any continuous controller, such as the Mod Wheel. Start again with the unedited Program 998 Editor Template. Follow the same steps as above, but instead of changing any parameters on the DSP CTL page, press the DSP MOD soft button to reach the DSP Modulation page. On the left side of the screen, choose the parameter for LP Frq, and then press the right cursor button to reach the LP Frq sub page. On this sub page, you can assign any continuous controller to control the cut off frequency of the LOPASS function (or the main parameter for any function loaded in the current algorithm). Select the Src1 parameter, hold the Enter button and move the Mod Wheel to quickly select MWheel (the Mod Wheel) as your control source. Next, press the cursor down button to select the Depth parameter, then use the alpha wheel or alpha numeric pad to turn it all the way up to 10800ct. Now the Mod Wheel will affect the LP Frq parameter. Moving the Mod Wheel all the way up (a value of 127) will cause the filter's cut off frequency to move up 10800 cents from its initial value, moving the Mod Wheel all the way down (a value of 0) will have no effect on the cut off frequency, and values in between will increase the cut off frequency by a scaling between 0 and 10800 cents. Now you have the same control over cut off frequency as you did in the previous example, but now it is controlled by the Mod Wheel. Overall, moving the Mod Wheel up will increase the cut off frequency, making the oscillator sound brighter, and moving the Mod Wheel down will lower the cut off frequency, making the oscillator sound duller. This is useful to control a classic "filter sweep" sound. The above method can be used to control any DSP function that is loaded into an algorithm, and you can choose any continuous controller as a control source.

Oscillator Specific Control And Modulation Parameters

Several KVA oscillators also have their own modulation parameters that must be accessed to control the oscillator's intended function. Below is a list of these oscillators and their distinctive parameters, grouped by block size. Though the following parameters could be left at one setting, utilizing one of the DSP CTL or DSP MOD techniques described in the above examples will expose a wider range of expression from each oscillator.

Program Edit Mode

Editing VAST Programs With KVA Oscillators

1 Block:

LPNOIZ

A noise generator combined with a low pass filter. Use the Noiz Frq parameter to control the cut off frequency of the filter.

NOISE

A simple noise generator. Use the Noise parameter to control the noise initial amplitude.

SW + SHP (Sawtooth + Shaper)

This oscillator combines a dull sawtooth waveform with an input signal, and passes the input signal through a shaper effect, which can produce timbres similar to FM synthesis. When this oscillator is placed after the sound source in an algorithm (either a keymap or another oscillator), changing the Pch Coar parameter can radically change the sound of the input signal. It can be useful to place a 1 block gain function before this oscillator, in order to control the depth of the shaper effect.

SINE+ [Aliased (not recommended)]

Same as 2 block version, but without the Sine+Am parameter.

SAW+ [Aliased (not recommended)]

A saw oscillator that can add an input signal to its output.

NOISE+ [Aliased (not recommended)]

A noise oscillator that can add an input signal to its output.

2 Block:

SINE+

A sine oscillator that can add an input signal to its output. The Sin+ Pch and Sine+ Am parameters affect the pitch and amplitude of the sine waveform without affecting the pitch of the input source.

RES NOISE

A noise generator combined with a low pass filter with resonance control. Use the Noiz Frq parameter to control the cut off frequency of the filter. Use the Noiz Q parameter to control the amplitude of the resonance (a boost or cut at the cut off frequency). One technique for use of this function is to set a high value for Noiz Q (so that you hear the resonance create a tone), and then on the DSP CTL page set C4 as an initial frequency for Noiz Frq, and set Keytrk to 100ct/key on the Noiz Frq sub page. Doing this causes the noise resonance frequency to match the note of the key played.

SHAPED SAW

The Shaped Saw oscillator is a sawtooth oscillator with the ability to morph its output shape between sawtooth and sine wave (without crossfading). This oscillator's distinctive parameter is Shape, which controls the morphing. With Shape set to 0, the oscillator produces a pure sawtooth wave. With Shape set to 127, the oscillator produces a pure sine wave. Values in between morph between the two wave shapes.

PWM (Pulse Width Modulation) [Aliased (not recommended)]

This oscillator's distinctive parameter is PWM Wid, which adjusts pulse width from values of 1-99. With PWM Wid set to a value of 50, PWM produces a square wave. The further the PWM Wid parameter is set from 50, the narrower the pulse width becomes, changing the shape of the output waveform and thus altering the oscillator's tonal quality.

FM OPERATOR / FM SAW OPERATOR / FM TRI OPERATOR

These oscillators are capable of basic Frequency Modulation synthesis, by using a sine, sawtooth, or triangle wave carrier signal which can be modulated by an input signal. Frequency modulation allows for the creation of complex timbres by rapidly modulating the frequency of a carrier signal with an input signal. These oscillators must be placed after the sound source in an algorithm (either keymap or oscillator) to hear the intended effect.

Use the FM Op Inp parameter to adjust the level of the input signal and frequency modulation depth. Try adjusting the FM Op Inp parameter to hear the input source modulate the carrier signal and find interesting timbres. When FM Op Inp is set to a low value, only the sine, sawtooth, or triangle wave carrier signal will be heard. As the input signal level is turned up, the operator will create brighter timbres. Input signals with complex or noisy timbres will more easily create noisy timbres, so the FM Op Inp parameter may need to be turned down. Input signals with simple timbres may be too quiet to apply modulation, so the FM Op Inp parameter may need to be turned up.

3 Block:

PWM (Pulse Width Modulation) [Anti-Aliased (recommended)]

Same as 2 Block PWM, see above.

4 Block:

SYNC SAW

Sync Saw consists of two saw waves, one that you hear (the slave) and one that controls the slave (the master). This oscillator's distinctive parameter is SyncOff, which controls the offset of the slave and master waves. With SyncOff set to 0, the master has no effect on the slave. When an offset is set, the slave restarts its wave cycle every time the master wave completes a cycle. Offsets cause the slave to restart its cycle in the middle of normal sawtooth cycles, which causes the slave's waveform shape and sound to be altered.

Program Edit Mode

Editing VAST Programs With KVA Oscillators

SUPER SAW

The Super Saw oscillator consists of two saw waves. This oscillator's distinctive parameter is Detune, which has settings from 0-50 cents, allowing you to detune both of the saw waves by up to 50 cents away from the root pitch of the key played. Detune affects both saw waves, one is detuned above the original root pitch, and the other is detuned below the original root pitch.

TRIPLE SAW

The Triple Saw oscillator consists of three saw waves. This oscillator's distinctive parameter is Detune, which has settings from 0-50 cents, allowing you to detune two of the saw waves by up to 50 cents away from the root pitch of the key played. Detune affects two of the saw waves, one is detuned above the original root pitch, and the other is detuned below the original root pitch. The third saw wave always plays the root pitch and is not affected by Detune.

8 Block:

SYNC SQUARE (master) >>, >>SYNC SQUARE (slave)

See above, [Setting Up The Sync Square Oscillator](#).

Use Of Keymaps and Natural Amplitude Envelopes With KVA Oscillators

Keymaps are important in layers using KVA oscillators, even though their samples are not usually heard in these layers (see the note below for exceptions). Keymap selection is important because the maximum amplitude set for each key in the keymap is applied to the oscillator. For most uses of KVA oscillators, users will want to use the 999 Silence keymap because each key in the keymap is set to the same maximum amplitude, unlike many instrument keymaps. The 999 Silence keymap ensures uniform amplitude behavior of an oscillator, and with the amplitude envelope set to user mode, users can easily shape all aspects of an oscillator's amplitude. The Forte also has the ability to apply natural amplitude envelopes to oscillators. With an amplitude envelope set to natural mode, each oscillator note takes on the amplitude qualities of each sample in a keymap (with each note relative to sample key placement). Each sample in a keymap has a natural envelope that was created during its original development process. Natural envelopes have much more detail than what is possible to create with the user amplitude envelope, and they are useful when trying to mimic specific instrument amplitude envelopes. When using this technique, remember that the maximum amplitude of each key is set by the current keymap. You can still control the overall parameters of a natural envelope by using the ENVCTL page.



Note: The samples from a keymap are not heard when using an oscillator, unless an algorithm is used to route the keymap signal around the oscillator and into a MIX function block, or unless it is an oscillator that processes its audio input.

Oscillator Key Sync

Each oscillator has an “Osc. Key Sync” parameter which can be accessed on the DSP Control page by selecting the oscillator’s pitch (Pch) subpage. For details on the DSP Control subpages, see [“Subpage Parameters” on page 7-57](#).

When Osc. Key Sync is set to “Note On”, oscillator waveforms will reset their phase each time a note is played. This is useful for consistent sounding notes, especially noticeable at the start of each note.

When Osc. Key Sync is set to “Free Running” oscillator waveforms will not reset their phase each time a note is played, resulting in a somewhat randomized waveform phase each time a note is played. This is useful for emulating analog synth sounds in which free running oscillator waveforms can create a subtly shifting chorus effect when playing chords.

Depending on the selected oscillator, the effect of the Osc. Key Sync parameter may be very subtle.

Editing FM Layers

FM layers can be used to emulate classic FM synthesizers by using 6 Operators in 1 of 32 algorithms. FM layers also allow FM synthesis techniques to be combined with VAST synthesis features to create never before heard sounds.

FM layers contain pages that are not available in VAST layers. This includes the FM Main page, the FM Operator page, the FM Layer page, the FM Amp + Output Page, and the FM Alt Input Page. See the sections below for details on each of these pages. The remaining pages in FM layers are common to FM and VAST layers. For descriptions of these pages see the relevant VAST sections of this chapter.



Note: The Forte can load .SYX files containing FM programs from classic 6 operator FM synthesizers. Imported FM programs can be edited in Program Mode and combined with additional layers and VAST synthesis features. For details on loading files see [“The LOAD Page” on page 14-6](#).

FM Layer Structure

Each FM layer contains 6 Operators in 1 of 32 algorithms. The 6 Operators are the primary sound source in FM layers. Each Operator contains an oscillator with amplitude controlled by an envelope generator. FM synthesis allows you to modulate the frequency of the Operators in order to create many timbres.

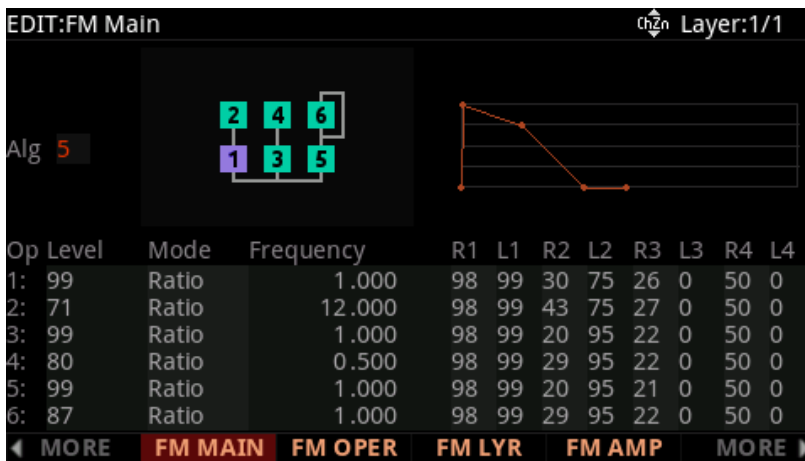


Note: Each note played by an FM Layer uses 4 of the Forte’s 128 voices.

FM MAIN Page

In FM layers, the FM Main page allows you to edit the main parameters of each FM Operator in the layer.

The parameters for each Operator are shown on the page in rows. The left hand column shows the Operator number for each row. Use the navigation buttons to select each row and parameter.



Alg

Use the Alg parameter to select 1 of 32 algorithms. Each algorithm changes how the Operators are connected to one another, determining which operators are heard as audio signals, and which are used as modulation sources.

The algorithm diagram to the right of the Alg parameter shows each Operator as a numbered box, with lines between each operator to show how they are connected.

The Operator or Operators in the bottom row of the diagram are heard as audio. Operators in higher rows are used as modulation sources. Modulation sources can also be modulated by other Operators in higher rows.

Each algorithm also shows a line determining the feedback path, in which the output of an Operator is used as its own modulation source, or as a modulation source for Operators in higher rows.

Level

Use the Level parameter to set the output level of each Operator.

Mode

Use the Mode parameter to set the frequency Mode of each Operator.

When Mode is set to Ratio, the frequency of the Operator is determined by each note played on the keyboard (in combination with the Frequency parameter). This is useful for melodic sounds.

When Mode is set to Fixed, the frequency of the Operator is determined by the Frequency parameter. This is useful for percussive sounds.

Frequency

Use the Frequency parameter to set the frequency of each Operator.

When Mode is set to Ratio, the frequency of the Operator is determined by each note played on the keyboard. Use the Frequency parameter to set the Ratio at which the frequency is changed.

When Mode is set to Fixed, the frequency of the Operator is determined by the Frequency parameter.

Operator Envelope Generator Parameters

Each Operator contains an envelope generator which controls the output level of the Operator. Use the Operator envelope generator parameters to control the output level of the Operator over time.

For Operators in the bottom row of the Algorithm diagram, changes to the output level of the Operator are heard as changes in audio level (similar to an amplitude envelope).

For Operators in higher rows of the Algorithm diagram, changes to the output level of the Operator are heard as changes in modulation depth.

R1, L1

When a note is played, the R1 parameter determines the rate at which the Operator output level changes from 0 (silence or no modulation) to the level set by L1.

The R1 parameter can be set to rate values from 0-99. Smaller rates make changes happen slowly, while larger rates make changes happen quickly.

The L1 parameter can be set to values from 0-99, where 0 is equivalent to silence or no modulation, and 99 is equivalent to the maximum possible Operator volume or modulation depth.

R2, L2

When a note is played and the Operator has reached the L1 level, the Operator level begins to change to the level set by the L2 parameter. The R2 parameter determines the rate at which the Operator output level changes from the L1 level to the level set by L2.

The R2 parameter can be set to rate values from 0-99. Smaller rates make changes happen slowly, while larger rates make changes happen quickly.

The L2 parameter can be set to values from 0-99, where 0 is equivalent to silence or no modulation, and 99 is equivalent to the maximum possible Operator volume or modulation depth.

R3, L3

When a note is played and the Operator has reached the L2 level, the Operator level begins to change to the level set by the L3 parameter. The R3 parameter determines the rate at which the Operator output level changes from the L2 level to the level set by L3.

The Operator remains at the level set by the L3 parameter for as long as a note is held.

The R3 parameter can be set to rate values from 0-99. Smaller rates make changes happen slowly, while larger rates make changes happen quickly.

The L3 parameter can be set to values from 0-99, where 0 is equivalent to silence or no modulation, and 99 is equivalent to the maximum possible Operator volume or modulation depth.

R4, L4

When a note is played and released, the Operator level begins to change to the level set by the L4 parameter. The R4 parameter determines the rate at which the Operator output level changes from its current level to the level set by L4.

The R4 parameter can be set to rate values from 0-99. Smaller rates make changes happen slowly, while larger rates make changes happen quickly.

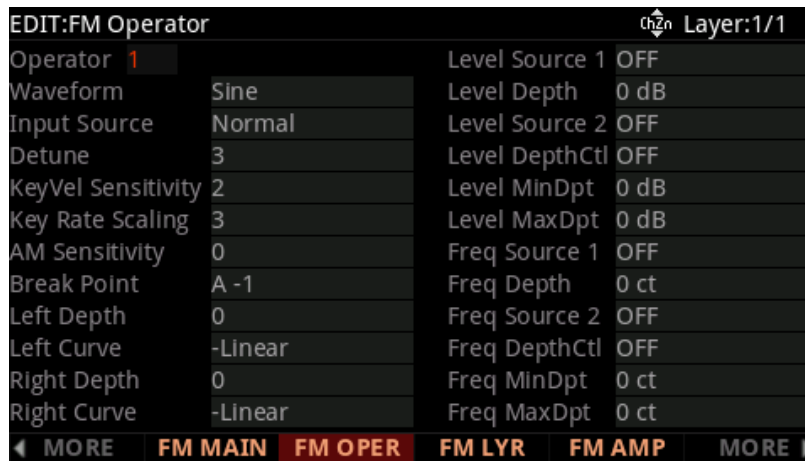
The L4 parameter can be set to values from 0-99, where 0 is equivalent to silence or no modulation, and 99 is equivalent to the maximum possible Operator volume or modulation depth.



Note: When the L4 parameter is set to values 1-99, Operator level will always eventually change to a level of 0 (silence or no modulation), as if L4 was set to 0. Larger L4 values make changes happen slowly, while smaller L4 values make changes happen more quickly. This prevents infinitely sustaining notes which can occur in classic FM synthesizers.

FM Operator Page

In FM layers, the FM Operator page allows you to edit additional parameters of each FM Operator in the layer.



Operator

Use the Operator parameter to select an Operator. The parameters for the selected Operator are displayed.

Waveform

Use the Waveform parameter to select a waveform for the oscillator of the selected Operator. In classic FM synthesis, sine waveforms are used. Using waveforms other than sine can be useful for easily creating more complex timbres.

Input Source

Use the Input Source parameter to select an input for the selected Operator.

When Input Source is set to Normal, the selected Operator receives input from Operators in the selected FM Algorithm, depending on the connections in the selected FM Algorithm.

When Input Source is set to Keymap, the selected Operator receives input from the layer's Keymap (selected on the Keymap page). You can adjust additional Keymap parameters on the FM Alt Input page.

When Input Source is set to Alt, the selected Operator can receive input from another layer in the Program. When Input Source is set to Alt, you must select a source layer by using the Src Layer on the FM Alt Input page.

Detune

Use the Detune parameter to adjust fine tuning for the frequency of the selected Operator. This is useful for creating a chorus effect by applying different Detune values to Operators which are set to the same frequency.

KeyVel Sensitivity

Use the KeyVel Sensitivity parameter to adjust velocity sensitivity for the selected Operator. Velocity sensitivity makes the velocity of each note change the output level of the selected Operator. When an Operator is being used as an audio source, changes in Operator output level are heard as changes in volume. When an Operator is being used as a modulation source, changes in Operator output level are heard as changes in modulation depth.

KeyVel Sensitivity can be set to values from 0-7, where 0 is not velocity sensitive, 1 is the least velocity sensitive, and 7 is the most velocity sensitive.

When KeyVel Sensitivity is set to 0, the selected Operator always uses the output level set for the Operator on the FM Main page.

When KeyVel Sensitivity is set to 1-7, the selected Operator uses the output level set for the Operator on the FM Main page when a note is played with the highest possible velocity. Notes with lower velocities will set the Operator to a lower output level.

When KeyVel Sensitivity is set to 1, the Operator level is the least sensitive to velocity. Notes with low velocities will set the Operator to a slightly lower output level.

When KeyVel Sensitivity is set to 7, the Operator level is the most sensitive to velocity. Notes with low velocities will set the Operator to a much lower output level.



Note: The Global Mode FM Velocity parameter can be used to change the velocity resolution of all FM layers between 0-99 or 0-127. For details see [“FM Velocity” on page 12-10](#).

Key Rate Scaling

Use the Key Rate Scaling parameter to adjust Key Rate Scaling for the selected Operator. Key Rate Scaling makes the Envelope Generator rates of the selected Operator faster as higher notes are played. This is useful for emulating acoustic string and percussion instruments in which higher pitched notes are often shorter.

Key Rate Scaling can be set to values from 0-7, where 0 applies no scaling, 1 applies the least scaling, and 7 applies the most scaling.

AM Sensitivity

Use the AM Sensitivity parameter to adjust amplitude modulation sensitivity for the selected Operator. Amplitude modulation sensitivity controls the amplitude modulation depth of the LFO for the selected Operator. When an Operator is being used as an audio source, changes in Operator amplitude are heard as changes in volume. When an Operator is being used as a modulation source, changes in Operator amplitude are heard as changes in modulation depth.

AM Sensitivity can be set to values from 0-3, where 0 applies no amplitude modulation, 1 applies the least amplitude modulation, and 3 applies the most amplitude modulation.

The AM Sensitivity parameter works in combination with the FM Layer Page Amp Mod Depth parameter. To apply amplitude modulation to an Operator, the FM Layer Page Amp Mod Depth parameter must be set to a value greater than 0.

Keyboard Level Scaling Parameters

Use the keyboard level scaling parameters to increase or decrease the output level of the selected Operator as higher or lower notes are played. A left and right curve can be applied allowing for separate scaling of high and low notes. Keyboard level scaling is useful for emulating acoustic instruments, in which higher and lower notes often have different volumes and timbres.

When an Operator is being used as an audio source, changes in Operator output level are heard as changes in volume. When an Operator is being used as a modulation source, changes in Operator output level are heard as changes in modulation depth.

Break Point

Use the Break Point parameter to select a keyboard key to serve as the start point for the left and right keyboard level scaling curves.

Left Depth, Right Depth

Use the Left Depth and Right Depth parameters to set the maximum modulation depth for the left or right keyboard level scaling curves.

Left Curve, Right Curve

Use the Left Curve and Right Curve parameters to set the left or right keyboard level scaling curves.

The -Linear and -Exponential settings progressively reduce Operator output level as notes are played further from the Break Point key, using a linear or exponential curve.

The +Linear and +Exponential settings progressively increase Operator output level as notes are played further from the Break Point key, using a linear or exponential curve.

Operator Level Parameters

The right-hand column of the FM Operator page shows Level modulation parameters for the selected Operator. Select an Operator with the Operator parameter to view its Level modulation parameters.

Level Source 1

Use the Level Source 1 parameter to modulate the Operator output Level with a physical controller or other control source.

Level Depth

Use the Level Depth parameter to set the maximum modulation depth of Level Source 1.

When the Level Source 1 control source is at its minimum value, Level Source 1 will have no effect on the Operator output Level.

When the Level Source 1 control source is at its maximum value, Level Source 1 will apply the amount of modulation set by the Level Depth parameter.

Level Source 1 control source values between the minimum and maximum will scale the amount of modulation between no effect and the amount set by the Level Depth parameter.

Level Source 2

Use the Level Source 2 parameter to modulate the Operator output Level with a physical controller or other control source.

Level DepthCtl

Use the Level DepthCtl parameter to modulate the Level Source 2 modulation depth with a physical controller or other control source.

When a Level DepthCtl control source is at its minimum value, the Level Source 2 modulation depth will be set to the value of the Level MinDpt parameter.

When a Level DepthCtl control source is at its maximum value, the Level Source 2 modulation depth will be set to the value of the Level MaxDpt parameter.

Level DepthCtl control source values between the minimum and maximum will scale the Level Source 2 modulation depth between the values of the Level MinDpt and Level MaxDpt parameters.

Level MinDpt

Use the Level MinDpt parameter to set the minimum modulation depth of Level Source 2.

When a Level DepthCtl control source is at its minimum value, Level Source 2 will apply the amount of modulation set by the Level MinDpt parameter.

Level MaxDpt

Use the Level MaxDpt parameter to set the maximum modulation depth of Level Source 2.

When a Level DepthCtl control source is at its maximum value, Level Source 2 will apply the amount of modulation set by the Level MaxDpt parameter.

Frequency Modulation Parameters

The right-hand column of the FM Operator page shows Frequency modulation parameters for the selected Operator. Select an Operator with the Operator parameter to view its Frequency modulation parameters.

Freq Source 1

Use the Freq Source 1 parameter to modulate the Operator Frequency with a physical controller or other control source.

Freq Depth

Use the Freq Depth parameter to set the maximum modulation depth of Freq Source 1.

When the Freq Source 1 control source is at its minimum value, Freq Source 1 will have no effect on the Operator Frequency.

When the Freq Source 1 control source is at its maximum value, Freq Source 1 will apply the amount of modulation set by the Freq Depth parameter.

Freq Source 1 control source values between the minimum and maximum will scale the amount of modulation between no effect and the amount set by the Freq Depth parameter.

Freq Source 2

Use the Freq Source 2 parameter to modulate the Operator Frequency with a physical controller or other control source.

Freq DepthCtl

Use the Freq DepthCtl parameter to modulate the Freq Source 2 modulation depth with a physical controller or other control source.

When a Freq DepthCtl control source is at its minimum value, the Freq Source 2 modulation depth will be set to the value of the Freq MinDpt parameter.

When a Freq DepthCtl control source is at its maximum value, the Freq Source 2 modulation depth will be set to the value of the Freq MaxDpt parameter.

Freq DepthCtl control source values between the minimum and maximum will scale the Freq Source 2 modulation depth between the values of the Freq MinDpt and Freq MaxDpt parameters.

Program Edit Mode

FM Layer Page

Freq MinDpt

Use the Freq MinDpt parameter to set the minimum modulation depth of Freq Source 2.

When a Freq DepthCtl control source is at its minimum value, Freq Source 2 will apply the amount of modulation set by the Freq MinDpt parameter.

Freq MaxDpt

Use the Freq MaxDpt parameter to set the maximum modulation depth of Freq Source 2.

When a Freq DepthCtl control source is at its maximum value, Freq Source 2 will apply the amount of modulation set by the Freq MaxDpt parameter.

FM Layer Page



Transpose

Use the Transpose parameter to adjust tuning in semitones for all Operators in the layer.

Detune

Use the Detune parameter to adjust fine tuning for all Operators in the layer. This is useful for creating a chorus effect by applying different Detune values to multiple FM layers which are set to the same settings.

Feedback

Use the Feedback parameter to adjust the feedback level for the selected FM Algorithm.

Each algorithm shows a line determining the feedback path, in which the output of an Operator is used as its own modulation source, or as a modulation source for Operators in higher rows. Feedback is useful for creating square waveforms and noise.

Feedback can be set to values from 0-7, where 0 applies no feedback, 1 applies the least feedback, and 7 applies the most feedback.

Oscillator Key Sync

Use the Oscillator Key Sync parameter to turn oscillator key sync off or on.

When Oscillator Key Sync is set to On, the oscillator in each FM Operator resets its phase each time a note is played.

When Oscillator Key Sync is set to Off, the oscillator in each FM Operator does not reset its phase each time a note is played. In some programs this can be useful for adding subtle variations to each note played.

Amp Mod Depth

Use the Amp Mod Depth parameter to adjust amplitude modulation depth of the FM LFO for all FM Operators in the layer. When an Operator is being used as an audio source, changes in Operator amplitude are heard as changes in volume. When an Operator is being used as a modulation source, changes in Operator amplitude are heard as changes in modulation depth.

Amp Mod Depth can be set to values from 0-99, where 0 applies no amplitude modulation, 1 applies the least amplitude modulation, and 99 applies the most amplitude modulation.

The Amp Mod Depth parameter works in combination with the each Operator's AM Sensitivity parameter on the FM Operator Page. To apply amplitude modulation to an Operator, the FM Operator's AM Sensitivity parameter must be set to a value greater than 0 on the FM Operator Page.

Pitch Mod Depth

Use the Pitch Mod Depth parameter to make fine adjustments to pitch modulation depth of the FM LFO for all FM Operators in the layer. Pitch Mod Depth can be set to values from 0-99, where 0 applies no pitch modulation, 1 applies the least pitch modulation, and 99 applies the most pitch modulation.

The Pitch Mod Depth parameter works in combination with the Pitch Mod Sensitivity parameter. To apply pitch modulation the Pitch Mod Sensitivity parameter and Pitch Mod Depth parameter must both be set to a value greater than 0.

Pitch Mod Sensitivity

Use the Pitch Mod Sensitivity parameter to make coarse adjustments to pitch modulation depth of the FM LFO for all FM Operators in the layer. Pitch Mod Sensitivity can be set to values from 0-7, where 0 applies no pitch modulation, 1 applies the least pitch modulation, and 7 applies the most pitch modulation.

The Pitch Mod Sensitivity parameter works in combination with the Pitch Mod Depth parameter. To apply pitch modulation the Pitch Mod Sensitivity parameter and Pitch Mod Depth parameter must both be set to a value greater than 0.

FM LFO Speed

Use the FM LFO Speed parameter to set the speed of the FM LFO. FM LFO Speed can be set to values from 0-99, 0 is the slowest and 99 is the fastest.

FM LFO Shape

Use the FM LFO Shape to select an LFO shape for the FM LFO. The FM LFO can apply amplitude and pitch modulation to the FM Operators, see the Amp Mod Depth and Pitch Mod Depth parameters for details.

FM LFO Delay

Use the FM LFO Delay parameter to add a delay between when a note is played and when the FM LFO will apply modulation. FM LFO Delay can be set to values from 0-99, where 0 applies no delay, 1 applies the least delay, and 99 applies the most delay.

FM LFO Key Sync

Use the FM LFO Key Sync parameter to turn FM LFO key sync off or on.

When FM LFO Key Sync is set to On, the FM LFO resets its phase each time a note is played.

When FM LFO Key Sync is set to Off, the FM LFO does not reset its phase each time a note is played. In some programs this can be useful for adding variations to each note played.

Modwheel LFO->Pitch

The Modwheel LFO->Pitch parameter allows you to use the Modwheel or other physical controller to control the pitch modulation depth of the FM LFO for all FM Operators in the layer.

When the Modwheel is set to its minimum value, pitch modulation depth is determined by the Pitch Mod Depth parameter. When the Modwheel is set to its maximum value, pitch modulation depth equals the value of the Pitch Mod Depth parameter plus the value of the Modwheel LFO->Pitch parameter.

Modwheel values between the minimum and maximum will scale the amount of modulation between the value of the Pitch Mod Depth parameter and the value of the Pitch Mod Depth parameter plus the value of the Modwheel LFO->Pitch parameter.

Modwheel LFO->Pitch can be set to values from 0-99, where 0 applies no pitch modulation, 1 applies the least pitch modulation, and 99 applies the most pitch modulation.

The Modwheel LFO->Pitch parameter works in combination with the Pitch Mod Sensitivity parameter. To apply pitch modulation the Pitch Mod Sensitivity parameter and Modwheel LFO->Pitch parameter must both be set to a value greater than 0.

To use a physical controller other than the Modwheel, go to the Parameters page, select the FM Mod parameter, then select a different physical controller using the Control column.

Pressure LFO->Pitch

The Pressure LFO->Pitch parameter allows you to use keyboard pressure (aftertouch) to control the pitch modulation depth of the FM LFO for all FM Operators in the layer.

When keyboard pressure is at its minimum value, pitch modulation depth is determined by the Pitch Mod Depth parameter. When keyboard pressure is at its maximum value, pitch modulation depth equals the value of the Pitch Mod Depth parameter plus the value of the Pressure LFO->Pitch parameter.

Pressure values between the minimum and maximum will scale the amount of modulation between the value of the Pitch Mod Depth parameter and the value of the Pitch Mod Depth parameter plus the value of the Pressure LFO->Pitch parameter.

Pressure LFO->Pitch can be set to values from 0-99, where 0 applies no pitch modulation, 1 applies the least pitch modulation, and 99 applies the most pitch modulation.

The Pressure LFO->Pitch parameter works in combination with the Pitch Mod Sensitivity parameter. To apply pitch modulation the Pitch Mod Sensitivity parameter and Pressure LFO->Pitch parameter must both be set to a value greater than 0.

Modwheel LFO->Amp

The Modwheel LFO->Amp parameter allows you to use the Modwheel or other physical controller to control the amplitude modulation depth of the FM LFO for all FM Operators in the layer.

Program Edit Mode

FM Layer Page

When the Modwheel is set to its minimum value, amplitude modulation depth is determined by the Amp Mod Depth parameter. When the Modwheel is set to its maximum value, amplitude modulation depth equals the value of the Amp Mod Depth parameter plus the value of the Modwheel LFO->Amp parameter.

Modwheel values between the minimum and maximum will scale the amount of modulation between the value of the Amp Mod Depth parameter and the value of the Amp Mod Depth parameter plus the value of the Modwheel LFO->Amp parameter.

Modwheel LFO->Amp can be set to values from 0-99, where 0 applies no amplitude modulation, 1 applies the least amplitude modulation, and 99 applies the most amplitude modulation.

The Modwheel LFO->Amp parameter works in combination with each Operator's AM Sensitivity parameter on the FM Operator Page. To apply amplitude modulation to an Operator, the FM Operator's AM Sensitivity parameter must be set to a value greater than 0 on the FM Operator Page.

To use a physical controller other than the Modwheel, go to the Parameters page, select the FM Mod parameter, then select a different physical controller using the Control column.

Pressure LFO->Amp

The Pressure LFO->Amp parameter allows you to use keyboard pressure (aftertouch) to control the amplitude modulation depth of the FM LFO for all FM Operators in the layer.

When keyboard pressure is at its minimum value, amplitude modulation depth is determined by the Amp Mod Depth parameter. When keyboard pressure is at its maximum value, amplitude modulation depth equals the value of the Amp Mod Depth parameter plus the value of the Pressure LFO->Amp parameter.

Pressure values between the minimum and maximum will scale the amount of modulation between the value of the Amp Mod Depth parameter and the value of the Amp Mod Depth parameter plus the value of the Pressure LFO->Amp parameter.

Pressure LFO->Amp can be set to values from 0-99, where 0 applies no amplitude modulation, 1 applies the least amplitude modulation, and 99 applies the most amplitude modulation.

The Pressure LFO->Amp parameter works in combination with each Operator's AM Sensitivity parameter on the FM Operator Page. To apply amplitude modulation to an Operator, the FM Operator's AM Sensitivity parameter must be set to a value greater than 0 on the FM Operator Page.

Pitch EG Parameters

Use the Pitch Envelope generator parameters to modulate the pitch of each note played by the layer over time. Pitch can be modulated by up to 4 octaves up and down from the original pitch of each note played.

All Rate parameters can be set to rate values from 0-99. Smaller rates make changes happen slowly, while larger rates make changes happen quickly.

All Level parameters can be set to values from 0-99, where 50 is equivalent to the original pitch of the note played or no modulation, 0 is equivalent to -48 half steps from the original pitch of the note played, and 99 is equivalent to +48 half steps from the original pitch of the note played.

Rate 1, Level 1

When a note is played, the Rate 1 parameter determines the rate at which the pitch changes from Level 4 to Level 1.

Rate 2, Level 2

When a note is played and the Pitch has reached Level 1, the Pitch begins to change to Level 2. The Rate 2 parameter determines the rate at which the pitch changes from Level 1 to Level 2.

Rate 3, Level 3

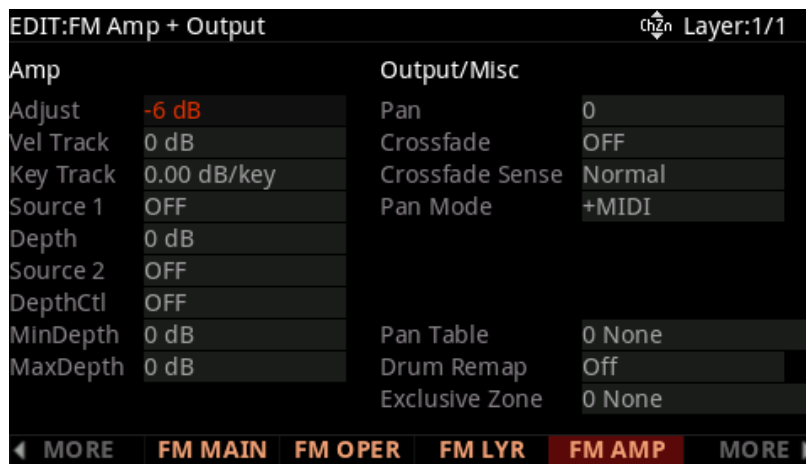
When a note is played and the pitch has reached Level 2, the pitch begins to change to Level 3. The Rate 3 parameter determines the rate at which the pitch changes from Level 2 to Level 3.

The pitch remains at Level 3 for as long as a note is held.

Rate 4, Level 4

When a note is played and released, the pitch begins to change to Level 4. The Rate 4 parameter determines the rate at which the pitch changes from its current pitch to Level 3.

FM Amp + Output Page



Amp Parameters

The left-hand column of the FM Amp + Output page shows amplitude modulation parameters for the layer. Use the left-hand column of the page to adjust and modulate the overall output level of the current FM layer.

Adjust

Use the Adjust parameter to set the overall output level of the current FM layer.

Vel Track

Use the Vel Track parameter to modulate the amplitude of each note in the layer based on the MIDI velocity of each note played.

Positive Vel Track values will progressively increase the amplitude for higher velocities. For example, with a positive Vel Track value, playing a velocity of 0 causes no change in amplitude, playing each velocity further above 0 increases the amplitude by the Vel Track amount.

Key Track

Use the Key Track parameter to modulate the amplitude of each note in the layer based on the MIDI note number of each note played.

Positive Key Track values will progressively increase amplitude for each note played above middle C, and progressively decrease amplitude for notes played below middle C. For example, with a positive Key Track value, playing middle C causes no change in amplitude, playing each key further above middle C increases the amplitude by the Key Track amount, and playing each key further below middle C decreases the amplitude by the Key Track amount.

Negative Key Track values will progressively decrease amplitude for each note played above middle C, and progressively increase amplitude for notes played below middle C. For example, with a negative Key Track value, playing middle C causes no change in amplitude, playing each key further above middle C decreases the amplitude by the Key Track amount, and playing each key further below middle C increases the amplitude by the Key Track amount.

Src1

Use the Src1 parameter to modulate the layer output level with a physical controller or other control source.

Depth

Use the Depth parameter to set the maximum modulation depth of Src1.

When the Src1 control source is at its minimum value, Src1 will have no effect on the layer output level.

When the Src1 control source is at its maximum value, Src1 will apply the amount of modulation set by the Depth parameter.

Src1 control source values between the minimum and maximum will scale the amount of modulation between no effect and the amount set by the Depth parameter.

Src2

Use the Src2 parameter to modulate the layer output level with a physical controller or other control source.

DptCtl

Use the DptCtl parameter to modulate the Src2 modulation depth with a physical controller or other control source.

When a DptCtl control source is at its minimum value, the Src2 modulation depth will be set to the value of the MinDpt parameter.

When a DptCtl control source is at its maximum value, the Src2 modulation depth will be set to the value of the MaxDpt parameter.

DptCtl control source values between the minimum and maximum will scale the Src2 modulation depth between the values of the MinDpt and MaxDpt parameters.

MinDpt

Use the MinDpt parameter to set the minimum modulation depth of Src2.

When a DptCtl control source is at its minimum value, Src2 will apply the amount of modulation set by the MinDpt parameter.

Program Edit Mode

FM Alt Input Page

MaxDpt

Use the MaxDpt parameter to set the maximum modulation depth of Src2.

When a DptCtl control source is at its maximum value, Src2 will apply the amount of modulation set by the MaxDpt parameter.

Output/Misc Parameters

The right-hand column of the FM Amp + Output page shows Output/Misc parameters for the layer. The Output/Misc parameters for FM layers behave the same as the parameters on the VAST layer Output page. For details on these parameters see ["The OUTPUT Page" on page 7-61](#).

FM Alt Input Page

Alt Input Source/Level	Keymap Level	Keymap Pitch
Src Layer None	Adjust 0 dB	Adjust 0 ST
Adjust 0 dB	Vel Track 0 dB	Vel Track 0 ct
Vel Track 0 dB	Key Track 0.00 dB/key	Fine 0 ct
Key Track 0.00 dB/key		Fine Hz 0.00 Hz
Source 1 OFF	Source 1 OFF	Source 1 OFF
Depth 0 dB	Depth 0 dB	Depth 0 ct
Source 2 OFF	Source 2 OFF	Source 2 OFF
DepthCtl OFF	DepthCtl OFF	DepthCtl OFF
MinDpth 0 dB	MinDpth 0 dB	MinDpth 0 ct
MaxDpth 0 dB	MaxDpth 0 dB	MaxDpth 0 ct

In classic FM synthesis, Operators containing sine wave oscillators are used to frequency modulate other Operators in various configurations in order to create complex timbres. FM layers allow you to use an alternate input for these Operators, allowing sources other than FM Operators to be used for modulation of other FM Operators. This is useful for easily creating complex timbres without complex configurations of Operators and modulation sources.

The FM alternate input allows FM Operators in the current layer to be modulated by a Keymap in the current layer, or by any type of audio signal from a different FM or VAST layer. FM synthesis techniques can be combined with VAST synthesis features to create never before heard sounds.

Modulating an FM Operator with a Keymap

Follow these steps to modulate an FM Operator with a Keymap in the current layer:

1. On the FM Operator page, use the Operator parameter to select an Operator to modulate.
2. On the FM Operator page, set the Input Source parameter for the selected Operator to Keymap.
3. On the Keymap page, use the Keymap parameter to select a Keymap.
4. On the FM Alt Input page, use the Keymap Level parameters to adjust the keymap level. The keymap level determines the amount of modulation applied to the selected Operator.
5. Try adjusting the Keymap Level Adjust parameter to find interesting timbres. If the Keymap level is too low, no modulation will be applied. If the Keymap level is too high, the Operator will create noisy timbres. Keymaps with complex or noisy timbres will more easily create noisy timbres when used as a modulation source, so for these Keymaps the Adjust parameter may need to be turned down. Keymaps with simple timbres may be too quiet to apply modulation, so for these Keymaps the Adjust parameter may need to be turned up.
6. Try using the Keymap Level Source 1 and Source 2 parameters to modulate the Keymap level with a physical controller or other control source. This often leads to more interesting sounds.

Modulating an FM Operator with another Layer

Follow these steps to modulate an FM Operator with an audio signal from a different FM or VAST layer:

1. On the FM Operator page, use the Operator parameter to select an Operator to modulate.
2. On the FM Operator page, set the Input Source parameter for the selected Operator to Alt.
3. On the FM Alt Input page, use the Src Layer parameter to select another layer in the Program. The current Program must have more than one layer.
4. On the FM Alt Input page, use the Alt Input Source/Level parameters to adjust the Alt Input level. The Alt Input level determines the amount of modulation applied to the selected Operator.

5. Try adjusting the Alt Input Source/Level Adjust parameter to find interesting timbres. If the Alt Input level is too low, no modulation will be applied. If the Alt Input level is too high, the Operator will create noisy timbres. Audio signals with complex or noisy timbres will more easily create noisy timbres when used as a modulation source, so for these signals the Adjust parameter may need to be turned down. Audio signals with simple timbres may be too quiet to apply modulation, so for these signals the Adjust parameter may need to be turned up.
6. Try using the Alt Input Source/Level Source 1 and Source 2 parameters to modulate the Alt Input level with a physical controller or other control source. This often leads to more interesting sounds.

Alt Input Source/Level Parameters

Src Layer

Use the Src Layer parameter to select another layer in the Program to use its audio output signal as a modulation source for FM Operators. The current Program must have more than one layer.

To use the selected source layer as a modulation source, select an Operator on the FM Operator page and set the Input Source parameter to Alt.

Adjust

Use the Adjust parameter to set the output level of the selected Alt Input source layer.

Vel Track

Use the Vel Track parameter to modulate the amplitude of each note of the Alt Input source layer based on the MIDI velocity of each note played.

Positive Vel Track values will progressively increase the amplitude for higher velocities. For example, with a positive Vel Track value, playing a velocity of 0 causes no change in amplitude, playing each velocity further above 0 increases the amplitude by the Vel Track amount.

Key Track

Use the Key Track parameter to modulate the amplitude of each note of the Alt Input source layer based on the MIDI note number of each note played.

Positive Key Track values will progressively increase amplitude for each note played above middle C, and progressively decrease amplitude for notes played below middle C. For example, with a positive Key Track value, playing middle C causes no change in amplitude, playing each key further above middle C increases the amplitude by the Key Track amount, and playing each key further below middle C decreases the amplitude by the Key Track amount.

Negative Key Track values will progressively decrease amplitude for each note played above middle C, and progressively increase amplitude for notes played below middle C. For example, with a negative Key Track value, playing middle C causes no change in amplitude, playing each key further above middle C decreases the amplitude by the Key Track amount, and playing each key further below middle C increases the amplitude by the Key Track amount.

Source 1

Use the Source 1 parameter to modulate the Alt Input source layer output level with a physical controller or other control source.

Depth

Use the Depth parameter to set the maximum modulation depth of Source 1.

When the Source 1 control source is at its minimum value, Source 1 will have no effect on the Alt Input source layer output level.

When the Source 1 control source is at its maximum value, Source 1 will apply the amount of modulation set by the Depth parameter.

Source 1 control source values between the minimum and maximum will scale the amount of modulation between no effect and the amount set by the Depth parameter.

Source 2

Use the Source 2 parameter to modulate the Alt Input source layer output level with a physical controller or other control source.

DepthCtl

Use the DepthCtl parameter to modulate the Source 2 modulation depth with a physical controller or other control source.

When a DepthCtl control source is at its minimum value, the Source 2 modulation depth will be set to the value of the MinDpth parameter.

When a DepthCtl control source is at its maximum value, the Source 2 modulation depth will be set to the value of the MaxDpth parameter.

DepthCtl control source values between the minimum and maximum will scale the Source 2 modulation depth between the values of the MinDpth and MaxDpth parameters.

MinDpth

Use the MinDpth parameter to set the minimum modulation depth of Source 2.

When a DepthCtl control source is at its minimum value, Source 2 will apply the amount of modulation set by the MinDpth parameter.

MaxDpth

Use the MaxDpth parameter to set the maximum modulation depth of Source 2.

When a DepthCtl control source is at its maximum value, Source 2 will apply the amount of modulation set by the MaxDpth parameter.

Keymap Level Parameters

Adjust

Use the Adjust parameter to set the output level of the Keymap.

Vel Track

Use the Vel Track parameter to modulate the amplitude of each note of the Keymap based on the MIDI velocity of each note played.

Positive Vel Track values will progressively increase the amplitude for higher velocities. For example, with a positive Vel Track value, playing a velocity of 0 causes no change in amplitude, playing each velocity further above 0 increases the amplitude by the Vel Track amount.

Key Track

Use the Key Track parameter to modulate the amplitude of each note of the Keymap based on the MIDI note number of each note played.

Positive Key Track values will progressively increase amplitude for each note played above middle C, and progressively decrease amplitude for notes played below middle C. For example, with a positive Key Track value, playing middle C causes no change in amplitude, playing each key further above middle C increases the amplitude by the Key Track amount, and playing each key further below middle C decreases the amplitude by the Key Track amount.

Negative Key Track values will progressively decrease amplitude for each note played above middle C, and progressively increase amplitude for notes played below middle C. For example, with a negative Key Track value, playing middle C causes no change in amplitude, playing each key further above middle C decreases the amplitude by the Key Track amount, and playing each key further below middle C increases the amplitude by the Key Track amount.

Source 1

Use the Source 1 parameter to modulate the Keymap output level with a physical controller or other control source.

Depth

Use the Depth parameter to set the maximum modulation depth of Source 1.

When the Source 1 control source is at its minimum value, Source 1 will have no effect on the Keymap output level.

When the Source 1 control source is at its maximum value, Source 1 will apply the amount of modulation set by the Depth parameter.

Source 1 control source values between the minimum and maximum will scale the amount of modulation between no effect and the amount set by the Depth parameter.

Source 2

Use the Source 2 parameter to modulate the Keymap output level with a physical controller or other control source.

DepthCtl

Use the DepthCtl parameter to modulate the Source 2 modulation depth with a physical controller or other control source.

When a DepthCtl control source is at its minimum value, the Source 2 modulation depth will be set to the value of the MinDpth parameter.

When a DepthCtl control source is at its maximum value, the Source 2 modulation depth will be set to the value of the MaxDpth parameter.

DepthCtl control source values between the minimum and maximum will scale the Source 2 modulation depth between the values of the MinDpth and MaxDpth parameters.

MinDpth

Use the MinDpth parameter to set the minimum modulation depth of Source 2.

When a DepthCtl control source is at its minimum value, Source 2 will apply the amount of modulation set by the MinDpth parameter.

MaxDpth

Use the MaxDpth parameter to set the maximum modulation depth of Source 2.

When a DepthCtl control source is at its maximum value, Source 2 will apply the amount of modulation set by the MaxDpth parameter.

Keymap Pitch Parameters

Adjust

Use the Adjust parameter to adjust the pitch of the Keymap in half steps.

Vel Track

Use the Vel Track parameter to modulate the pitch of each note of the Keymap based on the MIDI velocity of each note played.

Positive Vel Track values will progressively increase the pitch for higher velocities. For example, with a positive Vel Track value, playing a velocity of 0 causes no change in pitch, playing each velocity further above 0 increases the pitch by the Vel Track amount.

Fine

Use the Fine parameter to adjust the pitch of the Keymap in cents.

Fine Hz

Use the Adjust parameter to adjust the pitch of the Keymap in Hertz.

Source 1

Use the Source 1 parameter to modulate the Keymap pitch with a physical controller or other control source.

Depth

Use the Depth parameter to set the maximum modulation depth of Source 1.

When the Source 1 control source is at its minimum value, Source 1 will have no effect on the Keymap pitch.

When the Source 1 control source is at its maximum value, Source 1 will apply the amount of modulation set by the Depth parameter.

Source 1 control source values between the minimum and maximum will scale the amount of modulation between no effect and the amount set by the Depth parameter.

Source 2

Use the Source 2 parameter to modulate the Keymap pitch with a physical controller or other control source.

DepthCtl

Use the DepthCtl parameter to modulate the Source 2 modulation depth with a physical controller or other control source.

When a DepthCtl control source is at its minimum value, the Source 2 modulation depth will be set to the value of the MinDpth parameter.

When a DepthCtl control source is at its maximum value, the Source 2 modulation depth will be set to the value of the MaxDpth parameter.

DepthCtl control source values between the minimum and maximum will scale the Source 2 modulation depth between the values of the MinDpth and MaxDpth parameters.

MinDpth

Use the MinDpth parameter to set the minimum modulation depth of Source 2.

When a DepthCtl control source is at its minimum value, Source 2 will apply the amount of modulation set by the MinDpth parameter.

MaxDpth

Use the MaxDpth parameter to set the maximum modulation depth of Source 2.

When a DepthCtl control source is at its maximum value, Source 2 will apply the amount of modulation set by the MaxDpth parameter.

KB3 Program Structure

There's nothing quite like the sound of the classic Hammond™ B-3 tone wheel organ, especially when played through a Leslie™ rotating speaker system. We've done extensive testing and analysis with several tone wheel organs, and created our own models to emulate the unique tone wheel sound. We even took into account the way that older organs start to sound different (and arguably better) as their capacitors begin to leak—and we included a parameter that lets you vary the amount of grunge (leakage) in your sound.

KB3 programs use oscillators to emulate the tone wheel sound. Each oscillator operates independently, and has its own pitch and amplitude control. You can control how many oscillators are used for a KB3 program. There are two oscillators per voice, for a total of 256. You can use up to 91 of them in a KB3 program (the 92nd is reserved to produce key click). Because the oscillators start running as soon as you select a KB3 program, there are always voices available—unlike VAST programs, which start “stealing” notes when you reach the polyphony limit.

The oscillators—we'll call them tone wheels from here on—are divided into an upper and lower group. The upper tone wheels use the samples in the Forte's keymaps to generate sound, while the lower tone wheels use sine waves. You can change the keymap of a KB3 program's upper tone wheels to produce a large array of sounds. By changing the keymap from sine to a saw wave it is possible to emulate the sound of classic combo organs like the Vox™ and Farfisa™ models. Also, KB3 programs that emulate Hammond organs (which use Keymap 150) do not use any of the Forte's 128 voices of polyphony, but instead use DSP generated sine waves (this does not apply to KB3 Programs that emulate Vox or Farfisa organs, which use other Keymaps).

KB3 programs are also routed through vibrato, rotary speaker, preamp and distortion effects, see below for details.

KB3 Mode

KB3 programs are different enough from VAST programs that we use the term KB3 mode to describe what's going on when you play a KB3 program. Whenever you play a KB3 program, you are in KB3 mode. The blue LED on the front panel will light when the current program is a KB3 program. You can play KB3 programs only on a single channel at a time.

If you want to create your own KB3 program, start by editing an existing KB3 program.

KB3 Effects And Real-time Controls

You have real-time control over many components of KB3 programs directly from the front panel. The sliders emulate the drawbars that are so essential to the tone wheel sound, while the buttons above them (the Assignable Switches) can control the KB3 effects: Leslie, vibrato, chorus, and percussion.

Drawbars

One of the standard performance features of many tone wheel organs is the set of drawbars for emulating the stops on a pipe organ. Moving the drawbars controls the amplitude of either the fundamentals or the harmonics of the notes. The Forte's sliders serve as the nine drawbars found on most tone wheel organs. Pushing the sliders up is the equivalent of pushing the drawbars in (removing fundamentals or harmonics).

Subharmonics		Fundamental	Harmonics					
16'	5 1/3'	8'	4'	2 2/3'	2'	1 3/5'	1 1/3'	1'
Slider A	Slider B	Slider C	Slider D	Slider E	Slider F	Slider G	Slider H	Slider I

Table 7-2 Standard Drawbar Settings for the Hammond B3

KB3 Mode Effects Buttons (Assignable Switches)

When using a KB3 program, the switches above the sliders control KB3 effects, and the blue KB3 LED is lit. The KB3 function is labeled below each switch, their LEDs indicate the status of the various effects for the current KB3 program. This status is saved as part of each program. You can change the effects in real time by pressing the switches.

In KB3 mode these switches also respond to and send MIDI Controller messages.

Chorus and Vibrato each have 3 levels of depth. Depth 1 has the least amount of effect applied, Depth 3 has the most. Pressing the Chorus/Vibrato Depth button toggles between Depth 1 (LED off) and Depth 3 (LED on). You can also set the depth on the KB3 Parameters page using the **Chorus/Vibrato Depth** parameter. Values 0-42 = Depth 1, 43-85 = Depth 2, 86-127 = Depth 3.

Additional Controller Assignments In KB3 Mode

Other default assignments for factory KB3 programs include:

CC Pedal 1 (volume) controls preamp volume, which emulates the volume control of an organ preamp. The Preamp Resp parameter must be set to On for this to work (the default setting). See [Preamp Resp on page 7-114](#) for details.

Mod Wheel controls Distortion Drive.

Switch Pedal 1 (sustain) controls the rotary speaker effect, which toggles the Rotary speed between slow or fast. This has the same effect as using Rotary S/F (**Variation** button).

Editing KB3 Programs

You can edit a wide assortment of parameters for any KB3 program. You can also create your own KB3 programs, though you must start with an existing KB3 program to do this. A regular Forte program cannot be turned into a KB3 program. If you're not sure whether the current program is a KB3 program, check the KB3 LED (located to the right of the assignable switches). If the blue LED is on, then the current program is a KB3 program.

Enter the KB3 program editor by pressing the EDIT soft button while a KB3 program is selected in program mode. You'll quickly see that the KB3 editor differs from the standard VAST program editor.

KB3 Programming Tips

The following section provides some starting points for creating your own KB3 programs.

The most prominent difference between organ vintages is the number of tone wheels used. Keep in mind, however, that the sound of an actual tone wheel organ will depend not only on its age, but also on how well it has been maintained.

Octave folding, where an octave (or part of an octave) is repeated at the top or bottom of the keyboard, is handled automatically by KB3 Mode, emulating the folding done on actual tone wheel organs.

Early Tone Wheel Organs. Instruments of this period had 91 tone wheels. To get this sound, go to the TONEWL page, select 91 tone wheels, and set lowest pitch to C 1. Start with the **Junky** Wheel Volume Map and **Bob's** Organ Map. You may also want to increase the Key Click level, since this tends to become louder on older organs.

Middle Period Organs. To model one of these instruments, set 82 tone wheels and a low note of A 1. Use the **Mellow** Wheel Volume Map and **Eric's** Organ Map. Set Key Click to a moderate level.

The Classic B-3. For this sound, choose 79 tone wheels and set the low note to be C 2. The best settings here are the **Bright** Wheel Volume Map and **Peck's** Organ Map. You may also want to reduce the Key Click level.

KB3 Editor: The Parameters (PARAMS) Page

This page is similar to the VAST editor Parameters page; see [The PARAMS Page on page 7-10](#). In KB3 programs, the Parameters page contains some parameters which do not appear on any other page: Rotary Slow/Fast, Rotary Brake, Chorus/Vibrato On/Off, Chorus/Vibrato Select, and Chorus/Vibrato Depth.

Parameter	Control	Value
Drawbar 2	Slider B	0
Drawbar 4	Slider D	0
Drawbar 5	Slider E	127
Drawbar 6	Slider F	126
Drawbar 7	Slider G	127
Drawbar 8	Slider H	127
Drawbar 9	Slider I	127
Sustain	Sw.Pedal 3	None
Rotary FootSw	Sw.Pedal 1	None

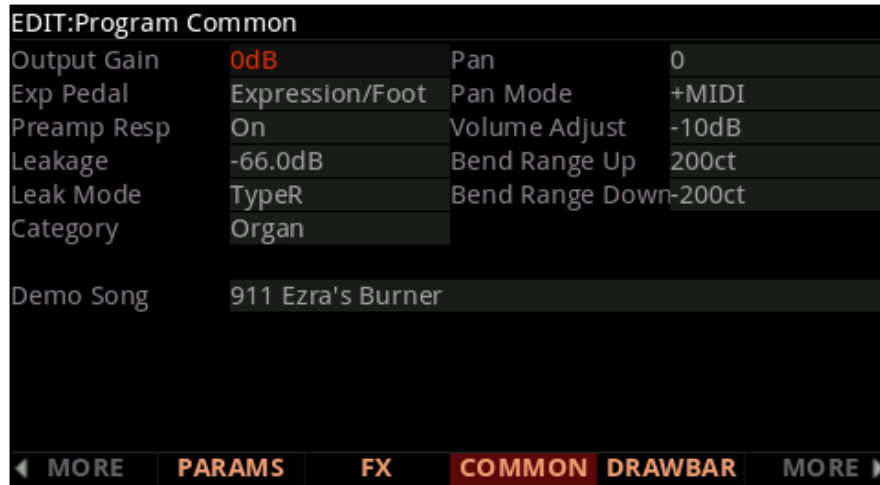
Navigation: ◀ MORE **PARAMS** FX COMMON DRAWBAR MORE ▶

KB3 Editor: The Program FX (FX) Page

This page is the same as the VAST Program editor FX page (see [The FX Page on page 7-14](#)).

KB3 Editor: The COMMON Page

In addition to parameters for Output Gain, Output Pan, Pan Mode and Demo Song (described about in [COMMON Parameters with Advanced User Type](#)), the KB3 Editor COMMON Page contains common organ emulation parameters specific to KB3 programs.



Parameter	Range of Values
Preamp/Expression Response	Off, On
Leakage	-96.0 to -20.0 dB, in 0.5-dB increments
Leak Mode	None, Type A, Type X, Type Y, Type Z, Type R
Volume Adjust	-96 to 96 dB
Bend Range Up	± 7200 cents
Bend Range Down	± 7200 cents

Preamp Resp

Set this parameter On or Off to enable or disable the preamp+expression pedal part of the KB3 model. Turning this **On** (the default) makes KB3 programs function like stock organs. The expression pedal in this case is more than a volume pedal; it actually functions like a “loudness control,” varying the frequency response to compensate for the ear’s sensitivity at different volumes. In addition, the preamp provides a de-emphasis curve to compensate for the built-in tone wheel volume pre-emphasis. Turning preamp response **Off** emulates organs that have been modified to have a direct out (before the preamp and expression pedal). Set Preamp Resp to Off to disable the volume pedal.

Exp Pedal

Use this parameter to set which rear panel CC Pedal input will control volume for the current KB3 program. With a setting of **Expression/Foot**, volume can be controlled by a CC pedal plugged into either the rear panel input labeled CC Pedal 1 (volume), or the rear panel input labeled CC Pedal 2. With a setting of **Expression**, volume can be controlled by a CC pedal plugged into the rear panel input labeled CC Pedal 1 (volume). With a setting of **Foot**, volume can be controlled by a CC pedal plugged into the rear panel input labeled CC Pedal 2. With a setting of **None**, volume control from both CC pedal inputs is disabled.

Leakage

This parameter controls the level of the simulated crosstalk and signal “bleed” of adjacent tone wheels in the model. This is provided to help “dirty up” the sound to make it a bit more realistic. A setting of -96 dB gives the purest tones; other values add more simulated leakage. This level is scaled by the drawbar levels, as well as the expression pedal level.

LeakMode

This parameter selects between different leakage models, determining which leakage harmonics are emphasized. **TypeA** provides an overall tone wheel leakage, with all tone wheels leaking a small amount. **TypeX**, **TypeY**, **TypeZ**, and **TypeR** emulate different degrees of drawbar leakage, where the leakage components correspond to the nine drawbars, instead of all the tone wheels.

VolAdjust

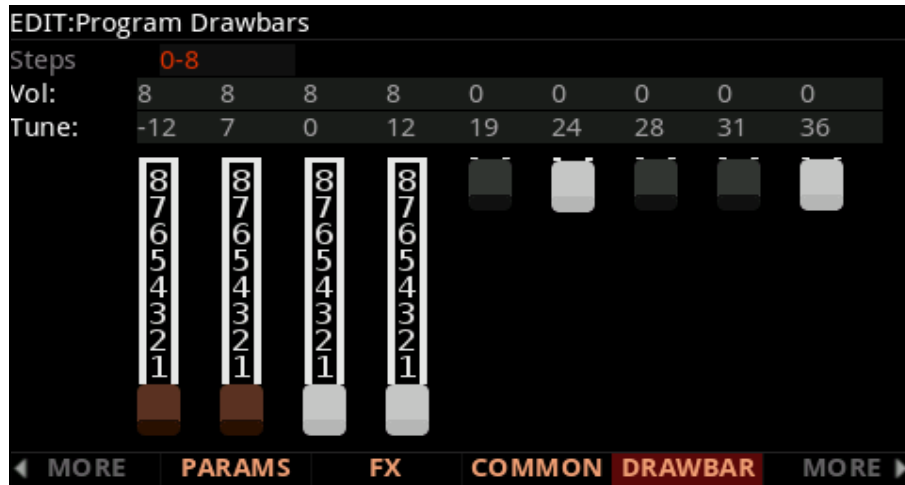
Use the VolAdjust parameter to adjust the pre-insert FX volume of the program. (Use the Output Gain parameter to adjust the overall post-FX volume of the program.)

Bend Range Up, Bend Range Down

Respectively control the upward and downward pitch bend ranges of the KB3 program.

KB3 Editor: The Drawbars (DRAWBAR) Page

Press the DRAWBAR soft button to view the Drawbars Page. This page lets you edit KB3's drawbars.



Drawbars Parameters

Steps

This parameter lets you specify the increments by which drawbar volumes will change. Choose either 0–8, to approximate the drawbar settings on actual organs, or choose 0–127 for a finer degree of resolution.

Volume

Use the Volume parameter to set the preset volume of each of the nine drawbars. The available values will be 0–8 or 0–127, depending on the setting of the Steps parameter.

Tune

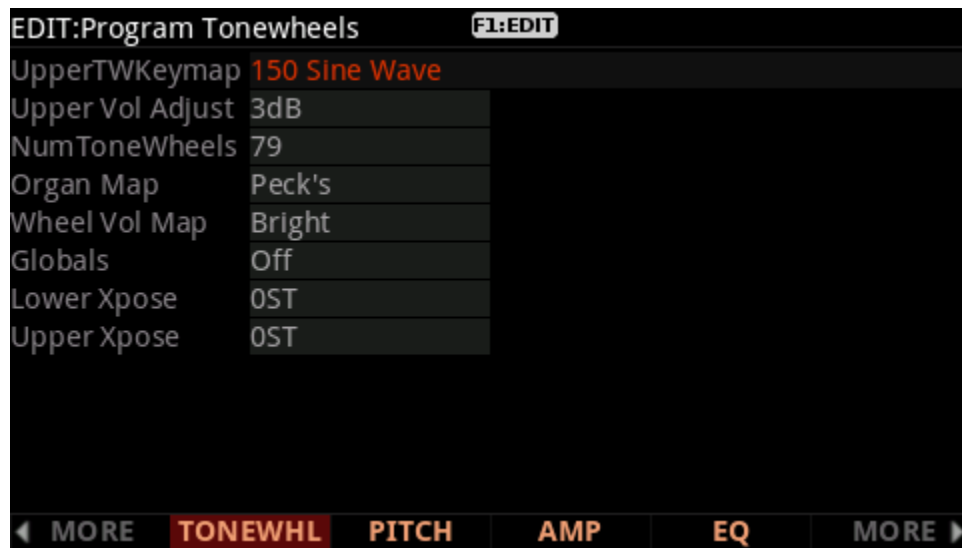
This parameter lets you tune each of the nine drawbars up or down in semitone steps. The values for the Tune parameter on the Drawbars page shown above represent standard drawbar settings on a real B3, as shown in the table below.

Subharmonics		Fundamental	Harmonics					
16'	5 1/3'	8'	4'	2 2/3'	2'	1 3/5'	1 1/3'	1'
Slider A	Slider B	Slider C	Slider D	Slider E	Slider F	Slider G	Slider H	Slider I

Figure 7-2 Standard Drawbar Settings for the Hammond B3

KB3 Editor: The Tone Wheels (TONEWL) Page

KB3 Mode uses DSP-generated waveforms for the lower half of its tone wheels and samples for the upper half of its tone wheels. Using the parameters on the TONEWL page, you can specify which sample you wish to use, the number of tone wheels (which will affect how many other voices are available to you), and other related settings. When Keymap 150 is selected, DSP-generated waveforms are also used for the upper tone wheels, and none of the Forte's 128 voices are used.



Parameter	Range of Values
UpperTWKeymap	Keymap List
Upper Vol Adjust	-96 to 24 dB
NumToneWheels	24 to 91
Organ Map	Equal, Peck's, Bob's, Eric's
Wheel Vol Map	Equal, Bright, Mellow, Junky
Globals	On, Off
Lower Xpose	-120 to 127 semitones
Upper Xpose	-168 to 87 semitones

UpperTWKeymap (Upper Tone Wheel Keymap)

Use this parameter to indicate the keymap (and thereby the samples) to use for the upper tone wheels. You can use any keymap from ROM, though you must specify a keymap that uses looped samples for KB3 Mode to work correctly. When Keymap 150 is selected, DSP-generated waveforms are used for the upper tone wheels, and none of the Forte's 128 voices are used.

Upper Vol Adjust (Upper Volume Adjust)

This parameter lets you adjust the amplitude of the upper tone wheels relative to amplitude of the lower tone wheels.

NumToneWheels (Number of Tone Wheels)

This parameter lets you specify the number of tone wheels used by a KB3 program. The classic tone wheel organs used 91 tone wheels, though the lowest 12 were for the pedals only. Therefore, you may find 79 a good number of tone wheels to specify for realistic organ emulations. You can specify up to 91 tone wheels.

When Keymap 150 is selected, DSP-generated waveforms are used for the upper tone wheels, and none of the Forte's 128 voices are used no matter how many tone wheels have been selected. When Keymaps other than 150 are used, the number of Forte voices used by a KB3 program is typically half the number of tone wheels selected (in some cases 1 more voice may be used).

So, for example, when using a Keymap other than 150, 79 tone wheels would use 40 voices. This would leave you 88 voices for other programs. Keep in mind that these voices are permanently allocated and running while the KB3 program is selected, and cannot be stolen.

Organ Map

The organ map controls the relative amplitude of each key, per drawbar. Like the wheel volume maps, these maps are based on measurements we've made on actual organs. **Equal** uses the same volume for each key and drawbar, and is not based on a real B3. **Peck's** is a good normal map, from a B3 in good condition. **Eric's** is a bit more idealized; it's smoothed out, but less realistic. **Bob's** is more uneven, based on an old B3.

Wheel Vol Map (Wheel Volume Map)

The wheel volume map determines the volume level for each tone wheel. We've provided several tone wheel volume maps here, based on measurements we've taken on different organs. **Equal** is a map with all tone wheels at the same volume. It's not based on a real B3. **Bright** is a good normal map, based on a B3 in good condition. **Junky** is based on a B3 with an uneven, rolled-off response. **Mellow** is somewhere between Bright and Junky.

You can also apply EQ to control wheel volumes based on the frequencies of each tone wheel. See [KB3 Editor: The EQ Page on page 7-121](#).

Globals

The Globals parameter affects LFO2, ASR2, and FUNs 2 and 4. When Globals is set to Off, these four control sources are local; they affect each pair of tone wheels individually. They begin operating each time a tone wheel is turned on. When Globals is set to On, these control sources become global, and they affect every tone wheel of the current program

simultaneously. Since all tone wheels are turned on nearly simultaneously when a program is selected, you typically will not notice a difference between having Globals set to On or Off. In some cases, it may be possible to hear differences in the modulation of each pair of tone wheels when using these control sources with Globals set to Off.

Lower/Upper Xpose (Lower/Upper Transpose)

These two parameters let you transpose the upper and/or lower tone wheels in semitone steps away from their default tunings.

KB3 Editor: The PITCH Page

The PITCH page parameters for KB3 programs are similar to the Pitch parameters for VAST programs on the DSP MOD page. (In KB3 programs, there are no Hz, KeyTrk, or VelTrk parameters.) Use the **Coarse** and **Fine** parameters to transpose the entire program up or down in semitones or cents. The parameters in the right column can be used to modulate the pitch, and work the same as the “Pitch” modulation parameters in VAST programs. For a full description of these modulation source and depth parameters, see [“The DSP Modulation \(DSP MOD\) Page” on page 7-58.](#)



Program Edit Mode

KB3 Editor: The AMP Page

KB3 Editor: The AMP Page

The AMP page parameters for KB3 programs are similar to the Level parameters for VAST programs on the DSP MOD page. (In KB3 programs, there are no KeyTrk or VelTrk parameters.) Use the **Coarse** parameter to adjust the program's pre-FX volume level up or down in dB. The parameters in the right column can be used to modulate the volume level, and work the same as the volume "Level" modulation parameters in VAST programs. For a full description of these modulation source and depth parameters, see ["The DSP Modulation \(DSP MOD\) Page" on page 7-58.](#)



EDIT:Program Amp			
Coarse	-1dB	Source 1	OFF
		Depth	0dB
		Source 2	OFF
		Depth Control	OFF
		Min Depth	0dB
		Max Depth	0dB

◀ MORE TONEWHL PITCH **AMP** EQ MORE ▶

KB3 Editor: The EQ Page

The four column headers on this page represent two shelving bands of equalization and two parametric bands. The KB3 EQ offered here, though, is not implemented as a true EQ section; instead, it adjusts the volume of the tone wheels based on frequency. If the tone wheels are based on sine waves, then this acts similarly to a real EQ.

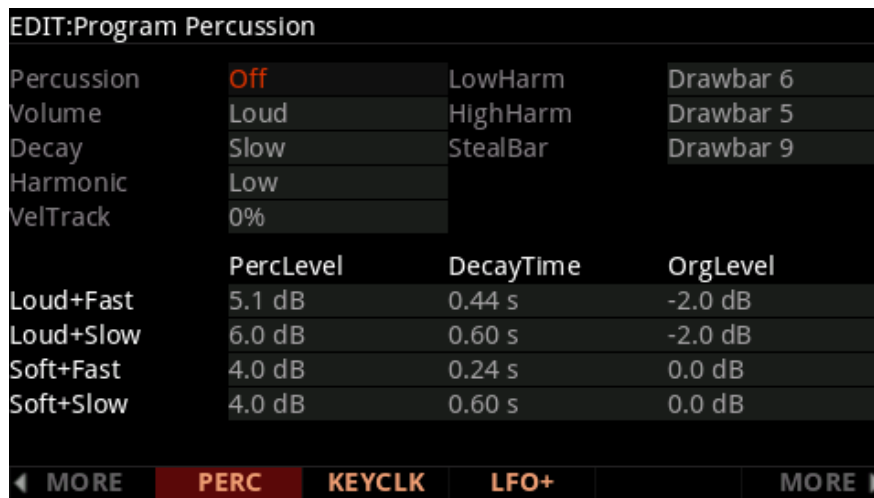


Parameter Group (Available for each EQ band)	Range of Values
Gain	-24.0 to 24.0 dB, in 0.2-dB increments
Frequency	16 to 25088 Hz, in varying increments
Width	-128 to 128 Semitones, in 2-semitone increments

Each EQ section has **Gain (G)**, **Frequency (F)**, and **Width (W)** controls. **Frequency** controls the center frequency of the band. **Width** controls the bandwidth. **Gain** controls the amount of boost or cut.

KB3 Editor: The PERC Page

Percussion is a characteristic feature of tone wheel organs. It's especially useful while soloing, since percussion adds an extra “plink” (actually an extra tone at a defined harmonic) to the attack. You can reach the percussion parameters by pressing the PERC soft buttons.



PERC Parameters

Parameter	Range of Values
Percussion	Off, On
Volume	Soft, Loud
Decay	Slow, Fast
Harmonic	Low, High
Velocity Tracking	0 to 100%
Low Harmonic	Drawbar 1 to 9
High Harmonic	Drawbar 1 to 9
Steal Bar	Drawbar 1 to 9

Percussion

Use this parameter to turn the percussion effect on or off. Percussion is created by a decaying envelope applied to one of the nine drawbars. The percussion effect is “single-triggered,” which means that once it’s triggered, it won’t trigger again until all keys (or whatever you’re using to trigger notes) go up. So if no keys are down, and you play a chord, percussion gets applied to all notes in the chord (and in fact, to all notes that are triggered during the short duration of the percussion envelope). Once the envelope runs its course, any notes you play while at least one key is held down get no percussion. You can turn percussion on or off by pressing Assignable Switch 1 (labeled [Percussion] On/Off).

Volume

This parameter switches between loud and soft percussion settings. (Specific loud/soft amplitudes are set with the PercLevel parameters.) You can toggle between loud and soft by pressing Assignable Switch **2** (labeled [\[Percussion\] Loud/Soft](#)).

Decay

This parameter switches between fast and slow percussion settings. (Specific fast/slow times are set with the DecayTime parameters.) You can toggle between slow and fast decay by pressing Assignable Switch **3** (labeled [\[Percussion\] Decay F/S](#)).

Harmonic

This parameter switches between high and low harmonic percussion settings. (Specific high/low pitches are set with the LowHarm and HighHarm parameters.) You can toggle between low and high harmonics by pressing Assignable Switch **4** (labeled [\[Percussion\] Pitch H/L](#)).

VelTrack

This parameter specifies the degree to which key velocity controls percussion volume. A value of zero corresponds to no velocity tracking, which is like a real tone wheel organ. Other values add velocity tracking, so that increased velocity results in louder percussion. This parameter typically only applies when playing a KB3 program from an external MIDI device.

LowHarm

This parameter controls which drawbar is used as the basis for the percussion when Harmonic is set to **Low**. On an actual tone wheel organ, this is Drawbar 4 (2nd harmonic). The actual pitch obtained depends on the drawbar tuning.

HighHarm

This parameter controls which drawbar is used as the basis for the percussion when Harmonic is set to **High**. On an actual tone wheel organ, this is Drawbar 5 (3rd harmonic). The actual pitch obtained depends on the drawbar tuning.

StealBar

This parameter controls which drawbar is disabled when the percussion effect is turned on. On an unmodified tone wheel organ, the ninth drawbar is the one disabled. Any drawbar can be selected.

Program Edit Mode

KB3 Editor: The KEYCLICK Page

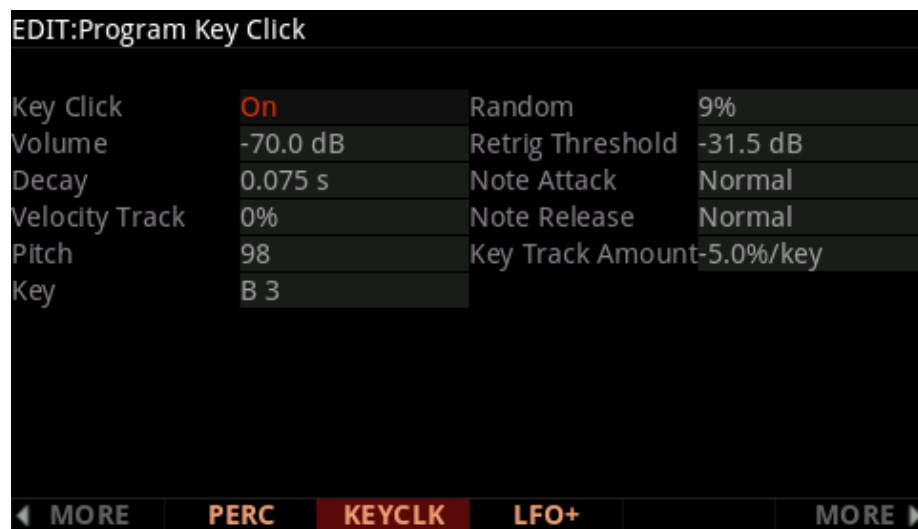
PercLevel, DecayTime, OrgLevel

Parameter Group (Available for each combination of the Volume and Decay parameters on the PERC page)	Range of Values
Percussion Level	0 to 24.0 dB
Decay Time	0.01 to 5.10 seconds, in 0.02-second increments
Organ Volume Level	-12.0 to 12.0 dB

With these parameters you can control the amplitude and decay time of the percussion effect for all combinations of the PERC page Volume and Decay parameter settings. You can also adjust the level of the organ relative to the percussion, for accurate emulation of classic organs.

KB3 Editor: The KEYCLICK Page

The Key Click feature adds a decaying burst of pitched noise to the attack of notes. Unlike the percussion feature, key click is “multi-triggered,” which means that every new note will trigger it. The parameters on this page primarily control the decay, volume, and pitch of the key click.



KeyClick Parameters

Parameter	Range of Values
Key Click	Off, On
Volume	-96.0 to 0.0 dB, in 0.5-dB increments
Decay	0.005 to 1.280 seconds, in 0.005-second increments
Velocity Trk	0 to 100%
Pitch	1 to 120
Key	B3
Random	0 to 100%
Retrig Threshold	-96.0 to 0.0 dB, in 0.5-dB increments
Note Attack	Normal, Hard, PercHard
Note Release	Normal, Hard
Key Track Amount	-10% - 0%/key

Key Click

Use this parameter to turn Key Click on or off. With Key Click set to Off, you may still hear a click depending on your Note Attack and Note Release settings (see below).

Volume

This parameter sets the level of the keyclick; the noise decays from the level you set here. This level is scaled by the drawbar levels, as well as the expression pedal level.

Decay

This parameter sets the basic decay time of the noise envelope. Smaller values produce a shorter burst.

Velocity Track

This parameter controls the degree to which key velocity affects the key click volume. A value of zero means that the key velocity has no effect on the key click volume (which is like a real tone wheel organ). Other values add volume as the velocity increases. This parameter typically only applies when playing a KB3 program from an external MIDI device.

Pitch

This parameter sets the basic pitch of the key click noise, relative to the highest tonewheel's pitch. The pitch is controlled by a steep lowpass filter applied to white noise. The filter's cut off frequency is controlled relative to key number, higher keys move the cutoff frequency up, lower keys move the cutoff frequency down.

Random

This parameter controls the degree to which a random amount of amplitude variation is added to the key click.

Program Edit Mode

KB3 Editor: The LFO+ Page

Retrig Threshold

This parameter lets you set the volume level below which key click must decay before it will be retriggered.

Note Attack

This parameter controls the attack characteristic of notes. **Normal** provides a smoothed attack, while a setting of **Hard** has an instant attack and will produce an audible click, in addition to any amount of key click specified with the other parameters on this page (you might prefer not to specify any additional key click when you use this setting). **PercHard** sets a hard attack level for percussion only; notes without percussion use a normal attack.

Note Release

This parameter controls the release characteristic of notes. A setting of **Normal** has a smoothed release, while a setting of **Hard** has an instant release. Hard will produce an audible click.

Key and Key Track Amount

Key Track Amount can be used to scale the key click volume, so that lower notes will have a quieter key click. The **Key** parameter determines the key at which the volume scaling will begin. (When the Key parameter is selected, you can select the desired key by holding the Enter button and striking a key.)

The selected key will use the key click volume set by the **Volume** parameter. Each key below the selected key will have progressively quieter key click. For example, with Key Track Amount set to -5.0%/key, the note 1 key below the selected Key will have its keyclick volume lowered by 5%, the note 2 keys below the selected Key will have its key click Volume lowered by 10%, and so forth.

KB3 Editor: The LFO+ Page

This page is the same as the VAST Program editor LFO+ page (see [The LFO+ Page on page 7-70](#)).

KB3 Editor: The Arpeggiator (ARP) Page

This page is the same as the VAST Program editor Arpeggiator page (see [The Arpeggiator \(ARP\) Page on page 7-33](#)).

KB3 Editor: The CC Sequencer (CC SEQ) Page

This page is the same as the VAST Program editor CC Sequencer page (see [The CC Sequencer \(CC SEQ\) Page on page 7-48](#)).

Chapter 8

The Effects Chain Editor

The Global Mode User Type parameter must be set to Advanced (see [User Type](#)) to access the editing functions described in this chapter.

When in Program Edit Mode on the FX page, pressing the Favorites 1 button while a Chain (other than 0 None) is highlighted—on any of the various effects pages—will call up the Chain editor.

You may edit Effects Chains containing up to 16 effects boxes using up to 32 DSP units. Choose from 18 types of effects boxes, including hundreds of effects box algorithms and presets. Create custom controller assignments and apply modulation with LFOs, ASRs and mathematical functions.

From the Program editor, the program's Insert and Aux Chains can be edited from the FX and LYR FX pages. In Multi Edit Mode, Chains selected for Aux overrides can be edited from the AUX1 and AUX2 pages.

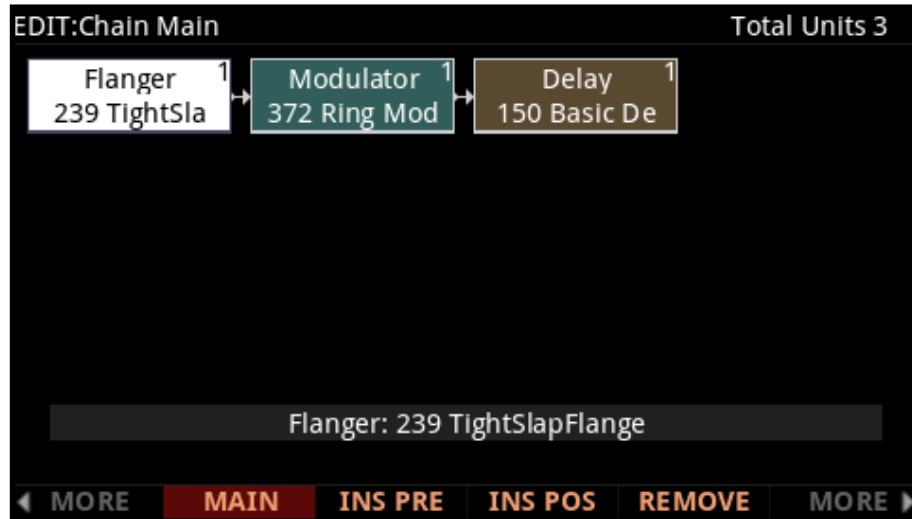
A Chain is made up of one or more effect-boxes, with each box containing a single effect. You can have up to 16 effect-boxes in a Chain. The settings for all of the parameters of each effect-box are also stored within the Chain. There are 30 Mod Controls that allow for real-time control over any parameter from any effect-box in the Chain. Per Chain Control sources are also provided to be used as inputs to the effect Mods (two FX LFOs, two FX ASRs, and four FX FUNs.) These work similarly to the LFOs, ASRs and FUNs in Program mode, but are only available for use with the effect Mods.

The Effects Chain Editor

The MAIN Page

The MAIN Page

In the Chain Editor, pressing the MAIN soft button calls up the MAIN page. This is where you configure the length of a Chain and select the individual effects that make up the Chain.



At the top right of the display is the number of DSP units used by the currently selected effect- box, and by the Chain as a whole. There are a total of 32 units available for all of the Chains that are currently loaded by programs and any active Aux overrides from Multi Mode.



NOTE: In some configurations, not all 32 units are available for use with multi-unit effects because of the way the DSP is allocated internally.

Like all other representations of signal paths in the Forte display, the program signal moves from left to right through the Chain. Use the cursor buttons to select an effect-box or empty spot in the Chain. The effect loaded into the selected effect-box can be changed by numeric entry, with the Alpha Wheel, or with the +/- buttons; and can be changed with either the effect-box or the Effect field at the bottom of the page highlighted. The +/- double button press will jump to the next effect “category.”

Pressing the INS PRE soft button adds a new effect-box to the Chain in the currently selected block-slot, and pushes the currently selected effect-box down the Chain to the right. (If you have run out of DSP units, you will not be able to create additional effects boxes.) Pressing the REMOVE soft button takes the currently selected effect out of the Chain.

Param

The Param parameter selects which parameter of the specified box's effect will be modulated.

Adjust

The Adjust parameter sets a fixed value for the specified parameter (Param) that is applied before any modulation.

Source

The Source parameter determines the Control source that will modulate the parameter (Param) value in real-time.

When the Source field is selected, you can quickly assign one of the Forte's physical controllers (sliders, mod wheel, pedals, etc.) by holding the **Enter** button and moving the desired controller. The MIDI CC number associated with that controller will be selected. You can also enter a CC number for external MIDI control, or select one of the Chain-specific Control sources (FX LFOs, FX ASRs, and FX FUNs).

When a MIDI CC number is selected for the Source field, a Chain info entry will be created on the INFO page (unless that CC number is already used by another FX Mod). See the [INFO page](#) section below for details.

If you have selected a MIDI CC number or Forte physical controller, the FX Mod will appear on the program Parameters page (unless that CC number is already used by another FX Mod, in which case it will share the existing Parameter using that CC number or physical controller). The program Parameters page allows you to set a default value for the FX Mod, and also lets you select a different MIDI CC number or Forte physical controller if desired. This is useful for changing the control source of existing FX Mods without editing the chain.

Note: In some cases when entering a MIDI CC number, the source field will show the standard MIDI name associated with that MIDI CC number. Note that the standard MIDI names for CC numbers 15-19 and 80-83 are Ctl A through Ctl H, but these are unrelated to Slider A through Slider H.

In Program Mode the Forte's physical controllers each use one of the available MIDI CC numbers, so you must choose one of the other available CC numbers when using an external MIDI control source or else the parameter will also be controlled by a Forte physical controller. The list below shows the available MIDI CC choices for the source field. MIDI CC numbers associated with the Forte's physical controllers are highlighted in **bold** type.

Some MIDI CCs are also hard wired to control certain program parameters or functions such as MIDI 5 (Portamento Time), MIDI 7 (Program Volume), MIDI 10 (Pan), MIDI 11 (Expression/Program Volume), MIDI 64 (Sustain), MIDI 66 (Sostenuto), so if you use one of these numbers the CC will always perform the hard wired function, in addition to any other assignment you make.

Program Mode MIDI CC Numbers		
None	Slider E (MIDI 24)	Zone 1 Switch (MIDI 80)
MIDI 0	Slider F (MIDI 25)	Zone 2 Switch (MIDI 81)
Mod Wheel (MIDI 1)	Slider G (MIDI 26)	Zone 3 Switch (MIDI 82)
MIDI 2 to MIDI 3	Slider H (MIDI 27)	Zone 4 Switch (MIDI 83)
CC Pedal 2 (MIDI 4)	Slider I (MIDI 28)	MIDI 84
MIDI 5 to MIDI 10	Variation (MIDI 29)	Switch 1 (MIDI 85)
CC Pedal 1 (MIDI 11)	MIDI 30 to MIDI 31	Switch 2 (MIDI 86)
Slider A (MIDI 12)	Sw. Pedal 1 (MIDI 64)	Switch 3 (MIDI 87)
Slider B (MIDI 13)	MIDI 65	MIDI 88
MIDI 14 to MIDI 21	Sw. Pedal 2 (MIDI 66)	Switch 4 (MIDI 89)
Slider C (MIDI 22)	Sw. Pedal 3 (MIDI 67)	Switch 5 (MIDI 90)
Slider D (MIDI 23)	MIDI 68 to MIDI 79	MIDI 91 to MIDI 95

Depth

The Depth parameter determines the range of modulation that the Controller will apply. When the Control source has a value of 0, the parameter's (Param's) value will be the Adjust value. When the control source is all the way up, the parameter's (Param's) value will be the Adjust value plus the Depth value.

FX LFO+ Page

This is where you can edit the Effects-only Control sources. These are Control sources that can be used by the effects Mods in the current Chain. The parameters on these pages work exactly like those of the corresponding Control sources in program mode (see [The LFO+ Page on page 7-70](#)).

EDIT:Chain LFO/ASR/FUN						
	MnRate	MxRate	RateCt	Shape	Phase	
FXLFO1	0.00H	0.45H	Express	3/4 +Sine	0deg	
FXLFO2	0.00H	0.00H	OFF	None	0deg	
	Trigger		Mode	Delay	Attack	Release
FXASR1	OFF		Norm	0s	0s	0s
FXASR2	OFF		Norm	0s	0s	0s
	Input a		Input b		Function	
FXFUN1	MIDI89		MIDI27		a*b	
FXFUN2	MIDI87		MIDI26		a*b	
FXFUN3	MIDI86		MIDI25		a*b	
FXFUN4	OFF		OFF		None	
◀ MORE MAIN INS PRE INS POS REMOVE MORE ▶						

INFO page

Press the INFO soft button to go to the Chain Info page where you can edit the controller assignment info for the current Chain. Chain Info allows you to add a description for each FX Mod you have assigned. On the Chain Info page, use the **Channel/Zone** buttons to scroll through the current Chain's list of controller assignment info. Each assignment Info entry has a MIDI controller number and a Text parameter to describe what the assignment controls. One Info entry can be made for each MIDI CC number.

Chain Info allows you to see a name for each FX Mod controller assignment, as well as set an initial controller value for each FX Mod in each Program. When assigning a physical controller or CC number to a source field on one of the FX Mod pages, a Chain Info entry is automatically added to the Chain Info Page with the name of the FX parameter. Chain Info entries are also automatically deleted when their associated FX Mods are removed or unassigned from the FX Mod pages.

When an FX Chain is selected in a Program, the Chain Info entries appear on the Program Parameters page. Chain Info names are also shown on the main Program and Multi Mode Pages when moving an assigned controller. The Program Parameters page allows you to remap existing Chain FX Mod controller assignments, as well as set an initial MIDI value for each assignment. This allows you to reuse the same Chain in several Programs, and each of the Chain FX Mods can have a different controller assignment or initial value in each Program.

Each MIDI CC number can have one Chain Info entry. When setting an FX Mod source field, if the selected physical controller or CC number is already used by a different FX Mod in the Chain, a new Chain Info entry will not be added to the Chain Info Page. The new FX Mod will share the existing Chain Info entry for the same physical controller/MIDI CC. The name of the previously existing Chain Info entry will not change based on the new FX Mod. If you have assigned one physical controller/MIDI CC to multiple FX Mods, you may wish to edit the Info name to reflect this.

To edit a Chain Info name, first go to the Chain Info page, then use the **Channel/Zone** buttons to select the Info entry from the list. Press the Text soft button to enter the text editor for the currently selected Info entry. After making text changes, press the OK soft button, or press the cancel soft button to exit the text editor without making changes. Be sure to save the Chain when exiting the Chain editor in order to save your changes.

In some cases it may be desirable to manually create a new Chain Info entry. Press the New soft button, then choose an available MIDI CC. Once the Info entry is created, you can change its name using the Text soft button.

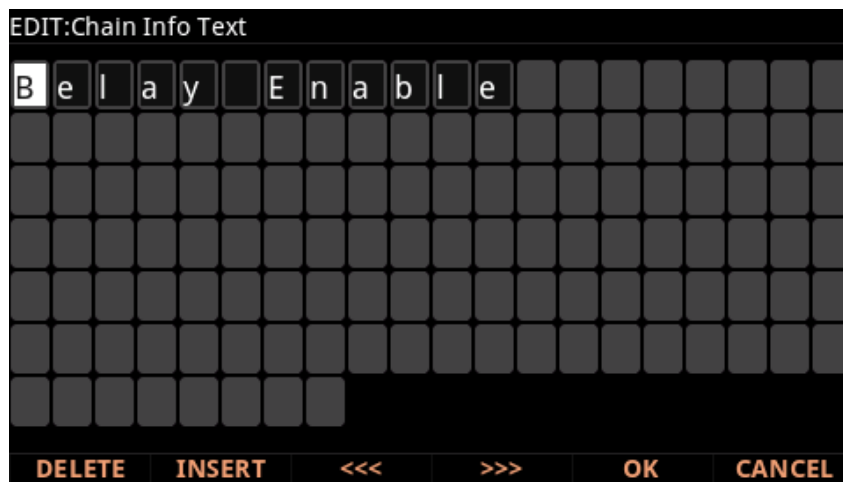
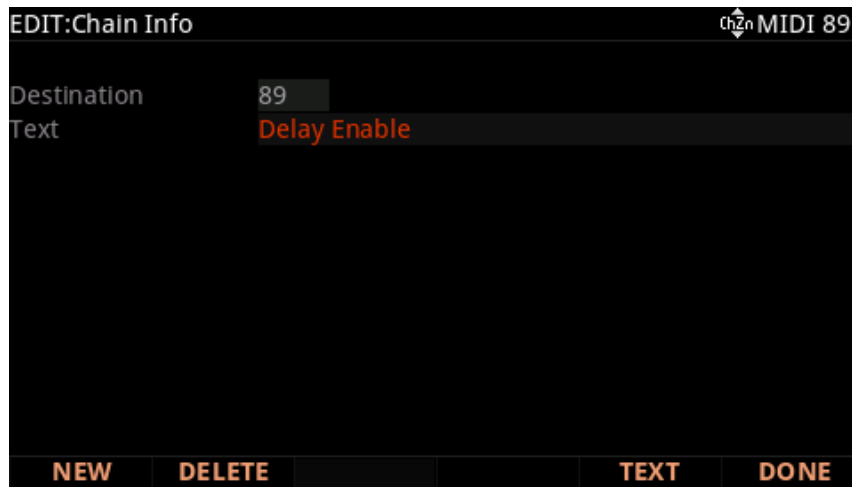
You can delete a Chain Info entry by selecting it on the Chain Info page and pressing the Delete soft button.

The Chain Utility Soft Buttons

Some of the soft buttons in the Chain Editor perform a function when pressed, as well as some of the Favorites buttons.

INFO

On this page you can use the TEXT soft button to access a text editor to change a chain label.



The Effects Chain Editor

The Chain Utility Soft Buttons

DELETE

Press the Delete soft button to delete the current Chain (factory Chains can not be deleted).

HELP

Press the HELP soft button to view the Help page, where you can view a description of functions assigned to the Favorites buttons.

Favorites 1: Edit

When an FX box is selected on the Chain Edit MAIN page, press the Favorites 1 button to edit the selected box and view its parameters.

Favorites 5: Bypass Box

Press the Favorites 5 button to temporarily bypass the currently selected FX box in the Chain. Press the Favorites 5 button again to re-enable the selected box.

Favorites 10: Help

Press the Favorites 10 button to view the HELP page.

Effects Parameters

This section contains descriptions of the Forte's many effects parameters, and instructions on how to use them. Read through this section to get a good general understanding of the parameters.

The descriptions here do not include all of the parameters associated with every effect, and some effects may not have some of the parameters described here for their category. A more complete reference, with every effect and the meaning and range of every parameter, arranged in the order they appear on the screen, can be found in the KSP8 Algorithm Reference Guide on the Kurzweil website, www.kurzweil.com.

General Parameters

There are a number of parameters that are common to all or almost all effects, and we'll deal with those first.

Wet/Dry balances the levels of the processed and unprocessed signals output from the effect. Wet represents the processed signal, while dry represents the unprocessed signal. The range is 0% wet (the signal is unprocessed) through 100% wet (no dry signal is present). Values between 0% and 100% blend the two signals, for example, at 20% the output signal is 20% wet (processed) and 80% dry (unprocessed.) A setting of 50% wet means the dry and processed signals are roughly equal in level. In some effects, separate Wet/Dry parameters are provided for the Left and Right input channels. In some cases, this parameters can have negative values, which indicate that the Wet signal is polarity-inverted.

When an effect with the Wet/Dry parameter is used in Chain that has been selected as an Aux effect, Wet/Dry is automatically set to 100% wet and cannot be adjusted. This is because when using an Aux effect, the dry signal is already effectively at 100% on the main audio bus (not routed through the Aux effect.) In this case, turning up the Aux send level will blend the 100% wet signal (from the Aux bus) with the dry signal on the main audio bus.

Out Gain sets the gain at the output of an effect.

In/Out enables or disables the effect. You can think of it as a Wet/Dry parameter with only two

HF Damping (high frequency damping) is the cutoff (-3 dB) frequency of a 6dB/octave lowpass filter that's inserted before the processor. High frequencies above the set cutoff frequency will be filtered out. In the case of processors where multiple iterations of the signal are heard, such as in a delay, each iteration of the signal will pass through the filter, and will therefore be duller.

The Effects Chain Editor

Effects Parameters

XCouple (Cross Couple). In stereo effects, this controls how much of any signal being fed back is going to the channel opposite to the one where it first appeared. At 100%, all feedback from signals at the left input goes to the right channel and vice versa, causing a “spreading” or in the case of delay lines, a “ping-pong” effect. At 0%, fed-back signals stay with the channel they came in on.

A->B cfg (configuration). In combination effects that contain two (or more) components, the order in which the signal passes through the two components can be changed with this parameter. Combination effects are usually named with a “->”, as in 484 “Flange->Shaper.” For example, 484 “Flange->Shaper” can be configured so the signal passes through the flanger first and then the shaper, or through the shaper first and then the flanger. The *cfg* parameter determines the configuration, and its value is context-sensitive—in this example, the choices would be “Fl->Shp” and “Shp->Fl.”

A/Dry->B is also found in many combination effects, and controls the amount of signal that will pass dry (unprocessed) through the first component into the second component. Different combination effects use different variations on this parameter, depending on the context. The range is 0 to 100%.

Reverbs

Room Type changes the configuration of the effect to simulate a wide array of room types and sizes including booths, small rooms, chambers, halls and large spaces. Because this parameter changes the structure of the reverb effect, you need to be careful when assigning it a MOD—changing it in real time while signal is passing through it is likely to cause audible artifacts. Room types in different effects with similar names do not necessarily sound the same.

Rvrb Time is the RT60—the time it takes for the reverb to decay to 60 dB below its initial level—in seconds. It is accurate assuming that several other parameters (HF Damping, Diff Scale, Size Scale, and Density) are at their nominal levels. It is adjustable up to “Inf”, which creates an infinitely-sustaining reverb.

LateRvbTim adjusts the basic decay time of the late portion of the reverb after diffusion.

L Pre Dly and R Pre Dly (Pre-Delay) is the time between the start of a sound and the output of the first reverb reflections from that sound. Longer pre-delays can help make larger spaces sound more realistic. Longer times can also help improve the clarity of a mix by separating the reverb signal from the dry signal, so the dry signal is not obscured. You can set a separate time for the left and right reverb signals using L Pre Dly and R Pre Dly.

EarRef Lvl adjusts the mix level of the early-reflection portion of effects which offer early reflections.

Late Lvl adjusts the mix level of the late-reverb portion of effects which offer early reflections.

Diff Scale scales the “diffusion“ of the early reflections, that is, how spread out they are as a group over time. At very low settings, the early reflections start to sound quite discrete, and at higher settings the early reflections are seamless. It is adjustable from 0.00 to 2.00, with 1.00 being nominal for the given Room Type.

Density controls how tightly the early reflections are packed in time. Low Density settings group the early reflections close together, while higher values spread the reflections for a smoother reverb. It is adjustable from 0.00 to 4.00, with 1.00 being nominal (and usually optimal) for the given Room Type.

Expansive controls the amount of late reverb energy biased toward the edges of the stereo image. A setting of 0% will bias energy towards the center. Moving away from 0% will bias energy towards the sides. Positive and negative values will have a different character.

Build adjusts the envelope of certain portions of the reverb. Positive values speed up the envelope, and negative values slow it down.

Size Scale changes the size of the current room. Altering this parameter will change the reverb time and also cause some coloration of the reverb. It is adjustable from 0.00 to 4.00, with 1.00 being nominal (and usually optimal) for the given Room Type.

InfinDecay, when turned “On”, causes the reverb tail to decay infinitely. When it’s “Off”, the decay time is determined by the “Rvrb Time” or “LateRvbTim” parameters. This is a good parameter to control with a footswitch.

Wet Bal (Wet Balance). Some reverb effects are actually two stereo reverbs in one, with each one receiving a different mono signal. This balances the outputs of the two reverbs—0% means they are being mixed equally.

Delays

There are two types of taps in the Multitap delays: The “Loop” tap, which has a feedback loop back to its input, and the numbered taps. The numbered taps can be single iterations or they can repeat as part of a loop, but they do not have individual feedback paths.

Fdbk (Feedback) Level controls the repeating function of the Loop Tap. A setting of 0% means there will only be a single delay, while a setting of 100% means the signal keeps repeating without ever stopping.

Both types of taps are individually adjustable from 0 to 2.55 seconds. The Loop Crs and Tapn Crs (**n** being the number of the tap) parameters set the coarse value of the loop in 20-ms increments, while the Loop Fine and Tapn Fine parameters set the fine value in 0.2-ms increments.

In Delay effects that use tempo to determine tap lengths, there is a Tempo parameter which can be set from 1 to 255 BPM or to “System.” The Loop Length and Tapn Delays are then expressed in beats relative to that overall Tempo.

The Effects Chain Editor

Effects Parameters

Hold is a switch that, when turned on, “locks” any signal currently in the delay and plays it until Hold is turned off. When Hold is on, no signal can enter the delay and Feedback is set to 100%. A good parameter to control with a footswitch.

Dry Bal (Balance) is the left/right balance of the dry signal. At -100%, only the left dry signal goes to the left output, while at 100% only the right dry signal passes to the right output, and at 0%, equal amounts of the left and right dry signals pass to their respective outputs.

Tapn Level is the level of each numbered tap, from 0% to 100%, relative to the overall output of the effect.

Tapn Bal is the left/right balance of each of the numbered taps. At -100%, only the left channel of tap n goes to the left output, while at 100% only the right channel of tap n goes to the right output. At 0%, equal amounts of the left and right channels of the tap pass to their respective outputs. In some delays, pairs of taps (1 and 5, 2 and 6, etc.) are controlled together as stereo pairs.

DelayScale lets you change the lengths of all the taps together. Its range is 0 to 10x.



Note: It is possible for the Forte to run out of delay memory with over-generous settings of DelayScale or very slow Tempos. Some Delay effects will simply go to a maximum value and stay there, while in some, a calculation is made that automatically cuts the delay times in half, thereby maintaining a relationship with tempo.

Complex Echo

This effect has two feedback taps per channel as well as three independent taps, and also a feedback diffuser for “smearing” the delays. Feedback line 1 feeds the signal back to the delay input of the same channel, while feedback line 2 feeds the signal back to the opposite channel.

FB2/FB1 > FB is a balance control between feedback lines 1 and 2. 0% (minimum) turns off feedback line 2, only allowing use of feedback line 1. 50% is an even mix of both lines, and 100% (maximum) turns off line 1.

L Diff Dly and **R Diff Dly** adjusts the delay lengths of the diffusers. Range is 0 to 100 ms. **Diff Amt** adjusts the diffuser intensity. Range is 0 to 100%.

C Fdbk n Dly adjusts the delay length of the C channel’s nth feedback tap, fed back to the C channel’s delay input. Range is 0 to 2600 ms.

Spectral Multitap Delays

These 4- and 6-tap delays have their feedback and output taps modified with shapers and filters. In the feedback path of each tap are a diffuser, hipass filter, lopass filter, and imager. Each delay tap has a shaper, comb filter, and balance and level controls.

Fdbk Image sets the amount that the stereo image is shifted each time it passes through the feedback line. Range is -100 to 100%.

Tap n Shapr adjusts the intensity of the shaper at each output tap. Range is 0.10 to 6.00 x. **Tap n Pitch** adjusts the frequency of the comb filter at each output tap. Range is C-1 to C8, in semitones.

Tap n PtAmt adjusts the intensity of the comb filter at each output tap. Range is 0 to 100%.

Gated Ducking Delay

This runs the last thing you played through a looping delay, but only outputs the delay signal when you aren't playing. Gated Ducking Delay is great for that announcer sound, sound, sound, so popular in Monster Truck radio spots.

DegenRegen

This one's a big looping delay with lots of gain, distortion and filtering, and with a compressor to keep it all under control.

Equalizers (EQ)

The Forte has both Graphic and Parametric EQ effects. Parametric EQ sections are also found on a number of combination effects.

The **Graphic** equalizer is available as stereo (linked parameters for left and right) or dual mono (independent controls for left and right). It has 10 bandpass filters per channel, each of whose gain is adjustable from -12 dB to +24 dB.

Like all graphic equalizers, the filter response is not perfectly flat when all gains are set to the same level (except at 0 dB), but rather has ripple from band to band. To minimize this ripple, it is best to center the overall settings around 0 dB.

The **Parametric** equalizer ("5-Band EQ") has two bands of shelving filters and three bands of true parametric EQ.

Treb Freq and **Bass Freq** set the center frequencies for the shelving filters. Both of these are adjustable over the full range of 16 to 25088 Hz, in increments of a semitone.

Treb Gain and **Bass Gain** control the amount of cut or boost above (Treb) or below (Bass) the center frequency. The range is -79 to +24 dB.

The Effects Chain Editor

Effects Parameters

Midn Gain sets the cut or boost for the parametric band n, with a range of -79 to +24 dB. Midn Freq sets the center frequency for parametric band n, with a range of 16 to 25088 Hz, in increments of a semitone.

Midn Width set the bandwidth of the filter on band n, with a range of 0.01 to 5 octaves.

Enhancers

Enhancers modify the spectral content of the input signal by boosting existing spectral content, or stimulating new ones. Two and three-band versions are provided.

Drive adjusts the input into each band. Increasing the drive will increase the effects. Range is -79.0 to 24.0 dB.

Xfer adjusts the intensity of the transfer curves. Range is -100 to 100%.

EQ Morpher

This effect uses two four-band bandpass filters, A and B, and moves between them. This can produce very convincing human vocal type sounds.

FreqScale offsets the filter frequencies for each set of filters. After setting the filter parameters (Freq, Gain, and Width), the FreqScale parameters will move each of the four filter frequencies together by the same relative pitch. Range is -8600 to 8600 cents.

Morph A>B. When set to 0% the “A” parameters are controlling the filters, and when set to 100%, the “B” parameters control the filters. Between 0 and 100%, the filters are at interpolated positions. When morphing from A to B settings, the A filter #1 will change to the B filter #1, A filter #2 moves to B filter #2, and so on. Range is 0 to 100%.

Compressors, Expanders, and Gates

A wide range of Compression and Expansion effects is available in the Forte. The various effects include different combinations of:

- compressors with soft-knee characteristic—the compression action comes in gradually as the signal level approaches the threshold
- compressors with hard-knee characteristic—the compression action comes in abruptly when the signal reaches the threshold
- expanders
- multiband compressors that break the signal up into three frequency bands and compress them all separately
- sidechains or output EQs
- reverbs and compressors in combination
- gates
- gated reverbs

All of the Compression effects use these parameters:

FdbkComprs (Feedback Compression) selects whether to use feed-forward (set this to “Out”) or feed-back (set this to “In”) compression. The feed-forward configuration uses the input signal as a side-chain source, which is useful when the compressor has to act really quickly. The feed-back configuration uses the compressor output as the side-chain source, which lends itself to more subtle, but not as quick-reacting, compression.

Atk (Attack) Time for the compressor is adjustable from 0.0 to 228.0 ms. **Rel** (Release) Time for the compressor is adjustable from 0 to 3000 ms.

SmoothTime smooths the output of the expander’s envelope detector by putting a lowpass filter in the control signal path. Smoothing will affect the Attack or Release times only when this parameter is longer than one of the other times. The range is 0.0 to 228.0 ms.

Signal Dly (Delay) puts a small delay in the signal relative to the sidechain processing, so that the compressor (or gate) “knows” what the input signal is going to be before it has to act on it. This means the compression can kick in before an attack transient arrives. In the **SoftKneeCompress** and **HardKneeCompress** effects, delay is really only useful in feed-forward configuration (FdbkComprs is “Out”). For other compressors, the delay can be useful in feedback configuration (FdbkComprs is “In”). The range is 0 to 25 ms.

Ratio is the amount of gain reduction imposed on the compressed signal, adjustable from 1.0:1 (no reduction) to 100:1, and Inf:1.

Threshold is the level in dBFS (decibels relative to full scale) above which the signal begins to be compressed. Adjustable from -79.0 to 0 dB.

MakeUpGain allows additional output gain to compensate for gain reduction in the compressor. It is essentially the same parameter as **Out Gain**, with which it is summed. The minimum is -79.0, and the maximum summed gain (**MakeUpGain** + **Out Gain**) is +24.0 dB.

Expansion

Effects containing Expanders have these controls:

Atk or **Exp Atk** (Attack), how fast the expander turns off when the input signal rises above the threshold level, adjustable from 0.0 to 228.0 ms.

Rel or **Exp Rel** (Release), how fast the expander turns back on after the signal drops below the threshold level, adjustable from 0 to 3000 ms.

Ratio or **Exp Ratio**, how much the gain is reduced below the expansion threshold, adjustable from 1:1.0 (no expansion) to 1:17 (extreme downward expansion).

Threshold or **Exp Threshold**, the level below which the signal is expanded, adjustable from -79.0 to 0 dB.

In addition, the two-segment compressors with expander have separate **Ratio** and **Threshold** controls for each of the compression segments.

The Effects Chain Editor

Effects Parameters

Multiband Compression

The Multiband Compression effect has Attack, Release, Smooth, Signal Delay, Ratio, Threshold, and MakeUp Gain parameters for each of the three bands (“Low”, “Mid”, and “High”). In addition, it has:

Crossover1 and Crossover2. These set the frequencies which divide the three compression frequency bands. The two parameters are interchangeable, so either may contain the higher frequency value. The range is 16 to 25088 Hz, in increments of a semitone.

Gates

SC Input lets you select which input channel(s) will control the sidechain, which is responsible for opening and closing the gate. It can be set to L, R, or the average of the two channels, (L+R)/2. You can use this, if you arrange the signal paths and pan controls appropriately, to gate one mono signal with a different mono signal.

Gate Time is the time that the gate will stay open after the sidechain signal reaches the Threshold. Its range is 0 to 3000ms.

Ducking reverses the action of the gate. Normally this is set to “Off”, and the gate opens when the input signal rises above the threshold. But when this is “On”, the gate closes when the input signal rises above the threshold.

Super Gate

Super Gate is a more sophisticated gate that includes these two functions:

Env Time is the amount of time it takes for the sidechain signal envelope to drop below the threshold. If this time is too short, the gate can close and open too quickly from amplitude modulation in the sidechain signal. If it is too long, the gate may stay closed until the envelope has a chance to fall, and some signals would not get through. This parameter is only in effect when Retrigger is Off.

Retrigger determines whether the gate timer will reset itself each time the sidechain signal goes above the threshold. If it is “On”, the timer resets itself, and therefore the gate stays open as long as the signal is above the threshold, or keeps going above the threshold, within the interval specified by Gate Time. If it is “Off”, the gate closes down after Env Time has elapsed, regardless of the sidechain level, and the sidechain level must fall below the threshold and come back up again before the gate will open again.

Chorus

Chorus is an effect which gives the illusion of multiple voices playing in unison. The effect is achieved by detuning copies of the original signal and summing the detuned copies back with the original. Low frequency oscillators (LFOs) are used to modulate the positions of output taps from a delay line. The movement of the taps causes the pitch of the signal to shift up and down, producing the required detuning.

The choruses are available as stereo or dual mono. The stereo choruses have the parameters for the left and right channels ganged, while the dual mono choruses have separate left and right controls.

Fdbk Level is the level of the feedback signal from the LFO1 delay tap into the delay line. Negative values polarity-invert the feedback signal.

Tap Lvl sets the levels of the LFO-modulated delay taps. Negative values polarity-invert the signal. Setting any tap level to 0% turns it off.

Tap Pan sets the stereo position for a given tap's output. The range is -100% for fully left, to 100% for fully right.

Atk Time (attack time) is the time for the gate to ramp from closed to open (reverse if Ducking is on) after the signal rises above threshold, adjustable from 0.0 to 228.0 ms.

Rel Time (release time) is the time for the gate to ramp from open to closed (reverse if Ducking is on) after the gate timer has elapsed, adjustable from 0 to 3000 ms.

LFO Rate sets the speed of modulation of the delay lines with a range of 0.01 to 10 Hz.

LFO Dpth sets the maximum detuning depth of the LFO-modulated delay lines, with a range from 0 to 50 cents (= 1/2 semitone).

Tap Dly adds extra delay in front of the LFO modulated delay taps from 0 to 230 ms.

L/R Phase or **LFO n LRPhs** adjusts the relative phases of the LFOs for the left and right channels in the stereo Choruses.

Flanger

Flanging is the process of adding or subtracting a signal with a time-displaced replica of itself, which results in a series of notches in the frequency spectrum, generally referred to as a comb filter. In the Forte, the flanger is a multi-tap delay line, all (but one) of whose taps can have their lengths modulated up and down by a low frequency oscillator (LFO). The rate of the LFO is expressed in Tempo.

StatDlyLvl (Static Delay Level) is the level of the first, non-moving tap. Negative values invert the polarity of the tap. The range is -100 to 100%; 0% turns the tap off.

DlyCrs and **DlyFin** are the coarse and fine length controls for the Static delay (StatDly...) and for the minimum value of the moving delays (Dlyn...). The coarse range is 0 to 228 ms, and the fine range adjusts the coarse range in samples (= 1/48,000 sec = 20.8µsec) from -127 to 127.

Xcurs Crs and **Xcurs Fin** determine how far the LFO-modulated delay taps can move from the center of their ranges. The total range of the LFO sweep is twice the excursion. If the excursion is set to 0, the LFO does not move and the tap behaves like a simple delay line set to the minimum delay. The coarse range is 0 to 228 ms; the range 0 to 5 ms is most effective for flanging. The fine range adjusts the coarse range in samples from -127 to 127.

Quantize

This effect produces digital distortion known as quantization noise, by limiting the number of bits available to the signal. See effect 329 “Aliaser.”

DynamRange (dynamic range) controls how many bits to remove from the signal data words. The lower the level, the greater the distortion. At 0 dB the hottest of signals will toggle between only two quantization levels, thereby producing a square wave. Every 6 dB added doubles the number of quantization levels, reducing the noise and getting closer to the original signal. If the signal has a lot of headroom (available signal level before digital clipping), then not all quantization levels will be reached. Range is 0 to 144 dB.

Headroom sets the available signal level before digital clipping. Setting this properly prevents the signal from getting too loud at low levels of DynamRange. You want to have it match the amount of level still available above the input signal: this is done by finding the DynamRange level at which the signal starts getting louder, and setting Headroom to match the DynamRange value. Range is 0 to 144 dB.

DC Offset adds a positive DC Offset to the input signal, which allows you to alter the position where digital zero is with respect to your signal. At low DynamRange settings, this can cause the output to “sputter.” Range is Off/-79.0 to 0.0 dB.

LaserVerb

LaserVerb is a type of reverb which produces a delayed train of closely spaced reflections, or impulses. As time passes, the spacing between the impulses gets wider, which creates a discernible buzzy pitch that gets lower as the spacing increases. The signal can be fed back into itself to extend the effect.

Dly Coarse is the overall delay length, which controls the duration or decay time. 0.5 sec is a good starting point. Range is 0 to 1.3 seconds in the 2 DSP unit version of the effect, and 0 to 2 seconds in the 3 DSP unit version.

Dly Fine adjusts the delay with a resolution down to 0.2 ms. Range is -20.0 to 20.0 ms. Spacing determines the starting pitch of the descending buzz and how fast it descends, by setting the initial separation of impulses and the subsequent rate of increasing impulse separation. The spacing between impulses is given in samples (20.8 μ s). At low values, the buzz starts at high frequencies and drops slowly, while at high values the buzz starts at a lower pitch and drops rapidly. Range is 0.0 to 40.0 samples, with a resolution of 0.2 sample.

Contour controls the overall shape of the reverb. When set to a high value, sounds passed through the reverb start at a high level, and it slowly decays. As the control value is reduced, it takes more time for the effect to build up before decaying. At a value of around 34%, the reverb behaves like a reverse reverb, building up to a hit. When it is set to zero, the effect acts like a simple delay. Range is 0 to 100%.

Filters

Resonant Filter

Frequency (or Freq) is the fixed resonant frequency of the filter. Its range is 16 to 8372 Hz.

Envelope Filter

Envelope Filter is a resonant filter whose center frequency can be made to vary according to the level of the incoming signal.

There are four types of Resonant Filter effects in the Forte. All of them have these parameters in common:

Filter Type (or **FiltType**) can be Lowpass, Highpass, Bandpass, or Notch (band-cut). Resonance is the resonance of the filter, adjustable from 0 to 50 dB.

Filter Type can be Lowpass, Highpass, Bandpass, or Notch (band-cut).

Min Freq is the minimum resonant frequency of the filter, that is, the filter frequency when the input gain is below the triggering threshold. Its range is 16 to 8372 Hz.

Sweep determines how far the resonant frequency moves when the input level increases. At positive levels it moves up in pitch, and at negative levels it moves down. The highest possible resonant frequency is 8372 Hz, the lowest is 0 Hz. This parameter's range is -100% to +100%.

Resonance is the resonance of the filter, adjustable from 0 to 50 dB.

Atk Rate adjusts the upward slew of the attack portion of the envelope detector. Range is 0 to 300.0 dB/sec.

Rel Rate adjusts the downward slew of the release portion. Range is 0 to 300.0 dB/sec.

Smooth Rate slows down the envelope follower. If it is set to a lower rate than Atk Rate or Rel Rate, it can dominate those parameters. Range is 0 to 300.0 dB/sec.

Triggered Filter

The Triggered Filter is a sweeping resonant filter that triggers when a certain input threshold is reached, and then follows its own envelope, consisting of an instantaneous attack and an exponential release, rather than the envelope of the input signal.

Max Freq is the resonant frequency of the filter at the peak of the internal envelope. It can be set lower than Min Freq (above), in which case the filter will sweep downwards, then back up. Range is 16 to 8372 Hz.

Trigger is the input-signal threshold at which the envelope detector triggers. Range is -79 to 0 dB.

The Effects Chain Editor

Effects Parameters

Retrigger is the input-signal threshold at which the envelope detector resets, so that it can trigger again. This parameter is only useful when it is set below the value of Trigger. Range is from -79 to 0 dB.

Env Rate is the envelope detector decay rate. This can be used to prevent false triggering. When the signal envelope falls below the retrigger level, the filter can be triggered again when the signal rises above the trigger level. Since the input signal can fluctuate rapidly, it is necessary to adjust the rate at which the signal envelope can fall to the retrigger level. The range is 0 to 300.0 dB/sec.

Rel Rate is the downward slew (release) rate of the triggered envelope generator. The range is 0 to 300.0 dB/sec.

Smth Rate slows down the envelope follower. If set lower than the release rate, it will dominate it. You can also use the smoothing rate to lengthen the attack of the internal envelope. The range is 0 to 300.0 dB/sec.

LFO Filter

The LFO filter is continuously swept between two resonant frequencies over a period of time. The LFO frequency, expressed in BPM and beats, can be fixed or set to follow System tempo.

Min Freq and **Max Freq** are the low and high limits of the resonant frequency as the filter is swept. You can set the Min Freq higher than the Max Freq, in which case the filter will sweep “upside down” relative to the controlling clock. The range for both is 16 to 8372 Hz.

LFO Shape is the waveform type for the LFO. Choices are Sine, Saw+, Saw-, Pulse, and Tri.

LFO PlsWid (Pulse Width). When the LFO Shape is set to Pulse, this sets the pulse width as a percentage of the waveform period. When the width is set to 50%, the result is a square wave. This parameter has no effect if other waveform types are chosen. Range is 0 to 100%.

LFO Smooth smooths (removes the higher harmonics from) the Saw+, Saw-, and Pulse waveforms. A Sawtooth wave becomes more like a triangle wave, and a Pulse wave becomes more like a sine wave. Range is 0 to 100%.

Distortion

Distortion effects on the Forte may also include a parametric equalizer or a cabinet simulator.

Dist Drive applies a boost to the input signal to overdrive the distortion effect into soft clipping. This will tend to make the signal very loud, so you may have to reduce the Out Gain as this parameter is increased. Range is 0 to 96 dB.

Warmth is a lowpass filter in the distortion control path. This filter may be used to reduce some of the harshness of some distortion settings without reducing the bandwidth of the signal. Range is 16 to 25088 Hz.

Highpass allows you to reduce the bass content of the distortion content in the smaller distortion effects that don't have true parametric EQ. Range is 16 to 25088 Hz.

Cab Preset selects from eight cabinet simulations which have been created based on measurements of real guitar amplifier cabinets. The presets are: Basic, Lead 12, 2x12, Open 12, Open 10, 4x12, Hot 2x12, and Hot 12.

Cab Bypass switches on and off the cabinet-simulation part of the effect. When this is set to "In", the cabinet simulation is active; when it is "Out", there is no cabinet action.

Cabinet HP and **Cabinet LP** are highpass and lowpass filters to set the frequency response limits of the cabinets. Range of both filters is 16 to 25088 Hz.

Polydistort

This is a more complex distortion effect that provides two, four, or six stages of distortion.

Curve n controls the curvature of the individual distortion stages. 0% is no curvature (no distortion at all). At 100%, the curve bends over smoothly and becomes perfectly flat right before it goes into clipping. Maximum value is 127%.

LP n Freq are shelving frequencies for one-pole lowpass filters on each of the distortion stages. LP0 Freq handles the initial low pass prior to the first distortion stage. The other low pass controls follow their respective distortion stages. Range is 16 to 25088 Hz.

Rotating Speakers

An effect that includes Rotating Speakers breaks the signal into two frequency bands, "rotates" each band separately through a virtual speaker, and then combines the outputs with a pair of virtual "microphones" whose angle relative to the speakers is adjustable. A number of very sophisticated parameters have been included in the Rotating Speakers effect, to give the effect a great degree of realism. Because of the complexity of the effects, you might want to approach any parameters that seem a little obscure to you with caution.

Roto InOut engages or bypasses the rotary speaker effect.

There are four virtual microphones, with two each on the woofer (LoMic A and LoMic B) and on the tweeter (HiMic A and HiMic B). Each microphone has:

Pos (position), the angle of the microphone from the front of the virtual speaker, from -180 to 180degrees;

Lvl (level) from 0 to 100%; and **Pan**, the left/right panning of the microphone's output, from -100% (full left) to 100% (full right). Other parameters:

Lo Beam W and **Hi Beam W** set the acoustic radiation patterns ("beam width") of the two drivers in the rotating speaker. If you imagine looking down on the rotating speaker, this is the angle between the -6 dB levels of the beam. The range is from 45° to 360°. At 360°, the driver is omnidirectional.

The Effects Chain Editor

Effects Parameters

Xover (Crossover) is the frequency at which high and low frequency bands are split and sent to separate rotating drivers. The range is 16 to 25088 Hz.

Lo Gain and **Hi Gain** are the gains of the signal passing through the rotating woofer or tweeter, respectively. The range is Off/-79.0 to 24.0 dB.

Lo Size and **Hi Size** are the effective sizes (radius of rotation) of the rotating speakers in millimeters. This affects the amount of Doppler shift or vibrato of the low frequency signal. The range is 0 to 250 mm.

Lo Trem and **Hi Trem** control the depth of tremolo (amplitude modulation) of the signals. It is expressed as a percentage of full scale tremolo. The range is 0 to 100%.

LoResonate and **HiResonate** are simulations of cabinet resonant modes expressed as a percentage. For realism, you should use very low settings. The range is 0 to 100%.

Lo Res Dly and **Hi Res Dly** are the number of samples of delay in each resonator circuit in addition to the rotation excursion delay. The range is 10 to 2550 samples.

LoResXcurs and **HiResXcurs** are the number of samples of delay to sweep through the resonator at the rotation rate of each rotating speaker. The range is 0 to 510 samples.

ResH/LPhs sets the relative phases of the high and low resonators. The angle value in degrees is somewhat arbitrary and you can expect the effect of this parameter to be rather subtle. The range is 0 to 360.0 degrees.

Mic Angle is the angle of the virtual microphones in degrees from the “front” of the rotating speaker. For the left microphone the angle increases clockwise (when viewed from the top), while for the right microphone the angle increases counter-clockwise. Assigning a MOD to this parameter should be done with caution: real-time adjustments to it will result in large sample skips, which will cause clicks in the signal passing through. The range is 0 to 360.0 degrees. (In Distort + Rotary only.)

The following parameters relate to rotation speed:

Speed sets the rotating speakers to run at either the slow rate or the fast rate. Brake, when set to “On”, slows the rotating speakers to a halt.

Lo Mode, in the “Normal” setting, will give you full control of the low frequency speaker with the Speed parameter. The “NoAccel” setting will hold the low frequency speaker at the slow speed, and the Speed parameter will have no effect on its speed, though Brake will still work. In the “Stopped” position, the low frequency speaker will not spin at all.

Lo Slow and **Hi Slow** are the rotation rates in hertz (Hz) of the speakers when Speed is set to “Slow.”

Lo Fast and **Hi Fast** are the rotation rate in hertz (Hz) of the speakers when Speed is set to “Fast.” **LoSlow>Fst** and **HiSlow>Fst** are the times for the speakers to accelerate from the slow speed to **LoFst>Slow** and **HiFst>Slow** are the times for the speaker to decelerate from the fast speed to the slow speed.

LoAccelCrv and **HiAccelCrv** are the shapes of the acceleration curves for the speakers. 0% is a constant acceleration. Positive values cause the speaker to speed up slowly at first then quickly reach the fast rate. Negative values cause a quick initial speed-up then slowly settle in to the fast speed. If set to a low negative value, it will overshoot.

LoSpinDir and **HiSpinDir** are the directions of rotation of the speakers. The choice is clockwise (CW) or counter-clockwise (CCW).

Vibrato/Chorus

The Vibrato/Chorus effect simulates the vibrato and chorus effects on a tone wheel organ, and is used in conjunction with the Rotary Speaker. It has several unique parameters:

VibChInOut is an in/out switch for the Vibrato/Chorus effect.

Vib/Chor is the type of Vibrato/Chorus effect to be used. The choices are from three vibratos, “V1”, “V2”, “V3”, or three choruses, “C1”, “C2”, “C3.”

Tremolo and AutoPan

Tremolo is amplitude modulation using an LFO. AutoPan moves the signal between the left and right channels, using an LFO. They have several parameters in common and several unique ones.

LFO Rate is the rate of the LFO. The range is 0 to 10.00 Hz, or 0 to 12.00 x the tempo.

Rate Scale multiplies the speed of the LFO rate into the audio range. The range is 1 to 25088 x. When above 16x, the values increment in semitone steps. When the LFO Rate is set to 1.00 Hz, the value of this parameter is equal to the LFO frequency in Hertz.

LFO Shape is the waveform type for the LFO. Choices are Sine, Saw+, Saw-, Pulse, and Tri.

LFO PlsWid or Pulse Width. When the LFO Shape is set to Pulse, this sets the pulse width as a percentage of the waveform period. When the width is set to 50%, the result is a square wave. This parameter has no effect if other waveform types are chosen. Range is 0 to 100%.

AutoPan

Origin determines the axis for the panning motion. At 0%, the panning is centered between the speakers. Positive values shift the axis to the right, while negative values shift it to the left. At -100% or +100% (the range limits), there is no panning action.

ImageWidth is the width of the original input program material before it is auto-panned. At 0% (minimum), the input image is shrunk to a single point source, allowing maximum panning excursion. At 100% (maximum), the original width is maintained so no panning can occur.

Pan Width controls the amount of pan excursion. It is the percentage of total panning motion available after Origin and ImageWidth are set. Range is 0 to 100%.

The Effects Chain Editor

Effects Parameters

CentrAtten (Attenuation) is the amount the signal level drops as it is panned through the center of the stereo image. For the smoothest tracking, a widely accepted subjective reference is -3dB. Values above -3dB will cause somewhat of a bump in level as an image passes through the center, while values below -3dB will cause a dip. Range is -12 to 0 dB.

Tremolo

Depth controls the amount of attenuation applied when the LFO is at its deepest excursion point. Range is 0 to 100%.

LFO Phase shifts the phase of the tremolo LFO relative to the beat reference. Range is 0.0 to 360.0 degrees.

50% Weight is the relative amount of attenuation added when the LFO is at the -6dB point. This causes the LFO shape to bow up (positive values) or down (negative values). Range is -16 to 3 dB.

L/R Phase sets the phase relationship of the channels. “In” flips the left channel’s LFO out of phase, with the result that the effect turns into an auto-balancer. “Out” leaves the left LFO alone.

Pitcher

Pitcher applies a filter to the input signal which has a series of peaks in the frequency response.

These peaks are normally adjusted so that their frequencies are all multiples of a specific, selectable frequency, which imposes a strong sense of pitch at the selected fundamental frequency.

Pitch. The fundamental pitch imposed upon the input, in MIDI note numbers from C-1 to G9. Ptch Offst is an offset from the pitch frequency in semitones, from -12.0 to 12.0. It can be useful to assign pitch bend, a ribbon, or another continuous controller to this parameter through a MOD.

Odd Wts, Pair Wts, Quartr Wts, Half Wts are parameters that control the shape of the frequency response of Pitcher. An exact description of what each one does is, unfortunately, impossible, since there is a great deal of interaction between them. For more information and examples, see the KSP8 Algorithm Reference Guide available as a free download at www.kurzweil.com.

Ring Modulation

Ring modulation multiplies two signals (the “carrier” and the “modulator”) together to produce unusual, often non-harmonic, overtones. The Ring Modulator effect in the Forte has two modes: “**L*R**” in which two mono signals are modulated together; and “**Osc**”, in which the input is stereo, and it is modulated with the sum of five waveforms that are generated from oscillators within the effect itself. Four of these oscillators are sine waves, while one (Oscillator 1) offers a selection of waveforms.

Wet/Dry. When the effect is in “L*R” mode, this controls how much of the left signal only is passed dry (the right signal isn’t passed dry at all).

Mod Mode selects between the two modes, L*R or Osc.

Osc1 Lvl is the level of Oscillator 1, from 0 to 100%.

Osc1 Freq is the frequency of Oscillator 1, from 16 to 25088 Hz.

Osc1 Shape is the waveshape of Oscillator 1, selectable from Sine, Saw+, Saw-, Pulse, and Tri.

Osc1PlsWid (Pulse Width). When Osc1 Shape is set to Pulse, this sets the pulse width as a percentage of the waveform period. When the width is set to 50%, the result is a square wave. This parameter has no effect if other waveform types are chosen. Range is 0 to 100%.

Osc1Smooth smooths (removes the higher harmonics from) the Saw+, Saw-, and Pulse waveforms. A Sawtooth wave becomes more like a triangle wave, and a Pulse wave becomes more like a sine wave. Range is 0 to 100%.

The other four oscillators, **Sine2** through **Sine5**, each have **Lvl** and **Freq** controls.

Stereo Simulation

The Mono to Stereo effect converts a monaural input to simulated stereo output.

In Select selects the input signal to be “stereo-ized.” It can be Left, Right, or both: (L+R)/2. **CenterGain** is the level of the summed left and right channels. Range is Off/-79.0 to 24.0 dB.

Diff Gain is the level of the difference signal produced, which is the spatial component of the stereo signal. Range is Off/-79.0 to 24.0 dB.

DiffBassG controls the gain of a bass-shelf filter on the difference signal. By boosting the low frequency components of the difference signal, you can increase the sense of acoustic envelopment. Range is -79.0 to 24.0 dB.

DiffBassF is the transition frequency for the bass-shelf frequency. Range is 16 to 25088 Hz.

The processed signal is split into three frequency bands—Lo, Mid, and High—each of which can be delayed and panned separately.

The Effects Chain Editor

Effects Parameters

Crossover1 and **2** are the two Crossover frequencies at which the band-split filters split the signal into three bands. The two parameters are interchangeable: either may have a higher frequency than the other. Range is 16 to 25088 Hz.

Pan [*High/Mid/Low*] sets the pan position for each band. Range is -100% (fully left) to 100% (fully right.)

Delay [*High/Mid/Low*] sets the delay for each band. Range is 0 to 1000 ms.

Stereo Image

This effect provides enhancement for a stereo signal. It also features a stereo correlation meter. It uses some parameters from **Mono to Stereo** and some from **Stereo Analyze** (following).

Chapter 9

Keymap and Sample Editing

The Keymap Editor

The Keymap Editor lets you customize the Forte's factory preset keymaps and save them to RAM. You can also build your own keymaps from scratch (see [“Building a Keymap” on page 9-9](#)).

Keymaps are an integral part of every layer of a program. Each keymap contains a set of parameters determining which sample(s) the Forte will play when you trigger a note. Each layer has at least one keymap, but it can have two keymaps when you're working with stereo samples. Each of these stereo keymaps uses two of the 128 available voices.

Each keymap consists of a set of key (note) ranges—C 4 to G 4, for example. The entire span of each keymap is from C 0 to G 10. Each range has a sample root assigned within the range. Each sample root is a distinct ROM or RAM sample. Within each key range, the sample root is transposed up and down to play on each of the range's notes. You can view each range by changing the value of the Key Range parameter on the Keymap-editor page. You can mix samples of different timbres within a single keymap, and even tune individual keys to any pitch by defining key ranges to single notes and assigning samples to each of those notes.

When you trigger a note, the Forte identifies the key range where the Note On event occurred. It also checks the attack velocity value of the note. It then addresses its memory, and retrieves the sample root that's assigned to that key range and attack velocity value. If the note that's triggered is not the note where the sample root is assigned, the sample is transposed to play at the correct pitch. The Forte then generates the digital signal that represents the sound of the note. At this point the keymap's job is done, and the signal proceeds through the layer's algorithm and on to the audio outputs.

You can assign as many key ranges to a keymap as you like, even creating a separate range for each note. This would allow you to tune each key independently, to create microtonal tunings. For keymaps that use a single timbre, like the Grand Piano, there's a key range for each sample root stored in memory. For acoustic instrumental sounds, the more key ranges you have for a keymap, the more realistic the sound will be, since there will be less pitch shifting of the sample root within the key range.

Keymap and Sample Editing

The Keymap Editor

Of course, you can assign sample roots with different timbres within the same keymap. Many of the drum kit keymaps in ROM, for example, have about 20 key ranges, with several different timbres assigned as the sample roots. You can also create a keymap with a single key range that spans from C 0 to G 10, if you want to stretch a single sample root from C 0 to G 10. Keep in mind, however, that samples can only be transposed upward by an octave from the sample's original pitch. Samples can be transposed downward without limit.

Think of a keymap as if it were a single piece of string, divided into different sections that adjoin one another. Sections cannot overlap. If you have one range that goes from C4 to F4 and another that goes from F#4 to C5, then if you change the first range to be C4 to G4, the second one will change to be G#4 to C5.

Also, you can't have "nothing" assigned to a key range. Even if it is Silence (#999), there will always be a sample assigned to every range in the keymap. This is something to watch out for when creating drum programs. For example, let's say you are creating a program with 20 layers. Each layer has its own keymap, which has just one sample assigned to part of the keyboard with the rest of the key range assigned to Silence. Make sure that you limit the note range of each layer using the LoKey and HiKey parameters on the LAYER page in the Program Editor. If each layer covers the entire range, then each note you played would trigger 20 voices (one for each layer). You would only hear one drum per note because all the other layers are triggering "Silence." Because of the voice-stealing algorithms in the Forte, the voices would almost immediately become available again, since they have no amplitude. But for one brief instant, the voice would be triggered, which could cause other voices to be cut off.

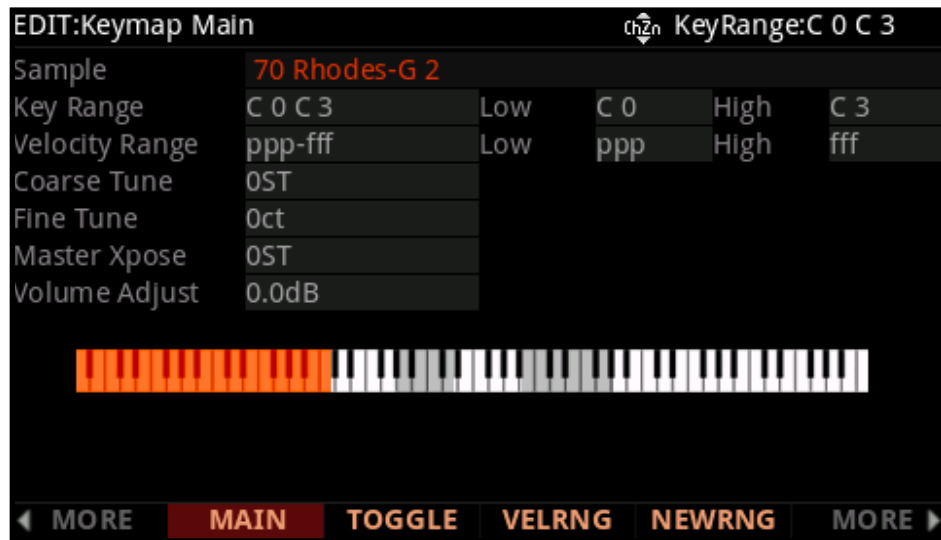
You can also create multi-velocity keymaps—that is, keymaps that will play different timbres depending on the attack velocities of your Note On events. For example, Keymap 7 Piano 3Vel L has 3 velocity ranges. Each key range in a multi-velocity keymap contains two or more distinct sample roots that the Forte chooses between, according to the attack velocity of the note. See ["Velocity Ranges \(VELRNG\)" on page 9-7](#).

The Keymap Editor is nested within the Program Editor. The first step in using the Keymap Editor is to select the keymap you want to edit. This is done on the KEYMAP page in the Program Editor, using the Keymap parameter. Once you've done this, just press the **Favorites 1** button, and you'll enter the Keymap Editor.



If you want to edit a different keymap, press the Exit button to return to the KEYMAP page in the Program Editor and select the desired keymap. If you want to build a keymap from scratch, start with the keymap **999 Silence** (see [Building a Keymap on page 9-9](#) for details). This keymap template contains one key range from C 0 to G 10, and is a convenient starting point for adding key ranges and assigning sample roots.

The Keymap Editor page looks like this:



Parameter	Range of Values
Sample	Sample Root list
Key Range	Variable from C0-G10
Low Key	C 0 to G 10
High Key	C 0 to G 10
Velocity Range (VelRange)	Variable from ppp-fff
Low Velocity (Lo)	ppp-fff
High Velocity (Hi)	ppp-fff
Coarse Tune	-128 to 127 semitones
Fine Tune	-49 to 50 cents
Master Transpose	-126 ST to 127 semitones
Volume Adjust	± 24 dB

Keymap Editor Parameters

Sample

This is where you assign a sample root to the current key range. Depending on the nature of the sample root—an individual sample or a block of sample roots—the sample’s name looks a bit different in the display. Each sample’s name consists of three parts: a numeral, a name, and a note number—for example, **999 Silence-C4**. Additionally, the name of stereo samples will end with an **S**. (To use a stereo sample, the Stereo parameter must be set to **On** in the Program Editor, and two keymaps must be selected. See [“Stereo” on page 7-24](#) for details.)

The numeral is the sample block ID. If the sample object is an individual sample, the sample block ID is the same as the sample’s object ID. If the sample object is a group of sample roots, the object ID of the first root in the group determines the sample block ID. The remaining roots in the block have the same ID, and differ only in their note numbers.

Next comes the name of the sample, which typically describes the sample’s timbre. The final part of the sample’s name refers to the pitch at which it was originally sampled. For many timbres, multiple samples are made at various pitches. As you scroll through the Sample list, you’ll see only the pitch of the sample change until you reach the next sample block. The sample’s original pitch is set in the Sample Editor (see [“Root Key” on page 9-13](#)). This determines which key will play the sample at its original pitch when a sample is used in a key range (see [Key Range](#) below).

Key Range

A keyrange is a range of keyboard keys that plays one sample (per velocity range, see [“Velocity Ranges \(VELRNG\)” on page 9-7](#) below for details). Each sample in a key range (per velocity range) is transposed based on each sample’s RootKey parameter so that it plays at the correct pitch on the keyboard relative to its root key (see [“Editing Samples” on page 9-11](#) for details on the RootKey parameter). Other keys within the key range transpose the sample chromatically relative to the root key. Sample pitch relative to the root key can also be offset using the [Coarse Tune](#) and [Fine Tune](#) parameters, see below).

The **KeyRange** parameter shows you which key range you’re currently viewing or editing (key ranges are named by their lowest and highest notes). Changing the value of the **KeyRange** parameter selects from the available key ranges, and allows you to view or edit the sample assignment and other parameters of the selected key range. When the Key Range parameter is selected, you can also scroll through available key ranges using the Alpha Wheel or the Previous-/Next+ buttons. Multiple key ranges are only shown if the current Keymap uses more than one key range. If the top line of the Edit Keymap page displays KeyRange, you can scroll through the available key ranges with any parameter on the page selected using the **Channel/Zone** buttons. (Press the TOGGLE soft button to toggle the top line between displaying KeyRange and VelRange.)

With the Keyrange parameter selected, keyranges can also be selected by holding the **Enter** button and playing a key. The keyrange assigned to that key will be selected.

Low Key (Lo), High Key (Hi)

With these parameters you can use any of the data entry methods to change the low and high notes of the current key range. You can extend a key range to the full capacity of the Forte (C 0 to G 10). If you extend the current key range into another, the boundaries of the other key range will become shortened to accommodate the key range you are extending. If the keyrange you are extending covers another keyrange, the other key range will be deleted.

The setting for the low key cannot be higher than the setting for the high key. Similarly, the setting for the high key cannot be lower than the setting for the low key.

Velocity Range

This parameter shows the keyboard velocity range (in dynamic levels) that will trigger a sample for the current KeyRange. In a key range with more than one velocity range, each velocity range can use a different sample, as well as different CoarseTune, FineTune, and VolumeAdjust settings. Velocity ranges are intended for use with instrument samples recorded at different velocities. This helps to make playing sampled instruments sound more realistic. Sample volumes are also scaled based on keyboard velocity within each velocity range. Velocity ranges for the current Keymap are set using the VELRNG soft button (see [Velocity Ranges \(VELRNG\)](#) or the [Low Velocity \(Lo\)](#), [High Velocity \(Hi\)](#) parameters below). All keyranges in a Keymap share the same set of velocity ranges. Up to eight velocity ranges can be used.

When the Velocity Range parameter is selected, you can scroll through available velocity ranges using the Alpha Wheel or the **Previous-/Next+** buttons. Multiple velocity ranges are only shown if the current Keymap uses more than one velocity range. If the top line of the Edit Keymap page displays VelRange, you can scroll through the available velocity ranges with any parameter on the page selected using the **Channel/Zone** buttons. (Press the TOGGLE soft button to toggle the top line between displaying VelRange and KeyRange).

Low Velocity (Lo), High Velocity (Hi)

Use these parameters to set the velocity range of the current key range. If you extend the current velocity range into another, the boundaries of the other velocity range will become shortened to accommodate the velocity range you are extending. If the velocity range you are extending covers another velocity range, the other velocity range will be deleted.

Coarse Tune

Coarse Tune allows you to transpose a sample for a given range. This is extremely useful when you have set the Root key of the sample for one note but want to assign the sample to a different part of the keyboard and still be able to play it without transposition (see [“Root Key” on page 9-13](#) for details). For example, if you originally set the Root key at C4 but want the sample assigned to C3, you would set Coarse Tune to 12ST, transposing it up one octave. Now the original pitch will play at C3, one octave down. If you examine the drum and percussion kit keymaps in ROM, you will see that we have done this. Most of our ROM drum samples have the Root key set at C4.

Keymap and Sample Editing

The Keymap Editor

There's a short cut for adjusting the Coarse Tune automatically so that the sample plays with minimal transposition in the assigned key range. See [Special Double Button Presses in the Keymap Editor on page 9-9](#).

Fine Tune

This gives you further pitch control. Once the sample's pitch is close to the desired note, use the Fine tune to sharpen or flatten it as much as a half-semitone.

Master Transpose (Master Xpose)

This parameter does not really pertain to the keymap itself. Instead it is identical to the Transpose amount set with the cheek block **Transpose** buttons or OCTAV-/OCTAV+ soft buttons on the Program and Multi mode select pages. If you change the transpose value here, the same value will be reflected by the **Transpose** button LEDs as well as in the top bar of the Program and Multi mode select pages, and vice versa. It transposes the entire instrument globally. The Master Xpose parameter allows you to easily see the transpose value while in the keymap editor. It is also useful for assigning samples across the entire keyboard when using a keyboard that has fewer than 88 notes.

Volume Adjust

Here you can adjust the volume of the notes in the current key range. This enables you to make each key range play at the same volume even if the samples in the various ranges were recorded at different volumes.

The Soft Buttons in the Keymap editor and Favorites Buttons Functions

TOGGLE

Pressing the TOGGLE soft button switches the function that the **Channel/Zone** buttons perform while on the Edit Keymap page. Press the TOGGLE soft button to toggle the top line between displaying **KeyRange** or **VelRange**. If the top line of the page displays **KeyRange**, then the **Channel/Zone** buttons will scroll between the available key ranges in the key map (if the current key map has more than one key range). The note range for each key range will also be displayed on the top line. If the top line of the page displays **VelRange**, then the **Channel/Zone** buttons will scroll between the available velocity ranges in the key map (if the current key map has more than one velocity range). The dynamic range for each velocity range will also be displayed on the top line.

Velocity Ranges (VELRNG)

Press the VELRNG soft button to view the VEL RANGES page. Use the VEL RANGES page to add, edit or delete velocity ranges for the current keymap. The VEL RANGES page shows a chart of a keymap's entire available dynamic range, from most quiet (ppp) to most loud (fff). Velocity ranges can also be adjusted from the Edit Keymap page, but the VEL RANGES page provides a chart as a visual aid. Each keymap can be split into a maximum of eight velocity ranges. Each key range in a keymap can use its own sample for each velocity range. All key ranges in a keymap share the same velocity ranges.

Press the **Split** soft button to split the currently selected velocity range into two ranges (until the maximum of eight velocity ranges have been created). Press the **Delete** soft button to delete the currently selected velocity range. Press the **Exit** soft button to return to the Edit Keymap page.

On the VEL RANGES page, the currently selected velocity range is highlighted in the chart, and its name is displayed in the VelRange field. With the VelRange field selected, you can use the Alpha Wheel or Previous-/Next+ buttons to move between the available velocity ranges (if there is more than one velocity range available). You can also use the **Channel/Zone** buttons at any time to move between the available velocity ranges. If there is more than one velocity range available, you can adjust the dynamic range of each using Lo and Hi parameters. These Hi and Lo parameters are the same as the Low Velocity (Lo) and High Velocity (Hi) parameters on the Edit Keymap page (see [“Low Velocity \(Lo\), High Velocity \(Hi\)” on page 9-5](#) for details). Changes made with either set of parameters are shown on both pages.

New Range (NEWRNG)

The NEWRNG soft button lets you define a new keyrange to edit, whether it's to assign a different sample, or to adjust the pitch or volume. Just press NEWRNG, then play the note you want as the low note, then the high note. The Forte will prompt you for each note. When you trigger the high note, you'll return to the Keymap-editor page, and the new keyrange you defined will be selected. The next change you make will affect only that edit range.

If you set a new keyrange that's completely within an existing key range, the existing key range will be split into two keyranges, with the new keyrange between the two. At this point, you must change at least one parameter of the new keyrange before editing a different keyrange, otherwise the new keyrange will be merged with the adjacent keyranges. If you set a new keyrange that overlaps part or all of another key range, the sample assigned to the lower key range will be applied to the new keyrange. Again, at this point you must change at least one parameter of the new keyrange before editing a different keyrange, otherwise the new keyrange will be merged with the lower keyrange that it overlapped.

Keymap and Sample Editing

The Keymap Editor

ASSIGN

The ASSIGN soft button lets you select a sample, then specify the key range to which it's assigned. This enables you to insert a new key range within the current keymap. When you press the ASSIGN soft button, a dialog appears that prompts you to select a sample from the Samples list. Scroll through the list, then press the OK soft button. You'll then be prompted to define the new key range by playing the notes you want to be the lowest and highest notes of the range. (Press the **Cancel** soft button if you change your mind.) When you trigger the low and high notes, the new key range is inserted. If the new key range partially overlaps an adjacent key range, the existing key range will be adjusted to accommodate the new range. If the new key range completely overlaps an existing key range, the original key range will be replaced.

DELETE

Press the DELETE soft button to delete the current Keymap (factory Keymaps can not be deleted).

HELP

Press the HELP soft button to view the Help page, where you can view a description of functions assigned to the Favorites buttons.

Favorites 1: Edit

The Favorites 1 button works as an Edit button while in the Keymap Editor. When a sample is selected in the Sample field, press the Favorites 1 button to enter the Sample Editor.

Favorites 2: Compare On/Off

Press the Favorites 2 button to temporarily recall an unedited version of the Keymap, allowing you to compare your edited Keymap with the original Keymap. Press the Favorites 2 button again to return to the edited version of the Keymap.

Favorites 10: Help

Press the Favorites 10 button to jump to the Help page.

Saving Changes to a Keymap

When you hit the Exit button from the Keymap Main page, a page will come up with option to rename, save or cancel your changes.

Rename

Call up the page that enables you to change the name of the current keymap.

Save Yes/No

Start the process of saving the current keymap, or return to the Keymap page.

Cancel

Cancel the changes and return to the Keymap Main editor page.

Special Double Button Presses in the Keymap Editor

Suppose you have a sample whose root key is C 4, and you want to assign it to A 0, because you don't expect to play it often. If you want it to play back without transposition, you'll have to adjust the Coarse Tune parameter. Calculating the right value for Coarse Tune can get tedious if you're assigning a large number of samples. Fortunately, there's a short cut.

1. Assign a sample root to a key range, either using the Lo, Hi, and Sample parameters or using the ASSIGN soft button.
2. Highlight the value of the Coarse Tune parameter.
3. Press the **Previous-/Next+** buttons at the same time. The value of Coarse Tune changes automatically. If the sample is assigned to one note, the Forte sets Coarse Tune so that the note plays the sample without transposition. If the sample is assigned to a range of notes, the Forte sets Coarse Tune so that the middle note of the range plays the sample without transposition.

Building a Keymap

Read below for detailed directions on manually creating and editing a keymap. To build a keymap, start in Program Mode and select program **999 Clear Program**. Then go to Program Edit Mode by pressing the **EDIT** soft button. Next press the **KEYMAP** soft button, and the KEYMAP page will appear. The Keymap parameter **999 Silence** will be automatically selected. This makes it easier to recognize the key ranges that have samples assigned to them when you start assigning samples. You can actually choose any program or keymap you want to start with, but by choosing these, you are starting with a “blank slate.”

With the Keymap parameter still selected, press the **Favorite1** button, and you'll enter the Keymap Editor. The Key Range parameter will be automatically selected, and you see its values: C 0 to G 10 (the entire MIDI keyboard range). The Sample parameter will have a value of **999 Silence-C 4**.

Now you're ready to start assigning samples to key ranges within the keymap. We'll assume that you've loaded samples with roots at C 1, C 2, C 3, etc. and that you plan to assign a root to each octave. To begin, press the ASSIGN soft button. The display will prompt you to select a sample. Use the Alpha Wheel to scroll to one of your samples, or type its ID on the alphanumeric pad and press **Enter**. When you've found the sample you want to use, press the OK soft button. The display will say “Strike low key...” Trigger A 0 (MIDI note number 21, the lowest A on a standard 88-note keyboard). The display will change to say “Strike High Key...” Now trigger F 1 (MIDI note number 29). The display will return to the Keymap-editor page. The Key Range parameter will show A 0–F 1, and the Sample parameter will show the sample you selected when you started the range assignment.

Keymap and Sample Editing

Building a Keymap

Each sample in a key range is automatically transposed based on each sample's RootKey parameter so that it plays at the correct pitch on the keyboard relative to its root key (see [“Editing Samples” on page 9-11](#) for details on the RootKey parameter). Other keys within the key range transpose the sample chromatically relative to the root key. Automatic transposition based on each sample's RootKey is important if you want your sample to play in tune with other Forte programs or other instruments. The Forte makes this easy if your samples have the correct RootKey settings (as the Forte's factory samples do). Generally you should set a keyrange so that the sample's RootKey (displayed at the end of the sample name) is in the middle of the range. If you set a key range that does not cover the sample's RootKey, the sample will have to automatically transpose by many semitones, and will likely not sound correct. Samples are also limited to an octave of upward transposition from the sample's original pitch. If you set a keyrange too high based on the Root Key, some samples may not be able to transpose upward far enough to play in tune, and many keys may play the same note (the highest note that the sample can be transposed to). Automatic transposition relative to the root key can be offset using the Coarse Tune and Fine Tune parameters on the Edit Keymap page (see [Coarse Tune](#) and [Fine Tune on page 9-6](#)).

Continuing with the example, press the ASSIGN soft button again. Select another sample root at the prompt, and press the OK soft button. Now trigger F# 1 for the Low Key prompt, and F 2 for the High Key prompt. At this point you've defined two key ranges, the first from A 0 to F 1, and the second from F# 1 to F 2. You can repeat the process as many times as you want, creating a new key range each time.

Once you have your samples assigned, you may need to transpose them so that they play back at the correct pitch within the range you have chosen. To do this, highlight the Key Range parameter, scroll to the range you need, then highlight the Coarse Tune parameter. Adjust Coarse Tune to bring the sample to the proper pitch within that key range. Then scroll back up to the Key Range parameter, select the next range, and continue as needed.

Here's a fairly important point that may or may not affect your keymap construction. Suppose you want to build a keymap that uses the same sample in several adjacent key ranges, and you plan to add a bit of detuning to the samples in each range. You might think that you could build the keymap first, then go into the Sample Editor and tweak the sample settings of each keyrange when the keymap is finished. Yes, but...

Suppose you used the technique we described above to assign a vocal sample whose root was C 4 to a key range from A 3 to E 4. Then you assigned the same sample to a key range from F 4 to B 4. You might be surprised to find that when you finished the F 4–B 4 key range and the Keymap-editor page reappeared, the current key range would not be F 4 to B 4, but A 3 to B 4! This is because the Forte automatically merges adjacent key ranges that are identical (this is done to save memory). Therefore, some parameter must be different in each adjacent key range you create if you want to build keymaps using the technique we just described. So if you want to use the same samples in adjacent key ranges with, for example, minor pitch or volume modification, you should make those changes to the current sample on the Keymap-editor page *before* assigning the next range.

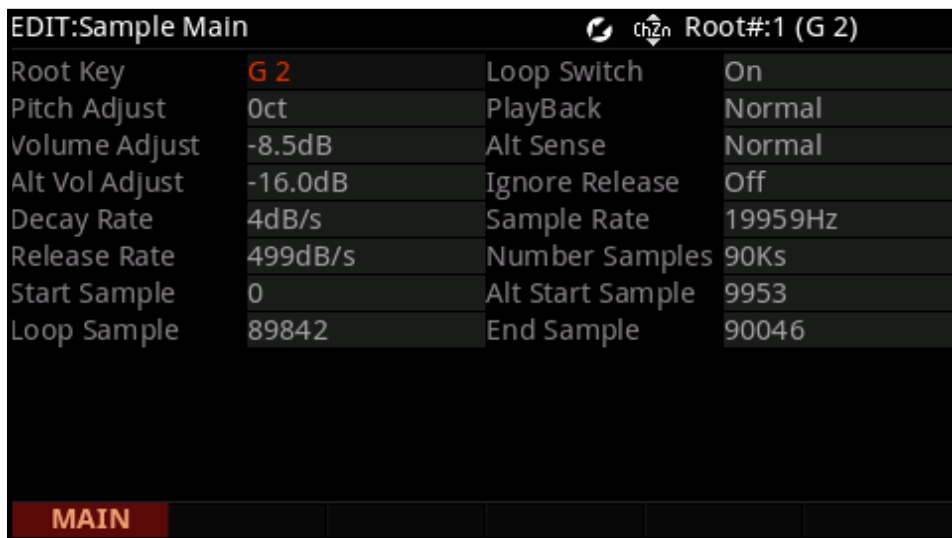
Editing Samples

To enter the Sample Editor, first select the program you wish to edit in Program mode. With the program selected, press the EDIT soft button to enter the Program Editor. In the program editor the KEYMAP page will be selected (if not press the KEYMAP soft button). With the KeyMap parameter selected on the KEYMAP page, press the **Favorite1** button again to enter the Keymap Editor. On the Edit Keymap page, select the KeyRange parameter and use the Alpha Wheel or **Previous-/Next+** buttons to choose one of the available key ranges (if there is more than one keyrange). You can edit the existing sample of a keyrange, or choose a new sample for the keyrange and edit that. When the Keymap parameter is selected you can hold the **Enter** button and trigger notes to select different key ranges.

If you want to select a different sample, use the cursor buttons to select the Sample parameter. Use the Alpha Wheel to select a sample. Press the **Favorite1** button once more, and you'll enter the Sample Editor. The sample will play through the effects of the current program. The name of stereo samples end with an **S**. To use a stereo sample, the [Stereo](#) parameter must be set to On in the Program Editor, and two keymaps must be selected, see [The KEYMAP Page on page 7-23](#).

The Sample Edit Main Page

On the Sample Main page, you'll set several parameters that affect the behavior of the current sample. These parameters affect the entire sample. The right side of the top line displays the root number and RootKey of the sample. For stereo samples, **L** or **R** is displayed after the Root# parameter to indicate that you are viewing parameters for the left or right channel of the sample. Use the **Channel/Zone** buttons to move between channels of stereo samples. Although you can edit parameters for the left and right channels of a sample, both channels can only be heard if the [Stereo](#) parameter is set to On in the Program Editor, and the same keymap is selected for the Keymap1 and Keymap2 parameters in the Program Editor. If the Stereo parameter is set to Off in the Program Editor, only the left channel of stereo samples will be heard in mono. If the sample is part of a group of sample roots, you can also use the **Channel/Zone** buttons to scroll through each sample in the group. A representative page is shown below:



Parameter	Range of Values
Root Key Number	C -1 to G 9
Pitch Adjust	Variable (depends on sample rate)
Volume Adjust	-64.0 to 63.5 dB
Alternative Volume Adjust	-64.0 to 63.5 dB
Decay Rate	0 to 5000 dB per second
Release Rate	0 to 5000 dB per second
Loop Switch	Off, On
Playback Mode	Normal, Reverse, Bidirectional
Alternative Sample Sense	Normal, Reverse
Ignore Release	Off, On

Root Key

The root key represents the keyboard key at which the sample will play back without transposition (that is, at the same pitch as the pitch of the original sample). Use the **Previous-/Next+** buttons or Alpha Wheel to select a RootKey note, or use the alphanumeric pad followed by the **Enter** button to enter a RootKey by MIDI note number.

Pitch Adjust

Use this parameter to change the pitch of the sample relative to the key from which it's played. Setting a value of 100cts, for example, will cause the sample to play back one semitone higher than normal. This parameter is handy for fine tuning samples to each other if they're slightly out of tune.

Volume Adjust

Uniformly boost or cut the amplitude of the entire sample.

Alternative Start Volume Adjust (AltVolAdjust)

This parameter sets the amplitude of the sample when the alternative start is used. See [Alt Control on page 7-25](#) for details.

Decay Rate

This parameter defines how long the sample takes to decay (fade) to zero amplitude (silence). Decay Rate affects each sample individually, and is in effect only when the amplitude envelope for the program (the Mode parameter on the AMPENV page in the Program Editor) is set to Natural. If Mode is User, the settings on the AMPENV page override the setting for DecayRate.

DecayRate takes effect in the loop portion of the sample, after all the attack stages of the amplitude envelope are complete.

Release Rate

The release rate determines how long the sample will take to decay to zero amplitude when the note trigger is released. The higher the value, the faster the release rate. This release affects each sample individually, and is in effect only when the amplitude envelope for the program (the Mode parameter on the AMPENV page in the Program Editor) is set to **Natural**. In this case, the release begins as soon as the note is released. If Mode is **User**, the settings on the AMPENV page override the setting for ReleaseRate.

To create an extended sample loop that will play data after the sample's loop on key-up, set the Alternative Start sample pointer after the sample end pointer, then set a relatively low value for the release rate.

Keymap and Sample Editing

Editing Samples

Loop Switch

This parameter activates or deactivates the looping of the currently selected sample. When set to On, the sample will loop according to the settings on the TRIM page. When set to **Off**, the sample will play through to its End point and stop.

Playback Mode (Playback)

This parameter lets you modify the direction in which the sample is played. Set it to a value of Reverse if you want the sample to play from its End point to its Start point. Choose a value of Bidirectional to cause the sample to play from Start to End, then reverse direction and play again from End to Loop and back, repeating until the note trigger is released (this works only when the Loop Switch parameter is set to **On**).

Alternative Sample Sense (AltSense)

This provides a convenient way to activate the alternative start of a sample. When set to Normal, the alternative start will be used when the Alt Switch control is On (this is set on [The KEYMAP Page](#)) or when the control source assigned to it is above its midpoint. When set to Reverse, the alternative start will be used when the Alt Switch control is Off, or when the control source assigned to it is below its midpoint.

Ignore Release (IgnRelease)

When set to a value of Off, the sample will release normally when the note trigger is released. When set to On, the note will not release, even when the note trigger is released. This setting should be used only with samples that normally decay to silence; non-decaying samples will play forever at this setting. This parameter is equivalent to the IgnRelease parameter on the LAYER page, but affects only the currently selected sample.

SampleRate and NumSamples

These parameters cannot be edited, but show the sample's sample rate and the sample's length in samples. Samples that are longer than 1 million samples are displayed as 1Ms.

The Sample Trim parameters below let you set the Start, Alternative Start, Loop, and End points of the current sample. The right side of the top line displays the root number of the sample. If the sample is part of a group of sample roots, you can use the **Channel/Zone** buttons to scroll through each sample in the group.

Selecting these parameters and adjusting their values enables you to modify how the sample plays back when notes are triggered. Each of these parameter points are expressed in individual samples. For example, a one second sample at a sample rate of 44,100Hz would have 44,100 values available to adjust for each of these parameters.

Start

The Start point determines the beginning of the current sample. You can truncate the beginning of the sample by increasing the value of the Start parameter. You might do this to remove silence at the beginning of a sample, or to remove some or all of the attack. You can't decrease the Start point of samples below zero.

Alternative Start

The Alternative Start parameter lets you set a second, optional start or end point for the current sample. The Alternative Start will be used when the Alt Switch parameter on the KEYMAP page is set to On, or when it's set to a specific control source and that control source is generating a value of more than +.5. (For example, if you assign MWheel as the control source for the Alt Switch parameter, the Alternative Start will be used when the Mod Wheel—or whatever control source you have set to send MWheel—is above its halfway point.) The Alternative Start can be set before, after, or at the same point as the Start or End.

If you set the Alternative Start after the End, you can extend the play of looped samples. Normally, looped samples will play through to the End, then will loop back to the Loop point, and continue looping like this until the note is released, when they go into their normal release. If the Alternative Start is set after the End, looped samples will loop in the same way while notes are sustained. As soon as you release the notes, however, the samples will play through to the Alternative Start point before going into release.

Loop

The Loop parameter sets the beginning of the looped portion of the current sample. The Loop can be set at any point before the End, including before the Start and Alternative Start. If you try to move it after the End, the End will move with it.

End

The End parameter sets the point at which the current sample will stop playback. Typically you'll use this parameter to trim unwanted silence off the end of a sample, although you can use it to shorten a sample as much as you want.



Note On Saving Samples: Trimmed portions of a sample are not saved. Trimmed portions before the Start, or Alternative Start points. Trimmed portions of a sample saved to a user ID will be deleted. Trimmed portions before the Start or Alternative Start points (whichever has a lower value) will be lost upon saving to a user ID, and whichever parameter had a lower value will have a value of zero the next time it is loaded (values for all other sample point parameters will be adjusted relatively). Trimmed portions after the Alternative Start or End points (whichever has a higher value) will be lost upon saving to a user ID. The original untrimmed sample is always available by selecting the sample's original factory ID number. Saving trimmed factory samples to user IDs will not change the sound of factory samples, keymaps, or Programs.

Chapter 10

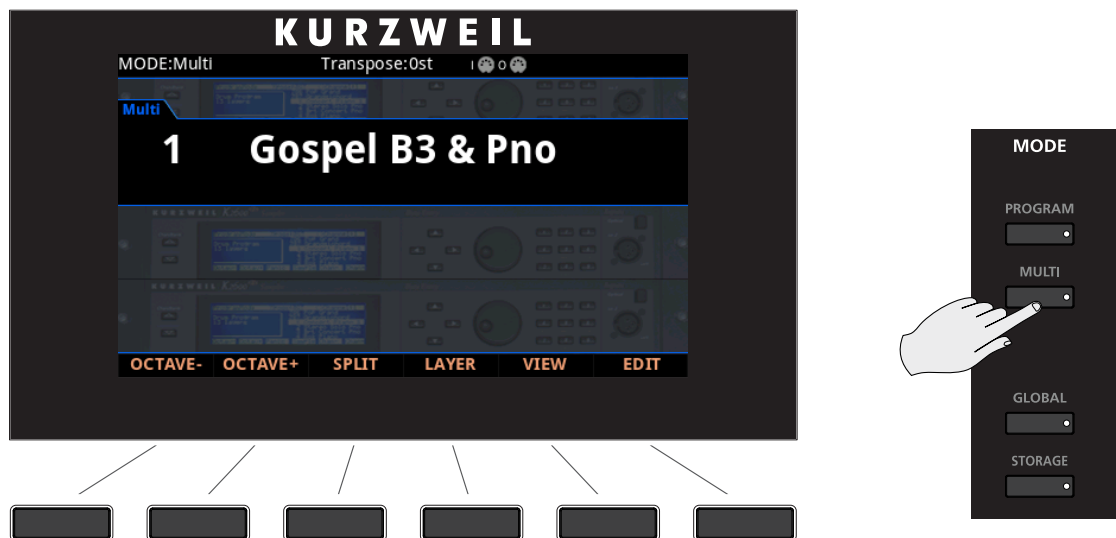
Multi Mode

This chapter will help familiarize you with the features of Multi Mode.

Multis are configurations of 4-16 Zones (explained below in [About Multi Mode](#)), each of which may have its own Program, controller assignments, and MIDI transmit channel. A Zone can also be configured to control an external sound module or computer software through a MIDI or USB cable.

About Multi Mode

To enter Multi Mode from another Mode, press the Multi Mode button.



While you are in Multi Mode, the Multi button's indicator LED is illuminated.

When you enter Multi Mode after powering on the Forte, Multi 1 will be selected, or the Multi that was selected the last time Global mode was exited.

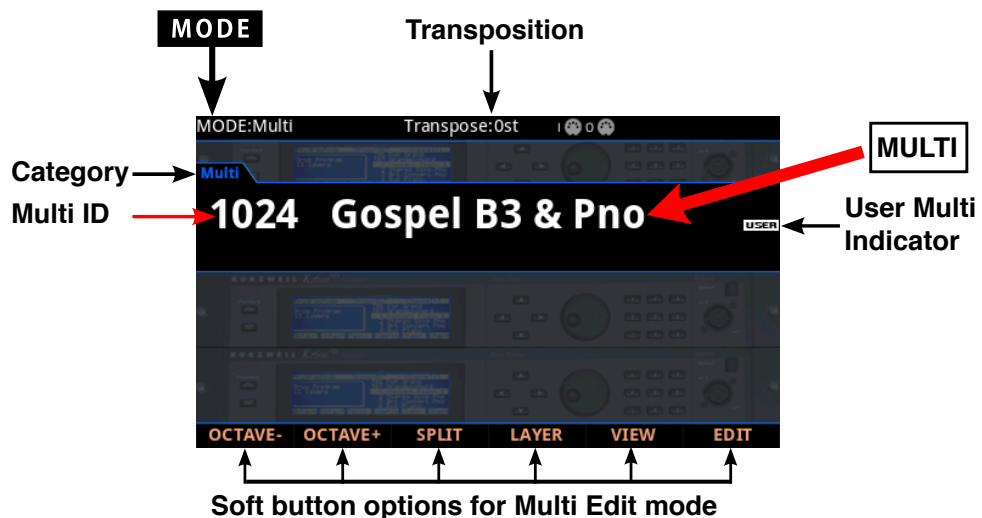
Selecting Multis

When you are in Multi Mode, there are a few ways to select Multis.


- The Alpha Wheel, Next and Previous buttons and the Cursor buttons allow you to advance through the Multis one at a time.
- Typing in a Multi ID with the keypad function of the Category buttons, followed by pressing the Enter button.
- Pressing the User Button goes to the first saved user Multi.
- If a Multi is assigned to a Favorite Button, pressing that button will go directly to the assigned Multi, changing Modes if necessary.

The Color Display

In Multi Mode, the top line of the display shows the current Mode, MIDI transposition, and MIDI In/Out activity indicators. If Favorites view is selected and the Global Mode User Type parameter has been set to Advanced, the current Favorites Bank number will be shown in the top right corner of the screen.



If the currently selected Multi is a User Multi, the “USER” indicator will appear to the right side of the Multi ID number and name.

 **NOTE :** The display can be changed to an alternate layout by pressing the “VIEW” soft button, or by changing the “Display” parameter in Global Mode.

Pop-Up Messages

Some actions cause the display to show pop-up messages. After a short time the display returns to show the current Multi.

MIDI In/Out Activity Indicators

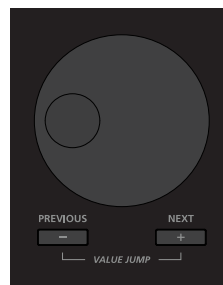
MIDI In/Out activity indicators are displayed at the top of the screen (shown as 2 MIDI port symbols with “I” for “in” and “O” for “out”). These indicators briefly light up when MIDI has been recently sent to or received by the Forte’s MIDI/USB ports. If the symbol is green, this indicates there has been MIDI activity on that port in the last few seconds. If the symbol is red, this indicates there has been communication with the external software editor on that port in the last few seconds. If the symbol is grey, this indicates there has been no MIDI activity on that port in the last few seconds.

Zone Info

See [Show Zone Info on page 12-5](#) to enable the Show Zone Info parameter, which allows you to see additional information for each Zone from the Multi select page.

Alpha Wheel & Previous (–) and Next (+) Value Buttons

Use the Alpha Wheel or the Value buttons (to the right of the display below the Alpha Wheel) to change the current Multi. Turning the Alpha Wheel counter-clockwise or pressing the Previous button will select the previous Multi, and turning the Alpha Wheel clockwise or pressing the Next button will select the next Multi. When the highest or lowest Multi is reached, the list will wrap back to the first or last Multi, respectively.



Value Jump Buttons

In Multi Mode, the Value Jump double button press increments the Multi IDs by 10 with each press. If the currently selected Multi is ID 4, using the Value Jump double button press will select Multi ID 14. If pressed again, Multi ID 24 will be selected, and so on. When the end of the Multi list is reached, a Multi at the beginning of the list will be selected.

Multi Mode

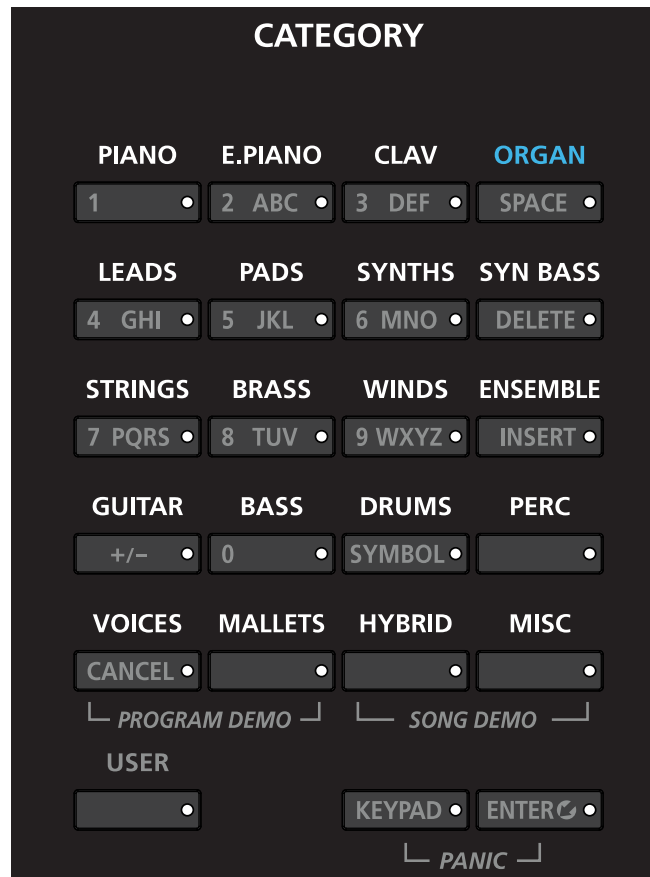
Selecting Multis

The Cursor Buttons

Use the Cursor buttons (to the right of the display) to change the current Multi. The Right and Down arrowed buttons will increment the current Multi, and the Left and Up arrowed buttons will decrement the current Multi.

Category Buttons

In Multi Mode, Multis are not organized by category. Because of this, the Keypad button LED is always lit in Multi Mode, and the category buttons function as a numeric keypad. To select a Multi by ID number, use the keypad function of the Category buttons to type an ID number, followed by pressing the Enter button.

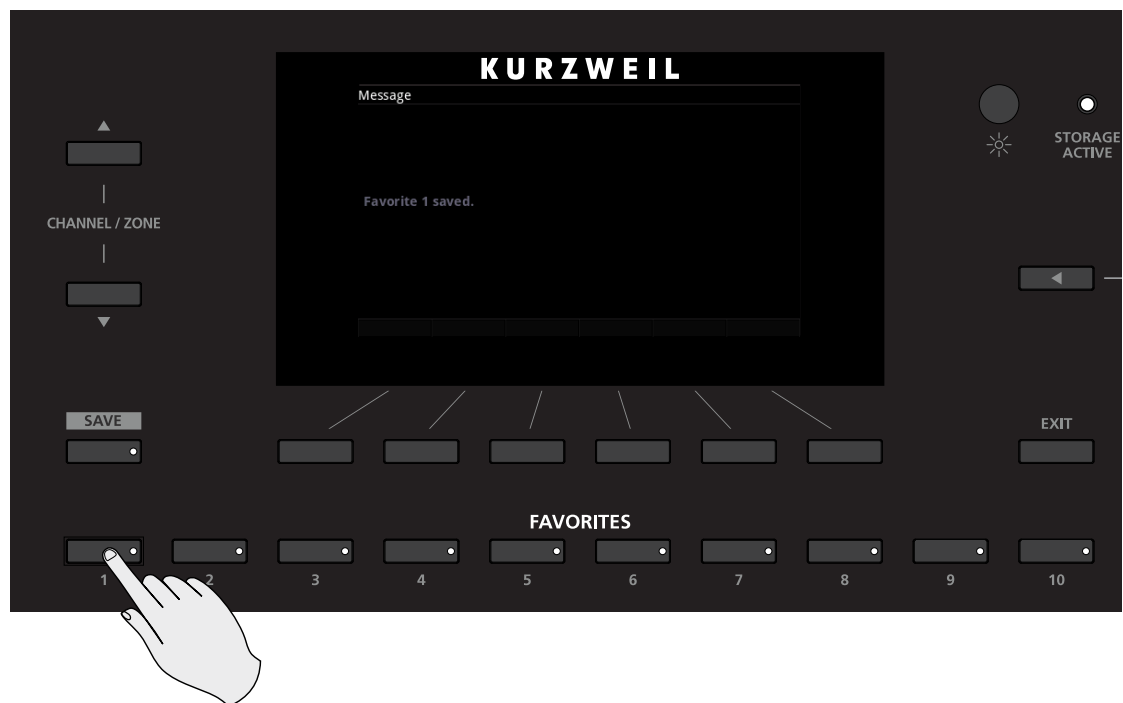


Choosing Favorites

You can save ten Favorite Multis (or Programs) from any Category to the ten Favorite Buttons beneath the display. Once saved, these favorite Multis can be recalled from any Mode with a single button press.

To save the currently selected Multi to a Favorite Button, press and hold a Favorite Button until the display shows a message indicating the favorite has been saved.

If a Favorite button has a Program saved to it and is pressed, Forte will leave Multi Mode and enter Program Mode.



Favorites View and Favorites Banks

To view the names of Programs and Multis stored as Favorites, press the VIEW soft button until you see the Favorites listed at the bottom of the display, or set the Global Mode “Display” parameter to “Favorites.”

If Favorites view is selected and the Global Mode User Type parameter has been set to Advanced, you can use the Channel/Zone buttons to scroll through up to 100 banks of 10 Favorites, allowing you to save and access 1000 Favorites. When Favorites view is selected and the Global Mode User Type parameter has been set to Advanced, the current Favorites Bank number will be shown in the upper right hand corner of the screen. A double press of the Channel/Zone buttons selects bank 1.

The Favorites bank name is also displayed. User edited Favorites banks can be renamed, for details see [Favorites Banks on page 12-29](#).

About Zones

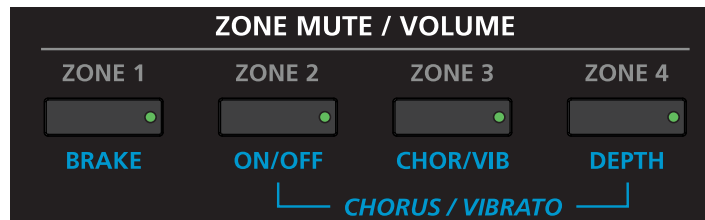
Zones are the independent regions of the keyboard that make up a Multi.

A Multi has 4-16 Zones, each one having its own Program, controller assignments, and MIDI transmit channel. Zones can be mutually exclusive regions of the keyboard, or they can overlap. A Zone can also be configured to control an external sound module or computer software through a MIDI or USB cable.

Muting Zones

Pressing a Zone button will mute or unmute the Zone.

An active/unmuted Zone button has a lit green LED. The LED of an inactive/muted Zone button is not lit.



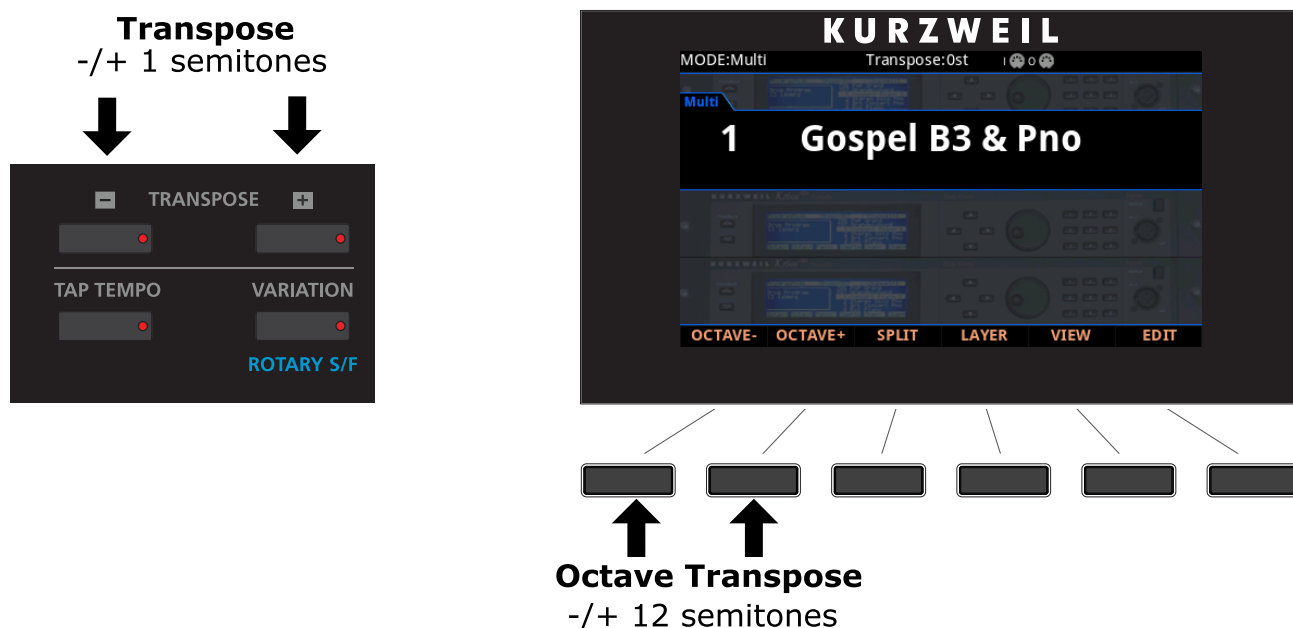
Transposition

The Transpose buttons can be used to change the tuning of notes played on the Forte keyboard in semitones (ST), also known as half-steps. This is a convenient way to change the key of a song without learning to play it in a different key. The Transpose buttons are located to the left of the keyboard, above the Pitch and Mod Wheels. The Transpose buttons also transpose MIDI notes sent to the USB and MIDI out ports.

Press the Transpose - or + buttons to transpose the Forte keyboard down or up by one semitone. The top line of the display shows the current transposition value.

Pressing both Transpose - and + simultaneously will reset the transposition to 0.

To transpose up and down by octave intervals (12 ST), press the OCTAVE- and OCTAVE+ soft buttons underneath the display.



The maximum transposition value possible is ± 36 semitones.

The LEDs of the Transpose buttons indicate whether the current Multi is transposed up (Transpose + LED is lit) or transposed down (Transpose - LED is lit). When there is no transposition, neither Transpose button is lit.



NOTE : Transposition is applied to all Programs in the Zones within the Multi. The Zone layout on the keyboard however still remains fixed.

Multi Mode

Controller Parameter Assignments

Controller Parameter Assignments

In Multi Mode, each Multi has factory-set Program and Effect parameters assigned to physical controllers (Sliders, Switch buttons, Mod Wheel, and Pedals). A controller parameter assignment can modify an instrument sound during a performance to add variation or expression. Moving a controller changes the value of the parameter. Any time you do this, the display shows the controller name, assigned parameter, and value.



NOTE : Parameter assignments may not be visible if the VIEW soft button has been pressed, or the “Display” parameter in Global Mode has been changed.

Controller Conventions

In Multi Mode, the Zone Mute Switches above Sliders A through D control the Active/Muted status of Zones 1 through 4. In the Factory Multis, Sliders A through D generally control the volume for Zones 1 through 4. Sliders H and I generally control Delay and Reverb amount. The remaining Sliders and Switches generally control various effects and synthesis parameters.

The Split and Layer Soft Buttons

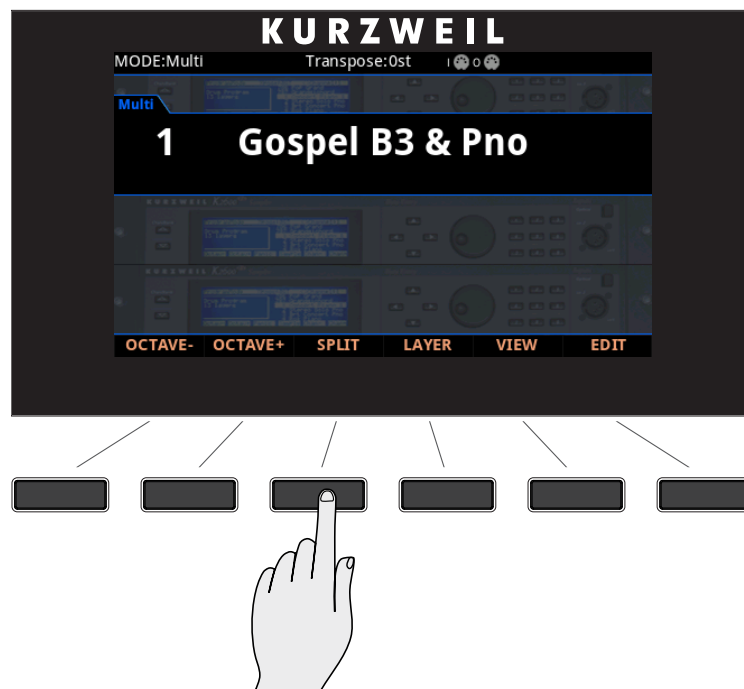
The soft buttons SPLIT and LAYER perform slightly different functions, but offer identical parameters.

The Split Function allows you to split Programs such that keys in one region of the keyboard produce different sounds than another region. The Layer Function allows you to layer Programs and Multis such that more than one sound can be produced by striking one key.

You do not need to use Multi Edit Mode to configure Zone key ranges, Programs and volumes. Simply hit the soft button while in Multi Mode to select the Function. You can then configure additional Zones, each of which may have its own Program and controller assignments. The result may be saved as a new Multi.

There are five parameters, described below, that determine the behavior of the Split or Layer. Use the cursor buttons to access each of the parameters for each active Zone.

The Split Function



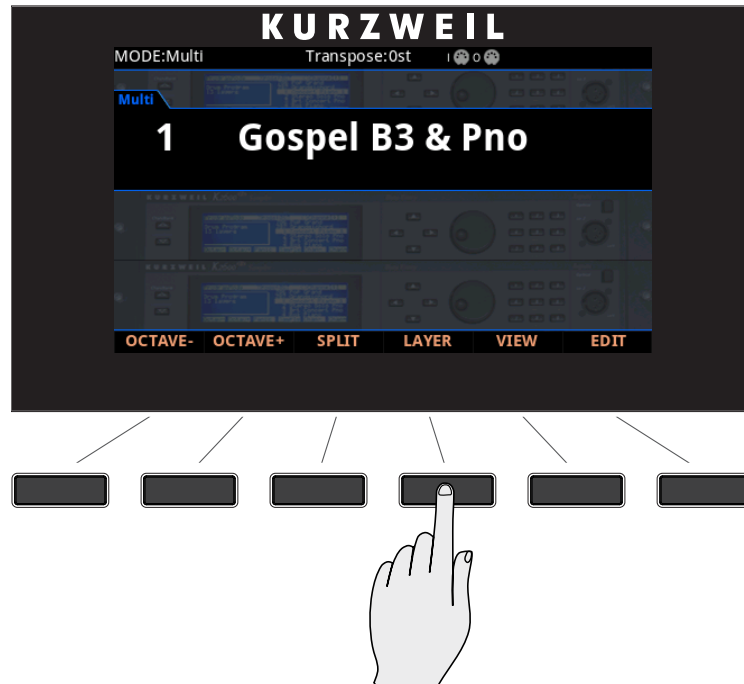
When you create a Split in a Multi, you are in fact activating a new Zone within the current Multi. If the current Multi already has its maximum number of active Zones and you press the Split Function soft button, then a message will appear on the display indicating that you have reached the maximum number of active Zones. Once you have saved your Split, you can continue to add Split or Layer Zones to the Multi until you reach the maximum number of active Zones.

Multi Mode

The Split and Layer Soft Buttons

When you press the Split button, and the Forte automatically activates another Zone in the Multi for you. The previously active Zones will keep their previously assigned keyboard ranges. After this you can choose a Program that will be used in the left hand as a Split Program for the newly activated Zone.

The Layer Function



When you create a Layer in a Multi, you are activating a new Zone within the current Multi. If the current Multi already has its maximum number of active Zones and you press the Layer Function soft button, then a message will appear on the display indicating that you have reached the maximum number of active Zones. Once you have saved your Layer, you can continue to add Layer or Split Zones to the Multi until you reach the maximum number of active Zones.

Split and Layer Parameters

Zone Status

Selecting Split or Layer makes a new Zone active. You can continue to add Zones to the Multi by activating additional Zones with the Stat parameter or the front panel Zone buttons. The Forte will display a message if you have already reached the maximum number of active Zones (see [About Zones on page 10-6](#) for more information on Zones).

Program

The Program parameter for the first available Zone determines the Program for the left-hand side of the Split, also known as the “Split Program”. This parameter is selected by default when performing the Split function, and the default Split Program (245 Finger Bass) will be selected. Choose a Split Program using the Category buttons, the Alpha Wheel, the Previous/Next buttons, or enable the Keypad button and type an ID number followed by the Enter button.

Volume

To change the volume of a Zone, use the cursor buttons to select the Volume parameter for one of the Zones. To set a volume, use the Alpha Wheel, the Previous/Next buttons, or use the keypad function of the Category buttons to type a volume (0-127) followed by the Enter button.

A value of “None” will use the last volume value used by the Zone’s MIDI channel (often set by the expression pedal). A value of “None” can be entered by scrolling below 0, or by using the keypad function of the Category buttons to type negative 1 by pressing the small +/- button and then the 1 button, followed by the Enter button.

Key Range

You can adjust the boundary between the left and right hand Programs on the keyboard by adjusting the Key Range low and Key Range high parameters for each Zone. The keyboard display for each Zone shows a visual indication of the Key Range by dimming keys that are outside of the Key Range.

To change the Key Range of a Zone, use the cursor buttons to select the Key Range low or Key Range high parameters for one of the Zones. Key Range low and Key Range high are the left and right parameters, respectively, below the Key Range label. With one of these parameters selected, set the Key Range by using the Alpha Wheel, the Previous/Next buttons, or use the keypad function of the Category buttons to type a key number (0-127) followed by the Enter button. With Key Range low or Key Range high selected, the value can also be changed by holding the Enter button, then pressing the desired key.

Multi Mode

The Split and Layer Soft Buttons

Pan

To change the panning of a Zone (left/right stereo placement), use the cursor buttons to select the Pan parameter for one of the Zones. To set a Pan value, use the Alpha Wheel, the Previous/Next buttons, or use the keypad function of the Category buttons to type a pan value (0-127) followed by the Enter button. A value of 0 is full left, 64 is center, and 127 is full right. Other values will move the stereo placement in between these positions.

A value of “None” will use the last pan value used by the Zone’s MIDI channel. A value of “None” can be entered by scrolling below 0, or by using the keypad function of the Category buttons to type negative 1 by pressing the +/- button and then the 1 button, followed by the Enter button.

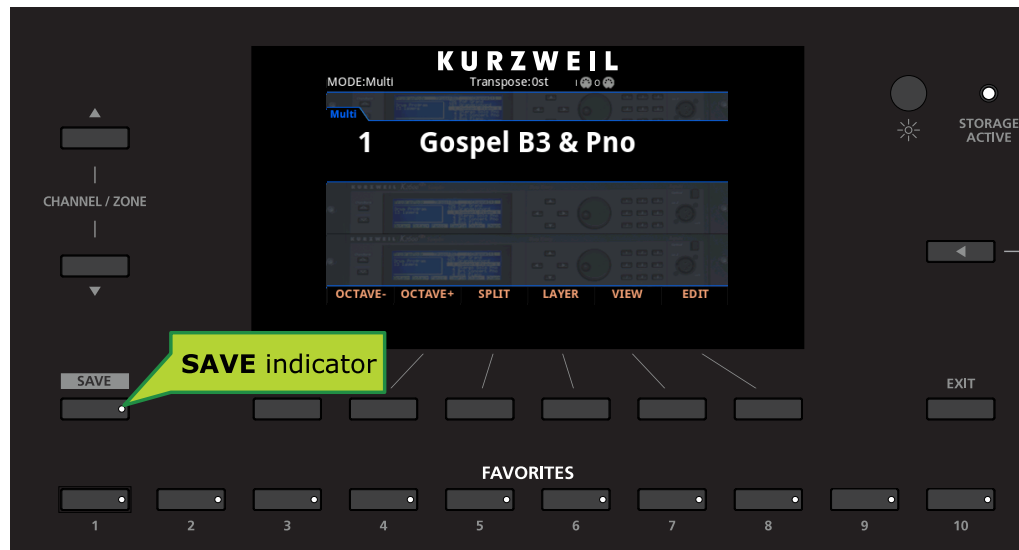
Saving a Split or Layer

After setting the Split parameters, press the Save button to the left of the display to begin the saving process. A Multi name is automatically created using half of the Zone 1 Program name and half of the Zone 2 Program name. This name can be edited during the saving process. See [Save User Multis](#) below for details on saving.

Once you have saved your Split or Layer, you can continue to add Zones to the Multi until you reach the maximum number of active Zones. Also, once you have saved your Split, you can use Multi Edit Mode to edit controller assignments (like effects controls and sustain pedal per Zone), transposition per Zone, and other Multi parameters. (See [Multi Edit Mode on page 11-1](#) for details.)

Save User Multis

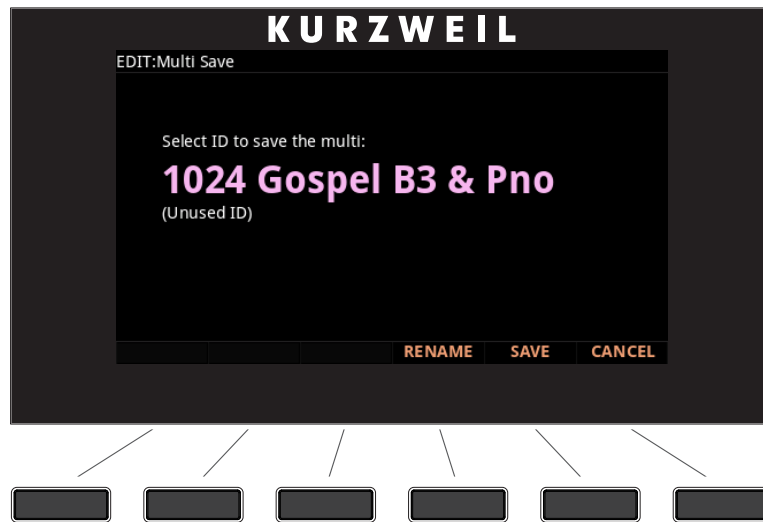
To save changes to the current User Multi, or to save a changed Factory Multi as a User Multi, press the Save button once.



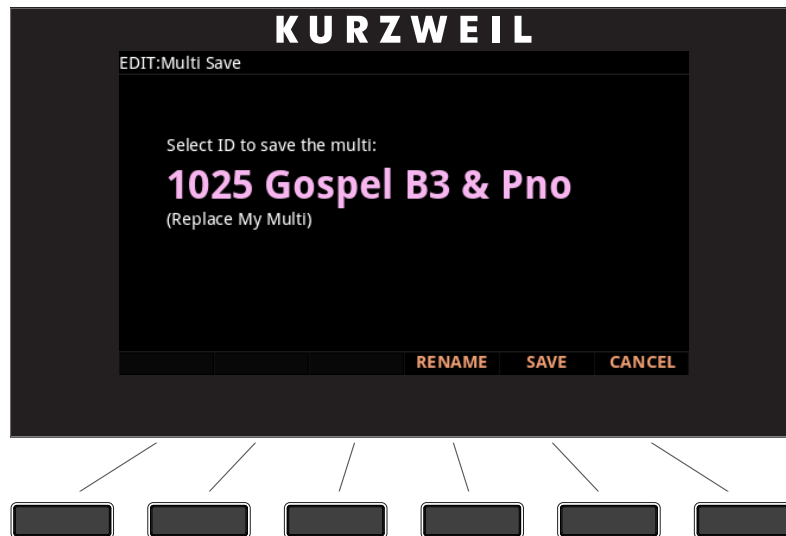
You can save Multis with ID numbers from 1024 to 4095. If you are saving a Multi that has not been previously edited, the next available unused ID number will be selected. If you are saving a previously edited User Multi, the ID number that the Multi was last saved with will be selected. Press the Value Jump double button press (Previous + Next) to toggle between selecting the ID number that the Multi was last saved with and the next available unused ID number. When viewing the Save Dialog, you can quickly save the Multi to the displayed ID number by pressing the Save button again.

Changing ID Numbers

To change the ID number, turn the Alpha Wheel or use the Value buttons to select the new ID number. The label underneath indicates if it is an “Unused ID”. You can also use the keypad function of the Category buttons to type an ID number, followed by pressing the Enter button.



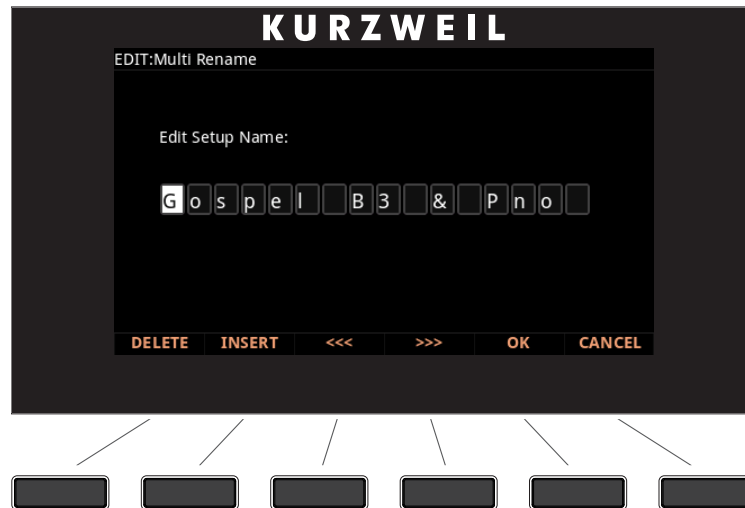
If you select an ID currently in use, the display will indicate if you want to “replace” the Multi currently in that location. The Multi name and ID is indicated.



Confirm overwriting of the existing Multi by pressing Save, or choose a different ID.

Naming a User Multi

To rename the Multi, first press the Rename soft button. You will see the naming screen in the display.



The display shows the current Multi name. Multi names can total 16 characters in length. Use the letters and numbers printed on the Category buttons to enter the new Multi name. Rotating the Alpha Wheel or using the Value buttons can also change the Multi name.

Use the Left/Right cursor buttons or <<< >>> soft buttons to move the cursor. Press the +/- button to switch between upper and lower case characters (all characters will be upper case until you press the +/- button again).

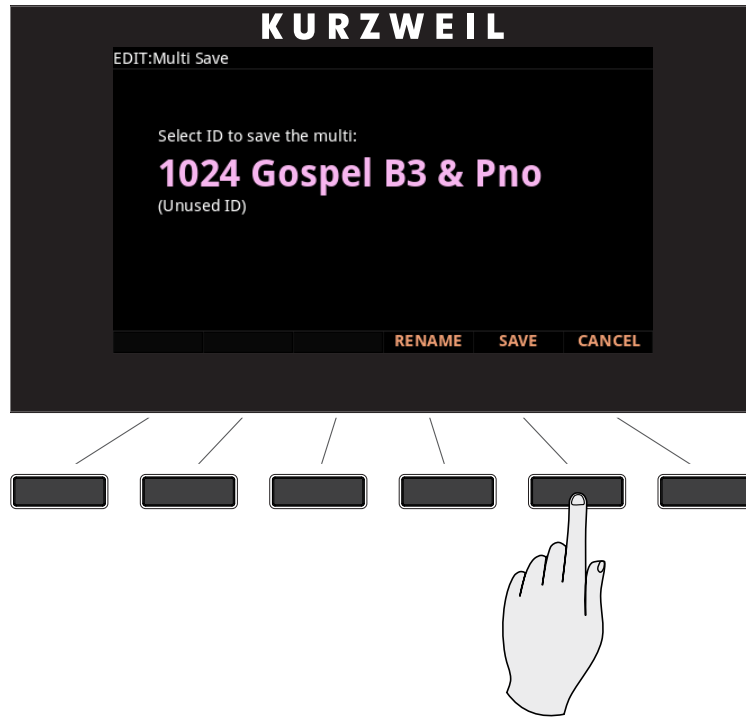
Use the Space button to change the current character to a space, the Insert button to insert a blank space (the selected character and all characters to the right will move one space to the right), and the Delete button to delete the current character (all the characters to the right will move one space to the left).

Multi Mode

Save User Multis

Saving a User Multi

Press the Save button or Save soft button to complete the saving process, or press the Cancel soft button to exit without saving. After successfully saving, the Multi will be selected in Multi Mode. To find the Multi again later, press the User button and scroll to the Multi ID. You can also type the Multi ID number, then press the Enter button.



Recording A Multi To Song Mode

The MIDI output of a Multi can be recorded to a song in Song mode. Each MIDI channel that is output from a Multi is recorded into each track of a song (if the tracks have corresponding MIDI channels.) Programs from each zone of your Multi are automatically assigned to tracks in Song mode. Follow these steps for proper recording of a new song from a Multi:

1. Press the Global Mode button to go to the Global Main 1 page. Set the User Type parameter to Advanced, and make sure the Song Rechannel parameter is set to Auto. When recording, this will enable recording on all song tracks/channels.
2. In Global Mode, press the MAIN2 soft button, then set the S.Buttons 1-2 parameter to Record/Play.
3. In Global Mode, enter Song mode by pressing the SONG soft button.
4. On the Song mode MAIN page, select 1 New Song in the Song field by entering 1 on the alphanumeric pad and pressing the Enter button. This loads a default empty song.
5. Press the Multi Mode button to enter Multi Mode and choose the desired Multi.
6. Press the left and right cursor buttons simultaneously to reach the TEMPO Page. Enter a tempo by tapping the Tap Tempo button or enter a tempo in the Tempo field. When you are finished, press the Exit button to return to the Multi mode main page.
7. Press the RECORD soft button and then the PLAY soft button to begin recording. The metronome will count off 1 bar and then recording will begin (you can set metronome and other recording settings in Song mode).
8. Press the PAUSE soft button to stop recording. You will see a Save New Recording dialog where you can review, save, or discard the performance you just recorded. To retry your recording, press the DISCARD soft button, then go back to step 7.
9. On the Save New Recording dialog, press the SAVE button to begin saving the song. Select an ID to save the song, rename the song if desired, then press SAVE again to complete saving the song. After saving your song, you will be returned to the Multi mode MAIN page. If you wish, you can now record additional overdub performances by going back to step 7. You can also go to Song Mode to listen to the song or perform additional recording or edits while in Song Mode.

Additional Editing in Song Mode

You can go to Song Mode and edit the song you recorded just as you would with any other song (see [Song Mode on page 13-1](#) for details.) Each program from each zone in your Multi is automatically assigned to a track (change the Rec Track parameter in order to select and record to a single track.) You can also continue to record from Multi mode by going back to step 5, above. Remember to set the tempo (step 6 above) before recording, if your Multi is saved with a different tempo than the song.

Notes About Recording A Multi To Song Mode



Tempo: The tempo of a Multi is set on the Multi COMMON page. If you plan to record a song from the same Multi several times, it is convenient to set your desired tempo on the COMMON page and save it with your Multi. By doing this, you will not need to reset your Multi tempo to the desired song tempo every time you load your Multi (as in step 6, above.)

Riffs: If you are using Riffs in your Multi, do the following to make each Riff play at your Multi's tempo (which also becomes your song's tempo). For each zone that has a riff, go to the Multi Edit RIFF page and set the **Riff Tempo** parameter to **Multi**. Remember to save changes to your Multi when exiting the Multi Editor.

Effects: When recording a Multi into Song mode, the song will not retain the Aux or Master effects settings of your Multi. If you would like your song to use the same effects as your Multi, copy the settings of your Multi's FX page to the FX page in your song. Alternatively, playing your song from Multi mode will allow you to hear the effects. To do this, load your song, press the **Multi** Mode button to enter Multi mode and choose your Multi, then press the **PLAY** soft button. This will play your song from Multi mode, and the effects will be intact.

Mono Pressure: When recording a Multi to Song mode with **Mult** selected for **Rec Track** in Song mode, you may notice that every track has recorded Mono Pressure messages, even if there is nothing else recorded on a track. This is the result of mono pressure messages being transmitted from the keyboard, even if they are not controlling anything in the selected programs. If this bothers you, you can set the **MonoPress** parameter to **Off** on the Song Event Filter Recording page (see [The FILTER Page on page 13-18](#)). This will prevent Mono Pressure messages from being recorded to any track. Alternatively, you can erase Mono Pressure messages from specific tracks after recording. To do this, go to the Song mode Track page (see [The TRACK Page on page 13-20](#)). On the Track page, use the **Channel/Zone** buttons to choose the track to edit (visible in the **Track** field at the top right corner of the display.) Set the **Function** parameter to **Erase** and the **Events** parameter to **MonoPress**. Use the **From** and **To** fields to select the entire length of your song, and press the **Go** soft button to erase Mono Pressure messages from the selected track. Repeat this for each desired track. You can also choose **All** for the **Track** parameter to erase Mono Pressure messages from all tracks.

Controller Messages: When recording a Multi to Song mode with **Mult** selected for **Rec Track** in Song mode, you may often be recording more controller messages than you realize. This can happen because multiple Multi zones often respond to the same physical controllers. This is likely to be the case when you use a Multi created by duplicating zones and do not change the controller destination assignments for each new zone. Often this is the desired behavior, such as when using zones to create layers. For example, if zone one sends pitch bend messages from the pitch wheel, and you duplicate this zone to create a layered zone two, you will likely want the zone two to send the same messages from the pitch wheel. This way the pitch of these layered zones will bend simultaneously when using the pitch wheel. But say for example that you also have a zone three with a different key range than zones one and two, but which sends the same messages from the pitch wheel. While playing and recording your Multi, the function of the pitch wheel will be obvious, but some confusion

can arise when you have recorded your Multi and you proceed to record more tracks in Song mode. Because you have recorded with **Mult** selected for **Rec Track**, the track for zone three will have pitch bend messages recorded wherever zones one and two have bend messages, even if zone three was not playing any notes at that time. For example, lets say zones one and two were bending during bar 1. If you want to separately record zone three during bars 1 and 2, you will probably want to delete the existing bend messages from zone three's track. You can do this from the Song mode Track page (*see [The TRACK Page on page 13-20](#), and an example of its use in the Mono Pressure section, above*). Alternatively, if there is nothing to preserve on the track for zone three, you can record it with the song **Mode** parameter set to **Erase**, which will erase any existing events on the track during the time that you record. Just remember to change the **Rec Track** parameter to a single track number in order to record only to a single track.

Multi Mode

Recording A Multi To Song Mode

Chapter 11

Multi Edit Mode

About Multi Edit Mode



NOTE : Before you read this chapter, be sure to read Multi Mode on page 8-1 for a full description of Multis.

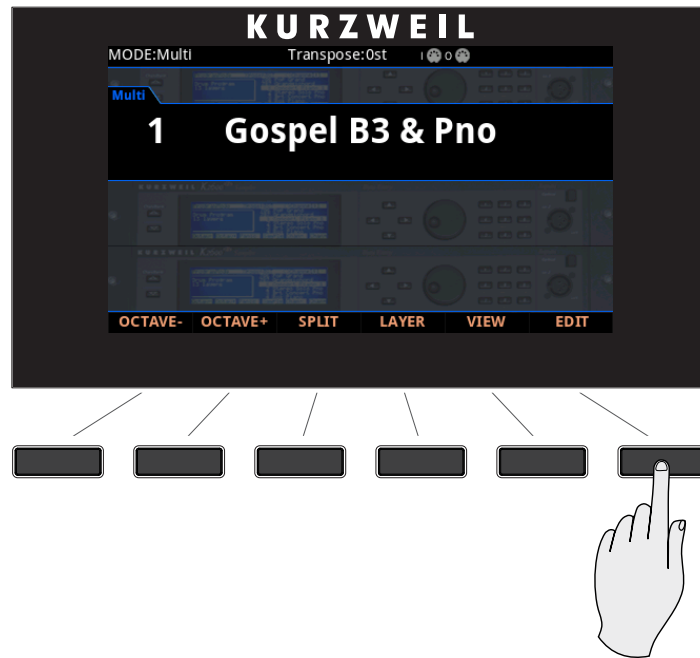
Multi Edit Mode allows you to edit and create Multis and gives you access to a Multi's Common parameters and Zone specific parameters. Multis are configurations of 4-16 Zones, each of which may have its own Program, controller assignments, and MIDI transmit channel. A Zone can also be configured to control an external sound module or computer software through a MIDI or USB cable.

In Multi Edit Mode, you can customize the Program, controller assignments, and MIDI transmit channel of the Zones in a Multi, in addition to many other parameters. Any Multi can be edited in Multi Edit Mode and saved to one of the 3072 User IDs.

To enter Multi Edit Mode, first press the Multi Mode button to enter Multi Mode, and then press the EDIT soft button.

Multi Edit Mode

About Multi Edit Mode



Once you are in Multi Edit Mode, press the soft buttons at the bottom of the screen to navigate to each of the Multi Edit Mode pages. See the sections below for details on navigating and changing parameters and Zones. All parameters apply only to the currently selected Zone, except for parameters on the Common Page and certain controller parameters, which apply to all Zones. On the Controls page, if a parameter is selected which applies to all Zones, “All Zones” will be displayed in the top right corner of the display.

User Type: Advanced

This Chapter primarily describes Multi Edit Mode when the User Type parameter on the Global Mode Main 1 page is set to Regular. Additional features are available when User Type is set to Advanced, and these features will be noted as such in each section of this chapter. See [“User Type” on page 12-6](#) for details on changing the User Type. Below is a summary of the features available when User Type is set to Advanced.

When User Type is set to Regular, Multi Edit Mode can access 4 Zones. When User Type is set to Advanced, you are able to add additional Zones and access up to **16 Zones** by using the **Channel/Zone** up/down buttons. On the Multi Edit Overview page, Zones will be shown in groups of 4: 1-4, 5-8, 9-12 and 13-16.

When User Type is set to Advanced, Zone function soft buttons appear including **NEW ZN** (new Zone), **DUP ZN** (duplicate Zone) which duplicates the currently selected Zone, **IMP ZN** (import Zone) which allows you to import a Zone from any Multi, and **DEL ZN** (delete Zone) which will delete the currently selected Zone. New, duplicated or imported Zones are added after the highest numbered Zone of the Multi. A Multi can have a minimum of 4 Zones.

When User Type is set to Advanced, the Zone Name parameter appears on the Multi Edit Main page. For details see [“Zone Name” on page 11-16](#).

When User Type is set to Advanced, the RIFF, CC SEQ, AUDIO IN, DELETE, and HELP soft buttons appear. For details see the sections at the end of this chapter.

When User Type is set to Advanced, press the **HELP** soft button (or the **Favorites 10** button) to view a list of the secondary functions of the Favorites buttons:

The **Favorites 1** button allows you to edit the currently selected Program on the Overview page, the currently selected **Aux Override Chain** on the FX page, the currently selected **FX Chain** on the Audio In FX page, or the currently selected **Shift Pattern, Velocity Pattern, or Duration Pattern** on the Arpeggiator page.

The **Favorites 2** button toggles between showing Pan/Volume and **ExitPan/ExitVol** on the Overview page. ExitPan and ExitVol are MIDI Pan (CC 10) and MIDI Volume (CC 7) messages that can be sent to each Zone’s MIDI channel when exiting the current multi by selecting another Multi or Program. These parameters can be set to a value of “None”, which sends no message. To select a value of none, scroll below 0 or type -1 followed by the Enter button.

The **Favorites 3** button solos the currently selected Zone.

Selecting Parameters

The Display

In Multi Edit Mode, the top line of the display shows the current Mode, Page, and current selected Zone.

EDIT:Multi Main		Zone:1/4	
Transpose	OST	VelMode	Traditional
Notemap	Linear	Velocity Scale	100%
Destination	USB+MIDI+LOCAL	Velocity Offset	0
Output	Auto	Velocity Curve	Linear
Channel	1	Low Velocity	1
Bank Mode	Ctl 0/32	High Velocity	127
Midi Bank	0		
Midi Program	1		
EntryProgChng	On		
Bend Up ST	2ST	Bend Up CT	0ct
Bend Down ST	2ST	Bend Down CT	0ct
OVERVIEW MAIN CONTROLS ARP FX COMMON			

Changing Zones



Use the **Channel/Zone** Up and Down buttons to change the currently selected Zone.

The top right corner of the display of the MAIN & CONTROLS pages shows the currently selected Zone out of the total number of Zones, or “All Zones” if the parameter applies to all Zones.

On the Multi Edit Overview page the **Channel/Zone** Up/Down buttons will change Zones in reverse order from how they do on other Multi Edit pages. Pressing Zone Down will select a higher Zone and pressing Zone Up will select a lower Zone. The buttons are reversed on this page so that pressing Zone Up/Down will move you visually up/down on the display. A simultaneous double button press of Zone Up/Down will jump to Zone 1.

Alpha Wheel & Previous (–) and Next (+) Value Buttons

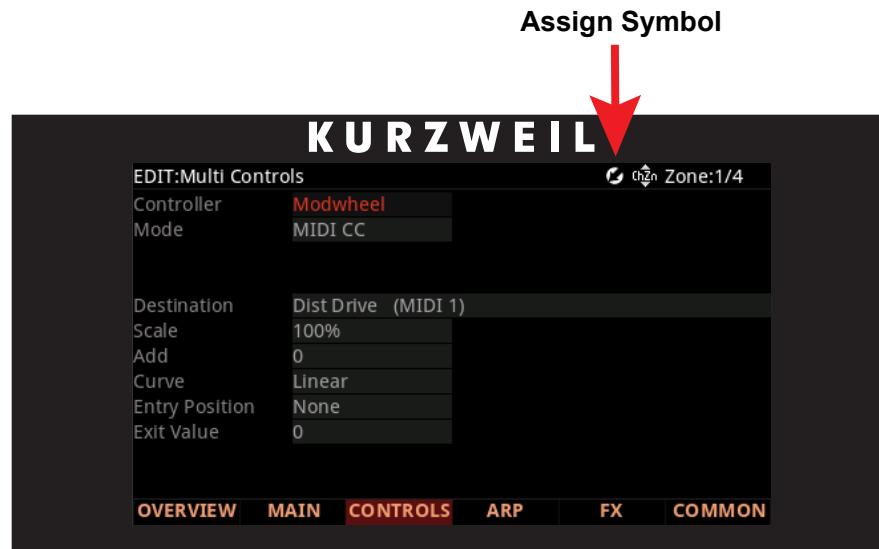
Use the Alpha Wheel or the Value buttons, to the right of the display below the Alpha Wheel, to change the selected parameter value. Turning the Alpha Wheel counter-clockwise or pressing the Previous button will select the previous value and turning the Alpha Wheel clockwise or pressing the Next button will select the next value.

Assign

Assign is the secondary function of the Enter button. You can use the Assign function to quickly select parameters or set values for parameters by holding the Enter button while moving Forte controllers (Sliders, Switch buttons, Keys, Mod Wheel, and Pedals).



Parameters that can use the Assign function are indicated by showing the Assign symbol in the top right corner of the display when selected.



Pressing a key, switch, or moving a controller while holding down the Enter button will perform Assign in the following cases.

Enter + Controller

In Multi Edit Mode on the Controls page, when the Controller parameter is selected, holding the Enter button and moving a controller (a Slider, Switch button, Mod Wheel or Pedal) will jump to selecting that controller in the current Zone. This allows you to quickly select a controller.

In a Controller destination field in Multi Edit Mode, Enter + Controller will assign the Destination of the touched controller to the selected controller.

Using Enter + Controller in an On Value or Off Value field or in an Entry Position or Exit Value field, will set the value of that controller to the field value. For example if you want to set an On Value to a value of 100, you can hold Enter and move a controller to quickly set On Value to 100.

Enter + Key

In Multi Edit Mode, on the Overview page, with the Low Key Range or High Key Range parameter selected, hold the Enter button and strike a key to set the Low Key or High Key. This will also work on the Control page with a Switch selected, when Mode = Chord. The value of the Key fields can be set using Enter + Key.

Zone Parameters

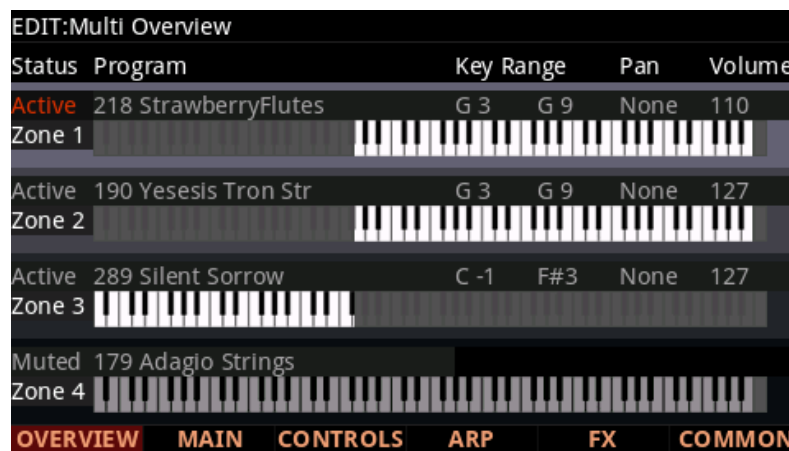
Each of the Zones in a Multi has multiple parameters that determine its behavior. Since the Zones of a Multi are independent of each other, changing a parameter for a certain Zone will not affect the parameters of any other Zone. There are some exceptions to this, for example, the parameters on the Common Page are common to all Zones. Also, on the Controllers Page for Switch Controllers, the parameters Type, Entry State, and Exit State are common to all Zones. Lastly, on the Controllers Page for Continuous Controllers, the parameters Entry Position and Exit Value are common to all Zones.

The top right corner of the display of the MAIN & CONTROLS pages shows the currently selected Zone out of the total number of Zones, or “All Zones” if the parameter applies to all Zones.

The Zone parameters for each page are explained in detail below.

OVERVIEW Page

The Overview Page shows four Zones in an easy graphical layout. The current Program, Volume and Panning position of the Zone, along with the state and active keyboard region can be quickly set on this page.



OVERVIEW Page Parameters

Parameter	Range Of Values	Default Value
Status	Active, Muted	Active
Program	Program List	-
Key Range	C-1 to G9	C-1 to G9
Pan	None, 0 to 127	64
Volume	None, 0 to 127	127

Status

The Status parameter determines whether the currently selected Zone is active or muted. You can set this parameter to either of two states: Active or Muted.

Program

The Program parameter determines the Program to be loaded for the currently selected Zone. You can set this parameter to any Forte Program, the display shows the Program number and name.

The Value Jump double button press (Previous and Next buttons) jumps to selecting the first Program of each Category, as well as the Category Default Program of each Category (if a Category Default Program has been set).

Key Range

The Key Range is made up of two parameters that define the region of the keyboard the Zone is allocated to. The value to the left affects the lowest key, the value to the right the upper key. The keyboard graphic in the Overview page clearly illustrates the Zone's current region

The lowest key determines the lower boundary of the currently selected Zone. You can set this parameter to any note from C-1 to G9. If, for example, you set the lowest key to C4, then only keys at or above C4 will trigger a note for the currently selected Zone. Keys below C4 will not trigger a note.

The highest key parameter determines the higher boundary of the currently selected Zone. You can set this parameter to any note from C-1 to G9. If, for example, you set the highest key to C4, then only keys at or below C4 will trigger a note for the currently selected Zone. Keys above C4 will not trigger a note.

You can also set the lowest key higher than the highest key and vice versa. This allows you to split a Zone into two areas where the lowest and highest keys now define the region that the Zone does not play on.

Pan

The Pan parameter determines the Pan MIDI message that the currently selected Zone sends when the Multi is loaded. You can set this parameter to any pan setting from None, 0 (full left pan) to 127 (full right pan). To pan to center, select 64 for this parameter.

None can be entered as -1 on the keypad.

Volume

The Volume parameter determines the Volume MIDI message that the currently selected Zone sends when the Multi is loaded. You can set this parameter to any volume setting from None, 0 to 127.

None can be entered as -1 on the keypad.

Multi Edit Mode

MAIN Page

MAIN Page

The Main Page shows the current settings that are specific for the currently selected Zone. The top right hand corner of the display indicates the currently selected Zone out of the total number of Zones.

EDIT:Multi Main		Zone:1/4	
Transpose	0ST	VelMode	Traditional
Notemap	Linear	Velocity Scale	100%
Destination	USB+MIDI+LOCAL	Velocity Offset	0
Output	Auto	Velocity Curve	Linear
Channel	1	Low Velocity	1
Bank Mode	Ctl 0/32	High Velocity	127
Midi Bank	0		
Midi Program	1		
EntryProgChng	On		
Bend Up ST	2ST	Bend Up CT	0ct
Bend Down ST	2ST	Bend Down CT	0ct

OVERVIEW MAIN CONTROLS ARP FX COMMON

MAIN Page Parameters

Parameter	Range Of Values	Default Value
Transpose	-128 to +127 ST (semitones)	0 ST
Notemap	Off, Linear, 1 of 2, 2 of 2, 1 of 3, 2 of 3, 3 of 3, 1 of 4, 2 of 4, 3 of 4, 4 of 4, Inverse, Constant,	Linear
Destination	NONE, LOCAL, MIDI, MIDI+LOCAL, USB, USB+LOCAL, USB+MIDI, USB+LOCAL+MIDI	USB+LOCAL+MIDI
Output	Auto, A, B	Auto
Channel	1 to 16	1
Bank Mode	None, Ctl 0, Ctl 32, Ctl 0/32, K2600	Ctl 0/32
Midi Bank	None, 0 to 16383	-
Midi Program	(Depends on Bank Mode)	-
EntryPrgChg	On, Off	On
Bend Up ST	Prog, 0 to 127 ST (semitones)	2 ST
Bend Down ST	Prog, 0 to 127 ST (semitones)	2 ST
VelMode	Traditional, Fixed	Traditional
Velocity	0 - 127 (when VelMode = Fixed)	127
Velocity Scale	-300 to +300 %	100 %
Velocity Offset	-128 to 127	0
Velocity Curve	Linear, Compress, Expand, Crossfade, Bump, Rvrs Linear, Rvrs Expand, Rvrs Compress, Rvrs Crossfade	Linear
Low Velocity	1 to 127	1
High Velocity	1 to 127	127
Bend Up CT	Prog, 0 to 100 ct (cents)	0 ct
Bend Down CT	Prog, 0 to 100 ct (cents)	0 ct
Input Channel	Off, 1-16 L+M, 1-16 M, Any L+M, Any M	None

Transpose

The Transpose parameter determines the transposition for the currently selected Zone. You can set this to any value from -128 semitones to 127 semitones.

Note Map

Note Map lets you change the way notes are sent from the Forte.

The default setting is Linear: all notes go out as played. Pressing the Minus button takes you to Off; no notes are sent, but controllers and other non-note data are.

Setting Note Map to Inverse effectively turns the keyboard upside-down, with the highest key being A 0 and the lowest C 9. If you set Note Map to Constant, all of the keys on the keyboard will play the same note. The note defaults to C4, but you can change this with the Transpose parameter. This works well when you want the sound from a particular key to play with every note of another zone. For example, playing a ride cymbal with every note in a bass line.

Next are the alternating note maps, which let you divide the keyboard in some unique ways. If you are using two or more MIDI devices (including the Forte), you can expand polyphony by assigning each zone to a different alternating note map. For example, if you have two Fortes, you can assign two zones to each play the same program on a different Forte, thereby doubling polyphony.

To split a zone into one of two alternating note maps, set Note Map to 1 of 2; now the zone plays on every second key, starting on C, but won't play on any other keys. Set another zone to 2 of 2, and this zone will play on every second key, starting on C#, thus covering the remaining keys. Three and four-zone alternating note maps work the same way, but cause each zone to play only on every third and every fourth key, respectively.

Destination

The Destination parameter determines whether MIDI data generated by the keyboard and physical controllers of the currently selected Zone is sent to a Forte Program, through the MIDI Out/USB ports, or all three. You can set this parameter to any of the eight combinations for the three destinations for this parameter:

Note that this parameter works in conjunction with the Global parameter of the same name (see [page 12-18](#)) and both are active. They act like filters, so if one is set to MIDI, and the other is set to Local + MIDI, transmission will be limited to MIDI only.



CAUTION: It is possible to stop all MIDI transmission, in Multi Mode, if one Destination parameter is set to Local, and the other is set to MIDI.

Setting	MIDI Out	USB	FORTE
NONE			
LOCAL			Yes
MIDI	Yes		
MIDI + LOCAL	Yes		Yes
USB		Yes	
USB + LOCAL		Yes	Yes
USB + MIDI	Yes	Yes	
USB + LOCAL + MIDI	Yes	Yes	Yes

NONE

Unused Zones are set to None to avoid transmitting MIDI on these zones. The Zone will still be able to receive incoming MIDI.

LOCAL

When Destination is set to LOCAL, MIDI data from the Zone is sent only to the Forte Program. MIDI data from this Zone is not sent to the MIDI Out or USB ports.

MIDI

When Destination is set to MIDI, MIDI data from the Zone is sent only to the MIDI Out ports. MIDI data is not sent to a Forte Program or the USB ports from this Zone.

MIDI + LOCAL

When Destination is set to MIDI+LOCAL, MIDI data from the Zone is sent to a Forte Program and to the MIDI Out ports.

USB

When Destination is set to USB, MIDI data from the Zone is sent only to the USB ports.

USB + LOCAL

When Destination is set to USB+LOCAL, MIDI data from the Zone is sent to a Forte Program and to the USB ports.

USB + MIDI

When Destination is set to USB+MIDI, MIDI data from the Zone is sent to the USB & MIDI Out ports only. MIDI data is not sent to a Forte Program on this Zone.

USB + LOCAL + MIDI

When Destination is set to USB+LOCAL +MIDI, MIDI data from the Zone is sent to the USB & MIDI Out ports, as well as the Forte Program on this Zone.

Output

Use the Out parameter to set the rear panel audio outputs used for each zone of the current Multi. This parameter determines the output settings for the main program signal and insert effects of each zone

A setting of Auto will make that zone output audio based on the settings for the program used by that zone. Program output settings are set in the Program Editor using the Output parameter on the FX page.

A setting of A will output Zone audio to the “A” Balanced Analog Outputs.

A setting of B will output Zone audio to the “B” Balanced Analog Outputs.

Channel

The Channel parameter determines the MIDI transmit and receive channel for the currently selected Zone. You can set this parameter to any of the 16 MIDI channels (1-16).

You can assign different Zones to the same channel, but only one Program can be loaded in a channel at a particular time. The Program loaded will be whichever program change message is received last.

Bank Mode

The Bank Mode parameter determines the controller number with which MIDI Bank change messages are transmitted. For MIDI Bank change messages, various manufacturers have chosen different MIDI controller numbers. Most have chosen 0, 32, or both. In the case of the Kurzweil K2600, it responds to controller 32, but is limited to 100 programs per bank.

You can set this parameter to any of the following:

None	MIDI Bank change messages are disabled.
Ctl0	MIDI Bank change messages are sent with controller number 0.
Ctl32	MIDI Bank change messages are sent with controller number 32.
Ctl0/32	MIDI Bank change messages are sent with both controller numbers 0 and 32.
K2600	MIDI Bank change messages are sent with controller number 32. (K2600 Program numbers 0-99.)

Midi Bank

The MIDI Bank parameter determines the MIDI Bank change message that the currently selected Zone sends when the Multi is loaded. You can set this parameter to a MIDI Bank change message from 0 to 16383.

When using the Forte as a MIDI controller, sending a MIDI Bank change message (along with a MIDI Program change message) when a Multi is loaded ensures that the Program loaded on the other sound modules in your MIDI chain is the Program that you want.

For example, if you've configured a Multi to work in a specific way with Program 32 in Bank 5 of a connected sound module, then set MIDI Bank to 5 and MIDI Program to 32. This way, whenever you load this Multi, the sound module will automatically load Program 32 in Bank 5. Pressing both Previous & Next buttons simultaneously will set this parameter to the Bank number of the currently selected Local Program.



NOTE : When you change the Program parameter, the MIDI Bank and MIDI Program parameters will automatically change to match the Bank and Program numbers of the Program that you select for Local Program. For example, if you choose Program 178, then MIDI Bank will change to 1 and MIDI Program will change to 50.

Midi Program

The MIDI Program parameter determines the MIDI Program change message that the currently selected Zone sends when the Multi is loaded. You can set this parameter to a MIDI Program change message from 0 to 127.

When using the Forte as a MIDI controller, sending a MIDI Program change message (along with a MIDI bank change message) when a Multi is loaded ensures that the Program loaded on the other sound modules in your MIDI chain is the Program that you want. For example, if you've configured a Multi to work in a specific way with Program 32 in Bank 5 of a connected sound module, then set MIDI Bank to 5 and MIDI Program to 32. This way, whenever you load this Multi, the sound module will automatically load Program 32 in Bank 5.



NOTE : When you change the Program parameter, the MIDI Bank and MIDI Program parameters will automatically change to match the Bank and Program numbers of the Program that you select for Local Program. For example, if you choose Program 178, then MIDI Bank will change to 1 and MIDI Program will change to 50.

EntryPrgChg

The Entry Program Change parameter determines whether or not the currently selected Zone will send a MIDI Program change message when the Multi is loaded. You can set this parameter to either Off or On. When set to On, the Zone will send a MIDI Program change message with the Program specified for the MIDI Program parameter.

Bend Up / Down ST & Bend Up / Down CT

Bend Up ST and Bend Down ST sends a bend range message to an internal program or a MIDI device, telling it how to define subsequent pitch bend messages. You can set this parameter to any value between 0 semitones and 127 semitones, or to Prog, which uses the Bend Range Up / Down of the currently selected Program for the Zone. The value can be entered numerically, and entering -1 will select Prog. (value that the Program would use in Program Mode).

Bend Up CT and Bend Down CT lets you fine tune the value for Bend Up ST & Bend Down ST (semitones). 100 cents equals one semitone, or one half step; you can set this parameter anywhere between 0 and 100 cents.

VelMode

The Velocity Mode parameter determines the method that the Forte maps the keyboard's strike velocity to MIDI velocity. Set to "Traditional" the keyboards velocity will translate to a MIDI velocity depending how hard you strike it. With a setting of "Fixed", the velocity is set to a pre-determined value regardless of how hard or soft the keyboard is played.

A setting of "Fixed" will remove some of the other Velocity settings in the MAIN page and replace it with a parameter called Velocity that has range of values from 0 to 127.

Velocity Scale

The Velocity Scale parameter lets you amplify or diminish velocity response from -300% to 300%. Normal response is 100%. Higher values make the keyboard more sensitive (you don't need to play as hard to get higher MIDI velocities) while lower values make it less sensitive (playing harder doesn't change MIDI velocity as much). You can also set the scale to a negative number, in which case the velocity response is turned upside-down: playing harder produces a softer sound and vice versa. This is useful for creating velocity-based crossfades between zones.

See the following section on VelOffset for ideas about negative scaling.

Velocity Offset

The Velocity Offset parameter also changes the velocity response, but in a more direct way, by adding or subtracting a constant to the key velocity.

For example, if this is set to 25 (assuming a scale of 100%), then 25 is added to the velocity of every keystroke, usually making the sound that much louder. The softest possible keystroke will have a value of 25, while a keystroke with velocity of 102 will produce the same sound as a note with velocity 127 ($102+25=127$). Negative values diminish the response: a setting of -25 means the loudest velocity available will be 102, while any keystroke 25 or below will produce a velocity of 1 (a velocity value of zero has a special meaning in MIDI and cannot be used for Note Ons).

You can think of Scale as being a proportional change to the velocity, while Offset is a linear change. The maximum values for Offset are ± 127 .

Offset and Scale work together. If scaling takes the velocity out of the ballpark — for example, you want to set it to 300% but that puts all of your notes at maximum velocity — using a negative offset, say around -60, can make it possible to still play at different volumes, although your curve will still be a lot steeper than normal. If you use a negative scaling, then you must use an offset: otherwise all of your velocities will end up as zeroes (well, ones actually, since a MIDI note-on with velocity zero is interpreted by some modules as a note-off message). So to get true inverse scaling (that is, minus 100%), you must set an offset of 127 to get the full range of velocities. Setting the offset to 127 and the scale to -100% (which is the same as the reverse linear curve):



NOTE : Offset and Scale only affect incoming MIDI velocities; these parameters don't change Velocity Tracking in the programs themselves. Therefore, programs which have low VelTrk values may respond only subtly to Offset and Scale, or not at all.

Velocity Curve

The Velocity Curve parameter lets you taper the velocity response. The default setting is **Linear**, which means that the output velocity changes directly proportionally to the played velocity.

Expand produces a curve that is less steep than the linear curve at keystrike velocities below 64, and steeper than the linear curve at keystrike velocities above 64. In other words, when you're playing softly, you'll notice velocity differences less than with a linear curve, while when you're playing hard, you'll notice velocity differences more.

Compress produces a velocity curve that is the opposite of the expanded curve—that is, you'll notice velocity differences more when you're playing softly than when you're playing hard.

Crossfade is designed to be used in tandem with the Reverse Crossfade curve, enabling you to perform smooth crossfades between different programs.

Bump tapers velocity response to resemble a bell curve, so that notes are loudest when your keystrike velocity is 64. Notes get softer as the keystrike velocity approaches 0 or 127.

The next four velocity curves are Reverse Linear (**Rvrs Linear**), Reverse Expand (**Rvrs Expand**), Reverse Compress (**Rvrs Compress**), and Reverse Crossfade (**Rvrs Crossfade**). These taper velocity in reverse of the five curves we just covered. For example, Reverse Linear's response is such that striking a key harder will produce a lower volume, striking it softer will produce a higher volume, and so on. This provides a convenient way to achieve negative scaling, by letting you set one parameter instead of two.

Low Velocity, High Velocity

Low Velocity and High Velocity set the minimum and maximum velocity limits that the current Zone transmits.

A keystroke in the current Zone whose velocity — *after* it has been scaled and offset — is below the minimum does not generate a Note On. Neither does a keystroke whose velocity after processing is above the maximum. These parameters are useful for “velocity switching” —having a key play different sounds depending on how hard you strike it.

The values can be anywhere from 1 to 127. As with other parameters, zones can overlap or be totally discrete, or be identical. Usually, Low Velocity will have a smaller value than High Velocity, but you may also create a gap in velocity response, by setting High Velocity to a lower value than Low Velocity.

Input Channel

When the Global Mode User Type parameter is set to Advanced, Input Channel parameter appears. The Input Channel allows remapping of incoming MIDI data through specified Zones. Here's how it works:

In Multi mode, an external MIDI device (such as a keyboard or sequencer) will play notes of a single program by default (if the Global mode Local Keyboard Channel parameter is set to None, see [Local Kbd Chan \(Local Keyboard Channel\) on page 12-21](#) for details.)

The played program will be on a Zone that has a Channel parameter (on the MAIN page) which matches the channel on which the external MIDI device is transmitting. (If no Zone's Channel parameter matches, the external device will play notes of the last program that was using that channel in Program Mode or from a previously loaded Multi.)

When the Program of a Multi Zone is played from an external MIDI device, Multi MIDI parameters (most noticeably key range and transposition) will not be applied. If you want these parameters applied, set the Input Channel parameter to match the channel on which the external MIDI device is transmitting. See the Input Channel Settings section below for details on setting an Input Channel. (To play the entire Multi from an external MIDI device, see [Local Kbd Chan \(Local Keyboard Channel\) on page 12-21](#).) When Local Keyboard Channel is set to something other than None, the Input Channel parameter has no effect and will appear in parentheses.

Multi Edit Mode

MAIN Page

Input Channel basically has the same effect as Local Keyboard Channel, except you can choose to play only one or some Multi Zones from an external device, instead of all Zones. To play more than one Zone from an external device, set each desired Zone's Input Channel parameter to match the channel on which the external MIDI device is transmitting.

Input Channel Settings

When setting a MIDI channel number for the Input Channel parameter, channel 1 for example, you can choose "1 L+M" or "1 M" (scroll past "16 L+M" to see all the choices.) A channel number with a setting of "L+M" indicates that the zone will be playable from the Forte keyboard (L for Local) and from the external MIDI controller (M for MIDI.) A channel number with a setting of "M" indicates that the zone will be playable only from the external MIDI controller, and not from the Forte keyboard. You can also choose "Any L+M" or "Any M" for the Input Channel setting. "Any L+M" and "Any M" will make the zone receive MIDI on any channel that an external device is transmitting. This is useful if you are using a single external MIDI controller and are not sure which channel it is transmitting on.

Zone Name

When the Global Mode User Type parameter is set to Advanced, the Zone Name parameter appears. Use the Zone Name parameter to give the Zone a name that can be viewed when Multi Mode is set to show Zone Info. By default the Zone's Program name is used as the Zone name.

To edit the Zone name, select the Zone Name field and press the Favorites 1 button to enter the Zone Name editor. Use the Navigation buttons and soft buttons to change the Zone name. Press OK to save the new Zone name, or CANCEL to return to the previous page.

For details on showing Zone Info in Multi Mode, see ["Show Zone Info" on page 12-5](#).

CONTROLS Page

Press the CONTROLS soft button to view pages where you can set parameters for each of the Forte physical controllers. Broadly speaking the Forte has switch controllers (such as buttons and Foot Switches) and continuous controllers (such as the wheels, sliders and foot controllers). Keyboard keys may also be assigned as controllers. These controller types have different parameters available to them on the Controls page, which are described below.

Switch Controllers



Parameter	Range Of Values
Controller	See Controller List
Mode	Off, MIDI CC, Chord (Chord is only available for Switch Controllers)
Type	Momentary, Toggled
Destination	See Multi Destination Control List
On Value	None, 0 to 127
Off Value	None, 0 to 127
Entry State	None, Off, On
Exit State	None, Off, On
Velocity	Auto, 1 to 127
Key1....Key8	None, C-1 to G9

You can select any of the Forte’s physical controllers by moving the cursor to the “Controller” parameter, and using either the Alpha Wheel or Value buttons to scroll the list. Alternatively, you can also position the cursor in the “Controller” parameter, hold down the Enter button and move the controller you wish to edit.

Controller

The Controller parameter allows you to assign any of the Forte’s physical controllers (sliders, switches, mod and pitch wheels, foot switches and expression pedals) to control a program specific parameter or MIDI controller number for the currently selected zone.

Multi Edit Mode

CONTROLS Page

First, use the Channel /Zone buttons to the left of the display to select the desired zone that you wish to assign a controller for. Next, on the CONTROLS page, use the cursor buttons to select the “Controller” field, hold the Enter button on the alphanumeric pad and then move any of the Forte’s physical controllers. This will select that controller and display its available parameters. (You can also scroll through the list of controllers in the Control page by selecting the Controller field with the cursor buttons and using the Alpha Wheel or the Value buttons to scroll through the list.)

If a pedal is selected which has a pedal override enabled in Global mode, a message “Global Pedal Override is enabled” will display when that pedal is viewed to remind you that the Global mode pedal override settings are being used instead of the Multi mode pedal settings.

FORTE SWITCH CONTROLLERS	
Sw. Pedal 1	Switch 1
Sw. Pedal 2	Switch 2
Sw. Pedal 3	Switch 3
Variation	Switch 4
Key1-Key12	Switch 5
Zone 1-4 Sw	

Select a Switch controller from the list above; the Switch controller parameters are described below.

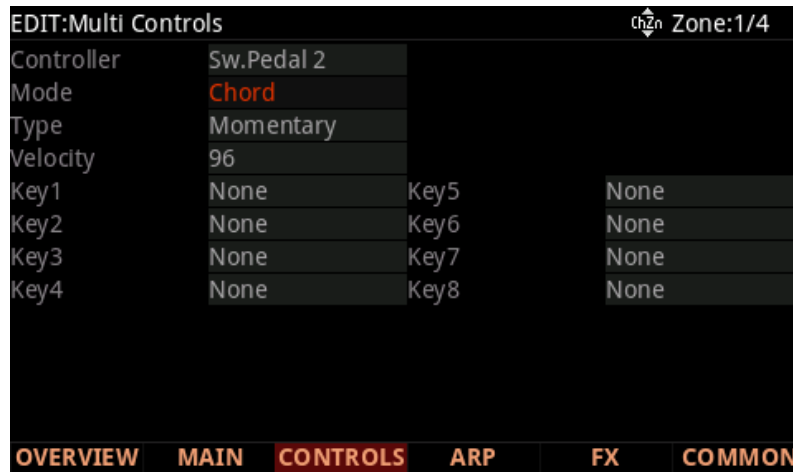
Mode

Switch Controllers have three modes: Off, MIDI CC, or Chord.

With a value of Off, the controller is disabled for this zone.

With a value of MIDI CC, the controller has the ability to transmit MIDI control messages.

Switch controls can also be set to Chord mode. In Chord mode, the switch can play a chord containing up to 8 notes.



Key1.....Key8

The Key1, Key2, Key3, Key4, Key5, Key6, Key7, Key8 parameters are available when the Mode is set to “Chord” . Use the Key(1 to 8) parameters to select the note to be played. The note is displayed by MIDI note name.

To select a note, select the KeyNum field with the cursor buttons, hold the Enter button on the alphanumeric pad, then play the desired note on the keyboard. You can also change the note in the field by using the Alpha Wheel or -/+ buttons.

Type

The Type parameter determines the switching behavior of Foot Switches and buttons. This is a Common parameter that affects all Zones.

Momentary	A momentary switch is one that is only in the “on” state when it is pressed. As soon as you release the switch, it goes into the “off” state.
Toggled	A toggled switch is one that maintains its state after it is pressed. So, if the switch is currently in the “off” state, pressing it once will put it in the “on” state. Pressing it again will put it back in the “off” state.

Destination

Use the Destination parameter to assign the Forte physical controllers (Sliders, Pedals, Switches, Mod Wheel, etc.) to control Program parameters or send MIDI continuous controller messages (CCs) to external MIDI gear. If a CC number is assigned to a parameter in the Program of the current Zone, the parameter name will be listed in the Destination list in place of that CC number.

Multi Edit Mode

CONTROLS Page

The Destination parameter determines the MIDI CC controller number that a physical controller will send to the Program in the currently selected Zone. By default, these CC messages are also sent to the MIDI Out and USB ports on the Channel of that Zone.

On Value

The On Value is the MIDI value sent when a switch controller is set to On. You can set this parameter to any number between 0 and 127, or to None.

Off Value

The Off Value is the MIDI value sent when a switch controller is set to Off. You can set this parameter to any number between 0 and 127, or to None.

Entry State

The Entry State parameter determines the state of the Foot Switch or button that is sent as a MIDI message when the current Multi is loaded. You can set this parameter to None, On, or Off. This parameter is common to all Zones.

None can be entered with the alphanumeric function of the Category buttons as -1.

If Entry State is set to None, then when you load the current Multi, no value will be transmitted. If you specify an Entry State, then a MIDI controller message with this value will be sent when you load the current Multi.

Exit State

The Exit State parameter determines the state of the Foot Switch or button that is sent as a MIDI message when the current Multi is exited. You can set this parameter to None, On, or Off. This parameter is common to all Zones.

None is entered with the alphanumeric function of the Category buttons as -1.

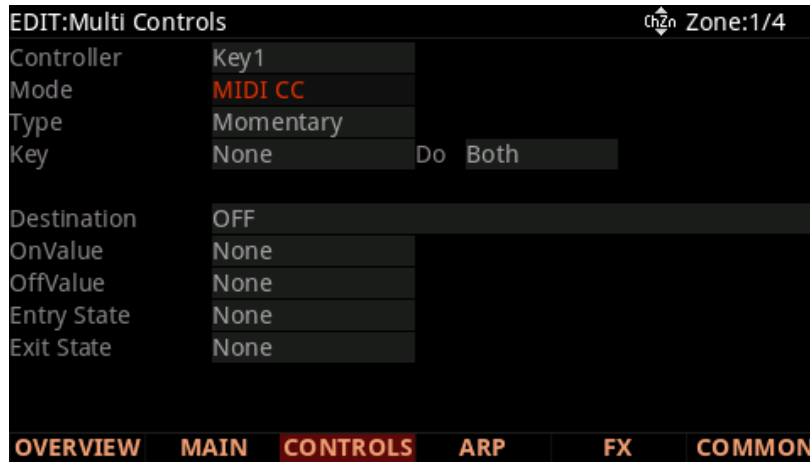
If Exit State is set to None, then when you leave the current Multi by selecting another Multi or Program, the Foot Switch or button will remain at whatever value corresponds to its current position. If you specify an Exit State, then a MIDI controller message with this value will be sent when you select a different Multi or Program.

Velocity

The Velocity parameter only appears if the Mode is set to “Chord” and is for use with switch controllers. Use the Velocity parameter to select a MIDI attack velocity (0-127) for the note(s) designated in the Key1 to Key8 field(s.) Alternatively, set the Velocity field to Auto and the note’s velocity will be the velocity set by the KeyVel Multi Destination (see KeyVel on [page 11-26](#)).

Key Controllers

When the Controller parameter is set to a Key (Key1-Key12) and Mode is set to something other than “Off” the Key controller parameters appear.



Key

Use the Controller parameter “Key” to select which of the Forte’s Keys you wish to use as a switch controller. With the Key parameter selected, you can set a key by holding the Enter button and striking the desired key.

Do

The Do parameter determines whether the key will play a note and perform a switch function, or whether the key will only perform a switch function. Set the Do parameter to “Both” to play a note and perform a switch function, or set it to “OnlySw” to only perform a switch function.

The list of CC controller numbers below (see [page 11-26](#)) shows the default assignments for each destination. Programs respond to some of these CCs for standard MIDI functions like volume and panning. Other external MIDI gear (sound modules, computer software) may respond to standard MIDI CC messages as well. Standard MIDI CC’s range from 0-127 and can be received by the Forte from external devices, while destinations 128-146 are internal to the Forte only.

Key1.....Key8

When the Mode is set to “Chord” the Key1-8 parameters are available . Use the Key(1 to 8) parameters to select the note to be played. The note is displayed by MIDI note name.

To select a note, select the KeyNum field with the cursor buttons, hold the Enter button on the alphanumeric pad, then play the desired note on the keyboard. You can also change the note in the field by using the Alpha Wheel or -/+ buttons.

Continuous Controllers



Parameter	Range Of Values	Default Value
Controller	See Controller List	-
Mode	Off, MIDI CC	-
Destination	See Multi Destination Control List	-
Scale	-300% to +300%	100%
Add	-128 to 127	0
Curve	Linear, Compress, Expand, Cross-fade, Bump, Rvrs Linear, Rvrs Expand, Rvrs Compress, Rvrs Crossfade	Linear
Entry Position	None, 0 to 127	-
Exit Value	None, 0 to 127	-

Controller

The Controller parameter allows you to assign any of the Forte’s physical controllers (sliders, switches, mod and pitch wheels, foot switches and expression pedals) to control a program specific parameter or MIDI controller number for the currently selected zone.

First, use the Channel /Zone buttons to the left of the display to select the desired zone that you wish to assign a controller for. Next, on the CONTROLS page, use the cursor buttons to select the “Controller” field, hold the Enter button on the alphanumeric pad and then move any of the Forte’s physical controllers. This will select that controller and display its available parameters. (You can also scroll through the list of controllers on the Control page by selecting the Controller field with the cursor buttons and using the Alpha Wheel or the Value buttons to scroll through the list.) If a pedal is selected which has a pedal override enabled in Global mode, a message “Global Pedal Override is enabled” will display when that pedal is viewed to remind you that the Global mode pedal override settings are being used instead of the Multi mode pedal settings.

FORTE CONTINUOUS CONTROLLERS	
Mod Wheel	Slider A
PitchUp	Slider B
PitchDown	Slider C
CC Pedal 1	Slider D
CC Pedal 2	Slider E
Pressure	Slider F
	Slider G
	Slider H
	Slider I

Select a Continuous controller from the list above, the Continuous controller parameters are described below.

Mode

Continuous Controllers have two modes: Off, or MIDI CC.

With a value of Off, the controller is disabled for this zone.

With a value of MIDI CC, the controller has the ability to transmit MIDI control messages.

Scale

After you've selected a continuous physical controller, you can modify the controller's response in a similar way that you can modify velocity response.

Scale lets you amplify or diminish the action of the controller. Full scale is 100%. Higher values will make the controller more sensitive, and lower values will make it less so. Setting the scale to a negative number makes the controller action work in reverse. As with velocity, you can use a controller to crossfade between two zones by setting the scaling for one zone positive and the other negative. Maximum scale values are +300% and -300%.

Add

This adds or subtracts a constant to the controller, and at the same time sets minimum or maximum values. If Add is 25, the minimum value of the controller will be 25. If it is -25 (and scale is 100%) the first one-fifth of the controller's movement ($25/127 \approx 1/5$) will send a value of 0, and the maximum value of the controller will be 102 (= $127-25$). As with velocity, Scale is a proportional change to the controller, while Add is a linear change. The values for Add range from -128 to 127.

Curve

The Curve parameter lets you taper the velocity response. The default setting is **Linear**, which means that the output velocity changes directly proportionally to the played velocity.

Expand produces a curve that is less steep than the linear curve at keystrike velocities below 64, and steeper than the linear curve at keystrike velocities above 64. In other words, when you're playing softly, you'll notice velocity differences less than with a linear curve, while when you're playing hard, you'll notice velocity differences more.

Compress produces a velocity curve that is the opposite of the expanded curve—that is, you'll notice velocity differences more when you're playing softly than when you're playing hard.

Crossfade is designed to be used in tandem with the Reverse Crossfade curve, enabling you to perform smooth crossfades between different programs.

Bump tapers velocity response to resemble a bell curve, so that notes are loudest when your keystrike velocity is 64. Notes get softer as the keystrike velocity approaches 0 or 127.

The next four velocity curves are Reverse Linear (**Rvrs Linear**), Reverse Expand (**Rvrs Expand**), Reverse Compress (**Rvrs Compress**), and Reverse Crossfade (**Rvrs Crossfade**). These taper velocity in reverse of the five curves we just covered. For example, Reverse Linear's response is such that striking a key harder will produce a lower volume, striking it softer will produce a higher volume, and so on. This provides a convenient way to achieve negative scaling, by letting you set one parameter instead of two.

Entry Position

The Entry Position value allows you to specify an initial value for a controller in a Multi that will be sent whenever you select that Multi. For example, if you want to make sure that all of the modulation in a zone is turned off when you select a Multi, assign a physical controller to a destination of MIDI 01 (MWheel) and set Entry Value to 0.

Entry Position refers to the position of the physical controller. For Sliders the Entry Position is indicated by the LED Ladder along side the Slider. The Entry Position is common to all Zones, however the Curve, Scale and Add modifiers are applied to the Entry Position (and the controller value) individually on each zone, allowing the one controller to send different values to the assigned destinations on different zones, if desired.

Entry Position ignores the current position of the physical controller when the Multi is selected. In fact, if the Multi Controllers parameter in Global Mode is set to Pass Entry, and the physical controller is above or below the entry value when the Multi is selected (which it often is), moving the controller will have no effect until it is past the entry value. In the modulation example above, moving the assigned controller won't turn on any modulation until it's pushed all the way down, and then up again.

If the Multi Controllers parameter is set to Instant, any movement of the physical controller will immediately be assigned to the controller. This may cause an abrupt change in the sound.

An Entry Position of None is quite different from a value of 0. None means that there will be no initial controller command when the Multi is selected, and any subsequent movement of the physical controller will be effective.

Exit Value

The Exit Value tells the Forte to send a value for that controller whenever you leave the Multi, either by selecting another Multi or by selecting a different mode altogether. It can be very useful when a controller is doing something to the sound, and you don't want that effect to continue after you leave the Multi.

For example, if you want to make sure a zone's modulation wheel returns to normal whenever you leave a Multi, you would set Exit Value to 0.

A setting of None means no message is sent when exiting the Multi.

Destination

Use the Destination parameter to assign the Forte physical controllers (Sliders, Pedals, Switches, Mod Wheel, etc.) to control Program parameters or send MIDI continuous controller messages (CCs) to external MIDI gear. If a CC number is assigned to a parameter in the Program of the current Zone, the parameter name will be listed in the Destination list in place of that CC number.

The Destination parameter determines the MIDI CC controller number that a physical controller will send to the Program in the currently selected Zone. By default, these CC messages are also sent to the MIDI Out and USB ports on the Channel of that Zone.

The list of CC controller numbers below shows the default assignments for each destination. Programs respond to some of these CCs for standard MIDI functions like volume and panning. Other external MIDI gear (sound modules, computer software) may respond to standard MIDI CC messages as well.

Controlling Program Parameter Assignments from Multi Mode

Commonly you will want to assign a physical controller in a Multi to control the same Program parameter that it controlled in Program Mode. In the Destination parameter list, destinations that are assigned to parameters for the Program of the current Zone will show the Program Parameter name in place of the standard Controller Destination name. Select one of these destinations to control an assigned Program parameter.

The Controller Destination List

The table below contains the available values for the MIDI CC (continuous controller) destinations. The Forte's physical controllers can send MIDI values to these destinations in order to control the parameters of Forte Programs, Multis, Forte system parameters, or external MIDI equipment.

Controller Number	Controller Destination	Description
0	OFF/Bank	By default, when you enter 0 or Clear for the Destination parameter, the destination will be assigned to OFF. To select Bank as the destination, use the Value buttons.
1	MWheel	Default destination for the Modulation Wheel
2	Breath	Default assignment for breath controller in compatible synths
3	MIDI 03	MIDI Controller 3
4	Foot	Default assignment for continuous foot controller in compatible synths
5	PortTim	Monophonic Forte Programs respond to this Controller if portamento is turned on.
6	Data	MIDI Controller 6
7	Volume	MIDI Volume
8	Balance	MIDI Balance
9	MIDI 09	MIDI Controller 9
10	Pan	MIDI Pan
11	Express	Default assignment for CC Pedal. In most Programs it acts as a volume control. It scales between 0 and the current value of Volume.
12	MIDI 12	Default assignment for Slider A
13	MIDI 13	Default assignment for Slider B
14-21	MIDI 14-21	MIDI Controllers 14-21
22	MIDI 22	Default assignment for Slider C
23	MIDI 23	Default assignment for Slider D
24	MIDI 24	Default assignment for Slider E
25	MIDI 25	Default assignment for Slider F
26	MIDI 26	Default assignment for Slider G
27	MIDI 27	Default assignment for Slider H
28	MIDI 28	Default assignment for Slider I
29	MIDI 29	Default assignment for Variation switch
30-31	MIDI 30-31	MIDI Controllers 30-31
32	MIDI Bank	MIDI Bank change message
33-63	MIDI 33-63	MIDI Controllers 33-63
64	Sustain	Default destination for Sustain Pedal
65	MIDI 65	MIDI Controller 65
66	Sostenuto	Default destination for Sostenuto Pedal (Sustains notes that are currently down, but not notes played subsequently.)
67	Soft	Lowers the volume by a preset amount and may soften the timbre as well.
68	Legato	Forces mono playback.
69	Freeze	Envelopes freeze at current state.
70-79	MIDI 70-79	MIDI Controllers 70-79
80	MIDI 80	Default assignment for Switch 1 (Zone 1 Switch)

Controller Number	Controller Destination	Description
81	MIDI 81	Default assignment for Switch 2 (Zone 2 Switch)
82	MIDI 82	Default assignment for Switch 3 (Zone 3 Switch)
83	MIDI 83	Default assignment for Switch 4 (Zone 4 Switch)
84	Portamento	Standard MIDI controller for setting Portamento starting note
85	MIDI 85	Default assignment for Switch 5 (Assignable Switch 1)
86	MIDI 86	Default assignment for Switch 6 (Assignable Switch 2)
87	MIDI 87	Default assignment for Switch 7 (Assignable Switch 3)
88	MIDI 88	MIDI Controller 88
89	MIDI 89	Default assignment for Switch 8 (Assignable Switch 4)
90	MIDI 90	Default assignment for Switch 9 (Assignable Switch 5)
91–95	MIDI 91–95	MIDI Controllers 94–95
96	Data Inc	Equivalent to pressing the Next Value button
97	Data Dec	Equivalent to pressing the Previous Value button
98	NRegParL	Non-Registered Parameter Least Significant Byte
99	NRegParM	Non-Registered Parameter Most Significant Byte
100	RegParL	Registered Parameter Least Significant Byte
101	RegParM	Registered Parameter Most Significant Byte
102–109	MIDI 102–109	MIDI Controllers 102–109
110–119	MIDI 110–119	Reserved - Not available for use in the Forte.
120	Sound Off	Stops all sound in the corresponding channel.
121	RstCtls	Resets Controllers to defaults in the corresponding channel.
122	Local	Reserved for use by MIDI specification.
123	Notes Off	Sends Note Off Message to all playing notes in the corresponding channel.
124	Poly	Reserved for use by MIDI specification.
125	Omni	Reserved for use by MIDI specification.
126	Mono On	Reserved for use by MIDI specification.
127	Mono Off	Reserved for use by MIDI specification.
128	Pitch	Values above 64 and below 64 bend the pitch up and down, respectively.
129	PitchRev	Values above 64 and below 64 bend the pitch down and up, respectively
130	PitchUp	Values above 0 bend the pitch up
131	PitchDwn	Values above 0 bend the pitch down
132	Pressure	Default Destination for Pressure
133	Tempo	Tempo
134	KeyNum	Triggers playback of notes by Key Number—e.g., C4 is 60. Send a velocity first with Destination 135, KeyVel.
135	KeyVel	Key Velocity
136	ProgInc	Program Increment—increments current Program number.
137	ProgDec	Program Decrement—decrements current Program number.
138	ProgGoto	Go to Program—selects Program.
139	MultiInc	Multi Increment—increments current Multi number.
140	MultiDec	Multi Decrement—decrements current Multi number.
141	SetpGoto	Go to Multi—selects Multi.
145	TransUp	Transpose Up (ST)
146	TransDown	Transpose Down (ST)

Multi Edit Mode

CONTROLS Page

Controller Number	Controller Destination	Description
147	Arp On/Off	Values 0-63 turn the Arpeggiator Off, Values 64-127 turn it On.
148	CC Seq On/Off	Values 0-63 turn the CC Sequencer Off, Values 64-127 turn it On.
149	MuteZn	Mute Zone – Values above 64 will mute the zone that sends values to this destination, values below or equal to 64 will unmute the zone.
150	ArpOrder	Arpeggiator PlayOrder, each range of values selects one of nine settings in order of the parameter list: 0-14, 15-28, 29-42, 43-56, 57-70,71-84, 85-98, 99-112, 113-127. (See Play Order on page 7-41)
151	ArpBeats	Values from 0-127 change the Arpeggiator Beats value (see Beats on page 7-39 for details).
152	ArpShift	The 88 Arpeggiator Shift steps are scaled over the 128 MIDI controller values, so that 0 = 0 steps and 127 = 88 steps. (See Shift Amount on page 7-39 for details).
153	ArpLimit	The 60 Arpeggiator Shift Limit steps are scaled over the 128 MIDI controller values, so that 0 = 0 steps and 127 = 60 steps. (See Shift Limit on page 7-39)
154	ArpLmtOp	Arpeggiator Shift Limit Option, each range of values selects one of seven options in order of parameters list: 0-18, 19-36, 37-54, 55-72, 73-90, 91-108, 109-127. (See Limit Option on page 7-37)
155	ArpVel	Arpeggiator Velocity Mode, each range of values selects one of twenty-three options in order of parameters list: 0-5, 6-10, 11-15...101-105, 106-110, 111-127. (See Velocity on page 7-41).
156	Arp Dur	The Arpeggiator Duration % values are scaled over the 128 MIDI controller values, so that 0 = 1% and 127 = 100%. (See Duration on page 7-44)
157	Latch	To control the Arpeggiator Latch switch, 0-63 = off, 64-127 = on. (See Latch on page 7-35)
158	Latch2:	To control the Arpeggiator Latch2 switch, 0-63 = off, 64-127 = on.
160	SusLatch	For Arpeggiator Latch Pedals mode, 0-63 = off, 64-127 = on.
161	Panic	Sends an “all notes off” message and an “reset all controllers” message on all 16 MIDI channels.
162	SoloZn	Solo Zone - Values above 64 will solo the zone that sends values to this destination, values below or equal to 64 will unsolo the zone. When soloing a Zone, all other Zones will become muted, and unmuting a muted Zone will make that Zone the soloed zone. If the currently soloed Zone has a controller assigned to Destination 149 (Mute Zone), solo mode can be canceled by sending a value to this destination (149 Mute Zone is the default assignment for the Zone Mute buttons).
163	Riff OnOff	If Riff is set to On on the RIFF page, values 64-127 will trigger the riff, values 0-63 will release the riff.
165	Riff Duration	Controls the Riff Duration parameter. The Duration value is calculated by multiplying the received controller value by 1000, and dividing the answer by 128 (any decimal points are taken off the final value.) Here are some example values: 7 = 54%, 13 = 101%, 19 = 148%, 32 = 250%, 64 = 500%, 127 = 992%
166	Riff Velocity	Controls the Riff Velocity parameter. The Velocity value is calculated by multiplying the received controller value by 2. For Example, 25 = 50%, 50 = 100%, 100 = 200%, 127 = 254%.
167	Riff Delay	Controls the Riff Offset parameter. Controller value 64 = 0 offset ticks. Each value away from 64 = 512 offset ticks. For example, 63 = -512 offset ticks, 65 = +512 offset ticks, 0 = -32768 offset ticks, 127 = +32256 offset ticks.
168	TapTempo	Assign this to a switch (set to Type: Toggled) to control the tap tempo function, then tap the switch in time to set the Multi tempo.
170	-Arp Shift	Sets ARPEGGIATOR values for Shift to negative. 0-63 = off, 64-127 = on. (See Shift Amount on page 7-39)
171	ShiftPatt	Selects one of the 128 patterns in the current ARPEGGIATOR Shift Pattern Bank. (See Shift Pattern on page 7-39)
172	ShiftPBank	A controller value selects the corresponding Shift Pattern Bank for the ARPEGGIATOR page of a controller’s zone. For example, controller value 2 selects Shift Pattern bank 2, controller value 7 selects Shift Pattern bank 7.

Controller Number	Controller Destination	Description
173	VelPatt	Selects one of the 128 patterns in the current ARPEGGIATOR VelPatt Bank. (See Velocity Patt on page 7-43)
174	VelPBank	A controller value selects the corresponding Velocity Patt Bank for the ARPEGGIATOR page of a controller's zone. For example, controller value 2 selects Velocity Patt bank 2, controller value 7 selects Velocity Patt bank 7.
175	VelFixed	Set's arpeggiator velocity when ARPEGGIATOR Velocity Mode is set to Fixed. (See Velocity on page 7-41)
176	ShKeyNum	Shift Key Number (see below)
177	ShiftKey	Shift Key (see below)
178	ShKeyNuV	Same as 176 ShKeyNum, but the Shift Pattern's velocity will be modified by the current velocity pattern of the zone.
180	Chan Intonation	Selects the Intonation Map (IDs 0-127) in a MIDI channel in real time. On the Multi Edit CONTROLS page, when setting a switch controller to this Destination the name of the selected Intonation Map will be displayed. For example: 18 (EastMed).
181	Chan Int Key	Selects the Intonation Key (C through B) in a MIDI channel in real time. On the Multi Edit CONTROLS page, when setting a switch controller to this Destination the MIDI number and note name of the selected Intonation Key will be displayed. For example: 41 (D#).

Shift Key Number, Shift Key (ShKeyNum, ShiftKey)

These controller destinations allow you to play musical scales and single note patterns on any programmable continuous controller in a Multi, without the need of playing the physical keys of the keyboard. These features are especially useful for playing fast arpeggiations. These destinations only work when combined with other destinations and features, so be sure to read this whole section to gain a complete understanding.

Shift Key Number (**ShKeyNum**, controller destination **176**) works in a similar way to Key Number (KeyNum, controller destination 134). Both controllers basically generate a monophonic stream of notes. The difference is that Key Number plays through all notes chromatically, while **Shift Key Number** only plays notes relative to a Shift Pattern.

For example, when controlling Shift Key Number from a slider, notes are triggered from a Shift Pattern in forwards order as you move the slider up, and backwards order as you move the slider down. If a Zone contains the Shift Pattern 2: minor, the notes being played by the slider will be only the root, the minor third and fifth in the chosen key, triggering notes in any octave up and down the keyboard. (See Shift Key below for details on selecting the root note and octave.)

Selecting The Desired Notes:

You must select a Shift Pattern for the desired zone in order for Shift Key Number to have an effect. To select a Shift Pattern for the current zone in a Multi, enter the Multi editor, go to the Arpeggiator page and set Arp Mode to Classic. Set Shift Mode to Patt and select a Shift Pattern from the Shift Pattern field. If using multiple zones, a different pattern can be selected for each.

The Shift Pattern field is usually used with the arpeggiator, but can also be used in combination with the controller destinations Shift Key Note, Shift Key, and Key Velocity. These destinations can use a zone's Shift Pattern whether the arpeggiator is on or off without conflict. For more information on Shift Patterns such as editing and saving, see [Shift Pattern on page 7-39](#). (Note that the Shift Pattern Up or Down options, as well as any of the arpeggiator parameters other than Shift Pattern do not have an effect on Shift Key Number.) You can also set controllers to destination 171 (ShiftPatt) to select a pattern from the current bank of 128 shift patterns, and destination 172 (ShiftPBank) to select a bank from banks of 128 shift patterns each.

Selecting The Desired Velocity:

In order to have a note sound when using Shift Key Number, you first need to send a Key Velocity message (**KeyVel**, controller destination **135**) with a non zero velocity. To do this, use the Multi Controls page to assign a controller to Destination 135. It's useful to assign a slider or other continuous controller in order to control velocity while playing. Make sure this assignment uses the same Zone as ShKeyNum.

Notes triggered by Shift Key Number will be played with the last received KeyVel velocity. One note triggered by these controllers sounds until another note is triggered or until a KeyVel message with velocity 0 is sent.

Selecting The Desired Key (Root Note):

Shift Key (**ShiftKey**, controller destination **177**) allows the user to select the key (root note) of the Shift Pattern triggered by Shift Key Number. A Shift Pattern is a relative pattern based on a root note. All notes triggered by a Shift Pattern are shifted from the root note by the value of each pattern step (in half-steps.)

Shift Key Settings	
Value	Key (Root note)
0-9	C
10-19	C#
20-29	D
30-39	D#
40-49	E
50-59	F
60-68	F#
69-78	G
79-88	G#
89-98	A
99-108	A#
109-118	B
119-127	Last Note Played

When using a Shift Pattern with Shift Key Number you can select the key with one or more controllers assigned to the Shift Key destination. (Make sure this assignment uses the same Zone as ShKeyNum.) You can use a continuous controller such as a slider to cycle through keys, or switches set to predetermined keys. For example, if you are playing a song that moves between 2 or 3 keys, a couple of switches could be programmed in order to send the appropriate Shift Key message for each key change. That way all the notes you are triggering with a Shift Key Number controller will be in the appropriate scale. You could also create a Multi for a song with multiple zones, each with its own pre-set key and appropriate shift pattern. That way, for each chord change you could move a different controller that would create the correct harmony.

Another way to choose a key is to set Shift Key to **Last Note Played** mode, in which the last note played in the zone will set the key. For example, you could set the zone being used for Shift Key Number to have a Key Range that covers only a few of the keyboard's lowest octaves. This would allow you to play root note bass lines that change the key that Shift Key Number plays in, leaving the upper octaves of the keyboard open for use by other zones.

A Note About Octave Range:

When using Shift Key Number, shift patterns with more than 12 steps begin triggering notes in higher octaves. This is done because longer shift patterns use up more of a controller's range, and limit the number of octaves that a single controller can trigger. Since the lowest octave of a program is often too low to be musically useful, the Forte will automatically start triggering notes from longer shift patterns in higher octaves. This saves room in the controller's range of values for triggering more useful octaves. See the table below for Shift Pattern step ranges and their corresponding starting octave.

If Shift Key is set to Last Note Played and no note is played, the default key is C. Each zone can have a different Shift Key, so you can have zones preprogrammed with the keys you want to use, or have them all in the same key, or just change the key in real time while you are playing.

Default Octave Shifting	
Total # of Shift Pattern Steps	Starting Octave
1-12	C0-C1
13-24	C1-C2
25-36	C2-C3
37-48	C3-C4

Selecting The Desired Octave Range:

You can adjust the pattern's starting octave by using the **Add** parameter on the Multi Edit Controls page containing your ShKeyNum assignment. In the Add field, the addition or subtraction of the number of steps in your current shift pattern will raise or lower the starting octave in relationship to the default starting octave. For example, in a shift pattern with 3 steps, an Add value of 9 would cause a controller value of 0 to make Shift Key Number trigger notes in octave C3-C-4, 3 octaves above the default C0-C1. Add values that are not multiples of the number of current shift pattern steps will change which step the pattern begins on at controller value 0, thus offsetting the relationship between all of the controller's values and current shift pattern's steps. (See [Add on page 11-23](#).)

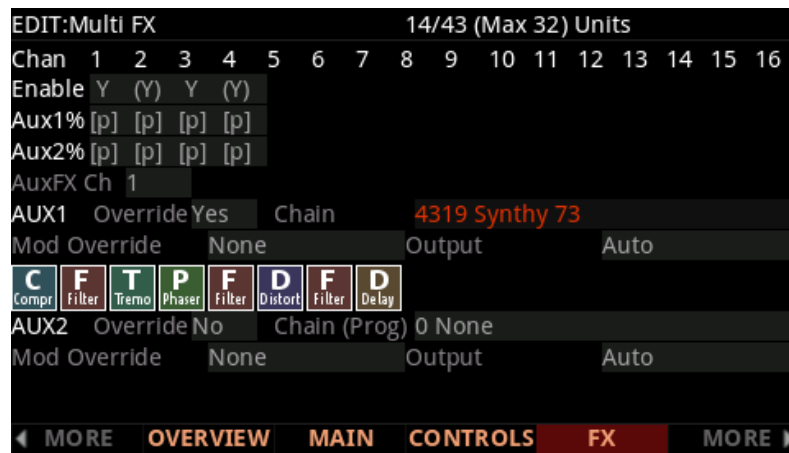
Adjusting Controller Range:

When using Shift Key Number, the number of steps in the Shift Pattern also affects the range of values that will cause a controller to trigger a shift pattern step, and in turn affect the useful range of the physical controller. With a shift pattern of 12 notes, the 128 different notes that the Forte can trigger are evenly spaced over the range of the controller. Patterns with less than 12 steps will trigger notes in every octave over a shorter range of the controller. For example, in a shift pattern with 3 steps, by default the controller values 0 to 2 will trigger notes starting in the lowest possible octave, and controller values 27 to 30 will trigger notes in the highest possible full octave. Using a slider for this controller, only about 1/4th of the length of the slider would be triggering notes. This decreased useful range makes the controller harder to use accurately. To remedy this, you can adjust a controller's behavior by using the **Scale** parameter on the Multi Edit Controls page containing your ShKeyNum assignment. Adjust the Scale value to stretch the useful values of the controller across its whole physical range. A scale value of less than 100% will be helpful for patterns with fewer than 12 steps. Experiment by adjusting the scale value until the highest desired note is triggered at the top of the controller's physical range. See [Scale on page 11-23](#) for more details on the Scale parameter. For shift patterns with more than 12 steps, you will run out of controller values before your shift pattern triggers in every octave. If you want to be able to access all of the available octaves, you can achieve this by setting multiple controllers to Shift Key Number. Next, use the Scale and Add parameters for each controller, adjusting each to trigger the desired range of octaves (see [Add on page 11-23](#)).

FX Page

The Forte contains Kurzweil’s acclaimed effects processor, and when combined with Multi Mode it puts the power of an entire studio of audio effects at your fingertips. This section contains everything you’ll need to know in order to use the Forte’s effects in Multi Mode.

Press the FX soft button to enter the FX page.



FX Page Parameters

Parameter	Range Of Values	Default Value
Enable	Y, N, (Y)	Y
Aux1	[p], 0 to 100%	[p]
Aux2	[p], 0 to 100%	[p]
AuxFX Ch	1 to 16	1
AUX1 Override	Yes, No	[p]
AUX2 Override	Yes, No	No
Chain	Effects List (Appendix F)	No
Mod Override	None, Control source	None
Output	Auto A, B	Auto

Enable

Use the Enable parameter to enable or disable the Insert and Aux effects Chain of the Program in each MIDI channel. (The MIDI channel for each Zone can be set on the Zone Main page.) Each MIDI channel can be set to Y to enable Insert effects, or to N to disable Insert effects. Use the Alpha Wheel or Value buttons to change between Y and N. Some MIDI channels set to Y may be displayed as (Y). This means that there are not enough effects resources available for that channel, and that channel’s Insert effects are not loaded. If you want to use the Insert effects Chain for a channel displayed as (Y), try setting other channels to N. If the Channel number of the current “AuxFX Ch” setting is set to N or (Y), the Aux Chains will be disabled for all channels.

Aux FX Channel

The Aux FX Channel determines the MIDI channel that will be used for the Aux 1 and Aux 2 FX Chains. For example, if Zone 2 in a Multi has a program with “25 Basic Delay 1/8” as an Aux 1 Chain, and Zone 2 is assigned to MIDI channel 2, then setting the Aux FX Channel to 2 allows the programs of all of the Zones in the Multi to send their signal to the Aux FX Chains of the Program loaded in Zone 2 (i.e., through “25 Basic Delay 1/8”).

Keep in mind that the MIDI channel number of each Zone does not have to match the Zone number. For example, if Zone 1 is assigned to use MIDI channel 5, then Aux FX Chan must be set to 5 in order to use the Aux FX Chains of Zone 1. To view or change the MIDI Channel for each Zone, see [Channel on page 11-11](#).

Aux1%, Aux2%

Use the Aux1% and Aux2% parameters to set the Aux 1 and 2 FX send levels for the Program in each MIDI channel.

The default setting “[p]” will use the dB level or wet/dry percent send value specified in the Program of the selected MIDI channel. To override one of these send level values, select the Aux1% or Aux2% parameter for the desired MIDI channel, and enter a new wet/dry percent send value (0=fully dry, 100=fully wet). A value of [p] can be set by entering -1 and then pressing the Enter button, or by using the Alpha wheel or +/- buttons to scroll below 0.



NOTE: In most factory Programs, the send level for Aux 1 is controlled by an Aux mod set to MIDI28 (slider I.) If a send level override is set, it will usually be scaled by the entry value for slider I, with values of 0-127 scaling between 0% wet and the selected send level. To defeat this behavior, set the Mod Override parameter to ON. This will cause the Program to use the selected send level value.

AUX1 Override, AUX2 Override

Normally, the Aux Effects Chains are specified by the program on the specified Aux Effects channel. When Override is set to Yes, the Chain parameter can be selected, allowing you to choose a different Aux effect Chain.

Set Override to Yes to select an override Aux Chain on this page. Set Override to No to use the Aux FX chain of the specified Aux FX Channel.

Chain

When AUX1 Override or AUX2 Override is set to Yes, you can select an override Aux Chain for the corresponding Aux Effect. The Chain parameter can not be selected when Override is set to No, and “(Prog)” is shown as a reminder that the Chain from the Program on the Aux FX Channel is being used. Press the Favorites 1 button to edit the selected Chain.

Mod Override

The Mod Override parameter allows you to select a controller or modulation source which will control the send level or dry/wet amount for the Aux 1 or Aux 2 Chain. Selecting a Mod Override will disable any Aux Mod controller or modulation source that was assigned in the Program of the Aux FX Channel.

If you select a MIDI controller for the Mod Override (entries 1 through 95 in the Mod Override list), you must select the same MIDI controller number in the “Destination” field for the desired controller on the Multi Controls page. This must be done for each Zone that you wish to apply the Mod override controller. The Multi Controls page allows you to set entry/exit values as well as scaling and offset values for the Mod Override controller.

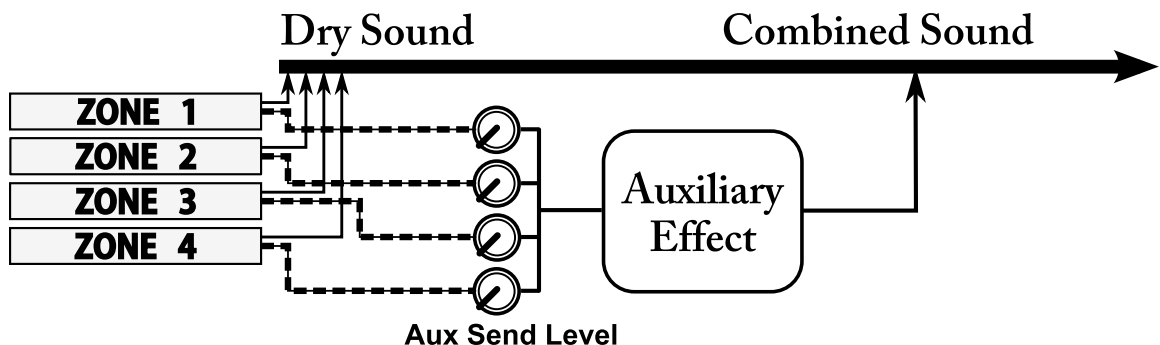
When the Mod Override parameter is selected, you can quickly select one of the Forte’s physical controllers by holding the Enter button and moving the controller.

Output

This parameter specifies the physical audio output pair for the corresponding Aux Chain’s output. The settings A and B refer respectively to the A and B physical audio outputs of the Forte. Setting Output to Auto uses the output pair specified in the program on the specified Aux Effects channel.

About Auxiliary Effects

Programs and Multis both have an auxiliary effect send. An auxiliary effect is an effect that is not in the direct path of the sound, but rather, it “receives” and processes the sound applying the effect, which is mixed back with the original sound. The following diagram illustrates the signal path of a sound through the auxiliary effect: On the Forte, the auxiliary effects are global to all channels and Zones, Programs and Multi’s. One effect chain can be loaded into each of Aux1 and Aux2, and these are used for any Program or Multi that has active Aux Sends.



The AUX1 and AUX2 parameters (on the FX page) determine the level which the auxiliary effects will process the sound for that Zone.

COMMON Page

The COMMON page contains parameters that affect every zone in the current Multi.

Press the COMMON soft button to enter the COMMON page.



COMMON Page Parameters

Parameter	Range Of Values	Default Value
Tempo	20 to 400 BPM	120
Clock Source	Internal, External	Internal
KB3 Channel	1 to 16	1

Tempo

When Clock Source is set to Internal, the Tempo parameter sets the tempo for this Multi in BPM (beats per minute). This controls the tempo of any tempo based effects, and can also be used to sync the tempo of Arpeggiators and Riffs on different Zones.

You can also set the tempo using the Tap Tempo button (located on the front panel above the Pitch Bend Wheel.) Tap the Tap Tempo button on beat for a measure or two at the desired tempo to set a tempo. This also brings up the Tap Tempo page (see [Tap Tempo Button on page 3-7](#)).

Clock Source

With the Clock Source parameter, you can set the Forte—within the current Multi—to generate its own tempo by setting Clock Source to Internal, or you can set the Forte to sync up with the tempo from another device—assuming the device is sending MIDI clock data to the Forte via MIDI or USB—by setting Clock Source to External. When Clock Source is set to External, the Tempo parameter disappears from the display.

KB3 Channel

If KB3 Programs are selected for more than one Zone, this parameter specifies which MIDI Channel has priority to load a KB3 Program. Only one KB3 Program can be loaded at a time. You can set this parameter to a value between 1 and 16. If you want a KB3 Program to play in a zone, you should set the KB3 channel to the channel of the Zone.

RIFF Page

When the Global Mode User Type parameter is set to Advanced, the RIFF soft button appears in Multi Edit Mode.

Riffs are full songs or individual tracks of a song created in the Forte's Song mode that you can trigger in Multi mode. Standard MIDI files may also be imported to Song mode and then used as riffs in Multis. Every zone in a Multi can have its own riff—a completely independent sequence. You can use a Multi with many riffs to trigger and stop looped sequences of different instrument parts. Alternatively, a single riff can play multiple instrument parts, and each riff can be used as a different song section of a backing track.

To use a riff, first go to Song mode and find or record the song that you wish to use for your riff. Note the song ID#, as well as the desired track and start/stop points. Next go to Multi mode and edit a Multi. On the Multi Edit Overview page, choose the program that you want to use for the riff on the current zone. (Program changes that are recorded in song mode will be ignored when using the song as a riff in a Multi.) Once you have selected your program, go to the RIFF page, set the Riff to On, then select the desired song, track, song Start/Stop points. See below for descriptions of these parameters, as well as many other parameters that determine the behavior of a riff.



Note: By default, setting a zone to trigger a riff will disable the ability to play notes of that zone's program from the keyboard. To re-enable this ability, see [“Local” on page 11-40](#).

The Riff page appears as shown below, and has the following parameters:

EDIT:Multi Riff		chn Zone:1/4	
Riff	On	Riff Tempo	Song
Song	0 None		
Start	1 1 0		
Stop	2 1 0		
Source Track	All	Re-Channel	Off
Loop	On	Local	Off
Transpose	Off	Root Note	C 4
Trigger Range	C -1 G 9	Offset	0
Release Range	C -1 G 9	Condit. Release	Off
Trigger Master	First Riff/Arp	Trigger Type	None
Release Master	First Riff/Arp	Release Type	None
Velocity	100%	Duration	100%
◀ MORE COMMON RIFF ARP CC SEQ MORE ▶			

Multi Edit Mode

RIFF Page

Parameter		Range of Values	Default
Riff		Off, On	Off
Song		Song List	0 None
Start	(Bar)	(dependent on song)	1
	(Beat)	1 to (dependent on time signature)	1
	(Tick)	0 to 959	0
Stop	(Bar)	(dependent on song)	2
	(Beat)	1 to (dependent on time signature)	1
	(Tick)	0 to 959	0
Transpose		Off, On	Off
Root Note		C -1 to G9	C4
Source Track		All, 1 to 128	All
Re-Channel		Off, On	Off
Trigger Range	(HiKey)	C -1 to G9	C -1
	(LoKey)	C -1 to G9	G9
Release Range	(HiKey)	C -1 to G9	C -1
	(LoKey)	C -1 to G9	G9
Condit. Rel		Off, On	Off
Local		Off, On	Off
Loop		Off, On	On
Riff Tempo		Song, Multi, External, 20 to 400	Song
Trigger SyncZone		First Available, Riff 1-16, Main Song, Arp 1-16, First Riff Available, First Arp Available	First Available
Trigger SyncType		None, Down Beat, Any Beat, Down Beat Wait, Any Beat Wait, Loop, Stop, Start Wait, Loop Wait, Stop Wait	None
Release SyncZone		First Available, Riff 1-16, Main Song, Arp 1-16, First Riff Available, First Arp Available	First Available
Release SyncType		None, Down Beat, Any Beat, Down Beat Wait, Any Beat Wait, Loop, Stop, Start Wait, Loop Wait, Stop Wait	None
Duration		1 to 1000%	100%
Velocity		0 to 255%	100%
Offset		-32768 to 32767	0

Riff

Use the Riff parameter to turn the Riff feature On or Off for the currently selected Zone.

Song

Use the Song parameter to select the song that you wish to use for the Riff of the currently selected Zone.

Start, Stop

Use the Start and Stop parameters to specify the riff start and stop points. The time format is *Bar : Beat : Tick*. *Bar* can be set to any bar in the song, and *Beat* can be set to any beat in that bar (beat range is dependent on time signature.) *Tick* can be set from 0 to 959. See [Beat Subdivisions in Ticks on page 13-33](#) for a list of beat subdivisions in ticks.

Note: The Stop point is automatically adjusted so that the current riff is at least one beat long.

Transpose, Root Note

When the Transpose parameter is set to On, the riff can be transposed chromatically by playing the keyboard within the selected trigger range. Use the Root Note parameter to select the key that will play the riff at its original pitch. Root Note is only applied when the Transpose parameter is set to On.

For example, if Transpose is set to On and you have a riff based around D4, set the Root Note to D4 so that the riff will play in tune with other Zones. It is also useful to set the Root Note to a different octave than the original pitch, in order to play the riff at the original pitch from a higher or lower region of the keyboard.

Note: If you are transposing a riff that includes a Drum Track, you can prevent the drum track from being transposed by editing the song. See [“Drum Track” on page 13-8](#) for details.

Source Track

The Source Track parameter determines the song track or tracks that the riff plays. A riff can play either a single track or all tracks of the selected song.

To create a Multi with multiple riffs each playing a single instrument part, use the same song for the riff in each Zone, and select a different Source Track for each riff.

To create a Multi with a single riff that plays multiple instrument parts, set Source Track to All. Each track of the song will play through the zones which have a corresponding MIDI channel. See [“Channel” on page 11-11](#) for details on the MIDI channel used for each Zone.

Re-Channel

Song Track numbers and Multi Zone numbers have matching MIDI channel numbers by default. When the current zone's MIDI channel and the channel of the riff's selected Source Track do not match, it can make the riff play programs from other Zones. To prevent this you can use the Re-Channel parameter.

When Re-Channel is set to On, the track selected for the Source Track parameter will play through the MIDI channel of the current zone. For example, if you want to use a riff on zone 2 (set to use MIDI channel 2) and the riff was recorded on track 4 (set to use MIDI channel 4), you will need to turn Re-Channel on. If you were to do this and keep Re-Channel set to Off, the riff would play using the program from zone 4 (set to channel 4) instead of zone 2.

When Re-Channel is set to On and Source Track is set to All, *all* of the tracks of the song will play through the MIDI channel of the current zone.

Trigger Range

Use the Trigger Range parameters to set the keyboard range that will trigger the Riff. The left and right Trigger Range parameters set the lowest and highest keys that will trigger the Riff. For a key to trigger a riff, the key must also be within the Zone's Key Range (set on the Overview page).

You can select a key using the Alpha Wheel, plus/minus buttons, or by pressing and *holding* the **Enter** button and pressing the desired key.

Note: Riffs can also be triggered and released by assigning a controller destination 163 **Riff OnOff**.

Release Range

Use the Release Range parameters to set the keyboard range that will stop the Riff when a key is released. The left and right Release Range parameters set the lowest and highest keys that will stop the Riff when a key is released. For a key to stop a riff, the key must also be within the Zone's Key Range (set on the Overview page).

You can select a key using the Alpha Wheel, plus/minus buttons, or by pressing and *holding* the **Enter** button and pressing the desired key.

Note: Riffs can also be triggered and released by assigning a controller destination 163 **Riff OnOff**.

Conditional Release (Condit. Rel)

When the Condit. Rel parameter is set to On, the riff will play when a key is pressed and held, and other keys will not stop or restart the riff until the key original key is released. To use conditional release, set the same range for the Trigger Range and Release Range. To stop the riff, release the original key.

Local

When Local is set to Off, notes will only be played by the riff. When Local is set to On, notes in the current zone can be played normally by the keyboard, and by the riff.

Loop

When Loop is set to Off, the riff will play once until it is retriggered. When Loop is set to On, the riff will play in a loop until a key in the Release Range is released.

Riff Tempo

Use the Riff Tempo parameter to set the tempo of your riff. With Riff Tempo set to **Song**, the riff's original tempo from song mode will be used. With Riff Tempo set to **Multi**, the tempo set on the Multi Edit Common page will be used. The Multi setting is useful for tempo syncing different riffs or arpeggiators. With Riff Tempo set to **External**, the riff will sync to external MIDI clock. You can also manually choose a tempo by selecting a value from **20** to **400**.

Trigger SyncZone

The Trigger SyncZone parameter determines which zone a riff will sync to when triggered. This allows you to trigger riffs in sync with other riffs or arpeggios by syncing to the beat of riffs or arpeggios in other zones.

For example, if you have a drum riff in zone 1 and a bass riff in zone 2, you may always want the bass riff in zone 2 to sync to the drum riff in zone 1. In this case you would set the bass riff Trigger SyncZone to **Riff 1**.

You may want to have a little more freedom and not be tied to the drum riff as the main “timekeeper.” Maybe you want to start with the bass riff and have the drum riff start later. In this case you would set Trigger SyncZone to **First Riff Available**. With this setting, the riff will look for the first available riff to sync to. So if both the drum riff and the bass riff have this parameter set to **First Riff Available**, the riff that is started first will be the master. If the bass riff starts first, the drum riff will see that as the first available riff to sync to and will do so. If the drum riff is started first, the bass riff will see that as the first available riff to sync to and will do so. This can be very handy if you have multiple riffs and want to do some live remixing; you could have the drums drop out, and—as long as there is a riff playing—they will sync back up when triggered again.

You can also choose **First Arp Available**, which behaves the same way as **First Riff Available**, but makes your riff look for the first available arpeggiator to sync to. A setting of **First Available** will sync the riff to the first available riff, arpeggiator, or song from Song mode. A setting of **Main Song** will sync the riff to the song currently loaded in Song mode (useful when recording a Multi into Song Mode). See for [“Recording A Multi To Song Mode” on page 10-17](#) for details.



Note: If you have multiple riffs or arpeggiators already playing when using **First Riff Available**, **First Arp Available**, or **First Available** for the current riff, the current riff will sync to the riff or arpeggiator of the lowest numbered zone that has a riff or arpeggiator playing.

Trigger SyncType

The Trigger SyncType parameter allows you to choose how your riff will sync to other riffs, arpeggiators, and Songs (in combination with the Trigger SyncZone parameter).

With Trigger SyncType set to **None**, your riff will start playing as soon as it is triggered. It will not sync to anything. With Trigger SyncType set to **Down Beat**, if there is already something playing to sync to, the current riff will wait for the Down Beat of the next measure before starting; so, you can trigger the riff to start ahead of time, and have it start in sync at the Down Beat of the next measure. With Trigger SyncType set to **Any Beat**, if there is already a something playing to sync to, the riff will wait only until the next beat. Depending on when you trigger the riff, it will sync up, but it may be on an upbeat or a Down Beat.

With Trigger SyncType set to **Down Beat Wait**, the riff will wait for the Down Beat of the next measure to start. The difference from Down Beat is that if there is nothing playing to sync to, the riff will not start. This can be useful if you want to start multiple riffs synced to one riff. You could have a bass riff set to Down Beat Wait, for instance, and trigger the riff while no other riffs are running. As soon as you start another riff, the bass riff will start playing as well (provided that it is set to sync to another riff or to the first available riff). If another riff is already running, Down Beat Wait behaves just like Down Beat.

With Trigger SyncType set to **Any Beat Wait**, the riff will wait for the next beat to start. The difference from Any Beat is that if there is nothing playing to sync to, this riff will not start. This can be useful if you want to start multiple riffs synced to one riff. You could have a bass riff set to Any Beat Wait, for instance, and trigger the riff while no other riffs are running. As soon as you start another riff, the bass riff will start playing as well (provided that it is set to sync to another riff or the first available). If something is already playing to sync to, Any Beat Wait behaves just like Any Beat.

With Trigger SyncType set to **Loop**, if there is already a riff or song playing to sync to, the current riff will wait for the playing riff or song to restart its loop (if Loop is set to On) before starting (see [“Loop” on page 11-41](#) for looping riffs, and [“Loop” on page 13-7](#) for looping songs). This way you can trigger the riff to start ahead of time, and have it start in sync at the start of the playing riff or song’s loop.

With Trigger SyncType set to **Stop**, if there is already something playing to sync to, the current riff will wait for what is playing to stop before starting. This way you can trigger the riff to start ahead of time, and have it start in sync at the release (stopping) of the riff, arpeggiator, or song that you are syncing to.

With Trigger SyncType set to **Start Wait**, if there is nothing playing to sync to, the current riff will wait for something it can sync to to begin playing first before starting. This is similar to Down Beat Wait, but it will only trigger the riff the first time that whatever it is syncing to starts. This way you can trigger the riff to start ahead of time, and have it start in sync at the start of the riff, arpeggiator, or song that you are syncing to. If you stop the riff and try to start it again while the thing you are syncing to is already playing, Start Wait will not start the riff.

With Trigger SyncType set to **Loop Wait**, if there is already a riff or song playing to sync to, the current riff will wait for the playing riff or song to restart its loop (if Loop is set to On) before starting (see [“Loop” on page 11-41](#) for looping riffs, and [“Loop” on page 13-7](#) for looping songs). This way you can trigger the riff to start ahead of time, and have it start in sync at the start of the playing riff or song’s loop. The difference from Loop is that if there is nothing playing to sync to, the riff will not start. If the riff or song that you are syncing to is already running, Loop Wait behaves just like Loop.

With Trigger SyncType set to **Stop Wait**, if there is already something playing to sync to, the current riff will wait for what is playing to stop before starting. This way you can trigger the riff to start ahead of time, and have it start in sync at the release (stopping) of the riff, arpeggiator, or song that you are syncing to. The difference from Stop is that if there is nothing playing to sync to, the riff will not start. This can be useful if you want to get your riff ready to sync before you start whatever you are syncing it to. If the riff or song that you are syncing to is already running, Stop Wait behaves just like Stop.

Release SyncZone

Release SyncZone has the same settings available as Trigger SyncZone, but Release SyncZone determines what the releasing (stopping) of the current riff will be synced to when a parameter other than **None** is selected for Release SyncType.

Release SyncType

Release SyncType has the same settings available as Trigger SyncType, but Release SyncType determines how the releasing (stopping) of the current riff will be synced to other riffs, arpeggiators, and Songs (in combination with the Release SyncZone parameter).

With Release SyncType set to **None**, your riff will stop playing as soon as it is released. It will not sync to anything. With Release SyncType set to **Down Beat**, if there is already something playing to sync to, the current riff will wait for the Down Beat of the next measure before stopping when released; so, you can trigger the riff to stop ahead of time, and have it stop in sync at the Down Beat of the next measure. With Release SyncType set to **Any Beat**, if there is already a something playing to sync to, the riff will wait only until the next beat before stopping when released. Depending on when you release the riff it will stop in sync with a beat, but it may be on an upbeat or a Down Beat.

With Release SyncType set to **Down Beat Wait**, the riff will wait for the Down Beat of the next measure to stop when released. The difference from Down Beat is that if there is nothing playing to sync to, the riff wont stop when released. If another riff is already running, **Down Beat Wait** behaves just like **Down Beat**.

With Release SyncType set to **Any Beat Wait**, if there is already a something playing to sync to, the riff will wait for the next beat before releasing. The difference from Any Beat is that if there is nothing playing to sync to, this riff will not stop when released. This can be useful if you want to stop a riff in sync only when another riff is playing. If something is already playing to sync to, Any Beat Wait behaves just like Any Beat.

With Release SyncType set to **Loop**, if there is already a riff or song playing to sync to, the current riff will wait for the playing riff or song to restart its loop (if Loop is set to On) before starting (see [“Loop” on page 11-41](#) for looping riffs, and [“Loop” on page 13-7](#) for looping songs). This way you can release the riff to stop ahead of time, and have it stop in sync at the start of the playing riff or song’s loop.

With Release SyncType set to **Stop**, if there is already something playing to sync to, the current riff will wait for what is playing to stop before releasing. This way you can trigger the current riff to release ahead of time, and have it stop in sync at the release (stopping) of the riff, arpeggiator, or song that you are syncing to.

With Release SyncType set to **Start Wait**, if there is nothing playing to sync to, the current riff will wait for something it can sync to to begin playing first before releasing. This is similar to Down Beat Wait, but it will only release the riff the first time that whatever it is syncing to starts. This way you can trigger the riff to stop ahead of time, and have it stop in sync at the start of the riff, arpeggiator, or song that you are syncing to. If you restart the riff and try to release it again while the thing you are syncing to is already playing, **Start Wait** will not stop the riff.

With Release SyncType set to **Loop Wait**, if there is already a riff or song playing to sync to, the current riff will wait for the playing riff or song to restart its loop (if Loop is set to On) before starting (see [“Loop” on page 11-41](#) for looping riffs, and [“Loop” on page 13-7](#) for looping songs). This way you can trigger the riff to stop ahead of time, and have it stop in sync at the start of the playing riff or song’s loop. The difference from Loop is that if there is nothing playing to sync to, the riff will not stop when released. If the riff or song that you are syncing to is already running, **Loop Wait** behaves just like **Loop**.

With Release SyncType set to **Stop Wait**, if there is already something playing to sync to, the current riff will wait for what is playing to stop before releasing. This way you can trigger the riff to stop ahead of time, and have it start in sync at the release (stopping) of the riff, arpeggiator, or song that you are syncing to. The difference from **Stop** is that if there is nothing playing to sync to, the riff will not stop when released. If the riff or song that you are syncing to is already running, **Stop Wait** behaves just like **Stop**.



Note: For all **Release SyncType** settings except **Stop**, **Start Wait** and **Stop Wait**, a riff can sync its release with its self. For example, you could use riff 1 and sync it to its self by setting **Riff 1** for the **Release SyncZone** parameter. Then, if you set **Down Beat** for the **Release SyncType** parameter, when released the riff would always wait until its next Down Beat to stop.

Duration

Duration changes the duration of each MIDI note. The original durations of the notes in the sequence are multiplied by the selected percentage. 100% will cause no change, values smaller than 100% will result in shorter durations, values larger than 100% will result in longer durations.

Velocity

Velocity changes the velocity of each MIDI note. The original velocities of the notes in the sequence are multiplied by the selected percentage. 100% will cause no change, values smaller than 100% will result in lower velocities, values larger than 100% will result in higher velocities.

Offset

You can fine tune the start time of your riff in ticks by using the Offset parameter. A positive value will delay the start time, while a negative value will speed up the start time.

Real-time Control of Riff Parameters

You can have real-time control over several Riff parameters, by assigning physical controllers to special Riff Controller Destinations. Any input (or entry value) from a physical controller assigned to a Riff Controller Destination overrides the programmed values for the parameters of the riff on that controller's zone. The override remains in effect until you select a different Multi. Remember, each of the following Controller Destinations affects only the riff for the zone which your controller is assigned to.

Controller Number	Controller Destination	Description
163	Riff OnOff	If Riff is set to On on the RIFF page, values 64-127 will trigger the riff, values 0-63 will release the riff.
165	Riff Duration	Controls the Riff Duration parameter. The Duration value is calculated by multiplying the received controller value by 1000, and dividing the answer by 128 (any decimal points are taken off the final value.) Here are some example values: 7 = 54%, 13 = 101%, 19 = 148%, 32 = 250%, 64 = 500%, 127 = 992%
166	Riff Velocity	Controls the Riff Velocity parameter. The Velocity value is calculated by multiplying the received controller value by 2. For Example, 25 = 50%, 50 = 100%, 100 = 200%, 127 = 254%.
167	Riff Delay	Controls the Riff Offset parameter. Controller value 64 = 0 offset ticks. Each value away from 64 = 512 offset ticks. For example, 63 = -512 offset ticks, 65 = +512 offset ticks, 0 = -32768 offset ticks, 127 = +32256 offset ticks.

ARP Page

The Arpeggiator in Multi Mode is very similar to the Program Mode arpeggiator. See [The Arpeggiator \(ARP\) Page on page 7-33](#) of the Program Edit Mode Chapter for a full description of each arpeggiator parameter.

In Multi Mode, the Arpeggiator works the same as in Program Mode, except there is one arpeggiator per Zone. The Arpeggiator in each Zone can each have different settings, and they can be played at the same time. Also, in Multi Mode the Arpeggiator page does not have the Tempo parameter, instead the **Tempo** parameter on the Multi Common page should be used.

Unlike the Arpeggiator in Program Mode, the Arpeggiator in Multi Mode has the **Sync Type** parameter. Setting the Sync Type parameter to Any Beat will keep arpeggiators in sync to the same beat pulse across multiple Zones. When the Sync Type parameter is set to Any Beat, playing an arpeggiator in one Zone will wait for the next beat of any currently playing arpeggiators before starting. Set the Sync Type parameter to Off if you don't want to keep arpeggiators in sync. When the Global Mode User Type parameter is set to Advanced, additional Sync Type settings are available, which behave the same as the Riff Sync Types. See [Trigger SyncType on page 11-42](#) for details.

IMP ARP

Press the IMP ARP soft button to copy the Arpeggiator settings from the Program of the currently selected Zone into the Arpeggiator page of the currently selected Zone.

CC SEQ Page

The CC Sequencer in Multi Mode is very similar to the Program Mode CC Sequencer. See [The CC Sequencer \(CC SEQ\) Page on page 7-48](#) of the Program Edit Mode Chapter for a full description of each CC Sequencer parameter.

In Multi Mode, the CC Sequencer works the same as in Program Mode, except there is one CC Sequencer per Zone. The CC Sequencer in each Zone can each have different settings, and they can be played at the same time.

IMP SEQ

Press the IMP SEQ soft button to copy the CC Sequencer settings from the Program of the currently selected Zone into the CC Sequencer page of the currently selected Zone.

Save and Delete User Multis

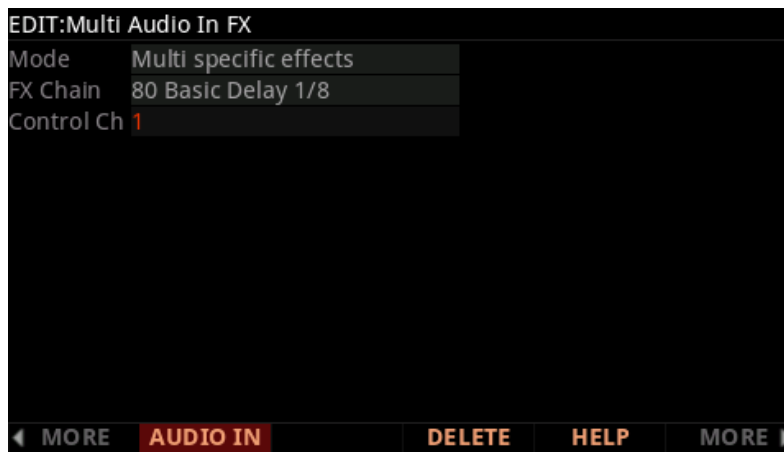
For details on saving user Multis, see [Saving a User Multi on page 10-16](#) of the Multi Mode chapter.

When the Global Mode User Type is set to Advanced, you can press the **DELETE** soft button to delete the current Multi (if it is a User Multi).

To delete multiple user Multis at once, use the Object Utils page in Global Mode. See [OBJECTS Page on page 12-29](#) for details.

Audio In FX (AUDIO IN) Page

When the Global Mode User Type parameter is set to Advanced, the AUDIO IN soft button appears in Multi Edit Mode.



Press the AUDIO IN soft button to access the Audio In FX page. The Audio In FX page allows you to choose an FX chain to apply to the rear panel 1/8" (3.5mm) input signal, and enable or disable the use of any existing FX Mods in the selected Chain. Each Multi can be saved with its own Audio Input settings, or be set to use the Audio Input settings set in Global Mode.

Mode

The Mode parameter determines whether the Multi will use its own Audio Input settings, or whether it will use the Audio Input settings set in Global Mode.

By default, Mode is set to “**Use Global Mode Effects**”, which means the Multi will use the Audio Input settings set on the Global Mode MAIN1 page (for details see [MAIN1 Page on page 12-2](#)).

Set Mode to “**Multi Specific Effects**” to enable Audio input effects for the current Multi. When “Multi Specific Effects” is selected, the FX Chain and Control Ch parameters will appear.

FX Chain

When the Audio Input Mode parameter is set to “Multi Specific Effects”, you can use the FX Chain parameter to select an FX chain to apply to the rear panel 1/8” (3.5mm) input signal. If you wish to edit a Chain, you can enter the Chain Editor by pressing the Favorites 1 button (see [Ch. 8 The Effects Chain Editor](#) for details).

When selecting an Audio Input Chain, the Chain may steal FX unit resources from other channels in order to load. Because of this you may see some Channels on the FX page become set to (Y) (higher numbered channels will be stolen first).

Control Channel (Control Ch)

Use the Control Ch parameter to set the MIDI channel on which you wish to control Chain Mods. See [Channel on page 11-11](#) for details on Multi Zone MIDI Channels.

Effect Chain Mods are modulation controls which can be assigned to the Forte’s physical controllers. Any Mods assigned within the selected Audio Input Chain can be controlled by controllers assigned within the Multi.

To view the Mods of the selected Audio Input Chain, select the Chain field and press the Favorites 1 button to enter the Chain Editor, then go to the Chain Info page (see [Ch. 8 The Effects Chain Editor](#) for details).

To control these Mods, assign a Multi controller to send these CC numbers using the Destination field on the Multi Controls page (see [CONTROLS Page on page 11-17](#) for details). The Zone used to send these CC numbers must have a MIDI Channel which matches the Audio Input Control Channel (see the Control Ch parameter, above). See [Channel on page 11-11](#) for details on setting the MIDI Channel of each Zone.

Chapter 12

Global Mode

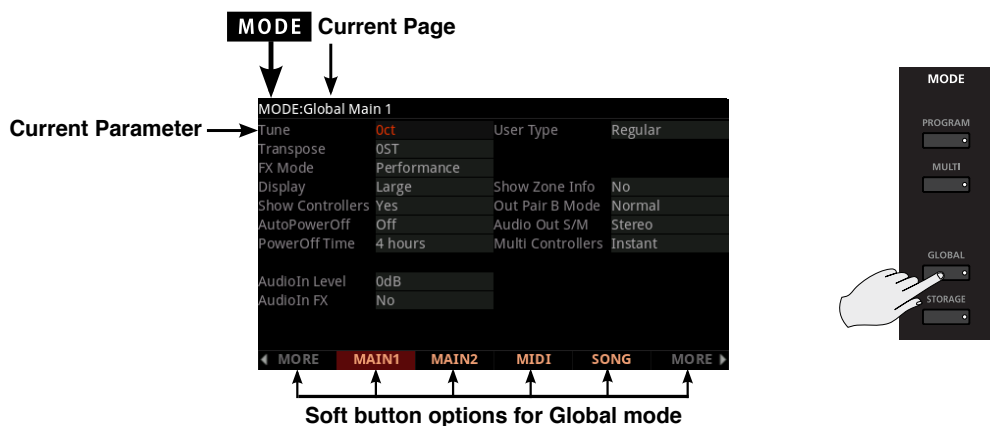
About Global Mode

Global Mode gives you access to the global parameters of the Forte. It allows you to edit the master settings of the unit. It also allows you to restore factory defaults on the unit by performing a Hard or Soft Reset.



CAUTION: Performing a Hard Reset will erase ALL User Programs, User Multis and reset Global settings to a factory state.

To enter Global Mode from another Mode, press the Global Mode button.



While you are in Global Mode, the Global button's indicator LED is lit.

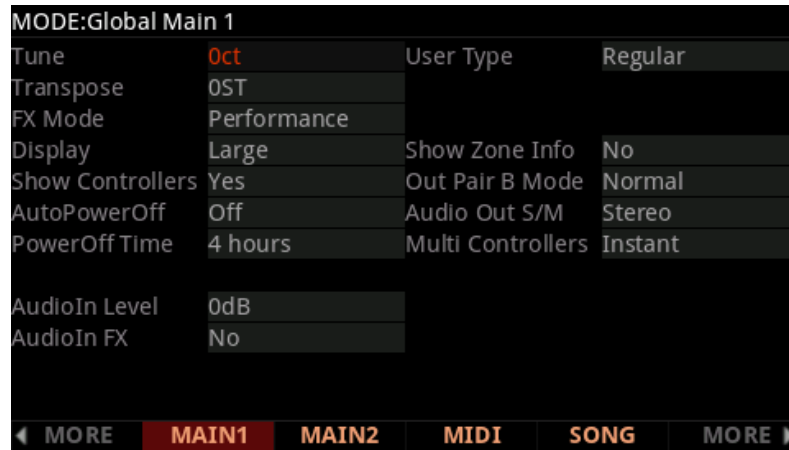
When you enter Global Mode, the last selected parameter since power-up (or the Tune parameter if you're entering Global Mode for the first time since power-up) will be the currently selected parameter.

Global Mode

MAIN1 Page

MAIN1 Page

The MAIN1 page in Global Mode allows you to adjust global tuning, effects settings, display and navigation settings, and other basic global parameters.



Parameter	Range of Values	Default Value
Tune	-100 to 100 Cents (Ct)	Oct
Transpose	-128 to 127 Semitones (ST)	0ST
FX Mode	Performance, Multitrack	Performance
Display	Large, Favorites, List	Large
Show Controllers	No, Yes, Yes (Incl. pedals)	Yes
Auto Power Off	Off, On	On
Power Off Time	15 & 30 mins, 1 hr, 2 hr, 4 hr, 8hr	4 hours
Show Zone Info	No, Yes	No
Out Pair B Mode	Normal, Mirror Out Pair A	Normal
Audio Out S/M	Stereo, Auto	Stereo
Multi Controllers	Instant, Pass Entry	Instant
User Type	Regular, Advanced	Regular
LED Ladders	Complete, Partial	Complete
Program Tempo	Program, System	Program
Sound Selection	Category Buttons, Enter Button	Category Buttons
Song Rechannel	Auto, Manual	Auto
AudioIn Level	Off, -86dB to 10dB	0dB
AudioIn FX	No, Yes	No
AudioIn FX Chain	Chain List	0 None
AudioIn Control	No Real Time Ctl, Current Chan Ctl	No Real Time Ctl
FM Velocity	1-100, 1-127	1-100

Tune

The Tune parameter allows you to fine-tune the unit in cents—one cent is one hundredth of a semitone (100 cents comprise a semitone). You can select any tuning from -100 cents to 100 cents. By default this parameter is set to 0.

Transpose

The Transpose parameter allows you to tune the pitch of the unit in semitones.

FX Mode

The FX Mode parameter determines how the Forte responds to interrupts with regards to effects. You can set this parameter to either Performance or Multitrack.

With FX Mode set to Performance, the Forte minimizes disruption of existing effects when changing Programs, and entry values will not disrupt sustained notes when changing Programs in Program Mode. When controlling the Forte from an external sequencer in Program Mode, setting FX Mode to Multitrack will minimize effect disruption.

Display

The Display parameter allows you to change the way that Programs and Multis are displayed on the Program and Multi Mode main pages by selecting one of three different “views”.

The default view is **Large**, which displays the Program or Multi name with large text, along with the category name and background image.

Favorites view is the same as Large view, plus the names of 10 favorite Programs and/or Multis are shown at the bottom of the display. (The Favorites view becomes smaller when the Show Zone Info parameter is set to Yes.)

List view displays the current Program or Multi as a selected item in a list showing the next and previous Programs or Multis.

“Large” and “Favorites” views can also show controller assignments and values when a controller is moved (Sliders, Switch buttons, Wheels, and Pedals). See “Show Controllers” below for details.

If Favorites view is selected and the Global Mode User Type parameter has been set to Advanced, you can use the Channel/Zone buttons in Program and Multi Mode to scroll through up to 100 banks of Favorite Programs and/or Multis, allowing you to save and access 1000 Favorites. With these settings, Program and Multi mode will show the current Favorites Bank number in the upper right hand corner of the screen instead of the current MIDI channel. A double press of the Channel/Zone buttons selects bank 1. User edited Favorites banks can also be renamed, for details see [Favorites Banks on page 12-29](#).

Show Controllers

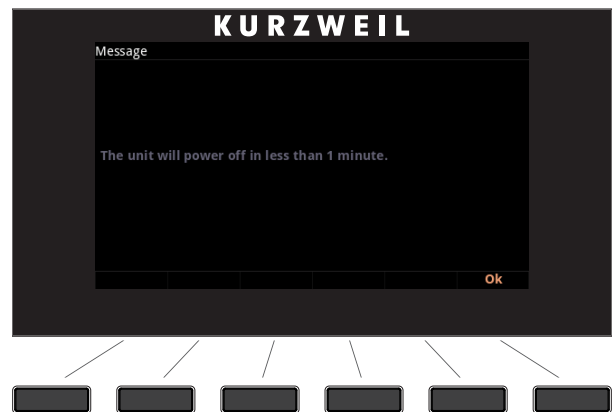
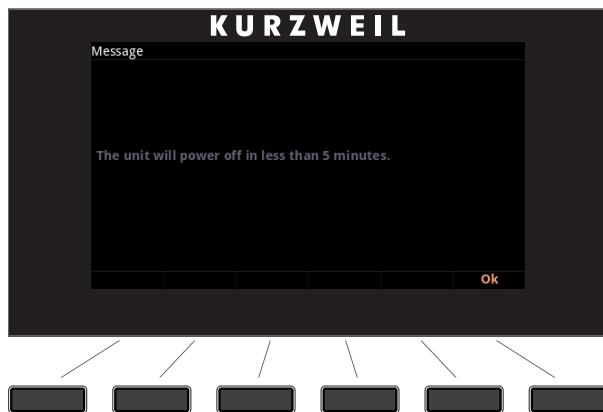
When “Large” or “Favorites” view is selected for the Display parameter (see above), the Program and Multi Mode main pages can briefly show controller assignments and values when a controller is moved. Set this parameter to **No** to hide controller assignments. Set it to **Yes** to briefly show controller assignments when a controller is moved (Sliders, Switch buttons, and Wheels, but not Pedals or Pressure). Set it to **Yes (Incl. pedals)** to show all controllers, including Pedals and Pressure.

Auto Power Off

The auto power off parameter turns the power saving feature on. When the Auto Power Off parameter is set to On, the Forte will automatically power off after the Power Off Time has expired, from the last key press (physical or MIDI), button press, controller movement, or USB MIDI activity.

Power Off Time

If the Auto Power Off parameter is set to On, then the Forte will power off after the time selected by the Power Off Time parameter has elapsed. The Forte will display the following warnings before powering off. Press a key or move any Forte control to dismiss the warning message. After dismissing this message, the Forte will wait the selected amount of time before showing this warning again.



Show Zone Info

When this parameter is set to **Yes**, the Multi Mode selection page will show information for each of the Zones in the currently selected Multi.

The Multi select page will show information for 4, 8 or 16 Zones at a time, depending on the number of Zones in the selected Multi. If the selected Multi has 4 Zones or less, the Multi select page will show the information below. If the selected Multi has more than 4 Zones, some of this information will not be displayed.

- Zone **Solo** status: The **Solo** icon turns white for any not soloed Zone. The **Solo** icon turns red for any soloed Zone.
- Zone **On** status: The **On** icon turns white for any Zone that is not active (muted). The **On** icon turns green for any Zone that is active (not muted) if it has a MIDI destination which includes LOCAL. The **On** icon turns orange for any Zone that is active (not muted) if it has a MIDI destination which does not include LOCAL.
- Zone **MIDI Output** status: The **MIDI Output** icon has a symbol for USB (on the left) and standard MIDI 5-pin DIN (on the right). This icon changes color depending on the MIDI destination of each Zone. If the Zone has no USB or MIDI output selected for Destination, the icon turns white. If the Zone has USB and/or MIDI selected for Destination, the corresponding left and/or right side of the icon turns green.
- Zone **A B Audio Output** setting: The **A B Audio Output** icon shows the Audio Output setting of each Zone. This icon corresponds with the **Output** parameter on the Multi Edit MAIN page. If Output is set to Auto, both sides of the icon (A and B) turn green. If Output is set to A, the left side of the icon (A) turns green, and the right side (B) turns white. If Output is set to B, the left side of the icon (A) turns white, and the right side (B) turns green.
- Zone **Key Range**: The **Key Range** icon shows an overview of the Key Range settings for each Zone.
- Zone **Program ID number and name**: The **Program ID number and name** of each Zone is displayed.
- **CC7** (MIDI Channel Volume): The **CC7** icon shows the value of MIDI continuous controller 7 for each Zone's MIDI channel. In each MIDI channel, CC7 controls the overall program output volume. The height of the green bars in the CC7 icon corresponds with the CC7's current value, giving you an overview of the volume of each Zone. For factory Multis, CC7 is assigned to Sliders A-D for Zones 1-4.
- **CC11** (MIDI Expression Level): When the Global Mode Main 1 **Show Controllers** parameter is set to **Yes (Incl. pedals)**, the CC11 icon appears. The **CC11** icon shows the value of MIDI continuous controller 11 for each Zone's MIDI channel. In each MIDI channel, CC11 controls the pre-insert FX program level (also known as Expression Level). The height of the green bars in the CC11 icon corresponds with the CC11's current value, giving you an overview of the Expression Level of each Zone. For factory Multis, CC11 is often assigned to the CC1 pedal.

Out Pair B Mode

The B Audio Outputs can either be used as a second set of stereo (auxiliary) outputs by setting this parameter to “Normal” or they can be used to mirror the main A Audio Outputs by setting this parameter to “Mirror Primary Outputs”. By default this parameter is set to Normal.

Audio Out S/M

The audio outputs are normally used as a stereo pair; however, the Forte can be operated in Mono mode by plugging an audio cable into the Left “A” Audio Output, and nothing into Right Output. Setting this parameter to Auto allows the Forte to detect the audio connections and adjust to mono output if required. The parameter can be set to Stereo, to force the Forte to always output a stereo signal and ignore the audio output detection. By default this parameter is set to Auto.

Multi Controllers

When a multi is selected, this parameter determines how the sliders respond to movement. When set to instant, moving a slider will result in the assigned parameter immediately jumping to the slider position. With some parameters an abrupt change to the sound may be undesirable. In this case set this parameter to PassEntry and the slider will only become active when the slider is moved past the Multi Entry Value. This results in smooth changes to the sound.

User Type

The User Type parameter allows you to show or hide advanced features of the Forte. By default, User Type is set to Regular. Setting User Type to Regular hides advanced features and makes some modes easier to navigate. Setting User Type to Advanced gives you access to additional features.

See the chapter for each mode for details on Advanced features in each mode. Setting User Type to Advanced enables the following features:

- Program and Multi mode: In Favorites view, access 16 Banks of Favorite Programs and Multis using the Channel Up/Down buttons.
- Program Edit mode: Access full VAST, KB3 and FX editing. Scroll through a larger range of FX Chain IDs. Access arpeggiator Pattern editing (note shift, velocity and duration). Edit User Intonation Maps. Access Favorites button functions.

- Multi Edit mode: Access 16 Zones. Nested Program editing from the Overview page. Nested Aux Override Chain editing from the FX page. Arpeggiator Pattern editing (note shift, velocity and duration). Access Zone Exit Volume and Pan parameters on the Overview page. Access Favorites button functions. Access the Zone Name parameter on the Main page.
- Global mode: Access the MAIN1 page Program Tempo, Sound Selection, LED Ladders and Song Rechannel parameters. Access MAIN2 page Key Velocity Map editing and User Intonation Map editing.
- Song Mode: Access the HELP page and Favorites button functions.
- Storage Mode: Access the “Fill from ID” feature.

LED Ladders

The LED Ladders parameter is shown when the User Type parameter is set to Advanced. When the LED Ladders parameter is set to **Complete**, the LED Ladders next to each slider will light all of the LEDs (from the slider’s minimum value to the current position of the slider, or current value of the parameter assigned to that slider). When the LED Ladders parameter is set to **Partial**, only a single LED will light next to each slider, to show the current position of the slider, or current value of the parameter assigned to that slider. The Partial setting is useful in low light environments, where the Complete setting may be too bright.

Program Tempo

The Program Tempo parameter is shown when the User Type parameter is set to Advanced. When this is set to Program, each program can be saved with a specific tempo, or be set to use the system tempo. Tempo is used for the Arpeggiator as well as Tempo synced effects. This is set on the Program Edit Arp page (see [Tempo on page 7-35](#)). Per-program Tempos can also be overridden by selecting System for the Global tempo parameter.

Sound Selection

When the User Type parameter is set to Advanced, the Sound Selection parameter appears. The **Category Buttons** setting allows you to select Programs and Multis normally.

The **Enter Button** setting allows you to scroll through the Program or Multi list without immediately loading the selected Program or Multi. This allows you to find the next Program or Multi to load without interrupting the Program or Multi that is currently being played. When scrolling through the Program or Multi list, Programs and Multis will appear with their names in parenthesis to indicate that they have not been loaded. Press the Enter button to load the currently selected Program or Multi. When switching to Program or Multi mode, the current Program or Multi will be loaded automatically. When pressing a Favorites button, the assigned Program or Multi will be loaded automatically.

Song Rechannel

When the User Type parameter is set to Advanced, the Song Rechannel parameter appears. The Song Rechannel parameter determines the behavior of Song mode when recording a Multi into a Song. When Song Rechannel is set to **Auto**, Song mode will automatically set the Rec Track parameter to Mult when recording from Multi mode, which allows multiple tracks to be recorded at once. This is usually the setting you will want when recording a Multi with multiple channels into multiple tracks/channels of Song mode. When Song Rechannel is set to **Manual**, the Song mode Rec Track parameter will not be automatically changed when recording from Multi mode. In this case you must manually set the Song Mode Rec Track and Track Status parameters. This can be useful if you wish to exclude certain Zones/Channels of a Multi from being recorded into a Song when recording an overdub or Punch In. See [Recording A Multi To Song Mode on page 10-17](#) for more details.

AudioIn Level

The AudioIn Level parameter controls the volume of devices plugged into the rear “Audio In” jack. The default setting of 0dB should work well for most line level sources (such as MP3 players). Adjust this parameter if the Audio Input signal is too quiet or too loud in comparison to the sounds of the Forte.

AudioIn FX

Set the AudioIn FX parameter to Yes or No to enable or disable audio input effects. The AudioIn FX settings on this page apply in Program and Multi Mode. In Multi Mode, these FX settings can be overridden for each Multi by using the Multi Edit Audio In FX page (for details see [Audio In FX \(AUDIO IN\) Page on page 11-47](#)). If a Multi is selected which has its Audio Input Mode set to “Multi Specific Effects”, the Global Mode Audio Input FX settings will be ignored, and the Audio Input FX settings in the Multi will be used instead.

AudioIn FX Chain

When the AudioIn FX parameter is set to Yes, you can use the AudioIn FX Chain parameter to select an FX chain to apply to the rear panel 1/8” (3.5 mm) input signal. If you wish to edit a Chain, you can enter the Chain Editor by pressing the Favorites 1 button (see [Ch. 8 The Effects Chain Editor](#) for details).

When selecting an Audio Input Chain, the Chain may steal FX unit resources from other channels in order to load if more resources are needed to load the Chain. When stealing occurs, resources in higher numbered channels will be stolen first, and in Program Mode resources in the currently selected channel will be stolen last.

AudioIn Control

When the “AudioIn Control” parameter is set to “No Real Time Ctl”, the Effects Chain Mods are disabled. Set the “AudioIn Control” parameter to “Current Chan Ctl” to enable the Effects Chain Mods of the selected Chain.

In Program Mode, Mods assigned within the selected Audio Input Chain can be controlled by the Forte’s physical controllers. See the About Effects Chain Mods section below for more details.

In Multi Mode, if a Multi is selected which has its Audio Input Mode set to “Use Global Mode Effects”, any Mods assigned within the selected Audio Input Chain can be controlled by controllers assigned in a Zone set to the same MIDI channel as the current setting for the Multi’s “AuxFX Ch” parameter. See the About Effects Chain Mods section below for more details.

About Effects Chain Mods

Effects Chain Mods are modulation controls which can be assigned to the Forte’s physical controllers. For example, an Effects Chain Mod assigned to a slider can be used to adjust the dry/wet effect mix, or control other parameters like reverb or delay time.

When the “AudioIn Control” parameter is set to “Current Chan Ctl”, Mods assigned within the selected AudioIn FX Chain can be controlled by controllers sending the same CC numbers from the currently selected Program or Multi.

To view the Mods of the selected AudioIn FX Chain, select the AudioIn FX Chain field and press the Favorites 1 button to enter the Chain Editor, then go to the Chain Info page (see [Ch. 8 The Effects Chain Editor](#) for details).

Audio Input Mods in Program Mode

To control Audio Input Mods in Program Mode, first make sure the Global “AudioIn Control” parameter is set to “Current Chan Ctl”. In Program Mode, the Forte’s physical controllers send the MIDI CC numbers listed in the table below. If the selected Chain contains Mods which use any of these MIDI CC numbers, effects parameters will be controllable by using the physical controllers which have corresponding MIDI numbers.

Use the Chain editor if you wish to add Mods, remove Mods, or change their MIDI assignments. Select the Chain field and press the Favorites 1 button to enter the Chain Editor. See [The MOD Pages on page 8-3](#) for details on editing Chain Mods.

Forte Controller MIDI CCs		
Mod Wheel (MIDI 1)	Slider G (MIDI 26)	Zone 1 Switch (MIDI 80)
CC Pedal 1 (MIDI 11)	Slider H (MIDI 27)	Zone 2 Switch (MIDI 81)
CC Pedal 2 (MIDI 4)	Slider I (MIDI 28)	Zone 3 Switch (MIDI 82)
Slider A (MIDI 12)	Variation Switch (MIDI 29)	Zone 4 Switch (MIDI 83)
Slider B (MIDI 13)	Sw.Pedal 1 (MIDI 64)	Assignable Switch 1 (MIDI 85)
Slider C (MIDI 22)	Sw.Pedal 2 (MIDI 66)	Assignable Switch 2 (MIDI 86)
Slider D (MIDI 23)	Sw.Pedal 3 (MIDI 66)	Assignable Switch 3 (MIDI 87)
Slider E (MIDI 24)		Assignable Switch 4 (MIDI 89)
Slider F (MIDI 25)		Assignable Switch 5 (MIDI 90)

Audio Input Mods in Multi Mode

To control Audio Input Mods in Multi Mode, first make sure the Global “Control” parameter is set to “Current Channel Control”. On the Multi Edit Controls page, use the Destination field to assign a Multi controller to send the desired FX Mod CC number (see [CONTROLS Page on page 11-17](#) for details). The Zone used to send these CC numbers must have a MIDI Channel which matches the current setting for the Multi’s “AuxFX Ch” parameter. See [Channel on page 11-11](#) and [Aux FX Channel on page 11-34](#) for details.

FM Velocity

The FM Velocity parameter determines how FM layers in Programs respond to note velocity.

When FM Velocity is set to 1-100, FM layers will respond to note velocities 1-127, but will sound as they did in classic FM synthesizers which only transmitted velocities 1-100. This is useful when playing FM layers imported from classic FM synthesizers.

When FM Velocity is set to 1-127, FM layers will respond to note velocities 1-127. This provides more velocity range than classic FM synthesizers; FM layers imported from classic FM synthesizers may sound different (imported FM layers will often sound brighter).

MAIN2 Page

The MAIN2 page in Global Mode allows you to velocity and intonation settings, as well as other global controller settings.



Parameter	Range of Values	Default Value
Velocity Map	Linear, Light1, Light2, Light3, Hard1, Hard2, Hard3, PianoTouch, Easy Touch, GM Receive	Linear
Key Velocity Map	Key Velocity Map list	1 Flat
Pressure Map	Easiest, Easier, Easy, Linear, Hard, Harder, Hardest	Linear
Press S Override	None, 0% - 300%	None
Intonation Map	0 None, 1 Equal, 2 Just, 3 Just/b7th, 4 Harmonic, 5 Just-Harm, 6 Werkmeister, 7 1/5thComma, 8 1/4thComma, 9 IndianRaga, 10 Arabic, 11 BaliJava1, 12 BaliJava2, 13 BaliJava3, 14 Tibetan, 15 Carlos A, 16 Pyth/aug4, 17 Pyth/dim5, 18 EastMed	1 Equal
Int Key	C, C#, D, D#, E, F, F#, G, G#, A, A#, B	C
Pedal Noise	Off, On	On
S.Buttons 1-2	Octave, Arp, Record/Play	Octave
SW1, SW2, SW3 Override	Sustain, Sostenuto, Soft, Data Inc, Data Dec, Favorite Inc, Favorite Dec, Arp On/Off, Arp Latch	None
CC1, CC2 Override	ModWheel, Foot, Volume, Expression, Pressure	None
Rotary Override	Button+Pedal, Button	Button+Pedal
Drum Remap	None, GM	None
Default Song	Song List	1 New Song

Velocity Map

The Velocity Map parameter determines the way the Forte generates MIDI velocity information. Different maps generate different MIDI velocity values for the same physical key strike velocity.

The default map (Linear) provides the widest range of velocity expression, but you may want to choose a different map if the default does not suit your playing style. You can select from any of the following settings:

Light3 Light2 Light1	Makes it increasingly easier to produce high MIDI velocity values for the same key strike velocity (with Light3 being the easiest). These maps work best for those with a light touch.
Linear	The Forte default map. Linear, allows MIDI velocities to pass unchanged. It follows a linear response.
Hard1 Hard2 Hard3	Makes it increasingly harder to produce high MIDI velocity values for the same key strike velocity (with Hard3 being the hardest). These maps work best for those with a heavy touch.
PianoTouch	Simulates the general velocity response of an acoustic piano, and is best suited for playing acoustic piano programs.
Easy Touch	Similar to the Light1/Light2/Light3 settings. Makes higher velocities easier to play, but allows more sensitive control over playing high velocities by not boosting the MIDI velocity for fast strike velocities as much as it does for medium strike velocities.
GM Receive	Mimics the velocity response commonly used by keyboards that use the General MIDI (GM) sound set. The GM Receive map makes medium strike velocities produce higher MIDI velocities compared to the Linear map.

Key Velocity Map

Adjust the velocity response per key. Select the “1 Flat” map and press the Favorites 1 button to edit the map (the Global Mode MAIN1 [User Type](#) parameter must be set to Advanced). In the Key Velocity Map editor, keys can be selected by scrolling, or using the Assign function of the Enter button (hold the Enter button and strike a key). Velocity response for each key can be adjusted by +/- 50. After making changes in the Key Velocity Map editor, press the SAVE soft button if you wish to save your changes as a user Key Velocity Map. Use the save dialog to select an ID to save to (32-127) and rename the map if desired.

Pressure Map

The Pressure Map parameter determines the way the Forte controls Pressure (Aftertouch). Different maps generate different MIDI pressure values for the same physical key depending on how hard you press and hold the key.

Easiest Easier Easy	Makes it increasingly easier to produce high MIDI pressure values (with Easiest being the easiest).
Linear	The Forte default map. Linear, allows MIDI pressure (aftertouch) to pass unchanged. It follows a linear response.
Hard Harder Hardest	Makes it increasingly harder to produce high MIDI pressure values (with Hardest requiring most pressure).

Press S Override

In addition to the Pressure Map parameter, Press S Override provides fine adjustment of key pressure (aftertouch) sensitivity. A setting of 0% prevents the generation of pressure messages.

S.Buttons 1-2

This sets the function of Soft buttons 1 and 2 in Program/Multi Mode.

Select **Octave** for OCTAVE-/OCTAVE+ buttons, which will transpose all MIDI notes played on the keyboard.

Select **Arp** for ARP ON/LATCH buttons. In Program mode ARP ON enables or disables the arpeggiator for the current program. In Multi mode ARP ON enables or disables the arpeggiator for any Zones in the current Multi which have an Arp Mode setting other than Off. **Make sure to set the Arp Mode to Off for Zones that you don't want to arpeggiate.** LATCH enables the arpeggiator Latch function for any currently enabled arpeggiators, based on the Latch setting of each arpeggiator.

Select **Record/Play** for RECORD/PLAY buttons, which allow you to record into the currently selected Song in Song mode, from Program or Multi mode. When recording from Program mode, Programs will be recorded to tracks that have the same channel currently selected in Program mode. When recording from Multi Mode, Programs will be recorded to tracks that have the same channels used by Zones in the current Multi. See [Ch. 13 Song Mode](#) and [Recording A Multi To Song Mode on page 10-17](#) for details.

Intonation Map

Most modern western music uses what is known as equal temperament. This means that the interval between each semitone of the 12 tone octave is precisely the same as every other semitone.

However, many different intonation intervals have evolved over the centuries and across cultures and instruments, so equal temperament will not sound appropriate for certain styles of music. The Forte supplies you with 18 different factory intonation maps which are useful for a range of different styles. You can further customize each map or create your own by editing a map (see Editing Intonation Maps below.) Each of these maps defines different intervals between each of the semitones in a single octave (used for all octaves) by setting pitch offsets for each note in cents.

Like many instruments before the adaptation of equal temperament, most of these intonation maps were designed to sound best in one specific key. Though some may have historically been in a different key, all of the Forte's factory intonation maps are set to root note C by default. You can change the root key of the current intonation map by using the Int Key parameter (see the Intonation Key (Int Key) section below.)

0 None	No intonation map is used, intonation is equal.
1 Equal	No detuning of any intervals. The standard for modern western music.
2 Just	Tunings are defined based on the ratios of the frequencies between intervals. The original tuning of Classical European music.
3 Just/b7th	Similar to Just, but with the Dominant 7th flatted an additional 15 cents.
4 Harmonic	The perfect 4th, Tritone, and Dominant 7th are heavily flatted.
5 JustHarm	Approximation of a historical intonation.
6 Werkmeister	Named for its inventor, Andreas Werkmeister, it was developed to enable transposition with less dissonance than classic equal temperament.
7 1/5thComma	Approximation of a historical intonation based on the comma system.
8 1/4thComma	Approximation of a historical intonation based on the comma system.
9 IndianRaga	Based on the tunings for traditional Indian music.
10 Arabic	Oriented toward the tunings of Mid-Eastern music.
11 BaliJava1	Based on the pentatonic scale of Balinese and Javanese music.
12 BaliJava2	A variation on BaliJava1, slightly more subtle overall.
13 BaliJava3	A more extreme variation.
14 Tibetan	Based on the Chinese pentatonic scale.
15 Carlos A	Developed by Wendy Carlos, an innovator in microtonal tunings, this intonation map flats each interval increasingly, resulting in an octave with quarter-tone intervals.
16 Pyth/aug4	This is a Pythagorean tuning, based on the Greek pentatonic scale. The tritone is 12 cents sharp.
17 Pyth/dim5	This is a Pythagorean tuning, based on the Greek pentatonic scale. The tritone is 12 cents flat.
18 EastMed	Eastern Mediterranean. The Major 3rd and Major 7th are flat by 50 cents.

Editing Intonation Maps

To edit an intonation map or create a new map, the Global mode User Type parameter must be set to Advanced. Select an existing map and press the Favorites 1 button to view the intonation editor (see below.) Intonation maps are based around a root key, use the Channel up/down buttons to change the root key, and the layout of keys will shift in the display (this is the same as changing the Int Key parameter (see Intonation Key (Int Key) below.) Intonation Key is not saved with the intonation map.) Use the cursor to move between notes. Each note can be shifted by ± 200 cents (100 cents=1 half-step.) Use the alpha wheel, or plus/minus buttons to enter the desired cent shift amount for each note.

Press the Save soft button to bring up the save dialog which allows you to rename the map and choose an ID to save to. Edited user intonation maps can be saved to IDs 32-127. Press the Exit soft button to return to the Global Main 2 page without saving your changes. When exiting the editor, it will automatically give you the option to save the map if changes have been made.



Int Key (Intonation Key)

This sets the tonic, or base note from which the currently selected intonation map calculates its intervals. If you select G as the intonation key, for example, and the intonation map you select tunes the minor 2nd down by 50 cents, then G# will be a quartertone flat relative to equal intonation. If you change the intonation key to D, then D# will be a quartertone flat. If you use nonstandard intonations, you'll want to set Int Key to the key you're playing in.

If the Intonation parameter is set to Equal, changing Int Key has no effect.

Drum Remap

This parameter will remap all Drum programs to conform to the General MIDI (GM) drum map, a standard drum map used in many keyboards and synthesizers. The GM drum map isn't optimally intuitive in terms of playability, so by default the Forte uses a unique keymap that is more intuitive and lends better to performance. However, the GM drum map is so commonplace that many players feel more comfortable playing drum programs with the GM drum map. Because of this, the Forte is designed such that you can remap drum programs to the GM drum map.

When the Drum Remap is set to **None**, no remapping takes place in Program mode. When the Drum Remap is set to **GM**, the Forte remaps Drum programs to the GM drum map.

Pedal Noise

Some piano Programs have a Pedal Noise feature programmed into the sound. This parameter allows you to turn the Pedal Noise off if you prefer not to use it. If it is on, it will only activate noise on those Programs that have been programmed to use it.

Switch Pedal Overrides

The Switch Pedal Override parameters (SW1-3 Override) allow the controller assignments for the Switch Pedals to be changed for all Programs and Multis. (KB3 organ programs have a separate override for the SW1 pedal, see the Rotary Override section below for details.) The alternative assignments available for the Switch Pedal Overrides include the standard pedal controls of Sustain, Sostenuto and Soft as well as DataInc, DataDec, FavoriteInc and FavoriteDec, which can be used to change Programs, Multis or Favorites by using a pedal.

Use the DataInc and DataDec assignments (data increment/decrement) to select the next or previous ID when you depress the pedal. If you are in Program mode, DataInc and DataDec will select the next or previous Program. If you are in Multi mode, DataInc and DataDec will select the next or previous Multi.

Use the FavoriteInc and FavoriteDec assignments (Favorite increment/decrement) to select the next or previous Favorite when you depress the pedal. If you are not playing any Favorites, FavoriteInc and FavoriteDec will select the first Favorite, or the last Favorite that was selected since turning on the Forte.

Use the Arp On/Off and Arp Latch assignments to easily control arpeggiator functions. The Arp On/Off assignment allows you to toggle the arpeggiator on and off by pressing a switch pedal. The Arp Latch assignment allows you to latch held notes to be played by the arpeggiator by holding down a switch pedal. When using the Arp Latch assignment, make sure the arpeggiator is turned on. Play the notes you wish to latch, press and hold the assigned pedal, then release the notes. The notes will continue to arpeggiate until the pedal is released. (The functionality may differ depending on the current arpeggiator Latch settings, see [Latch on page 7-35](#) for details.)

In Multi Edit Mode, if a pedal is selected which has a pedal override enabled in Global mode, a message “Global Pedal Override is enabled” will display when that pedal is viewed to remind you that the Global mode pedal override settings are being used instead of the Multi mode pedal settings.

In Multi Edit Mode, setting a Pedal Mode to “Off” will disable the override for that Pedal in the selected Zone. It can be useful in Multi Mode to disable the Pedal Override for some Zones. For example, you may want to use a Pedal Override to control Sustain in all Zones of a Multi, but disable Sustain for one Zone.

When a Pedal Switch Override is used, the pedal will behave in Multi Mode as if the OnValue and OffValue are set to 127 and 0 respectively (this will not be shown in Multi Edit Mode). When a Pedal Switch Override is set to Sustain, Sostenuato or Soft, the pedal will behave in Multi Mode as if Pedal Type is set to Momentary (this will not be shown in Multi Edit Mode). When set to DataInc, DataDec, FavoriteInc or FavoriteDec the pedal will behave in Multi Mode as if Pedal Type is set to Toggle (this will not be shown in Multi Edit Mode).

CC Pedal Overrides

In a similar manner to Switch Pedal Overrides, the CC Pedal Override parameters (CC1-2 Override) allow the Continuous Control Pedal assignments to be changed for all Programs and Multis. The alternative assignments available for the CC Pedal Overrides include Mod Wheel (MIDI CC 1), Foot/Wah (MIDI CC 4), Volume (MIDI CC7), Expression (MIDI CC11) and Pressure.

In Multi Edit Mode, if a pedal is selected which has a pedal override enabled in Global mode, a message “Global Pedal Override is enabled” will display when that pedal is viewed to remind you that the Global mode pedal override settings are being used instead of the Multi mode pedal settings.

Rotary Override

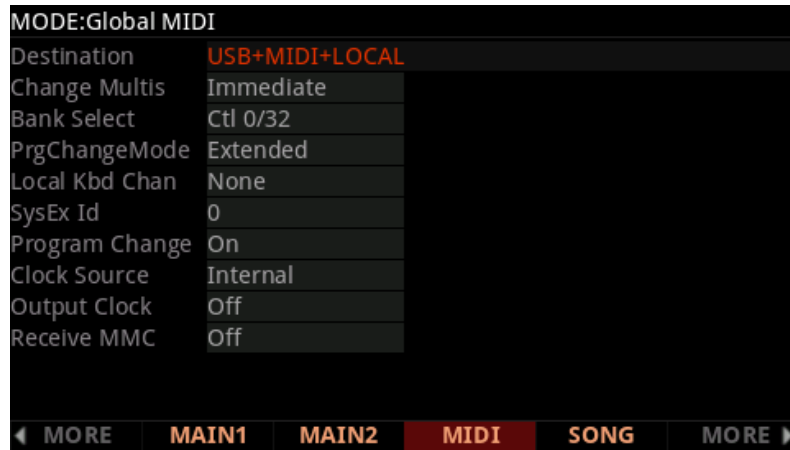
By default KB3 organ programs have the Slow/Fast speed control for the Rotary speaker effect assigned to the Variation Button and the Sustain Pedal (SW1). The Rotary Override parameter allows you set the sustain pedal to function as sustain for all KB3 Programs, instead of Rotary Slow/Fast. The Variation button will always control the Rotary speed, regardless of this parameter’s setting.

Default Song

The Default Song parameter determines which song will be used as a new song template when 0*New Song* is selected in Song mode. By selecting an edited user song, this allows you to set custom settings for the new song template (such as metronome Program and Count Off settings). When the Global mode MAIN1 page User Type parameter is set to Advanced, 0*New Song* can be selected in Song mode by pressing the Favorites 9 button.

MIDI Page

The Forte can transmit and receive MIDI via its MIDI ports and USB. The MIDI page in Global Mode allows you to configure how this will be handled.



Parameter	Range of Values	Default Value
Destination	NONE, LOCAL, MIDI, MIDI+LOCAL, USB, USB+LOCAL, USB+MIDI, USB+MIDI+LOCAL	USB+MIDI+LOCAL
ChangeMultis	Immediate, AllKeysUp	Immediate
Bank Select	Ctl 0, Ctl 32, Ctl 0/32	Ctl 0/32
PrgChangeMode	Extended, K2600, Favorites	Extended
LocalKbdChan	None, 1 to 16	None
SysExID	0 to 127	0
Program Change	Off, On	On
Clock Source	Internal, External	Internal
Output Clock	Off, On	Off
Receive MMC	Off, On	Off

Destination

The Destination parameter determines the destination of MIDI data generated by striking keys or activating controllers. This data can be sent to the Forte sound engine, through the MIDI out ports, or both. You can set this parameter to NONE, or any combination of the three available destinations.

Note that this parameter is always active and works in conjunction with the Multi Mode Destination parameter (see [page 11-9](#)). These parameters act like filters, so if the Multi Mode Destination parameter is set to USB+MIDI+LOCAL and the Global Mode parameter is set to LOCAL, the MIDI data will only be transmitted locally.

NONE	No MIDI data transmission from the Forte. The Forte can still receive incoming MIDI data.
LOCAL	MIDI data is sent only to the Forte sound engine. MIDI Out is disabled.
MIDI	MIDI data is sent only through MIDI Out. The sounds of the Forte are disabled
MIDI+LOCAL	MIDI data is sent both to the Forte sound engine and through the MIDI Out.
USB	MIDI data is sent only through the USB port. The sounds of the Forte are disabled
USB+LOCAL	MIDI data is sent both to the Forte sound engine and through the USB port.
USB+MIDI	MIDI data is sent both to the MIDI OUT and USB port.
USB+MIDI+LOCAL	MIDI data is sent to the MIDI OUT, USB port. and to the Forte sound engine.

If you want to play the Forte, but not send any MIDI information to other MIDI instruments, then select LOCAL.

If you want to use the Forte strictly as a MIDI controller for the other modules in your MIDI chain using the MIDI port, then select MIDI.

If you want to make use of the Forte's sounds as well as use it as a MIDI controller (MIDI port), then select MIDI+LOCAL.

If you want to use the Forte strictly as a MIDI controller for the other modules in your MIDI chain using the USB (Computer) port, then select USB.

If you want to use the Forte strictly as a MIDI controller for the other modules in your MIDI chain using the MIDI port and the USB (Computer) port , then select USB+MIDI.

If you want make use of the Forte's sounds and use it as a MIDI controller for the other modules in your MIDI chain using the MIDI port and the USB (Computer) port , then select USB+MIDI+LOCAL.



CAUTION: It is possible to stop all MIDI transmission, in Multi Mode, if the Destination parameter is set to LOCAL, and the other is set to MIDI or USB.

Change Multis

The Change Multis parameter determines the exact timing of Multi changes when you select a different Multi, either by a normal data entry method or via MIDI program change commands.

Choose AllKeysUp to indicate that you want Multi changes to take place only when you've released all currently held notes.

Choose Immediate to indicate that you want such changes to happen immediately when you select the Multi.

Bank Select

The Bank Mode parameter determines the controller number with which MIDI Bank change messages are received.

For MIDI Bank change messages, various manufacturers have chosen different MIDI controller numbers. Most have chosen Ctl 0, Ctl 32, or both. You can set this parameter to any of the following three controller IDs:

Ctl 0	MIDI Bank change messages are sent with controller number 0.
Ctl 32	MIDI Bank change messages are sent with controller number 32.
Ctl 0 / 32	MIDI Bank change messages are sent with both controller numbers 0 and 32.

PrgChangeMode

The Program Change Mode (PrgChangeMode) parameter determines the format of program change messages received by the Forte.

Program Change Type	For Use With
Extended	Bank changes and Program changes. A bank has 128 IDs. Note that our system will recognize 16 banks, from 0 to 15. (2048 IDs). This is for connectin a generic MIDI device as a controller device.
K2600	Bank changes and Program changes. A bank has 100 IDs. Our system will recognize in this case 21 banks, from 0 to 20. For example, with MIDI out from a K2600 into the MIDI in of the Forte, if you scroll or enter a number in the K2600, you will see the same numbers in the K2600 and in the Forte if the programs exist.
Favorites	For use with other Forte's.

Local Kbd Chan (Local Keyboard Channel)

The Local Keyboard Channel enables an external MIDI keyboard to function as if it is the Forte's keyboard and physical controllers. This allows all Channels/Zones of a Multi to be played simultaneously from an external MIDI keyboard transmitting on a single MIDI channel (or a single MIDI channel of a sequencer), with split and layered Zones laid out across the external MIDI keyboard. To do this, set Local Kbd Chan to the same MIDI channel that your external MIDI keyboard or sequencer is transmitting.

If you are not using an external MIDI device to play Multis, you can ignore this parameter and leave it set to None. When Local Keyboard Channel is set to None, an external MIDI device transmitting on one channel will only play one Channel/Zone of a Multi.

In Program Mode, an external MIDI keyboard or sequencer transmitting on the Local Kbd Chan will always play the Program on the currently selected Program Mode MIDI channel.

Sysex ID

The SysEx ID parameter determines the ID number for the unit if you are using more than one device with the same MIDI manufacturer ID number. You can set this parameter to any number from 0 to 127.

Unless you have multiple Forte keyboards receiving Sysex messages from a single source, you will not need to change the Sysex ID from the default setting of 0.

If you do have multiple Fortes receiving Sysex messages from a single source, make sure each Forte has a different Sysex ID. This will allow you to direct Sysex messages to the appropriate Forte by specifying which unit with the Sysex ID byte that's included with every Sysex message.

To have the unit respond to Sysex messages regardless of the Sysex ID, set Sysex ID to 127.

Program Change

Use the Program Change parameter to enable or disable sending program change messages to external MIDI devices when selecting Programs in Program Mode, Multi Edit Mode, or when selecting a Multi in Multi Mode.

Clock Source

With the Clock Source parameter set to Internal, Forte plays using its own Tempo. If you wish to sync the Forte to the tempo of an external device, use the External setting.

Output Clock

To send a MIDI clock pulse to the USB and MIDI Out ports, set this parameter to On. Otherwise, set it to Off.

Receive MMC (Receive MIDI Machine Control)

Use the Receive MMC parameter to enable or disable receiving of MIDI Machine Control messages sent to the Forte's MIDI In or USB ports. When Receive MMC is set to Off, the Forte will ignore MMC messages. When Receive MMC is set to On, the Forte's Song Mode will respond to MMC messages for Song Play and Song Stop. This allows you to use an external sequencer to start or stop the currently selected song in Forte's Song Mode, as well as set the bar/beat location of the current song.

SONG

Press the SONG soft button to enter Song mode. Song Mode allows you to record MIDI songs with up to 16 Tracks. See [Ch. 13 Song Mode](#) for details.

SAMPLES

Press the SAMPLES soft button to view the User Sample Memory page. This page is useful for seeing how much user sample memory is available for loading WAVE/AIFF audio files and user samples into the Forte's flash memory.

The **Total available** field allows you to monitor how much user sample space is available (out of 3456 MB). The **Largest free chunk** field shows you how much contiguous user sample space is available. This represents the size of the largest single sample that can be loaded.

When some user sample memory has been used, it is represented on this page by solid white squares. If you have loaded and deleted many samples, the page will likely show many groups of white squares with empty spaces in between (known as fragmented memory).

Large user samples must be loaded into adjacent blocks of memory. If the memory has become fragmented, you may be unable to load a large sample, even if there appears to be enough available memory. For example, if the memory is fragmented and the Total Available field shows 100 MB, you may not be able to load a 50 MB audio file (but you may be able to load ten 10 MB audio files).

To clean up the user sample memory when it has become fragmented, you can back up all user objects and samples to a USB device, delete all user objects and samples by performing a hard reset, then reload the saved user objects and samples. For details see [Store All on page 14-6](#), [Reset Forte To Its Factory State \(Hard Reset\) on page 12-31](#), and [The LOAD Page on page 14-6](#).

PREVIEW (Sample Preview)

Press the PREVIEW button to go to the Sample Preview page. The Sample Preview page can be used to automatically make a new keymap and Program using any sample or group of sample roots (factory or user samples). Programs created with the preview function are saved in Program Mode. This allows you to quickly hear what a sample or group of sample roots will sound like in a Program. The preview function is also a quick way to begin making a new Program which can be edited further if desired.

If a single sample is selected, a single keyrange keymap will be created. If a group of sample roots is selected, the preview function will try to create a keymap with multiple key ranges based on each sample's root key. If the sample or group of sample roots are stereo, the created keymap will be stereo.

To use the preview function, go to the PREVIEW page, select a sample or group of sample roots in the Sample field using the Alpha Wheel, +/- buttons, or the alphanumeric pad, then press the OK soft button. Next you will be brought to the "Fill from Id" page, where you must select an ID to store the new keymap and program. The preview function will save the created program and keymap using the selected ID, or the next higher numbered unused ID. The preview function will never overwrite existing Programs or keymaps. Press the OK soft button to choose the selected bank and create the new Program and keymap. The new program will be selected in the currently selected channel in Program Mode.

TOOLS Page

Pressing the TOOLS soft button calls up a page that gives you access to several analytic and diagnostic tools. Additionally, pressing the two center soft buttons simultaneously will call up the TOOLS page from any mode. Press the EXIT button when finished.



MIXER



The Mixer page allows you to view and control the current state of the Forte's 16 MIDI channels. The currently selected Channel and Program are displayed in the top line. Press the **1-8** or **9-16** soft button to view channels 1-8 or 9-16.

Press the **AUTO** soft button to enable or disable automatic channel selection. When the AUTO soft button is black (disabled), the keyboard will play the channel selected with the Channel/Zone buttons. When the AUTO soft button is red (enabled), the keyboard will play the channel of the currently selected parameter.

Use the **Enable** parameter to enable or disable the Program on each MIDI channel.

The **Prog** parameter allows you to view and change the Program number of each Channel.

The **Pan** and **Vol** parameters allow you to view and adjust the left right panning (MIDI CC 10) and channel volume (MIDI CC 7) of each Channel. You can also use sliders A-H to view and adjust the channel volume of the 8 currently displayed channels.

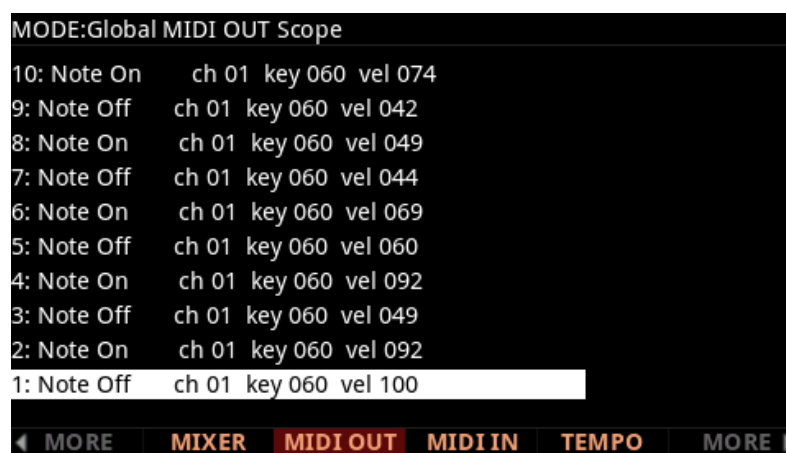
The **lock** symbol next to each Prog, Pan and Vol parameter allows you to lock the current Program, Pan and Volume setting for each channel so that it can not be accidentally changed by external MIDI messages sent to the Forte when using external MIDI equipment. When the lock symbol is green, the value is unlocked and can be changed normally. When the lock symbol is red, the value is locked. Select the lock symbol and press the Previous or Next button to unlock or lock each parameter.

Press the **BACK** soft button to return to the TOOLS page.

To quickly access the Mixer page from any mode, simultaneously press the middle two soft buttons below the display (soft buttons 3+4) to jump to the TOOLS page, then press the MIXER soft button. Press the Exit button twice to return to the previous Mode and page.

MIDI OUT and MIDI IN

Press the MIDI OUT or MIDI IN soft buttons to view the MIDI Scope page for the MIDI Out or In ports, where you can monitor MIDI messages in real time. The MIDI OUT Scope page allows you to view MIDI messages sent from the Forte, while the MIDI IN Scope page allows you to view MIDI messages received by the Forte. The MIDI OUT Scope page is useful for making sure controls are assigned as you want them, checking note velocities, and checking controller values or other MIDI messages. The MIDI IN Scope page is useful for checking MIDI messages sent to the Forte from external MIDI devices. Each MIDI Scope page can store a history of 512 messages. Use the cursor Up and Down buttons to scroll up through the list of messages. The most recently sent or received message will be labeled number 1 at the bottom of the list.



TEMPO

Press the TEMPO soft button to go to the TEMPO page. When the Clock Source parameter is set to Internal (see [Clock Source on page 12-21](#)), the Tempo parameter sets the Forte's System Tempo. The Tempo parameter values are in units of BPM (beats per minute).



Note: You can also call up the TEMPO page from any other page by pressing the left and right navigation buttons simultaneously. Press the Exit button to return to the previous screen.

In Program Mode, System Tempo can control the rate of each Program's arpeggiator, as well as the rate of any tempo synced Insert or Aux effects that each program may use. Most programs will default to using the System Tempo, though some programs may be programmed use their own tempo (for details see Tempo on page 7-58) All programs can be set to use the System Tempo by setting the Global Mode User Type parameter to Advanced, then setting the Global Mode Program Tempo parameter to "System". For details see [User Type on page 12-6](#) and [Program Tempo on page 12-7](#).

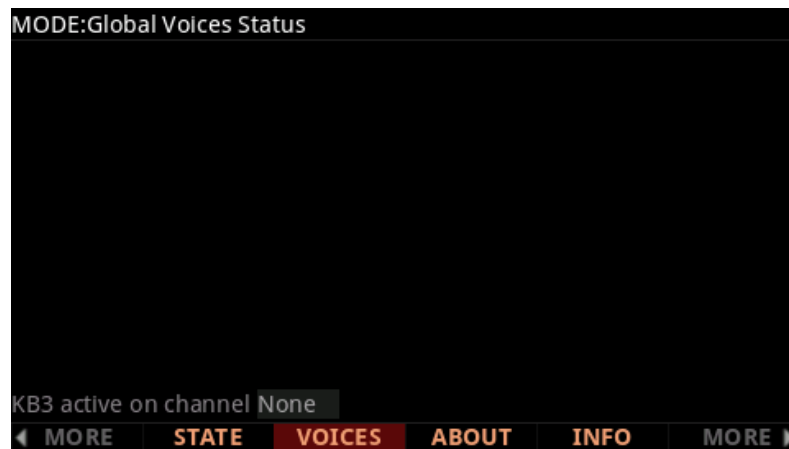
In Multi Mode, System Tempo is ignored and the Multi Common Tempo of each Multi is used for all programs in a Multi.

Set the Tempo parameter with the Previous-/Next+ buttons, the Alpha Wheel, or alphanumeric entry. You can also set the system tempo by tapping the Tap Tempo button at the desired speed. You need to tap at least twice for a tempo to be calculated, though tapping several times (like on each beat of one or more measures) works best. The newly tapped tempo is displayed in the tempo field.

VOICES

Pressing the Voices soft button calls up the Voice Status page, which shows the Forte's active voice channels as you play.

The Voice Status pages displays each active voice as an "M" for mono voices or displays stereo pairs of voices as an "S". Whatever symbol the page displays, when the key of a voice is released, that voice's symbol on the Voices Status page turns into a "D" during the release portion of that voice's envelope. When the voice decays to silence, it is no longer active, and the "D" disappears.

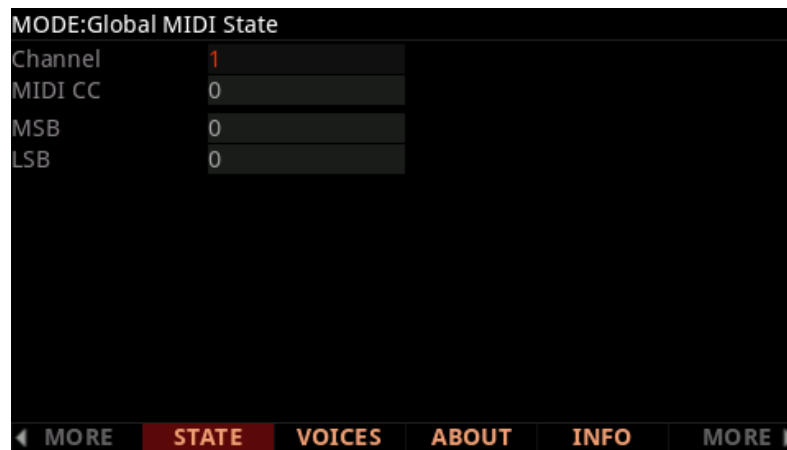


The Voice Status page gives you an indication of the envelope level of each voice, though not necessarily the volume level. Nonetheless, this can give you a valuable indication of how your voices are being used. For example, if all or most of the voices are active, then there's a good chance that when voice stealing takes place an audible voice will be reallocated.

KB3 Programs that simulate Hammond™ organs do not use any of the Forte's 128 voices of polyphony (this does not apply to KB3 Programs that emulate Vox™ or Farfisa™ organs). Only one KB3 Program can be active on the Forte's 16 MIDI channels at any time. The bottom of the voices page indicates which of the Forte's 16 MIDI channels (if any) has an active KB3 program.

STATE

This utility shows the internal state of the MIDI CCs in any channel at a particular time.



Typical use: "My channel X does not make any sound". Is it MIDI 7 (Volume), is it MIDI 11 (Expression) or is it something else? With STATE you can check the status for various CCs per channel. Use the cursor buttons to select the Channel or MIDI CC fields, then use the alpha wheel or previous/next buttons to select the desired Channel and MIDI CC to view.

ABOUT

The ABOUT Page displays the Forte splash screen and automatically scrolls a list of credits and acknowledgments.

INFO

The INFO page contains the system information indicating what version of operating system and objects is currently installed.

Go to the Kurzweil website at www.kurzweil.com and make sure that you have the latest operating system available.



OBJECTS Page

Use the Global Object Utils page to move or delete User objects. Press the EXIT button to leave the page.



Caution: Deleted User objects can not be restored. All User objects that you wish to save should be saved to a computer or external USB device before deleting, see [The STORE Page on page 14-5](#) for details.



Use the navigation buttons to highlight the object that you wish to move or delete, then press the **SELECT** soft button to select the object. Selected objects are marked with an asterisk, and multiple objects can be selected at the same time.

Objects in the list are grouped by object type. Press the **TYPE** soft button to jump to the next different type of object in the list.

Press the **MOVE** soft button to move the selected objects to a different ID.

Press the **DELETE** soft button to delete the selected objects.

Press the **OPTIONS** soft button to view the Options page. The Options page allows you select objects by ID range and type, as well as adding dependent objects to the currently selected objects. On the Options page, press the SET soft button to select objects based on the current settings. Press the HELP button for more details.

Favorites Banks

Press the **FAVORITES** soft button to view the Favorites Bank Edit page. The Favorites Bank Edit page allows you rename, move or delete user edited Favorites Banks.

Global Mode

RESET Page

To move or rename a single Favorites Bank, use the PREVIOUS/NEXT buttons or ALPHA WHEEL to highlight a Favorites Bank in the list, then press the SAVE button to the left of the display to view the Save dialog, which allows you to Save the bank to a different ID or rename it.

To move or delete one or more Favorites Banks, use the PREVIOUS/NEXT buttons or ALPHA WHEEL to highlight a Favorites Bank, then press the SELECT soft button to select each Favorites Bank. Selected Favorites Banks are marked with an asterisk, and multiple Favorites Banks can be selected at the same time. Press the **MOVE** soft button to move the selected Favorites Banks to a different ID. Press the **DELETE** soft button to delete the selected Favorites Banks.

RESET Page

Press the Reset soft button to view the Global Reset page, where you can choose to perform a Soft Reset or Hard Reset. A Soft Reset restores all Global mode settings to their factory defaults. A Hard Reset restores all Global mode settings to their factory defaults, and deletes all user Programs and Multis.



CAUTION: Be aware that performing a reset on the Forte will result in changes that can not be reversed. Kurzweil recommends that you save (STORE) all your Programs and Multis that you wish to keep before performing a reset on the Forte.

Reset Global Mode parameters only (Soft Reset)

If you want to keep all your User Programs & User Multis and only reset the Global Mode parameters, then press “Soft” on the Global Reset page.

User PROGRAMs	No changes; nothing is reset.
User MULTIs	No changes; nothing is reset.
Global Mode	ALL GLOBAL PARAMETERS ARE RESET TO THE ORIGINAL FACTORY DEFAULTS.

Reset Forte To Its Factory State (Hard Reset)

The factory state means all your existing User Programs & User Multis will be permanently erased. This cannot be undone. Make sure you have used the Store function to backup all of the Programs and Multis that you wish to keep. All Global Mode parameters will be reset to default settings.



CAUTION: Performing the following reset, will result in **ALL User Programs & User Multis** being erased. Global parameters are returned to their default state. This cannot be reversed. Kurzweil recommends that you save (STORE) all your Programs and Multis that you wish to keep before performing a reset on Forte.

User PROGRAMs	ALL USER PROGRAMS ARE DELETED.
User MULTIs	ALL USER MULTIS ARE DELETED.
Global Mode	ALL GLOBAL PARAMETERS ARE RESET TO THE ORIGINAL FACTORY DEFAULTS.



Press the “Hard” soft button on the Global Reset page to perform a Hard Reset, and you will be prompted to continue.

Press “Yes” if you wish to proceed with the Hard Reset.

Press “Cancel” if you are unsure, or do not wish to proceed with the reset.

Chapter 13

Song Mode

To access Song Mode, press the SONG soft button in Global Mode. Song Mode gives you access to the Forte's multi-track sequencer, a powerful and versatile tool for recording and playing songs sequenced by MIDI.

A sequencer is similar in some ways to a multi-track tape recorder: you can record and play back all sorts of music and sounds, layer sounds on top of other sounds, and change or manipulate things that you've previously recorded. Unlike a tape recorder, however, you do not actually record sounds with a sequencer. Rather, you are recording commands that cause sounds to be played. Nonetheless, we will sometimes explain sequencer features by drawing analogies to familiar tape recording techniques such as splicing and overdubbing.

There are several advantages to recording a song by sequencing. For example, you can make changes to the timing and pitch of individual notes, as well as change the instrumentation of previously recorded sequences.



Note: Song Mode has no “undo” function. Before recording to a track or making any kind of edit to the current song, you should save the current version of your song if you have made unsaved changes that you wish to keep. After doing this, if you make changes that you wish to undo, you can select a different song, select No when asked to save the changes, then select your song again. This will allow you to return to a previously saved version of your song. Also, as you work on a song it can be helpful to save multiple versions of a song at different ID numbers (for example, save a backup version before performing a Track function or overdub). This allows you to have multiple back up versions of a song, which can be useful in case you accidentally save changes that you want to undo.



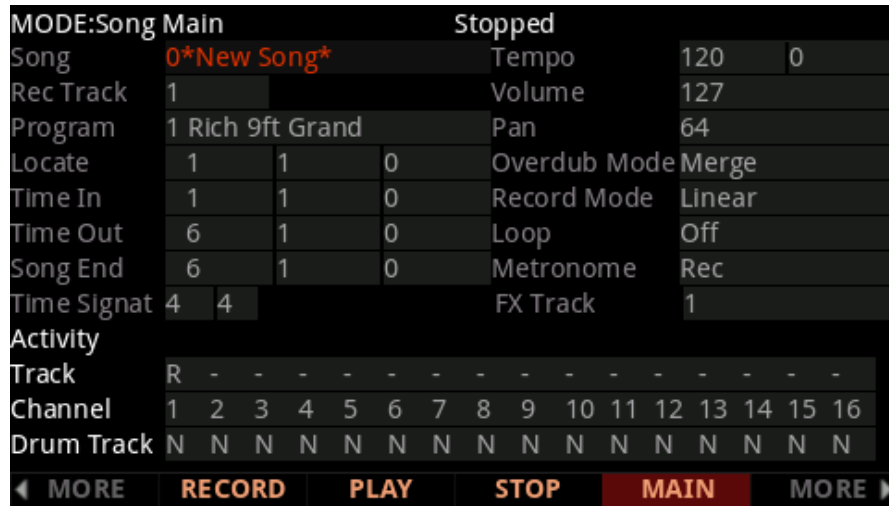
Note: See [“Pan/Vol Initial Values” on page 13-12](#) and [“Prog Initial Values” on page 13-13](#) for details on setting initial Program, Volume and Pan values for each track. Initial values are needed in order for songs to sound correct after being saved and recalled.

Song Mode

The MAIN Page

The MAIN Page

The Song mode MAIN Page allows real time recording and playback, song and track selection. From this page you can view and edit the tracks' channel, program, volume and pan settings, and other parameters.



Parameter	Range of Values	Default	
Song	Song List	0*New Song*	
Rec Track	1 to 16, None, Mult	1	
Program	Program List	Current Program	
Track	1-16	1	
Tempo	0 (external), 20.00 to 400.00 BPM	120.0 BPM	
Volume	0 to 127	127	
Pan	0 to 127	64	
Locate / Time In	(Bar)	1 to end of song	1
	(Beat)	Depends on Time Signature	1
	(Tick)	0 to 959	0
Time Out / Song End	(Bar)	1 to end of song	2
	(Beat)	Depends on Time Signature	1
	(Tick)	0 to 959	0
Time Signature	(Numerator)	1 to 99	4
	(Denominator)	1, 2, 4, 8, 16, 32, and 64	4
Overdub Mode	Merge, Erase	Merge	
Record Mode	Linear, PunchIn, UnLoop	Linear	
Loop	Off, On	On	
Metronome	Off, Rec, Always, CountOff	Rec	
FX Track	1 to 16	1	

Song Status

The **Song Status** is shown on the top line of the display:

Stopped	The default status; also appears when you press the Stop or Pause soft button.
Playing	Appears when the Play soft button is pressed (if recording is not armed).
Rec Ready	Appears when the Record button is pressed while Song Status is Stopped. When Rec Ready is displayed, it indicates that Song mode is waiting to start recording.

Song

This shows the ID and name of the song currently selected for recording, playback, or editing. When a song is selected, Program Change, Volume, and Pan information is sent to all MIDI channels assigned to tracks that have events on them, and the internal clock is set to match the setting of the Tempo parameter. When looking for a previously saved song, you can scroll through songs while the sequencer is playing to quickly hear the beginning of each.

Recording Track (Rec Track)

The Rec Track parameter determines which track is record enabled. You can select a single track, or set Rec Track to **Mult** to record more than one channel simultaneously. See the Track Status section below for details on arming multiple tracks.

The parameter(s) below Rec Track change according to the value of Rec Track. If Rec Track is set to a single track (**1–16**), Program is displayed and you can select the program to be assigned to that track. If you switch through the channels, the program also changes, showing the program currently assigned to that channel.

If you change Rec Track to **None** or **Mult**, the display changes to show Track. This field indicates which track is currently being triggered by the keyboard, and you can use this Track field to select a track.

Program

Use this field to select a program before initially recording each track of your song. A program selected on the current Rec Track becomes the track's initial program the first time that the track is recorded. An initial program is the program that will be used for a track when it is played from the start of bar 1 (or any other point if there are no program changes and Control Chase is turned on, see [“Control Chase” on page 13-15](#).) Programs selected in Program Mode are selected as the program on the current Rec Track when you enter Song mode.

Follow these steps to change the current **Rec Track**'s initial program after recording has taken place on that track. While the song is stopped, press **Record**, select the program, press **Stop**, and save the song. (This preserves all changes you have made to any other track parameters: volume, pan, tempo, etc.) You can also change the initial program at the top of a track's EVENT list (see [“The EVENT Page” on page 13-31](#)).

Any MIDI program changes recorded on the current Rec Track cause the ID and name of the track's program to change during playback. Program changes can be written to the event list of the current **Rec Track** by changing the **Program** parameter while recording. If a program change takes place, the program will only return to the initial program if triggered by another program change, or if the song is stopped and restarted from the beginning. One exception to this is when using the Control Chase feature, you would only need to restart the song before the first program change in order to return to the initial program (see [“Control Chase” on page 13-15](#)).

The Program parameter changes to **Track** if Rec Track is set to **None** or **Mult**. This field indicates which track is currently being triggered by the keyboard, and you can use this Track field to select a track.

Song Mode

The MAIN Page

Track Number (Track)

This parameter is available only when Rec Track is set to **None** or **Mult** (replacing the Program parameter). It indicates which track is currently being triggered by the keyboard, and you can use this field to select a track.

Tempo

The Tempo parameter determines the initial tempo for the selected song. The song will always start playback at the initial tempo. Whatever the tempo is set to when you record your first track will be the song's initial tempo. During playback, the current tempo is shown in this field. During recording, changing the tempo value will record changes to the Tempo Track. The initial tempo and other tempo changes can also be edited in the event list for the Tempo Track. The Tempo track also allows you to program more precise fractional tempos with two decimal places.

To quickly change a song's initial tempo, make sure the song is stopped, press **Record** to change the Song Status Rec Ready, set the desired tempo, then press **Record** again to change the Song Status to Stopped. The initial tempo can also be changed at the top of the event list for the Tempo track on the EVENT page. Make sure to save the song after changing the initial tempo.



Note: You can set the tempo using the tap tempo button above the Pitch Bend wheel. Press the left and right cursor buttons simultaneously to access the TEMPO page (see [“TEMPO” on page 12-25](#) for more details). Make sure the Song Status is set to Rec Ready if you wish to change the initial tempo.

You can also set the tempo to be controlled by an external sequencer. Use the Alphanumeric Pad to enter “0” in the tempo field, and press enter. “EXT” will appear in the tempo field. Any MIDI Time Clock (MTC) signal received at the Forte's USB or MIDI in port will now set the Song playback tempo.

Volume

You can set a volume level for each track as a value between **0** and **127**. If the channel of the Rec Track (or the control channel, if Rec Track is set to **Multi** or **None**) contains any recorded volume change (continuous controller 7), the change will be reflected as the Volume parameter's value in real time, as well as on the MIXER page. Also, changing the Volume value while recording will write volume automation (CC 7 messages) to the current Rec Track's event list.

Initial Volume Settings



Each song file does not automatically save your volume setting for each track. To make a song save your volume settings for each track, you must write an initial volume for each track. Initial volume is the volume setting that will be used when your song is played back from the start of bar 1. An initial volume setting is essentially a volume automation message that is written before the first tick of a track. Initial volume settings are not automatically written during recording because they make it harder to try out different volume settings for a track. For example, an initial volume will reset any volume adjustments that you make during playback each time the song is stopped and played from the start of bar 1, or if the song is stopped and played from any point if the Control Chase parameter set to On on the Song MISC page (see [“The MISC Page” on page 13-15](#).) If you plan to try out different volume settings, it is easier if you write an initial volume after you have found the desired setting.

Setting Initial Volume Per Track

Follow these steps to change the current **Rec Track**'s initial volume. While the song is stopped, press **Record**, change the value of Vol, press **Stop**, and save the song (follow the same method to quickly set initial program or pan settings). Initial program, volume, and pan can also be set at the top of each track's event list (see [“The EVENT Page” on page 13-31](#)).

Setting Initial Values For All Tracks

An important last step before saving a finished song is to store initial values of Program, Volume and Pan for all tracks. This can be done at any time, but is best done as a last step if you plan to make a lot of adjustments to these settings. To write initial settings for all tracks, press the Keep soft button on the Song Mixer page (see [“The MIXER Page” on page 13-12.](#)) After pressing the Keep soft button you must save your song to save these settings. Pressing the Keep soft button stores the current value of each track’s Program, Volume and Pan settings as initial settings. Be sure that these values on each track are set to the value that you wish to store, as the settings may have changed if you have written any automation.



*Note: Don’t use the **Keep** soft button if you would like certain tracks to not be stored with initial values. In this case, only set initial values for each desired parameter as described above in [“Setting Initial Volume Per Track”.](#)*

Volume Sources When An Initial Volume Is Not Set

Volume settings are tied to MIDI channels, so the volume of each track will be dependent on which MIDI channel is assigned to each track in each song. If an initial volume is not stored with each track of a song, the each track will use the last volume setting set in each MIDI channel. For example, if you are in Song mode and have played a song, and then you load a song without initial volumes, the volume of each track of the newly loaded song will be set by the MIDI channel volumes in the previously played song. If you are in Song mode and you load a song that does not have initial volumes without playing another song first, each MIDI channel will have the volume settings last used in Program mode (set by any MIDI volume messages (CC 7) received while in Program Mode).

Pan

You can set an initial pan position (the balance between the Left and Right audio channels) for the playback and recording of each track as a value between **0** and **127**. A value of **64** is center. If the channel of the Rec Track or the control channel contains any panning events (continuous controller 10), the change will be reflected as the **Pan** parameter’s value in real time, as well as on the MIXER page. Also, changing the **Pan** value while recording will write Pan automation (CC 10 messages) to the current Rec Track’s event list.

Initial Pan Settings



Each song file does not automatically save your Pan setting for each track. To make a song save your Pan settings for each track, you must write an initial Pan value for each track. Initial Pan is the Pan setting that will be used when your song is played back from the start of bar 1. An initial Pan setting is essentially a Pan automation message that is written before the first tick of a track. Initial Pan settings are not automatically written during recording because they make it harder to try out different Pan settings for a track. For example, an initial Pan setting will reset any Pan adjustments that you make during playback each time the song is stopped and played from the start of bar 1, or if the song is stopped and played from any point if the **Control Chase** parameter set to **On** on the Song MISC page (see [“The MISC Page” on page 13-15.](#)) If you plan to try out different pan positions, it is easier if you write an initial Pan after you have found the desired setting.

Setting Initial Pan Per Track

Follow these steps to change the current **Rec Track**’s initial Pan. While the song is stopped, press **Record**, change the value of Pan, press **Stop**, and save the song (follow the same method to quickly set initial program or volume settings). Initial program, pan, and volume can also be set at the top of each track’s event list (see [“The EVENT Page” on page 13-31.](#))

Song Mode

The MAIN Page

Setting Initial Values For All Tracks

An important last step before saving a finished song is to store initial values of Program, Volume and Pan for all tracks. This can be done at any time, but is best done as a last step if you plan to make a lot of adjustments to these settings. To write initial settings for all tracks, press the Keep soft button on the Song Mixer page (see [“The MIXER Page” on page 13-12](#)). After pressing the Keep soft button you must save your song to save these settings. Pressing the Keep soft button stores the current value of each track’s Program, Volume and Pan settings as initial settings. Be sure that these values on each track are set to the value that you wish to store, as the settings may have changed if you have written any automation.



*Note: Don’t use the **Keep** soft button if you would like certain tracks to not be stored with initial values. In this case, only set initial values for each desired parameter as described above in [“Setting Initial Pan Per Track”](#).*

Pan Sources When An Initial Pan Is Not Set

Pan settings are tied to MIDI channels, so the Pan of each track will be dependent on which MIDI channel is assigned to each track in each song. If an initial Pan setting is not stored with each track of a song, the each track will use the last Pan setting set in each MIDI channel. For example, if you are in Song mode and have played a song, and then you load a song without initial Pan settings, the volume of each track of the newly loaded song will be set by the MIDI channel Pan settings in the previously played song. If you are in Song mode and you load a song that does not have initial Pan settings without playing another song first, each MIDI channel will have the Pan settings last used in Program mode (set by any MIDI Pan messages (CC 10) received while in Program Mode).

Locate

The Bar and Beat displayed as the Locate value changes to show the current location of the song during playback and recording. You can set this to a negative Bar and Beat location to start playback a set length of time before the beginning of the song.

Whenever you set the Locate point, that location will be used as the return point when **Stop** is pressed. Press **Stop** a second time will always reset the song to the top (1 : 1).

Time In

The Time In parameter determines the start time for Loop or Punch In recording (more on this below).

Time Out

The Time Out parameter determines the stop time for Loop or Punch In recording.

Song End

The Song End parameter determines the end point for the song. Note that when Time Out and Song End are set to the same location, changes made to Song End are reflected in Time Out. When recording beyond your initially specified Song End point, you’ll notice that the Song End location automatically moves and rounds to the next bar, so as to always be ahead of the playhead. It is possible to move the Song End point to a location before other MIDI events (i.e., in the middle of the current song)—song mode will ignore (but not delete) events after this point.

Time Signal

Use this parameter to set the desired time signature of the current song.

Overdub Mode

If Overdub Mode is set to **Merge** you will be able to overdub when recording on a track containing previously recorded events. You'll usually want to set Overdub Mode to **Merge** when Record Mode is set to **Loop**. Otherwise, each time through the loop, the previously recorded information will be erased.

If you set Overdub Mode to **Erase**, the previously recorded events on the record enabled track will be replaced with the new events only during the Bars and Beats you are actually recording, and the previously recorded events before and after the newly recorded Bars and Beats will be preserved.

Record Mode

With the Record Mode parameter set to **Linear**, Song mode will record normally, from where ever you start, to where ever you stop, or until the Song End point is reached. With the Record Mode parameter set to **PunchIn**, Song mode will record events only between the points set for Time In and Time Out parameters.

To use the **UnLoop** setting, the **Loop** parameter must be set to **Loop**, and a loop length must be set with the Time In and Time Out parameters. With the Record Mode parameter set to **Unloop**, any existing tracks will be played back as if they were looping from the Time In to the Time Out point, but they are actually being re-recorded linearly over absolute Bars and Beats until you press Stop. UnLoop allows you to record a linear track over a short looping section without first having to copy the section over and over again to achieve a new desired Song length. The End point of the Song is extended to the downbeat of the (empty) Bar immediately following the last Bar you were recording when Stop was pressed.

For example, let's say you have a recorded a four bar drum loop and now want to record an eight bar bass line. This would be a situation where UnLoop would come in handy. While the drum track keeps looping, the bass track will record in linear fashion, and the end point will be moved to the point at which you press Stop. Actually, the drum track will also change. It will play through its loop twice, but while the information is repeating in the loop, it will be recorded to the track. So now if you look at the drum track, you will see information in bars 5-8 (a duplicate of the information in bars 1-4).

Loop

With the Loop parameter set to **On**, the sequencer will loop the segment of the song between Time In and Time Out. Set Loop to Off for unlooped playback.

Metronome

The Metronome parameter determines the recording modes in which the metronome will play. With Metronome set to **Off**, the metronome doesn't play at all. With Metronome set to **Rec**, the metronome only plays while recording is in progress. With Metronome set to **Always**, the metronome plays during playback and recording. With Metronome set to **CountOff**, the metronome plays only during count off (if the CountOff parameter on the Metronome page is set to something other than **Off**.)

FX Track

The FX Track parameter determines which track's Program will provide the Aux FX Chains for the song (used by all MIDI channels). The program in the selected FX Track determines the Aux Chains of the current song (unless an override chain is selected). See ["The FX Page" on page 13-19](#) for details on Song Mode FX.

Song Mode

The MAIN Page

Activity

The Activity row shows the MIDI activity for each track. Track Activity Indicators appear above Track numbers for tracks that contain events and have a Track Status Indicator set to **Play** (P) or **Mute** (M). Track Activity Indicators are small squares with a colored circle in the middle. During playback and recording, the circle will flash when any MIDI events are executed.

When the Overdub Mode parameter is set to **Merge**, the circle in the square will turn red for any track that has the Track Status Indicator set to record (R).

When the Overdub Mode parameter is set to **Erase**, the circle in the square will turn gray for any track that has the Track Status Indicator set to record (R).

Track Status

The Track Status row can be used to view and set the track status for each of the 16 tracks. Tracks 1-16 are arranged in left to right order. Possible track status settings are: Empty (-), Record (R), Play (P), and Mute (M).

The Track Status row is most useful for muting previously recorded tracks, or arming multiple tracks when recording to more than one track at a time. When recording a single track, you may find it easier to use the Rec Track parameter to arm a single track at a time.

When an empty track (-) is selected, you can change the status to Record (R) by using the Alpha Wheel or Plus/Minus buttons.

Once a track contains events, it will have (P) as a Track Status, and it will be played during playback. You now will be able to toggle between Play (P), Mute (M), and Record (R).

The track selected as the Rec Track will display an (R), designating it as the recording track. If the Rec Track is set to Mult, the status of all empty tracks will change to Record (R), and any track can be changed back to empty (-), mute (M), or Play (P) if recording is not desired on some tracks.

Channel

Each track has a MIDI Channel that it uses to receive and transmit events. By default, tracks 1-16 of a new song are assigned to Channels 1-16 respectively, although a track can play or record on any channel and the same channel can be used for more than one track. Keep in mind, however, that only one program can be assigned to a channel at a time, so if you have more than one track assigned to the same channel, they'll play the same program—the one on the higher-numbered track, since that's the most recent Program Change command received on that channel.

Drum Track

Any of the song's tracks can be defined as a Drum Track so that their Note events do not get transposed if transposition is applied when using the track as a riff in a Multi (see ["Riff Page" on page 11-37](#) and ["Transpose, Root Note" on page 11-39](#).) With tracks designated as drum tracks, you can transpose a whole song that is being used as a Riff, but the drum tracks will continue to play the correct sounds that they played in the original key. Otherwise, the drum sounds would change with each transposition.

With the desired track number selected in the Drum Track field, use the Alpha Wheel or - / + buttons to toggle between "Y", to designate the track as a drum track, or "N" to designate the track as a non-drum track.

The Drum Track settings do not have any effect on edits made in Song Mode. Any tracks defined as Drum Tracks are still transposed when a transposition is applied to these tracks from the TRACK page.

Soft Buttons and Favorites Buttons

The RECORD, PLAY/PAUSE, and STOP Soft Buttons

NOTE: The Forte's transport controls do not require you to press Play and Record simultaneously to begin recording. Make sure to press only one of these soft buttons at a time to insure proper operation.

The **RECORD** soft button changes the Song Status to Rec Ready if the current Song Status is Stopped. If the current Song Status is Playing, it will be switched to Recording when you press **RECORD**.

The **PLAY** soft button plays back any recorded events when pressed while the song status is Stopped. Playback will begin from the bar and beat specified in the Locate parameter. *When the Song Status is Rec Ready, pressing the PLAY soft button will begin recording.*

The **PLAY** soft button becomes a **PAUSE** button when the song is playing. Pressing **PAUSE** while the song is playing will stop the playback, and the location remains at the current bar and beat, allowing you to continue from that location by pressing **PLAY** again.

Pressing **PAUSE** while recording will stop the recording process as if you had pressed **STOP**.

The **STOP** soft button halts the playback or recording, and resets the song's location to either the default Bar 1, Beat 1 value, or to whatever location you defined with the Locate parameter. If the location is defined as something other than Bar 1, Beat 1, press **STOP** twice to reset to 1:1.

Pressing **STOP** when the Song Status is Recording will always prompt the "Save Changes" dialog (described below), and provides you with the opportunity to listen to the new song and compare it with the **old**, previously saved, song before answering **Yes** or **No**.

Additionally you can control the Record and Play/Stop functions from any external sequencer that sends MIDI Machine Control (MMC) messages. To receive MMC messages, the Receive MMC parameter on the Global Mode MIDI page must be set to On.

Important Note About External Sequencers:



If you are triggering Forte sounds from an external sequencer that sends MMC messages, either turn off outgoing MMC on the external sequencer, or make sure the Receive MMC parameter on the Global Mode MIDI page is set to Off. If this is not done, you will simultaneously trigger the Forte from the external sequencer and from the currently selected song in Song mode.

HELP

Press the **HELP** soft button to view the Help page, where you can view a description of functions assigned to the Favorites buttons.

Favorites 2: Record

The Favorites 2 button functions the same as the **RECORD** soft button, see above for details.

Favorites 3: Play

The Favorites 3 button functions the same as the **PLAY** soft button, see above for details.

Favorites 4: Stop

The Favorites 4 button functions the same as the **STOP** soft button, see above for details.

Song Mode

The MAIN Page

Favorites 5: Change number of bars in Event View

When viewing the Song Mode Event page, pressing the Favorites 5 button changes the Event View to show 2 or 4 bars.

Favorites 6: Jump to songs for different drum styles

When the Song field is selected on the Song Mode Main page, pressing the Favorites 6 button jumps to selecting songs that contain drum sequences for different styles of music.

Favorites 9: New Song

Press the Favorites 9 button to create a new song with default settings. Pressing this button is the same as selecting **0*New Song***. See [“Default Song” on page 12-17](#) for details on making custom settings for the default song.

Favorites 10: Help

Press the Favorites 10 button to view the HELP page.

DELETE

Press the DELETE soft button to view the Delete dialog, which allows you to delete the current song.

The Save Changes Dialog

The following dialog appears after you have recorded a track and pressed **STOP**.



The **PLAY NEW** soft button allows you to play the song with your last recorded performance. You will likely want to hear this first.

Pressing **PLAY OLD** will play the current song, minus the performance that you just recorded. You can toggle between Play Old and Play New without restarting the song by pressing either button while the song is playing. This is useful to check if your last performance was better or worse than what was previously saved (if anything was previously saved.)

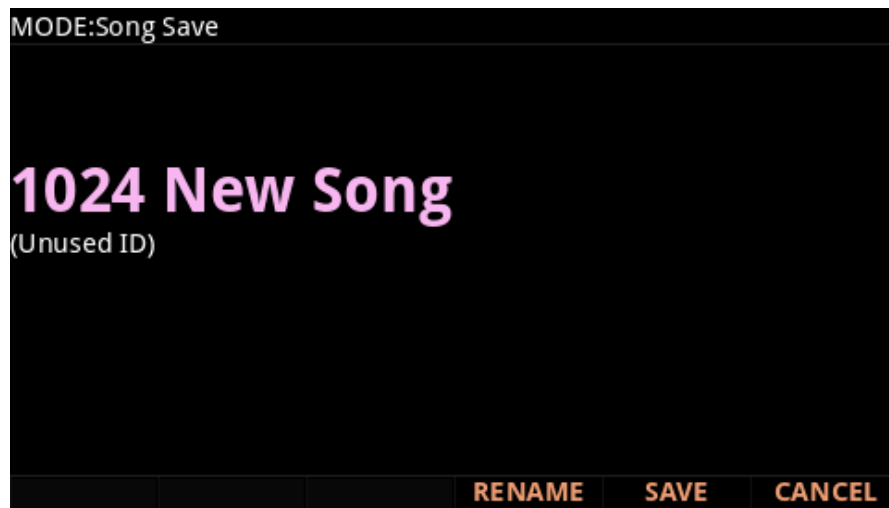
The **Playing** field displays whether to **NEW** or **OLD** version is playing.

The **Locate** field allows you choose a start time for the old or new playback. This is useful when you just want to hear a certain part of the song without listening to the whole thing.

STOP halts the playback of either the Old or the New version of the song you are currently auditioning. This also resets the song's start location to either the default Bar 1, Beat 1 value, or to whatever location you defined in the Locate field.

Pressing **RETRY** restarts recording from the same point you last started recording at.

YES saves the song with the performance you just recorded. The "save as" dialog will be displayed:



Use the Alpha Wheel, +/- buttons, or Alphanumeric Pad to choose a free ID# location to save the song, or choose a used ID# location to overwrite a previously saved song with your new version. When overwriting a song file, the "save as" dialog displays "Replace" followed by the name of the file being replaced. Press **Rename** if you would like to change the song's name. Press **SAVE** to save the song, or **CANCEL** to return to the previous screen.

If you are saving a previously edited User Song, the ID number that the Song was last saved with will be selected. Press the Value Jump double button press (Previous + Next) to toggle between selecting the ID number that the Song was last saved with and the next available unused ID number. When viewing the Save Dialog, you can quickly save the Song to the displayed ID number by pressing the Save button again.

If you decide not to save or rename, **NO** returns you to the Song-mode page in which you were last recording. Changes to the current song are not saved, though the sequencer will remember changes to certain settings from the MAIN page. These settings are Tempo, Merge/ Erase Mode, Locate, track mute status, Time In, Time Out, Song End, Loop, Punch, and Metronome. To permanently save these changes with the song, make sure to press the **SAVE** button before powering off or loading a new song. Alternatively, you will be prompted to save these changes upon loading a new song if the MAIN page settings were changed while recording or with recording armed.

Song Mode

The MIXER Page

The MIXER Page

The Mixer page shows the current settings for the Program number, panning, volume, MIDI destination, and Output selection each track (in groups of 8). The selected track number is displayed in the upper right-hand corner of the screen. Use the Channel/Zone or cursor buttons to change the currently selected track. To view each group of tracks, press the 9-16 or 1-8 soft button.

MODE:Song Mixer 1-8		1 Rich 9ft Grand						Track:1	
Track	1	2	3	4	5	6	7	8	
Pan	64	64	64	64	64	64	64	64	
Vol	127	127	127	127	127	127	127	127	
Prog	1	251	244	1420	39	78	177	1060	
Out	Auto	Auto	Auto	Auto	Auto	Auto	Auto	Auto	
Dest	L--	L--	L--	L--	L--	L--	L--	L--	

The screenshot shows a digital mixer interface with eight tracks. Each track has a vertical slider for Pan, Volume, and Program. The 'Forte' logo is visible on the left. At the bottom, there are buttons for RECORD, PLAY, STOP, 9-16, KEEP, and DONE.

Parameter	Range of Values	Default
Current Pan (Pan)	0 to 127	None
Current Volume (Vol)	0 to 127	None
Current Program (Prog)	Program List	None
Output (Out)	Auto, A, B	Auto
MIDI Destination (Dest)	-, L, M, U	L

Pan, Vol, Prog

Use the Pan, Vol, and Prog parameters to view or change the Panning (left / right stereo placement), Volume, or Program of each track. Pan values range from 0 (left), 64 (center), to 127 (right). Volume values range from 0-127.

Pan/Vol Initial Values

Initial values are used to recall each track's settings whenever a song is loaded. Initial values for each track can be seen at the top of the Event page.

When recording to an unused track, the track's Pan and Vol parameters will have an initial value of "none". An initial value of "none" allows you to try different Pan and Volume settings for the track, without having the track return to specific initial values.

Once you have decided on the Pan and Volume settings for the track, you should apply these settings as initial values so that they will be recalled the next time the song is loaded. To set initial values, make sure the song is stopped, press the RECORD soft button to change the song status to Rec Ready, select the desired initial values again (even if they are already selected), then press the RECORD soft button again to change the song status to Stopped. Make sure to save these initial values by saving the song before exiting song mode or selecting another song.

Once you have set initial values, if you change the values of Pan or Vol while the song is playing (but not recording), they will return to the initial values if the song is paused/stopped and played again. This allows you try out different settings without losing your initial values.

Prog Initial Values

When recording to an unused track, the track's currently selected Prog setting is written into the header of the track as the initial Program. The initial Program is used to recall each track's Program whenever a song is loaded. The initial Program for each track can be seen at the top of the Event page.

If you change the value of Prog while the song is playing (but not recording), it will return to the initial Program if the song is paused/stopped and played again. This allows you try out different Programs without losing your initial Program setting.

To change the initial Program after you have recorded to a track, make sure the song is stopped, press the RECORD soft button to change the song status to Rec Ready, select a different Program, then press the RECORD soft button again to change the song status to Stopped. Make sure to save the initial Program setting by saving the song before exiting song mode or selecting another song.

Pan, Vol, and Prog Automation

Pan, Vol, and Prog settings can be automated to change automatically while a song is playing. You can simply change these values in real-time while a track is recording, or use the Event page to insert and edit Pan (CTRL 10), Volume (CTRL 7), and Program Change (PCHG) messages.

Dest

The destination of each track can be set with the Dest parameter. You can choose between combinations of the four possible destinations:

L = Local. The track's MIDI events will be transmitted locally only, to the Forte's internal sound generator. None of the track's MIDI events will be sent to the USB or MIDI Out port.

M = MIDI. The track's MIDI events will be transmitted only to the MIDI Out.

U = USB MIDI. The track's MIDI events will be transmitted only to the USB port.

— = None.

Out

Use the **Out** parameter to set the rear panel audio outputs (A or B) used for each track of the current song. This parameter determines the output settings for the main program signal and insert effects of each track (for Aux effects output settings, use the Output parameters on the Song Mode FX page.)

A setting of **Auto** will make that track output audio based on the settings for the program used by that track. Program output settings are set in the Program Editor using the **Output** parameters on the FX page or Layer FX page (see ["Output" on page 7-16](#) for details).

The RECORD, PLAY/PAUSE, and STOP Soft Buttons

These soft buttons function as described in [“The RECORD, PLAY/PAUSE, and STOP Soft Buttons” on page 13-9](#).

The KEEP Soft Button

Press the KEEP soft button to view the Keep dialog, which allows you to capture the current values for each track’s program, panning, and volume as the initial values. After using the Keep dialog, remember to save the song if you want these changes to be permanent.

If you don’t use the Keep dialog, tracks will not have initial program, panning, and volume values unless they are manually set for each track. See the Vol, Pan, Prog section above for details on manually setting initial values for each track.



Note: Don’t use the **Keep** soft button if you would like certain tracks to not be stored with initial values. In this case, only set initial values for each desired parameter as described in [“Setting Initial Volume Per Track”](#).

The DONE Soft Button

Press the DONE soft button to return to the song MAIN page.

The MISC Page

The MISC page contains miscellaneous sequencer parameters. The MISC page appears below:

MODE:Song Misc			
Control Chase	On	Key Wait	Off
Quantize	Off	Grid	1/8
Swing	0%	Release	No
Metronome	Rec	Count Off	1 Start Only
Program	251 Kit 1 Open Rock		
Channel	16		
Strong Note	C#7	Soft Note	D 7
Strong Velocity	127	Soft Velocity	100
Max Events	440000	Used Events	62
Free Events	439938	PartitionedEvents	100
Song Events	0	Temp Events	0
◀ MORE MIXER MISC FILTER FX MORE ▶			

Parameter	Range of Values	Default
Control Chase	On, Off	On
Quantize	Off, 1 to 100%	Off
Grid Resolution	1/1 to 1/480	1/8
Swing	-100% to 125%	0
Release Quantization	Yes, No	No
Key Wait	Off, On	Off
Metronome	Off, Rec, Always	Rec
Count Off	Off, 1, 2, 3, 4 (Start Only, Always)	1 (Start Only)
Program	Program List	996 Click Track
Channel	1 to 16	16
Strong Note	C-1 to G9	C#7
Strong Velocity	0 to 127	127
Soft Note	C-1 to G9	D7
Soft Velocity	0 to 127	100

Quantize and Miscellaneous Parameters

Control Chase

A common shortcoming of many sequencers is that when you start a sequence at some point in the middle of sequence, the controllers remain at their current levels until the sequencer comes across a controller event. Control Chase remedies this (generally) undesired behavior.

When Control Chase is **On**, all non-note MIDI events from the beginning of the song up to the current time are computed, and the most recent non-note MIDI event is sent out before starting playback. This ensures that the volume, panning, program changes, and other controllers for the song are correct, regardless of where you start the song. With Control Chase set to **Off**, the sequencer behaves as previously described.

Song Mode

The MISC Page

Key Wait

With Key Wait set to on, a key strike will trigger playback of a sequence (if the play / pause button is armed), or trigger recording of a sequence (if the record button is armed.)

Quantize

The Quantize parameter determines the amount of real-time quantization (if any) applied to the sequence during recording. The percentage specified for this parameter is the amount of quantization the sequencer applies to the grid (see below) for each *Note event* recorded.

Note that using real-time quantization has the same effect as recording normally, and then using the Quantize Track Editing operation.

Grid

The grid parameter determines the resolution of quantization and the position of the grid points.

Swing

The Swing parameter determines the amount (in units of percent) of “swing” applied during quantization.

Release

The Release parameter determines whether or not note-off events are quantized.

Metronome Parameters

Metronome

This parameter determines the recording modes in which the metronome plays. With Metronome set to Off, the metronome never plays. With Metronome set to Rec, the metronome only plays during recording. With Metronome set to Always, the metronome plays during playback and recording. With Metronome set to CountOff, the metronome plays only during count off (if the CountOff parameter is set to something other than Off.)

Count Off

This parameter determines the number of measures the Forte will count off before recording. With **Start Only** selected, the Forte will only count off at the beginning of a sequence. With **Always** selected, the Forte will count off from any point in a sequence.

Program

This parameter determines the program with which the metronome is played.

Channel

This parameter determines the MIDI channel to which the metronome program and events are sent.

Strong Note

This parameter determines the MIDI number of the note played by the metronome for the downbeats (the “1” of each measure).

Strong Velocity

This parameter determines the velocity of the note played by the metronome for the downbeats (the “1” of each measure).

Soft Note

This parameter determines the MIDI number of the note played by the metronome for all beats other than the first beat of each measure.

Soft Velocity

This parameter determines the velocity of the note played by the metronome for all beats other than the first beat of each measure.

Event Statistics

An Event is a note, CC message, or other MIDI message that can be recorded into the tracks of a Forte song. Each song in the Forte can use up to 50,000 Events. Some of these Events may also be used by functions such as Riffs or the Compare Song buffer. 50,000 Events is more than enough for most songs, and most users will never run out of events. In the rare case that you run out of events in the current song, the Event Statistics can be used to determine which functions are using Events.

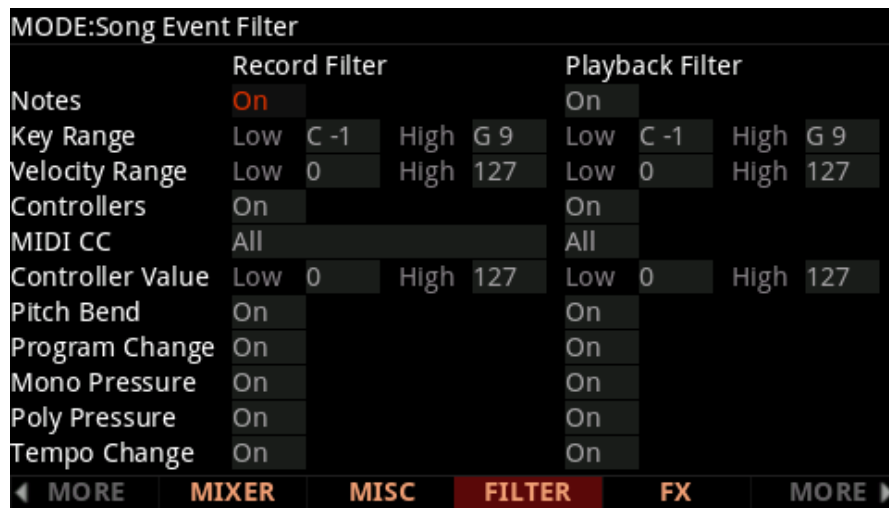
When calculating Event Statistics, a pair of note-on and note-off events are considered a single event. All other events are stored as single events on the Forte.

The Event Statistics fields are:

- **Max Events:** The maximum number of notes/events in memory.
- **Free Events:** The number of notes/events that are free.
- **Song Events:** The total number of events (including notes) in the current song.
- **Used Events:** The total number of notes/events being used.
- **Partitioned Events:** The number of partitioned events, which are events for which space in memory is allocated. This is technical information of importance only to engineers (and maybe a few power users).
- **Temp Events:** The total number of events in the temp buffer (the temp buffer is used when grabbing events from a different song).

The FILTER Page

On the FILTER page you can specify what events are ignored during recording and playback. The Event Filter page has two sets of the same parameters. Use the Record Filter parameters to configure recording event-filtering, and the Playback Filter parameters to configure playback event-filtering. (Be careful not to confuse the Event Filter page with the Event List Filter page, which has a different function and is accessed from the EVENT page).



Parameter	Range of Values	Default
<i>Note Filter</i>	Notes	On, Off
	Low Key	C -1 to G 9
	Hi Key	C -1 to G 9
	Low Velocity	0 to 127
	Hi Velocity	0 to 127
<i>Controller Filter</i>	Controllers	On, Off
	Controller	All, MIDI Control Source List
	Low Value	0 to 127
	Hi Value	0 to 127
Pitch Bend	On, Off	On
Program Change	On, Off	On
Mono Pressure	On, Off	On
Poly Pressure	On, Off	On

Notes

With Notes set to **Off**, all notes are ignored during recording / playback. With Notes set to **On**, only the notes within the specified note range with velocities within specified velocity range are recorded / played.

Key Range Low / High

Key Range Low and High determine the lowest and highest keys that will be recorded / played back when Notes is set to On.

Velocity Range Low / High

Velocity Range Low and High determine the lowest and highest note on/off velocity that will be recorded/played back when Notes is set to On.

Controllers

With Controllers set to Off, all controllers are ignored during recording/playback. With Controllers set to On, only events from the specified controller within the specified value range are recorded/played.

MIDI CC

The MIDI CC parameter determines which controllers are recorded/played back when Controllers is set to On.

Controller Value Low / High

Controller Value Low and High determine the lowest and highest controller values that will be recorded/played back when Controllers is set to On.

Pitch Bend

This parameter enables/disables pitch bend events to be recorded/played back.

Program Change

This parameter enables/disables program changes to be recorded/played back—this includes Controllers 0 and 32 (bank change).

Mono Pressure

This parameter enables/disables monophonic key pressure events to be recorded/played back.

Poly Pressure

This parameter enables/disables polyphonic key pressure events to be recorded/played back.

Tempo Change

This parameter enables/disables tempo change events to be recorded/played back.

The FX Page

The Song mode FX page works the same way as the FX page in Multi Edit mode, with the following exception: Song Mode does not have an AuxFX Ch parameter. Instead, in Song Mode the Aux 1 and 2 Chains are determined by the “FX Track” parameter on the Song Mode MAIN page (see [“FX Track” on page 13-7](#) for details). The program in the selected FX Track determines the Aux Chains of the current song (unless an override chain is selected). See [“FX Page” on page 11-33](#) for details.

The TRACK Page

Use the Track Functions page to perform track-based edit functions such as Erase, Copy, Bounce, Insert, Delete, Quantize, Shift, Transpose, Grab, Change, and Remap.

For each function, there is a set of parameters to control how the function operates, and on what region of the selected track(s). The top right corner of the page displays the selected track or tracks. Use the **CHANNEL/ZONE** buttons to select the desired Track(s). Press both of the **CHANNEL/ZONE** buttons simultaneously to select All tracks.

Below is an example of the TRACK page for the Bounce function.

MODE:Song Track Functions			Track:1		
Function	Bounce	From	1	1	0
Destination Track	1	To	2	1	0
Mode	Merge	Events	Notes		
		Key Range	C -1	G 9	
		Velocity Range	0	127	
Locate	1	1	0		
FROM-TO		PLAY	STOP	GO	DONE

Use the parameters on the right side of the page to select the range of time and the type of events that you wish to edit. Different event parameters may be available for each function. For example, Quantize and Transpose apply only to notes, while Remap applies only to Controllers.

The Locate parameter is always positioned on the bottom left of the page.



Note: Before using any of the track functions, it is a good idea to save your song if you have previously made any unsaved changes that you would like to keep. After applying a track function, there is no way to undo the changes, but if you have a previously saved version of the song, you can revert to the previously saved version by selecting another song, selecting **No** when asked to save changes, then selecting the desired song again.

Once you've chosen a function and set the parameters to your liking, press **Go**. This executes the editing function. You can then play the sequence to hear the results of your edit. If you don't like your edit, simply select another song and press **No** when you are asked if you want to save. If you do like the changes you have made, press the **Save** button and save the song.

Common Parameters for Track Functions

Locate

This parameter is available for every function on the TRACK page. It appears at the lower left hand corner of the page.

The Locate bar, beat, and tick will change in real time during playback and recording to reflect the song's current position. It can be set to any bar, beat, and tick. Playback begins at this position, and Stop resets the song to this position.

From and To

From and To are available in most TRACK edit functions to define a range of time on the selected track(s). The From value defines the first bar, beat, and tick in a range of time selected for editing. The To value defines the final bar, beat, and tick in a range of time selected for editing.

Events

Use the Events parameter to select the type of MIDI event to edit. Available Event types are: All, Notes, Velocity, Controllers, MonoPress, PitchBend, ProgChange, PolyPress. Some event types are available only for certain Functions.

When Events is set to **All**, all MIDI events on the track(s) you are editing that occur in the region of time between the From and To settings will be affected by the edit function.

When Events is set to **Notes**, note number and velocity ranges can be set for Note events. (Some Functions may not provide velocity range parameters).

When Events is set to **Velocity**, the velocity range can be set for Note events.

When Events is set to **Controllers**, the Controller and Value Range can be set for Controller events.

Key Range

The left and right Key Range fields respectively determine the lowest and highest notes in a range of notes that will be affected by the selected Track Function.

Velocity Range

The left and right Velocity Range fields respectively determine the lowest and highest velocities in a range of velocities that will be affected by the selected Track Function.

Controller

The Controller parameter selects the Controller (or All Controllers) to be affected.

Value Range

The left and right Value Range fields respectively determine the lowest and highest values in a range of MIDI Continuous Controller (CC) values that will be affected by the selected Track Function.

Soft Buttons on the TRACK Page

FromTo is a quick way to define the region of time you intend to edit. There are a couple of ways to use this feature while a song is playing, and both ways will set the boundaries of the region.

One way is to select the From parameter and then press the **Play** soft button. During playback, every time you press **FromTo**, the Forte updates the value of From to match the current playback location. Select the To parameter to change the value of To in a similar fashion.

If you haven't selected either the From or To parameter, pressing **FromTo** during playback updates From or To—or both—depending on the current playback location (the value of the Locate parameter) at the time you press **FromTo**. If you press it while the Locate value is earlier in the song than the current To value, the Forte updates the From value. If you press FromTo again (without stopping playback) while the Locate value is later than the current From value, the Forte updates the To value.

Play will start the playback of the song from the Bar and Beat set in the Locate parameter. When the song is playing, this soft button functions as a Pause button.

Stop stops the playback of the song and return to the Bar and Beat set as the Locate value.

Go performs the selected Function.

Done will return you to the Song Mode Main page.

Track Functions

Erase

This function erases specified events from a region of time, but it doesn't delete the region of time. The result is like erasing a section of recording tape. If you want to completely remove a segment and shorten the length of the track, you can do it with the Delete function.



Copy

Use the Copy function to duplicate the selected events from the current track and place them in the same track or on another track, either merging with or overwriting existing events.

MODE:Song Track Functions				Track:1	
Function	Copy			From	1 1 0
Destination Track	1			To	2 1 0
Location	1	1	0	Events	Notes
Mode	Merge			Key Range	C -1 G 9
Times	1			Velocity Range	0 127
Locate	1	1	0		
FROM-TO				PLAY	
STOP				GO	
DONE					

If you do not want to copy all of the MIDI events in the defined range of time on the current track, use the Events parameter to select a specific MIDI event type you would like to copy.

Destination Track: 1 to 16 / All

Select a destination track for the copied events with the **Destination Track** parameter. Copied events will be placed in the destination track(s) at any Bar and Beat you specify.

If the currently selected track is All tracks then the destination track will be All tracks as well.

Location: Bars : Beats : Ticks

Use the Location parameter to specify a bar, beat, and tick location in the destination track where the copied events will be placed. If the length of the copied region extends from the Location point beyond the song's existing End point, a new End point is defined.

Mode: Merge / Erase / Slide

The Mode setting determines whether the copied events merge with, or erase existing events on the destination track from the location point to the end of the copied region. With Mode set to **Slide**, the sequencer creates space for the new events, and slides the existing events to uniformly later times in the song.

Times: 1 to 127

The value selected for the Times parameter determines how many copies of the selected region are placed, one after another, in the destination track.

Song Mode

The TRACK Page

Bounce

Use the Bounce function to move the selected events from the current track to another track, either merging with or overwriting existing events on the destination track. The Bounce function differs from the Copy function in that events on the source track are deleted. As on a multi-track tape recorder, Bounce will always put the copied events at the same place in time on the Destination Track that they were on the source track.

MODE:Song Track Functions			Track:1		
Function	Bounce	From	1	1	0
Destination Track	1	To	2	1	0
Mode	Merge	Events	Notes		
		Key Range	C -1	G 9	
		Velocity Range	0	127	
Locate	1	1	0		
FROM-TO			PLAY	STOP	GO DONE

Destination Track: 1 to 16

Select a destination track for the bounced events with the **Destination Track** parameter. Bounced events will be placed in the destination track at the events' original location.

Mode: Merge/Erase

The Mode setting determines whether the bounced events merge with, or erase existing events on the destination track from the location point to the end of the bounced region.

Insert

The Insert function is used to add blank time to the current song, modifying the song's End point appropriately. The Insert function will affect all tracks. This is similar to splicing a piece of blank tape to an existing segment of recording tape.

MODE:Song Track Functions				Track:All	
Function	Insert				
Location	1	1	0		
Amount	1	0	0		
Locate	1	1	0		
FROM-TO		PLAY	STOP	GO	DONE

Location: *Bars : Beats : Ticks*

Use the Location parameter to specify a bar, beat, and tick location in the destination track where the blank time will be inserted. Events that occur on or after this Bar and Beat are offset by the length of the blank time being inserted.

Amount: *Bars : Beats : Ticks*

Use the Amount parameter to set the number of blank Bars, Beats, and ticks to insert.

Song Mode

The TRACK Page

Delete

The Delete function is used to remove a region of time from the current song. This function is different from the erase function because not only does it remove the events from the selected time, it will delete the entire selected range of time from the song, modifying the song's End point appropriately (on all tracks). This is similar to cutting a section out of a tape and splicing the ends.

MODE:Song Track Functions			Track:All		
Function	Delete	From	1	1	0
		To	2	1	0
Locate	1	1	0		
FROM-TO			PLAY	STOP	GO DONE

Quantize

Use the Quantize function to adjust the timing of Note events. Keep in mind that only Note events are quantized; other types of events, such as controllers, are not quantized.

MODE:Song Track Functions			Track:1		
Function	Quantize	From	1	1	0
Quantize Amount	100%	To	2	1	0
Grid	1/8	Events	Notes		
Swing	0%	Key Range	C -1	G 9	
Release	No	Velocity Range	0	127	
Locate	1	1	0		
FROM-TO			PLAY	STOP	GO DONE

Quantize Amount: 0 to 100%

The Quantize Amount parameter determines how much the selected Note events are moved towards grid locations. For example if set to **100%**, notes will be moved to the closest grid location, defined by the Grid setting. If set to **50%**, notes will be moved to a position half way between the closest Grid location and the original note location.

Grid: 1/1 to 1/480

This setting determines the size of the Quantize grid, expressed as a fraction of a Bar with a 4/4 meter. Set Grid to **1/1** for whole note grid, **1/16** for sixteenth notes. All of the standard note durations and every fractional Bar divisions in between are available as the size of the Quantize grid.

Swing: -100 to 125%

The Swing percentage is applied to the quantize grid. **0%** swing is straight time, **100%** produces a swing feel (triplet feel). A positive Swing value determines how close every other grid location is moved to a point 1/3 of the way towards the next grid point. Negative Swing moves every other grid location closer to a point 1/3 of the way towards the previous grid point.

Release: Yes/No

The Release parameter determines whether Note Off events will be quantized, in addition to Note On events.

Shift

The Shift function allows you to offset the existing MIDI events forward or backward in time any number of bars, beats and ticks. Events can not be shifted before Bar 1 : Beat 1 : Tick 0.



Amount: Bars : Beats : Ticks

The Amount parameter specifies the number of bars, beats, and ticks that the selected MIDI events are moved forward or backward in time.

Mode: Merge/Erase

The Mode setting determines whether the shifted events merge with or erase existing events.

Song Mode

The TRACK Page

Transpose

Use the Transpose function to change the MIDI Note numbers of the selected Note events.

MODE:Song Track Functions			Track:1		
Function	Transpose	From	1	1	0
Semitone	25T	To	2	1	0
		Events	Notes		
		Key Range	C -1	G 9	
		Velocity Range	0	127	
Locate	1	1	0		
FROM-TO			PLAY	STOP	
			GO	DONE	

Semitone: -128 to 127 semitones

An increment of one semitone represents a change of one MIDI Note number. You can transpose Note events only within the range of MIDI Note numbers 0 to 127.

Grab

Grab is similar to the Copy function, except that the Grab function allows you to copy selected events from tracks that exist in other songs in memory.

MODE:Song Track Functions			Track:1		
Function	Grab	From	1	1	0
Source Song	1 New Song	To	2	1	0
Destination Track	1	Events	Notes		
Location	1	Key Range	C -1	G 9	
Mode	Merge	Times	1		
Locate	1	1	0		
FROM-TO			PLAY	STOP	
			GO	DONE	

Source Song: Song List

Use the Source Song parameter to select a song to Grab. The source track is determined by the Track parameter displayed on upper right hand side of the page, selectable with the **CHANNEL/ZONE** buttons.

Destination Track: 1 to 16/ All

Select a destination track for the grabbed events with the Destination Track parameter. All selected events from the source song and track will be placed in the destination track(s) at the bar, beat, and tick you specify.

If the currently selected track is All tracks then the destination track will be All tracks as well.

No matter what channel the current track (source track in the source song) is set to when you use the grab function, the events will be played on the destination track's channel.

Location: Bars : Beats : Ticks

Use the Location parameter to specify a bar, beat, and tick location in the destination track where the grabbed events will be placed. If the length of the grabbed region extends from the Location point beyond the song's existing End point, a new End point is defined.

Mode: Merge / Erase / Slide

The Mode setting determines whether the grabbed events merge with, or erase existing events on the destination track from the location point to the end of the grabbed region. With Mode set to **Slide**, the sequencer creates space for the new events, and slides the existing events to uniformly later times in the song.

Times: 1 to 127

The value selected for the Times parameter determines how many copies of the selected region are placed, one after another, in the destination track.

Change

The Change function is used to modify existing velocities, controller events, or other MIDI events on the current track. A static change of values can be made as well as having the change take place over a region of time.



Scale: 0% to 20000%

Use the Scale parameter to multiply the selected event values by percentage. Values can be scaled from 0% to 20,000%.

Song Mode

The TRACK Page

Offset: -128 to 127

Offset can be used alone or in conjunction with Scale to add or subtract a set amount to or from the original (or scaled) values. Values for velocities can not be less than 1 or greater than 127. Values for controllers can not be less than 0 or greater than 127.

For example, to set all Velocities to a value of 55, you would set Scale to **0%** (multiplies all original values by zero) and set Offset to **55** (adds 55 to the product of the Scale parameter).

Mode: Constant/PosRamp/NegRamp

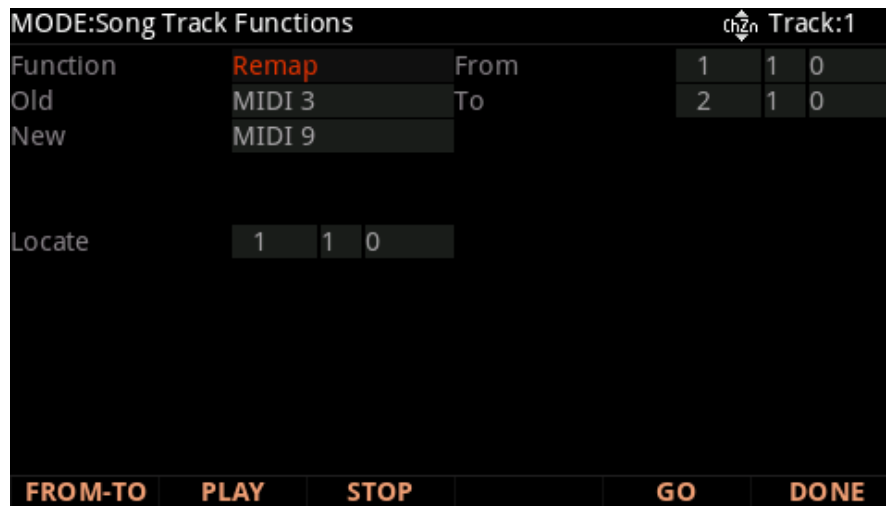
Set Mode to **Constant** to have values modified in a uniform fashion, as determined by the Scale and Offset settings, for the entire selected region of time and range of values.

When the Change function is applied with Mode set to **PosRamp**, the selected velocity or controller values will gradually change over the region of time, defined by the locations set for the From and To parameters, from the original value to the new value determined by the Scale and Offset settings. The first events being modified within the region will have little or no change from their original values. The amount of Scale and Offset applied will increase as the song approaches the Bar and Beat defined in the To parameter, where the full amount of Scale and Offset will be applied.

You can set Mode to **NegRamp** to achieve the opposite dynamic effect of **PosRamp**. **NegRamp** works in the same way, but the amount of Scale and Offset applied will decrease from the full amount to little or no change as the song approaches the bar, beat, and tick defined in the To parameter.

Remap

Use the Remap function to apply values from existing controller events to another controller number.



Old: Controller List (0 to 120)

Use the "Old" parameter to select the Controller that you wish to remap. This Controller must already have events on the current track in order to apply it to the "New" Controller type. The old events will be deleted.

New: Controller List (0 to 120)

Use the "New" parameter to select the Controller that will use the existing values from the "Old" Controller.

The EVENT Page

The EVENT page allows you to view, modify, add, or delete any MIDI event on each track. Every type of recorded MIDI event is visible from this page. You can also access the tempo track.

The top line of the page displays the current song location in the center, and the currently selected track and corresponding channel on the right. Use the **CHANNEL/ZONE** buttons to select a track. Each track displays its initial program, volume, and pan at the top of its event list.

MODE:Song Event		1:1:0105		chn Track:1 (Ch 1)		
START	Program 1 Rich 9ft Grand				Vol NONE	Pan NONE
1:1	1	1	0086	NOTE D#4	vAt84 vRl 37	Len 0 0 286
1:1	1	1	0105	NOTE G 4	vAt75 vRl 32	Len 0 0 229
1:2	1	2	0005	CTRL Sustain	127	
1:2	1	2	0036	NOTE G 4	vAt73 vRl 33	Len 0 0 541
1:2	1	2	0533	NOTE C 4	vAt65 vRl 35	Len 0 0 259

To scroll through the events, make sure the location (Bar and Beat, in the left column) is highlighted. Use the Alpha Wheel, the **Up** and **Down** cursor buttons, or the **Plus/Minus** buttons. As you scroll through the events, each event is executed by the sequencer. In the case of Note events, you will hear the note played, although the duration will be short. If you have scrolled through a Sustain (CTRL 64) message with a value of 127 then you will hear the note sustain as if the sustain pedal was depressed. The note will continue to sustain until you scroll through a Sustain message with a value of 0.

You can also jump directly to a specific bar and beat by typing the bar number and beat number, then pressing **Enter**. Keep in mind if you have controller or program events previous to the point that you jump to, those events may not have been executed and you may hear unexpected results. For example, if you have program changes at bar 1 and bar 8, and you jump from bar 1 to bar 9, any notes you scroll through will be played with the program change from bar 1.

The bottom half of the page displays notes from the current track, graphically represented as squares spread out over 7 octaves of a keyboard. The currently selected note in the list will be shown as a red square. When the Global Mode User Type parameter is set to Advanced, you can press the Favorites 5 button to make this display show 2 or 4 bars.

Initial Program, Volume, Pan

At the top of the event list for each track, you can view and change the initial program, volume and pan settings for the current track. Initial values are needed in order for songs to sound correct after being saved and recalled. If you do not want initial values, each of these parameters can be set to NONE by entering -1 on the alphanumeric pad and then pressing the Enter button.

Location

The first column represents the Bar and Beat Locations of the different events in a song. Scroll through the events on the selected track(s) with the Alpha Wheel or type a specific Bar and Beat on the alphanumeric button pad to jump to events occurring on that Beat. A quick way to jump to the End point in a track is to press **9999** and then **Enter** on the alphanumeric button pad.

Song Mode

The EVENT Page

Bar, Beat, and Tick

Bar, Beat, and Tick are editable parameters for each event. They determine when an event happens relative to the other events within the song. Tick can be set from 0 to 959. See [Beat Subdivisions in Ticks on page 13-33](#) for a list of beat subdivisions in ticks.

Event Type and Value

The Event Type and Value region displays the MIDI event type (and related information) at each Event-list location in the song. Different event types display different kinds of information, and have different editable values.

The event type is the left-most field. You can highlight this field and change the event type. MIDI note events are denoted by a "NOTE" followed by the note name. To change the note, highlight the note name, use the Previous/Next buttons, Alpha Wheel, or Type a note number (0-127) and press Enter. You can also hold the Enter button and play the desired note on the keyboard.

This table lists the available event types and value ranges:

Event Type	Values	
Program Change (PCHG)	0 to 127	
Pitch Bend (BEND)	-8192 to 8191	
Mono Pressure (MPRS)	0 to 127	
Poly Pressure (PPRS)	0 to 127	C -1 to G 9
MIDI Note Events (NOTE)	Note events have four editable values: Note Name/Number, Attack Velocity (indicated by a "vAt"), Release Velocity (indicated by a "vRI"), and Note Length (Len).	
	Note Name/Number	C -1 to G 9
	Attack Velocity (vAt)	0 to 127
	Release Velocity (vRI)	0 to 127
	Note Length (Len)	Bar : Beats : Ticks
MIDI Controller Events (CTRL)	Controller events have two editable values: Controller Type and Controller Value. Defined controllers are referred to by their names.	
	Controller Type	Control Source List (0 to 127)
	Controller Value	0 to 127
Tempo Change (TEMPO)	20.00 BPM to 400.00 BPM	

Soft Buttons on the EVENT Page

CUT: Removes the currently selected event from the Event list and temporarily stores it in a memory buffer so that you can immediately paste it into a new location.

COPY: Makes a duplicate of the currently selected event and temporarily stores it in a memory buffer so that you can immediately paste it into a new location.

PASTE: Inserts the most recent cut or copied event into the Event list at the currently selected *Bar : Beat : Tick* location. The pasted event will share the same location with the event that already existed at that location in the Event list, but it will appear before the pre-existing event.

NEW: Inserts a new event by duplicating the current event.

FILTER: View the Event List Filter page, which allows you to show and hide specific types of events in the event list for easier navigation. This does not affect which events are played back or recorded. The parameters are the same as described in [“The FILTER Page” on page 13-18](#). Unlike the Record and Playback Filter pages, the Event List Filter page has TOGGLE, ALL ON and ALL OFF soft buttons, which respectively sets all On/Off parameters on this page to their reversed states, all On, or all Off.

DONE: Returns to the last viewed Song mode page.

Tempo Track

To access the tempo track, use the channel **up/down** buttons to navigate to track 1, then press channel down. The tempo track functions the same as the other tracks, except the only event type available is tempo change.

Beat Subdivisions in Ticks

In song mode, each quarter note is divided into 960 ticks (0-959), which allows for unquantized performances to keep their original nuanced timings. If you wish to find specific quantized beat divisions in ticks, use the table below:

Beat Subdivision		Tick Value
Quarter note	1st	0
8th note	1st	0
	2nd	480
8th note triplet	1st	0
	2nd	320
	3rd	640
16th note	1st	0
	2nd	240
	3rd	480
	4th	720
16th note quintuplet	1st	0
	2nd	192
	3rd	384
	4th	576
	5th	768
16th note triplet (sextuplets)	1st	0
	2nd	160
	3rd	320
	4th	480
	5th	640
	6th	800

Chapter 14

Storage Mode

Storage mode lets you use a USB device (such as a thumb drive) or a computer to load, store, back up, and copy files between the Forte and the outside world.

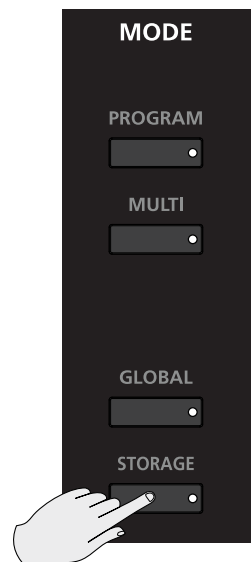
Storage mode in the Forte allows flexibility to organize files and their contents. Its features can save you time by allowing you to select and organize files and directories.

The rear panel connections used for storing and loading files are:

- USB (Type A) Storage port
- USB (Type B) Computer/Tablet port

About Storage Mode

To enter Storage mode, press the Storage button. While you are in Storage mode, the Storage button's LED is illuminated.



Whenever the Forte is accessing a storage device, the Storage Active LED will be lit.

Storage Mode

Storage Mode Common Features

Use this page to select the storage device you wish to use with the navigation arrows or the Alpha wheel. When a device is selected, you can then chose to Load or Store. If a storage device is not connected, Forte will prompt you with a message to do so.



The top line of the display indicates you are in Storage Mode.

Storage Mode Common Features

The following features are used in storage mode when saving or loading files.

Directories

A directory lets you group files together as you might separate documents using folders in a file cabinet. By default all storage devices have at least one “root” directory. To organize files in a USB device; you can create additional directories, as well as subdirectories within directories. Directories appear in the file list with the indicator <DIR> to the right of the directory name.

Path

When you choose the STORE or LOAD soft buttons on the Storage mode main page, you will have to choose exactly where in the storage device you wish to store to, or load from. This location is called a directory. When you need to choose a directory, you will see the Path field. The Path field shows the current directory on the current device.

When you choose a storage function for a connected device, Forte automatically chooses the root (top-level) directory for the Path field. The root directory is displayed as a backslash:

Path:\

When viewing a page that has the Path field, if there are any directories available in the root directory, you will be able to choose them from a list using the alpha wheel, cursor buttons, or - /+ (Previous/Next) buttons. Then, press the OPEN soft button to open that directory. The name of the directory will be displayed in the Path field. For example, if you have a directory called SOUNDS that is located in the current device's root directory, the Path field will appear as:

Path:\SOUNDS\

The backslash character is a directory separator, as in the following Path:

Path: \BACKUP\COVERBAND\SONGS\

This represents the directory SONGS, which is a subdirectory of the COVERBAND directory, which is a subdirectory of the BACKUP directory in the root directory. If the path is too long to fit on the display, it gets abbreviated. The maximum length of a path in the Forte is 64 characters (including the backslash characters).

Using the OPEN soft button causes you to navigate into directories and their subdirectories, away from the root directory. To navigate out of subdirectories back towards the root directory, use the PARENT soft button to move one level back from the current directory

Common Dialogues

These are dialogues that the Forte calls up when about to perform certain storage functions.

The Select Directory Dialogue

When storing, the Forte will prompt you to select a directory in which to store.



There are three navigating soft buttons on the left side of the bottom of the page:

Storage Mode

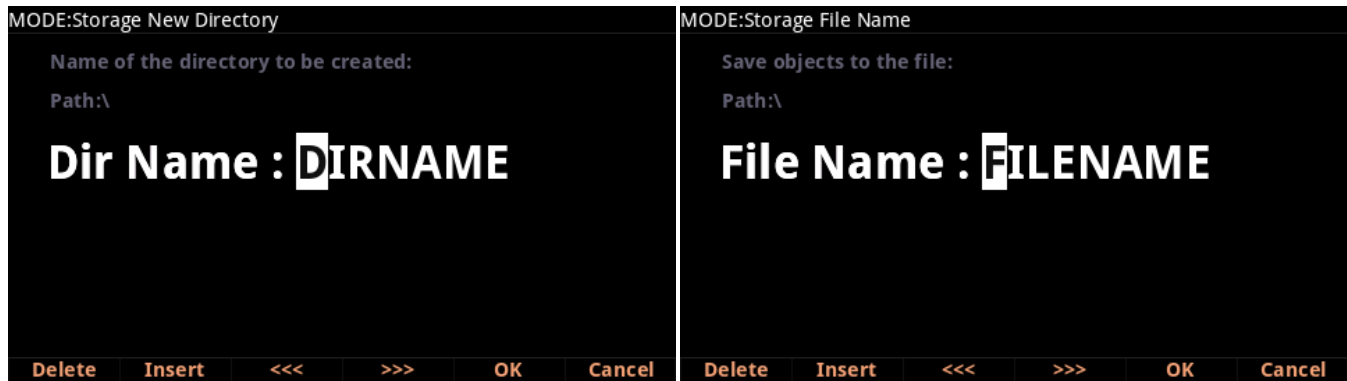
Storage Mode Common Features

NewDir	Create new directory. Calls up the New Directory dialogue (see the following section)
Open	Opens the highlighted directory
Parent	Moves you up one level in the directory hierarchy. If the display is already at the root directory, this button has no effect.

When you have chosen your directory, press the OK soft button to call up the File Name dialogue (see the following section) and complete the storing process.

The File Name / New Directory Dialogue

When you create a new file in Storage mode, or create a new directory, the Forte prompts you to enter the name. This File Name dialogue appears as shown below:

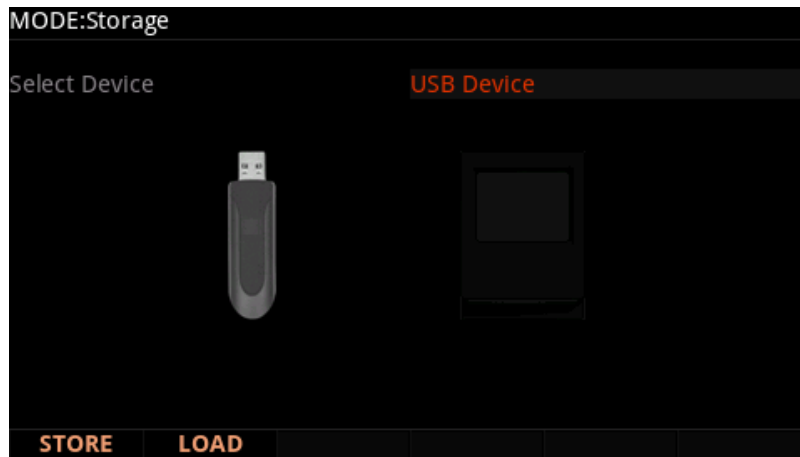


New file names will default to either FILENAME (after a power up), or the name of the most recent file stored or loaded. New directory names will default to either DIRNAME (after a power up), or the name of the most recent directory created. You can edit the name using the keypad, alpha wheel, -/+ buttons, Left and Right cursor buttons, the Delete and Insert soft buttons, and the << and >> soft buttons.

Press the OK soft button to finish the operation.

The STORE Page

The STORE button allows you to store a file containing User Programs, User Multis and the User Master Table to a computer or storage device connected via a USB connection.



NOTE : If the Forte is currently connected to your computer as a MIDI controller, Saving or Loading a file in the PC Virtual Drive will temporarily disconnect the Forte USB MIDI connection for approximately 1 second. After Saving or Loading, the Forte may need to be reselected as a MIDI device in your computer program. Loading or Saving to the Flash Drive will not disconnect the USB MIDI connection.

Before you press the STORE selection button in Global Mode, make sure you have plugged the USB device into the Forte.

If you are storing sounds to your computer or Tablet, then use the cable that plugs into the computer/Tablet USB port on the rear panel of the Forte.

If you are storing sounds to a USB flash drive, plug them into the Device USB port on the rear panel of the Forte.

Pressing STORE

Press the STORE button when you have a storage device plugged into a USB port.

If no USB connection is detected by the Forte, you will see the error message “Error: No valid device inserted.”

Storage Mode

The LOAD Page

Store All

Press the ALL soft button to store all user objects into a single file, or press CANCEL to return to the previous page. Pressing ALL calls up the Select Directory dialogue. The Forte stores files using the file extension .FOR. After storing, the Forte will display a message indicating if the store was successful or if a problem occurred.

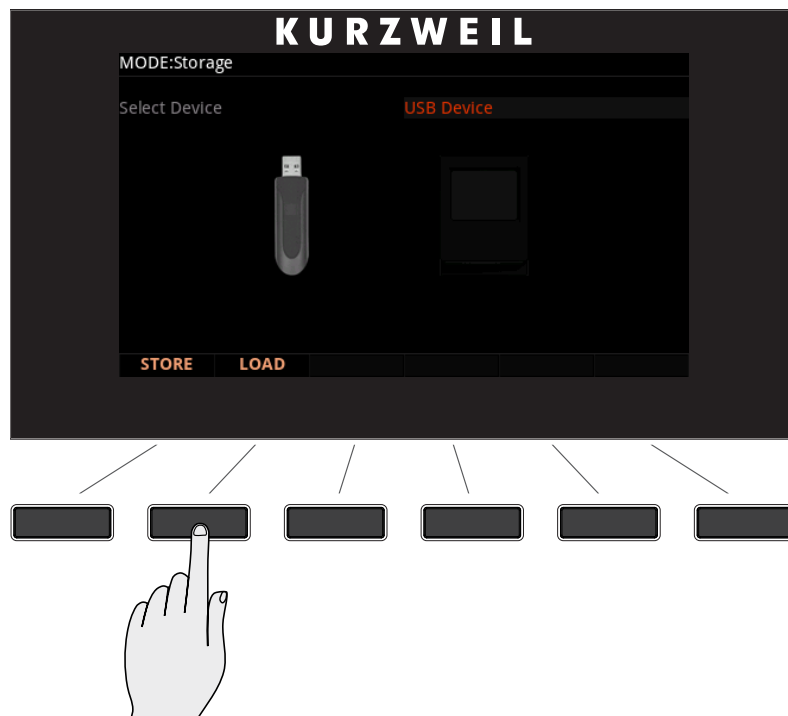
Store Advanced

Press the ADVANCED soft button to view the Storage Advanced page where you can select one or multiple individual objects to store, instead of saving all user objects. The Storage Advanced page shows a list of all user objects grouped by type. Press the TYPE soft button to jump to the next object type in the list. Use the cursor up/down buttons to navigate through the list. The object that is currently highlighted in red can be selected or deselected for storing by pressing the SELECT soft button. An asterisk (*) appears between the ID and object type of selected objects.

After selecting objects to store, press the STORE soft button to store the selected objects to the current storage device, or press CANCEL to return to the previous page. Pressing STORE calls up the Select Directory dialogue. The Forte stores files using the file extension .FOR. After storing, the Forte will display a message indicating if the store was successful or if a problem occurred.

The LOAD Page

The LOAD button calls up the LOAD page where you can load compatible files from a storage device.





NOTE : If the Forte is currently connected to your computer as a MIDI controller, Saving or Loading a file in the PC Virtual Drive will temporarily disconnect the Forte USB MIDI connection for approximately 1 second. After Saving or Loading, the Forte may need to be reselected as a MIDI device in your computer program. Loading or Saving to the Flash Drive will not disconnect the USB MIDI connection.

Before you press the LOAD soft button in Storage Mode, make sure you have plugged the USB device containing your user objects into the back of the Forte.

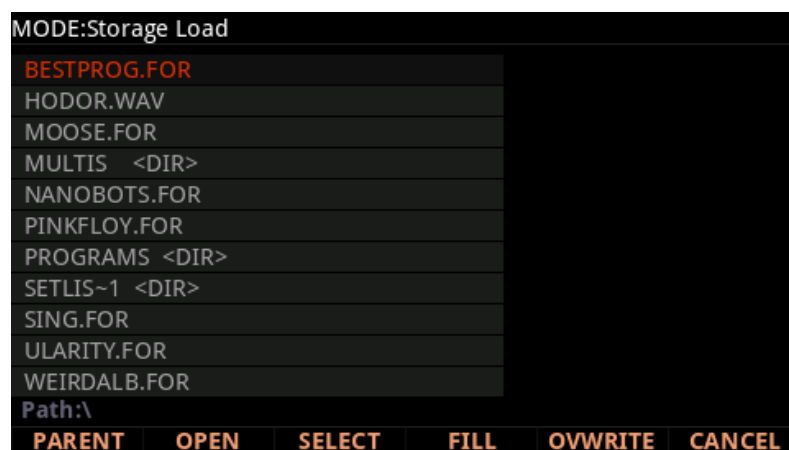
If your user objects are located on your computer or Tablet, then use the cable that plugs into the computer/Tablet USB port on the rear panel of the Forte.

If your user objects are located on a USB flash drive, plug them into the Device USB port on the rear panel of the Forte.

Pressing LOAD

Press the LOAD soft button to view the LOAD page, where you can load compatible files from a storage device.

Before you press the LOAD button, make sure you have plugged the USB cable or device containing your user objects into the back of the Forte. If no USB connection is detected by Forte, you will see the error message “Error: No valid device inserted.”.



Use the cursor buttons, +/- buttons or the Alpha Wheel to browse the files in the currently selected storage device.

Storage Mode

The LOAD Page

You can press the OPEN soft button to browse within a selected folder, or to browse individual objects within a selected Kurzweil object file (see the Compatible Files section below for details). Objects within a Kurzweil file are shown in a list and grouped by object type.

You can select one or multiple files or objects to load. The file or object that is currently highlighted in red can be selected or deselected for loading by pressing the SELECT soft button. An asterisk (*) appears next to selected objects.

After selecting a file or individual objects to load, press the FILL or OVWRITE soft button to continue. See below for details on FILL and OVWRITE.

PARENT	Pressing the PARENT soft button will close the currently open folder and navigate to the parent folder.
OPEN	Pressing the OPEN soft button will open the highlighted folder, or open the highlighted Kurzweil file allowing you to select individual objects.
SELECT	Pressing the SELECT will select or deselect the highlighted file for loading.
FILL	Pressing the FILL soft button means you would like to keep the existing user objects. The Forte will load the User objects into the first empty user ID it finds, and then subsequent empty IDs.
OVWRITE (OVERWRITE)	Pressing the OVWRITE soft button first deletes all the existing user objects, and then loads the new user objects using the object ID numbers stored in the file. OVWRITE appears only when a .FOR file is selected. OVWRITE also gives you the option to use the Merge loading method, see the Merge section below for details.
CANCEL	Press the CANCEL button to return to the Storage Mode main page.

During the load process the screen will show information about the objects that are being loaded. After loading, the screen will display a message indicating if the load process was successful, or if there were errors.

Fill From ID

When the User Type parameter on the Global Mode Main 1 page is set to Advanced, pressing the Storage Mode Load FILL soft button will show the “Fill from ID” dialog. When you select a saved object file to load, “Fill from ID” allows you to choose the ID number at which you would like to begin loading objects. This allows you to load user objects to specific IDs, instead of always loading from the unused IDs starting at ID 1024. This can be useful for organizing user objects in specific ID ranges.

Merge

When the OVWRITE (Overwrite) soft button is pressed, you are given the option to load objects using the Overwrite or Merge method. Selecting Overwrite first deletes all the existing user objects, and then loads the new user objects using the object ID numbers stored in the file. Selecting Merge will load the new user objects using the object ID numbers stored in the file, only deleting existing objects which use the same ID numbers. Existing user objects that use other IDs will not be deleted.

Loading .WAV and .AIF Audio Files

From the LOAD page, .WAV and .AIF audio files can be loaded and used with user created keymaps. See [“PREVIEW \(Sample Preview\)” on page 12-23](#) for an easy way to create a keymap from user or factory samples. See [“Building a Keymap” on page 9-9](#) and [“Editing Samples” on page 9-11](#) for more details on editing keymaps and samples.

Mono and stereo files can be loaded, 8 or 16 bit, with sample rates up to a maximum of 96000 Hz. Once samples are loaded to the Forte’s user sample flash memory, samples remain in the Forte even when the power is off, until they are manually deleted. Also, once samples are loaded to the Forte’s user sample flash memory, there is no load time for those user samples when turning on the Forte.

To load a user audio file, select a .WAV or .AIF file from the LOAD page file list and press the FILL soft button. (If the Global Mode User Type parameter is set to advanced, you will be prompted to select an ID to fill from. In that case you must select an ID then press the FILL soft button again to begin loading samples into unused user IDs).

On the EDIT:Keymap Main page (see [Ch. 9 Keymap and Sample Editing](#)), loaded audio samples can be selected in the Sample field. In the Sample field, you can find the audio file you loaded by entering 1024 (or whichever ID you filled from) on the alphanumeric keypad and pressing Enter. If you have previously loaded user samples, you may have to scroll above 1024 (or whichever ID you filled from) as your sample will have been loaded into the next available unused ID.

Note: When transferring files to and from the Forte via the USB Computer Port, the maximum size of files that can be transferred is approximately 20 MB. This is suitable for most, non-sample objects. For transferring audio sample files, use the USB Storage Port with a USB mass storage device such as a “thumb drive.” When using the USB Storage Port to transfer files, the file size that can be transferred is limited only by the size of the USB mass storage device, and the Forte’s available object and sample memory.

Compatible Kurzweil Files

The Forte can load .PC3, .P3K, .PLE, .ART, .SPX and, .FOR files.

The Forte will read PC3-family files and will attempt a conversion of the objects on those files. While this process will not convert the objects 100%, it should get very close to the original sound.

Importing FM (.SYX) Programs

The Forte can load .SYX files containing FM programs from classic 6 operator FM synthesizers. Imported FM programs can be edited in Program Mode and combined with additional layers and VAST synthesis features. For details on editing imported FM programs, see [“Editing FM Layers” on page 7-85](#).

Example Using LOAD

The following example shows how each different loading methods affect how four programs load into the User bank that already contains programs.

Example: Starting with the following objects already stored in the Forte User bank:

Programs currently in Forte	
Program ID	Program Name
1024	3rd World Order
1025	PC3 Strings
1028	JuPiTaR BazZ
1031	VA1 Lead

Suppose you were to load a FOR (Forte) file containing the following Programs:

File to be Loaded	
Program ID	Program Name
1025	Synth Horn
1026	NYJazzy
1027	Saxxy
1028	Stabbatha

The two tables below show the results if you use FILL or OVWRITE with the User Bank.

Forte Bank after using FILL	
Program ID	Program Name
1024	3rd World Order
1025	PC3 Strings
1026	Synth Horn
1027	NYJazzy
1028	JuPiTaR BazZ
1029	Saxxy
1030	Stabbatha
1031	VA1 Lead

Forte Bank after using OVWRITE	
Program ID	Program Name
1025	Synth Horn
1026	NYJazzy
1027	Saxxy
1028	Stabbatha

Chapter 15

System Mode



CAUTION: DO NOT ATTEMPT TO MAKE ANY CHANGES IN SYSTEM MODE UNTIL YOU HAVE READ AND FULLY UNDERSTOOD THIS CHAPTER

This chapter will help you familiarize you with the functions of System Mode.

System Mode allows you to manage and upgrade the OS software of your Forte as well as perform diagnostic tests of the instrument's various internal systems and processes. Note that the functions that you have access to in System Mode govern the operation of your Forte, so only use System Mode when you must perform essential maintenance tasks.



To enter System Mode, follow these steps:

1. Power off your Forte.
2. Press and hold the **ENTER** button, and power on the unit. Make sure to keep holding the **ENTER** button until “Entering System Mode” is displayed:
3. Release the **ENTER** button—at this point, you are in System Mode.

System Mode

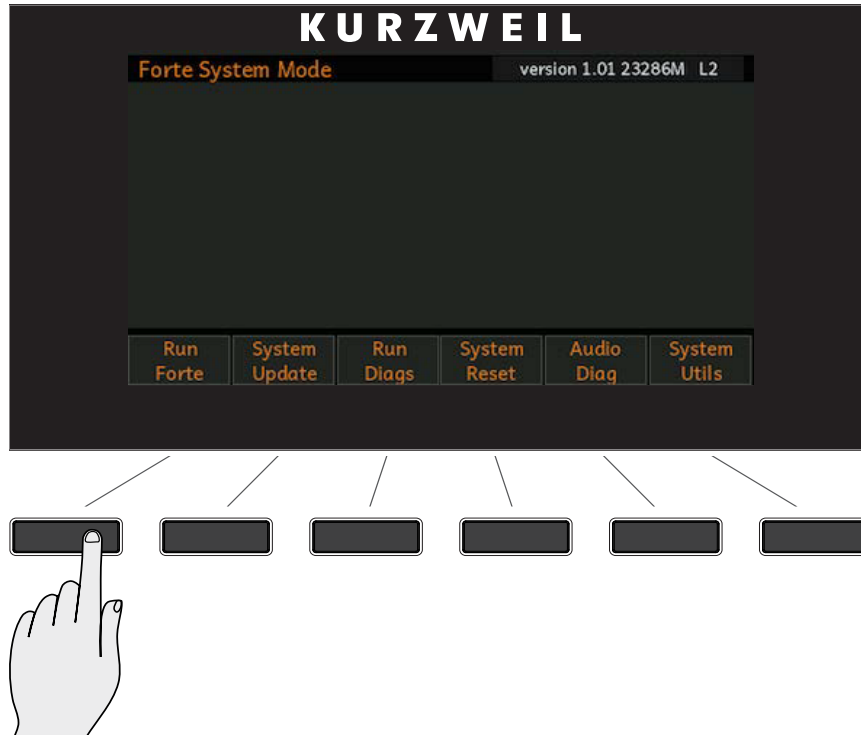
Run Forte

Run Forte

This is the first System Mode menu item.

Pressing the “**Run Forte**” soft button will load the OS and the Forte will start up as if you just switched on the unit.

If the Forte operating system fails to load up, you will see an error message with an error code.

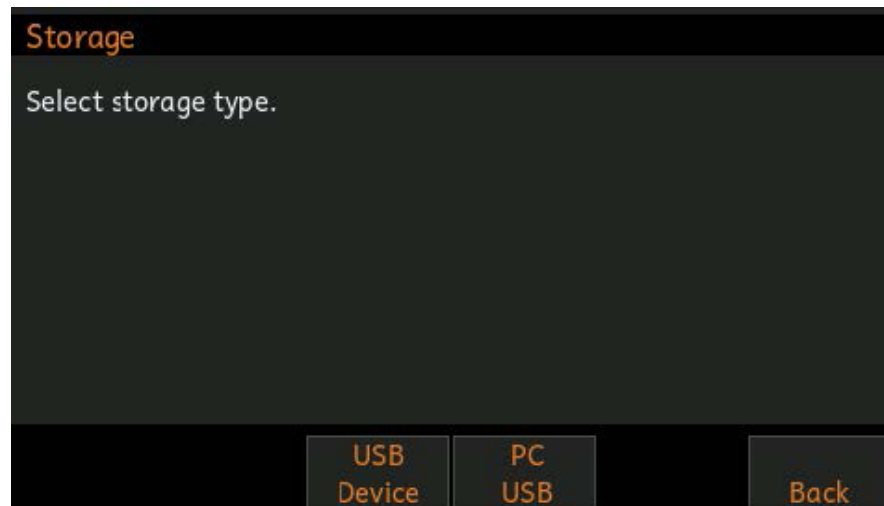


System Update

System Update allows you to keep your Forte running the latest available OS (Operating System), which you can download from the Kurzweil website.

The file that is used to install a new OS version with sounds is combined into one file called a KUF (Kurzweil Unified File).

A USB flash drive or computer (using a USB cable) can be used to perform the System Update.



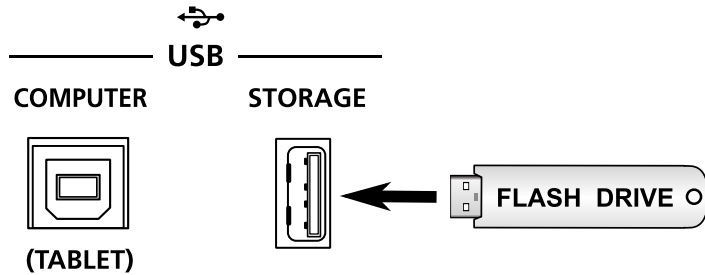
Caution: Before Updating, be sure to back up any custom programming.



Caution: It is important that the install is not disrupted once loading begins. Powering off the Forte or your PC, removing the USB device or USB cable in the middle of loading could leave the Forte inoperable and then require repair service to restore.

Install Using a USB Flash Drive

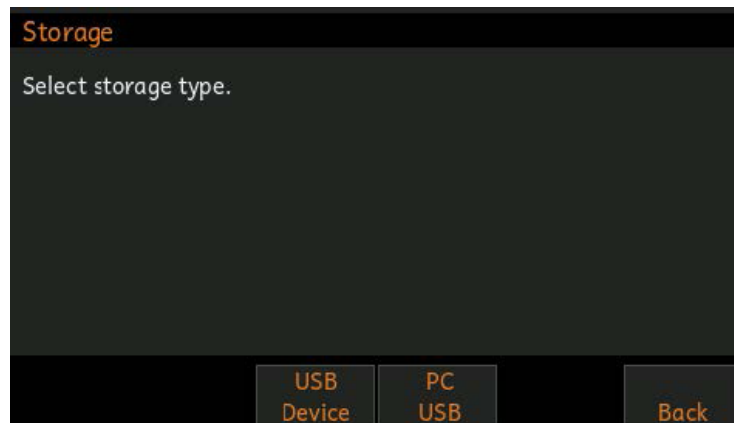
1. Download the System Update file from the Kurzweil website or another reliable source and save it in a known folder or directory on your flash drive.



2. Connect the flash drive to the USB STORAGE slot of Forte (powered off).
3. Follow the instructions specified on Page 12-1 to enter System Mode.
4. In System Mode, select System Update.



5. Select USB Device as the storage type.



6. If the system was able to read the USB flash drive that was plugged in, it will display a list of files and folders as shown below. You can use the arrow buttons or Alpha wheel to move up and down the list. Select the UP soft button if you want to go up to the parent directory level. If the KUF file is selected, select the OK button.



You will see a progress bar indicating the progress. If update was successful you will see a confirmation message. If there was a failure you will see a self-explanatory failure message (with error code) to indicate the failure.

Install Using a Computer/Tablet

1. Download the System Update file from the Kurzweil website or another reliable source and save it in a known folder or directory accessible to your computer/tablet.
2. Connect the Forte (powered off) to the computer/tablet with the USB cable provided into the USB Computer/Tablet slot.
3. Follow the instructions specified on Page 12-1 to enter System Mode.
4. In System Mode, select System Update.

System Mode

System Update



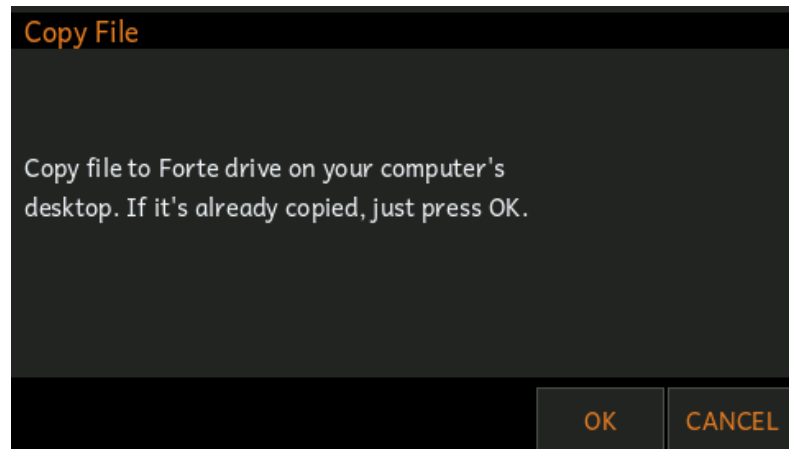
5. Select PC USB as the storage type.



6. If the Forte cannot detect a connection to the computer/tablet it will display the message below.

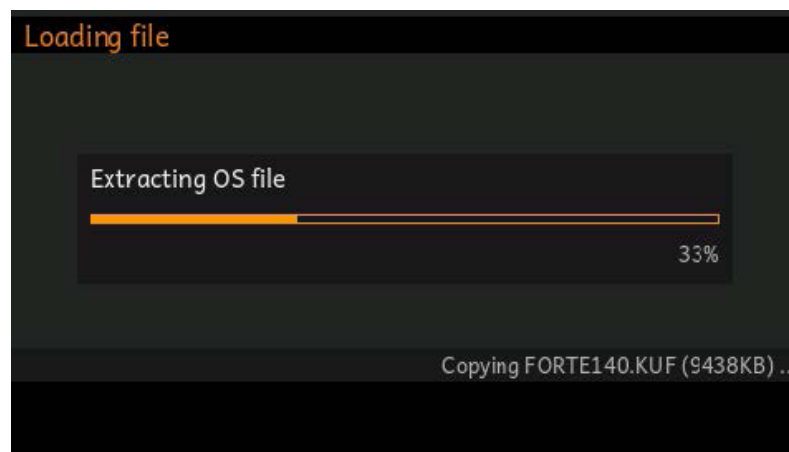


7. If the connection was detected, you will be prompted with the above message. Copy the KUF file to the virtual drive that appears on the computer/tablet and press OK.



8. Select the file from the list displayed on the next screen and Press OK.

You will see a progress bar indicating the progress. If update was successful you will see a confirmation message. If there was a failure you will see a self-explanatory failure message (with error code) to indicate the failure.



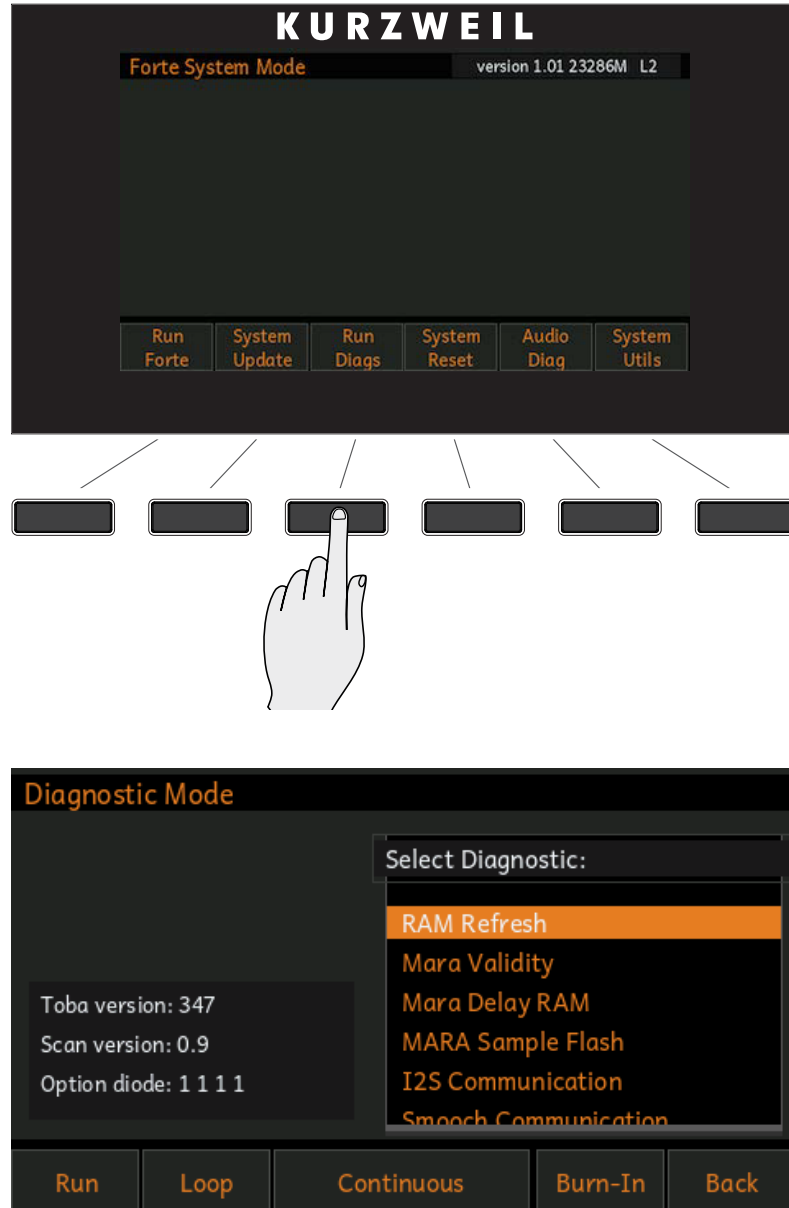
System Mode

Run Diagnostics

Run Diagnostics

You will most likely not need to use the Run Diagnostics operations in normal cases.

These operations are mostly used at the factory and service centers by technicians for troubleshooting hardware problems. But, in some cases you might be required to run these diagnostics for troubleshooting and diagnosing symptoms. In these cases, follow the directions of Kurzweil Technical Support.



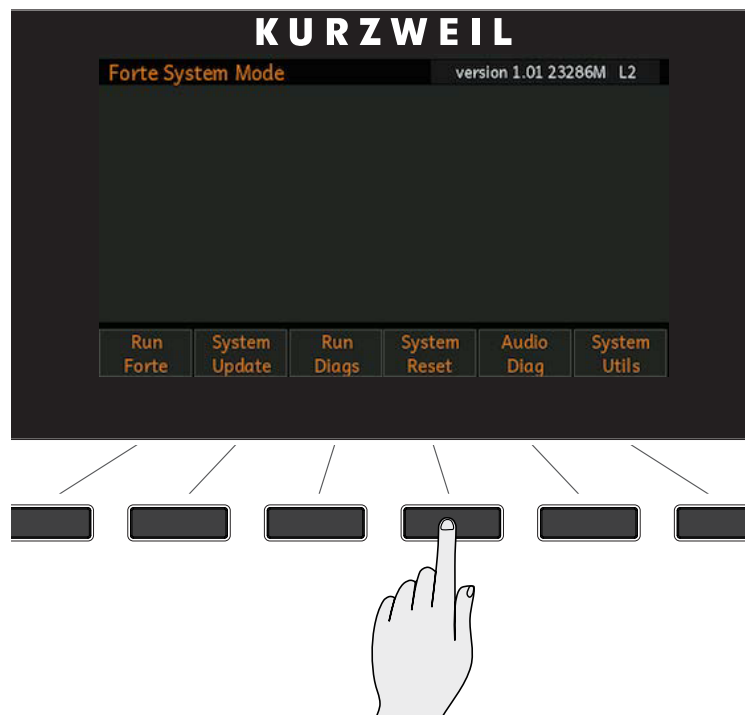
System Reset



CAUTION: THIS OPERATION ERASES ALL USER PROGRAMS & MULTIS.

System Reset will restore the Forte back to a Factory State. In addition to all user Programs and Multis being deleted, Global Mode settings will be restored to factory defaults.

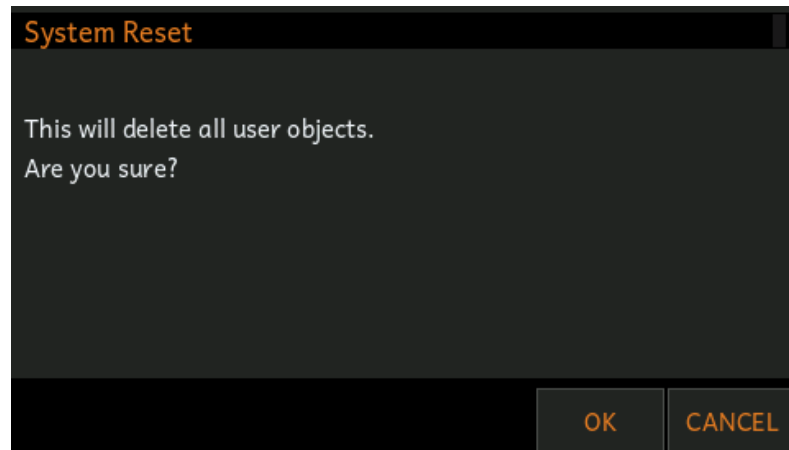
To clear all user Programs/Multis and restore the factory default state, select the System Reset menu option.



The Forte will now ask the question “This will delete all user objects. Are you sure?”

System Mode

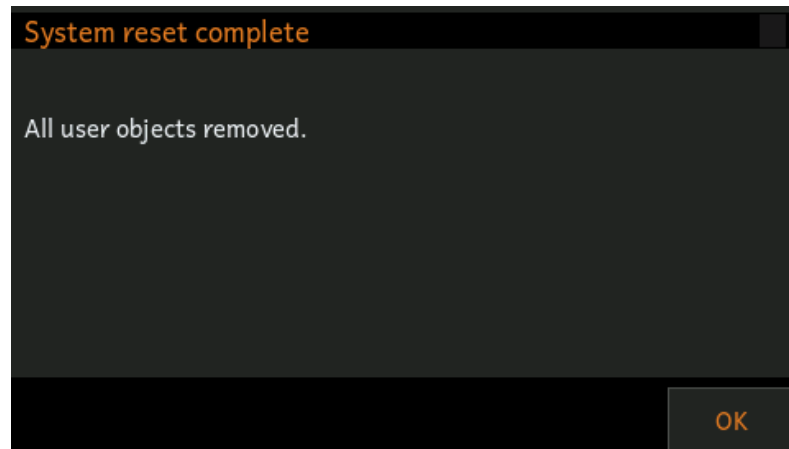
System Reset



If you are not sure what you are about to do, select CANCEL. This will exit the System Reset process and take you back to the System Mode menu.

If you select OK the Forte will proceed with erasing all of the user objects (Programs & Multis) in the Forte and restoring the instrument back to a Factory State.

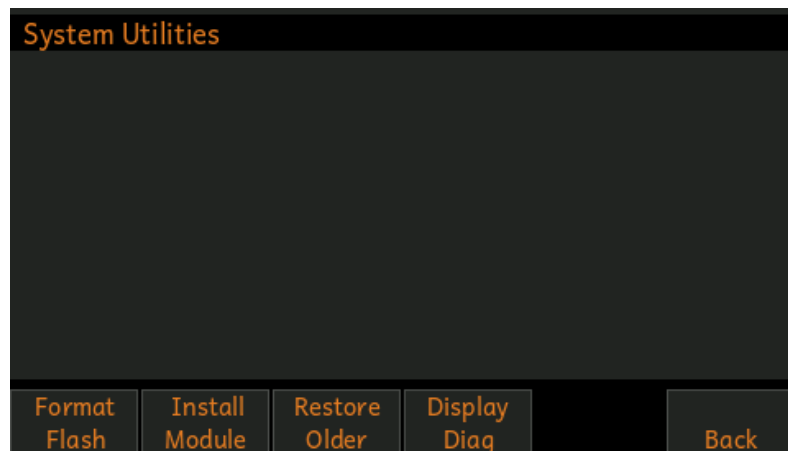
If you have completed the System Reset, select OK.



Remember to save your User Programs and User Multis to your computer following the instructions in the [The STORE Page on page 14-5](#). Once deleted, these files are completely removed from the Forte and there is no way to retrieve them.

System Utilities

System Utilities contains various utilities for system administration.



Select "Back" if you wish to exit and return back to the System Mode menu.

Format Flash



CAUTION: THIS OPERATION ERASES THE OPERATING SYSTEM, ALL FACTORY OBJECTS AND ALL USER OBJECTS.

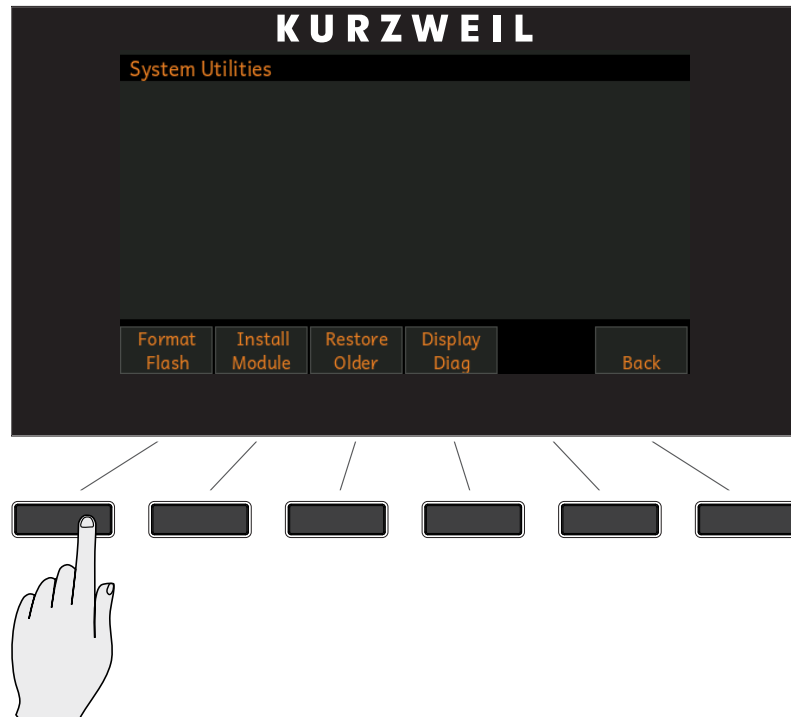
Performing this operation will format the Forte's system flash memory and erase the OS software as well as *all* Objects. Do not do this unless you think it is necessary in order to improve the performance of your Forte. Should you decide to do so, be sure to back up all of your files and software. After you do this, System Mode will still be available, so you can run updates and get your Forte up-and-running again. After a Format the unit will come up in System Mode by default.

To perform a Format, follow these steps:

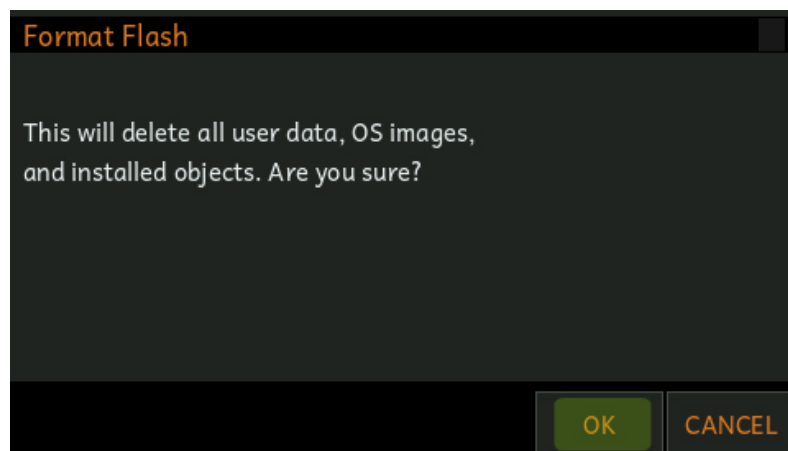
1. Follow the instructions specified on Page 12-1 to enter System Mode.
2. Select System Utilities.



3. Press Format Flash.



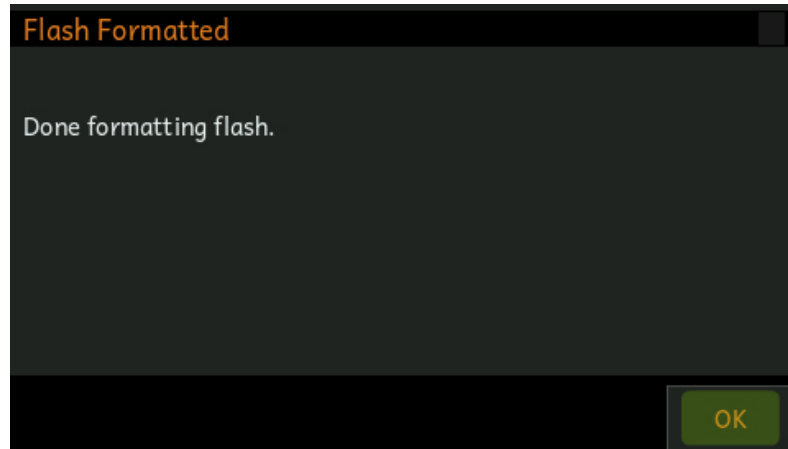
4. The next screen wants to make sure that formatting the flash and deleting everything is really what you want to do. Select OK to format the internal flash memory. Select CANCEL if you do not wish to proceed.



System Mode

System Utilities

5. When formatting of the internal flash memory is completed, the display will show the message “Done formatting flash.”. Press OK.



Install Module

This option allows the installation of individual files. You may be guided by Kurzweil Technical Support to use this option if needed.

Restore Older

If you have updated the Forte but wish to return to the earlier version, you can use the Restore Older option.

Display Diag

This option allows diagnostics of the color LCD display. You may be guided by Kurzweil Technical Support to use this option if needed.

Chapter 16

Troubleshooting

Maintenance

Aside from normal care in handling and use, your Forte requires no regular maintenance. Clean with a soft dry cloth. Never use abrasives or solvents as they may damage the unit's paint, markings, and display screen. There are no batteries inside to replace—ever. Instead of volatile SRAM used in most other instruments, your Forte uses nonvolatile Flash Memory for storage, which retains information without power.

Common Problems

Below is a list of the most commonly encountered problems and diagnoses for each.

Power Problems

This is the normal power-up sequence:

1. The display backlight turns on.
2. "Loading..." appears on the display for a few seconds.
3. The Forte enters Program Mode with Program 1 selected, or the Program that was selected the last time Global mode was exited.

If nothing at all happens when you turn the power switch on, check if one of the following might be the issue:

ISSUE	The power cable is not plugged securely into the wall outlet.
REMEDY	Plug the power cable securely into the wall outlet.

Troubleshooting

Common Problems

ISSUE	The power cable is not plugged securely into the Forte power jack.
REMEDY	Plug the power cable securely into the Forte power jack.

ISSUE	The wall outlet, power strip, or extension cord is defective or damaged.
REMEDY	Use a different wall outlet, power strip, or extension cord.

If there's evidence of the unit receiving power, but operation is abnormal, check if one of the following might be the issue:

ISSUE	The wall outlet voltage is below 90 volts due to overload.
REMEDY	Try a different outlet on a different circuit.

Display “Brightness”

ISSUE	The Display is blank or difficult to read.
REMEDY	Slowly turn the Display brightness knob (located above the Navigation buttons) to adjust the Display.

Audio Problems



CAUTION: Do not troubleshoot audio problems using headphones. Additionally, always be aware of the volume levels on the Forte and on the connected audio system or mixer.



NOTE: When diagnosing audio problems, set the Forte to play a Song Demo rather than intermittently pressing keys. This will prevent any unexpectedly loud volume changes.

If there is no sound from your Forte, check if one of the following might be the issue:

ISSUE	The volume slider is turned down.
REMEDY	Slowly push the volume slider up.

ISSUE	The volume control on the audio system or mixer is turned down.
REMEDY	Slowly turn the volume control up.

ISSUE	The signal source selection on the audio system or mixer is incorrect.
REMEDY	Set the volume of the audio or mixer to the lowest level, select the correct signal source, and then slowly turn up the volume.

ISSUE	The audio cables are not securely plugged into the Forte, audio system, or mixer.
REMEDY	Set the volume of the audio or mixer to the lowest level, securely plug in the audio cables on both ends, and then slowly turn up the volume.

ISSUE	The Destination parameter stops MIDI Data.
REMEDY	Change the Global Mode (MIDI page) "Destination" parameter to USB+MIDI+LOCAL (see page 12-18)

ISSUE	The audio cable is of an incorrect type.
REMEDY	Obtain and securely connect an audio cable of the correct type. The Forte accepts both balanced (TRS) and unbalanced (TS) 1/4-inch audio cables.

Troubleshooting

Common Problems

If you can hear sound but it is low or distorted, check if one of the following might be the issue:

ISSUE	A received MIDI volume message has specified a low volume.
REMEDY	Set the volume of the audio system or mixer to the lowest level. Disconnect all MIDI cables, set the “Destination” parameter in Global Mode (MIDI page) to LOCAL or USB+MIDI+LOCAL and reset the volume level on the Forte, by pressing Panic (see page 3-18). Finally, slowly turn up the volume level of the audio system or mixer.

ISSUE	The current Multi has another controller assigned to volume, and it is turned down.
REMEDY	Select a different Multi. Or change the problematic controller setting by editing the Multi in Multi Edit Mode.

ISSUE	The audio system input is set for low impedance instead of high impedance.
REMEDY	Set the volume of the audio system or mixer to the lowest level, change the impedance setting, and then slowly turn up the volume of the audio system or mixer.

ISSUE	The input trim to the audio system or mixer is set too low.
REMEDY	Slowly turn up the trim.

MIDI Problems

If you are experiencing problems sending MIDI to an external module, check if one of the following might be the issue:

ISSUE	The MIDI cable is not securely plugged in at both ends.
REMEDY	Securely plug in the MIDI cable at both ends.

ISSUE	The MIDI connections are wrong.
REMEDY	To send MIDI, plug the MIDI cable into the Forte's MIDI Out port and into the module's MIDI In port.

ISSUE	The MIDI cable is defective.
REMEDY	Obtain and securely connect a new MIDI cable.

ISSUE	The MIDI transmit channel does not match that of the receiving device.
REMEDY	Change the channel on either the Forte or on the device such that the channels match.

If there are problems with the internal sound module receiving MIDI from an external device like a computer sequencer, check if one of the following might be the issue:

ISSUE	The MIDI transmit channel of the transmitting device does not match that of the receiving Program or Zone on the Forte.
REMEDY	Change the channel on either the Forte or on the computer such that the channels match.

ISSUE	The MIDI cable is not securely plugged in at both ends.
REMEDY	Securely plug in the MIDI cable at both ends.

ISSUE	The MIDI connections are wrong.
REMEDY	To receive MIDI, plug the MIDI cable into the Forte's MIDI In port and into the module's MIDI Out port.

Pedal Problems

Before you consult this section, be sure to read [The Pedal Jacks on page 2-7](#).

Switch Pedal Problems

If you are having problems with connecting or using a switch pedal, check if one of the following might be the issue:

- Sustain or Sostenuto is stuck “on.” Be sure the pedal is plugged in before switching on the power. Turn power off, then on, if necessary.
- The pedal is acting backwards (“on” when up instead of down). Power cycle the unit making sure to NOT press on the pedal during startup.

If None of the Above...

If your problem is not covered above, or if none of the suggestions seem to work, first check back and review the relevant sections of this manual. Many difficulties are just programming problems caused by settings of Multi parameters. If you want to be sure that all of the factory defaults are in place, see the [RESET Page on page 12-30](#).

Also be sure to check Kurzweil's website for additional Forte information that may have been published since this manual was written: www.kurzweil.com.

If you still have problems, contact Kurzweil support in your country or at www.kurzweil.com/support/. You may also find unofficial help at some of the internet communities listed at www.kurzweil.com/community/.

Service Centers

Contact the nearest Young Chang office Kurzweil service representative. See [page iv](#) in the front of this manual for contact information.

Restoring Factory Defaults

For restoring your Forte back to the factory defaults, see Global Mode Reset on [page 12-30](#)



CAUTION: Restoring factory defaults cannot be undone. Back up your files before doing so by using Storage mode; see "Store All" on page 11-6.

Diagnostics

You will most likely not need to use the System Mode diagnostic operations in normal cases. These operations are mostly used at the factory and service centers by engineers for troubleshooting hardware problems. But, in some cases you might be required to run these diagnostics for troubleshooting and diagnosing symptoms. In these cases, follow the direction of an authorized Kurzweil technician.

Appendix A

MIDI Implementation

Function		Transmitted	Recognized	Remarks
Basic Channel	Default	1	1	Memorized
	Changed	1–16	1–16	
Mode	Default	Mode 3	Mode 3	Use Multi-track mode (see the FX Mode parameter in Global Mode for multi-timbral applications)
	Messages			
	Altered			
Note Number			0–127	
	True Voice	0–127	0–127	
Velocity	Note ON	O	O	
	Note OFF	O	O	
Aftertouch	Keys	X	O	
	Channels	O	O	
Pitch Bender		O	O	
Control Change		O 0–31 32–63 (LSB) 64–127	O 0–31 32–63 (LSB) 64–127	Controller assignments are programmable
Program Change		0 to 2,097,151	0–511	Standard and custom formats
	True #	0–127	0–127	
System Exclusive		O	O	
System Common	Song Pos.	X	X	
	Song Sel.	X	X	
	Tune	X	X	
System Real Time	Clock	O	O	
	Messages	O	O	
Aux Messages	Local Control	O	O	
	All Notes Off	O	O	
	Active Sense	X	X	
	Reset	X	X	
Notes		Manufacturer's ID = 07 Device ID: default = 0; programmable 0–127		
Mode 1: Omni On, Poly Mode 3: Omni Off, Poly		Mode 2: Omni On, Mono Mode 4: Omni Off, Mono		O = Yes X = No

Appendix B

Physical Specifications¹

Keyboard:	88-key, fully-weighted hammer-action with velocity and pressure (After Touch) sensitive adjustable keys. 88-key model uses Fatar TP/40L with pressure.
Display:	480 x 272 pixel high resolution color LCD with front-panel brightness adjust.
Polyphony:	128 Voice Polyphony, dynamically allocated. KB3 Mode hammond emulations use 0 voices.
Multitimbral:	16 parts (one per MIDI channel).
Quick Split / Layer:	Easy access with adjustable volume and panning.
Programs:	Over 300 Factory plus 3072 User Programs.
Multis:	Over 180 Factory Multis, plus 3072 User Multi locations with 16 programmable zones for splits and layers.
Effects:	Hundreds of complex effect chains, user editable.
Controllers:	<ul style="list-style-type: none"> • Pitch wheel • Modulation wheel • Volume Slider • 9 front panel sliders with LED ladders • 9 switches (assignable / zone mutes / KB3 control) • 1 Variation switch • 1 Tap Tempo switch • 5 Master EQ/Compressor Knobs • 2 EQ/Compressor On/Off Switches • 3 switch pedal inputs, each supporting single switch pedal or single half damper pedal. • 2 continuous control pedal inputs • 2 Transpose buttons
Analog Outputs:	<p>Four 1/4" TRS Balanced Outputs (Two Stereo Pairs, A & B) 24-bit D-to-A Converters Frequency Response 20Hz-20kHz +/- 0.1dB +21dBu Maximum Output Level -113dB Signal-to-Noise Ratio (A-weighted) 0.003% THD+N (1kHz @ -1 dBFS)</p>
Headphones:	<p>1/4" Front-Mounted Stereo Headphone Output Frequency Response 20Hz-20kHz +/- 0.5dB Maximum Output Power 130mW into 32 Ohms -100dB Signal-to-Noise Ratio (A-weighted) 0.03% THD+N (1kHz @ 100mW Output into 32 Ohm Load) Output Impedance: < 1 Ohms Load Impedance: > 24 Ohms</p>
MIDI:	IN, THRU (Switchable to OUT), OUT
USB:	<p>Complete MIDI functionality over USB User Program / Multi file transfer to/from PC / Mac / Tablet/ USB Flash Drives. Operating System updates from PC / Mac / USB Flash Drive</p>
Height:	FORTE 5.5" (14 cm) FORTE7: 5.5" (14 cm)
Depth:	FORTE 15.5" (39.5 cm) FORTE7: 15.6" (39.7 cm)
Length:	FORTE 54.5" (138.5 cm) FORTE7: 43.2" (109.7cm)
Weight:	FORTE: 48 lbs (21.77 kg) FORTE7: 41.45 lbs (18.8 kg)
Power:	Internal switch-mode power supply 100-240 VAC, 50/60 Hz, 300mA (20W max)

¹ Specifications subject to change without notice

Appendix C

Programs

Object Version : 4.00.6

ID	PIANO	ID	PIANO		
1	Rich 9ft Grand	17	70's Album		
2	Rich 7ft Grand	18	Artis Grand		
3	Bright 9ft Grand	19	Legacy Grand		
4	Bright 7ft Grand	20	New Age		
5	Solo 9ft Grand	21	Piano & Harp		
6	Solo 7ft Grand	22	Piano & Choir		
7	Vintage Upright	23	Mood Ring		
8	Vintage Grand	24	Ambience		
9	Elegant Grand	25	Film Piano		
10	New Orleans	26	Soul Piano		
11	Dark & Distant	27	Pub Piano		
12	Piano & Pad	28	Double Grand		
13	Piano & Strings	29	Mono Upright		
14	Punchy Edge	30	Double Squash		
15	R&B Stack	31	Vintage Squash		
16	SuperPop	32	House Piano		
ID	E. PIANO	ID	E. PIANO	ID	E. PIANO
33	Rooftop EP Tine	50	Phase Dist EP	67	RoyalKingWakeman
34	Steely Dyno 77	51	BrightFuzzReedEP	68	StageTines Soft
35	VintAmp ReedEP	52	TrampAmpReedEP	69	Suitcase Tines
36	Amped Bell 73	53	FM EP 1	70	RealTouch73 Suit
37	BarkDist EP Tine	54	FM EP 2	71	RealTouch77 Suit
38	Beck's Retro EP	55	Rhotary EP Tine	72	RealTouch ReedEP
39	Phasey EP Tine	56	Elec Grand Stack	994	FM EPiano Templ
40	Mr. SparkleTop73	57	BrightRMI Pn/Hrp		
41	Aged Tolex 77	58	Tight Bright FM		
42	Smooth 70s 73	59	Gabriel's Melt		
43	FusionChorDyno73	60	CP80 Enhanced		
44	Chorus EP Tine	61	VideoKilledRadio		
45	73/77StereoBells	62	UK Pop CP70		
46	Env Filter EP	63	MistyMountain EP		
47	Ray's EP Reed	64	No Quarter Pnt		
48	DeepFuzz Reed EP	65	Black Friday		
49	T-Bone Reed EP	66	Sly Ballad		

Programs

ID	CLAV	ID	CLAV
73	Chaka Clav	81	Fr Harpsi L84U8
74	SupaStevie(CB)	82	Fr Harpsi L48
75	Funkadelic Relic	83	Fr Harpsi Lute
76	ZEP Clav	84	Fr Harpsi L8
77	HeartbreakerWAH	85	Fr Harpsi U8
78	Chameleon Wah	84	Fr Harpsi L8
79	Stevie Fuzz Amp	85	Fr Harpsi U8
80	OutOfPhasPickups		
ID	ORGAN	ID	ORGAN
89	Classic B3	105	All Stops
90	Funky Perc	106	AllStops AllVox
91	Soul Perc	107	Pipe Stops
92	First Three	108	Chapel Organ
93	PerfectStrangers	109	Pipes & Voices
94	70s Drawbars	110	16' Open Flute
95	Progbars	111	16' Ped Reed
96	Ezra II	112	16' Reed A
97	Ezra's Burner	113	16' Viol
98	Classic Traffic	114	LateNighter
99	Mr Smith	115	Testify
100	HotTubeGospel	116	The Ninth Bar
101	VASTBars1-3,8&9	117	Blues Harmonica
102	Doors Vox	118	ParisCmboAccordn
103	Animals Vox	119	MellowAccordion
104	Farfisa	120	BrazilAccordion
		327	Magic Carpet B3
ID	LEADS	ID	LEADS
121	Press Lead	130	Daft Lead
122	Cars Square Lead	131	Minipulse 4Pole
123	Keytar Hero(Wah)	132	FrankensteinWah
124	Voyage Lead	133	Candy*O SyncLead
125	SimpleHipHopLead	134	Raw & Bleedin'
126	SquareChirpLead	135	Dist Filter Lead
127	Vector Lead		
128	80's Lead Synth		
129	Dark Wobbles		

ID	PADS	ID	PADS
137	Film Score Pad	146	Lush Pad
138	Majestic Pad	147	Deeper Water
139	So Lush Pad	148	Lush Rhythm Pad
140	Bladerunner ARP	149	Cosmic Sus Pedal
141	CrotaleScape Pad	150	Slo Syn Orch
142	Undercurrents	151	Add A Pad 1
143	Fairlight Pad	152	Add a Pad 2
144	Phase Shimmer	330	Reverse Universe
145	Evolving Pad	331	Pan Strings 3
		332	5th-Scape
ID	SYNTHS	ID	SYNTHS
153	Super Saw	161	Big Old Jupiter
154	Bright Vector	162	Punchy Synth
155	Classic SynBrass	163	Touch Trance
156	MW S&H Filt	164	Square Bell
157	80's Heaven	165	Perc Vector
158	PolySynth Stack	166	Tesla Coil
159	Chillwave Chords	167	Warbly Pong SQR
160	Classic Saws	168	Gangsta Wrap
		340	SyncoDeMayo
ID	SYNTH BASS	ID	SYNTH BASS
169	Woodhouse Bass	177	The Way It Is
170	Aggro OctoBass	178	Dolby Bass
171	KneeDeepMinimoog	350	Leviathan Bass
172	Squeeze Mini	351	Decepticon Bass
173	Iceman Bass	352	Latch Bass
174	ANGRYBass	353	APG-ish Bass
175	Big Synth Bass	993	FM Bass Templ
176	Noise Bass		
ID	STRINGS	ID	STRINGS
179	Adagio Strings	187	Full Pizzicato
180	Big LA Strings	188	Lead Violins II
181	Fast Strings	189	AggressDivisiStr
182	Slow String Trem	190	Yesesis Tron Str
183	AdagioTutti 8ves	191	Moby TurntblTron
184	Adagio Octaves	192	Solo Violin fast
185	NashvilleStrings	193	Solo Cello fast
186	Poltergeist Pad	194	Arpegg/Solo Harp

Programs

BRASS		BRASS	
195	Session Hornz	204	Solo Trombone
196	High-End Horns	205	Jubilee Trumpets
197	Split SectionSW	206	Wah Trumpet
198	Mancini Brass	207	Mr. West Horns
199	GB Hornz+Syn	208	Bullit Brass
200	Super-8 Brass	209	Dr. StAb'N SwEll
201	Brass Fanfare	210	MiamiBrassSectns
202	Low Orch Brass	992	FM Brass Templ
203	Lead Trumpet		
WINDS		WINDS	
211	Mostly Saxes	215	Solo Tenor Sax
212	UniSaxSection	216	Clarinet/Flute
213	Bassoon/Oboe	217	Solo Bari Sax
214	Solo Alto Sax	218	StrawberryFlutes
ENSEMBLE			
219	Gothic Climax		
220	Winds & Strings		
221	3Way Split Mltrn		
GUITAR		GUITAR	
227	Rich 'Caster	235	SuperflyWahCast
228	Rich Les	236	Jack the Ripper
229	Studio 'Caster	237	Boutique Six Str
230	Phase Pick Les	238	Boutique 12 Str
231	TimeWarpCaster	239	Real Nylon
232	Kinda Krunchy	240	Mandolin Plus
233	Brown Sound	241	Banjo Plus
234	Stompbox Les	242	Dulciliere
BASS		BASS	
243	P-Bass	247	Jaco Fretless
244	Motown Bass	248	AC Buzzer Bass
245	Finger Bass	249	Beasties Bass
246	Flea/Bootsy	250	Levin/GabrlFrtls

DRUMS		DRUMS	
251	Kit 1 Open Rock	259	Kit 9 Big Buzz
252	Kit 2 J Geils	260	Kit 10 DeadRockr
253	Kit 3 West Boxy	261	Kit 11 Low Rock
254	Kit 4 SquashRock	262	Kit 12 GaddsLair
255	Kit 5 Beatbox101	263	Kit 13 KirkeeB
256	Kit 6 Full Room	264	Kit 14 ModernRok
257	Kit 7 Brush	265	Kit 15 Drum&Bass
258	Kit 8 CopperRing	266	Kit 16 Skrlx
PERCUSSION		PERCUSSION	
267	Celeste	275	BongoConga
268	Octave Celeste	276	TalkingDrum
269	Bells	277	Perc Accessory
270	Carillon	278	Carnival Perc
271	Basic Orch Perc	279	Vocal Percussion
272	Orch Timpani	280	Rogers Celeste
273	Natural Perc	996	Click Track
274	Percussionist		
VOICES		VOICES	
283	Mixed Choir	291	Slo Orch Chorus
284	Manhattan Voices	292	Aaah Vocals
285	Choir Complete	293	Jazzy Ballad Vox
286	NYC in LA	294	Bright Syn Vox
287	Crystal Voices	295	AntiqueAhhChorus
288	Cathedral Vox	296	Vox Orgel
289	Silent Sorrow	297	Aaahlicious
290	Swept Tron Voice	298	PolyTechnobreath
MALLETS		MALLETS	
299	Glockenspiel	304	Chimes
300	Real Vibes	305	Bigger Chimes
301	Stereo Marimba	306	Crotales Hits
302	Xylophone	307	Metal Marimba
303	XHarmonicStlDrum	308	SteamPunkMallets
		309	CelesteGlockHarp

Programs

ID	HYBRID
315	Celeste Palette
316	Bellestrum VTrg
317	Toy Piano
318	Bunch of Bells
319	Synthy 73
320	Wurzzicato
321	Comp Cro + Pad
322	Clavestrum

ID	MISCELLANEOUS
323	Bowed Crotales
324	Bells and Bows
325	Bass Pedal
326	Bubbles!
995	FM Template
997	Silent Program
998	Editor Template
999	Clear Program

Appendix D

KB3 Programs

Introducing KB3 Programs

There's nothing quite like the sound of the classic Hammond™ B-3 tone wheel organ, especially when played through a Leslie™ rotating speaker system. We've done extensive testing and analysis with several tone wheel organs, and created our own models to emulate the unique tone wheel sound. We even took into account the way that older organs start to sound different (and arguably better) as their capacitors begin to leak—and we included a parameter that varies the amount of grunge (leakage) in your sound.

First Some History

Countless blues, jazz, and rock recordings have centered around the distinctive sound created by classic tone wheel organs (such as the Hammond B-3) played through rotating speaker systems like the Leslie. Not only is the sound great, but it's supremely versatile, since the player can control timbre in real-time by adjusting drawbars that add or remove harmonics from the fundamental tone. Other cool sound-shaping tools include a percussive emphasis that can be added to each note and the capability to change speaker rotation speed. Many people, in fact, feel that the tone wheel organ was the first popular synthesizer. And although these organs haven't been made for years, they are still sought after, restored, and lugged about by legions of dedicated keyboard players. This despite archaic electronics, inscrutable wiring, and an unwieldy heft that tops 400 pounds.

Duplicating the sound and flexibility of these organs – without the nasty side effects – is the goal of KB3 Mode.

KB3 Improvements in the Forte

KB3 Programs in the Forte contain improvements over previous Kurzweil models including improved Leslie emulation Chains, Key Click, Leakage, and cabinet emulation.

Also, KB3 programs that emulate Hammond organs do not use any of the Forte's 128 voices of polyphony (this does not apply to KB3 Programs that emulate Vox or Farfisa organs).

Drawbars

The drawbars on a tone wheel organ emulate pipes of different lengths on a pipe organ. In either case, they are controlled by changing the positions of a number of “stops”. As the organist pulls out or pushes in these stops, he adds or reduces harmonics. Whether it’s pipes or drawbars, though, the stops work like this: pull one out to add more of an overtone; push it in to reduce the volume of the overtone.

The stops on the most popular tone wheel organs are: 16’, 5 $\frac{1}{3}$ ’, 8’, 4’, 2 $\frac{2}{3}$ ’, 2’, 1 $\frac{3}{5}$ ’, 1 $\frac{1}{3}$ ’ and 1’. Note that they are still measured in feet, a carryover from pipe organ days. The 16’ and 5 $\frac{1}{3}$ ’ stops are considered the subharmonic group, while the third stop, 8’, produces the fundamental of a tone, and stops 4-9 produce harmonics above the fundamental. By making use of different combinations of these harmonics, a rich sort of additive synthesis is possible. Best of all, you can make radical changes to the tone dynamically as you play.

The nine sliders of the Forte are set to control the drawbars, as listed in blue below the sliders. Pulling the slider towards the keyboard increases the amount of the drawbar that is heard.

KB3 Mode Buttons

The nine buttons above the sliders on the Forte have special capabilities in KB3 Mode that are listed in blue, below the Multi Zone Mute Buttons and Programmable Switches. These are:

Brake

Brake starts and stops the rotary speaker effect. This effect is not immediate, instead the rotary speaker effect gradually slows down and speeds up, in a similar way that a real rotary speaker reacts.

Chorus/Vibrato

On/Off

This parameter turns the chorus or vibrato effect on and off.

Chor/Vib

This parameter determines which modulation effect is used. The choice is Vibrato or Chorus

Chorus/Vibrato Depth

This parameter determines how much of the effect is applied to the KB3 sounds. There are two levels of both Chorus and Vibrato available, depending on the setting for the Chor/Vib button.

Percussion

Percussion is a characteristic feature of tone wheel organs. It's especially useful while soloing, since percussion adds an extra plink (actually an extra tone at a defined harmonic) to the attack of individual notes. When you play more than one note simultaneously, only the first note you play will trigger the envelope of the percussion tone, though notes played shortly afterwards will also be affected by this envelope. When you play chords, all of the notes played simultaneously will get the percussive effect (provided percussion hasn't already been triggered.)

Percussion On/Off

This is where you turn the percussion effect on or off. Percussion is created by a decaying envelope applied to one of the nine drawbars (usually the 4th drawbar for the low pitch and the 5th drawbar for the high pitch. The highest drawbar is normally stolen to generate the percussion sound). The percussion effect is "single-triggered", which means that once it's triggered, it won't trigger again until all keys go up.

The KB3 engine in the Forte is capable of generating the Percussion effect without stealing any of the drawbars, and while not authentic, is occasionally used on Forte Programs.

Percussion Loud/Soft

This parameter switches between loud and soft percussion settings.

Percussion Decay F/S

This parameter switches between fast and slow percussion settings.

Percussion Pitch H/L

This parameter switches between high and low harmonic percussion settings.

KeyClick

The Key Click feature adds a decaying burst of pitched noise to the attack of notes. Unlike the percussion, the key click is "multi-triggered", which means that every new note will trigger it.

This button controls whether the Key Click parameter is switched on or off.

Variation

The Variation button acts as a Slow/Fast switch for the Rotary speaker effect. By default, the sustain pedal (SW1) also controls Rotary Slow/Fast. You can set the sustain pedal to function as sustain for all KB3 Programs (instead of Rotary Slow/Fast) by using the Rotary Override parameter in Global mode. You can also make different Rotary Slow/Fast controller assignments for each Program or Multi by using the Parameters page in Program Edit Mode or the Multi Controls page in Multi Edit Mode.

Appendix E

Multis

Object Version : 4.00.6

1	Gospel B3 & Pno	ID	MULTI	ID	MULTI
2	Min Ho Worship	36	Endless Dream	71	Controlled Synth
3	Celestial Palace	37	EP & Synbass	72	FM-Disco Pop
4	Universe Pad	38	Chill Kit/Chords	73	Bossa Me
5	Triumphant!	39	Daydream EP	74	Prepared Marimba
6	Massive Mono	40	Big Choir 5ths	75	EBass/FMEP & Pad
7	Sea Breeze	41	Plucked Sus Strs	76	Cool Vibes
8	The Shire w Oboe	42	Alien Choir	77	Funked Up MWheel
9	Futurescape	43	Synth & Strings	78	Harpsichord&Orch
10	Vox n Glox	44	Pizz & Glock	79	BaroqOrgan&Strgs
11	Jazz Combo Split	45	Burning Lead	80	E Bass/B3 Perc
12	Triggered Comper	46	Jungle Marimba	81	Dual Manuals
13	Blues Harp Jam	47	ClavWithBenefits	82	Tron Vox/MW Tron
14	Trancendental	48	Introspektakular	83	Multi Percussion
15	MassivePitchBend	49	Pad Organ	84	Open Doors
16	Parisian Night	50	Organ and EP	85	Keyboard Arsenal
17	Acid Brass Group	51	Choir Beckons	86	Shimmering Pad
18	BaroquePipeOrgan	52	The 9th Circle	87	Clav Lead
19	Mwl SuperStrings	53	Celestial Mallet	88	Trumpet/Flute
20	Cloudwalk Keys	54	Bellsy Galore	89	LiteBrite
21	Glitter Glue	55	Mohawk Monophono	90	Distorted Keys
22	Hollow Keys	56	Lefty EP/Organ	91	Maximalist Organ
23	Liquid Pad	57	Composite EP	92	Multi Strings
24	Sus Pedal Rave	58	Far Out EP	93	Multi Harpsichrd
25	Gtr/Bass Ballad	59	Dreamy Piano	94	Fierce Mono Lead
26	Quad Pad	60	Folk String Band	95	PolySaw Synth
27	Piano, Steel+Pad	61	Hybrid Pad/Lead	96	Spider's Silk
28	Funky Bass Split	62	VelBrassSalsaJam	97	Fairy Tale Glock
29	Cartoon Pizz	63	Rock On!	98	Epic Pad
30	Hip Hop Thirds	64	ABs/Brs & MWStrg	99	Plucked Ambience
31	Loaded Switches	65	BsKik&Snare\Orgn	100	Dubly Bass&Piano
32	Euro Chords	66	Vel Orchestra	101	Betty Boop
33	Distorted Stack	67	Dream Catcher	102	70's Prog Fusion
34	CP, FM & Pad	68	Strummer	103	EnvloProg Fusion
35	Piano +Gtr +Pad	69	70's Ballad	104	EP Tine Surprise
35	Piano +Gtr +Pad	70	80's Power Rock	105	Piano Trio Ped2

Multis

ID	MULTI	ID	MULTI	ID	MULTI
106	Pedal Drummer!	145	Aero Dream	254	Layer Default
107	EP & Pedal Pads	146	Str/Cel/Vox/Glok	255	Forte Control
108	3Octave Pno/Bass	147	Sparkler	256	Clear Multi
109	Piano Vel Brass	148	Guitar+Synth		
110	EP Sweetness	149	Neo-Baroque		
111	Double Drummer	150	Dirty Funk Split		
112	VelocityBell Pad	151	Mystical Synth		
113	Piano Lesson	152	Stacked Organ		
114	Fuzzy EP/Bass	153	Glitzy Keys		
115	Trem ReedEPLayer	154	Phat Horns		
116	Clavinorgethizer	155	Buggin Bells		
117	Quad Stack 1	156	Breathy Synth		
118	Quad Stack 2	157	Clean Lead		
119	MW Orch Strings	158	Piano+Strings		
120	Cathedral Organ	159	SlurpyPad-O		
121	BaroqueEnsembles	160	DramaPad		
122	PipeOrgnVox&Orch	161	Mercury Rise		
123	Island Girl	162	Static Pad		
124	Ice Age	163	Windy City		
125	Janet's Strut	164	Square Coil		
126	Windy Pad	165	French Nylon		
127	Wurly/Horns	166	Psychedelic Pad		
128	Vocal Organ	167	Floating Pad		
129	Full Blast Horns	168	Brass Pad		
130	Clocks	169	String Pad		
131	Enchanted Forest	170	Large Choir		
132	Sleepy Hollow	171	Medieval Ages		
133	Klezmer	172	Gamelan		
134	Kurzland Report	173	Pure Imagination		
135	Why Am I Here?	174	DnB Split		
136	Voyager	175	Dub Reggae		
137	Year oftheDragon	176	Toxic Split		
138	Bring It MW	177	Jazzy Key Trigs		
139	Reflections	178	Motion Synth/Pad		
140	Hybrid Clavier	179	SloStrCelesta		
141	Gabriel's Keys	180	SloStr/Cel/EP		
142	Boz Low Down	181	Disklosure Split		
143	Prog Split	182	Game ofTrombones		
144	Don't Stop	253	Split Default		

Appendix F

Effects Chains

Object Version : 4.00.6

ID	Chain	ID	Chain	ID	Chain
1	Little Booth	34	Soft Flange	67	Reverse Reverb
2	Soundboard	35	Wetlip Flange	68	Reverse Reverb 2
3	Small Dark Room	36	Flanged Taps	69	Oil Tank Reverb
4	Sax Chamber	37	Slow Deep Phaser	70	Laser Reverb
5	Small Hall	38	Fast&Slow Phaser	71	Gated Laserverb
6	Medium Hall	39	Phaser EGT	72	ReverseLaserverb
7	Green Room	40	Thin Phase Sweep	73	Envelope Followr
8	Opera House	41	Tremolo BPM	74	Envelope Filter2
9	Real Nice Verb	42	Simple Panner	75	Trip Filter
10	Empty Stage	43	Thin Phase Sweep	76	Stereoizer
11	Med Drum Room	44	Leslie start	77	Barberpole Phzr
12	AbbeyPianoHall	45	SubtleDistortion	78	Laser Dly Reverb
13	Predelay Hall	46	EPiano Distortzn	79	Degenerator
14	Sweeter Hall	47	Distortion + EQ	80	Basic Delay 1/8
15	Concert Hall	48	Ray's EP	81	Arp Delay Loop
16	Symphony Hall	49	Scooped Distort	82	HipHop Piano DDL
17	Cathedral Chorus	50	Burning Tubes!	121	Sly Leslie K
18	DeepChorsDlyHall	51	3BandDrumComp	129	Basic Delay 1/8
19	Omni Stage	52	Snare Compressor	147	Deeper Water
20	Classic Plate	53	Snare Cmp w/Rvb	176	Lead EGT6
21	MediumWarm Plate	54	Kick Compressor	193	LitePad2
22	Real Plate	55	Hard Knee Compr	199	KRZFXTemplate
23	Smooth Plate	56	Bass Comp Mutrn	203	PhaseDly1
24	Gated Plate	57	PnoEnhancement	204	ThinphaseSweep
25	Basic Delay 1/8	58	LA2A for Strings	206	hhpitchr1
26	4-Tap Delay BPM	59	Resonant Filter	209	Snarcmp1
27	Echo Plecks BPM	60	Aux Echoplex	210	SymphonyHall 1
28	Timbered Taps	61	Bandsweep Filter	211	SymphonyHall 2
29	Dub Delay	62	Hi FrequencyStim	212	SymphonyHall 3
30	Sm Stereo Chorus	63	Ring Modulation	213	Jazz Stage
31	Chorusier	64	Frequency Offset	214	Live Room
32	Stereo Chorus	65	Lazer Tag Flange	215	String Chamber
33	Dense Chorus	66	Fallout PitchLFO	216	Fife Stage

Effects Chains

ID	Chain	ID	Chain	ID	Chain
217	Live RecitalHall	274	OmniStage	334	HotLeslie122b K
218	AbbeyBrasHall2	275	gshot vrb	335	BostonLeslieK
219	Smooth Long Hall	276	deep part1	336	CrunchLesl122 K
220	kickcmp3	277	DbISloFlangeCmp	337	Hot Leslie 122e
223	kickcmp4	278	alphacentauri1	338	HotLeslie122f K
224	snarcmp4	279	Timbered Taps 2	339	Soul Leslie122 4
226	kickcmp5	300	GospelDistLes K	340	Leslie B 122 K
229	Bright Hat Room	301	GimmeSumLeslieK	341	JoeyLeslie122 K
230	BrightFlange	302	DF OrganRoom	342	HotLeslie122g K
233	snarshaper6	303	GimmeSomeLesl	343	HotLeslie122h K
240	Reverb2	304	GimmeSomeLesl2	344	TapChorusLes K
241	500msDelay K	305	500msDelay K	345	SlwPhasdLeslieK
242	Organ Chamber1	306	Organ Chamber1	363	NonKB3 A K
243	TapChorusLes LE2	307	Organ Latch 1/8	364	Warm Leslie12 K
244	Organ Latch 1/8	308	Organ Phaser	365	WrmDstlLes1dwK
245	Organ Phaser	309	Organ CDR 1	366	BrighDistlLes1K
246	Organ CDR 1	310	AcceleratLes2 K	367	DistleratLes6 K
247	nuLeslie122K	312	ExpressLeslie K	368	BrightDistlLesK
248	Mitch's Leslie K	313	Leslie 122 a K	369	DistlLes HotGs
249	TapChorusLes K2	314	Mitch's LeslieK	370	Prog Leslie1K
255	Flange+Delay	315	Melvin'sLeslieK	371	LightDistlLes2K
257	Empty Stage II	316	Greg's Leslie K	372	DW Leslie13 K
258	AbbeyPianoHall 2	317	RoomyLeslie122K	373	LeeMichaels 1 K
259	Opera House II	318	SoftLeslie122 K	374	NonKB3 A K
260	Vintage Strings2	319	CrnchLesli147 K	375	DWLeslie12 K
261	Classic Plate II	320	Thimmer Leslie	376	DistlLes 5 K
262	Recital Hall II	321	Jimmy's Leslie 2	377	Sly Leslie K
263	Small Hall II	323	Organ Taps	378	LightDistlLes K
264	Real Niceverb II	324	Leslie Clean K	379	FisherLeslie
265	Medium Hall II	325	Leslie 122 K	380	SoulLeslie122 K
266	Small Dark Room2	326	Jimmy'sBrake	381	Big Pop PianoCmp
267	PnoRvb II	327	Jimmy'sBrake K	382	PianoVerb1
268	ShortPnoRvb III	328	Greg's LatcherK	383	Pro Piano Cmp
269	PnoEnhancRvb3	329	Nice Leslie K	384	DistlLes HotGs
270	RevComp5	330	Clean Leslie K	385	NewLord 1
271	Clunker II	331	Warm Leslie K	386	SystemTemp Tap
272	St CHDly II	332	NewLord 1 K	387	WaterDistSynth
273	OmniStage	333	CrunchLesl122 K	388	FlangeVoiceHall

Effects Chains

ID	Chain	ID	Chain	ID	Chain
389	BrightFlangeHall	430	KickComp1	473	Med Dark Room
390	SoulLeslie122 K	431	60's BigDrumRoom	474	BasicReverb
391	FIngRecitalHall	432	AS SynthDist2	477	Medium Hall 4U
392	Med Drum Room	433	AS CmpVerb4Drms	478	KickComp2
393	Dual Filters +	434	AGT EnhCD	479	ColdPliano 2
394	Dual Filterzz	435	CDRecitalHall	480	FDR PercRoom
395	Cathedral Vx	436	Nylon EnhCD	482	NylonAgtVerb
396	BurningTubes5	437	RealDrmComp3	483	3BandDrumComp
397	PunchBassAmp	439	ChrsDblRoom	484	KikComp 4:1
399	RevverLeslie	440	EnhcBassAmp	485	ToxicStrings
400	Bradley's Barn 1	441	FlangVoiceHall2	486	3BandDrumComp2
401	Bradley's Barn 2	442	Vocals w FXnMic	487	Scoopd Dist EGT2
403	LA2A for Strings	443	RealDrmComp4	488	NotScoopd Dist
405	DrmCDR 1	445	Harpolicious	489	HeavyBuckers
406	DrumFatty	446	ChrsDly	491	ProBassComp
407	DrumFattyDry	447	EGT Hall	492	NYCTripStrings
408	AS Drum Room2	448	Burning Tubes	493	ProBassComp2
409	DrumFattyRoom	449	Chorus AGT	496	DirtLordAmp LE
410	RealDrmComp2	450	SynthLead	500	Setup Aux Verb
411	ChrsDly	451	SynthBassAmp	501	Setup Aux DDL
412	RealDrmComp	452	MosqueySwirl	517	Early Reflection
413	DrumSlap Sys	454	PadFX2	518	Pad Depth Pt1
414	RealDrmComp2	455	PadFX1	519	Gunshot Verb
415	TiteDrmComp	456	Chr & Echo	520	AlphaCentauri 1
416	Marimba Hall	457	Vocals w FX	521	BasicCDR
417	Gated Plate 144m	458	DrySynthCDR	522	Synthorc BPM
418	AS Dub Delay	459	WetSynthCDR	523	BPM Flange Dly
419	HipHop Hall	461	VibesRoom	524	DbISloFlangeCmp
420	AGT Reverb	462	PercussionRoom	525	Deep ChorusVerb
421	Gated Plate2144m	463	CagesRoom	526	ChorDlyWet26-28
422	WarmCruncher	464	CmpRecitalHall	527	Light ChorusVerb
423	DrumFatty3	465	StrRecitalHall1	528	Chor Delay 26 27
424	Fierce Lead	466	StrRecitalHall2	529	Pitcher Slider A
425	CompTrem	467	RecitalHall	530	Pad Depth Pt1
426	12StWarmCrunch	468	MyJacoART	531	PolyPitcher 2
427	Phaser EGT	469	UprightBassRoom	532	LFO Pitcher
428	SnareComp1	470	Levin Chorus	533	Wet Hall for Pad
429	ASDrumComp1	472	Bright Room	534	DrmCMP4PrgFX2

Effects Chains

ID	Chain	ID	Chain	ID	Chain
535	Kick Compressor2	573	DrumFatty4	618	CmEqDeRe4Drms
536	Snare Compresso2	574	DrumFattyRoom3	619	CmEqDeRe4DrmsST
537	DrmCMP4PrgFX	575	ASDrumComp1a	620	DrmFatener/ Ech
538	Kick Compressor2	576	AS Drum Room2a	621	DrmPhaseVerb
539	Snare Compresso3	577	DrumFatty3a	622	DrmFIngDlyVrbCmp
540	Snare Compresso4	578	AS SynthDist2b	623	Drum VerbW/Ster
541	HOP Drum Reverb5	579	HipHop Hall2	624	Verb/Str/Cmp
542	Stereoizer2/Verb	580	AS CmpVerb4Drms4	625	Verb/Str/Dist
543	CmPhDiRe4Drms2	581	DrumFattyRoom4	626	EnhCD4DRUMS
544	Stereoizer3/Verb	582	DrumFattyRoom5	627	GatePltPhs3bnd
545	Stereoizer5/Verb	583	AbbeyBrushHall	628	RevVrbFlgV
546	DrmCMP4PrgFX5	584	HOP Drum Reverb6	629	DrmCMPVb4PrgFX2
547	HOP Drum Reverb5	585	HOP Drum Reverb7	630	3BndCmp4Snr
548	Stereoizer6/Verb	586	CmPhDiRe4Drms	631	HOP Drum Reverb1
549	DrmCMP4PrgFX6	587	DrmFatener/ Ech2	632	StereoW/VerbHFD
550	CmPhDiRe4Drms2	588	Tuna Hall	633	SnrFatener& Ech
551	CmPhDiRe4Drms3	589	Gated Plywood	634	Warm Drum Plate
552	DrumFXcmpdly1a	590	PlywoodDrumFuzz	635	Dly/vrb BPM
553	CmEqDeRe4DrmsST2	591	AnvilDrumFuzz	636	Drm vrb Long
554	GatePltPhs3bnd2	592	Drum Pad Reverb1	637	Real drm plate
555	SynthDist4Drms2	600	DrumFuzz	638	Deep Fuzz Vrb
556	CmPhDiRe4Drms4	601	Snare Comp/EQ	639	Flange+Delay
557	DirtLordAmp 2	602	hhpitchrja	640	MySynthDist
558	JADrumAmp2a	603	Gated Plate	641	DrmphseDlySweep
559	CmEqDeRe4DrmsST3	604	JAJazzCmps	642	CmDeRe4Drms
560	CmPhDiRe4Drms5	605	JA RI Nce Verb	643	Sweet drum Hall
561	JADrumAmp2b	606	JADrumAmp1	644	StevieTrem EP 1
562	DrmFatener/ Ech2	607	JADrumAmp2	645	Beater EP1
563	DrmCMP4PrgFX7	608	DrumFXcmpdly1	646	Jamerson1
564	EnhCD4DRUMS2	609	Drum Freq Offset	648	SlyBASSComp1
565	Little Booth2	610	CheapDrmDist	651	Trampler 1
566	DrmFIngDlyVrbCm2	611	SynthDist4Drms	652	HipHop Drms1
567	CmEqDeRe4DrmsSTa	612	DrmCMP4PrgFX4	654	HipHop Drms2
568	CmEqDeRe4DrmsSTb	613	DrmThnphseSweep	655	TOP Drum Reverb1
569	DrumFattyDry2	614	StereoizerW/Verb	656	HOP Drum Reverb1
570	DrumFattyDry3	615	DrmCMP4PrgFX2	657	HopKickcmp1
571	AS Drum Room2a	616	CmPhDiRe4Drms	658	NoQuarter
572	Gated Plate2144b	617	CmPhDeRe4Drms	659	TechnoHHDly 1/8

Effects Chains

ID	Chain	ID	Chain	ID	Chain
660	HOP Drum Reverb3	713	CDR Synth	757	WhitrShadeLeslie
661	HopKickcmp7	714	SynthFlangenDely	758	Inagadadavita
662	Roomverb1	715	QuantzEnhanceSyn	759	GoodLordLeslie
663	Kickcmp6	716	BladerunnrRvb	760	Small HallComp1
664	Snarcmp11	717	Deep FuzzBass 1	762	GoodLeslie 5
665	Reverb3	718	Eber Bass	764	ShortPnoRvb31
666	Small Dark Room	719	SynFatener& Ech2	765	St CHDly
667	Snarcmp12	720	CP80Enhanc1	766	Synphase1
668	Kickcmp13	721	Fisher'sHarm Mic	768	St CHDly
670	BeastieDrums	722	AbbeyPianoHall2	771	Walrus EP
671	Clunker13	723	Medium Hall 2	772	EPChr16
675	Funksnare9	724	Fagen Phaser	773	Siberia
676	Funksnare8	725	Double Leslie 10	775	Deep Fuzz 5
680	EPDistPhase1	726	Small EP Reed	780	Flange Echo 2
681	RayEP 1	727	Basic EP Reed	781	ARPMosque Room
682	Deep Fuzz 1	728	Double Leslie 13	782	Chr & Echo
685	Deep Fuzz 31	729	Cheese Horns	784	Mutron Clav 2
687	ReverseVerb1	730	BasicChorusDly 2	785	Siberia II
690	Acidflute	731	Double Leslie 8	786	EnhanceComp1
691	Blueman1	732	Wallflower Ch	787	Shaper->Reverb2
692	CompDelay12	733	ChPanDlyComp	788	Clav Phase1
694	SmallDarkRoom3	734	CheeseChorus	790	SynlaserFlange 1
695	PlainComp15	735	Double Leslie 14	792	RockyRaccoon
696	RevComp4	736	CompDelay	793	Squire
697	EP RotoAmp12	737	SynFatener& Ech3	794	Flange 4
700	HiMutron 1	738	BIGCompDelay	795	Deep Fuzz Clav
701	Sax Chamber 21	739	UprightPiano	797	Clav Comp1
702	BigDarkRoomDW	740	SitarCmpRvb	798	SmallClav
703	New Gtr 31	741	AC Bass 3	799	Synth Shimmer
704	PnoRvb 14	742	VoxKB3	801	PhaseDly1
705	Small Hall11	743	Blackfriday	802	Shredlead1
706	PnoRvb21	744	Blackestfriday	803	ThinphaseSweep
707	Empty Stage 11	745	Flange 4	804	EnvComp41
708	Mutron 2	746	DoubldistLslie20	805	MoogBASSComp11
709	Double Leslie 12	747	Double Leslie15	806	SynFatener& Ech4
710	Double Leslie 5	750	Good Leslie1	807	Shredlead15
711	PlainComp12	754	Good Leslie4	808	PlainComp21
712	Double Leslie 11	756	GoodLeslie 6	809	Garth

Effects Chains

ID	Chain	ID	Chain	ID	Chain
810	BassFleaCompMu	850	Soundboard 3	888	Deep FuzzPnt 1
811	Chr & Echo 2	851	OmniStage	889	Comp70
812	BasicCDR2	852	Double Leslie	890	FooldAgainVox
813	ShaperFuzzLead 2	853	MedPlateJazFlute	891	CompKik111
814	AM Big Band	854	MistyMntn EP 2	892	Vintage Horns 3
815	Clunker20	855	PnoEnhanc22	893	Leslie Gospl
816	PadFX3	856	ClavPhase1	894	EPChr60
817	SynFatener& Ech5	857	MedRoom10	895	Syn Lead A
818	MarleyClav1	858	EPChr11	896	Deep Fuzz 51
819	Flange Echo 4	859	EP Tine Hard	897	4-Tap Delay BPM2
820	Deep Fuzz Clav 3	860	PnoEnhancement	898	Shredlead3
821	GetBack1	861	Little Mu	899	Synphase1
822	Deep Fuzz Clav 5	862	SmallHornChamber	900	Synphase2
823	ChrsDly4	863	OmniStageDW	901	SynthTrem2
824	Leslie Basic	864	Clunker50	902	DWAuxRvb1
825	MoogBASSComp5	865	PnoEQCmp3	903	Small Dark Room2
827	EPChr1 Dyno	866	Comp4	904	Sax Chamber2
828	Synphase17	867	3DogEP 1	905	Small Hall2
829	Leslie Comp 1	868	CompDelay	906	Medium Hall2
830	PhaseDly104	869	PnoEnhanc22	907	Real Niceverb
831	GoodLeslie 52	870	cheap Chamber	908	Opera House2
832	CPChrRvb1	871	EPChr11	909	Mosque Room2
833	DistLeslie Basic	872	Old Chamber	910	Bright Hall
834	CompKit111	873	ChefAid 1	911	Echplex 1
835	CarlosSyn	874	Zep Fuzz 1	912	AbbeyPianoHall
836	MaroonSynbass	875	Bernie Clav	913	Recital Hall 2
838	FloydEP1	876	ClavRotoAmp	914	Echplex 2
839	PnoCmpSndBoard 1	877	Dark Niceverb	915	Medm Warm Plate2
840	SuperTrmpPhase	878	Basic RayEP 3	916	EQVelMorph
841	EP Reed 1	879	LatinHornCmp	917	Aux Echplex
842	ShortPlate4EPs	880	Basic RayEP 2	918	Farfisa1
843	ShortPlate4EPs2	881	Raffas DX7	919	Good Leslie33
844	Aux Dark Room 2	882	EPChr6	920	Zep Leslie
845	Elton1	883	PnoEnhanc3	921	Snarcmp801
846	Aux Chamber	884	SynEnhancement	922	kickcmp401
847	BowiePno1	885	CompKik11	923	Deep Fuzz 6
848	BluesPnoCmpRvb 1	886	VintChamber	924	SynEnv4
849	New Gtr 31	887	Small EP Reed 2	925	SmallComp9

Effects Chains

ID	Chain	ID	Chain	ID	Chain
926	KickComp201	964	Kickcmp301	1003	ECello2
927	GoodLeslie 9	965	PnoRvb 1	1004	violin2
928	Falgor Gtr	966	PnoRvb2	1005	Small StringRoom
929	KickComp701	967	HipHop Drms201	1006	Viola2
930	Good Leslie34	968	Breakdrums1	1007	Cello2
931	Synclip	969	Blackfriday2	1008	FalgorwahGtr
932	CompDelay3	970	CompDelay101	1009	Accdn Booth
933	Cheese Horns2	971	Sax Chamber 2	1010	BRASS EQ/Comp
934	SynthCDR20	972	Clunker501	1011	SynTrem
935	Vintage Horns 2	973	Horn Plate 1	1012	InfinSynCathedr
936	Chorus Pan Delay	974	Vintage Horns	1013	Delay + Plate1
937	Snarcmp101	975	BrightFlange2	1014	SEM TRldw
938	Filter1	976	ThinphaseSweep2	1015	SynthLeaddw
939	Syncpulsedw	977	Small Comp102	1016	SynPadDW
940	Kickcmp501	978	EPPhase1	1017	AGT EnhCDdw
941	Snarshaper601	979	NonKB3LesliePdl2	1018	CasterTremdw
942	ProBassComp3	980	FlangeComp3	1019	LesTremdw
943	SynEnv5	981	Mutron Clav 201	1020	StdioCasterRigdw
944	SnareComp101	982	SynChorusDly202	1021	PercVerb1
945	BostonLeslie2	983	RayEP 1	2050	Concert Piano FX
946	Kickcmp104	984	EnhanceComp121	2051	Studio Piano FX
947	Leslie MShoals	985	Clunker IIa	2052	Dampers Up Forte
948	Snarcmp121	986	Pad Depth Pt1	2053	Pad Depth Forte
949	WhitrShadeLesli3	987	AuxChorusHall	2054	ChorVerb for Pad
950	Snarcmp112	988	TechnoSyn1	2055	Symphony Harpsi
951	Snarcmp113	989	Synphase102	2101	ChoDistDly2
952	EnvKickcmp1	990	CompDelay	2102	Dark Room 2
953	Kickcmp602	991	CompMeltrn	2103	Carrot Rev
954	Snarcmp112	992	ARP	2104	Carrot 1a
955	HipHop Drms101	993	Triplet delay	2107	Cabbage 1a
956	PnoCmpSndBoard10	994	Bigverb	2108	Cab-Reverb
957	Epicsnare1	995	Syncpulse	2110	PithrFIngDistDly
958	JumpSynth	996	compbass 2	2150	MarquisPiano3
959	Funksnare88	997	CompDelay3	2200	BluesPnoCmpRvb 1
960	Kickcmp441	998	Comp501	2201	BluesPnoCmpRvb 2
961	Upright3	999	RMIPhase1	2202	BluesPnoCmpRvb 3
962	HopKickcmp701	1000	Joey Leslie 122	2203	ArtEQDW1
963	Leslie Comp 2	1001	SynChorusDlydw2	2204	ArtEQCMPDW5

Effects Chains

ID	Chain	ID	Chain	ID	Chain
2205	ArtEQCMPDW6	3224	Synker1	3262	AmbientPanner
2206	ChessRecords1	3225	SynCompMu1	3263	NuBeautyDist2
2207	ArtEQCMPDW7	3226	Shred Gtr	3264	HammerDulceComp
2208	MarquisPiano1	3227	Shred Gtr Wah	3265	Dulcimer Chorus
2209	MarquisPiano2	3228	Chunky G 1	3266	HammerDulceRoom3
2210	Rachverb	3229	AuxGtrEchplex	3267	HammerDulceComp2
2211	MarquisPiano5	3230	Synth Delay 1/4	3268	LesChorus
2212	ChessRecords2	3231	Bari Sax	3269	EGT Multi 1
2300	JK FX Template	3232	Electric Mermaid	3270	Kinda Krunchy2
2303	jk AUX1	3233	Solo Trumpet	3271	Pan Trem BPM OOP
2500	Pianarma EQ+Cmp	3234	FLIP'n Chorus!	3272	SEM Shape
2501	Pianarama! verb	3235	FLIP'n Delay!	3273	Bright Syn Pad
2502	KikComp 4:1	3236	RedHot Dst/Cho	3274	Synth Delay/RVB
2560	MarimbDelay BPM	3237	RedHot Reverb	3275	Syn Chor DDL
3200	SEM TRI	3238	RedHot Delay	3276	Syn Dist/Delay
3201	RAVE WIND	3239	Miami Gated Room	3277	huge space 2
3202	Chroma FM	3240	Miami Plate Rvb	3278	SynPad
3203	Chroma FM2	3241	SnarkyDimplix Rb	3279	Synth Bass CDR
3204	Iceman Bass	3242	FLIP'n Distortn!	3280	BOC Deverb
3205	Mandocaster	3243	Synth Brass Env	3281	Gtr Niceverb
3206	Daft Lead	3244	Van BrownSound	3282	TripleCaster1
3207	Tenor Sax	3245	Van Reverb	3283	TripleCaster2
3208	GANGsta Wrap	3246	Gated Plate	3284	TripleCaster3
3209	Basic Delay 3/16	3247	Van EQ	3285	TripleCaster4
3210	DbISloFlangeCmp	3248	WarmCruncher2	3286	TripleCaster5
3211	Pan Trem BPM	3249	Scorb4Tap/Rv BPM	3287	TripleCaster6
3212	Pan Trem BPM OOP	3250	Scorb-olo BPM	3288	TripleCasterWah
3213	BPM Pad ChDeRv	3251	Here Lil' Boy!	3289	TripleCasterEQ
3214	supersaw 2	3252	DiPulsulator	3290	TripleCaster31
3215	Slow Phase	3253	PadmePlecks BPM	3291	TrumpetWah
3216	BPM Trance	3254	ToodleTrem	3292	E-Bow
3217	Lazer DUB	3255	ToodleDelay 1/8	3293	1/2-1/4DlyBPM
3218	Kraffy Monks	3256	Zap Chamber	3294	Phase
3219	dist Booth	3257	CasterTrem	3295	EQVelMorph L
3220	Delay + Plate	3258	LesTrem	3296	EQVelMorph R
3221	Dist Booth Dly	3259	AS Laser Reverb	3297	HF Stim
3222	Sonny More l)	3260	as Laser Reverb	3298	InstantHillbilly
3223	JSP Synth CDL	3261	NuBeautyDist	3299	HoRnYFIAnGePaRtY

Effects Chains

ID	Chain	ID	Chain	ID	Chain
3300	BRASS EQ/Comp	3338	Klockwork	3461	Full Drum Room
3301	MouthyFilter	3339	Bass Fishing	3462	Brite Drum Space
3302	Super8 Horn Dly	3340	Wave Rider	3463	Garage Drums
3303	BrassMod+AMRadio	3341	TripleCaster6	3464	Expandn'DrumHall
3304	7thHeaven Plate	3342	TripleCasterWah	3465	Expandn'Drum 481
3305	7thHeavenCmpSlap	3343	Mr.West Horns	3466	Expandn'DrumPLTE
3306	Bullitt PDlyHall	3344	TripleCaster31	3467	Expandn'Drum GYM
3307	Bunny Delay 3	3345	SynPnoPhase1	3468	SnappyDrumCmpVrb
3308	Van Brown LITE	3346	PBS on VHS	3469	Drum Enhancer
3309	Van ChDly LITE	3347	Attack Trance	3470	DrumComp subtle
3310	Sax-susolo Plate	3348	HPF Drum Taps	3471	Snare Enhancer
3311	THX	3349	Lectro Plate	3472	SnrEnhanceComp
3312	StdioCasterFXRig	3350	Nasty Syn Brass	3473	NewKickComp 1
3313	BonzoCompLTE	3351	Syn Str Hall	3474	CmpVerb4Drms2
3314	BonzoLTE GateRvb	3352	BOC Deverb	3475	DistCompRev4Drms
3315	Syn Brass Plate	3353	Popcorn Plate	3476	DrmCMP4PrgNew
3316	Syn Str Hall	3354	Plantasia Plate	3477	Ricochet Verb
3317	E-Bow 1	3355	New Horns 1	3478	VerbW/Stereo 2
3318	THX	3356	Phase DW	3479	DubDelayer
3319	WorldCDR1	3357	SynChor&Dly1	3480	DarkDrumSlap Sys
3320	WarmCDR	3358	Mando EQ	3481	ExpStereoDrmHall
3321	Chunky G 1	3359	WorldMandolnCDR1	3482	Snr Enhnce HiCut
3322	OBI 1	3360	Dist Booth Dly	3483	Trans DrmComp
3323	SYnBassCompMu	3361	Synth Bass CDR	3484	CmEqDeRe4DrmsSTb
3324	MarimbDelay BPM	3362	Infin Cathedral	3485	CmpDistRev4Drms
3325	DW GatedLaserver	3363	Forte Pad Insert	3486	VinylDistImage
3326	Chillwave Chords	3364	Punch-a-ghost	3487	Dub hall
3327	Burning Keys 3	3365	ElecMandolin	3488	JK Timbered Taps
3328	EnhanceSyn	3366	Gallo Dist+ EQ	3489	JK GatedLaserver
3329	Burning Keys 6	3367	UnderCurrents	3490	JK Marimba Hall
3330	StTaps1	3368	UnderCurAux	3491	JK Green Room
3331	Flange Mayhem2	3369	DW Laser Reverb	3492	JK Laser Reverb
3332	Mute Gtr1	3370	Cathedral ChorDW	3493	Dubstep Drumz
3333	SynthCDR	3456	BreakdrumsNEWKIK	3494	DubDelayer
3334	3str Gtr Wah2	3457	Lil' Drum Booth	4001	Rich 9 Ft Grand
3335	WorldMandolinCDR	3458	Small Drum Space	4002	Rich 7 Ft Grand
3336	Padme's lil' Pal	3459	Small Cmpsd Spce	4003	Rock 9 Ft Grand
3337	Squeeze Cmp	3460	More Drum Air	4004	Bright 7ft Grand

Effects Chains

ID	Chain	ID	Chain	ID	Chain
4005	Solo 9 Ft Grand	4043	FusionChorDyno73	4081	Fr Harpsi L84U8
4006	Solo 7 Ft Grand	4044	Chorus 77 Tine	4082	Fr Harpsi L48
4007	Vintage Upright	4045	73/77 StereoBels	4083	Fr Harpsi Lute
4008	Vintage Grand	4046	EnvFlt 73 Tine	4084	Fr Harpsi L8
4009	Elegant Grand	4047	Ray's EP Reed	4085	Fr Harpsi U8
4010	New Orleans	4048	DeepFuzz EP Reed	4089	ClassicBLesFstvX
4011	Dark & Distant	4049	T-Bone EP Reed	4090	FunkyPerc Les X
4012	Piano + Pad	4050	PhaseDist EP	4091	SoulPerc Les X
4013	Piano & Strings	4051	BrightFuzz EP	4092	FirstThree LesX
4014	Punchy Edge	4052	TrampAmp EP Reed	4093	PerfectStrLes X
4015	R&B Stack	4053	FM EP 1	4094	70s Drwbars LesX
4016	Super Pop	4054	FM EP 2	4095	Prog Bars Les X
4017	70s Album	4055	Rotary 73 Tine	4096	Ezra II Les X
4018	Artis Grand	4056	Elec Grand Stack	4097	CrunchLesl122 X
4019	Legacy Grand	4057	BrightRMI Pn/Hrp	4098	SoulLeslie122 X
4020	New Age Grand	4058	Tight Bright FM	4099	Jimmy'sBrakeX
4021	Piano & Harp	4059	Gabriel's Melt	4100	DistlLes HotGsX
4022	Piano & Choir	4060	CP80 Enhanced	4101	NonKB3 A KX 2
4023	Mood Ring	4061	VideoKilledRadio	4102	VoxKB3
4024	Ambience	4062	UK Pop CP70	4103	VoxKB3
4025	Film Piano	4063	MistyMountain EP	4104	Farfisa1
4026	Soul Piano	4064	No Quarter Pnt	4105	All Stops
4027	Pub Piano	4065	Black Friday	4106	AllStopsAllVox
4028	Double Grand	4066	Sly Ballad	4107	Pipe Stops
4029	Mono Upright	4067	RoyalKingWakeman	4108	Chapel Organ
4030	Double Squash	4068	StageTines Soft	4109	Pipes & Voices
4031	Vintage Squash	4069	Suitcase Tines	4110	16' Open Flute
4032	House Piano	4070	Rooftop 73 Tine2	4111	16' Ped Reed
4033	Rooftop 73 Tine	4071	Suitcase EP	4112	16' Reed A
4034	Steely Dyno 77	4072	EP Reed 200	4113	16' Viol
4035	Vint Amp EP Reed	4073	Chaka Clav	4114	Leslie 122 K X
4036	Amped Bell 73	4074	SupaStevie CB	4115	LightDistlLes KX
4037	BarkDist 77 Tine	4075	Funkadelic Relic	4116	Clean Leslie KX
4038	BecksRetro EP	4076	ZEP Clav	4117	Fisher'sHarm Mic
4039	Phasey 73 Tine	4077	HeartbreakerWAH	4118	ParisCmboAccordn
4040	Mr. SparkleTop73	4078	Chameleon Wah	4119	Mellow Accordion
4041	Aged Tolex 77	4079	Stevie Fuzz Amp	4120	BrasilAccordion
4042	Smooth 70's 73	4080	OutOfPhasPickups	4121	Press Lead

Effects Chains

ID	Chain	ID	Chain	ID	Chain
4122	Cars Square Lead	4161	Big Old Jupiter	4199	GB Hornz+Syn
4123	Keytar Hero(Wah)	4162	Punchy Synth	4200	Super-8 Horn Dly
4124	Voyage Lead	4163	Touch Trance	4201	Brass Fanfare
4125	SimpleHipHopLead	4164	Square Bell	4202	Low Orch Brass
4126	SquareChirpLead	4165	Perc Vector	4203	Lead Trumpet
4127	Vector Lead	4166	Tesla Coil	4204	Solo Trombone
4128	80s Lead Synth	4167	Warbly Pong SQR	4205	Jubilee Trumpets
4129	Dark Wobbles	4168	Gangsta Wrap	4206	Wah Trumpet
4130	Daft Lead	4169	Woodhouse Bass	4207	Mr. West Horns
4131	Minipulse 4Pole	4170	Aggro OctoBass	4208	Bullit Brass
4132	Frankenstein Wah	4171	KneeDeepMiniMoog	4209	Dr. Stab'N SwEll
4133	Candy*O Sync	4172	Squeeze Mini	4210	MiamiBrassSectns
4134	Raw & Bleedin	4173	Iceman Bass	4211	Mostly Saxes
4135	Dist Filter Lead	4174	ANGRY Bass	4212	UniSaxSection
4137	Film Score Pad	4175	Big Synth Bass	4213	Bassoon/Oboe
4138	Majestic Pad	4176	Noise Bass	4214	Solo Alto Sax
4139	So Lush Pad	4177	The Way It Is	4215	Solo Tenor Sax
4140	Bladerunner ARP	4178	Dolby Bass	4216	Flute/Clarinet
4141	CrotaleScape Pad	4179	Adagio Strings	4217	Solo Bari Sax
4142	UnderCurrents	4180	Big LA Strings	4218	StrawberryFlutes
4143	Fairlight Pad	4181	Fast Strings	4219	Gothic Climax
4144	Phase Shimmer	4182	Slow String Trem	4220	Winds & Strings
4145	Evolving Pad	4183	AdagioTutti 8ves	4221	3Way Split Mltrn
4146	Lush Pad	4184	Adagio Octaves	4227	Rich 'Caster
4147	Deeper Water	4185	NashvilleStrings	4228	Rich Les
4148	Lush Rhythm Pad	4186	Poltergeist Pad	4229	Studio 'Caster
4149	Cosmic Sus Pedal	4187	Full Pizzicato	4230	Phaser Elec Gtrs
4150	Solo Syn Orch	4188	Lead Violins II	4231	TimeWarpCaster
4151	Add A Pad 1	4189	AggressDivisiStr	4232	Kinda Krunchy
4152	Add A Pad 2	4190	Yesisis Tron Str	4233	Brown Sound LTE
4153	Super Saw	4191	Moby TurntblTron	4234	Stompbox Les
4154	Bright Vector	4192	Solo Violin Fast	4235	SuperFlyWahCast
4155	Classic SynBrass	4193	Solo Cello Fast	4236	Jack the Ripper
4156	MW S&H Filt	4194	Solo Harp	4237	Boutique Six Str
4157	80's Heaven	4195	Session Hornz	4238	Boutique 12 Str
4158	PolySynth Stack	4196	High-End Horns	4239	Real Nylon
4159	Chillwave Chords	4197	Split SectionSW	4240	Mandolin Plus
4160	Classic Saws	4198	Mancini Brass	4241	Banjo Plus

Effects Chains

ID	Chain	ID	Chain	ID	Chain
4242	Dulciere	4295	AntiqueAhhChorus	5002	Sax Chamber
4243	P-Bass	4296	Vox Angel	5003	EP Tine Aux
4244	Motown Bass	4297	Aaahlicious	5004	Real Nice Verb
4245	Finger Bass	4298	PolyTechnobreath	5005	Opera House
4246	Flea/Bootsy	4299	Glockenspiel	5006	EP Tine Rm Aux
4247	Jaco Fretless	4300	Real Vibes	5007	Opera House2
4248	AC Buzzer Bass	4301	Stereo Marimba	5008	Medm Warm Plate2
4249	Beasties Bass	4302	Xylophone	5009	Sax Chamber2
4250	Levin/Gabrlfrtls	4303	XHarmonicStlDrum	5010	Mosque Room2
4258	Motown Bass	4304	Chimes	5011	ShortPlate4EPs2
4259	Finger Bass	4305	Bigger Chimes	5012	Small Hall2
4260	Flea/Bootsy	4306	Crotales Hits	5013	Medium Hall2
4267	Celeste	4307	Metal Marimba	5014	Tines Aux Rev
4268	Octave Celeste	4308	SteamPunkMallets	5015	Little Booth
4269	Bells	4309	CeleseGlockHarp	5016	Clav Chamber
4270	Carillon	4315	Celeste Palette	5017	Green Room
4271	Basic Orch Perc	4316	Bellestrum VTrg	5018	AbbeyBrasHall2
4272	Orch Timpani	4317	Toy Piano	5019	MedRoom10
4273	Natural Perc	4318	Bunch of Bells	5020	Medium Hall
4274	Percussionist	4319	Synthy 73	5021	CDR Just Reverb
4275	Bongo Conga	4320	Wurzzicato	5022	Real Niceverb
4276	Talking Drum	4321	Comp Cro + Pad	5023	Small Hall
4277	Accessory	4322	Clavestrum	5024	Mosque w/Inf Rev
4278	Carnival Perc	4323	Bowed Crotales	5025	CDR Aux Reverb
4279	Vocal Percussion	4324	Bells and Bows	5026	Live RecitalHall
4280	Celeste	4325	Bass Pedal	5027	MosqueySwirl Aux
4283	Mixed Choir	4326	Clav Template	5028	BladerunnrRvb
4284	Manhattan Voices	4327	RockLesl122 X	5029	Dark Room 2
4285	Choir Complete	4330	Reverse Universe	5030	UnderCurAux
4286	NYC in LA	4331	Pan Strings 3	5031	AbbeyPianoHall2
4287	Crystal Voices	4332	5th-Scape	5032	JK GatedLaserver
4288	Cathedral Vox	4340	SyncoDeMayo	5033	SymphonyHall 1
4289	Silent Sorrow	4350	Power Bottom	5034	Gunshot Verb
4290	Swept Tron Voice	4351	Deception Bass	5035	SuperSaw Aux
4291	Slo Orch Chorus	4352	Latch Bass	5036	7ft Aux Verb1
4292	Aaah Vocals	4353	APG-ish Bass	5037	Cathedral Chorus
4293	Jazzy Ballad Vox	5000	Small Hall	5038	SymphonyHall Aux
4294	Bright Syn Vox	5001	ShortPlate4EPs	5039	Bradley's Barn 1

Effects Chains

ID	Chain	ID	Chain	ID	Chain
5040	SymphonyHall 2	5078	PercVerb1	5133	Dampers Up Forte
5041	Empty Stage II	5079	Med Drum Room	5134	damper verb
5042	AbbeyPianoHall 2	5080	Elegant Hall Aux	6025	EP Tine FX1
5043	Sax Chamber 21	5081	FlangVoXHall2Aux	6026	Small Hall
5044	Smooth Long Hall	5082	Cathedral Vx Aux	6027	Tweet piano
5045	Horn Plate 1	5083	Classic Plate II	6028	Y Grand EQ 2
5046	Super8 Horn Dly	5084	Real Niceverb II	6029	Soundboard 3
5047	Solo Trumpet	5085	BigDarkRoomDW	6030	9-Ft Piano FX2
5048	Predelay Hall	5086	Empty Stage 11	6031	77DWWintAmp2hi
5049	Gtr Niceverb	5087	Cab-Reverb	6032	Tremolo BPM
5050	Bullitt PDlyHall	5088	jk AUX1	6033	Pianarama! verb
5051	7thHeaven Plate	5089	Empty Stage	6034	Solaris
5052	Miami Gated Room	5090	DF OrganRoom	6035	SolarisGateLazer
5053	Miami Plate Rvb	5091	KB3 Aux2 Booth	6036	Existential Taps
5054	Tenor Sax	5092	KB3 Aux2 Booth 2	6037	URage_CmpRvb
5055	Bari Sax	5093	Organ Chamber2	6038	77DWDYNOAmp1
5056	Small Dark Room2	5094	KB3 Cab 1	6039	LintBuster LD
5057	Small Hall II	5095	KB3 Cab 2	6040	RSessionGTR
5058	Omni Stage	5096	Plebe Chamber	6041	77DWDYNOAmp2
5059	DeepChorsDlyHall	5097	1.6ms Hall	6042	77DWDYNOAmp3
5060	AGT Reverb	5098	Artis KHall	6043	Y DW Rock EQ
5061	NylonAgtVerb	5099	2.0ms Hall	6044	Y DW Rock EQ2
5062	Small Dark Room	5100	Sweet PnoHall 2	6045	Heartbreaker
5063	HammerDulceRoom3	5101	FM Hall	6046	S DW AlbumEQ1
5064	AbbeyPianoHall	5102	.78ms Hall	6047	DynoChor73
5065	Lil' Drum Booth	5103	Album Plate	6048	73DWPPhase2
5066	Gated Plate 144m	5104	OmniStage	6049	Double Grand3
5067	SnappyDrumCmpVrb	5105	Artis LrgKHall	6050	Dampers Up Forte
5068	More Drum Air	5106	Sweet PnoHall 2	6051	ChorVerb for Pad
5069	Full Drum Room	5107	Lrg Ambience I	6052	dyn77Template
5070	Expandn'DrumHall	5108	Upright Room	6053	SynChor&Dly1
5071	DrmCMPVb4PrgFX2	5109	Upright Room	6054	Dampers Up Forte
5072	Aux Dark Room 2	5110	.78ms Hall	6055	German Grand4
5073	CmpVerb4Drms2	5111	OmniStage 200	6056	Ezra II Les X
5074	Garage Drums	5112	Omni Stage Short	6057	tmbshiftComp
5075	SymphonyHall 3	5113	Omni Stage 3	6100	Small Hall
5076	Med Drum Room	5131	Dampers Up 2.5ms	6101	steincoNcert2
5077	PercussionRoom	5132	damperverb 4unit	6102	steincoNcert3

Effects Chains

ID	Chain	ID	Chain	ID	Chain
6103	warm stein1	6142	7ft Squashed2	6181	Mono Upright
6104	9ft ppp	6143	Clear 9ft Grand	6182	CMartPiano 1
6105	Studio Piano as	6144	2.0ms Hall	6184	Brt Upright7ft
6106	dancestudionyam1	6145	Warm 7ft Grand	6185	Concert GrandEQ7
6107	Slo Attack Hall	6146	.78ms Hall	6200	JSP Comp & EQ
6108	7-Ft Piano asFN	6147	House 7ft Grand	6201	Album Plate
6109	big stein 1	6148	New Age Grand	6202	DW 70s AlbumEQ1
6110	77ClikFix01	6149	EP Tine Multi2	6203	Y DW Elton EQ2
6111	crtalsdelay 1	6150	EP Tine Verb	6204	DW70sAlbumEQSoft
6112	brtpunch yam	6151	EP Tine Multi3	6205	Ghost EQ Soft
6113	7ft RockVerb1	6152	EP Tine Verb2	6206	DarkUpright EQ
6114	7Ft Vintage Rock	6153	1.6ms Hall	6207	BriteUpright EQ
6115	Vintage Class C	6154	1.6ms Plate	6208	Upright Room
6116	Dance Studio	6155	9ft Solo Grand	6209	70s Blues 7ft
6117	DanceStudioVerb	6156	9ft DarkDistant	6210	Tramp Amp
6118	OldSquashed D	6157	7ft C	6211	EP Tine Soft
6119	New Age Stn 1	6158	9ft Bright Grand	6212	EP Tine Soft2
6120	big warm stein	6159	7ft Bright Grand	6213	EP Tine StTrem
6121	big warm C	6160	Harpsichord 1	6214	73SparkleTop
6122	Darker D	6161	Harpsichord 2	6230	Supa Clav
6124	damperverb 2unit	6162	Vintage Squashed	6231	Heartbreaker
6125	7ft Solo	6163	House 9ft Grand	6232	Relic Clav
6126	D TMP flat EQ	6164	Super Pop eq	6233	Steely Fuzz
6127	7ft Squashed	6165	Scoop 9ft Grand	6234	Stevie Fuzz
6128	7ft Warm Jazz	6166	Brt Scoop 9ft	6235	Trampler
6129	9ft Classic	6167	Brt Scoop 7ft	6236	Trampler2
6130	EP Tine Multi	6168	ARTISCncertPnAS1	6237	OutaPhasePickups
6131	77ClikFix02	6169	9ft Solo Grand2	6238	Chaka Wah
6132	7ft Smooth	6170	Dampers Upright	6239	ChameleonWah
6133	9ft w Strings	6171	German Grand2	6240	Beck EP Reed
6134	German Grand	6172	Double Grand1	6241	BlkCrows EP Reed
6135	Concert Grand	6173	Piano + Pad	6242	Clav Chamber
6136	Warm Grand 1	6174	9ft w Strings2	6300	Weapon Chain
6137	D Template 3	6175	FM n K EQ2	6301	Double Chorus
6138	Rich 7 ft Grand	6176	Artis Pluck EQ2	6400	73DWPHASE1
6139	7ft Vintage Rock	6177	German Grand3	6401	77NAMMChor1
6140	Darker D	6178	Double Grand3	6402	77NAMMChor2
6141	Oscar's Grand eq	6179	German Grand4	6403	73NAMMPHASDist1

Effects Chains

ID	Chain	ID	Chain	ID	Chain
6404	77DWDstTrem1Wah	6508	SuperSaw	6635	Artis Y EQ
6405	73DWStTrem1	6509	Chroma FM3	6640	Bebop Piano
6406	73NAMMStTremDst1	6510	KB3 Aux2 Booth	6643	ModJazz K1
6407	73NAMMStTremDst2	6511	GANGsta Wrap 2	6648	Piano + Pad
6408	77NAMMVintAmp1	6512	KB3 Aux2 Booth 2	6649	Delay Piano
6409	EPReedVintAmp	6513	Organ Chamber2	6650	Mono EQ
6410	EPReed Ray Amp	6514	NonKB3 A KX 2	6651	RecitalHall
6411	NAMMSuperTrmpPha	6520	String Multi FX1	6655	BigChorusPiano2
6412	EPReedPhasDst1	6521	SymphonyHall Aux	6656	Lrg Ambience I
6413	EPReedBriteAmp1	6522	MltiFX for Stngs	6657	Ambient Pno EQ
6414	EPReedDeepFuzz	6530	EP Tine Chorus	6658	Blown Spkr Ins
6415	EPReedDeepFuzz2	6531	EP Tine Flange	6659	Recital Piano3
6416	NAMMClavTrampler	6532	EP Tine Phaser	6660	FM n K EQ
6417	NAMMClavFuzz1	6533	EP Tine Rotary	6661	FM Hall
6418	ClavNAMMPhasDst1	6534	EP Tine Envfilt	6662	ConcertK lite1
6419	ClavNAMMPhasDst2	6550	EP Tine Aux2	6663	ConcertK lite2
6420	73DWPHASE2	6551	EP Tine Rm Aux	6664	Soundboard as
6421	77DWChor2	6552	DampersUp	6665	ConcertK 4sc
6422	73DWPHASDist1	6553	Tines FX	6667	ConcertK EQonly
6423	73DWPHASDist2	6554	9-Ft Piano FX	6668	Artis Y Grand2a
6424	73DWPHASDistWah	6555	DampersUp	6669	Artis YHall 2
6425	77DWPHASDistWah1	6556	Sweet PnoHall	6670	Upright Room
6426	73DWPHASDistWah2	6557	Sweet PnoHall 2	6671	ParlorPianoEQ
6427	73DWVintamp2	6558	Tines FX	6672	ParlorVerb
6428	77DWVintAmpWah	6559	9-Ft Piano FX	6673	PianoTmplateEQ1
6429	DampersUp	6606	Artis KHall	6674	ModJazz K2
6430	Sweet PnoHall	6610	Artis LrgKHall	6675	Brgt Soundboard
6431	77 cdr g1 t	6611	Upright EQ	6676	Recital EQ
6432	Sweet PnoHall 2	6612	Artis LrgKHall	6677	Radio Pop EQ
6440	DeepFuzz EPReed2	6613	ConcertGrand1	6680	Concert GrandEQ4
6500	Rds AuxVerb Long	6617	ModJazz Plate 1	6681	Soundboard 4
6501	Comp Piano FX	6619	Punch Room	6682	ModJazz K3
6502	Piano MultiFX 1	6627	Concert Grand EQ	6683	Upright EQ2
6503	Dist Clav FX	6628	Y Grand EQ 2	6684	Pianarma EQ+Cm4
6504	Dist Clav CB FX	6630	Bright Y EQ2	6685	JSP Comp & EQ2
6505	Synth HF Stim	6632	Artis K Pop EQ	6686	Recital Piano 3
6506	Synth HF Stim 2	6633	Dark n Distant	6687	ArEQCMPas2
6507	SuperSaw Aux	6634	Artis Pluck EQ1	6688	Weapon Chain2

Effects Chains

ID	Chain	ID	Chain
6689	MarquisPiano3	6804	9-Ft Piano FX
6692	ClassicBLesFstv4	6805	Yam ppp
6693	Concert GrandEQ6	6806	CDR Aux Reverb
6694	ClassicBLesFstv4	6807	Dark Wobbles
6696	ClassicBLesFstvX	6808	Tines Aux Rev
6700	kb3 cab1	6809	Synth Dist CDly
6701	FunkyPerc Les 01	6810	Mosque w/Inf Rev
6702	SoulPerc Les 01	6811	MosqueySwirl Aux
6703	PerfectStrLes01	6812	Forte Lead Insrt
6704	70s Drwbars Les1	6813	Comp Lead Insert
6705	Prog Bars Les01	6814	CDR Just Reverb
6706	FirstThree Les03	6815	Wah Synth Insert
6707	Ezra II Les 01	6816	Forte Lead GTR
6708	kb3 cab1	6817	Phase+CH+Delay
6709	FunkyPerc Les 01	6818	Dist/Wah Insert
6710	SoulPerc Les 01	6819	Comp Plex Insert
6711	FunkyPerc Les X	6820	Comp Mu Aliasr
6712	70s Drwbars Les1	6821	Elegant Hall Aux
6713	Prog Bars Les01	6822	FlangVoXHall2Aux
6714	FirstThree Les03	6823	FlangVoiceInsert
6715	Ezra II Les 01	6824	Cathedral Vx Aux
6716	SoulPerc Les X	6921	MarquisPiano3
6717	FirstThree LesX	7000	GM Reverb
6718	PerfectStrLes X	7001	GM Chorus
6719	70s Drwbars LesX	7002	Indie Piano
6720	Prog Bars Les X	7003	BluesPnoCmpRvb 2
6721	Ezra II Les X	7004	ArtEQ3
6722	CrunchLesl122 X	7005	ArtEQDW4
6723	SoulLeslie122 X	7006	ArtEQDW5
6724	Jimmy'sBrakeX	7007	ArtEQDW7
6725	DistlLes HotGsX	7008	ArtEQDW8
6726	NonKB3 A KX	7009	ArtOddHarm
6727	Leslie 122 K X	7010	SoftPnoCmpRvb 1
6728	LightDistlLes KX	7011	SterPnoCmpRvb 2
6729	Clean Leslie KX	7012	SoftPnoCmpRvb 2
6800	EP Reed Template	7013	SterPnoCmpRvb 3
6802	EP Tine AuxHuge		
6803	7ft Aux Verb1		

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