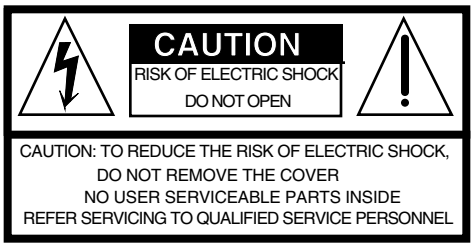
K2661

Getting Started Guide

KURZWEIL
Music Systems

Part Number: 910388 Rev. A



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 of 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. **WARNING:** This product is equipped with an AC input voltage selector. The voltage selector has been factory set for the mains supply voltage in the country where this unit was sold. Changing the voltage selector may require the use of a different power supply cord or attachment plug, or both. To reduce the risk of fire or electric shock, refer servicing to qualified maintenance personnel.
4. 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.
5. This product should only be used with a stand or cart that is recommended by the manufacturer.
6. 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 at a level that is uncomfortable. If you experience any hearing loss or ringing in the ears, you should consult an audiologist.
7. The product should be located so that its location or position does not interfere with its proper ventilation.
8. The product should be located away from heat sources such as radiators, heat registers, or other products that produce heat.
9. The product should be connected to a power supply only of the type described in the operating instructions or as marked on the product.
10. 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.
11. 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.
12. Care should be taken so that objects do not fall and liquids are not spilled into the enclosure through openings.
13. 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.
14. 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.
15. **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 this 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.

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 present appareil numerique n'emet pas de bruits radioelectriques depassant les limites applicables aux appareils numeriques de la class B prescrites dans le Reglement sur le brouillage radioelectrique edicte par le ministere 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.

Kurzweil International Contacts

Contact the nearest Kurzweil office listed below to locate your local Kurzweil representative.

Kurzweil Co., Ltd.
Daerung Technotown 6th, 306
493-6 Gasan, Gumcheon, Seoul, Korea
Tel: (+82) 2-2108-5700
Fax: (+82) 2-2108-5729

A N D Music Corp.
P.O. Box 99995
Lakewood, WA 98499-0995, USA
Tel: (253) 589-3200
Fax: (253) 984-0245

Young Chang Canada Corp.
250 Victoria Park Ave. Suite # 105
Toronto, Ontario Canada M2H 3P7
Tel: (905) 948-8052

Team Kurzweil Europe
Gl. Donsvej 8
6000 Kolding
Phone: (+45) 75 56 96 44
Fax: (+45) 75 56 96 55

Official distributors in other countries are listed on the web site.

World Wide Web Home Page:

http://www.kurzweilmusicsystems.com

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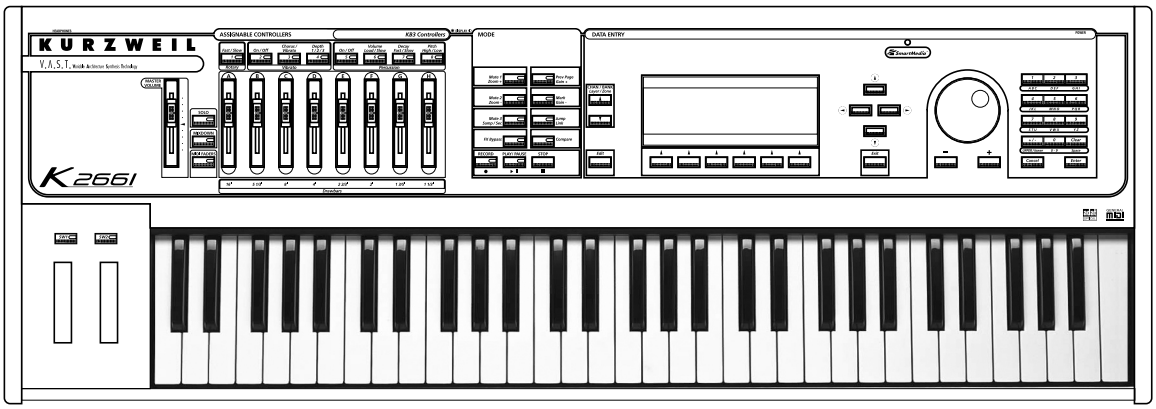
Chapter 1
Introduction

Thank you for purchasing a Kurzweil/Young Chang K2661 instrument.

The K2661 is packed with great acoustic, electric, and synth sounds—combined with some of the most advanced synthesis features available, which you can use to create almost any sound imaginable. The K2661 incorporates most of the features of the K2600, and provides several new features as well.

This manual, along with the *Musician's Guide* and *Musician's Reference* (provided on the CD-ROM) will get you started with your new instrument. As you become an advanced user, you will want to spend more time with the *Musician's Guide* and *Musician's Reference* to make the most of your K2661's many capabilities.



Overview of the K2661

The K2661 is a versatile performance instrument and an invaluable tool for multi-timbral sequencing and recording. Its Variable Architecture Synthesis Technology (V.A.S.T.) lets you build sounds from realistic instrumental samples and sampled synth waveforms—then modify the nature of those sounds through a wide variety of digital signal-processing (DSP) functions. The K2661 also generates its own synth waveforms, which can be combined with the samples or used on their own. Onboard sound ROM includes the Orchestral and Contemporary sound blocks, as well as a fine set of General MIDI (GM) sounds. You can add one or both of the two available option ROMs (Stereo Dynamic Piano and Vintage Electric Pianos), and you can load samples from disk into sample RAM.

Before we get into explaining VAST, here are a few of the features that by themselves make the K2661 an impressive stage and studio machine. It's fully multi-timbral—different programs can be played on each MIDI channel. It's 48-note polyphonic, for a full sound no matter how many chords you play. There's an on-board digital effects processor, providing up to five simultaneous effects, including real-time effects control, internally or via MIDI.

In addition to the standard stereo audio output pair, there are four balanced analog outputs and eight channel digital output.

For sample memory, your K2661 has one SIMM (single, in-line memory module) installed in a socket that you can reach through the access panel on the bottom of the instrument. If your K2661 does not already have the maximum of 128 megabytes of Sample RAM installed, you can install a larger SIMM using the instructions in the *Musician's Reference.* The most important thing for you to know about Sample RAM, however, is that it is not battery-backed; RAM samples are permanently erased from memory when you power down. Fortunately, we've made offline storage a snap.

There's a SmartMedia slot for 3.3v SmartMedia cards, and also a ***SCSI*** port for connecting an external hard disk or CD-ROM drive. You'll find all this storage potential extremely useful for saving and loading samples, which can also be transferred to and from the K2661 using the standard MIDI sample transfer format, or the faster, parallel SMDI sample transfer format (SCSI Musical Data Interchange). See the *Musician's Reference* for information about MIDI and SMDI sample transfers.

The K2661's battery-backed program RAM can store hundreds of your own programs, or thousands of notes recorded in the sequencer. This sequencer (Song mode) lets you play back MIDI type 0 or 1 sequences, record and play back your own songs, and record multi-timbral sequences received via MIDI. The battery should last for several years; instructions for replacing it are in the *Musician's Reference* (provided on CD-ROM).

An optional sampling feature is available, allowing you to make your own mono or stereo samples using analog or digital inputs. With the sampling option, you can also use Live mode, which enables you to take an input signal and route it through the K2661's VAST algorithms—so you can apply Kurzweil DSP and effects to any sound.

There's also digital input/output (I/O) in ADAT format, which provides eight channels for digital audio input and output, as well as a stereo digital output in AES/EBU or S/PDIF formats.

And, of course, there's the incomparable Kurzweil sound. The K2661 comes to you with hundreds of programs (called patches, presets, voices, etc. on other synths). There are also about 200 multi-zone performance setups. Many of these setups use note triggers to play factory-recorded songs that provide grooves and arpeggiation that make great templates for performance or recording.

VAST Synthesis

Variable Architecture Synthesis Technology gives the K2661 its unprecedented flexibility. While many other synthesizers offer a fixed set of ***DSP*** tools (typically filtering, pitch, and amplitude modulation) the K2661's Variable Architecture lets you arrange a combination of any five DSP functions from a long list of choices. The functions you choose define the type of synthesis you use.

Each layer of every program has its own DSP architecture, which we call an ***algorithm***. Within each algorithm, you can select from a variety of DSP functions. Each function can be independently controlled by a variety of sources including LFOs, ASRs, envelopes, a set of unique programmable functions (FUNs), as well as any MIDI control message. The many different DSP functions and the wealth of independent control sources give you an extremely flexible, truly vast collection of tools for sound creation and modification. When you're ready to jump in and start creating programs, turn to Chapter 6.

KB3 Tone Wheel Emulation

In addition to VAST synthesis, the K2661 offers many oscillator-based programs that give you the classic sound of tone-wheel organs like the Hammond B 3™. KB3 mode, as we call it, is completely independent of VAST, and has its own set of editing procedures. You'll find details in Chapter 6.

How the K2661 Works

The K2661 integrates three MIDI-driven components: a MIDI controller (the keyboard, or an external MIDI controller, a sound engine, and a global effects processor (KDFX). The sound engine responds to the MIDI events generated by the MIDI controller, and turns them into sounds that are processed within the variable architecture of the algorithms—or by oscillators for KB3 programs. The resulting sound can then be routed through KDFX and to the audio outputs.

How to Use This Manual

This manual describes how to connect and power up your K2661, getting around the front panel, and a brief description of the operating modes. For information on editing and advanced programming features, refer to the *Musician's Guide* and *Musician's Reference* (provided on the CD-ROM).

When manual text appears in boldface italic (***like this***), you'll find it described in the Glossary in the *Musician's Reference*. Only the first one or two occurrences of these words are highlighted. The *Musician's Reference* also contains brief descriptions of the K2661's major operating features, and all sorts of useful lists—***programs***, ***keymaps***, ***algorithms***, effects, ***control sources***, as well as complete specifications for the K2661.

The best way to read this manual is with your K2661 in front of you. By trying the examples we give to illustrate various functions, you can get a quick understanding of the basics, then move on to the more advanced features.

Do I Have Everything?

Your K2661 shipping carton should include the following in addition to your instrument:

- Power cable
- Sustain pedal
- *Getting Started* manual
- SmartMedia card
- Compact disc with documentation and accessory files
- Warranty card

If you don't have all of these components, please call your Kurzweil/Young Chang dealer.

The Accessory Files

The accessory files included with your K2661 (on SmartMedia and Compact Disc) include the following. Additional files may be included; see the appropriate README files for these.

K2661 Base ROM Objects

These provide a backup of the ROM Objects installed in your K2661 at the factory.

You will not normally need to use these, however you should keep them in a safe place in case you need to reinstall this version of the operating system. For example, if you have installed a newer version of the objects (we make new versions available for download from our web site) and you encounter any problems, you might need to go back and install the version on SmartMedia and Compact Disc.

OBJKB contains all of the objects in a stock K2661 without sampling. OBJKL contains the Live Mode objects, which are included in a unit with the sampling option installed.

When you install a new version of the operating system, you'll need to load all the object files for the options you have. This includes the object files for the SD Piano and Vintage Electric Piano ROM blocks, if you have them. Load the system files first, then all of the object files, then exit the Boot Loader by pressing the **Run System** soft button. See Appendix A if you need help with operating the Boot Loader.

K2661 Demos

This includes several directories of demo song files, which show off some of the capabilities of your K2661. In addition, **KDFXTUTR.K26** contains objects used in the tour of Effects mode that starts on page 9-22.

Most song demos can simply be loaded into the K2661 and played from Song mode. However, two demo files require that your K2661 have the sampling option installed. The demo files **LMFBDMO1.K26**, and **LMFBDMO2.K26** demonstrate internal feedback loops using a chain of VAST->KDFX->sampler->VAST->KDFX—known as Live mode. Because a Master table is included, your SampleMode settings will be set automatically when you load the demo file.

***Caution**: Programs that cause internal feedback can get extremely loud, so it's important to be careful after loading these objects. Live-mode programs are inherently unstable when you're in Live mode and the sampling source (the Src parameter in the Samplemode page) is set to **Int**. These programs are capable of producing tremendously loud feedback loops with a relatively small amount of gain. In modes where the provided studio is not the active studio, the compressor that keeps these feedback chains under control isn't operating, and the loop can grow out of control very quickly. If you intend only to listen to the demo, and not to examine the programming, we recommend that you delete the song file (and its dependent objects) from your K2661 when you are done listening. We also recommend that you go to the SampleMode page and set the Src parameter to **Ext** or the Mode parameter to something other than **LiveIn**, to help to avoid any unintended feedback. If you want to look at the program settings, lower the volume on your instrument, and read the more detailed description of Live mode beginning on page 14-41.*

K2661 Farm & Extras

This includes over 1000 extra programs and effects, all cultivated from the "farm" where we grow our programs and effects.

The **K2500FRM** directory contains over 1000 extra programs, organized in files by type of sound. This set of programs was originally developed for the K2500, hence the name.

The **KDFXFARM** directory contains two subdirectories. **LIVEMODE** contains a set of files containing extra programs using Live mode (which requires having the sample option in your K2500). **MOREKDFX** contains some FX Presets and a number of Programs that use KDFX, as well as a couple of blank studios.

PIANOFRM contains extra programs that specifically use the 4-megabyte stereo piano.

VOCODER contains programs and setups that are designed to be used with the Vocoder feature. You can read about the Vocoder in detail on page 11-4.

The **MOREPRGS** directory contains several files of extra programs.

K2600 / K2500 / K2000 Compatibility Files

These files includes of all the ROM objects in the original K2600, K2500, or K2000. You would use one of the compatibility files if you have songs created for one of those older object sets. See *Loading Older Setup Versions* on page 7-2 for information about using older objects with the K2661.

Chapter 2
Startup

If hooking up new gear is familiar to you, and you just want to get going, here's a quick description of all the basic things you need to cover to get started with your K2661. If you need more information, thorough descriptions of each step follow. In either case, check out *Playing the Presets* on page 2-4.

Quick Startup Checklist

1. Set the keyboard on a hard, flat, level surface. Make sure to leave plenty of room for ventilation.
2. Four adhesive-backed rubber feet are provided with your K2661. If you want to attach them to the bottom of the K2661, carefully turn the keyboard over, remove the paper backing from the rubber feet and attach them now. There are four pairs of holes on the bottom of the keyboard – a pair in each corner – showing the best places to attach the rubber feet.
3. Connect the power cable.
4. Make sure your sound system is at a safe volume level.
5. Plug in a pair of stereo headphones or run standard (1/4-inch) audio cables from your amplifier or mixer to the MIX audio outputs on the K2661. (Use the MIX L out for mono.)

Start Jamming!

1. Power up your K2661 and check out some of the programs and setups. The K2661 starts up in either Program mode or Setup mode—whichever of the two modes it was in when it was last shut down (or given a soft reset). Press the button labeled **Program** or **Setup** to switch modes.
2. If you hear distortion, reduce the gain on your mixing board, or use the pad if it has one.
3. Scroll through the program list with the Alpha Wheel.
4. Press the **Quick Access** mode button and use the alphanumeric buttons to select from programmable banks of ten programs or setups.
5. If you don't hear anything, review these steps, or check the Troubleshooting section in the *Musician's Reference*.

Startup—the Details

This section walks you through the hookup of your K2661. We'll take a look at the rear panel, then describe the power, audio, and other cable connections.

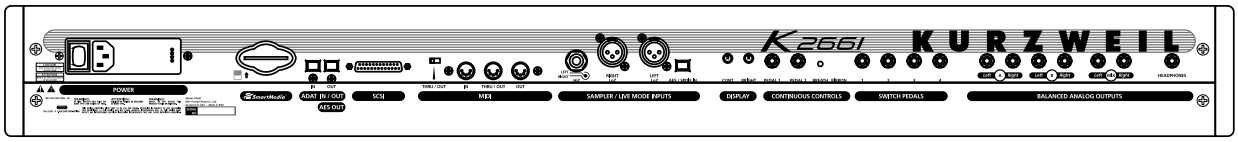
Before You Start...

Don't connect anything until you make sure your K2661 is properly and safely situated. Also, if your K2661 has been out in the cold, give it time to warm up to room temperature before starting it, since condensation may have formed inside the K2661. *Never* block the ventilation openings on the bottom or rear panels; doing so can cause overheating and serious damage. To provide adequate ventilation, the rear panel should be at least four inches from any vertical surface.

Connecting the Power Cable (Line Cord)

The K2661 runs on AC power: 100, 120, 230, or 240 volts at 50–60 Hz. Your dealer will set the voltage switch to match the voltage in your area. The voltage level is set with a selector on the rear panel of the K2661. Unless you are sure it needs to be changed, you shouldn't adjust this.

When you've connected the cable at the K2661 end (as you face the back of the K2661, the power connection is at the left), plug it into a grounded outlet. 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.



Connecting the Audio Cables

After you've turned down the level on your sound system, connect the K2661's analog audio outputs to your sound system using a pair of stereo or mono audio cables. Mono cables will always work, but if you're going into balanced inputs, use stereo cables for a better signal-to-noise ratio. The K2661's analog outputs are balanced, and generate a "hotter" signal than previous Kurzweil instruments.

You'll find six 1/4-inch jacks near the top of the rear panel. For now, connect one end of each audio cable to your mixing board or PA system inputs, and connect the other end to the jacks marked MIX L and R on the rear panel of the K2661. If you have only one input available, use the K2661's MIX L output to get the full signal in mono. You'll find more about audio configurations—including digital output—in Chapter 15.

Connecting MIDI

The simplest MIDI configuration uses a single MIDI cable: either from the MIDI Out port of your K2661 to the MIDI In port of another instrument, or from the MIDI Out port of your MIDI controller to the MIDI In port of the K2661. There are all sorts of possible configurations, including additional synths, personal computers, MIDI effects processors, and MIDI patch bays. Depending on your system, you may want to use the K2661's MIDI Thru port to pass MIDI information from a MIDI controller to the K2661 and on to the next device in your system. You can also connect MIDI devices to the K2661's MIDI Out port, which can send channelized MIDI information from the keyboard or through the K2661 from your MIDI controller. See the discussion of the Local Keyboard Channel parameter on page 10-6.

Connecting SCSI

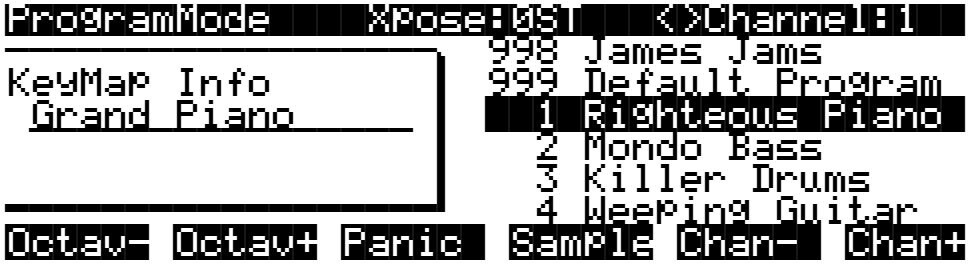
You may not have a hard disk or other SCSI device to connect to your K2661 right away, but if you do, you can connect it to the SCSI port. Please read the following information carefully; it's very important. Also, there's a collection of SCSI tips in Chapter 6 of the *Musician's Reference*.

Note: *SCSI on the K2661 is always terminated. Turn to Chapter 13 and read the section called SCSI Termination if you require more information. You can lose data if your system isn't terminated properly.*

Switching On the Power

The power switch is on the rear panel. If you're facing the keyboard, it's just to the right of the power cable connection.

When you power up, the display briefly show some startup information. The Program mode display then appears. It looks like the diagram below (the programs shown in the diagram don't necessarily exist).



The first time you power up (or after a reset), your instrument will be set to operate on MIDI Channel 1 (as shown in the top line of the diagram). After that, it will power up on whatever channel you were on when you powered down. If you'd rather have the K2661 reset certain parameters to default values when you power up, you can do that, too. See *Power Mode* on page 10-7.

Set the volume at a comfortable level. You'll get the best signal-to-noise ratio if you keep the K2661 at full volume, and adjust the level from your mixing board. You may also want to adjust the display contrast and brightness. There are two small knobs on the rear panel of the K2661 for this purpose.

SmartMedia

You can use 3.3v SmartMedia cards (4 megabyte and larger) for backing up, archiving, and sharing your work. The SmartMedia card slot is on the back panel of the K2661, but it is easily accessible from the front of the instrument. The gold contacts on the card must be facing up when you insert it; the K2661 can't read a card when it is inserted upside down.

Caution*: Do not remove a SmartMedia card while the blue LED is lit. Removing a card while the blue LED is lit can cause data corruption.*

Playing the Presets

There are three things you'll want to check out right away: programs, setups and Quick Access banks. In performance situations, you'll be selecting your sounds using one of these three methods. There's a mode (and a mode button) corresponding to each method.

Getting Around

In all three of these modes, the bottom line of the display identifies the function of each of the buttons beneath the display. We call these buttons *soft* buttons, because they do different things depending on what's currently showing in the display.

In Program and Quick Access modes, you can change MIDI channels with the **Chan-** and **Chan+** buttons under the display. In Program mode, you can also change channels using the **Chan/Bank** buttons to the left of the display. (In Quick Access mode, the **Chan/Bank** buttons change Quick Access banks; more about that on page 2-7.) There are two more soft buttons that appear in these modes: Panic and Sample.

The **Panic** button sends an All Notes Off message and an All Controllers Off message—both to the K2661 and over all 16 MIDI channels. You won't need it often, but it's nice to have.

The **Sample** button takes you to Sample mode (the SampleMode page), which, as you've probably guessed, is where you make your own samples—if you have the sampling option in your instrument.

Programs

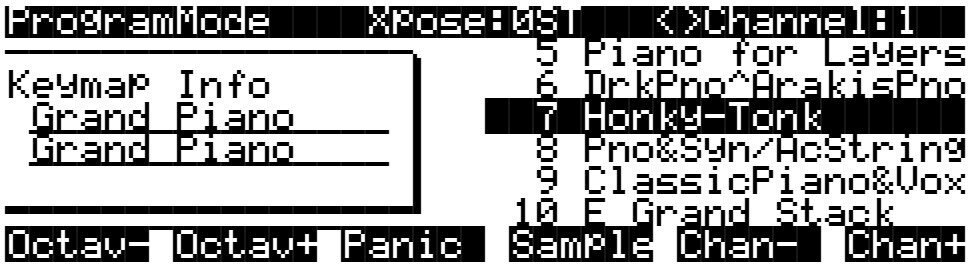
The K2661 powers up in Program mode, where you can select and play programs stored in ***ROM*** or ***RAM***. Programs are preset sounds composed of up to 32 ***layers*** of samples or waveforms. If you've left Program mode, just press the **Program** mode button or **Exit** button to return.

Take a minute to familiarize yourself with the Program-mode display. It gives you some helpful basic information, like the MIDI transposition, what MIDI channel you're on, and which program is currently selected.

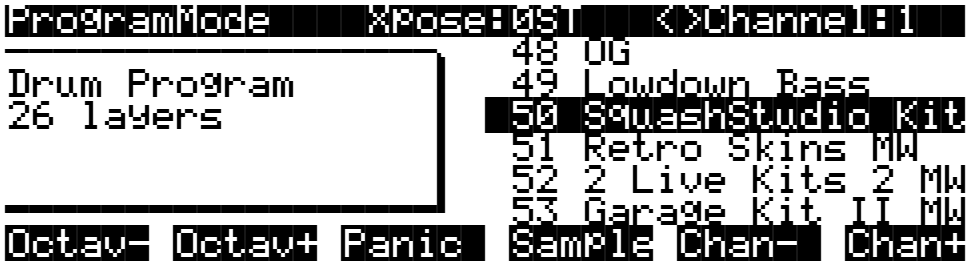
There's a box at the left side of the display. The info box, as it's called, displays information about the current program (there's also an info box for Setup mode). The following diagrams shows how the information differs depending on the type of program you've selected.

VAST Programs

First is a "normal" VAST program, which is what most of the factory programs are. They have from one to three layers. In this case, there are two. For programs of up to three layers, the info box contains one line per layer, indicating the keymap used in that layer. The line under the keymap name indicates the layer's keyboard range. In this case, both layers extend across the entire keyboard (A 0 to C 8).

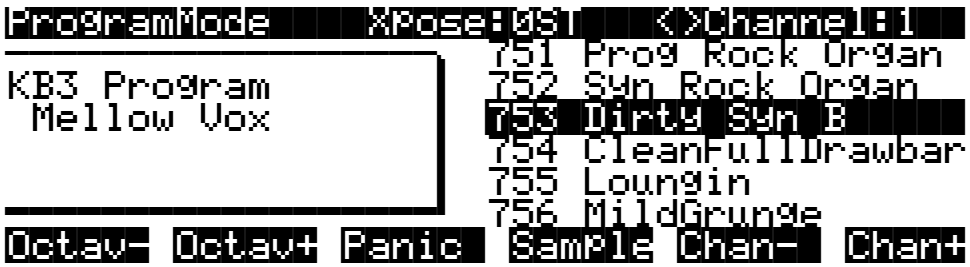


VAST programs with more than three layers are known as *drum* programs, as shown in the following diagram. Drum programs can use any sound you like, but the most common use for programs with more than three layers is to create a number of different sounds across the keyboard—which is perfect for combinations of percussion sounds (hence the name). For drum programs, the info box simply indicates the number of layers in the program—in this case, 26.



KB3 Programs

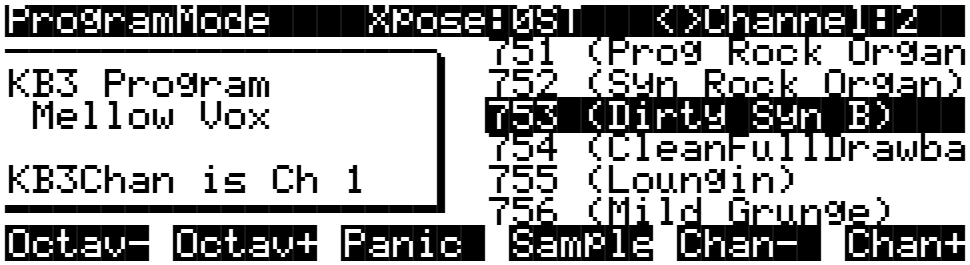
The architecture of KB3 programs is different from that of VAST programs. KB3 programs don't have layers; they rely on oscillators that mimic the tone wheels used in many popular organs. Consequently, the info box shows only the waveform used in the program.



Because of their architecture, KB3 programs require different processing within the K2661, and they don't work on "regular" channels. They require a special channel to handle the KB3 program's voices. You can choose any of the 16 MIDI channels to be the KB3 channel, but you can have only one KB3 channel, and KB3 programs play *only* on that channel (VAST programs work just fine on the KB3 channel, by the way).

By default, Channel 1 is designated as the KB3 channel (you can change it in Master mode). If the current channel isn't the same as the KB3 channel, and you select a KB3 program, you won't get any sound, because a non-KB3 channel can't handle a KB3 program.

In the following diagram, Channel 2 is the current channel, but Channel 1 is the KB3 channel. The info box tactfully lets you know what the KB3 channel is, and parentheses appear around the names of all KB3 programs, to further remind you that KB3 programs aren't available on the current channel. To get Program **753** to work in this case, you'd have to change the current channel back to Channel 1, or go to Master mode and change the KB3 channel to Channel 2.



Live Mode Programs

Programs 740–749 are designed expressly for Live mode, a feature that enables you to take a signal from the Analog sampling input (this requires the sampling option, of course), and route it through the DSP algorithms. Programs 740–749 will not play unless you're receiving a signal at the Analog sampling input. See page 14-10 for more about Live mode.

Selecting Programs

When you want to change programs, you have several options.

The easiest method is the Alpha Wheel. Turning it left or right will scroll through the program list. You can also change programs using the cursor buttons (the arrow buttons to the right of the display), or the **Plus/Minus** buttons under the Alpha Wheel. To save time, you can enter the program number directly from the alphanumeric buttonpad to the right of the Alpha Wheel, pressing the **Enter** button to complete the selection. If you make a mistake, press **Clear**, then start over.

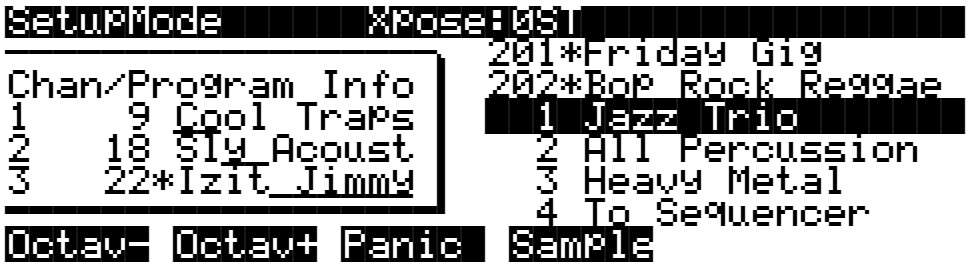
The K2661 has various settings for responding to MIDI Program Change commands from external sources. These are explained in Chapter 10, so we won't go into them here. You should be able to change programs by sending Program Change commands from your MIDI controller.

If you don't hear anything, see the troubleshooting section in the *Musician's Reference*. When you're ready to start doing your own programming, check out Chapter 6.

Setups

Setups are preset combinations of programs. Setups can have up to eight zones, each of which can be assigned to any range of the keyboard (overlapping or split). Each zone can have its own program, MIDI channel, and MIDI control assignments.

Press the **Setup** mode button to the left of the display. Its LED will light, telling you that you're in Setup mode. Notice that the Setup-mode display is similar to the Program-mode display. If the setup has three or fewer zones, the box at the left shows you the programs assigned to each of the setup's three zones, and which MIDI channel is used for each program. If the setup is composed of more than three zones, then the box displays a series of horizontal lines illustrating the approximate key ranges of the zones. See page 7-1 for a more detailed description.



Many setups include arpeggiation and note-triggered songs to create some pretty amazing grooves that you can use as is, or as templates for your own material. As you play with these setups, experiment with the sliders and other controllers for a wide range of effects. Some of these grooves keep playing after you've released the keys that got them going. When you want to stop them, select another setup, or press the **Setup** mode button.

Quick Access

A really convenient way to select programs and setups is to use Quick Access mode, where you select a Quick Access ***bank*** from a list of factory preset or user-programmed banks. Each bank contains ten memory slots, or entries, where you can store any combination of programs or setups. While you're in Quick Access mode, you can select any program or setup in the bank with buttons **0** through **9**.

The K2661 comes with a few Quick Access banks already programmed so you can get an idea of how they work. You'll probably create your own Quick Access banks to help you select programs and setups with a minimum of searching. Press the **Quick Access** mode button to the left of the display. Its LED lights, to tell you you're in Quick Access mode. You'll see a display that looks like this:

The top line of the display tells you which Quick Access bank is selected. Use the **Chan/Bank** buttons (to the left of the display) to scroll through the banks. The names of each of the ten entries in the bank are listed in the center of the display. Many of their names will be abbreviated. The currently selected entry's full name is shown near the bottom of the display. The amount of transposition is displayed to the left of the entry name. If the current entry is a program, you'll see the current keyboard (MIDI) channel displayed to the right of the entry's name. If it's a setup, you'll see the word Setup.

The entries on the Quick Access page are arranged to correspond to the layout of the numeric buttons on the alphanumeric pad. On the page above, for example, the program **SINK MONSTA** is entry 5, and can be selected by pressing **5** on the alphanumeric pad.

When you're ready to create your own Quick Access banks, turn to Chapter 8 to learn about the Quick Access Editor.

The Other Modes

There are six other modes, five of which have mode buttons on the front panel (Sample mode doesn't have a front-panel button). See page 3-1 and Chapter 4 for more detailed descriptions of each mode.

Effects mode	Create and modify effects presets, and define how they're applied to the K2661's programs and setups.
MIDI mode	Configure the K2661 for sending and receiving MIDI information.
Master mode	Define performance and control settings.
Song mode	Record and edit sequences (songs); play Type 0 and Type 1 MIDI sequences.
Disk mode	Load and save programs, setups, samples, and other objects.
Sample mode	Edit ROM samples; create and edit RAM (user-defined) samples.

Software Upgrades

Part of the beauty of the K2661 is the ease with which you can upgrade its operating system and objects (programs, setup, etc.) using the boot loader to install upgrades into flash ROM.

At Kurzweil and Young Chang, we have a long history of support for our instruments; the K250, K1000, K2000, and K2500 have been repeatedly enhanced, and these improvements have always been made available to instrument owners in the form of software upgrades.

Upgrading your K2661's software is simple, painless, and—generally—free! As upgraded software becomes available, you can either get files from your Young Chang dealer or download the new stuff from the Web.

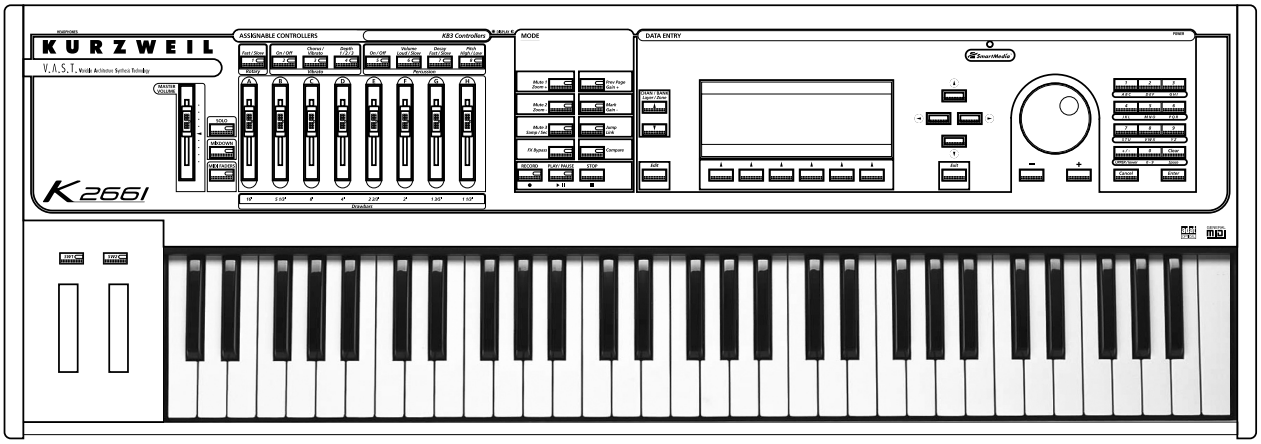
To stay in touch, check out our Web site:

http://www.kurzweilmusicsystems.com/

When you've acquired an upgrade, you can install it yourself in a matter of minutes. See Appendix A for details.

Chapter 3
User Interface Basics

This chapter will show you how to get around the front panel of your K2661. Your interactions can be divided into three primary operations: mode selection, navigation, and data entry. There is also an assignable control section.



Mode Selection

The K2661 is always in one of eight primary operating modes. Select a mode by pressing one of the mode buttons — they're to the left of the display. Each mode button has an LED that lights to indicate the current mode. Only one mode can be selected at a time.

Program mode — Select and play programs, and modify them with the ***Program Editor***. Rearrange and modify samples in the Keymap and Sample Editors.

Setup mode — Select and play setups (eight keyboard zones with independent MIDI channel, program and control assignments), and modify them with the Setup Editor.

Quick Access mode — Select from a list of preset banks, each containing a list of ten programs and/or setups that can be viewed in the display for easy selection. Modify the preset banks and create your own with the Quick Access Editor.

Effects mode — Define the behavior of the on-board effects. Modify the preset effects and create your own with the Effects Editor.

MIDI mode — Define how your K2661 sends and receives MIDI information, and configure each channel to receive independent program, volume, and pan messages that override the normal Program-mode settings.

Master mode — Define performance and control characteristics for the entire K2661.

Song mode — Use the K2661's sequencer to record and play back your keyboard performance, play Type 0 and Type 1 MIDI sequences, and record multi-timbral sequences received via MIDI.

Disk mode — Interface with the K2661's SmartMedia drive, or an external SCSI device to load and save programs, setups, samples, and more.

There are two more modes that don't have dedicated buttons on the front panel: Sample mode and Live mode. In Sample mode, you can create and edit samples (if you have the sampling option). To get to Sample mode, press the **Sample** soft button in Program, Setup, Quick Access, or Master modes. See Chapter 14 for details.

Live mode lets you route an input signal through the K2661's DSP algorithms. See page 14-10.

Mode Buttons

The mode buttons are labeled in white. When you press a mode button, its LED lights up to indicate that the mode has been selected. If pressing a mode button does not light its LED, press the **Exit** button one or more times, then try again.

The colored labeling for each mode button indicates special functions that relate to some of the K2661's editors. These functions are described on page 5-8.

Navigation

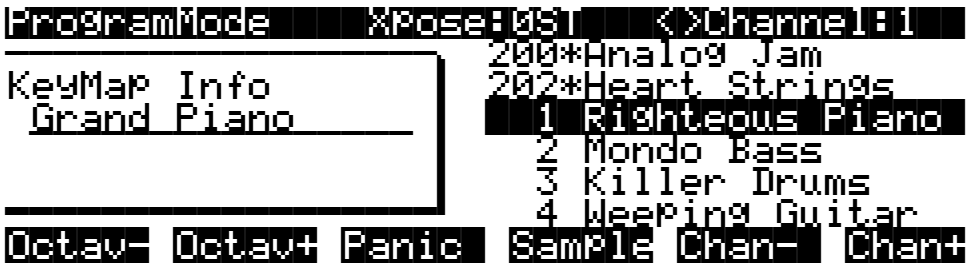
The navigation section of the front panel consists of the display and the buttons surrounding it. These navigation buttons will take you to every one of the K2661's programming parameters.

The Display

Your primary interface with the K2661 is its backlit graphic display. As you press various buttons, this fluorescent display reflects the commands you enter and the editing changes you make. The ample size of the display (240-by-64 ***pixels***) enables you to view lots of information at one time.

Pages

Within each mode, the functions and parameters are organized into smaller, related groups that appear together in the display. Each one of these groups of parameters is called a ***page***. Each mode has what we call an entry-level page; it's the page that appears when you select that mode with one of the mode buttons. Within each mode and its editor(s), the various pages are selected with the navigation buttons. There are many pages, but there are a few features common to each page. The diagram below shows the entry-level page for Program mode.



The Top Line

On the top line of most pages, there's a reminder of which mode you're in and which page you're on. Many pages display additional information in the top line, as well. The Program-mode page above, for example, shows you the current amount of MIDI transposition and the currently selected MIDI channel. The top line is almost always "reversed"—that is, it has a white background with blue characters.

The Bottom Line

The bottom line is divided into six (sometimes fewer) sets of reversed characters that serve as labels for the six buttons directly beneath the display. These labels—and the functions of the buttons—change depending on the currently selected page. Consequently the buttons that select these functions are called "soft" buttons.

The Soft Buttons

The soft buttons are called "soft" because their functions change depending on the currently selected mode. Sometimes they perform specific functions, like changing MIDI channels in Program mode. In the Program Editor and other editors, they're also used to move to different pages of programming parameters. If a soft button's label is in all capital letters (**KEYMAP**, for example), pressing the corresponding soft button takes you to a page of parameters. If the soft button is labeled in lower-case or mixed-case letters (**Save**, for example), the soft button performs some kind of function.

The Cursor Buttons

To the right of the display are four buttons arranged in a diamond fashion. These are called the cursor buttons. They move the cursor around the currently selected page, in the direction indicated by their labels. The cursor is a highlighted (reversed) rectangle (sometimes it's an underscore). It marks the value of the currently selected parameter.

Programming the K2661 involves selecting various parameters and changing their values. Select parameters by highlighting their values with the cursor. You can change the highlighted value with any of the data entry methods described in the data entry section below.

The Chan/bank Buttons

To the left of the display are two buttons labeled **Chan/Bank**. Their function is related to the two small arrows—  —that appear in the top line of the display when there are multiples of the current page—for example, the LAYER pages in the Program Editor. When you see these arrows, you can use the **Chan/Bank** buttons to scroll the values of the parameter that appears to the right of the arrows. In Program mode, for example, they shift through the MIDI channels, showing the program assigned to each channel.

When you're in the Program Editor, the **Chan/Bank** buttons let you view each layer in the program. You can see the corresponding parameters in each layer by scrolling through the layers with these buttons. In the Keymap Editor, **Chan/Bank** scroll through key ranges of the current keymap. In the Setup Editor, the **Chan/Bank** buttons scroll through the zones in the current setup. In Quick Access mode, they scroll through the Quick Access banks, and in Song mode they scroll through recording tracks.

We'll let you know, when applicable, what the **Chan/Bank** buttons do.

The Edit Button

The **Edit** button activates each of the K2661's editors, and acts as a shortcut to many pages within the Program Editor. Pressing the **Edit** button tells the K2661 that you want to change some aspect of the object marked by the cursor. For example, when a program is selected and you press **Edit**, you enter the Program Editor. If a setup is selected, you enter the Setup Editor.

There are editors accessible from just about every operating mode. To enter an editor, choose one of the modes (mode selection), and press **Edit**. An editing page for that mode will appear. You can then select parameters (navigation) and change their values (data entry). If the value of the selected parameter has its own editing page, pressing the **Edit** button will take you to that page. For example, in the Program Editor, on the PITCH page, you might see **LFO1** assigned as the value for Pitch Control Source 1. If you select this parameter (the cursor will highlight its value—**LFO1** in this case), then press the **Edit** button, you'll jump to the page where you can edit the parameters of LFO1. Naturally, you can find every page in the current editor by using the soft buttons, but often it's easier to use the **Edit** button shortcut.

The Exit Button

Press **Exit** to leave the current editor. If you've changed the value of any parameter while in that editor, the K2661 will ask you whether you want to save your changes before you can leave the editor. See page 5-3 for information on saving and naming. The **Exit** button also takes you to Program mode if you're on the entry level page of one of the other modes. If at some point you can't seem to get where you want to go, press **Exit** one or more times to return to Program mode, then try again.

Data Entry

The data entry section of the front panel includes the Alpha wheel, the **Plus/Minus** buttons, and the 14-button alphanumeric pad.

The Alpha Wheel

The Alpha Wheel is especially useful because it can quickly enter large or small changes in value. If you turn the Alpha Wheel one click to the right, you'll increase the value of the currently selected parameter by one increment. One click to the left decreases the value by one increment. If you turn it rapidly, you'll jump by several increments. You can also use the Alpha Wheel to enter names when you're saving objects.

The Plus/Minus Buttons

These buttons are located just under the Alpha Wheel. The **Plus** button increases the value of the currently selected parameter by one, and the **Minus** button decreases it by one. These buttons are most useful when you're scrolling through a short list of values, or when you want to be sure you're changing the value by one increment at a time. One press of the **Plus** or **Minus** button corresponds to one click to the right or left with the Alpha Wheel. These buttons will repeat if pressed and held.

Pressing the **Plus** and **Minus** buttons simultaneously will move you through the current list of values in large chunks instead of one by one. Often this is in even increments (10, 100, etc.). Don't confuse these buttons with the **+/-** button on the alphanumeric pad. This button is used primarily for entering negative numeric values and switching from uppercase to lowercase letters (and vice versa).

The Alphanumeric Pad

As its name implies, this set of 14 buttons lets you enter numeric values, and to enter names one character at a time. Depending on where you are, the K2661 automatically enters letters or numerals as appropriate (you don't have to select between alphabetic or numeric entry).

When you're entering numeric values, press the corresponding numeric buttons, ignoring decimal places if any (to enter 1.16, for example, press **1**, **1**, **6**, **Enter**). The display will reflect your entries, but the value won't actually change until you press **Enter**. Before pressing **Enter**, you can return to the original value by pressing **Cancel**. Pressing **Clear** is the same as pressing **0** without pressing **Enter**.

When entering names, you can use the **Left/Right** cursor buttons or the <<< / >>> soft buttons to move the cursor to the character you want to change. Use the labels under the alphanumeric buttons as a guide to character entry. Press the corresponding button one or more times to insert the desired character above the cursor. The **Cancel** button is equivalent to the >>> soft button, and **Enter** is the same as **OK**. The **Clear** button replaces the currently selected character with a space. The **+/-** button ***toggles*** between uppercase and lowercase letters.

There's also a convenient feature called keyboard naming, which lets you use the keyboard to enter characters in names. See page 5-5.

Double Button Presses

Pressing two or more related buttons simultaneously executes a number of special functions depending on the currently selected mode. Make sure to press them at exactly the same time.

In this mode or editor…	…pressing these buttons simultaneously…	…does this:
Program mode	Octav-, Octav+	Reset MIDI transposition to 0 semitones. Double-press again to go to previous transposition.
	Chan–, Chan+	Set current MIDI channel to 1.
	Plus/Minus	Step to next Program bank (100, 200, etc.)
Master mode	Chan/Bank	Enables Guitar/Wind Controller mode.
Song mode	Left/Right cursor buttons	Toggle between Play and Stop.
	Up/Down cursor buttons	Toggle between Play and Pause.
	Chan/Bank	Select all tracks on any TRACK page in Song Editor.
Disk mode	2 leftmost soft buttons	Issue SCSI Eject command to currently selected SCSI device.
	Chan/Bank	Hard format SCSI device. List selected objects when saving objects.
	Left/Right cursor buttons	Select all items in a list. Move cursor to end of name in naming dialog.
	up/down cursor buttons	Clear all selections in a list. Move cursor to beginning of name in naming dialog.
Program Editor	Chan/Bank	Select Layer 1.

Table 3-1 Double Button Presses

In this mode or editor…	…pressing these buttons simultaneously…	…does this:
Keymap Editor	Plus/Minus	With cursor on the Coarse Tune parameter, toggles between default Coarse Tune of sample root and transposition of sample root.
Sample Editor	2 leftmost soft buttons	Toggle between default zoom setting and current zoom setting.
	Plus/Minus buttons	Set the value of the currently selected parameter at the next *zero crossing*.
Any Editor	Plus/Minus	Scroll through the currently selected parameter's list of values in regular or logical increments (varies with each parameter).
	2 leftmost soft buttons	Reset MIDI transposition to 0 semitones. Double-press again to go to previous transposition.
	Center soft buttons	Select Utilities menu (MIDIScope, Stealer, etc.).
	2 rightmost soft buttons	Sends all notes/controllers off message on all 16 channels (same as Panic soft button).
	Left/Right cursor buttons	Toggle between Play and Stop of current song.
	Up/Down cursor buttons	Toggle between Play and Pause of current song.
Save Dialog	Plus/Minus buttons	Toggle between next free ID and original ID.

Table 3-1 Double Button Presses

Intuitive Data Entry

Many parameters have values that correspond to standard physical controllers. In many cases, you can select these values "intuitively," rather than having to scroll through the ***Control Source*** list. This is done by selecting the desired parameter, then holding the ENTER button while moving the desired physical control.

For example, on the LAYER page in the Program Editor, you can set the range of the currently selected layer as follows: use the cursor buttons to move the cursor to the value for the LoKey parameter, press (and hold) the **Enter** button, then press the note you wish to be the lowest note for the currently displayed layer. The note you triggered (it has to be between C 0—C 8) will appear as the value for the LoKey parameter. Repeat the process for the HiKey parameter.

Another example: select Program 199 while in Program mode. Press **Edit** to enter the Program Editor. Press the PITCH soft button to select the PITCH page. Move the cursor to the Src1 parameter. Hold the **Enter** button, and move the Pitch Wheel. **PWheel** will be selected as the value for Src1.

You can also use the keyboard to choose control sources, since most key numbers correspond to a value on the control source list. If you have a certain control source that you use over and over (for example, LFO1), this can be the quickest way to enter its value. To do this: highlight a parameter which uses a value from the control source list, hold down **Enter**, then strike the key corresponding to the control source you want to choose. LFO1, for example, is assigned to B5. You'll find a complete chart of these keyboard shortcuts at the end of Chapter 4 of the *Musician's Reference*.

Also, for almost every parameter, you can hold the **Enter** button and move the Data Slider to run through the range of values for the currently selected parameter. This is not as precise as the Alpha Wheel, but much faster.

Changing the Current Layer in Multi-Layer Programs

When editing a multi-layer program (including drum programs), you can quickly switch between layers by holding the **Enter** button, then striking a key. The K2661 will change the current layer to that key's layer. If the key is part of more than one layer, subsequent key strikes will cycle through each layer that has that key in its range.

Note: *This method for changing the current layer in a multi-layer program will NOT work if the currently highlighted parameter has a note number or control source for its value. In this case, the key you strike will function as described in Intuitive Data Entry, above.*

Search

There's a convenient way to find any string of characters within the currently selected list, or range of values. Hold the **Enter** button and press any of the numeric buttons. A ***dialog*** like the one below appears.

Type in the 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 string of characters you want to find, press **Enter**. The K2661 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 string 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 string for a search. When the string appears, you can change it, or just press **Enter** to find that string.

Renaming Multiple Objects

You can automatically rename multiple RAM objects with one operation, by substituting one string of characters with another.

1. Press the **Master** mode button to enter Master mode.
2. Press the **Object** soft button, then press the **Name** soft button. The NAME page appears, showing a list of all RAM objects.

3. Use the Alpha Wheel or **Plus/Minus** buttons to highlight objects. When an object whose name you want to change is highlighted, press the **Select** soft button to select the object. Note the asterisk that appears between the object's ID and its name.

4. When you've selected all the objects you want to rename, press **OK**. The following dialog appears. The name you see is the name of the last object you selected.

5. Use your favorite method to enter a slash (/), followed by the string of characters that you want to replace. This function is case-sensitive, so you can enter both capitals and lower-case characters. In this example, we're going to change "Bad" to "Good."

6. When you've entered the desired string of characters, press **OK**, and the dialog changes to prompt you to enter the replacement string. Notice that we entered only the characters **B-a-d**, and not the entire name of the object. Enter the new string, as shown below.

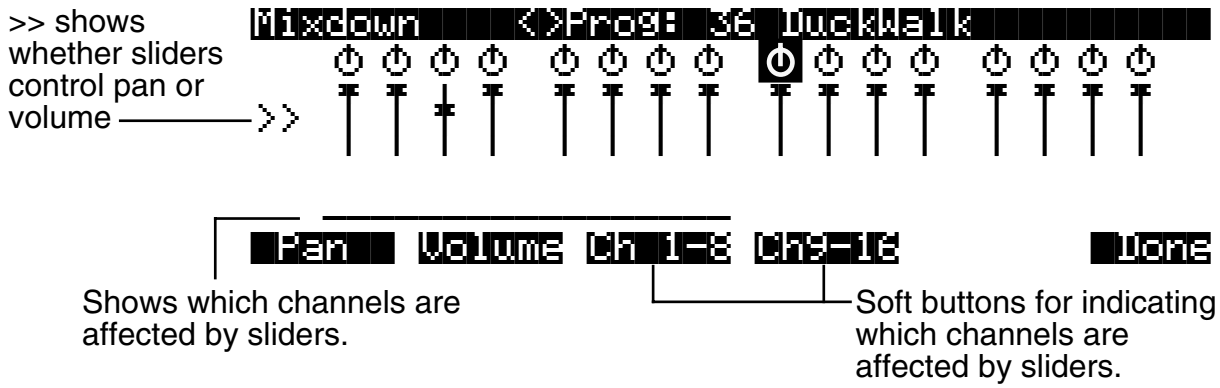
7. Press **OK**. The K2661 asks you if you're sure (unless you have confirmations turned off). Press **Yes**. The NAME page reappears. Every RAM object whose name contained **Bad** now contains **Good** instead.

Mixdown and MIDI Faders Pages

There are two buttons below the **Solo** button, labeled **Mixdown** and **MIDI Faders**. These call up pages that let you use the sliders to control MIDI Pan and Volume, or any MIDI Controller that you choose. This is useful for real-time control over setups.

Mixdown Page

This page temporarily turns the K2661's 8 sliders into MIDI pan and volume controls. You can get to this page from any mode by pressing the **Mixdown** button, located below the **Solo** button. Press **Mixdown**, and the display looks similar to what you see on the Song-mode MIX page. However, there are a few differences. On the Mixdown page, the sliders relate to MIDI channels instead of tracks. If you highlight 1-8 for example, moving slider D will affect volume or pan for MIDI Channel 4 while you're on this page.



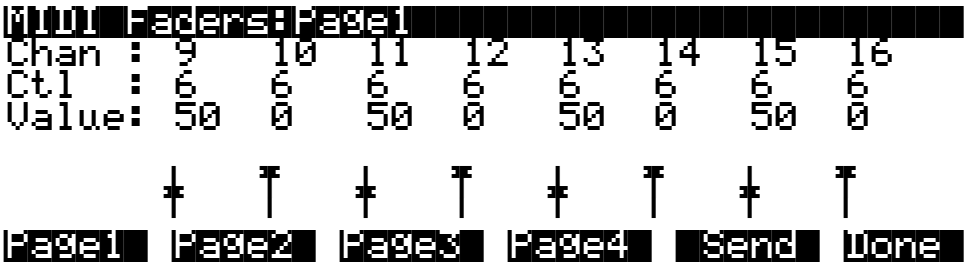
On the Mixdown page, pan and volume messages are sent to the internal K2661 sounds, to MIDI Out, or both. All Mixdown-page channels have the same destination (local, MIDI, or both), which is determined by the Control parameter on the MIDI-mode TRANSMIT page. You can assign the sliders to control either volume or pan. The soft buttons at the bottom of the Mixdown page let you select pan or volume control, on channels 1-8 or 9-16, allowing you to temporarily use the 8 sliders as pan or volume faders. Keep in mind that MIDI volume is a channel-specific message. Therefore, if you have more than one zone in a setup assigned to the same channel, moving any one of the associated sliders will affect all those zones.

MIDI Faders Pages

The button just below **Mixdown** is called **MIDI Faders**. The MIDI Faders page allows you to create a preset configuration of any Controller assignment for each slider, along with an initial preset value for that Controller. For each slider, you assign the MIDI channel, MIDI Controller number, and a value. You can enter the value using any normal data entry method, or by moving the corresponding slider on keyboard models. You can also assign several sliders to the same channel, but assign each one to a different Controller number.

There are four different configurations (pages 1–4), which you select with the soft buttons. Each configuration remembers the last value you set for each slider. If you want to send those values without moving the slider, press the **Send** button.

The available values for the Channel parameter on this page are **1–16** (local and MIDI), **1L–16L** (local only, no MIDI), and **1M–16M** (MIDI only, no local).



Quick Song Recording and Playback

There are three buttons—labeled **Record**, **Play/Pause**, and **Stop**—below the mode selection buttons. They control the recording and playback of songs from any mode; you don't have to be in Song mode to record or play back.

Using these buttons affects the current track of the current song—that is, the song and track that were selected the last time you were in Song mode. When you record, the recording track and recording mode are determined by the current settings in Song mode; likewise for the playback mode when you're playing a song.

When the sequencer status is STOPPED (neither the **Record**-button LED nor the **Play/Pause**-button LED is lit or flashing), press **Record** to put the sequencer in REC READY status. The **Record**-button LED lights (red). Then press **Play/Pause** to start recording. The **Play/Pause**-button flashes (green) to indicate the tempo. Any countoff is determined by the current Song-mode setting for the CountOff parameter. Press **Play/Pause** or **Stop** to end recording and go to the Save dialog, where you can save the song, or trash it.

When the sequencer status is STOPPED, press **Play/Pause** to begin playing the current song. Press **Play/Pause** again to pause playback, and again to resume. Press **Stop** to end playback.

Chapter 4
The Operating Modes

In this chapter we'll discuss the theory behind the mode concept, and we'll describe the basic operating features of each mode. Complete details on the editing features of each mode are provided in the *K2661 Musician's Guide* (on the CD-ROM).

What the Modes Are

The modes exist to make the K2661 logical to work with. With as many performance and programming features as the K2661 has, it's helpful to break them into groups. These groups are called modes. There are eight primary modes (plus Sample mode and Live mode); they're described briefly in the section called *Using the Modes* on page 4-3. Chapters 6 through 13 are dedicated to explaining each primary mode in turn. Chapter 14 describes Sample mode and Live mode.

Each mode is named for the kind of operations you perform while in that mode, and each mode's editor (if any) contains all of the parameters related to editing the type of ***object*** found in that mode. In Setup mode, for example, you select setups (and only setups) for performance or editing. All of the setup-editing parameters are grouped together on the Setup-Editor page, which is accessible through Setup mode.

Selecting Modes

When the K2661 is on, it's almost always operating in one of the eight primary modes represented by the LED-highlighted buttons beneath the display—or in one of the editors corresponding to the current operating mode. There are two exceptions: Sample mode (and the Sample Editor), and Live mode. Pressing one of the mode buttons selects the corresponding mode. This is the mode's entry level. At the entry level, the LED of the selected mode is lit. Only one mode can be selected at a time.

From any primary mode, you can get to any other primary mode simply by pressing one of the mode buttons. If you're in an editor, however, you must press **Exit** to return to the mode's entry level before selecting another mode.

All of the modes except Disk mode and Live mode give you access to one or more editors for changing the values of the parameters within that mode. Press the **Edit** button to enter the editor of the currently selected mode. When you do this, the mode LED goes out.

It's possible to enter another mode's editor without leaving the currently selected mode. For example, if you press **Edit** while in Setup mode, you'll enter the Setup Editor. The Setup-Editor page will appear, and the LocalPrg parameter will be highlighted by the cursor. If you press **Edit** again, you'll enter the Program Editor, where you can edit the currently selected program. While you can edit and save programs as you normally would, you're still in Setup mode, and you can't select another mode at this point. When you exit the Program Editor, you'll return to the Setup-Editor page. Press **Exit** again, and you'll leave the Setup Editor, returning to the Setup-mode page.

This method of entering editors works for any parameter whose value is an editable object (program, setup, keymap, FX preset, etc.)

The following table lists the procedures for moving between modes and editors. Note that the **Exit** button won't always take you where the table says it will; it often depends on how you got where you are. The table assumes that you've entered a given editor via its corresponding mode. You'll always return to Program mode eventually if you press **Exit** repeatedly.

Current Mode/ Editor Status	Available Modes/ Editors	How to Get There
Any mode	All other modes	Press corresponding mode button
Program mode	Program Editor	Press **Edit**
	Sample mode	Press **Sample** soft button
Program Editor	Program mode	Press **Exit**
	Studio Editor	On KDFX page: select Studio parameter; press **Edit**
	Keymap Editor	On KEYMAP page: select Keymap parameter, press **Edit**
Keymap Editor	Program Editor	Press **Exit**
	Sample mode	Press the **MIDI** mode button
	Sample Editor	Select Sample parameter; press **Edit**
Sample Editor	Keymap Editor	Press **Exit**
Setup mode	Sample mode	Press **Sample** soft button
	Setup Editor	Press **Edit**
Setup Editor	Setup mode	Press **Exit**
	Program Editor	On CH/PRG page: select LocalPrg parameter; press **Edit**
	Studio Editor	On KDFX page: select Studio parameter; press **Edit**
	Song Editor	On COMMON page, select Song parameter; press **Edit**
Quick Access mode	Sample mode	Press **Sample** soft button
	Quick Access Editor	Press **Edit**
Quick Access Editor	Quick Access mode	Press **Exit**
	Program Editor	Set value of Type parameter to **Program**; select program; press **Edit**
	Setup Editor	Set value of Type parameter to **Setup**; select setup; press **Edit**
Effects mode	Studio Editor	Press **Edit**
Studio Editor	Previous mode	Press **Exit**
	FX Preset Editor	Select FX preset block; press **Edit**
FX Preset Editor	Studio Editor	Press **Exit**
MIDI mode	Program Editor	On CHANNELS page: select Program parameter; press **Edit**
	Setup Editor	On TRANSMIT page: select CtlSetup parameter; press **Edit**
	Velocity Map Editor	On TRANSMIT or RECEIVE page: select Veloc(ity)Map parameter; press **Edit**
	Pressure Map Editor	On TRANSMIT or RECEIVE page: select Press(ure)Map parameter; press **Edit**
Master mode	Sample mode	Press **Sample** soft button
	Velocity Map Editor	Select VelTouch parameter; press **Edit**
	Pressure Map Editor	Select PressTouch parameter; press **Edit**
	Intonation Table Editor	Select Intonation parameter; press **Edit**
Song mode	Song Editor	Select CurSong parameter; press **Edit**
	Program Editor	Select Program parameter; press **Edit**
Sample mode	Sample Editor	Select Sample parameter; press **Edit**
	Previous mode	Press **Exit**
Most editors	Previous mode or editor	Press **Exit**

Nested Editors

Starting at the Program-mode level, there are three "nested" editors, each related to the parameters that make up different components of a program. The first is the Program Editor, which you enter when you press **Edit** while in Program mode. Programs consist, among other things, of ***keymaps***; they determine which samples play on which keys. Keymaps can be edited as well. The Keymap Editor is entered from within the Program Editor, by selecting the KEYMAP page with the soft buttons, then pressing **Edit**.

Similarly, keymaps consist of ***samples***, which also can be edited. The Sample Editor is entered from the Keymap Editor, by selecting the Sample parameter and pressing **Edit**. When you enter the Sample Editor, you've worked through three nested levels of editors, all related to the components that make up a program. And in fact, you're still in Program mode (if that's where you started from). Pressing **Exit** while in the Sample Editor will return you to the Keymap Editor. Pressing **Exit** again will return you to the KEYMAP page of the Program Editor. Once more, and you're back to Program mode's entry level.

*Note: You can also get to the Sample Editor directly from Sample mode (by pressing **Edit**). If you're editing a single sample, this might make more sense, since it's more direct. If you're planning on editing a number of samples within a given keymap, however, you'll find it more convenient to enter the Sample Editor through the Program and Keymap Editors, because once you've finished with one sample, you can easily return to the KEYMAP page and select another sample within the keymap.*

Finding Square One

If, at any time, you don't know where you are, and the mode LEDs are all unlit, press **Exit** one or more times. This will return you to the entry level of whatever mode you were in, and if you press **Exit** enough times, you will always return to Program mode, the startup mode. If you've made any changes, you'll be asked whether you want to save before leaving any editor. Press the **No** soft button or the **Exit** button if you don't want to save. If you want to save, press the **Rename** or **Yes** soft button, and you'll see the Save dialog, which is described in *Saving and Naming* on page 5-3.

Using the Modes

You can play your K2661 regardless of the mode you're in. In fact, the only times you can't play it are when you're in the middle of a disk operation (loading, saving, formatting) or a SMDI sample transfer. With these two exceptions, the K2661's MIDI response is almost always active. Even so there are three modes that are more performance-oriented than the others. These are Program, Setup, and Quick Access modes. We'll describe each of the eight modes briefly in this section.

Program Mode

The K2661 starts up in Program mode, where you can select, play, and edit programs. The Program-mode entry-level page shows the currently selected program, as well as a small segment of the program list. Program mode gives you access to Sample mode via the **Sample** soft button.

The Program, Keymap, and Sample Editors are nested within Program mode. They take you to the core of the K2661's sound editing parameters. See the *K2661 Musician's Guide* (on the CD-ROM) for details.

Setup Mode

Setup mode lets you select, play, and edit setups. Setups consist of up to eight separate zones, split or overlapping, each having its own program, MIDI channel, and control parameters. Setups are great for performance situations, whether you're playing multiple K2661 programs

or controlling additional synths connected to the K2661's MIDI Out port. Chapter 7 describes Setup mode .

If you're using a different MIDI controller, you can make use of Setup mode even if your MIDI controller can transmit on only one MIDI channel at a time. To do this, go to the RECEIVE page in MIDI mode (by pressing the **RECV** soft button while in MIDI mode), and set the Local Keyboard Channel parameter to a value that matches the transmit channel of your MIDI controller. When you select Setup mode, the K2661 will interpret incoming MIDI information according to the settings for the currently selected setup. See the discussion of the Local Keyboard Channel parameter in Chapter 10 for details.

Setup mode also gives you access to Sample mode via the **Sample** soft button.

Quick Access Mode

Another feature for live performance, Quick Access mode enables you to combine programs and setups into banks of ten entries. Each of these programs or setups can be selected with a single alphanumeric button. Different banks are selected with the **Chan/Bank** buttons. There's a selection of factory preset banks, and you can use the Quick Access Editor to create your own banks and store them in RAM. There's a full description in Chapter 8.

Quick Access mode gives you access to Sample mode via the **Sample** soft button. You can also use Quick Access banks as a way to remap incoming or outgoing Program Change commands.

Effects Mode

Effects mode sets the behavior of the KDFX effects processor. The Effects-mode page lets you tell the K2661 how to select preset studios (programmed effects configurations) when you change programs or setups, or lets you choose a preset studio that's applied to *every* K2661 program. The Studio Editor allows you to tweak the preset studios, and create your own. Chapters 9 shows you how. You can also listen to the sounds of various effects while in Effects mode, without selecting different programs.

MIDI Mode

You'll use MIDI mode to configure the K2661's interaction with other MIDI instruments, by setting parameters for transmitting and receiving MIDI. You'll also use it to configure your K2661 for multi-timbral sequencing. On the CHANNELS page, you can assign a program to each channel, and enable or disable each channel's response to three types of MIDI control messages: Program Change, volume and pan. You can also override program output assignments, and adjust overall program gain. See Chapter 10.

Master Mode

Master mode, described in Chapter 11, contains the parameters that control the entire K2661. Global settings for tuning, transposition, velocity and aftertouch sensitivity, and other preferences are adjusted here. You can also get to GM Mode and SampleMode from here.

Song Mode

Song mode enables you to play sequences (songs) stored in the K2661's RAM, and provides a fully featured sequencer that you can use to record songs. You can also record multi-timbrally via MIDI, or load standard MIDI files (Type 0 or 1). The Song Editor enables you to modify existing RAM sequences, do step recording, and create arrangements (by linking two or more songs together). See Chapter 12.

Disk Mode

Disk mode lets you load and save programs and other objects using the K2661's SmartMedia drive or a disk (or CD-ROM drive) connected to the K2661's SCSI port. See Chapter 13.

Chapter 5
Editing Conventions

Introduction to Editing

Programming (editing) the K2661 always involves three basic operations: mode selection, navigation, and data entry.

First, select the mode that relates to the object you want to edit—a program, a setup, etc. Then select the object you want to edit, and press the **Edit** button to enter the editor within that mode. An editor contains all the parameters that define the object you're programming.

Next, you navigate around the editor's page(s) with the soft buttons, and select parameters with the cursor (arrow) buttons. When you've selected a parameter (its value is highlighted by the cursor), you can change its value with one of the data entry methods. When you change a value, you'll normally hear its effect on the object you're editing. The K2661 doesn't actually write your editing changes to memory until you save the object you're working on. It then allows you to choose between writing over the original object, or storing the newly edited version in a new memory location.

For complete information on the K2661's editors, refer to the *K2661 Musician's Guide* (on the CD-ROM).

What's an Object?

If you've been wondering what we mean by the term "object," it's an expression we use for anything that can be named, saved, deleted, or edited. Here's a list of all the types of objects:

Samples	Digital recordings of instrumental sounds or waveforms. Samples actually have two separate parts: the actual sample data and the sample header information, which contains start, alternative start, loop, and end points, as well as other information like tuning and volume.
Keymaps	Collections of samples assigned to specific velocity ranges and/or keys.
Programs	Factory-preset or user-programmed sounds stored in ROM or RAM. A program is one or more layers of sound, with programmable DSP functions applied to the keymaps within each layer.
Setups	Factory-preset or user-programmed MIDI performance presets consisting of up to eight zones, each with its own program, MIDI channel, and controller assignments, and (optionally) arpeggiation specifications.
Songs	Sequence files loaded into RAM, or MIDI data recorded in Song mode.
Studios	Factory-preset or user-programmed configurations of the K2661's onboard digital audio effects processor.
FX presets	Factory-preset or user-programmed data—including effects algorithms, levels and balance—that define the nature of studios.
Quick Access banks	Factory-preset or user-programmed banks of ten entries each, that store programs and setups for single-button access in Quick Access mode.

Velocity maps	Factory-preset or user-programmed curves that affect the K2661's response to, and MIDI transmission of, attack velocity values.
Pressure maps	Factory preset or user-programmed curves that affect the K2661's response to, and MIDI transmission of, pressure (aftertouch) values.
Intonation tables	Factory preset or user-programmed tables that affect the intervals between the twelve notes of each octave.
Master tables	The values that are set for the global control parameters on the Master-mode page, as well as the settings for the parameters on the CHANNELS page in MIDI mode, and the programs currently assigned to each MIDI channel.
Fader tables	MIDI Controller assignments defined on the MIDI Faders pages.
Name tables	Contains a list of dependent objects needed by the other objects in a file at the time the file was saved.
Macros	List of disk files to be loaded into the K2661's memory at start-up time.

Object Type and ID

The K2661 stores its objects in RAM using a system of ID numbers that are generally organized into banks of 100. Each object is identified by its object type and object ID; these make it unique. An object's type is simply the kind of object it is, whether it's a program, setup, song, or whatever. The object ID is a number from 1 to 999 that distinguishes each object from other objects of the same type. For example, within the 200s bank, you can have a setup, a program, and a preset effect, all with ID 201; their object types distinguish them. You can't, however, have two *programs* with ID 201.

Object Type	Object ID	Object Name
Program	201	Hot Keys
Setup	404	Silicon Bebop
Velocity Map	1	Linear
Sample	3	Hey Moe

ROM (factory preset) objects have ID numbers in a number of banks. When you save objects that you've edited, the K2661 will ask you to assign an ID. If the original object was a ROM object, the K2661 will suggest the first available ID. If the original object was a RAM object, you'll have the option of saving to an unused ID, or replacing the original object.

Objects of different types can have the same ID, but objects of the same type must have different IDs to be kept separate. When you're saving an object that you've edited, you *can* assign the same ID to an existing object of the same type, but if you do, the new one will be written over the old one. For example, if you assign an ID of 1 to a program you've edited, the K2661 will ask you if you want to "replace" the ROM program currently stored with that ID. We'll discuss this further in *Saving and Naming* on page 5-3.

Many parameters have objects as their values—the VelTouch parameter on the Master-mode page, for example. In this case, the object's ID appears in the value field along with the object's name. You can enter objects as values by entering their IDs with the alphanumeric pad. This is especially convenient for programs, since their ID numbers are the same as their MIDI program

change numbers (when you're using the Extended or Kurzweil Program Change format—see *Program Change Formats* on page 10-9).

The object type and ID enable you to store hundreds of objects without losing track of them, and also to load files from disk without having to replace files you've already loaded. See *Memory Banks* on page 5-7 for more information on object type and ID.

Saving and Naming

When you've edited an object to your satisfaction, you'll want to store it in RAM. There's a standard procedure for saving and naming, which applies to all objects.

You can press the **Save** soft button, of course, but it's easier to press the **Exit** button, which means "I want to leave the current editor." If you haven't actually changed anything while in the editor, you'll simply exit to the mode you started from. If you *have* made changes, however, the K2661 will ask you if you want to save those changes. This is the first Save dialog. A dialog is any display that asks a question that you need to answer before the K2661 can proceed.

The following diagram shows the Save dialog for the Program Editor. The top line tells you that you got to this dialog by pressing Exit. If you had pressed the Save soft button instead of Exit, you'd see Save in the top line, instead of Exit. If you were in another editor, the top line would indicate that as well.

```
Edit:Program:Exit

Save changes to Righteous Piano?

                    Rename Cancel Yes  No
```

The best way through this process is to press the **Rename** soft button. This takes you immediately to the naming dialog, where you assign a name to the object you're saving. You haven't saved yet, but you'll be able to after you've named the program.

```
Edit:Program:Rename      <>Kbd Naming:Off

Program Name:   Righteous Piano

Delete Insert  <<<  >>>  OK  Cancel
```

Like the Save dialog, the top line identifies the current editor and function, and also indicates whether the keyboard naming feature is enabled (see *Keyboard Naming* on page 5-5).

The cursor underlines the currently selected character. Press the <<< or >>> soft buttons to move the cursor without changing characters. Press an alphanumeric button one or more times to enter a character above the cursor. The characters that correspond to the alphanumeric buttons are labeled under each button. If the character that appears is not the one you want,

press the button again. Press the **+/-** button on the alphanumeric pad to switch between upper and lower case characters.

Press **0** one or more times to enter the numerals 0 through 9. Press **Clear** (on the alphanumeric pad) to erase the selected character without moving any other characters. Press the **Delete** soft button to erase the selected character. All characters to the right of the cursor will move one space left. Press the **Insert** soft button to insert a space above the cursor, moving all characters to the right of the cursor one space to the right.

Press the **Cancel** soft button if you decide not to name the object. Press **OK** when the name is set the way you want to save it.

In addition to the letters and numerals, there are three sets of punctuation characters. The easiest way to get to them is to press one of the alphanumeric buttons to select a character close to the one you want, then scroll to it with the Alpha Wheel. Here's the whole list:

! " # $ % & ' ( ) * + , - . / 0 1 2 3 4 5 6 7 8 9

: ; < = > ? @ A through Z

[\ ] ^ _ ` a through z. (space).

Pressing the **Plus/Minus** buttons simultaneously is a short cut to the following characters: **0**, **A**, **a** and (space).

If you're wondering how we came up with this sequence of characters, it's composed of ASCII characters 33 through 122.

When you press **OK**, the final Save dialog appears, where you assign an ID to the edited object. If you change your mind about the name, press the **Rename** soft button for another try.

ROM Objects

If the object you started from was a ROM (factory preset) object, the K2661 will automatically suggest the next available (unused) ID as the ID for the edited object. If that's the ID you want, press the **Save** soft button, and the object will be stored in RAM with that ID. Otherwise, you can select any ID from 1 to 999. This page also gives you the opportunity to return to the naming dialog (as described in the previous section) or, by pressing the **Object** soft button, to access the Object Utilities (described in Chapter 13).

If you select an ID that's already in use, the K2661 will tell you that you're going to replace the ROM object that's already been assigned that ID. If you don't want to do that, you can select a different ID. Or you can press the **Plus/Minus** buttons simultaneously to toggle between the ID that the K2661 suggested and the original ID. Or press the **Cancel** soft button to cancel the operation.

If you decide not to cancel or change the ID, and you press the **Replace** soft button, the K2661 will write your newly edited object over the existing ROM object. Actually, it only appears that

way, since you can't truly write to ROM. The ROM object will reappear if you delete the newly edited object (there are soft buttons in each editor for deleting objects).

RAM Objects

If the original object was a RAM object, the K2661 will assume you want to replace it, and will suggest the same ID as the original object (if it has an asterisk—*—between its ID and its name, it's a RAM object). As with ROM objects, you can cancel, replace, or change the ID and save to an unused ID. If you replace a RAM object, however, it's definitely gone!

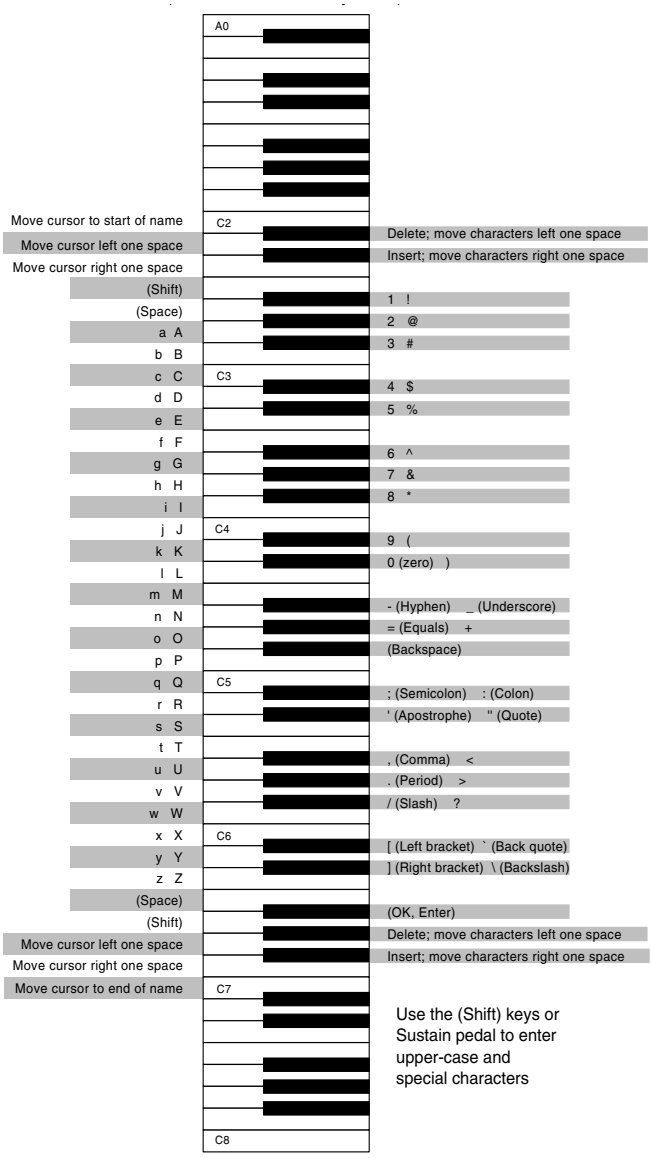
Keyboard Naming

The keyboard naming feature makes naming objects convenient (and musical!). With keyboard naming enabled, you can use the keyboard (or your MIDI controller) to enter the name of the object you're modifying.

There are three keyboard naming states: **Off** (disabled), **On**, and **Adv** (Advance). When set to **On** or **Adv**, the keys (MIDI note numbers, actually) correspond to all the characters shown on page 5-4. There are also equivalents to the cursor movement, insertion, deletion, and **OK** (**Enter**) buttons.

On requires you to move the cursor to enter each letter, just as you have to do when using the normal data entry methods for naming. **Adv** automatically moves the cursor one space to the right each time you strike a key, just like a typewriter or computer keyboard. This is the most convenient setting.

When you're in the Rename dialog, use either of the **Chan/Bank** buttons to change the keyboard naming state.



Deleting Objects

Within most editors, there are soft buttons for deleting objects. When you want to delete an object, press the **Delete** soft button, and the K2661 will ask you if you want to delete the object. (At this point in the dialog, you can select another object with any of the data entry methods.) Press **OK** if you want to delete it, or press **Cancel** if you don't. Although it seems that you can delete ROM objects, you can't actually do it. The K2661 will behave as if it's deleting the ROM object, but it will still be there the next time you select it. (What actually happens is that the ROM object is copied to RAM as soon as you press **Edit**, and when you "delete" the ROM object, you're actually deleting the RAM copy. The original ROM object remains in memory.)

RAM objects, on the other hand, are *gone* when you delete them! If you've "replaced" a ROM object by saving a RAM object with the same ID, the ROM object is invisible, but still there. Deleting the RAM object stored at the same ID will restore the ROM object.

You'll often delete objects to gain RAM space, or to organize the ***memory banks*** before saving objects to disk. To delete multiple objects, use the Delete Objects utility available in Master mode. It's described on page 11-18.

Dependent Objects

A dependent object is an object that's linked in memory with at least one other object. For example, if you create a setup that uses a program that you also created, that program is a dependent object of the setup.

When you start to delete an object that has dependent objects, the Delete dialog gives you a choice: Delete dependent objects? If you press **Yes**, the K2661 will delete the object and all its dependent objects when you execute the Delete function. In our example, if you were deleting the setup you created, and you chose to delete dependent objects, the dependent program would get deleted as well. If you press **No** at the Delete dependent objects? prompt, the K2661 deletes only the object, but keeps the dependent objects. In our example, the setup would get deleted, but the dependent program would remain.

When deleting objects and their dependents, the K2661 deletes only those dependent objects that aren't dependent on other objects that you're *not* deleting. For example, suppose you have two setups that contain the same program. If you delete one of the setups, and delete dependent objects with it, the setup gets deleted, but the program that's contained in the other setup remains in memory.

Memory Banks

To help organize the storage of your edited objects, the K2661's memory is divided into ten banks, each of which stores objects having IDs within a certain range. Objects within the same range of IDs are stored in the same memory bank, regardless of their types. The banks are in increments of 100, that is, objects with IDs from 1 through 99 are stored in the first bank, IDs from 100 to 199 in the second bank, and so on. We refer to them simply as the "Zeros bank," "100s bank," "200s bank," etc. If you save an object as ID 203, for example, it's in the 200s bank.

You can store up to 100 objects of each type in each memory bank, The number of objects of a given type that can be saved in a memory bank depends on its type. For example, you can store 20 Quick Access banks in each memory bank. As you begin to save objects that you've edited, you'll notice that the IDs suggested by the K2661 sometimes increase in large chunks—from 219 to 300, for example. This is due to the limit to the number of objects of a given type that can be stored in a single memory bank. This limit can be important in terms of organizing your objects for storing to disk. Check out the section called *Storing Objects in the Memory Banks* on page 13-34 for lists of how many objects of each type can fit into each memory bank.

You'll want to think about organizing your edited objects in the memory banks when you start using the SmartMedia drive or a SCSI device to store your programs, samples, and other objects. Objects that are stored in the same memory banks can be easily stored in the same ***file*** on disk—which generally is a good idea. You can also store all the banks to one file by selecting "Everything" in the Disk-mode Bank dialog.

The memory banks work automatically, that is, you don't have to select the different banks to gain access to the objects stored in them. The K2661 selects the appropriate bank when you enter the object ID you want to work with. To select Program 201 while in Program mode, for example, just press **2**, **0**, **1**, **Enter** on the alphanumeric pad. The 200s bank is automatically selected, and the program list will show programs numbered in the 200s. If your MIDI controller can send program change commands from 0 to 127 or 1 to 128 only, you'll probably want to adjust the way the K2661 responds to program change commands. See the discussion of the Program Change Type parameter (ProgChgType) in Chapter 10.

When you do a save operation in Disk mode, you're creating a file to be saved to disk or SmartMedia. This will save either individually selected objects or an entire bank of objects from the K2661's RAM. If you choose to save a complete bank, then all objects with IDs in the range of the selected bank, regardless of type, are saved as part of the file. For example, if you save the 200s bank (objects with IDs from 200–299), then every object with an ID from 200 to 299 will be saved to the file.

This system makes it easy for you to keep track of everything you save. The first program you save, for example, will have an ID of 200 (unless you specify another ID). The first setup you create will also have an ID of 200 (since they're different *types* of objects, the IDs can be the same). If you were to save the 200s bank, both your program and your setup would be saved to the same file.

Saving and Loading Files—Disk Mode

Saving to disk or SmartMedia simply involves selecting objects or a complete bank of objects to be stored as a single file. All objects with IDs within that range will be saved to the file. When you *load* a file, the K2661 asks you which bank will receive the file. You can load a file into any of the ten banks, regardless of the bank it was saved from. The K2661 will automatically reassign the object IDs. A file saved from the 200s bank, for example will be stored on disk with its objects numbered from 200–299. If you load it back into the 300s bank, its objects will be renumbered from 300–399.

See Chapter 13 for more information on loading and saving files.

Special Button Functions

The Mode buttons and the **Chan/Bank Down** button have additional functions, depending on the mode or editor you're in. When you're in the Program or Setup Editor, they function according to the orange labeling under each button. They also work as track mutes on the MIX page of Song mode.

When you're in the Sample Editor, the **Program**, **Setup**, **Q Access**, **MIDI**, **Master**, and **Song** mode buttons function according to the orange labeling near each button. The table below describes all of the special button functions.

Button	Mode or Editor			
White Orange Light Grey	**Program Editor (Orange)**	**Setup Editor (Orange)**	**Song Mode**	**Sample Editor (Light Grey)**
Program Mute 1 Zoom-	Mutes Layer 1 of current program, or mutes current layer of current drum program	Mutes Zone 1 of current setup if 3 or fewer zones; mutes current zone of current setup if more than 3 zones	On MIX page, mutes Track 1 or 9	On TRIM and LOOP pages, decreases horizontal dimension of current sample in display
Setup Mute 2 Zoom+	Mutes Layer 2 of current program, or solos current layer of current drum program	Mutes Zone 2 of current setup if 3 or fewer zones; solos current zone of current setup if more than 3 zones	On MIX page, mutes Track 2 or 10	On TRIM and LOOP pages, increases horizontal dimension of current sample in display
Q Access Mute 3 Samp / Sec	Mutes Layer 3 of current program, or solos current layer of current drum program	Mutes Zone 3 of current setup if 3 or fewer zones; solos current zone of current setup if more than 3 zones	On MIX page, mutes Track 3 or 11	Toggles between units used to identify location within sample— either number of samples from start, or time in seconds from start
Effects FX Bypass	Bypasses (mutes) current program's FX preset (plays program dry)	Bypasses (mutes) current setup's studio (plays studio dry)	On MIX page, mutes Track 4 or 12	
MIDI Previous Pg Gain -	Successive presses take you back to four most recent editor pages; 5th press takes you to ALG page	Successive presses take you back to four most recent editor pages; 5th press takes you to CH/PRG page	On MIX page, mutes Track 5 or 13	On TRIM and LOOP pages, decreases vertical dimension of current sample in display
Master Mark Gain +	"Remembers" current editor page, so you can recall multiple pages with Jump button; asterisk appears before page name to indicate that it's marked; unmark pages by pressing Mark when page is visible	Same as for Program Editor; pages common to both editors are marked or unmarked for *both* editors	On MIX page, mutes Track 6 or 14	On TRIM and LOOP pages, increases vertical dimension of current sample in display
Song Jump Link	Jumps to marked pages in order they were marked	Jumps to marked pages in order they were marked	On MIX page, mutes Track 7 or 15	Preserves interval between Start, Alt, Loop, and End points of current sample; press again to unlink
Disk Compare	Negates effect of unsaved edits and plays last-saved (unedited) version of object being edited	Same as for Program mode; display reminds you that you're comparing; press any button to return to edited version	On MIX page, mutes Track 8 or 16	
Chan / Bank Layer / Zone	In Program Editor, these two buttons scroll through layers of current program; in Effects Editor, scroll through FX presets; in Keymap Editor, scroll through key ranges of current keymap; in Setup Editor, scroll through zones of current setup; in Quick Access mode, scroll through entries in current Quick Access bank		Change recording track	
Edit	Whenever cursor is highlighting an editable object or parameter, takes you to corresponding editor or programming page			

Chapter 6
Program Mode

Programs are the K2661's performance-level sound objects. They're preset sounds equivalent to the patches, presets, voices, or multis that you find on other synths.

Program mode is the heart of the K2661, where you select programs for performance and editing. The K2661 is packed with great sounds, but it's also a synthesizer of truly amazing depth and flexibility. When you're ready to start tweaking sounds, the Program Editor is the place to start. But first there's a bit more general information about Program mode. For complete information on the K2661's Program Editor, refer to Chapter 6 of the *K2661 Musician's Guide* (on the CD-ROM).

In Chapter 2 we briefly discussed the difference between VAST programs and KB3 programs. You'll remember that VAST programs contain up to 32 layers, each of which contains a keymap, which in turn consists of a number of samples assigned to a particular keyboard range—typically five or six notes, depending on the samples.

We mentioned drum programs, which are VAST programs with more than three layers. There's no real difference between "normal" VAST programs and drum programs—consequently this chapter doesn't make any further distinctions between them. There are also Triple Mode programs, where three layers of DSP information are used for one massive DSP chain.

OK, one further distinction: there's no keymap information about drum programs in the info box on the Program-mode page—there simply isn't room for information about more than three layers. If you're wondering why we even *have* the concept of a drum program, it's actually a carryover from the K2000, which had less processing power than the K2661, and required a special channel to handle more than three layers—and you need lots of layers, each with a different sound and keyboard range, to make a convincing drum program. The name stuck.

You'll also recall from Chapter 2 that KB3 programs use a much different architecture: no layers or algorithms, just a bunch of oscillators that start running as soon as you select a KB3 program. This keeps the K2661's sound engine rather busy, and that's why there's a special channel dedicated to KB3 programs; "regular" channels don't have the processing ability to generate that many voices on a constant basis. By default, Channel 1 is the KB3 channel, but you can make any channel the KB3 channel (with the KB3Chan parameter on the Master-mode page).

The next two sections give more detailed descriptions of the differences in structure between VAST programs and KB3 programs. Then, since there are several performance features (and a few issues) unique to KB3 programs, we'll talk about those (*KB3 Mode* on page 6-4). After that, there are descriptions of the Program-mode features that are common to both types of programs.

VAST Program Structure

You might want to take a look at Figure 6-1 on page 6-3, which depicts the hierarchy of a VAST program, from individual samples all the way up to setups, which can contain up to eight 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. Samples are stored in the K2661's ROM, or are loaded into Sample RAM via Disk mode, MIDI standard sample transfer, SMDI sample transfer, or by your own sampling efforts. 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 K2661 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 five DSP functions (more in triple mode) that make up the algorithm. It then passes through the KDFX 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 48 voice channels the K2661 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.

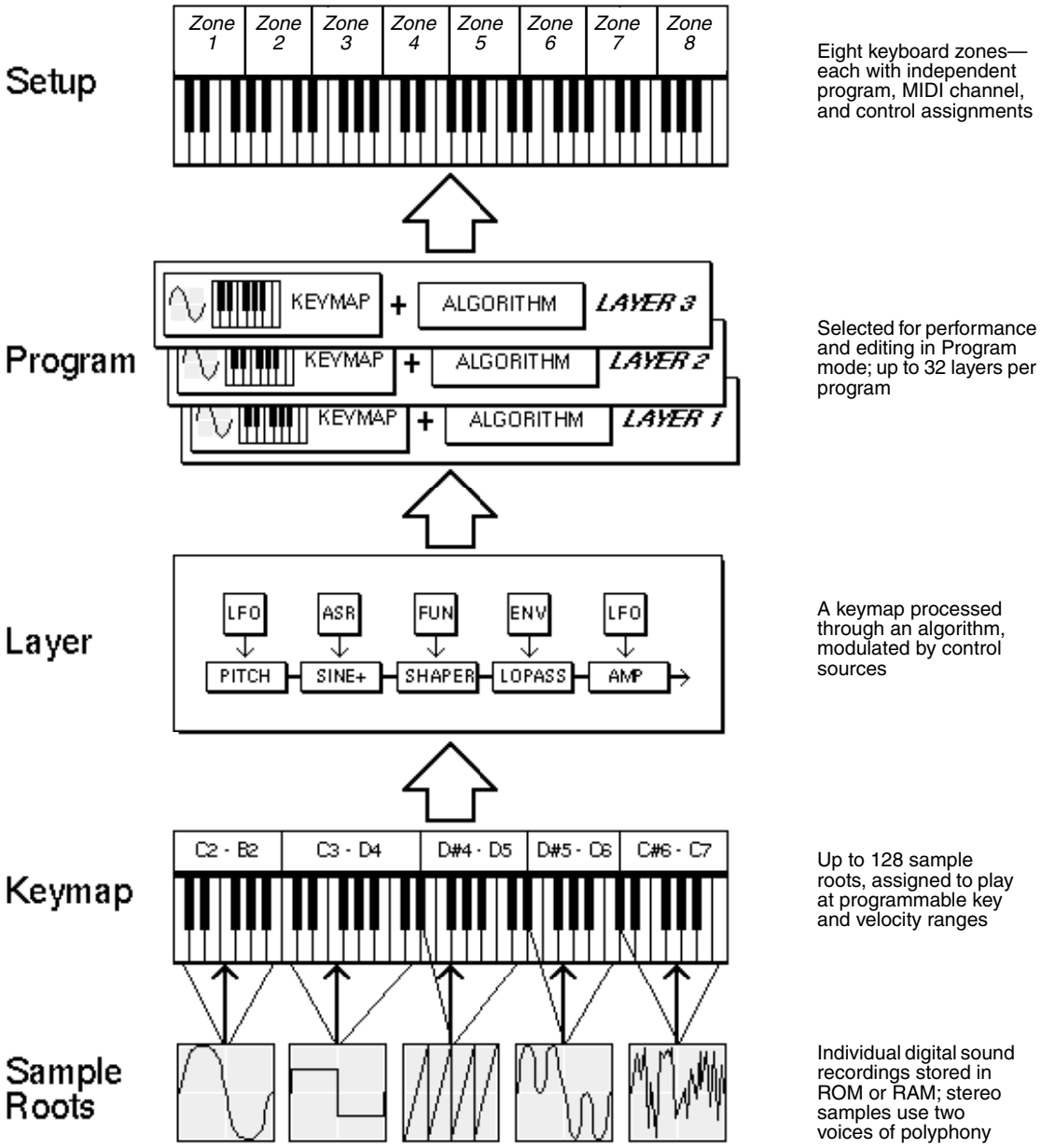


Figure 6-1 VAST Program Structure

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.

We also recruited some very talented organ players to try out KB3 programs, and we've used their feedback to make the real-time controls as convenient and realistic as possible.

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 96. You can use up to 95 of them in a KB3 program (the 96th 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 48-voice polyphony limit. In other words, with a KB3 program, you can play and sustain more than 48 notes, and the K2661 will continue to play then all. With VAST programs, once 48 notes are on (for example, when you play and sustain a four-note chord in a 12-layer program), each new note that you play replaces one of the notes that was already on.

The oscillators—we'll call them tone wheels from here on—are divided into an upper and lower group. By default, the upper tone wheels use the samples in the K2661's keymaps (including your own RAM keymaps if you want) to generate sound, while the lower tone wheels use waveforms (like sine, square, or sawtooth). You can switch this around if you like, for even more variety.

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. There are a few important points to consider if you want to get the most out of KB3 mode.

KB3 Channel

As we mentioned in Chapter 2, you can play KB3 programs only on the KB3 channel, which you define on the Master-mode page. When you're in Program mode, this means that the current MIDI channel must match the KB3 channel, and when you're in Setup mode, any zone that uses a KB3 program must use the KB3 channel. If this isn't the case, the KB3 programs won't make any sound. If this happens in Program mode, all KB3 program names appear in parentheses, and the info box reminds you that you're not on the KB3 channel. If it happens in Setup mode, the display looks normal, but if you go into the Setup Editor, the LocalPrg parameter shows the KB3 program name in parentheses in every zone that's not on the KB3 channel.

Note: *If you're using a Kurzweil PC88 to control your K2661, you shouldn't use Channel 1 as the KB3 channel. The PC88 sends MIDI Controller 90 on Channel 1 to select effects. In KB3 mode, the K2661 maps Controller 90 to internal controller 90, which controls the emulation of leakage that we mentioned earlier. You probably don't want your leakage level fluctuating every time the PC88 sends Controller 90.*

Real-time Controls in KB3 Mode

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 (they're called the **Mute** buttons, because they normally mute and solo zones in Setup mode) can control the KB3 effects: Leslie, vibrato, chorus, and percussion (key click).

When you're in Program mode, the **Mute** buttons always control KB3 effects. In a setup containing a KB3 program, if you want the **Mute** buttons to control KB3 effects, you'll have to edit the setup, because in Setup mode, the **Mute** buttons mute and unmute zones by default.

1. Go to Setup mode, and select the setup you want to edit. Press **Edit**.
2. Press either **more** soft button until you see the **COMMON** soft button. Press it, and your display should look like this:

3. Select the Mutes parameter and change its value to **KB3 Control**.
4. Don't forget to save.

Playing KB3 Programs

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 (out to increase amplitude, in to decrease it).

The sliders and Mod Wheel 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). The Mod Wheel is the other way around, since you're probably used to the Mod Wheel being off when it's down, and on when it's up. So remember, for the Mod Wheel, down (off) is like pushing the drawbar in (decreasing amplitude), and up (on) is out (increasing amplitude).

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	Mod Wheel

Table 6-1 Standard Drawbar Settings for the Hammond B3

KB3 Mode Buttons (Mute Buttons)

When the **Mute** buttons are enabled for KB3 control, 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 buttons (or by sending the appropriate MIDI Controller values from your MIDI controller).

In normal operational modes, using the **Mute** buttons to change a program's KB3 effects doesn't affect the program; the effects return to their programmed settings the next time you select the program. If, however, you're in an editor when you change the effects, you're actually editing the program. If you like the changes, you can save the program with the new KB3 effects settings. If you don't like the changes, you can exit without saving, and the program will revert to its previous settings.

The **Mute** buttons also send MIDI Controller information to the K2661's MIDI Out port. See Column 2 of Table 6-3 to check which Controller numbers the buttons send.

Of course, you can change the programmed settings for the KB3-mode buttons. For each of the buttons, there's a corresponding parameter in the Program Editor.

	Effect Category	Button Name	Corresponding Page and Parameter	Comments
1	Rotary	Fast / Slow	MISC: SpeedCtl	
2	Vibrato	On / Off	MISC: VibChorCtl	
3		Chorus / Vibrato	MISC: VibChorSel	Disabled if Button 2 is off
4		Depth 1 / 2 / 3	MISC: VibChorSel	Disabled if Button 2 is off
5	Percussion	On / Off	PERC: Percussion	
6		Volume Loud / Soft	PERC: Volume	Disabled if Button 5 is off
7		Decay Fast / Slow	PERC: Decay	Disabled if Button 5 is off
8		Pitch High / Low	PERC: Harmonic	Disabled if Button 5 is off

Table 6-2 KB3 Mode Buttons and Corresponding Parameters

MIDI Control of KB3 Programs

When you're playing a KB3 program from an external MIDI source, there are two things to keep in mind:

- Certain MIDI Controller numbers always control specific KB3 features
- The value of the LocalKbdCh parameter affects how KB3 programs respond to MIDI Controller messages

Controller Numbers

Table 6-3 lists the MIDI Controller numbers that control KB3 features. The first column lists the Controller numbers that KB3 programs always respond to (the K2661 also sends these Controller numbers to its MIDI Out port when you're using the local keyboard channel—we'll say more about that on page 6-7). KB3 programs also respond to the Controller numbers in the second column; these are the Controller numbers that the Voce™ MIDI Drawbar Controller uses to control common tone wheel organ features. Whatever kind of external MIDI source you're using, you can use the MIDI controller numbers in either the second or third column to control the corresponding KB3 feature in the first column. For example, to control Drawbar 1, you can send either MIDI 6 or MIDI 12.

KB3 Program Feature	MIDI Controller Number	
	K2661	Voce
Drawbar1	6	12
Drawbar2	22	13
Drawbar3	23	14
Drawbar4	24	15
Drawbar5	25	16
Drawbar6	26	17
Drawbar7	27	18
Drawbar8	28	19
Drawbar9	1	20
Expression Pedal	4	8
Percussion On/Off	73	N.A.
Percussion High/Low	72	72
Percussion Loud/Soft	71	71
Percussion Fast/Slow	70	70
Rotating Speaker Slow/Fast	68	68
Vibrato/Chorus On/Off	95	95
Vibrato/Chorus Selector	93	93
Key Click Level	89	89
Leakage Level	90	90

Table 6-3 KB3 MIDI Controller Assignments

Local Keyboard Channel

The local keyboard channel enables the K2661 to receive MIDI information on a single channel, then rechannelize that information so you can play and control all eight zones of a setup, even if your MIDI source transmits on only one channel. When you're in Program mode, the local keyboard channel remaps incoming information to the K2661's current channel (the one shown in the top line of the display).

The LocalKbdCh parameter (on the RECEIVE page in MIDI mode) defines the local keyboard channel. When you're in Program mode, and playing a KB3 program, you may want to leave LocalKbdCh set to **None**, which is its default value. In this case the MIDI Controller messages for KB3 control listed in Table 6-3 are certain to work.

There are some possible disadvantages to this, however. First, the K2661 doesn't relay incoming MIDI to its MIDI Out port. Perhaps more importantly, if you change the channel on your MIDI source, the K2661 plays the program on the channel used by your MIDI source—regardless of the K2661's current channel. For example, if your MIDI source transmits on Channel 1, and you set the K2661's current channel to 2, you'll still play the program assigned to Channel 1. If that's the way you like it, there's no problem.

You may find it more convenient to use the local keyboard channel. In this case, the K2661 remaps incoming MIDI to the K2661's current channel, so in Program mode, you'll always play the program on the K2661's current channel. Incoming MIDI also gets sent to the K2661's MIDI Out port. On the other hand, in this case your MIDI source's transmitting channel must match the K2661's local keyboard channel for anything to work. Furthermore, for KB3 programs, some of the MIDI Controller numbers listed in Table 6-3 won't necessarily work.

Things are a bit different for playing setups. In this case, you *must* use the local keyboard channel to be able to play and control all of the setup's zones. Set LocalKbdCh to match the channel your external MIDI source is using (so if, for example, your MIDI source transmits on Channel 1, set LocalKbdCh to **1**). All MIDI information that the K2661 receives on the local keyboard channel gets remapped to the channels and control destinations used by the zones in the setup.

The K2661 also remaps certain MIDI Controller messages that it receives on the local keyboard channel, so that they correspond (in most cases) to the default assignments for the K2661's physical controllers (Mod Wheel, sliders, ribbons, etc.). While this ensures that the physical controllers work in a consistent and relatively standard fashion for most setups and VAST programs, it necessitates a few adjustments to make incoming MIDI Controller messages control the KB3 features listed in Table 6-3. Without these adjustments, some of the KB3 features won't respond to MIDI Controller messages—this is true when you're playing programs as well as when you're playing setups.

To make everything work properly, you need to make sure that all the appropriate physical controllers are assigned for KB3 control. Physical controller assignments are handled by setups, and are defined by parameters on several pages in the Setup Editor. Each zone of a setup has its own controller assignments. Programs don't have controller assignments, so they "borrow" them from a special setup that's reserved for that purpose. This setup is called the control setup; it's determined by the value of the CtlSetup parameter (on the TRANSMIT page in MIDI mode). You can read about control setups in detail on page 6-10.

When you're playing a setup on the local keyboard channel, each zone that uses a KB3 program must have the appropriate physical controller assignments. When you're playing a KB3 program, Zone 1 of the *control setup* must have the appropriate physical controller assignments.

There are two ways to configure a setup properly for KB3 control:

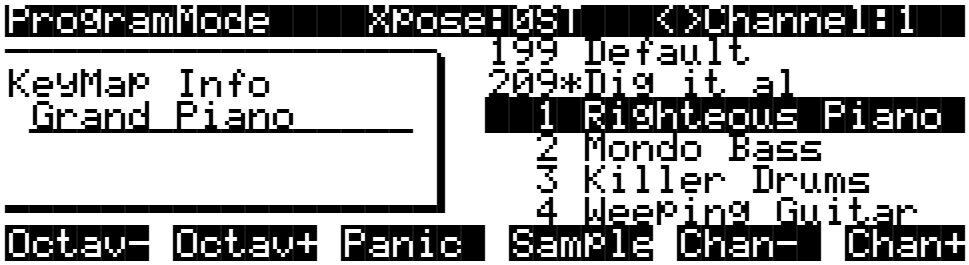
- Edit an existing setup, adjusting some of the physical controller assignments.
- Use the KB3 setup that we've provided for your convenience. It's in a file on the SmartMedia card and CD-ROM that came with your K2661.

KB3 Control: A Summary

Whenever you want to play a KB3 program, make sure that the KB3 setup is assigned as the control setup. When you want to play a setup containing a KB3 program, make sure that the zone that uses the KB3 program has the same physical controller assignments as the KB3 setup. When you're creating a setup that will use a KB3 program, use the KB3 setup as your starting point.

One final word—for now—about using the local keyboard channel: all the MIDI information received on the local keyboard channel also gets sent—*after being remapped*—to the K2661's MIDI Out port. There's a discussion of the local keyboard channel beginning on page 10-6.

The Program Mode Page



The top line of the Program-mode entry-level page shows your location, the present MIDI transposition, and the current MIDI channel.

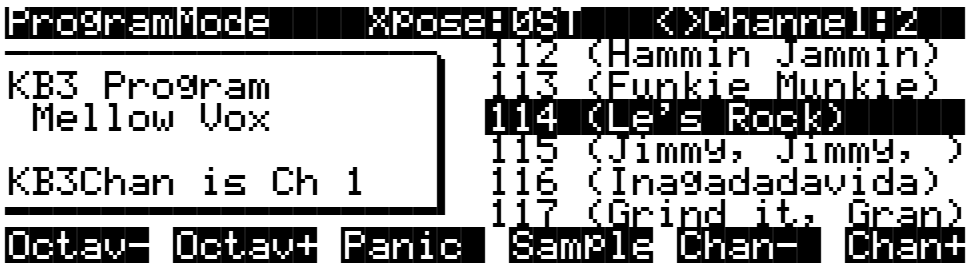
The info box at the left of the Program-mode page gives you information about the current program. For VAST programs of up to three layers, the info box shows the keymap assigned to each layer (Layer 1 on top, with additional layers below). The line beneath the name of the keymap indicates the keyboard range of that layer. In the diagram above, for example, there's one layer that extends from C 0 to C 8—the default range. The representation of these layer ranges is approximate; they're intended to let you know if you have a layered keyboard (lines overlapping) or a split keyboard (lines not overlapping).

For drum programs (VAST programs of more than three layers), the info box shows the number of layers in the program. For KB3 programs, the info box shows the keymap used for the upper tone wheels (or the lower tone wheels, if you have the Upper/LowerSwap parameter set to **On**).

The info box also tells you if the current program makes use of Triple Mode (see Chapter 12 of the *Musician's Reference*.)

Program Names in Parentheses

While you are scrolling through different programs on various MIDI channels, you may occasionally encounter a program that doesn't make any sound, and whose name is in parentheses. The parentheses tell you that you have selected a KB3 program without being on the KB3 channel. KB3 programs use a different program architecture, and require many more voices to operate. Consequently, they use a special channel with enough throughput to handle those voice requirements. If you select a KB3 program without being on a KB3 channel, the K2661 cannot play the program. As shown in the following illustration, the KB3 channel is 1, while the K2661's current channel is 2. The selected program is disabled.



The Program-mode page illustrates this in two ways: the program names are in parentheses, and the box at the left of the page includes the message "KB3 Chan is Ch 1." To fix this, you could either change the K2661's MIDI channel (with the **Chan/Bank** buttons), or make Channel 2 the KB3 channel (using the KB3Chan parameter in Master mode). You can play any program on the KB3 channel, but you can play KB3 programs *only* on the KB3 channel. You can play drum programs—up to 32 layers—on any channel.

Control Setup

The control setup defines what the K2661's physical controllers (wheels, sliders, pedals, etc.) do while you're in Program mode. It's a convenient way to apply the controller assignments in your setups globally. Just choose an existing setup to be the control setup, using the CtlSetup parameter on the MIDI-mode TRANSMIT page. Then while you're in Program mode, many of the controller assignments for Zone 1 of the control setup also apply to the programs you play (this is true for MIDI control messages as well, unless you have turned off MIDI control).

If you don't like the way the physical controllers work in Program mode, you can either select a different control setup, or edit the existing one. Any changes you make to the current control setup will also affect the way that setup works in Setup mode.

There are a few important points to remember about the control setup:

- The current control setup is used by *all* programs in Program mode.
- You cannot change the control setup from within Program mode.
- The control setup doesn't affect the *sound* of a program, only the assignments of certain physical controllers. The samples and keymaps assigned to a program are unaffected by the control setup. While you're in Program mode, the K2661 ignores the programs assigned to the setup that you choose as the control setup.
- Almost all of the VAST programs in the K2661 are designed to respond to the controller assignments in the default control setup (**97 ControlSetup**). Therefore you'll want to use **97 ControlSetup** as the control setup in most cases, with two exceptions. When you're using the local keyboard channel (that is, when the value of the LocalKbdCh parameter is anything but **None**) and playing a KB3 program from an external MIDI source, use a control setup that's configured for KB3 control, as described on page 6-8 (if LocalKbdCh is **None**, **97 ControlSetup** is fine for playing KB3 programs from an external MIDI source). If you want to change the controller assignments for any program or set of programs (either VAST or KB3), use a control setup that has the controller assignments you want.

See page 7-3 for a table listing the parameters that affect Program-mode controller assignments.

The Soft Buttons in Program Mode

The **Octav-/Octav+** buttons are a shortcut for quick transposition in 12-semitone increments. You can use them to transpose the entire K2661 as much as three octaves up or down. The top line of the display shows the current amount of transposition (Xpose). Pressing both **Octave** buttons simultaneously returns the transposition to zero.

The **Octave** buttons transpose the K2661, as well as any MIDI devices connected to the K2661's MIDI Out port. Changing the transposition with the soft buttons also changes the corresponding setting on the MIDI-mode TRANSMIT page.

Pressing the **Panic** soft button sends an All Notes Off message and an All Controllers Off message on all 16 MIDI channels.

Press the **Sample** soft button to enter the K2661's sampler. Refer to Chapter 14 for complete information on the sampler.

Use the **Chan–** and **Chan+** soft buttons to change the current MIDI channel. This changes the MIDI channel the K2661 uses internally, as well as the channel you're using to send information to other synths connected to the K2661's MIDI Out port (MIDI slaves). Changing the current MIDI channel with the soft buttons also changes the corresponding setting on the MIDI-mode TRANSMIT page.

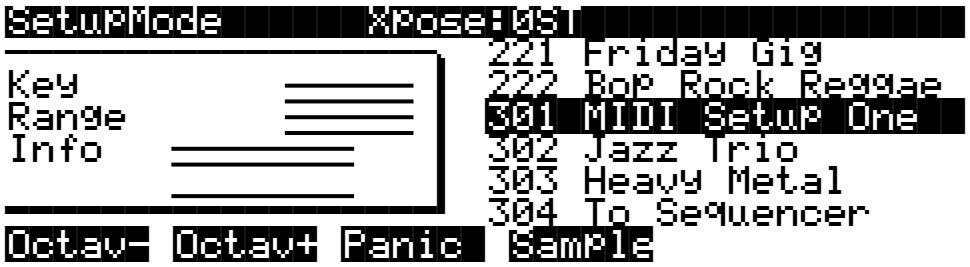
Chapter 7
Setup Mode

Note: For complete information on the K2661's Setup Editor, refer to Chapter 7 of the K2661 Musician's Guide (on the CD-ROM).

In Setup mode, the K2661 can take on the identity of eight distinct instruments and eight distinct MIDI transmitters, each of which can use the setup's physical controller assignments (or any subset of those controller assignments). For example, you can create a setup that is split into eight different keyboard regions (called zones). Each zone can play its own program, while also transmitting on its own MIDI channel.

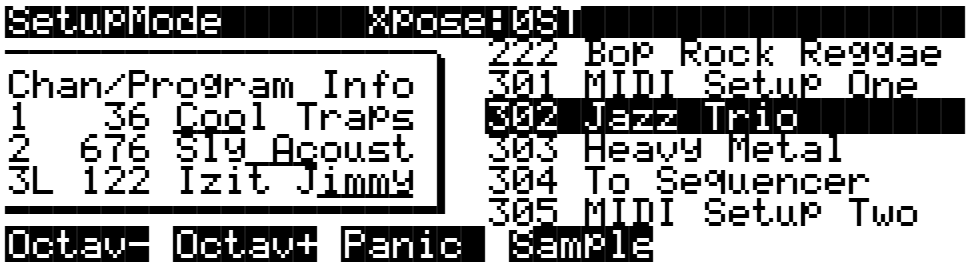
Selecting setups in Setup mode is much like selecting programs in Program mode—just use one of the normal data entry methods to scroll through the list of setups. There are, however, some important differences between a program and a setup. A program plays on a single keyboard zone and on a single MIDI channel. A setup enables you to use up to eight keyboard (or MIDI controller) zones, each of which can have its own program, MIDI channel, and control assignments. The parameters you define for each setup affect programs *only while you are in Setup mode*. An exception to this is the control setup, which we discuss on page 7-2.

Press the Setup-mode button to enter Setup mode. You'll see a list of setups, which you can select with any data entry method.



The lines in the info box represent the approximate key range of each zone, and let you know if any zones overlap. In the preceding diagram, the setup has seven active zones (Zone 7 is turned off); Zones 1–4 are at the upper end of the keyboard. Zones 5, 6, and 8, which overlap Zones 1–4, cover the lower two thirds of the keyboard.

For setups containing three or fewer zones, the box displays the MIDI channel and program assignments for each zone, with lines under the Program names to indicate the key range of each zone (as shown in the following diagram). An **L** or an **M** next to the channel number indicates that the zone transmits only locally or via MIDI (the default is Local *and* MIDI). **Off** indicates that the zone has been turned off completely (when a zone is turned off, no MIDI, program, or key-range information is visible for the zone).



You can transpose the entire setup up or down with the two **Octav** soft buttons. Press them simultaneously to set the transposition back to zero. When you transpose a setup, the split points between zones remain in place; each program is transposed within its respective zone.

The **Panic** soft button sends All Notes Off and Reset All Controllers messages to all zones. The **Sample** soft button provides convenient access to the K2661's sampler. Refer to Chapter 14 for information on the sampler.

When you select a setup in Setup mode, the K2661 sends a number of MIDI messages, on each of the MIDI channels used by the setup. Some of these include: Program Change commands, MIDI Bank Select messages, Pan and Volume messages, and entry values for physical controllers (entry values are the values that take effect as soon as you select the setup; there are also controller *exit* values, which are the values of the controllers when you leave the setup—either by selecting another setup or by exiting Setup mode). The values of all these messages depend on the parameters you define in the Setup Editor.

Loading Older Setup Versions

You can load setups created on the K2000, K2500, or K2600 into the K2661. Setups created on the K2500 or K2600 are the same as those created on the K2661, so they're fully interchangeable. Since setups created on the K2000 have fewer features (like three zones instead of eight), you have two choices for using K2000 setups on the K2661. You can leave the K2000 setups as they are, and they'll work for either the K2000 or the K2661—but they won't have all the K2661 features like eight zones. Or you can edit the K2000 setups to take advantage of the K2661's expanded features. Once you do this, however, the setups will no longer work on the K2000. If you want to keep using those setups on a K2000, keep backup copies of the original setups.

If you edit a K2000 setup to use K2661 features, you may need to reassign the programs it uses. If your K2000 setup uses a K2000 ROM program, the setup won't play the same program when you load it into the K2661, because the two instruments have different lists of ROM programs. In this case, you can either select a similar program for the K2661 setup (if one exists), or you can save the programs used by the K2000 setup into the same ROM IDs in the K2661 (this doesn't really replace the K2661 programs; they reappear when you delete the K2000 programs). If your K2000 setup uses K2000 RAM programs, you won't have any problems as long as you load dependent objects when you load the K2000 setup into the K2661.

The Control Setup

In addition to zone splitting and layering, Setup mode is a powerful way to take advantage of the K2661's programmable sliders, ribbon controllers, and assignable buttons. In order to provide some of the same flexibility for Program mode, we created the control setup, which defines the controller assignments for programs in Program mode.

The default control setup is **97 Control Setup**, but you can choose any control setup you want. To do this, go to the MIDI-mode TRANSMIT page and use any normal data entry method to change the CtlSetup parameter. When you reenter Program mode, all programs will now respond to many of the controller assignments defined in Zone 1 of the control setup (Zones 2–8 are not relevant in Program mode, because a program can occupy only one MIDI channel).

To edit the control setup, press the **Edit** button while the CtlSetup parameter is highlighted on the MIDI-mode TRANSMIT page. This brings you to the Setup Editor, which is described in the following sections. The following table shows which control-setup parameters affect controller assignments in Program mode.

Control Setup–Setup Editor Page, Zone 1	Parameters Affecting Program Mode	Parameters Not Affecting Program Mode
CH/PROG	ZoneArpeg, Destination, MIDIBankMode	LocalPrg, Out, Channel, MIDIBank, MIDIProg, Status, EntryProgChg
KEY/VEL	VelScale, VelOffset, VelCurve	LoKey/HiKey, Transpose, NoteMap, LoVel/HiVel
PAN/VOL	None	
BEND	All	
COMMON	Sync	
ARPEG	All	
RIBCFG	All	
Continuous Controller assignment pages (SLIDER, SLID/2, CPEDAL, RIBBON, WHEEL, PRESS)	Dest, Scale, Add, Curv	Ent and Exit
Switch Controller assignment pages (FOOTSW, SWITCH)	SwType, Dest, On, Off	Ent and Exit
KDFX, FXMOD2, FXMOD3, FXMOD4, FXLFO, FXASR, FXFUN	None	

Table 7-1 Control Setup Parameters Affecting Program Mode

Physical controller destinations, their curves and states, and the Arpeggiator parameters all define controller assignments for programs in Program mode. The other parameters have no effect; this keeps Program mode relatively simple. Program mode lets you change values for transposition, MIDI channels, and programs independently of the control setup.

Once you save changes to the control setup, those changes will affect all programs when you are in Program mode. For example, programming the Large Ribbon in the control setup to have three sections will mean that in every program in Program mode, you will have a three-section Large Ribbon.

You may want to program several different control setups, and switch among them for different applications. Suppose, for example, that you're recording a song, but you don't want to record aftertouch. You can create a setup with pressure turned off in Zone 1 (on the PRESS page in the Setup Editor, set the value of the Press parameter to **Off** for Zone 1). Now whenever you want to record without aftertouch, just select this setup as the control setup.

Zone-status LEDs in Setup Mode

Take a minute to scroll through some of the factory setups. As you change setups, you'll notice that the LEDs in the eight buttons above the programmable sliders go on and off and change color. These LEDs indicate the status of each of the zones in the setup. You may also see the **Solo** button go on. This means that the setup is configured to have only one zone playing when you select it.

In Setup mode, each of the eight zone-status LEDs will always be in one of four states:

Off Empty zone—that is, a zone that has no program or MIDI channel associated with it. For example, if you select a setup and only four status LEDs light up (regardless of

their color), the setup contains just four zones. Whenever you're in Setup mode, the number of lines in the info box matches the number of zone-status LEDs that are lit.

Red — Soloed zone. As you might have guessed, only one zone can be soloed at a time. When a zone is soloed, *only* that zone plays notes and generates controller information. Other zones, if they're not turned off, still generate program changes and entry/exit controller values.

Green — Active zone. As long as no other zone is soloed, an active zone plays notes— and generates controller information, program changes, and entry/exit controller values. If another zone is soloed, an active zone is "backgrounded"—it's status LED remains green, but it doesn't play notes or generate controller information.

Orange — Muted zone. Muted zones don't play notes or generate controller information, but they do generate program changes and entry/exit controller values.

In performance situations, the zone-status buttons provide a convenient way to temporarily change the status of one or more zones. This can be very effective for bringing voices and/or controller configurations into and out of your performance. The best way to get familiar with this technique is to play with the buttons, as the next few paragraphs describe.

Select a setup (look for one with lots of active zones that cover the whole keyboard), and play a few bars. You'll hear sounds corresponding to each of the active zones (green LEDs). If you see any muted zones (orange LEDS), press their zone-status buttons, and they'll become active. Play around a bit. Try muting all the zones, then bringing them back one by one until all the zones in the setup are active.

Now press the **Solo** button. The **Solo**-button LED lights (it's always red), and one of the zone-status LEDs (never more than one) turns red. You'll now hear only that zone as you play. All the active zones are now backgrounded—they'll still generate program changes and entry/exit controller values, but you won't hear anything from them.

Now press one of the zone-status buttons. Its LED turns red, and it becomes the soloed zone. The previously-soloed zone returns to its programmed status. Solo each zone in turn, using the info box in the display to find the range covered by the zone. Note that you can solo a zone even if it's muted. Press the **Solo** button again, and its LED goes out. The previously-soloed zone returns to its programmed status, and you can hear all the active zones again.

Table 7-2 gives you a quick visual reminder of how zones behave depending on their status.

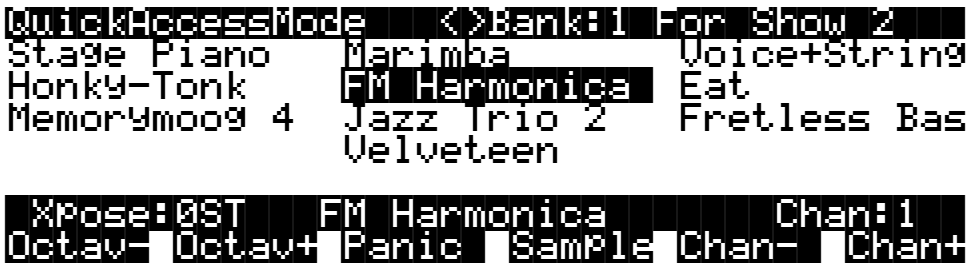
LED Color	Zone Status	Data Generated by Zone			
		Notes	Controllers	Program Number	Entry and Exit Values
Red	Soloed	✔	✔	✔	✔
Green (no others are red)	Active	✔	✔	✔	✔
Green (another is red)	Backgrounded			✔	✔
Orange	Muted			✔	✔
(Off)	Empty				

Table 7-2 Zone Status in Setup Mode

Remember that any changes you make to zone status in Setup mode are temporary; as soon as you select another setup, that setup's programmed zone status takes over. To change a setup's zone status permanently, use the Setup Editor .

Chapter 8
Quick Access Mode

In Quick Access mode, you can select programs or setups with a single press of an alphanumeric button (or with the other data entry methods). For example, in the illustration below, you would simply press **5** on the alphanumeric pad to choose **FM Harmonica**. Notice that your selection becomes highlighted in the list, as well as appearing on the line just above the soft-button labels.



Using Quick Access mode involves selecting Quick Access banks from the list of factory preset or user-programmed banks. You can use the bank selection shortcut to do this: press the **+/–** or **Clear** button on the alphanumeric pad, and you'll be prompted to enter a bank number. Type the desired number on the alphanumeric pad, then press **Enter**. The bank is selected, and you return to the Quick Access-mode page. Or use the **Chan/Bank** buttons to scroll through the QA banks.

Each bank contains ten memory slots, or entries, where you can store programs or setups in any combination. Any program or setup in the currently selected bank can be selected with the numeric buttons **0** through **9**.

The ROM (factory preset) QA banks are organized into useful groupings of sounds that we think you'll find convenient.

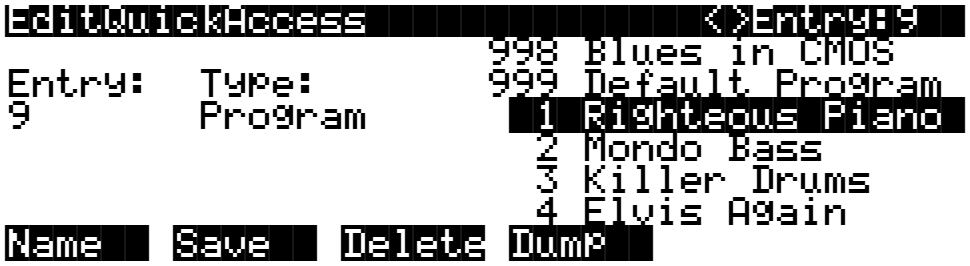
You can store 20 Quick Access banks in each memory bank (except the Zeros bank, which can store 75). See *Storing Objects in the Memory Banks* on page 13-34 for a breakdown of the Quick Access-bank IDs that belong in each memory bank. Press both **Chan/Bank** buttons simultaneously to quickly move between memory banks.

The MIDI Program Change commands that the K2661 sends when in Quick Access mode can differ from those in Program or Setup mode. This depends on the setting you have for the PChgType parameter in MIDI mode. If the setting is **Extended** or **Kurzweil**, the Program Change commands sent are the same as in Program or Setup mode. If the setting is **QA Extended** or **QA Kurzweil**, the K2661 sends Program Change commands that correspond to the current Quick Access bank and the entry you select, not the actual program number of the entry. See *Program Change Formats* on page 10-9.

Everything you need to know about using Quick Access mode for performance is covered in Chapter 2, in the section called *Playing the Presets*, so we'll move on to the Quick Access Editor, which you'll use to create your own Quick Access banks.

The first step in editing Quick Access banks is to select Quick Access mode. Then use the **Chan/Bank** buttons to select the bank you wish to edit. The currently selected bank is shown in the top

line of the Quick Access-mode page. Press the **Edit** button, and you enter the editor, where you can examine each entry in the bank you selected. The Quick Access Editor page looks like this:



The top line gives you the usual mode reminder, and shows you which of the ten entries you're looking at. The cursor is highlighting the object (program or setup) that's stored in that entry.

The easiest way to edit the bank is to use the **Chan/Bank** buttons to scroll through the ten entries. The entry number changes both at the top of the page, and at the left of the page. As the entry number changes, the highlighted objects at the center of the page change as well, showing you what's stored in each entry. On the page above, for example, entry 9 is the current entry. The Type parameter tells you that the object stored at entry 9 is a program. The cursor highlights the program's ID and name.

In this example, you could select a different program with your favorite data entry method. If you wanted to store a setup in that entry instead of a program, you would move the cursor to the Type parameter and change its value to **Setup**. The list of objects would change from the program list to the setup list, and you could move the cursor back to the setup list and select another setup. When you select the Entry or Type parameter, the list of objects at the right disappears, leaving only the currently selected object. This makes it easier to see when it's not highlighted by the cursor.

When you've filled each entry with the object you want, press the **Name** soft button if you want to rename the bank, or press the **Save** soft button to begin the save procedure. Press the **Dump** soft button to dump the bank via MIDI System Exclusive.

K2661 QA Banks

id	bank name	id	bank name
1	Pianos	13	Percussion
2	E Pianos	14	Solo Brass
3	Organs	15	Section Brass
4	Strings	16	Winds
5	Voices	17	Analog Synths
6	Ensembles	18	Synths Leads
7	Guitars 1	19	Digital Synths
8	Guitars 2	20	Synth Pads
9	Basses	21	Synth Ambient
10	Synth Basses	22	Keys
11	Drums 1	23	More Synths
12	Drums 2	24	KB3
		25	Basic QA Bank

Chapter 9
Basic Effects Mode

Note: For complete information on K2661 Effects, refer to the K2661 Musician's Guide and K2661 Musician's Reference (on the CD-ROM).

Introduction

Effects mode puts the power of an entire studio—equalizers, signal processors, and mixers—inside your K2661. It allows you to define processing functions, signal paths, and balances, on sounds created by the K2661 and, in Live mode, sounds from *any* source.

When you're in Program, Setup, or Quick Access mode, you can take advantage of FX Modulation routings (FXMods, which are preset overrides for studio parameters) for real-time control over any aspect of your studio—either from the buttons, sliders, wheels, and pedals on your K2661, or from any MIDI source at all, like a sequencer or a dedicated controller.

Effects mode provides up to five individual effects processors. Four of these are designed to operate on their own individual buses, and the fifth, the "Auxiliary" processor, is designed to be global.

When the K2661 is being used multi-timbrally, Effects mode can provide separate processors for each of several instruments. For example, let's say four K2661 channels are in use, under the control of a sequencer. Each instrument on each channel can have its own processing: flanger for the piano, delay for the sax, compression for the bass, and tight reverb for the drums. Then all of these signals could go through a global Aux processor, where they could be given a room reverb. At the outputs of the K2661, the reverb could show up on one pair, while the other instruments' dry or processed (prereverb) signals could show up at the others, either in mono or stereo. Or the entire mix, carefully balanced and panned, could appear at a single pair, ready to be recorded or played through a PA.

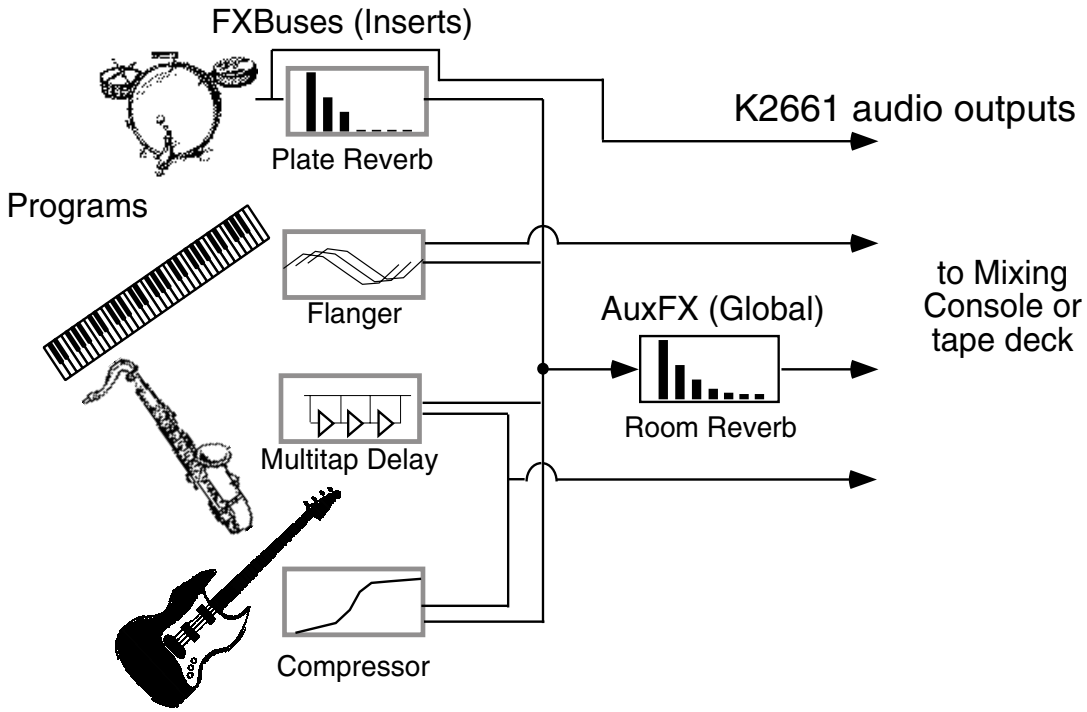


Figure 9-1 A typical KDFX Studio

Alternatively, in a live performance setting, you can use the KDFX in Setup mode as an entire orchestra, with different instruments layered on top of each other and mapped to different parts of the keyboard, all with their own signal processing—and that signal processing can change completely in an instant when you call up a new setup.

These are just two of the huge variety of scenarios possible with KDFX. The structure of KDFX is so flexible that you should never run out of ideas for how it can be used.

Terminology

Before starting to work with Effects mode, take a minute to familiarize yourself with the relevant terms. Understanding the words will help you get the concepts more quickly. Read this chapter first, and refer to it later if something isn't clear.

Studio

A studio is the entire Effects-mode environment, consisting of inputs, FXBuses, an Aux Bus, FX presets, parameter settings, overrides, and outputs. One studio is current at a time in Effects mode. Studios are objects, like K2661 programs, and have a number. They can be linked to programs or setups using the FXCtrl setting. The K2661 comes with a large number of factory studios. You can modify them or create new ones and store them in RAM.

FXBus (also called Insert FXBus)

A signal path with some kind of processing —a delay, reverb, flanger, etc.—on it. It has stereo inputs and outputs, and contains an FX preset that determines the kind of processing to be applied. A studio has four insert FXBuses, each with its own FX preset, as well as a fifth FXBus, known as the Aux bus.

Aux FX Bus (Aux Bus)

A separate bus from the insert FXBuses, which is placed in the signal path after the output of the insert FXBuses, so that it can act as a global processor.

FX Preset

Determines the type of signal processing that is present on an FXBus or the Aux Bus. FX presets consist of an algorithm, plus the settings of the parameters associated with that algorithm. Any number of FX presets can use the same algorithm. The K2661 comes with a large number of FX presets, and you can modify them or create new ones and store them in RAM. Algorithms, however, are stored in ROM, so you can't change them. Each FXBus and the Aux Bus gets its own FX preset, so up to five FX presets can be active in a studio at a time.

Algorithm

A specific type of signal processing, like a hall reverb, plate reverb, chorus, flanger, pitcher, compressor, or rotary speaker, which is at the core of an FX preset. KDFX comes with a large variety of algorithms, which are stored in ROM, and are not user-definable. Additional algorithms, supplied by Kurzweil, can be loaded in from disk or SmartMedia when they become available. Algorithm parameters (RT_{60}, delay feedback, pitch change, etc.) *are* user-definable; the K2661 stores the values of those parameters in RAM as part of an FX preset.

Size/PAUs

How big an algorithm is, in terms of how much processing power it needs to operate. Size is measured in Processor Allocation Units, or PAUs. The simplest algorithms require only 1 PAU, while more complex ones require 2, 3, or even 4. The total number of PAUs available to the four insert FXBuses is 4. PAUs can be allocated automatically as FX presets are assigned to FXBuses, or manually by the user. The Aux Bus has its own set of 3 PAUs, which are not shared with the insert FXBuses.

Parameters

Refers to the user-controlled settings for the different characteristics of an algorithm. For example, the user can set the reverb time (RT_{60}) of an algorithm to **3.5s**, or the delay feedback of a delay line to **90%**, or the dynamic ratio of a compressor to **10:1**. Parameters are stored, along with the algorithm they modify, as part of an FX preset. In certain cases, the parameter settings within a studio can be overridden, either using FXMods or bus overrides.

FXMods

FXMods give you real-time control over many of the parameters within a studio. Parameters on any of the pages of the Studio Editor can be controlled by MIDI commands—such as physical controller input or sequencer data—or by internal K2661 functions like LFOs, envelopes, clocks, or key states. FXMods are not part of a studio or FX preset; they're part of a program or setup.

A program or setup can have up to 18 FXMods, as well as two dedicated LFOs, ASRs, and FUNs for further effects control. The FXMods and the LFOs, ASRs, and FUNs are defined on seven FX pages in the Program and Setup Editors.

Bus Overrides (or BusMods)

Bus overrides allow parameters within an FX preset to be controlled on the FXBus Editor page in the Studio Editor, outside the FX Preset Editor page. Any two parameters in an FX preset can be brought out to its FXBus page. Bus overrides are stored as part of the studio, not as part of the FX preset. They are useful when an existing FX preset is close to what you want, so that you can tweak it without having to create a new FX preset.

FXCtrl

The effects mode is determined by the value of the FXCtrl parameter, which is found on the Effects-mode page. It determines how the K2661 selects studios when you change programs or setups, and determines whether you have real-time control over studio parameters—in other words, whether FXMods are active.

If the value of FXCtrl is **Program** or **Auto**, then as you change programs in Program mode, the K2661 also loads the studio linked with that program. This activates all the FXMods defined within the program.

If the value of FXCtrl is **Setup** or **Auto**, then as you change setups in Setup mode, the K2661 also loads the studio linked with that setup. This activates all the FXMods defined within the setup.

If the value of FXCtrl is **Auto**, and the value of FX Channel is **Current**, then when you're in Program, Setup, Quick Access, or Song mode, programs, setups and songs automatically use their corresponding studios. In Program, Setup, and Quick Access modes, the studio corresponds to the current program or setup. In Song mode, the studio corresponds to the program on the song's assigned effects channel (which is determined by the value of the EffectChan parameter on the COMMON page in the Song Editor).

If the value of FXCtrl is **Master**, changing programs or setups does not load an associated studio; the current studio is defined by the Studio parameter on the Effects-mode page. Any FXMods defined in the current program or setup are inactive.

Studio Editor

To get to the Studio Editor, go to the Effects-mode page, highlight the current studio, and press **Edit**. The Studio Editor contains the following pages:

The INPUT page, where signals coming from the K2661's four stereo output buses are routed to one or more FXBuses.

The FXBUS page, for assigning FX presets to the four FXBuses, and for defining bus overrides.

The AUXFX page, for assigning an FX preset to the Aux Bus, and for defining bus overrides.

The OUTPUT page, where the signals coming from the FXBuses and Aux bus are routed to the K2661's eight physical outputs (analog and digital).

The FX Preset Editor, which is nested within the Studio Editor, and which contains three pages. The FX Preset Editor is where you select algorithms and set parameters for the FX presets, as well as doing administrative things like naming and saving. You can get to the FX Preset Editor from the either the FXBUS page or the AUXFX page, by highlighting the current FX preset and pressing **Edit**.

Name, Save, Delete, and **Dump**, for doing file management on your collection of studios.

You can also get to the Studio Editor from the Program and Setup Editors, by pressing **Edit** when the Studio parameter is selected (this is the most convenient method for getting into the Studio Editor). In both the Program and Setup Editors, the Studio parameter is on the KDFX page.

MAIN Page

The KDFXMode:MAIN page gives you a summary view of the current effects configuration, including the current studio, the FX Presets assigned to each of the five effects buses, and the bypass status of each bus.

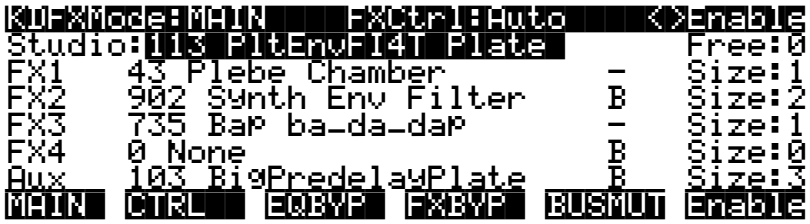


Figure 9-1 Effects mode: the KDFXMode:MAIN page

As with every other page, the top line of the KDFXMode:MAIN page identifies the page you're on. It also shows you two other important features of Effects mode:

FXCtrl: this is a parameter on the Ctrl page, which is accessible with the **CTRL** soft button.

Enable state: Shows whether KDFX is currently enabled or if any part of KDFX is bypassed or muted.

The second line of the display shows the ID and name of the current studio. When you enter KDFX Mode directly (i.e., not through another one of the K2661's editors) you can scroll through the displayed list of studios. This allows you to choose a different studio on the KDFXMode:MAIN page. When FXCTRL is set to Master (see page 9-9), you can also do this, even when you have entered KDFX Mode from within another editor.

If you select the studio then press the **Edit** button, you'll go to EditStudio:FXBUS page, where you can make changes to each bus within the studio.

The second line also shows the number of PAUs available for the current studio ("Free:" on the right-hand side). This number will be 0–4, since in each studio four PAUs are available for the four insert FXBuses (the AuxFX bus has its own fixed set of three PAUs).

The next five lines show the IDs and names of the FX Presets assigned to the five effects buses (insert FXBuses 1–4 and the AuxFX bus). You can't change these assignments on the KDFXMode:MAIN page; to do that you would highlight the Studio name (line two of this page) then press **Edit**. This takes you to the Studio Editor, on the appropriate FXBUS page for the first bus. Use the Chan/Bank buttons to move between buses.

Each of these five lines also indicates the bypass status for the five buses, as well as the number of PAUs used by each FXBus. A dash (**–**) indicates active/enabled, and **B** indicates bypassed/disabled. You can change the bypass status for a bus by moving the cursor to this field and changing it with either the alpha wheel or pressing one of the increment/decrement buttons.

The size of each FX Preset is measured in PAUs (processor allocation units). FXBuses 1–4 can all use up to four PAUs, but the studio can use a maximum of four total PAUs. The AuxFX bus can use up to three PAUs independent of the insert FXBuses.

Soft Buttons in Effects Mode

The **MAIN** button takes you to the KDFXMode:MAIN page, where you can view the current studio and the FX Presets assigned to the five KDFX buses.

The **CTRL** button takes you to the KDFXMode:CTRL page, which contains parameters that determine which studio gets selected when you select a program, setup, or song.

Soft Buttons: Configuring Bypasses

You can individually bypass any of the EQ and effects inputs, and also mute any of the FXBuses (the four insert FXBuses and the AuxFX bus). In the enabled state, nothing is muted or bypassed. The K2661 always starts up in the enabled state.

Use these soft buttons to perform bypasses and muting:

EQBYP	Displays EQ Bypass page, where you can bypass the EQ on each individual input bus.
FXBYP	Displays FX Bypass page, where you can bypass the effects on individual FXBuses.
BUSMUT	Displays the BusMute page, where you can mute the output of individual FXBuses.
BypAll/Enable	Toggles between enabled state and default bypass state (all buses bypassed, none muted). If you have created a custom bypass scene, **BypAll** resets it to the default bypass state. See page 9-11 for information on creating a custom bypass scene. You may also use either of the **Chan/Bank** buttons to toggle between enabled and bypassed states. This will often be preferable, since **Chan/Bank,** unlike **BypAll**, does not reset the bypass state to the default (all buses bypassed, none muted). Instead, **Chan/Bank** toggles between the enabled state and any custom bypass scene you may have created, allowing you to audition a studio with and without bypasses.

Effects Bus Editor

The FXBus Editor lets you create effects Preset chains on any of the four stereo effects buses. See page 9-13 for more information about chaining effects.

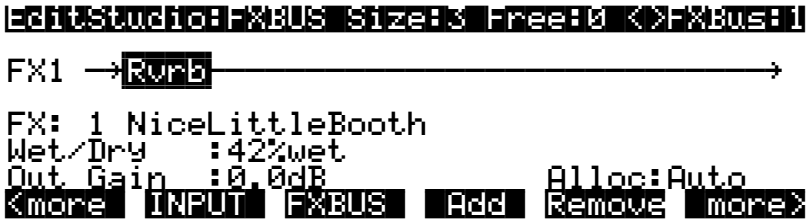


Figure 9-2 Effects Bus Editor display -- single effect

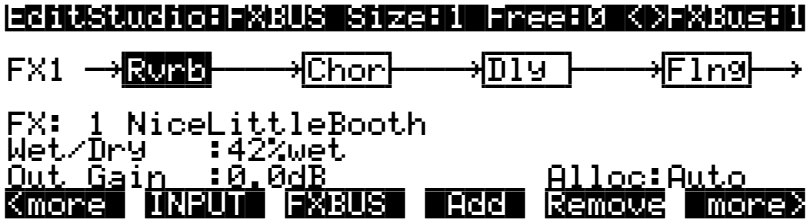


Figure 9-3 Effects Bus Editor display -- four chained effects

The **Add** and **Remove** buttons allow you to define your own chains of effects using up to four FX Presets. The **Add** button creates an effects block (shown as a box) to the right of the current cursor position in the effects chain. You can use a total of four effects in any studio, so if you create a four-block effects chain on a bus then you won't be able to use any effects on the other buses in that studio. Your K2661 keeps track of effects usage for you, and won't let you add an effects block to a bus if you're already max'ed out.

The **Remove** button deletes the effects block that the FXBUS editor cursor is on. Adding and deleting effects blocks may cause audio glitches in any signal path and should not be done during critical listening.

Each FX Preset in an effect chain has two "override" parameters (BusMods) that are displayed when that FX block is selected. By selecting the name of an override parameter (e.g., Wet/Dry), you can scroll to choose from any other available parameter.

Each effect also has its full complement of real time modulators as defined and displayed in the Program and Setup editors.

Effects Send Page

The FXSEND page lets you send the output of each stereo effects bus to the stereo mixdown and auxiliary buses.

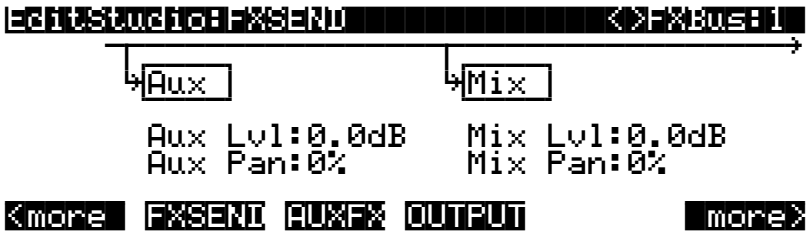


Figure 9-4 Effects Bus Send display

The CTRL Page

The CTRL page is where you set a variety of important parameters for KDFX, including the Effects Control Mode (FXCtrl) for the current studio.

The CTRL page is also where you set the FX Channel for the current studio.

Figure 9-5 Effects Control page

Effects Control Mode (FXCtrl)

FXCtrl determines how the K2661 selects studios as you change programs or setups, and determines whether you have real-time control over studio parameters—in other words, whether FXMods are active.

If the value of FXCtrl is **Program** or **Auto**, then as you change programs in Program mode, the K2661 also loads the studio linked with that program. This activates all the FXMods defined within the program. If the value of FXCtrl is **Setup** or **Auto**, then as you change setups in Setup mode, the K2661 also loads the studio linked with that setup. This activates all the FXMods defined within the setup. If the value of FXCtrl is **Auto**, and the value of FX Chan is **Current**, then when you're in Program, Setup, Quick Access, or Song mode, programs, setups and songs automatically use their corresponding studios. In Program, Setup, and Quick Access modes, the studio corresponds to the current program or setup. In Song mode, the studio corresponds to the program on the song's assigned effects channel (which is determined by the value of the EffectChan parameter on the COMMON page in the Song Editor).

If the value of FXCtrl is **Master**, changing programs or setups does not load an associated studio; the current studio is defined by the Studio parameter on the Effects Mode page. Any FXMods defined in the current program or setup are inactive.

Effects Control in Embedded Editors

In the parlance of V.A.S.T., an embedded editor is an editor that you enter while you are already in another editor. An example of this would be entering the KDFX Studio Editor while you are already in the Program Editor. In this sort of situation, an editor may function differently than if you had entered it directly from a performance mode.

When you enter the KDFX Studio Editor from within another editor (for example, you are already in the Program Editor when you press the **Effects** button), KDFX will revert FXCtrl to Auto and FXChan to Current if you attempt to perform an operation that the software doesn't support. For example, you cannot change a program's assigned studio by pressing the **Effects** button to enter the KDFX Editor while you are already within the Program Editor. If you set FXCtrl to Master you will be able to audition different studios, but the software will not let you change a studio. The correct way to change the studio used by a program is to press the **KDFX** soft button from within the Program Editor.

Effects Channel (FX Chan)

This parameter is closely linked to the FXCtrl parameter—the values available for FX Chan depend on the setting for FXCtrl. FX Chan affects both studio selection and real-time control of KDFX—again, depending on the value of FXCtrl.

When FXCtrl is Master

The effects channel is irrelevant when FXCtrl is **Master**. KDFX is under the control of the studio you select with the Studio parameter. No FXMods apply.

When FXCtrl is Program

The available values for FX Chan are **Current**, and **1**–**16**. When FX Chan is **Current**, studio selection is determined by whatever program is assigned to the current K2661 channel (as shown in the top line of the display in Program mode or Effects mode). That program's FXMods are also enabled, and they respond to MIDI Controller messages received on the current channel.

When FX Chan is any value from **1** to **16**, studio selection is determined as follows: in Program mode it's determined by the program assigned to that channel; in Setup mode, it's determined by the program in the zone assigned to that channel. FXMods respond to MIDI Controller messages as follows: in Program mode, the FXMods of the program on the channel specified by FX Chan respond to messages on that channel; in Setup mode, the FXMods of the program in the zone using the channel specified by FX Chan respond to messages on that channel.

The Studio parameter disappears, since studio selection is under program control.

When FXCtrl is Setup

The only available value for FX Chan is **None**, since studio selection and FXMods are determined by the program in Zone 1 of the current setup. The FXMods of the program in the zone using the channel specified by FX Chan respond to MIDI Controller messages on that channel. The Studio parameter disappears, since studio selection is under setup control.

When FXCtrl is Auto

The available values for FX Chan are **Current**, and **1**–**16**. When FX Chan is **Current**, studio selection and FXMods are determined as follows: in Program mode, it's determined by the program assigned to the current K2661 MIDI channel; in Setup mode, it's determined by the program in Zone 1 of the current setup; in Song mode (or during song playback regardless of mode), it's determined by the program on the channel designated as the song's effects channel—as specified by the EffectChan parameter on the COMMON page in the Song Editor. FXMods respond to MIDI Controller messages as follows: in Program mode, the FXMods of the program on the K2661's current channel respond to messages on that channel; in Setup mode, the FXMods of the program in Zone 1 of the current setup respond to messages on the channel used by Zone 1.

When FX Chan is any value from **1** to **16**, studio selection is determined as follows: in Program mode it's determined by the program assigned to that channel; in Setup mode, it's determined by the program in Zone 1 of the setup (ignoring the FX CHan setting). FXMods respond to MIDI Controller messages as follows: in Program mode, the FXMods of the program on the channel specified by FX Chan respond to messages on that channel; in Setup mode, the FXMods of the program in Zone 1 of the setup respond to messages on that channel (again, ignoring FX Chan).

Studio

When FXCtrl is **Master**, the Studio parameter selects the studio for the entire K2661. When FXCtrl is **Program** or **Setup**, this parameter is unavailable, since setup selection and FXMods are determined by program or setup selection. When FXCtrl is **Auto**, setup selection and FXMods

are under program or setup control, but the Studio parameter is still available; its value reflects the studio assignment for the program or setup that was current before you entered Effects mode. You can change the value of the Studio parameter while in Effects mode, so you can hear how different studios affect the current program or setup, without having to enter the Program or Setup Editor. Any changes you make here revert to their previous settings when you exit Effects mode.

Bypass and Mute pages

You can bypass effects buses, inside or outside of an editor, by pressing the **Effects** button followed by either the **BypAll** soft button or one of the **Chan/Bank** buttons. Although similar, the two methods are slightly different:

- The **BypAll** soft button globally bypasses all effects buses, and also resets the default bypass state to bypass all buses. When you press this soft button it changes into the **Enable** soft button, allowing you to toggle between the state where all buses are bypassed and the state where all are enabled.
- Either **Chan/Bank** button toggles between the enabled state and the current bypass state. The current bypass state is either the default (all buses bypassed) or the custom bypass scene you have created. See the next section for information about creating a bypass scene.

Pressing the **Effects** button again, or pressing **Exit**, puts you back where you were.

Creating a Custom Bypass Scene

You create a custom bypass "scene" (e.g., effects bypassed on one bus, but not on the other three) by using the soft buttons on the EQBYP, FXBYP, and BUSMUT pages to isolate sounds or effects. You can then toggle between an all-enabled state and your custom scene by pressing either of the **Chan/Bank** buttons (to the left of the display) while in KDFX Mode.

The system indicates whether anything at all is bypassed or muted by showing "Bypass" at the far right of the top line on the display; if nothing is bypassed, this field shows "Enable." Any settings from the FXBYP page are also indicated on the KDFXMode:MAIN page as either a "B" (bypassed) or a "-" (enabled). EQ Bypass and Bus Mute settings, however, are not indicated on the KDFXMode:MAIN page. If you exit this mode with anything bypassed, the **Effects** button's red LED stays lit to remind you that something is not active.

The EQBYP Page

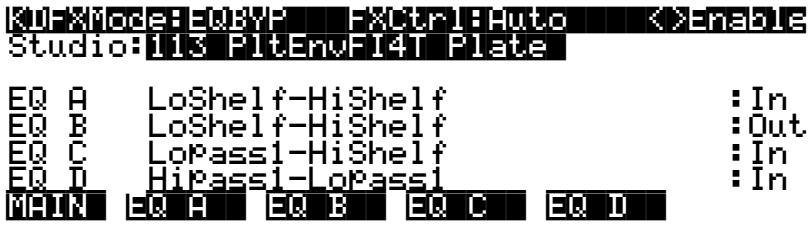


Figure 9-6 EQ Bypass Page

The **MAIN** soft button takes you to the KDFXMode:MAIN page. The soft buttons **EQ A, EQ B, EQ C,** and **EQ D** toggle the bypass/active status for the EQ on the corresponding input buses.

The EQBYP page looks a little different when there are mono inputs to the studio. In this case, press the **L/R** soft button to toggle between left and right mono inputs for a bus.

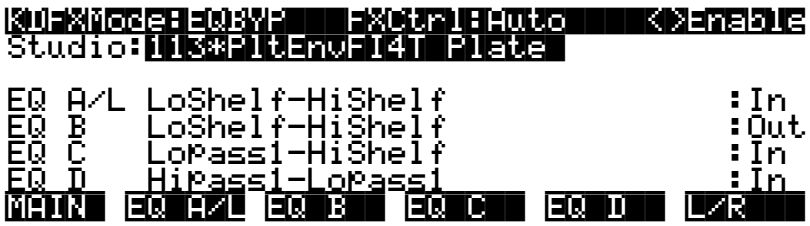


Figure 9-7 EQ Bypass Page with Mono Inputs

The FX Bypass Page

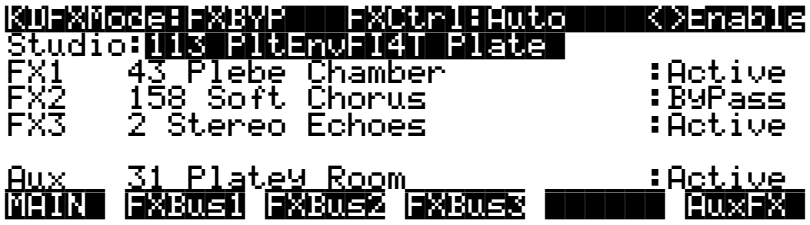


Figure 9-8 FX Bypass Page

The **MAIN** soft button takes you to the MAIN page. The **FX1–FX4** and **AuxFX** soft buttons toggle Bypass/Active status for the effect on the corresponding bus.

The Bus Mute Page

Figure 9-9 Bus Mute Page

The **MAIN** soft button takes you to the KDFXMode:MAIN page. The soft buttons **FXBus1–FXBus4** and **AuxFX** toggle the mute/active status for the corresponding input buses.

Chaining Effects

One of the most powerful features in KDFX is effects chaining, which allows you to send a signal through four consecutive KDFX effects. The screen below shows an example of this:

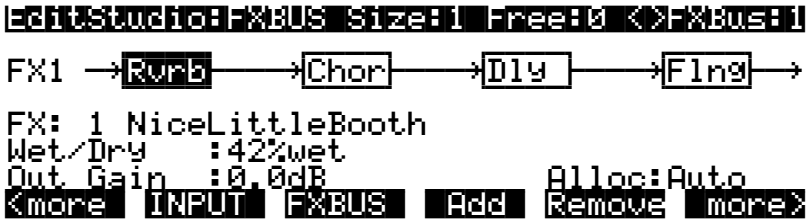
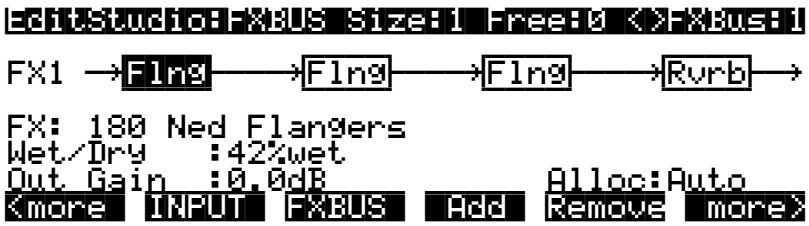


Figure 9-10 Effects Bus Editor display -- four chained effects

Effects chaining allows the 4 PAUs of processing shared among Buses 1-4 of a Studio to be used in series. You can chain one FX Preset into another, into another, up to four in a row, until you run out of PAUs. This is done by removing processing "blocks" from one bus, and adding them to another. As no effect is less than 1 PAU, and only 4 PAUs are available across Buses 1-4, any Studio may have a maximum of 4 blocks, arranged however you please, in which to select Presets (not counting the Aux bus which is unaffected by chaining).

The FXBUS page shows chained effects at the top of the display (underneath the top menu line). As an example, start from Program Mode, press the **Effects** button, then select Studio 700 Flanger Trio:

You can see that this studio has three flange effects, followed by a reverb. The effects are numbered 1a through 1d to indicate that they are all part of FXBUS 1, instead of four separate effects buses. Now press **Edit** to go into the Studio Editor. The top of the display shows the four effects chained together. Each block contains an abbreviation based on the algorithm used by the Preset:



The name of the FX Preset for the currently highlighted block is now shown underneath the signal path graphics. In this example, you will see the FX Preset Ned Flangers if the first block is highlighted. You still have 2 Bus Overrides (or Bus Mods) per block, which appear just below the name of the Preset.

Use the left and right cursor buttons to select each block. When a block is selected, move the alpha wheel or press the + or - buttons to select a different FX Preset (you can also change the Preset by cursoring to the full name of the Preset after the FX: label).

Notice that the unhighlighted blocks have a box around them. This shows they are active. Since this studio has 4 blocks, each block can use only 1 PAU. If you select an effect that uses more than one PAU, one of the blocks will become inactive and the box surrounding that block will disappear. For example, if you change the first block to FX Preset 183 NarrowResFlange, the box around block 4 disappears. The top line of the display shows you this FX Preset uses 2 PAUs. As in the past, if the Allocation parameter is set to Auto, the lower number blocks have precedence, so block 4 is the one that becomes inactive. If you highlight block 4 at this point, you will see the FX Preset shown in parenthesis, again showing it is not active.

The **Chan/Bank** buttons move you through the four FXBUSes. Since no effects are available in this case, you will see a line with no blocks on them if you look at any bus except FXBUS 1. You can still use a bus to send another signal to the AUX without the chain, by the way, since KDFX has been designed to offer you maximum flexibility.

Gain Staging in Effects Chains

When chaining Presets together, it is sometimes necessary to adjust the levels between blocks, most often to pad the level going into the next block to prevent unwanted clipping. While most algorithms have both an In Gain and an Out Gain parameter, In Gain is not selectable as a Bus Mod. In fact, any Preset beyond the first in a chain cannot use In Gain, and will display the value inside the Preset in parentheses. We suggest, when necessary, choosing Out Gain as a Bus Mod to adjust the output level of an effect, instead of trying to pad the input of the following effect. Of course, you can always edit FX Presets directly and customize them for your chain.

Checking Out Some Chains

For examples of studios with chains, check out studios 700-719. By setting the FX Ctrl parameter (KDFXMode:CTRL page) to Master, and the OutPair parameter (MIDIMode:Channels page) to KDFX-A, you can scroll through Programs on a given MIDI channel and audition these studios as they were intended to be heard, with a variety of input source material.

The Structure of Kurzweil Digital Effects (KDFX)

The Studio

All Effects-mode functions are contained in a studio. Only one studio is active at a time.

Each studio has four stereo or eight mono inputs. The sources for these inputs are the four output pairs available in two places: the Pair parameter on the OUTPUT page in the Program Editor, and the Out parameter on the CN/PRG page in the Setup Editor. In both cases, the available values are KDFX-A, KDFX-B, KDFX-C, and KDFX-D. Instead of going directly to the K2661's physical outputs, these program outputs go to the inputs of a studio. Only after going through the studio does the audio output appear at the physical outputs. The inputs to the studio can come from one multi-layered program, or from several programs, or from the K2661's own sample input when the instrument is in Live mode.

The input signals pass through an input routing system, as specified by the settings on the INPUT page in the Studio Editor. Here, the signals go through individual two-band equalizers, or EQs. Then each input, mono or stereo, is routed to any two of the four FXBuses.

Each of the FXBuses contains its own signal-processing program, called an FX preset. Each FX preset has a set of parameters: for example the RT_{60} value on a reverb, or the Feedback level on a delay line. These parameters can be fixed as part of the FX preset, or they can be externally controlled, from one of two different places. The four FXBuses are also called Insert FX, because in a conventional studio, that's where they would be found: in the insert loop of a mixer, between the channel input and the Mix bus.

There is also a fifth FX preset, which is located on the Auxiliary FX Bus (the Aux bus). The Aux bus follows the four main FX presets in the signal path, and is normally configured as a global processor.

Each FX preset consists of an algorithm, modified by user-definable parameters. An algorithm is a processing function, like a reverb, flanger, or compressor; or a combination of processing functions in a particular order, like a flanger followed by a delay followed by a reverb. The algorithms themselves are fixed in ROM, like Kurzweil ROM samples, but you can change the values of their operating parameters.

Each algorithm requires a certain amount of processing power, which is expressed in Processing Allocation Units (or PAUs). Simple algorithms require 1 PAU, while more complex algorithms require up to 4 PAUs. The amount of processing power available in each FX preset is set by its Allocation parameter. When you are selecting an FX preset for an insert bus, the number of PAUs its algorithm requires appears on the display, so you can keep track of how many PAUs are in use.

PAUs are shared among the four insert buses. There is a limit to the total number of PAUs that the insert buses can use, and that limit is four. PAUs can be manually preassigned to specific FXBuses, or using "Auto" mode they can be assigned automatically as FX presets are assigned to the buses. The Aux bus has a separate set of PAUs—three of them—which are *not* shared with the insert buses.

Finally, the outputs of the FX presets are passed through to an output routing system—as specified by the settings on the OUTPUT page in the Studio Editor—where they are sent to the physical outputs of the K2661.

The following equation summarizes studio structure:

Studio = EQs + Input-page settings + FX presets + Output Editor settings

The next page shows a schematic overview of studio structure.

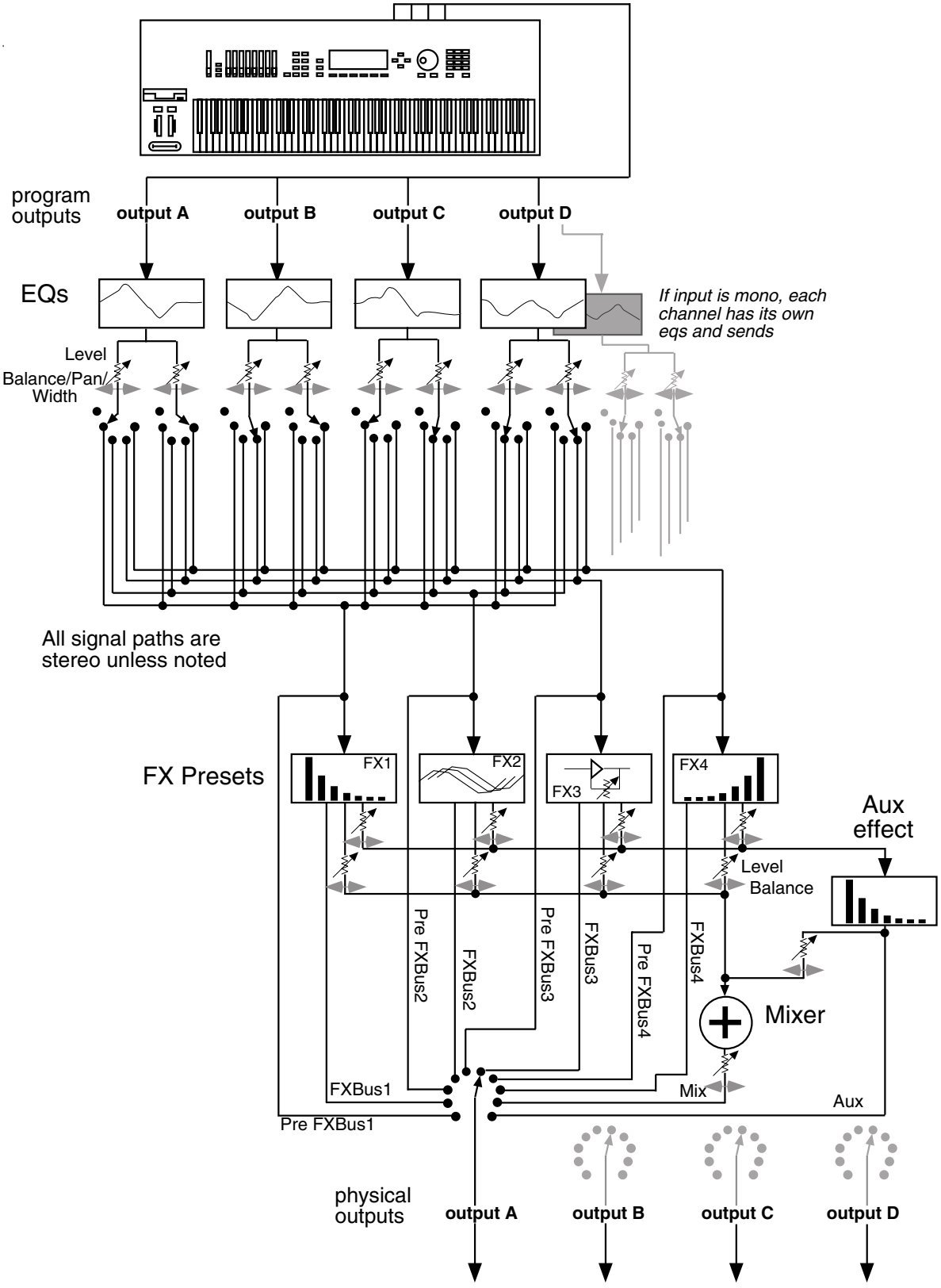


Figure 9-2 KDFX structure

Normal Studio Structure

Many of the studios provided in ROM follow an overall organizational plan, which uses Effects mode's resources efficiently and clearly. While you're by no means required to follow this structure when creating your own studios, it's a good idea to get familiar with it, to see how Kurzweil's own engineers have approached the issue of studio organization.

Inside the ROM programs and setups, the outputs KDFX-A through KDFX-D are assigned based on the type of effects processing that would most likely be appropriate for that sound.

- Input A/FXBus1 contains a relatively simple reverb with a low Size requirement.
- Input B/FXBus2 contains an effect that does not increase the "length" of the sound (that is, no reverb or delay), something like chorus, flange, distortion, pitcher, or EQ.
- Input C/FXBus3 contains effects that take up lots of time, such as delays, and delays with reverb.
- Input D/FXBus4 is dry.
- The Aux bus contains a larger reverb (Size:3), a compressor, or a graphic EQ.

Software Organization

Like K2661 programs, the software user interface of a studio is organized in a "top-down" way: A studio is an "object" in K2661 terms, and the FX presets within a studio are also objects, "dependent" to the studio, the way a keymap is to a program. Studios and FX presets that you modify or create are stored in program RAM. A studio contains up to five FX presets. The same way that one keymap can be used in multiple programs, a particular FX preset can be used in multiple studios.

Like ROM samples in the K2661, effects algorithms are stored in ROM and you cannot modify them. Each FX preset contains one algorithm. Just as you can use the same sample in more than one keymap, you can use the same algorithm in as many FX presets as you like.

Controlling Effects

Studios can be called up from the front panel, or they can be assigned to specific K2661 programs or setups. If you set the FXCtrl parameter on the Effects-mode page to **Program**, **Setup**, or **Auto**, then changing a program (if the current channel agrees with the FX Channel) or setup will select the studio associated with the new program or setup. Of course, just as you can use the same keymap in multiple programs, you can use the same studio in multiple programs or setups. Setting FXCtrl to **Master** means that the studio does not change with the program or setup.

Studio parameters are set in the Studio Editor and are initially set up with fixed values, but they can be also be controlled in real time by a wide range of control of sources, including K2661 onboard knobs, sliders, and ribbon; various internal software functions; and external MIDI commands like those coming from a sequencer or a dedicated controller.

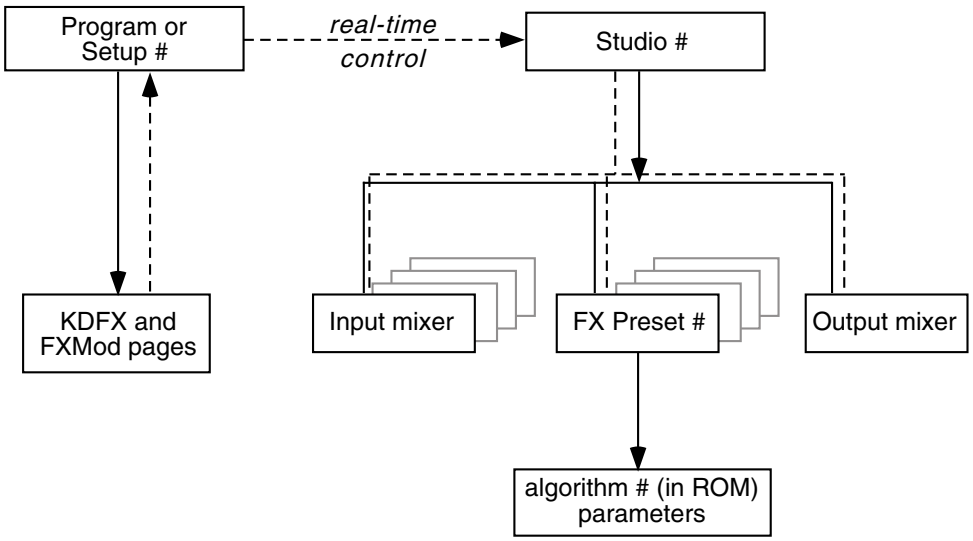


Figure 9-3 KDFX Software organization

Controlling Effects with a Sequencer

A useful technique for sequencer users is to set up the program controlling the studio parameters to be a dummy program with no keymaps but with all of the FX Mods you need in place—this program produces no sound by itself, and exists only to control the studio. That way you can use a dedicated MIDI channel for studio control. See page 12-21 for more information.

Controlling Effects with SysEx messages

You can also control KDFX by sending MIDI system-exclusive (SysEx) messages to the K2661. See Appendix B in the *Musician's Reference* for specific information.

Chapter 10
MIDI Mode

Press the MIDI-mode button to enter MIDI mode. There are three pages in MIDI mode:

- TRANSMIT (XMIT soft button)
- RECEIVE (RECV soft button)
- CHANNELS (CHANLS soft button)

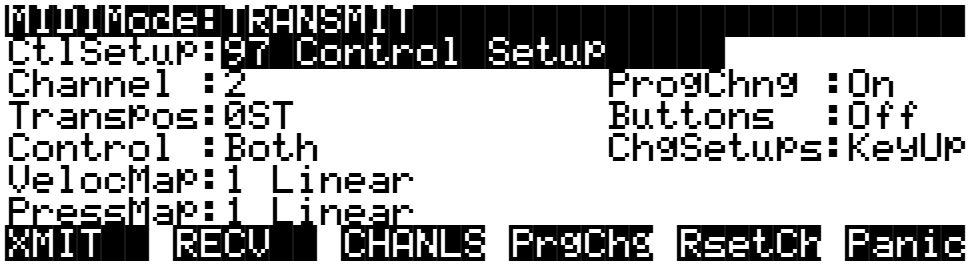
You'll use these pages to determine what MIDI messages the K2661 transmits, and how it responds to the MIDI messages it receives—as well as how each MIDI channel behaves.

When you enter MIDI mode, you'll see one of the three available MIDI-mode pages. When you exit MIDI mode, the K2661 remembers which page you were on. The next time you select MIDI mode, that page appears.

The TRANSMIT Page

Press the **XMIT** soft button, and the TRANSMIT page appears. Use these parameters to control how the K2661 sends MIDI information to its MIDI Out port. These settings to some extent affect the K2661's response to its own keyboard and controllers, but they primarily affect the responses of other MIDI devices that are receiving MIDI from the K2661 on the channel specified with the Channel parameter on this page.

It's important to remember that many of the settings of the TRANSMIT page are in effect only when a *program* is selected, either in Program mode or in Quick Access mode. If a *setup* is selected, in Setup mode or in Quick Access mode, the setup's MIDI settings override the corresponding settings on the TRANSMIT page. The TRANSMIT page looks like this:



Parameter	Range of Values	Default
Control Setup	Setup list	97 Control Setup
Channel	1 to 16	1
Transposition	±60 semitones	0
Control	Both, MIDI, Local	Both
Velocity Map	Velocity Map list	1 Linear
Pressure Map	Pressure Map list	1 Linear
Program Change	Off, On	On
Buttons	Off, On	Off
Change Setups	Immed, KeyUp	KeyUp

Control Setup

This is where you select the current control setup, Zone 1 of which sets the physical controller assignments for all programs while you're in Program mode. Refer to Chapters 6 and 7 for more information on the control setup.

Note: *The control setup is responsible for many of the settings that each had separate parameters on the K2000 and K2500. If you've worked with one of these instruments, you'll need to relearn how MIDI transmission controls are defined. Instead of setting a number of parameters on the MIDI TRANSMIT page, you'll simply select a control setup. Zone 1 of that setup then determines the controller assignments (as specified on the SLIDER, RIBBON, WHEEL, and other pages in the Setup Editor).*

Channel

This defines which MIDI channel the K2661 uses to transmit MIDI messages. The value for this parameter matches the current MIDI channel displayed on the top line of the Program-mode page. If you change the current MIDI channel while in Program mode, the setting of this parameter changes accordingly, and vice versa.

Transpose

This parameter affects the transposition that's applied to the MIDI data stream. Adjusting this parameter transposes the K2661's notes, as well as notes on slaves receiving from the K2661. This transposition setting is not overridden when you use Setup mode, but is *added* to the transposition settings for the currently selected setup.

Control

Here you determine where the K2661 sends MIDI information. A value of **MIDI** sends the MIDI signal to the K2661's MIDI Out port, but not to the K2661 itself. This is also known as Local Control Off.

If you're using your K2661 with a MIDI sequencer and have a MIDI loop (K2661's Out to sequencer's In, and vice versa), you'll need to select a value of MIDI when your sequencer's Patch Thru feature—also known as Play Thru, and Soft Thru—is on. This will prevent the K2661's MIDI signal from looping back on itself, which can cause problems. If you deactivate your sequencer's Patch Thru feature, set the Control parameter's value to **Both**, and the K2661 will play normally. Also, you may want to set the value of the LocalKbdCh parameter to **None** when you have a MIDI loop, because you can have problems with doubled notes and MIDI overload. You won't have problems, however, as long as the channels transmitted by the K2661 are all different from the incoming MIDI channel.

A value of **Local** disables the MIDI Out port. Use this setting when you want to play the K2661, but not to send any MIDI information to other MIDI instruments (local control only). A value of **Both** (the default) enables you to play the K2661 and send MIDI information from its MIDI Out port.

Velocity Map—Transmit (VelocMap)

The transmit velocity map affects the way the K2661 sends velocity information to its MIDI Out port. Different maps generate different velocity values for the same attack velocity—that is, they apply different curves to the attack velocities the K2661 receives and remap them to new velocities before transmitting them to the MIDI Out port.

Important: The MIDI velocity maps affect only those MIDI velocity values transmitted via the K2661's MIDI Out port, and are used exclusively to adjust the response of MIDI devices connected to the Out port. If you have a DX7 connected to your K2661, for example, and the DX is distorting, selecting a transmit Velocity Map like **Hard2** should handle the problem. Changing the velocity map on this page does not affect the response of the K2661's sound engine to its own keyboard, or to an external MIDI controller. That's done on the RECEIVE page. See Chapter 18 of the *Musician's Guide* if you're interested in editing velocity maps.

Also important: Both the transmit and receive velocity maps should be left at values of **Linear** unless you really need to change them. The linear maps give you the most consistent results.

Keep in mind that the setting of the Veltouch parameter in Master mode also has an effect on the transmit velocity map.

Pressure Map—Transmit (PressMap)

This is like the VelocMap, but it controls the aftertouch values sent by the K2661 to its MIDI Out port. Use this exclusively to adjust the response of MIDI devices connected to the K2661's MIDI Out port. Changing the pressure map on this page does not affect the response of the K2661's sound engine to its own keyboard, or to an external MIDI controller. That's done on the RECEIVE page. See Chapter 18 of the *Musician's Guide* for information about editing pressure maps.

Program Change (PChng)

When On, the K2661 sends program change commands to its MIDI Out port when you select programs or setups from the front panel or from your MIDI controller. Select a value of **Off** when you want to change programs on the K2661 but don't want to send program change commands to the MIDI Out port. This parameter doesn't affect the *type* of program change command that's sent; it just determines whether any command is sent at all. (The type of program change command is determined by the settings for three parameters on the CH/PRG page in the Setup Editor.)

Buttons (Bttns)

If you set the value of the Buttons parameter to **On**, the System Exclusive (SysEx) messages generated by your button presses are sent to the MIDI Out port. This enables you to do two things: control a remote K2661 (or earlier model), and record sequences of programming button presses to a sequencer or SysEx software package.

If you have the MIDI In port of another K2661 (or K2600, K2500, or K2000) connected to the first one's MIDI Out port, the second instrument will respond to every button press on the first instrument, just as if you were pressing the buttons of the second one. Keep in mind that both devices must be in exactly the same state (the same page in the same mode, with identical lists of RAM objects) when you start. Otherwise the button presses you make on the first instrument may execute other functions on the second instrument.

Much more useful is to send streams of button presses to your sequencer. When you dump them from your sequencer back to the K2661, the K2661 responds as if the buttons were actually pressed. This enables you to set up a variety of "macros," which are strings of commands that can be executed all at once by a single initial command. For example, you can record a sequence of button presses that enters Disk mode, selects a specific SCSI device, and loads one or more banks of samples while you do something more entertaining. Again, it's important to keep in mind that the state of your K2661 must be identical to its state when you recorded the sequence of button presses. If you've added or deleted any objects stored in RAM, for example, the sequence of button presses will select different objects when you play back the button press sequence.

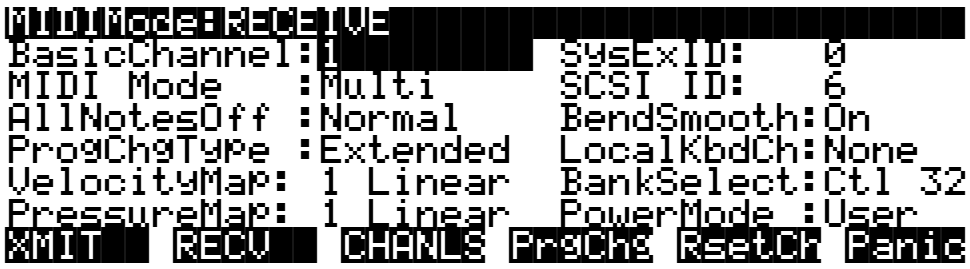
Note: *Make sure this parameter is set to* ***Off*** *before you initiate a SysEx dump of any kind. If this parameter is* ***On*** *when you start a dump, the buttons you press to begin the dump will also generate SysEx messages.*

Change Setups (ChgSetups)

This parameter determines the exact timing of setup changes when you select a different setup—either by a normal data entry method or via MIDI program change commands. Choose **KeyUp** to indicate that you want setup changes to take place only when you've released all currently held notes. Choose **Immed** to indicate that you want such changes to happen immediately when you select the setup.

The RECEIVE Page

Press **RECV** to select the RECEIVE page, where you define the K2661's response to incoming MIDI signals (with one exception pertaining to Quick Access mode, which we'll explain later).



Parameter	Range of Values	Default
Basic Channel	1 to 16	1
MIDI Mode	Omni, Poly, Multi	Multi

Parameter	Range of Values	Default
All Notes Off	Normal, Ignore	Normal
Program Change Type	Program Change Type List	Extended
Velocity Map	Velocity Map list	1 Linear
Pressure Map	Pressure Map list	1 Linear
System Exclusive ID	0 to 127	0
SCSI ID	0 to 7	6
Bend Smooth	On, Off	On
Local Keyboard Channel	None, 1 to 16	None
Bank Select	0 only, 32 only, Ctl 0, Ctl 32	Ctl 32
Power Mode	User, Demo	User

Basic Channel

The basic channel determines which channel will always be available to receive MIDI information. Depending on the MIDI receive mode (below), the Basic channel may be the only receiving channel, or one of several.

MIDI Receive Mode (MIDI Mode)

The MIDI Mode parameter determines the MIDI receiving capabilities of the K2661. When set to **Omni**, the K2661 responds to incoming MIDI events on all MIDI channels, and plays them on the current channel. This is normally used for diagnostic purposes only.

At a setting of **Poly**, the K2661 responds only to events that are sent on the same channel as the K2661's current MIDI channel (the one displayed on the top line of the Program-mode page). In Poly mode, the currently selected channel is always the basic channel, so if you change channels, the basic channel changes accordingly.

With a value of **Multi** (the default), the K2661 responds to events on all active channels. This is the mode you'll use when you're driving the K2661 with a sequencer, since you can play a different program on each channel. At this setting, you can turn individual channels on and off (on the CHANNELS page, described later in this chapter).

All Notes Off

If this parameter's value is set to **Normal**, the K2661 responds to All Notes Off messages received over MIDI. **Ignore** causes these messages to be ignored. If you're using a Roland product as a MIDI controller for your K2661, you'll want to set the value of this parameter to **Ignore**. This is because some older Roland products occasionally send an All Notes Off message when no keys are held down—even if you're sustaining notes with a pedal. You might find all your sustains missing from your sequence, for example, if you're driving your K2661 from one of Roland's hardware sequencers. Setting this parameter to **Ignore** takes care of this problem.

Regardless of the setting for this parameter, the K2661 always responds to its own **Panic** button by shutting off all active notes and controllers.

Program Change Type (ProgChgType)

This determines how the K2661 responds to program change commands received via MIDI. See *Program Change Formats* on page 10-9 for an explanation of the various values available for this parameter.

Velocity Map—Receive

The velocity map applies a preset curve to incoming velocity messages. It maps incoming velocity levels to new levels that correspond to the eight dynamic levels used by the VTRIGs and keymaps for velocity level selection. See Chapter 18 of the *Musician's Guide* . Normally you'll leave this set to **1 Linear**. Adjust this parameter's value only when you need to alter the K2661's response to the velocity messages from a MIDI controller, for example, if you're getting too much or too little volume when you play, or when a sequencer is driving the K2661.

Pressure Map—Receive

Like the velocity map, this determines how the K2661 responds to incoming pressure (aftertouch) messages.

System Exclusive ID (SysExID)

The SysExID parameter differentiates between more than one MIDI device of the same model. You won't need to change the default setting of 0 unless you have multiple K2661s (or K2600s, K2500s, or K2000s) receiving SysEx messages from a single source. In that case, make sure each instrument has a different SysExID. Then you can direct SysEx messages to the appropriate K2661 with the SysExID byte that's included with every SysEx message. A value of **127** specifies "Omni Receive." That is, at this value, a K2661 responds to a SysEx message regardless of the SysEx ID of the message (as long as the manufacturer and device IDs match—see Chapter 7 of the *Musician's Reference* for more information about System Exclusive messages).

SCSI ID

Use this parameter to change the SCSI ID of your K2661. You can ignore this parameter unless you've connected a SCSI device (external SCSI disk or CD-ROM drive) to the K2661's SCSI port. You can use the SCSI port to chain up to seven SCSI devices to the K2661 (a total of eight devices can be chained together); just be sure to set each one to a different SCSI ID. Most SCSI devices available today make it easy to change their SCSI IDs, so you may not have to adjust this parameter even if you have several SCSI devices connected. See Chapter 13 for more information about using SCSI devices.

Bend Smooth

This parameter can improve your K2661's performance when you're driving it from a MIDI guitar controller. Its default value is **On**.

You may find that pitch bending seems to carry over from the previous note to the next note, causing it to start on the wrong pitch. This is probably due to the automatic pitch smoothing provided by the K2661. If this is happening, try setting the BendSmooth parameter to a value of **Off**.

Local Keyboard Channel (LocalKbdCh)

Changing the setting of the Local Keyboard Channel parameter is useful only when your K2661 is receiving MIDI information from an external source—maybe you have a favorite MIDI keyboard that you use to control all the gear in your studio, or you use a lot of outboard sequencing. If you're using the K2661 as a standalone music workstation or performance keyboard, you can ignore this parameter.

If you do need to change the setting of the Local Keyboard Channel parameter, refer to Chapter 10 of the *K2661 Musician's Guide* (provided on the CD-ROM).

Bank Select

BankSelect allows you to choose between having the K2661 respond to Controller 0 or Controller 32 or both. The reason for this is that various manufacturers have chosen one method or the other. The four possible values for this parameter are:

0 only Responds to controller 0 only.

32 only Responds to controller 32 only.

Ctl 0 Responds to 0 or 32.

Ctl 32 Responds to 0 or 32.

Power Mode

Power Mode has two possible values: **User** and **Demo**. When set to **User**, the user's parameter settings are retained. When set to **Demo** several parameters are returned to default values when the unit is powered up. The default value for the Power Mode parameter is **User**.

The following parameters are reset when Power Mode is set to Demo.

Master mode: KB3 Channel resets to **1**

MIDI Transmit: Control resets to **Both**; Channel resets to **1**; Transpose resets to **0 ST**

Effects mode: FX Mode resets to **Auto**, and FX Chan resets to **Current**

Disk mode: Current Disk resets to **SMedia**

The Channels Page

Press the **CHANLS** soft button to select the CHANNELS page, where you can define numerous parameters for each MIDI channel independently. Use the **Chan/Bank** buttons to select the MIDI channel you wish to work on.

The CHANNELS page is very useful when you're doing multi-timbral sequencing, with programs assigned to numerous MIDI channels. The CHANNELS page lets you set several control characteristics for each MIDI channel. This makes it easy to adjust the playback of the sequence without editing the sequence itself. For example, you might turn off the Enable parameter for one or more channels to mute the tracks on those channels. You could also set the VolLock parameter to **On**, to ignore any MIDI volume messages the K2661 receives on a given MIDI channel.

Parameter	Range of Values	Default
Enable	Off, On	On

Parameter	Range of Values	Default
Program	Program list	Program ID 1
Pan	0 to 127	64 (centered)
Volume	0 to 127	127 (maximum)
Output Pair	Prog, KDFX-A to KDFX-D	Prog
Output Gain	Prog, –12 to 30 dB in 6 dB increments	Prog
Program Lock	Off, On	Off
Pan Lock	Off, On	Off
Volume Lock	Off, On	Off

Enable

Use this parameter to turn the currently selected channel on or off. When on, the channel will receive MIDI information, and the settings of the parameters on the MIDI CHANNELS page will be in effect. When off, the channel will ignore all MIDI information.

Program

Use this parameter to assign a program to the currently selected channel. The channel will still respond to program change commands received via MIDI, unless the PrgLock parameter (described below) is set to **On**.

Pan

This offsets the pan position of the current program as set on the OUTPUT page in the Program Editor. A value of **0** is maximum offset to the left, **64** is no offset, and **127** is maximum offset to the right. Changing the value of this parameter is like inserting a MIDI pan message. MIDI Pan (MIDI 10) messages will change the value of this parameter, unless the PanLock parameter (described below) is set to **On**.

If the Mode parameter on the OUTPUT page in the Program Editor is set to Fixed, changing the value of Pan on the CHANNELS page in MIDI mode has no effect.

Volume

This sets the volume for any program assigned to the currently selected channel. A value of **0** is silence, and a value of **127** is full volume. The value of this parameter will change in response to MIDI Volume (MIDI 07) messages, unless the VolLock parameter (described below) is set to **On**.

Output Pair (OutPair)

This parameter sets the audio output group for the program assigned to the currently selected channel. The default value of **Prog** means that the output group is determined by the program's value for the Pair parameter on the OUTPUT page in the Program Editor. In this case, the channel's output group changes depending on the program assigned to it, with the output group being routed on a per layer basis within the program. Values of **KDFX-A**, **KDFX-B**, **KDFX-C**, or **KDFX-D** fix the output group regardless of the program that's assigned to the channel.

Output Gain (OutGain)

OutGain boosts or cuts the level at the audio outputs for any program assigned to the currently selected channel. This allows you to make a program louder or softer without having to edit the program.

Program Lock, Pan Lock, Volume Lock

When the parameter locks are set to **On**, the three parameters they control do not respond to their respective MIDI controller messages. In that case, you could change the Program, Pan, and Volume settings from the front panel, but not via MIDI.

Program Change Formats

The K2661 can store more programs than the MIDI program change specification can handle (MIDI lets you send program change numbers from 0 to 127 or 1 to 128 only). So we've designed a system that makes program selection more flexible. This is true whether you're selecting programs from the K2661's front panel, or via MIDI.

Program Change Type	For Use With:
Extended	Other K2661s (or K2600s, K2500s or K2000s) similarly set, plus all other instruments that use the Bank Change controller
Kurzweil	K1200s, and 1000s with version 5 software
0–127	Older MIDI devices that transmit program change commands in the range from 0–127 only.
QA Bank E	Other K2661s (or K2600s, K2500s or K2000s) similarly set, when in Quick Access mode
QA Bank K	K1200s and v5 1000s, when in Quick Access mode
QA 0–127	With the K2661 in Quick Access mode, when using it with older MIDI devices

First of all, the K2661's programs (and all of its objects) are numbered and grouped according to a decimal system, that is, in multiples of ten. This is much easier to keep track of than the binary-oriented groupings of many synths, which feature banks of 8, 16, or 64 programs.

Next, the K2661 gives you 999 program change numbers to work with. These are organized into ten banks of 100 each (the memory banks). A program's object ID is its program change number, as discussed on page 5-2. This makes it easy to keep track of your programs. The K2661 can use several different formats for interpreting program change commands. The value for the ProgChgType parameter on the RECEIVE page determines which format is used, and the one you should select depends on your MIDI system.

If you expect you'll always change programs from your K2661's front panel, you can finish this paragraph and skip the next few sections. In this case, selecting programs is as simple as entering the program change number (the program's object ID) on the alphanumeric pad, and pressing **Enter**. Even program numbers above the usual MIDI limit of 127 can be selected this way.

Extended and Kurzweil Program Change Types

In the early days of MIDI, most instruments had small numbers of memory locations, usually 32, 64, or 128. As instruments began to have more memory locations, however, users ran against the limitation of only 128 values for program changes in the MIDI spec. Because of this, Bank Change Controller was added, allowing users to switch between banks of up to 128 programs per bank.

Previous to the addition of the Bank Change Controller, Kurzweil had developed their own method of switching banks by using two program changes, one to switch the bank, the second to call up the program within the bank (as described below). The K2661 can respond to either

the Bank Change controller or the double-program-change method. In a nutshell, the difference between the **Extended** setting and the **Kurzweil** setting is this: In **Extended**, the K2661 will receive and respond to the Bank Change controller. When set to **Kurzweil**, the K2661 will receive only the double-program-change method.

Extended Program Changes

If you're controlling your K2661 from a MIDI device that can handle the MIDI Controller 0 or 32 program-change format, you'll have the greatest flexibility if you set the ProgChgType parameter to a value of **Extended** (or **QA Bank E**, but that explanation comes later).

When you're using the extended program change format, then depending on the value of the BankSelect parameter on the RECEIVE page in MIDI mode, the K2661 will respond to either MIDI Controller 0 or 32 program change commands for bank selection (Zeros through 900s), and standard program change commands for program changes within the current bank. Different values have different results, as shown in the following table:

Program Change Command Type	Value of Message	Result
MIDI controller 0 or 32 (MC 0 or MC 32)	0 to 9	Selects memory bank zeros–900s
	10 to 127	Ignored
Standard (PCH)	0 to 99	Selects correspondingly numbered program in current memory bank
	100 to 127	Selects correspondingly numbered program in next-highest bank

If your K2661 is already in the memory bank you want to use, you can send it single PCHs from 0 to 99, to select programs within that memory bank. The K2661's response depends on the setting for the MIDIBankMode parameter on the CH/PRG page in the Setup Editor. If you want to change the memory bank, the K2661 must receive either an MC 0 or 32 message with value 0–9. The next PCH in the range 0–99 will select the correspondingly numbered program in the newly selected bank. The following table of examples should help make it clear.

Bank Change Command Received	Program Change Command Received	Result
MC 0 or 32: value 0	PCH: value 99	Program 99 (0s bank, 99th program)
MC 0 or 32: value 1	PCH: value 42	Program 142 (100s bank, 42nd program)
MC 0 or 32: value 1	PCH: value 120	Program 220 (200s bank, 20th program)
MC 0 or 32: value 9	PCH: value 0	Program 900 (900s bank, 0th program)
MC 0 or 32: value 9	None	900s bank selected, no change in current program (bank selection is pending for next PCH)
MC 0 or 32: value 10	PCH: value 99	MC 32 message ignored; 99th program in current bank selected (for example program 199 if in 100s bank)

Kurzweil Program Changes

When you use the Kurzweil program change format, you'll use PCH messages to select different memory banks, followed by a second PCH command to change the program within the current bank, as the following examples demonstrate. You'll want to use this format if you're controlling your K2661 from a Kurzweil 1000- or 1200-series instrument.

1st Program Change Command Received	2nd Program Change Command Received	Result
PCH: value 39	None	39th program in current bank selected
PCH: value 99	PCH: value 27	27th program in current bank selected (99 is selected, then overridden by 27)
PCH: value 102	PCH: value 16	Program 216 (200s bank, 16th program
PCH: value 105	PCH: value 44	Program 544
PCH: value 109	PCH: value 0	Program 900
PCH: value 127	PCH: value 99	99th program in current bank (1st PCH is ignored, since it's above 109)
PCH: value 127	PCH: value 104	No change in current program; 400s bank is selected pending next PCH

0-127 Program Change Type

You may be controlling your K2661 from an "old" MIDI device—one that was built before the MIDI Controller 0 program change format was developed. If your MIDI controller is one of these (if its manual doesn't mention MIDI Controller 0 program changes, it's an "old style" machine), you might want to set the ProgChgType parameter to a value of **0–127**. This will enable you to select programs 0–127 from the controller. This limits your range of program selection, but it configures the K2661 to respond predictably to the controller. (You'll have to select higher-numbered programs from the K2661's front panel) Of course, you could use the Kurzweil format, but in many cases you'll have to send two program change commands to get the program you want.

Quick Access Banks—Extended (QA Ext)

Using this setting is similar to using the Extended program change format, but it goes one step further. Incoming program change commands are interpreted just as they are in the normal Extended format. But the resulting program change number, instead of selecting a program, selects a Quick Access bank entry (you must be in Quick Access mode for this to work). There are two advantages to using this format. First, it allows you to select both programs and setups using program change commands, without having to switch between Program and Setup modes. Second, you can remap incoming program change commands to select programs or setups with different IDs. This is handy if the sending unit can't send program change commands higher than 127.

First, a brief review of Quick Access bank structure. Each Quick Access bank can store ten entries, each of which can be a program or a setup. Each of the K2661's 10 memory banks can store 20 Quick Access banks (except the Zeros bank, which can store 75). Therefore when you're in Quick Access mode, you have access to 200 (or 750 in the Zeros bank) programs or setups without leaving the currently selected memory bank. The QA Ext program change format lets you select any one of those programs or setups via MIDI. If you select another memory bank, you have a different set of 200 programs and setups at your disposal. When you're using this format, the K2661 will respond to MC 0 or 32 messages for selecting QA banks, and to PCHs for selecting entries within the current bank. PCHs select entries according to their "chronological" listing within the QA bank (not according to their IDs).

Command Type	Value Range	Result
MIDI controller 0 or 32 (MC 0 or MC 32)	0 to 7	Selects QA bank 0n, 1n, 2n, 3n, 4n, 5n, 6n, 7n in current memory bank
	8–127	Ignored
Standard (PCH)	0–99	Selects last digit (n above) of QA bank, and entry within that bank
	100–127	Ignored

Depending on the QA bank entry you want to select, you'll send the K2661 either a PCH (value 0 to 99), or a MIDI Controller 0 or 32 message (value 0 to 7) followed by a PCH. Sending a single command will let you select from a range of 10 QA banks and select an entry within that bank (see the table below). To select a different range of QA banks, send an MC 0 or 32 message followed by a PCH.

The MC 0 or 32 messages selects the range of QA banks (0s through 70s), while the PCH selects the bank within that range, as well as the entry within that bank. Neither the MC 0 or 32 nor the PCH selects a different *memory* bank (Zeros through 900s). In fact, you can't change the memory bank via MIDI when using this format. All program and setup selections are made within the currently selected memory bank. You'll know which memory bank is selected by looking at the ID of the currently selected Quick Access bank in the top line of the Quick Access-mode page. Several examples follow.

If the Zeros Memory Bank is Currently Selected

Bank Range Command	Bank / Bank Entry Command	Resulting Selection
MC 0 or 32: value 0	PCH: value 6	No change (K2661 interprets this as QA bank 0, entry 6. There is no QA bank 0. Lowest valid PCH value in this case is 10, which would select QA bank 1, entry 0)
None	PCH: value 9	Entry 9 in current QA bank
MC 0 or 32: value 0	PCH: value 32	QA bank 3, entry 2
MC 0 or 32: value 1	PCH: value 4	QA bank 10, entry 4
MC 0 or 32: value 1	PCH: value 28	QA bank 12, entry 8
MC 0 or 32: value 2	PCH: value 44	QA bank 24, entry 4

Remember that in the Zeros memory bank, the Quick Access bank IDs go through 75. So if the Zeros memory bank is the current memory bank, you can send MC 0 or 32 values as high as 7 for the bank range command. And you can send PCH values as high as 99 for the bank/bank entry command. (When you're in the other memory banks, you can send MC 0 or 32 values of 0 or 1, and PCH values of 0 to 99.)

If the 200s Memory Bank is Currently Selected

Bank Range Command	Bank / Bank Entry Command	Resulting Selection
None	PCH: value 44	QA bank 204 or 214; entry 4
MC 0 or 32: value 0	PCH: value 6	QA bank 200, entry 6
MC 0 or 32: value 0	PCH: value 32	QA bank 203, entry 2
MC 0 or 32: value 0	PCH: value 99	QA bank 209, entry 9
MC 0 or 32: value 1	PCH: value 4	QA bank 210, entry 4
MC 0 or 32: value 1	PCH: value 28	QA bank 212, entry 8
MC 0 or 32: value 2	PCH: value 44	No change; MC 0 or 32 value 2 is invalid in 200s bank.

Quick Access Banks—Kurzweil (QA Kurz)

This works almost exactly like the QA Ext format. The only exception is that within the QA Kurz format, the K2661 expects the bank range command to be a PCH, and not MC 0 or 32. MIDI Controller 0 or 32 messages are not recognized. The K2661 expects to receive PCHs of

value 0–99 to select a bank and entry, or a pair of PCHs, the first having a value of 100–107 to select a different 10-bank range.

QA 0–127

Finally, there's the QA Bank format for use with older MIDI devices (program change commands 0–127 only). It works similarly to the other QA formats, but the allowable range of values is limited to 0–107.

QA Formats and MIDI Transmission

If you're in Quick Access mode and you're using one of the QA formats for the program change type, selecting QA banks or bank entries from the K2661 (with the alphanumeric buttonpad, the cursor buttons, the Alpha Wheel, the **Plus/Minus** buttons, or the **Chan/Bank** buttons) also sends corresponding program change commands to the K2661's MIDI Out port. The nature of these commands depends on the value of the ProgChgType parameter. The K2661 sends either an MC 0 or 32 message followed by a PCH (when ProgChgType is **QA Ext**), or a pair of PCHs (when ProgChgType is **QA Kurz**) or a single Program Change command (when ProgChgType is **QA 0–127**). The following tables give specific examples.

Current QA Bank	Entry From Alphanumeric Pad	Commands Sent	
		MC 0 or 32	PCH
1	0	0	10
1	9	0	19
2	0	0	20
2	9	0	29
9	9	0	99
10	0	1	0
19	9	1	99
20	0	2	0
29	9	2	99
75	9	7	59
100	0	0	0
105	9	0	59
110	9	1	99
117	7	1	77
119	9	1	99

Table 10-1 QA Extended Program Change Examples

Current QA Bank	Entry From Alphanumeric Pad	Commands Sent	
1	0	100	10
1	9	100	19
2	0	100	20
2	9	100	29
9	9	100	99
10	0	101	0

Table 10-2 QA Kurz Program Change Examples

Current QA Bank	Entry From Alphanumeric Pad	Commands Sent	
19	9	101	99
20	0	102	0
29	9	102	99
75	9	107	59
100	0	100	0
105	9	100	59
110	9	101	99
117	7	101	77
119	9	101	99

Table 10-2 QA Kurz Program Change Examples

The Soft Buttons in MIDI Mode

The first three soft buttons select the three MIDI-mode pages. The **PrgChg** soft button lets you send a program change command on any MIDI channel. The **RsetCh** soft button lets you return all channel parameters to their default values. The **Panic** soft button sends an All Notes Off and an All Controllers Off messages to the K2661 and on all 16 MIDI channels.

Program Change (PrgChg)

When you press this soft button, a dialog appears:

This dialog lets you send program changes out the MIDI Out port, but does not change internal programs. The **Chan/Bank** buttons, the **Up/Down** cursor buttons, and the **Chan–** and **Chan+** soft buttons can all be used to change the channel on which the program change command will be sent. The **Left/Right** cursor buttons, the **Plus/Minus** buttons, the Alpha Wheel and the **Prog–** and **Prog+** soft buttons can all be used to change the program change number that will be sent. When you've set the channel and the program change number, press the **Send** soft button to send the program change command. Or press the **Cancel** soft button if you don't want to send it. You can change the channel and the program number as many times as you want before you press **Send**. You also can use the alphanumeric pad to select a program number directly.

Reset Channels (RsetCh)

When you press this soft button, the K2661 asks if you want to reset all channels. If you press **Yes**, all settings on the CHANNELS page will return to their default values. For example, you may have set several MIDI channels to route their audio to Output Group B for a special project. When the project's over, you can reset the Channels to restore the audio routing to each individual program (a value of **Prog**), rather than selecting each channel's page and setting the Pair parameter back to a value of **Prog**. Press **No** if you decide not to reset the channels.

Panic

Panic sends All Notes Off and All Controllers Off messages to the K2661 and all MIDI channels.

Chapter 11
Master Mode

Press the **Master** mode button to enter Master mode, which contains parameters affecting the K2661's overall performance.

The Master Mode Page

On the Master-mode page you'll find parameters for setting the overall tuning and transposition of the K2661, the MIDI channel to be used for KB3 programs (explained below), and for several keyboard and programming adjustments. You can also enter the sampler from the Master-mode page.

Parameter	Range of Values	Default
Tune	± 100 cents	0
Transpose	± 60 semitones	0
KB3 Channel	1 to 16	1
Velocity Touch	Velocity Map list	1 Linear
Pressure Touch	Pressure Map list	1 Linear
Intonation	Intonation Table list	1 Equal
Confirm	On, Off	On
IntonaKey	C–B	C

Tune

Adjusting the value of this parameter tunes every program in the K2661 by the amount you specify. Tuning can be adjusted up or down 100 cents (one semitone) in one-cent increments. This parameter is useful for getting in tune with recordings and acoustic instruments. Adjusting the tuning in Master mode does not change the settings on the PITCH page of individual programs, but will be added to any adjustments you make there. Master-mode tuning adjustments affect only the K2661's notes, and not notes sent via MIDI.

Transpose

Like the Tune parameter above, Transpose affects every K2661 program, but not those notes sent to the MIDI Out port. You can adjust the MIDI transposition on the TRANSMIT page in MIDI mode.

KB3 Channel

The architecture of KB3 programs is completely different from the architecture of regular VAST programs. KB3 don't have layers containing keymaps and samples that get played with each keystrike. Instead, they have an array of oscillators that are constantly running, which requires a different kind of processing (and more of it). Consequently, a KB3 program won't run on a "normal" MIDI channel. It has to have a special channel that processes note information differently. And that's what the KB3 Channel parameter does.

There can be only one KB3 channel, although you can set it to be any of the 16 MIDI channels. It's like saying "OK, I want Channel 1 to be the channel that plays KB3 programs. All the other channels are for regular programs and other stuff."

Any program can play on the KB3 channel, but *KB3* programs can play *only* on the KB3 channel. If you're on a keyboard channel that's not the KB3 channel, and you select a KB3 program, the program's name appears in parentheses in the display, and you won't be able to trigger any notes on that channel. In this case the box at the left of the display reminds you which channel is the KB3 channel.

Velocity and Pressure Touch (VelTouch and PressTouch)

If you change the setting of the VelTouch parameter, remember that it also has an effect on the transmit velocity map (which is on the MIDI-mode TRANSMIT page).

Intonation

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 interval. Many different intonation intervals have evolved over the centuries, however, and the K2661 supplies you with 17 different intonation "tables" to choose from. (There are also a few extra "tables" listed, which we'll describe in a moment.) By changing the value for this parameter, you select from among the intonation tables stored in the K2661's memory. Each of these tables defines different intervals between each of the semitones in a single octave.

Scroll through the list of Intonation tables, and listen for the differences between semitones. Some of the intervals between semitones may be quite different from equal intonation, but you'll notice that all notes are precisely tuned with notes that are an octave apart. This is because the intonation tables set the intervals within a single octave, and apply those intervals to each octave. If this doesn't make sense, the explanation of the Intonation Table Editor, in Chapter 18 of the *Musician's Guide* will help clarify things. If you're hoping to create fully microtonal tunings by editing intonation tables—sorry, that's not possible. But you *can* create microtonal tunings using the Keymap Editor; see Chapter 14.

Determining the Version Number of Your ROM Objects (Intonation Tables 18–22)

As you're scrolling through the list of intonation tables, you may notice a listing for an eighteenth intonation table with a name such as **18 Obj v*n.nn***. This isn't really another intonation table. Rather, this is where the K2661 stores the version number of some of your ROM objects. If you ever need to find out what version of ROM objects you've got loaded, this is where you look. Simply go to the Master page, then scroll the Intonation parameter until **18** is displayed. If you have more than one block of ROM objects installed, you'll see additional "tables," up to and including 22. And don't forget to return to your correct intonation table when you've checked the version numbers of your ROM objects.

List and Description of Intonation Tables

1	Equal	No detuning of any intervals. The standard for modern western music.
2	Classic Just	Tunings are defined based on the ratios of the frequencies between intervals. The original tuning of Classical European music.
3	Just Flat 7th	Similar to classic Just, but with the Dominant 7th flatted an additional 15 cents.
4	Harmonic	The perfect 4th, Tritone, and Dominant 7th are heavily flatted.
5	Just Harmonic	
6	Werkmeister	Named for its inventor, Andreas Werkmeister. It's fairly close to equal temperament, and was developed to enable transposition with less dissonance.
7	1/5th Comma	
8	1/4th Comma	
9	Indian Raga	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 1Bali/Java, slightly more subtle overall.
13	BaliJava3	A more extreme variation.
14	Tibetan	Based on the Chinese pentatonic scale.
15	CarlosAlpha	Developed by Wendy Carlos, an innovator in microtonal tunings, this intonation table 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.
18–24	Obj v*n.n*	Not an intonation table; indicates version number of K2661 ROM objects.

In general, you should select a nonstandard intonation table when you're playing simple melodies (as opposed to chords) in a particular musical style. When you use intonation tables based on pentatonic scales, you'll normally play pentatonic scales to most accurately reproduce those styles. An excellent reference source for further study of alternative tunings is *Tuning In: Microtonality in Electronic Music*, by Scott R. Wilkinson.

Confirm

Confirmations are special displays that the K2661 shows you when you are about to alter memory permanently. The confirmations ask if you really want to do what you're about to do, and give you another chance to cancel the operation you're about to execute. With the Confirm parameter set to **Off**, these prompts do not appear. You'll still be alerted before doing something that might cause you to lose your work, but your margin of error is slimmer with confirmations turned off.

Intonation Key (IntonaKey)

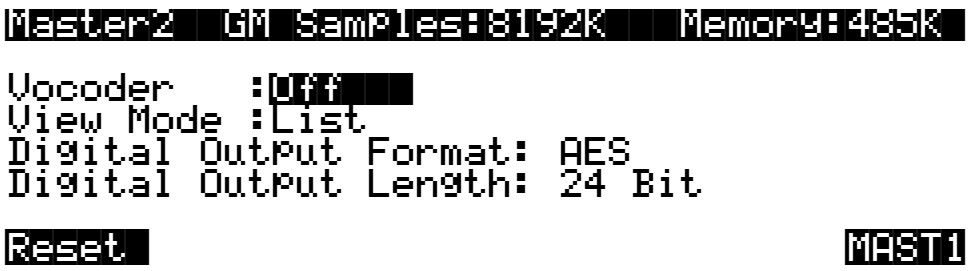
This sets the tonic, or base note from which the currently selected intonation table calculates its intervals. If you select **G** as the intonation key, for example, and the intonation table you select tunes the minor 2nd down by 50 cents, then $G^{\#}$ will be a quartertone flat relative to equal intonation. If you change the intonation key to **D**, then $D^{\#}$ will be a quartertone flat. If you use nonstandard intonations, you'll want to change the intonation key as you change the key you're playing in. If the Intonation parameter is set to **Equal**, changing IntonaKey has no effect.

You can also set the intonation key from an external MIDI device. Note On events at C -1 through B -1 (MIDI note numbers 0 through 11) will set the intonation key at **C** through **B**, respectively.

To trigger notes in the range required to set the Intonation key, you can transpose the K2661 temporarily from its front panel, or from your MIDI controller if it has the ability. Alternatively, you could create a setup with just the lowest octave transposed down two octaves, then select it when you want to change the Intonation key. If you're driving your K2661 from a sequencer, you could simply insert the appropriate note events anywhere in the sequence to change the intonation key.

The MAST2 Page

Press the MAST2 soft button to reach the MAST2 page:



The MAST2 page enables you to perform a hard reset of your instrument (this deletes everything in RAM, so be careful!), and to turn the vocoder feature on and off.

The Vocoder

Vocoding is a special feature that allows you to use an input signal to control another audio (slave) signal. Typically you would use a synthesizer for the input signal, although in fact you can use any sound source. You must have the sampling option to be able to use the vocoder.

Cables and Connections

Using the K2661 for Both Input and Slave Signals

You'll need an insert cable (Y cord) with a 1/4-inch stereo (Tip/Ring/Sleeve) plug (male) on one end and 2 mono jacks (female) on the other end. The right side mono jack should be 1/4-inch. The left side can be either 1/4-inch or XLR. (You will be plugging a Mic into the left side, so if the insert cable has a 1/4-inch jack, you'll need an adapter from XLR to 1/4-inch.)

1. Plug the stereo side of the insert cable into the 1/4-inch stereo Sample Input.
2. Connect a microphone to the left mono jack of the insert cable. It *must* be the *left* input.
3. Connect the B Right output of the K2661 to the right mono jack of the Insert cable.

Using the K2661 for Input Signal and External Source for Slave Signal

There are two setup methods for this configuration. Here's the first:

You'll need an insert cable (Y cord) with a 1/4-inch stereo (Tip/Ring/Sleeve) plug (male) on one end and 2 mono jacks (female) on the other end. The right side mono jack should be 1/4-inch. The left side can be either 1/4-inch or XLR. (You will be plugging a Mic into the left side, so if the insert cable has a 1/4-inch jack, you'll need an adapter from XLR to 1/4-inch.)

1. Plug the stereo side of the insert cable into the Stereo Analog Input of the sampler.
2. Connect a microphone to the left mono jack of the insert cable. It *must* be the *left* input.
3. Connect the output of your external sound source to the right mono jack of the insert cable.

The second method:

1. Connect a microphone into the left low impedance input (XLR) of the sampler.
2. Connect your external sound source to the right low impedance input (XLR) of the sampler.

Final Audio Output

You must have audio cables connected from the A outputs on the K2661 to your mixer or amp. Don't use the Mix outputs.

MIDI

If your external slave is a rack (or it is a keyboard but you want to use the K2661's keyboard to control the slave), connect a MIDI cable from the MIDI Out port of the K2661 to the MIDI In port of the slave.

Setting Up the K2661

1. Go to Sample mode (press the **Sample** soft button in Program, Setup, or Quick Access mode).

2. Set the Input parameter to a value of **Analog**.
3. Set the value of the Source (Src) parameter to **External** (**Ext**).
4. Set the value of the Mode parameter to **LiveIn**.
5. Verify that mic signal is on the left side only. Adjust the Gain parameter as needed, to get a good signal level.
6. Verify that your sound source (either the K2661 or external source) is on the right side only.
7. Go the Effects-mode page and make sure that the FX Mode parameter is set to **Auto** and the FX Chan parameter is set to **Current**.

Enabling Vocoder Mode

1. Load the file VOCODER.K26 into any bank. It's provided on the CD-ROM and SmartMedia card. See Chapter 13 if you need help loading a file.
2. Go to Master mode.
3. Press the **MAST2** soft button.
4. Set the value of the Vocoder parameter to **On**.
5. Exit from Master mode (press any of the other Mode buttons).

Note that enabling the vocoder activates special software, which replaces the software used for the SHAPE2 and AMP MOD OSC functions in the F3 block of an algorithm. Therefore any programs that use SHAPE2 and AMP MOD OSC in the F3 block will sound different while the vocoder is active. Turning the Vocoder parameter Off will restore those DSP functions and disable vocoding.

Using the Vocoder

Go to Setup Mode and select one of the setups in the memory bank where you just loaded the vocoder file. If you are using an external sound source for your slave, choose the setup **Vocoder-ExtSlave**. If you are using the K2661 as the input source for the slave, then you can choose either **Vocoder-22 Band** or **Vocoder-20 Band**. The 22-band vocoder will allow you to play up to 4 voices of polyphony on the slave program; the 20-band vocoder will allow you to play up to 8 voices of polyphony on the slave program.

Play a note or chord on your keyboard and speak into the microphone. You should be able to hear what you are speaking, but the sound will be a string sound (assuming you are using the K2661 as the slave source), pitched to the note or chord you are playing.

Try moving Sliders A, B, and C, and listen for changes in the sound. Since the setups contain entry values for these sliders, you may have to move the slider across its full range before it begins to take effect.

Effects Issues and Output Issues

The studio assigned to the vocoder setups is configured in the following manner: If you are using the K2661 for the slave signal, the slave program (in zone 3) has its output assigned to KDFX-B, which is being routed to the FXBus2, with no effect. On the OUTPUT page in the Setup

Editor, Output B is set to **FXBus2**, thereby sending the signal from the slave program to the B outputs and from B Right into the right side of the sample input.

The slave program has its output panned hard right within the program, so if you decide to try using a different slave program, you will probably want to edit the program itself to pan its output hard right, so you get 100% of the signal. You don't need to worry about setting the output pair within the program, because the Out parameter on the CH/PRG page of the Setup Editor is set to KDFX-B in zone 3, thereby overriding any settings from within the program.

The vocoder programs themselves are assigned to KDFX-A, which is being routed to FXBus1. On the OUTPUT page in the Setup Editor, Output A is set to **Mix**. So the final output of the vocoder programs is run through the effect and then comes out the A Outs and the Mix Outs. Don't use the Mix audio outputs, however, or you'll hear the slave program along with the vocoder.

If you choose to change the effects, you may find it easier to edit the vocoder studio, and try changing the effects assigned to FXBus1, FXBus2, and AuxFX. But if you want to change to a different studio, you will need to make sure the following parameters are set correctly: on the FXBUS page, for FXBus2, set the Level parameters for both Aux and Mix to **Off**, and on the OUTPUT page, set Output B to **FXBus2**.

How Vocoding Works

A vocoder is a device that analyzes the time-varying audio spectrum of one signal (the master) and imposes that spectrum as a filter on a second signal (the slave.) The method we use is an emulation of the traditional analog technique involving banks of bandpass filters and envelope followers.

The master signal is what you send from the microphone, and the slave signal is what you send from an external synthesizer or other sound source, or a program from the K2661.

The master signal is sent to a number of bandpass filters in parallel. The center frequencies are spaced to cover the most useful frequencies. The lowest frequency filter is a low pass rather than a bandpass, which groups all low-frequency components together. Likewise, the highest filter is a high pass. The outputs of all these bandpass filters go into individual envelope followers, which detect the level of signal present in each band. The output of the envelope follower is then used as a control for the slave signal.

The slave signal is also sent to the same number of bandpass filters. These generally have the same center frequencies as the master bandpasses. The output signals from the slave bandpasses are multiplied, one by one, by the outputs of the envelope followers (from the master signal). The resulting products are all added together for the final output.

Since each band requires two layers (one for master and one for slave), the largest number of bands you can have for vocoding is 24. (24*2=48, which is your maximum polyphony.) The programs in the Setup called **Vocoder-ExtSlave** use 24 bands. If you want to use the K2661 to generate your slave signal, then you have to use either the 22- or 20-band vocoder setups, which have fewer bands, and therefore leave 4 or 8 voices of polyphony available for the slave signal program.

Since 48 (or 44 or 40) layers are used, and a drum program has a maximum of 32 layers, we use two 24 (or 22 or 20) layer programs, on different MIDI channels, that are combined in a setup.

Each of the setups has 3 zones. In the 22- and 20-band vocoder setups, the first two zones are used for the vocoding programs and the third zone plays the internal program that is used for the slave signal. In **Vocoder-ExtSlave**, the third zone is set to transmit via MIDI only, on Channel 1. (This allows you to play your external sound source, but won't play a K2661 internal program.)

Layers are grouped in pairs, with the master signal going to the first layer, and the slave to the second. All odd numbered layers are master and all even numbered layers are slave. If you look at the algorithms in the vocoding programs, you will see that the first two DSP blocks (after PITCH) of each layer are a bandpass filter (or low pass or hi pass filters for the first and last bands). The first layer then has a DSP called MASTER, while the second layer has a DSP called SLAVE. These stages are then followed by an AMP stage. These DSP blocks perform the function of an envelope follower and gain multiplication.

The signal flows from the odd numbered (master) layer to its associated even numbered (Slave) layer (for example, from layer 1 to 2), which is something that does not happen in other algorithms. The low pass frequencies controlled by the third time slot for each layer set the response speed of the envelope follower. They are normally set to the same frequency. The master layer controls the frequency of one pole of low pass filtering, and the slave layer controls two more poles.

The AMP page on the master layer does nothing. There is no output from this layer, so any settings on the OUTPUT page don't matter. The slave layer's AMP page does do an actual amplitude control. The output pages for slave layers are active, and can be used to choose the output group and set the step panning.

All of the master layers use the LiveIn Left keymap and all of the slave layers use the LiveIn Right keymap. That is why you must plug the microphone into the left side of the sample input and the slave source into the right side.

As is always the case with Live mode, a note message is required in order for an incoming signal to be processed through VAST. Therefore, the two layers in the setup assigned to the vocoding programs have Pswitch2 set to generate a C4 with a velocity of 127, as soon as the setup is selected. That note remains on until you select a different setup. The setups are edited so that none of the notes on an 88 note keyboard are assigned to either of the two vocoding programs

Real-time Control of the Vocoding Programs

The most important control parameter is the envelope follower speed, set by the third time slot low pass parameters. These are set to C 6 on all the layers for the initial level. Slider A (MIDI 6) lowers the cutoff up to 8 octaves (9600 cents). Therefore, the higher you raise the slider, the slower the envelope follower speed. C 6, as a filter cutoff, has a time constant on the order of one millisecond. This is generally too fast. For best results, this should be lowered about 4 octaves to C 2 (half the range of the Data Slider), to a time constant of 16 milliseconds. Too slow and the vocoder will not respond to quick transients, like consonants, and too fast will result in a jittery sort of sound, as the envelopes follow every little fluctuation. At the fastest possible setting, the envelopes follow the master audio signal itself, and an extremely harsh intermodulation is heard between master and slave. The vocoder setups have an entry value of 64 for this slider, so when the setup is selected it is the equivalent of having the slider halfway up.

Slider B (MIDI 12) is used to control the width of the band pass filters (for all bands except the lowest and highest). The vocoder setups have an entry value of 10 for this slider, the equivalent of having the slider at the first dot above the bottom.

Slider C (MIDI 13) transposes the center frequencies of all the slave bandpasses upward together. It gives you the same result as pitch shifting the master signal up. Vocal formants will be munchkinized as you bring the slider up. The vocoder setups have an entry value of 0 for this slider, the equivalent of having the slider at the bottom.

Additional Notes and Programming Suggestions

The classic application of a vocoder is to make instrumental sounds talk/sing. The slave signal has to have a lot of high frequency content, or the consonants will not be heard clearly. However, there is no rule set in stone that you must speak words into the microphone. Using the vocoder

just as a timbral control can be just as interesting. You can get very expressive results by using your voice to control a lead line, doing the articulation and filter control by talking, singing, or just making various vocal sounds. You can get some of the same types of results you would by using a breath controller. It's a little like having a 24-band graphic equalizer, but instead of controlling it with your hands, you use your voice.

Furthermore, you don't even have to use a microphone as the master. You can send a signal from anything else that has varied timbral content and get interesting results. For example, the master signal could be a drum loop or some other recorded sound that changes timbres regularly.

The analog sample inputs on the K2661 are line level, not mic level. This means you have to boost the gain on the sample page to get a good signal. But this also increases the general noise level of the input signal. If you have a mic preamp, or plug the mic into a mixing board before sending the signal to the K2661, you can lower the Gain parameter and start with a much cleaner signal. This is highly recommended.

In addition, you will find you get better results if you run the preamped mic signal into a compressor before sending it to the K2661. This can also be done for the slave signal. Using compressors will give you a much more even dynamic result, making it easier to play and control your sound. This is because the dynamic range of the master and slave signals is added together. For example, let's say both the master and slave signals have a dynamic range of 20 dB. The resulting signal will have a dynamic range of 40 dB, giving you a very wide range between the softest and loudest signals you can produce.

One way to improve intelligibility is to mix in a little of the master signal into the final audio output. This can be done in a couple of ways. If you run the mic into a mixer, you can split the signal, sending it both to the K2661 as well as to your final mix.

A second way is to include it in the vocoder program. You can do this by editing one of the programs in the 22- or 20-band vocoder setups. You would want to add a layer to the program (it doesn't matter which one of the two programs you edit). Set the Keymap for the layer to LiveIn L and choose Algorithm 1 with the DSP function set to **NONE**. You could then control the amount of the signal by editing the Adjust parameter on the F4 AMP page (or even assign a control source to vary the amount).

You could then try various algorithms and DSP functions to further modify the signal. Running the signal through a high pass DSP to emphasize vocal articulations is one obvious example. Just make sure that you don't use the SHAPE 2 or AMP MOD OSC DSP functions. In that case, the master signal won't be output.

If you are using the K2661 for the slave signal, try editing the slave vocoder program. A simple thing to try is to choose a different keymap. The AMPENV in this program has been set to User, with a lengthy decay, so you can even choose decaying sounds such as guitar, and get interesting results. And of course, you can choose other programs as the slave.

And of course, you should try making some of your own programs to use as a source. Just edit the setup and change the program in zone 3 to your new program. For example:

- Use an LFO to modulate the center frequencies of the slave bandpasses, or the master bandpasses.
- Try panning alternate bands of the slave layers to L and R to create a "fake stereo" program.
- Try different center frequencies from the ones used in the preset programs.
- Currently the center frequencies of the slave layers match the master layers. Try scrambling the slave frequencies relative to the master frequencies.

- If you are using the K2661 for the slave signal and need more polyphony, you can delete some of the layers in the vocoding programs. Make sure to delete matching sets of master and slave layers. You will probably want to readjust the frequencies and widths of the remaining layers accordingly.

More applications

Instead of using a microphone or other external source for your master, you could use the K2661 to generate *both* the master and slave signals. There are two ways you could set this up. You can either edit the setup to add another program on a 4th zone, or you could edit the slave source program to add more layers. Then split the keyboard so that one side plays the master zone/layers and the other side plays the slave zone/layers. On the OUTPUT page, make sure all the master layers are assigned to B and panned hard left and the slave layers assigned to B and panned hard right. You will then have to alter the wiring setup described at the beginning of this document so that the B Left jack is going to the left side of the stereo sample input.

If you edit width of the master layers so that they are extremely narrow, and set the frequencies to a specific scale pattern, then if you sing into the microphone, you will only hear sound as you sing the specific pitches in that scale.

If you edit the width of the slave layers so that they are extremely narrow, then you will get a very pure tonal sound, hearing only very specific pitches depending on the harmonic content of the master.

Another possibility for using very narrow width master layers: Edit the slave layers so that instead of using a series of bandpass filters, each slave layer uses different DSP functions in the F1 and F2 slots (remember that the F3 slot still needs to be set to LPCLIP in order for the vocoding function to work—you can change algorithms as long as the algorithm allows LPCLIP to be selected for the F3 slot). Now, if you sing various pitches, the slave signal will be played through the various corresponding VAST algorithms.

It is actually possible to use samples in RAM (or ROM) instead of the Live Mode In for either the master or slave signals (or even both of them). Just change the Keymap parameter on the KEYMAP Page. (Remember that you need to edit the Keymap parameter on all master and/or slave layers.) In this case, the keymap would be playing a single held sample, so you will want to use a looped sample. Loops with changing harmonic content will work best. The note used in the setups is C 4, so you would want the sample root at C 4 to hear it back without transposition. You will need to edit the layers, save the programs, and reselect the setup before you will hear the change. If both the master and slave layers call up samples in the unit, then as soon as you select the setup, you will hear sound without even touching the keyboard! You might want to assign a slider to the F4 AMP page on the slave layers to control the amount of output. If the master and slave layers are loops of slightly different lengths, then you will hear a continually changing sound that could appear to go in indefinitely without changing.

Continuing with the previous suggestion, you could set the slave layers to different keymaps, each layer assigned to a different sample loop. Edit the DSP functions on the slave layers so that F1 and F2 are set to **NONE**, or some other DSP function. Set the master layers to very narrow widths. Now, as your master signal changes frequencies you will hear different sample loops fading in and out.

View Mode

Change the View Mode parameter on the MAST2 page to **Large** to set the view mode to large format; change it to **List** to return to normal view. The large-type view affects Program, Setup, and Quick Access modes. When you're in these modes, program names, setup names, and Quick Access-bank entry names appear in large, easy-to-read type.

Digital Output Format

Change this parameter to set the K2661's digital output stream to your preferred format. The default is ADAT 8-channel digital. Other values are AES Pro, also known as AES/EBU, and AES Cons, also known as S/PDIF. This global parameter is remembered across power cycles, and is not part of any setup or KDFX studio.

To use ADAT In, the K2661's ADAT Out cable must be connected to the sending device. K2661 must be the "master," and the other device(s) must "slave" to it. Output sample rate (and therefore input as well) is fixed at 48 kHz.

AES Output Length

Change this parameter to set the AES digital word length of the K2661's digital output stream. The default is 24 Bit, which is preferred for most applications. Reducing the bit length will reduce the dynamic range of your sound and may increase audible noise. However, some older digital equipment may not be able to work with 24 bit data, and you may have more satisfactory results by reducing the word length at the K2661 output stage. This global parameter is remembered across power cycles, and is not part of any setup or KDFX studio.

When you change the digital word length, the signal going to the analog outs is affected, too. For this reason, if you are only using the analog outputs you should keep this parameter set to 24 Bit (the default).

The Soft Buttons in Master Mode

Object

This soft button brings up the object utilities. They're described beginning on page 11-15.

Delete

This soft button brings up the delete bank dialog, enabling you to erase sets of objects, either entire banks or all objects, from RAM. If the Confirm parameter on the Master-mode page is set to a value of **On**, you'll be given an extra chance to cancel before the set of objects is actually deleted. Once the deletion is complete, the objects are irretrievable, so you may want to save objects to disk before deleting them from RAM.

To delete individual objects, use the functions that are available when you press the **Object** soft button.

Util

With this button you call up the Utility page, which gives you access to four analytic and diagnostic tools. Double pressing the two center soft buttons from any editor is another way to get to the Utility page. The Utility page looks like this:

The **MIDI** soft button launches MIDIScope™, a useful subprogram that lets you monitor the MIDI messages from the K2661's keyboard and those received via MIDI. This is a good way to make sure you're receiving MIDI from MIDI masters. It's also good for making sure your controls are assigned where you want them, checking your attack velocities, etc.

The **Objects** soft button displays the entire list of objects stored in RAM. This is an easy way to check the object ID of any object you've created. You cannot manipulate objects, though, as you can with the Objects Utility (see page 11-15).

When you press the **Voices** soft button, the display shows the K2661's active voice channels as you play. Blocks of capital Xs in six columns of eight represent the 48 notes that the K2661 can play simultaneously. The Xs change to lower case xs, then to commas and periods, then finally drop out as each voice releases or decays to silence.

This feature 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 being represented by capital Xs, then there's a good chance that when voice stealing takes place an audible voice will be reallocated.

The Voices utility works a bit differently for KB3 programs. The K2661 uses one voice of polyphony for every two tone wheels in a KB3 program. In the Voices utility, the voices used by the tone wheels appear as Xs, meaning that the voices are used for the KB3 program. They don't get reallocated at any time, since they're always on, even if you're not playing any notes. Any voices not dedicated to a KB3 program behave normally. So if you have a setup that contains a KB3 program in one zone, and VAST programs in one or more other zones, you can monitor the voice allocation of the non-KB3 voices in the section of the display that isn't constantly filled with Xs.

Use the **Stealer** soft button to select a display that will show how the K2661 is allocating its 48 voice channels. When you trigger a note, the note number will appear in one of the display's three columns, and will remain visible while the note is sustained. The four-digit numeral you see is an internal value that has no direct significance.

As long as fewer than 48 voice channels are being used, new note numbers will appear as you play additional notes, and the note numbers for notes that have decayed or have been released will disappear. When all 48 voices have been activated, the display will show which voice channels are shut off ("stolen") to enable new notes to play.

Press the **Done** soft button when you are finished with the Utility page. This is the same as pressing the Exit button.

Sample

Press the **Sample** soft button to enter the K2661's sampler. Refer to Chapter 14 for complete information on the sampler.

GM

Press the **GM** soft button to call up the GM page:

Enable GM Mode by setting the GM parameter to On. When GM is on, **GM** is displayed on the top line of the screen. This happens on all of the K2661's main pages.

The GM Studio parameter sets the FX Studio that will be used by GM programs. Six GM Studios are included, providing different reverb and chorus-plus-reverb settings.

500 GM1 Room
501 GM2 Chamber
502 GM3 Hall
503 GM4 Chorus+Room
504 GM5 Chorus+Chmbr
505 GM6 Chorus+Hall

The default GM Studio (GM1 Room) is at ID 500. Use the GM Studio parameter to select a Studio which best complements your program material.

Here's what happens when you enable GM Mode:

- On all channels except channel 10 (which GM uses for drums), you will see only the 128 GM programs. On MIDI channel 10, you will see the eight drum kits.
- The K2661 will modify the following entries in the master table:

  • FX mode (GM uses Master mode)
  • FX channel (GM uses None)
  • FX studio (GM uses the studio selected in GM Studio set on the Master: GM page)
  • Receive velocity map (GM uses the GM Receive Velocity Map)
  • progChgType (GM uses 0-127 mode)

  Old settings will be remembered, however, so that when you turn GM Mode off the K2661 will restore your previous settings.
- Volume and expression controllers are mapped to a special GM curve, as in "GS" synths. (GS is a superset of General MIDI that is used by the Roland Sound Canvas and other products.)
- GM drum kits are mapped across program number space as in the "GS" synths, and have exclusive zones included with them.

- Program changes sent to the K2661 when it is in GM Mode will only select programs from the GM program set.

Setups, Songs, and QA Banks created outside of GM Mode will not point to the correct programs within GM Mode (although you may find the results "interesting").

Similarly, Setups, Songs, and QA Banks created within GM Mode will not point to the correct programs when you leave GM Mode. For this reason, when you create Setups, Songs, or QA Banks within GM Mode you may want to append the letters "GM" to the object's name and/or store the objects only in certain banks.

Reset

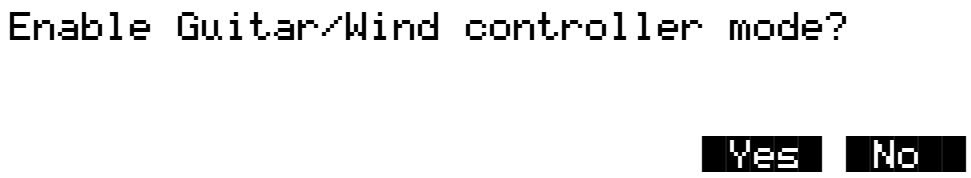
This button is on the MAST2 page. Press the **Reset** soft button if you want to return your K2661's memory to the state it was in when you bought it.

Caution! *The K2661 will ask you if you want to delete everything (meaning all RAM objects), and a pair of* ***Yes/No*** *soft buttons will appear. Press* ***No*** *if you want to keep any objects you may not have saved. Press* ***Yes****, and everything stored in RAM will be erased. All parameters will be restored to default values. After a few seconds, the K2661 will return to the Program-mode page.*

Guitar/Wind Controller Mode

If you are using a wind controller or guitar controller with your K2661, you may not always get the sound you expect. Since these controllers will sometimes send a MIDI Note On command before sending Breath or Volume data, the attack transients that characterize each instrument may not get generated properly.

Consequently, the K2661 provides a special mode that may improve its response to your guitar or wind controller. To enter Guitar/Wind Controller mode, press both **Chan/Bank** buttons while in Master mode, then confirm with the **Yes** soft button.

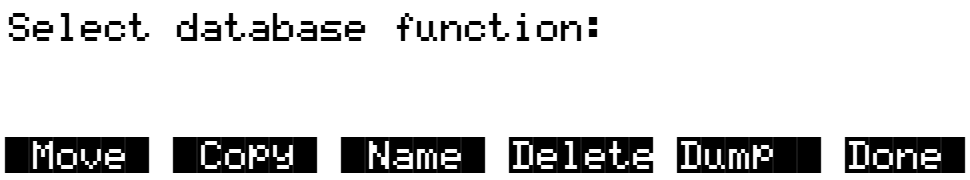


Guitar/Wind Controller mode slightly delays MIDI Note On and Note Off commands, so that response to pitch bend and other expressive components of a note will be more accurate. If you're hearing a glitch in the attack of notes from your guitar or wind controller, you should try setting your K2661 to this mode. Keep in mind, however, that since this mode slightly changes the order in which MIDI commands are sent, it may affect the performance of the K2661 under some circumstances.

Restarting the K2661 or performing a soft reset disables Guitar/Wind Controller mode.

Object Utilities

Object Utility functions are useful for moving or copying objects into various banks, naming or renaming objects, deleting objects, and dumping objects over MIDI. To access these functions, press the **Object** soft button while in Master mode. You will see the following dialog:



The soft buttons are used to choose the various object utility functions.

Move Move selected objects to a new bank or a specific starting ID.

Copy Copy selected objects to a new bank or a specific starting ID.

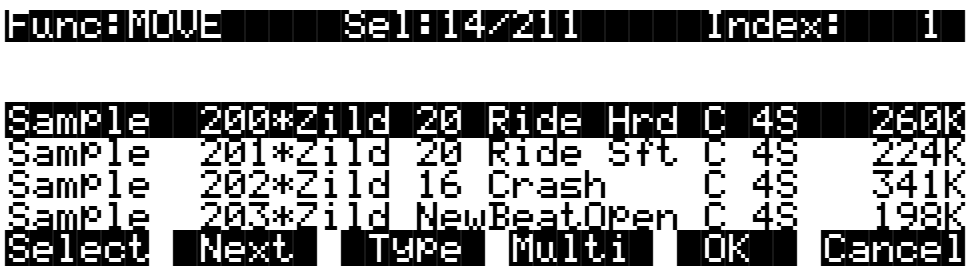
Name Name selected objects.

Delete Delete selected objects.

Dump Dump selected objects over MIDI.

Done Exit from the object utilities.

Each function's multiple object selection interface is identical to the one used in the Save Objects dialog. For a complete description of this interface, see *Saving Individual Objects* on page 13-25. Here is what the **Move** page would look like (with several objects selected):



The name of the function is displayed on the top line:

If you press **Cancel** while in one of the object utilities, you return to the Object Utilities page (the "Select database function:" dialog pictured above). Any objects that were selected when you pressed **Cancel** will still be selected if you subsequently enter a different object utility (by pressing a different soft button such as **Name**, for example). The selections are reset when you exit the Object Utilities page (by pressing the **Done** button).

All of the features of the Save Object dialog are accessible here:

You can use the Multiple Object Selector (described on page 13-34) to select ranges of objects according to object types, IDs, strings in the object names, or dependent relationships.

You can quickly select or deselect all objects using the **Left/Right** cursor and **Up/Down** cursor double-presses.

You can audition any of the program, keymap, sample, or song objects by pressing either the **Left** or **Right** cursor button, when the desired object is highlighted. Songs will play until either cursor button is pressed again. To audition a program, keymap, or sample object, play a note on your MIDI controller (after pressing the **Left** or **Right** cursor button).

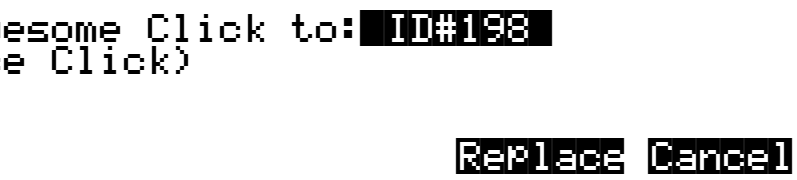
Move

Pressing **Move** from the Object Utility page takes you to the Move utility. The Move utility allows you to select any group of objects and move them to a different bank. If you select several objects of a single type, then you are allowed to set a specific starting ID for the objects, of any number (0-999). For example, you could move a group of samples from scattered IDs to a continuous range of IDs starting from ID# 354.

If you move objects that are dependent objects of other objects (such as samples that are dependents of a particular keymaps,) the parent objects are automatically relinked to their dependents that have moved. What this means is that you can move any objects to any new ID numbers, without having to worry if your programs, keymaps or songs will still play correctly.

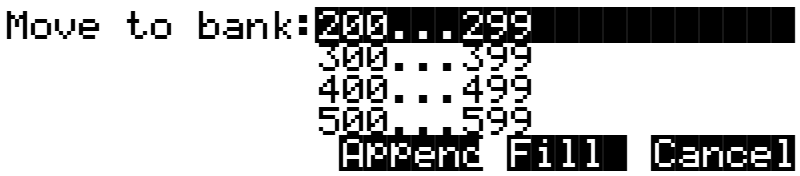
Moving a Single Object

If you select a single object to move, you will see a dialog similar to the Save/Replace dialog you see when saving any object.



Moving Multiple Objects

Select the objects that you want to move, then press **OK**. You will see the following dialog:



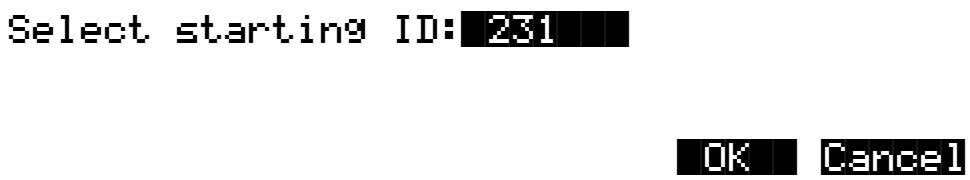
This is similar to the Load function, where you are asked to choose a bank and mode for loading. If you have selected more than one object, and all of the selected objects have the same type, then there will be an additional button available, **ID**:

Here is a description of the above soft buttons:

Append: Try to use each object's ID offset within its current bank as the ID offset within the specified destination bank. If there is already an object at this offset in the new bank, increment the ID until a free ID slot is found. For example, if you were moving Programs 202, 209, 217, and 230 to the 400s bank, which already has a program at 409, the resulting IDs for the moved programs would be 402, 410, 417, and 430.

Fill: Use consecutive numbering for each object that is moved, starting from the beginning of the specified destination bank. Any object IDs that are already being used in the specified bank will be skipped over. For example, if you were moving Songs 300, 315, 489, and 841 to the 200s bank, which already contains Songs 200 and 203, then the moved songs' ID numbers would be 201, 202, 204, and 205.

ID: Use consecutive numbering for each object that is moved, skipping over IDs that are in use (like Fill mode), starting from the ID that you specify. You will see the following dialog when you press the **ID** soft button:



Cancel: Return to the Move object dialog.

The objects are moved as soon as **Append** or **Fill** is pressed, or when a starting ID is selected. After the Move function completes, you will still be in the Move object dialog, and you will still be scrolled to the previously highlighted object, even if it has moved to a new ID.

Keep in mind that when you only select one object to move, you can replace another object. However, when you select multiple objects for moving you cannot overwrite any objects.

Copy

Pressing **Copy** from the Object Utility page takes you to the Copy utility. The Copy utility allows you to select any group of objects and copy them to a different bank. Only object data is copied, and not sample data. If you copy a sample object, you will end up with a "copy sample" that points to the same region of sample RAM as the original.

The operation of the Copy utility is identical to the Move utility just described.

If the objects to be copied in a single operation include any objects grouped together with any of their dependents, the new copies of the parent objects will reference the new copies of the dependent objects. As an example, suppose you select Song 400 and its three dependent

programs, Programs 200, 210, and 303. If you copy all of these objects at once into the 700s bank, using Fill mode, you will see the copies at Song 700 and at Programs 700, 701, and 702. Song 700 will reference the copies of the programs (at 700, 701, and 702). In contrast, if you had only made a copy of Song 400 as Song 700, the song would reference the old programs (at 200, 210, and 303).

Name

The Name utility allows you to rename an object without entering an editor. You can also use this utility to rename one or more objects with the same name. This is much faster than renaming each object individually. A lot of times you might want several objects to have the same name except for a unique identifier at the end of the name. Using this utility function, you could assign a common name to multiple objects at once, and then quickly name each one a little differently.

When you press **OK** after selecting objects, you will see the following dialog prompting you for an object name, with a suggested default:

The default name that you see comes from the highlighted object in the object list, regardless of whether the highlighted object is actually selected. This makes it easy to copy the name of one object on to another.

As in all naming dialogs on the K2661, you can do a double-press of the **Left/Right** cursor buttons to put the naming cursor on the last character of the string. This is helpful when putting unique characters at the ends of names.

Left/Right *cursor button double-press -> Move cursor to the end of the name*

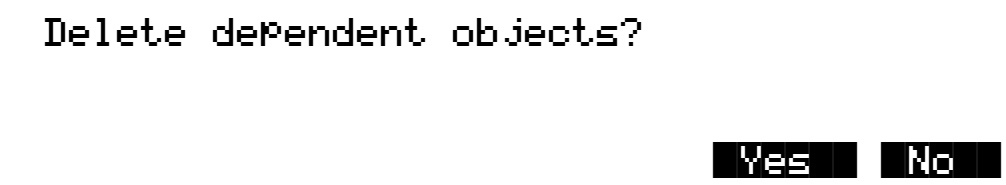
The Relink-by-Name feature (described earlier) relies on there being unique names for dependent objects of the same type, so it is a good practice to make object names unique, particularly samples.

You can use the keyboard naming feature when naming objects. See page 5-5 for details. You can also use the string-replacement feature to make multiple changes to object names. See *Renaming Multiple Objects* on page 3-7 for details.

Delete

The Delete Objects utility is very useful for reclaiming unused object and sample RAM in your K2661. This utility allows you to select any arbitrary group of objects for deleting, and audition them if necessary before getting rid of them. This can be a convenient way to delete individual or selected groups of objects. However, if you want to delete an entire bank or everything in RAM, the **Delete** soft button on the Master-mode page is quicker.

If any of the selected objects have dependents that were not selected, you will see the question:



If you answer **Yes** to this question, all dependent objects of the selected objects are deleted, unless they are being used as dependents of other objects that are to remain in memory.

Answering **No** will delete only those objects that were selected.

Dump

This utility is for dumping selected objects over MIDI. If any of the selected objects have dependents that were not selected, you will be asked the question "Dump dependent objects?"

Press **OK** to initiate a MIDI System Exclusive dump of the selected set of objects, one by one out the MIDI Out port of the K2661. Dumping everything can generate massive dumps, so you should know the limits of the device you're dumping to.You can cancel the dump at any time with the **Cancel** soft button.

Note that only sample objects (which contain the Start, Alt, Loop, and End points, as well as the values of all parameters found on the MISC page in the Sample Editor) are dumped by this utility, and not RAM sample data. (RAM sample data can be dumped via the MIDI Sample Dump Standard from within the EditSample page. See Chapter 6 of the *Musician's Reference* for more information on the MIDI Sample Dump Standard.) Dumping the sample object of a RAM sample is not very useful because the sample memory address ranges are fixed in the object. This means that if you load the sample object back into the K2661 via MIDI, there is virtually no way it will point to and play back the same area of sample memory as when it was dumped, let alone the same sample data. However, this can lead to some interesting results.

Sample objects that reference the K2661's ROM sample area will reference the same area when you load them back in via MIDI.

Using the Object Utilities from the Editor

You can get to the object utilities while editing any object. This is provided as a convenience, for example to be able to do certain housekeeping work such as deleting samples to free up room in your sample RAM, or making copies of objects. Access to the utilities can be done by pressing the **Object** soft button from any Save/Replace dialog in the editor:

You can get to this Save/Replace dialog when editing an object by either exiting after you have modified the object, or pressing the **Save** soft button.

If you try to use the Copy utility to copy the exact object you are in the process of editing, you will make a copy of the edited version. With sample objects this would be one way to save off a copy sample that references a small part of a much larger sample. You could remain in the Sample Editor, and continue to edit the larger sample, by pressing **Done** followed by **Cancel** after making the copy. This may be a faster way to save many "snippets" out of a sample than continually reentering the Sample Editor after saving copy samples to different IDs.

When using the Object Utilities from within the editor, you must be careful not to delete any of the objects you are currently editing. This could have unpredictable results.

Chapter 12
Song Mode

Getting Started with the Sequencer

The K2661's sequencer is a powerful and versatile tool for songwriters, composers, and anyone else who wants to record and play back songs. As with any tool, however, it's best to start with the basics. This section begins with a tutorial where you will record a song, then shows some of the mixing capabilities of the sequencer. If you are familiar with other sequencers, you will have no problem using Song mode in the K2661. Read through this section, however, to learn about the features that make the K2661's sequencer unique. For complete information on the Song Editor, refer to Chapter 12 of the *K2661 Musician's Guide*, provided on the CD-ROM.

What is a Sequencer?

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 one thing, sequencer commands take up much less disk space than digitally recorded music would, so you can get a lot of information (that is, music) on a single disk. Furthermore, you can easily make changes to your sequences. For example, you can change individual notes, transpose parts, or change instrumentation. Lastly, you can share the sequences you create with other musicians.

A Word about the Local Keyboard Channel

Before you being sequencing, we'd like to remind you about the Local Keyboard Channel parameter on the MIDI-mode RECEIVE page (described on page 10-6). Local Keyboard Channel is especially important whenever the K2661 is going to receive MIDI information from an external source, since this enables you to record on different tracks without constantly switching transmit channels on your controller.

- Set the Local Keyboard Channel on the MIDI-mode RECEIVE page to a specific channel (1–16).
- Set your MIDI controller (keyboard, percussion controller, etc.) to transmit on the same channel.

Performing the above two steps means that you'll be able to hear the individual channels (each of which is assigned by default to a separate recording track) as you scroll through the different recording tracks in the K2661's Song mode. Local Keyboard Channel performs a *rechannelizing* function that makes this happen.

Patch Through

There's one more use for Local Keyboard Channel. With any model of the K2661, the Local Keyboard Channel parameter lets you patch through (also known as soft through) to external sound modules. When Local Keyboard Channel is enabled, the K2661 takes the rechannelized information and sends it out the MIDI port. This lets you hear an external module while you are recording a track assigned to that module.

Tutorial: Recording a song

In this tutorial, we'll record a song by using the steps described below. Bear in mind, though, that this is just one approach to sequencing a song. This example includes:

- Assigning programs to channels
- Recording a drum loop
- "Unlooping" the drum track and adding the remaining instruments
- Mixing the song

Assign Programs to Channels

Start by deciding what instruments you want to use in the song. Suppose you want to record a bass /drums / organ rhythm track with a lead instrument on top. You've decided to use the programs such as the following:

- **54 Jazz Kit II**
- **30 Warm Bass 1^2**
- **22 Gospel Organ**
- **79 Modulead**

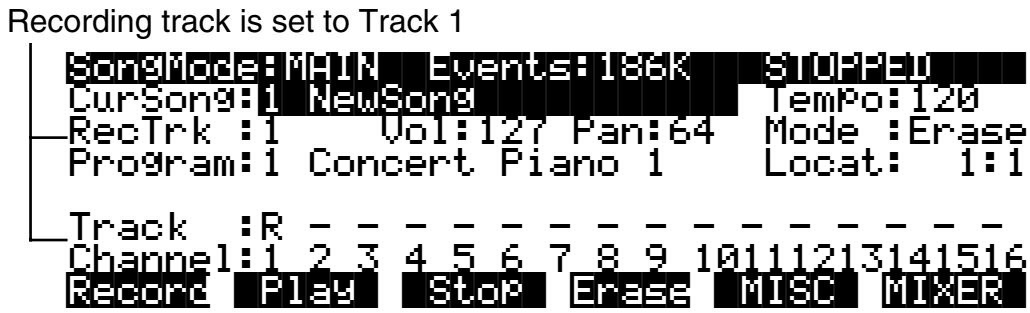
Set up your K2661 so that each of these instruments is on a separate MIDI channel. Since Song mode automatically assigns each channel to a separate sequencer track (1-16, consecutively), you'll then be all set when you start laying down tracks, and won't have to go scrolling through the program list. Don't worry about changing your mind later, though, since you can always make changes after you've recorded your initial tracks.

If you use a KB3 program in a song, make sure that the channel to which you assign it is the KB3 channel; otherwise it won't play. You could always change the KB3 channel to match the channel you want to use for recording the KB3 program, but we recommend deciding on a channel that will always be the KB3 channel, and keeping it that way. Also keep in mind that KB3 programs require one voice of polyphony for every two tone wheels in the program. Since most KB3 programs use at least 79 tone wheels, that leaves only eight voices free for other programs.

Aside from the KB3-channel issue, it doesn't really matter which channel you use for the programs you want to record. In this example, we're going to put the drums on Channel 1 and the bass, organ, and lead on Channels 2, 3, and 4.

Follow these steps to assign the programs to separate channels:

1. Press the **Song** mode button to enter Song mode. The display will look something like this:



   Notice that the sequencer is ready for you to record a new song, and the recording track (RecTrk) is set to track 1. If **1 NewSong** doesn't appear as the value for the CurSong parameter, press the **MISC** soft button, then press the **New** soft button on the MISC page. You'll return to the MAIN page, and CurSong will say **1 NewSong**.

2. Use the **Down** cursor button to move the cursor to the Program parameter.

3. When this parameter is highlighted, type **54** then press the **Enter** button. You've now assigned **Jazz Kit** to channel 1.

4. Press the **Up Chan/Bank** button. This changes the RecTrk parameter to 2, but leaves the Program parameter highlighted. Notice how the R in the Track region moves from Track 1 to Track 2. Also notice how each of the sixteen tracks has a default channel associated with it. You could change this if you wanted to, but most people find it easiest to associate track 1 with channel 1, track 2 with channel 2, and so on.

   Incidentally, when you're assigning programs on this page, you could use the **Up/Down** cursor buttons to highlight RecTrk, then change the recording track and select the Program parameter again, but the **Chan/Bank** button method is more convenient.

5. On Recording Track 2, select Program **30 Warm Bass 1^2**.

6. Repeat the above two steps to assign **22 Gospel Organ** to Channel 3 and **79 Modulead** to Channel 4.

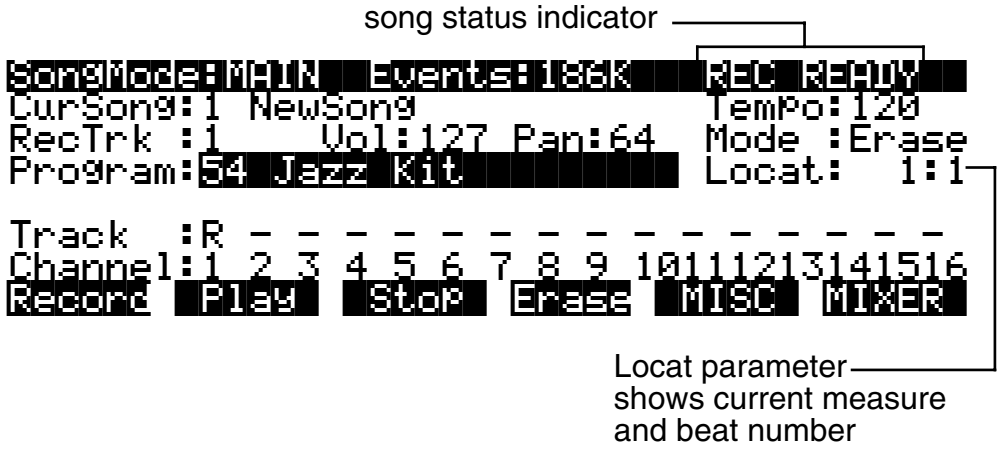
You've now chosen the programs for your first sequence. It's important to realize, though, that you have not recorded anything yet. The programs will be there when you need them, but they have not yet been included in a song. Also, don't forget that you can change the program assignments any time before or after you record the song.

Record a Drum Loop

Our song will be based around a four measure drum loop that we'll record now. Later on, we'll "unloop" the drum track for additional recording.

The length of the drum loop is determined by the current *endpoint*, so we'll start by recording four measures of silence to set the endpoint.

1. Set RecTrk to **1** then press the **Record** soft button. The Song Status indicator (top right-hand corner of the display) flashes REC READY.



2. Press the **Play** soft button. The Song Status indicator now reads RECORDING.

   The K2661's built-in metronome begins clicking, and the Song-mode LED blinks in time with the current tempo.

   Notice the Locat parameter on the right side of the display, which shows the current Bar and Beat number. When you begin recording, the K2661 provides you with a four-beat countoff, during which time Locat's Bar and Beat number are preceded by a minus sign.

You can change the length of the countoff by changing the value of the Countoff parameter on the MISC page.

Since we are recording four measures of silence, press the **Stop** soft button as soon as Locat reads **5:1**.

*NOTE: The sequencer will truncate to the nearest downbeat, so as long as you press Stop before Locat reads **5:2** (but after it reads **4:4**) you'll be OK. Don't worry about this too much, though, since in the next step we'll show you how to check (and change, if necessary) the endpoint.*

When you press **Stop**, you'll be asked to if you want to save this song. Even though you've just recorded four measures of silence, go ahead and save it; this makes it an official song object. By the way, it's pretty easy to rename the song at this stage. Just press the Rename soft button during the Save Song dialog

For the purposes of this example, we'll assume that you pressed **Stop** a few beats too late. You'll see how easy it is to correct this sort of thing in the Event Editor.

3. On the Song-mode MAIN page, make sure that the cursor is highlighting any parameter other than the Program parameter, then press the **Edit** button. The COMMON page appears. (If the Program parameter had been highlighted when you pressed **Edit**, you would have entered the Program Editor, which is not what you want to do right now.)

```
EditSong:COMMON                    <>Track:1
Tempo      :120      StartStep   :1
TimeSig    :4/ 4     TempoControl:Song
EffectChan:1         TriggerChan :1
ChainTo    :0 None   TriggerCtl  :ON
TrackDest  :---- ---- ---- ---- GM:Off
DrumTrack  :---- ---- ---- ----
<more  EVENT  TRACK  STEP  ARRANG  more>
```

4. Now press the **EVENT** soft button to bring up the Event Editor, which looks something like this:

```
EditSong:EVENT  (Ch 1)             <>Track:1

  1:1     1:1.000 CTRL BANK   0
  1:1     1:1.000 PCHG   54
  1:1     1:1.000 CTRL VOL  127
  1:1     1:1.000 CTRL PAN   64
 Cut   Copy  Paste  View  AllOn  Done
```

The Event Editor gives you access to an editable list of all note events, controller events, and other MIDI events that Song mode uses to describe your sequence. While you're looking at the Event Editor, notice the data that the sequencer records, even when no notes are played.

5. Use the Alpha Wheel to scroll to the bottom of the event display.

The last event listed is the endpoint, which should correspond to the first beat of the Bar following the last Bar in the song. For our four measures of silence, then, the endpoint should be **5:1**. The display below, however, shows that five measures have been recorded:

Fortunately, it's quite easy to change the endpoint from **6:1** to **5:1** to remove the extra measure that's been accidentally recorded. (If your endpoint is at **5:1**, you won't need to change it now. If, however, your endpoint is less than or greater than **5:1**, you should proceed with the next step.)

6. Check the endpoint, and change it if necessary.

   To change the endpoint from **6:1** (or any other incorrect value) to **5:1**, press the **Right** cursor button to position the cursor in the Bar:Beat:Tick column (**6:1.000** in the above example). Type **51000** then press the **Enter** button. The endpoint is changed, and the song is now four measures long.

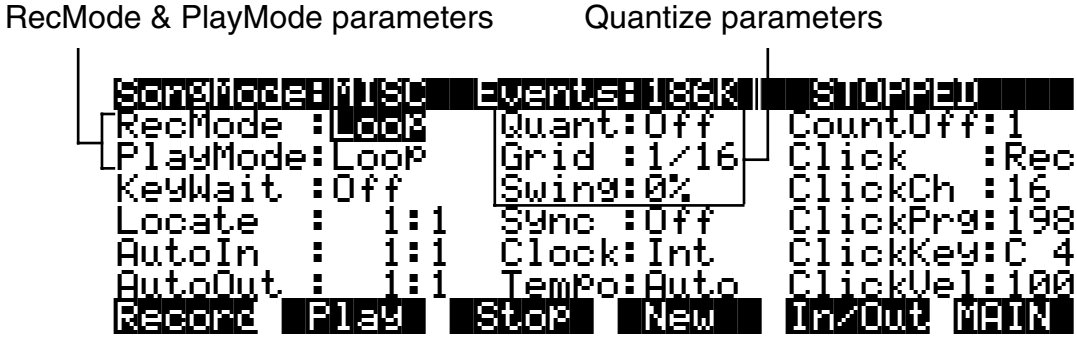
   Press the **Done** soft button to return to the COMMON page in the Song Editor. If you changed the endpoint while in the Event Editor, save the song now (you may have to press one of the **more** soft buttons to see the **Save** soft button).

7. Press **Exit** to return to the MAIN page in Song mode.

8. Make sure that the RecMode and PlayMode parameters are set to **Loop**.

   From the MAIN page, press the **MISC** button. Set the RecMode parameter on the MISC page to **Loop**.

   The PlayMode parameter should already be set to **Loop**. If it isn't, turn the Alpha Wheel until **Loop** is highlighted.



9. Turn on input quantization.

While you're on the MISC page, take a look at the quantize parameters (Quant, Grid, and Swing) in the middle column of the page. Quantization is a very useful feature, especially if you're having a bad rhythm day. When you quantize a track, the sequencer moves the elements of that track closer to a grid based on the time signature of the song. You can use quantization to tighten up a rhythm track subtly, or to create a precise, unwavering mechanical rhythm.

For our drum loop, we'll try the total quantization experience, so position the cursor over the Quant parameter, and turn the Alpha Wheel until the value is set to **100**%. Move the cursor down to the Grid parameter. The default value of **1/16** indicates that quantization will move the notes you play to the closest 16th-note division in the Bar. Try double-pressing the **Plus/Minus** buttons below the Alpha Wheel to move through a range of useful grid values. Note that some of the values have **tr** or **t** appended to them. These are grid settings that allow you to maintain a triplet feel. We'll use a setting of **1/16**, so return to this value if you've changed it, then press **Exit** or the **MAIN** soft button to return to the MAIN page in Song mode.

***NOTE**: The K2661's sequencer also provides a full range of advanced quantization features that you can apply to previously recorded tracks. To learn about these, refer to Chapter 12 of the Musician's Guide.*

10. Make sure you are in Merge mode (it's the default, so you'll be in Merge mode unless you've changed the value of the Mode parameter). This is important, because you want to be able to overdub on the track as it loops. (In Erase mode, you would erase all existing notes every time the loop came around.) To activate Merge mode, go to the MAIN page and set the Mode parameter to a value of **Merge**.

11. Begin recording drums.

    Press the **Record** soft button (observe the REC READY indicator on the top line) then press the **Play** soft button when you're ready to begin. Remember to wait for the four beat countoff before you start to play.

    Since you are in Merge mode, you don't need to do everything at once. A common approach to making drum loops is to record a different voice each time the loop comes around. For example, on the first loop you could record snare hits on the back beats (1:2, 1:4, 2:2, 2:4, etc.). Then you could add kick drum to the snare when the loop comes around again; you'll be able to hear the previously recorded part, as well as the new part. On the third pass you might record ride cymbal, followed by hi-hat or other percussive accents. Keep it simple at first, because you can always save the part while it's basic (but correct), then make additions later. To keep track of where you are, watch the flashing Song-mode LED or the Locat parameter on the MAIN page.

12. Press the **Stop** soft button when you've finished recording the drums.

    Save the changes to your song by pressing the **Yes** soft button followed by the **Replace** soft button.

Record a Bass Line

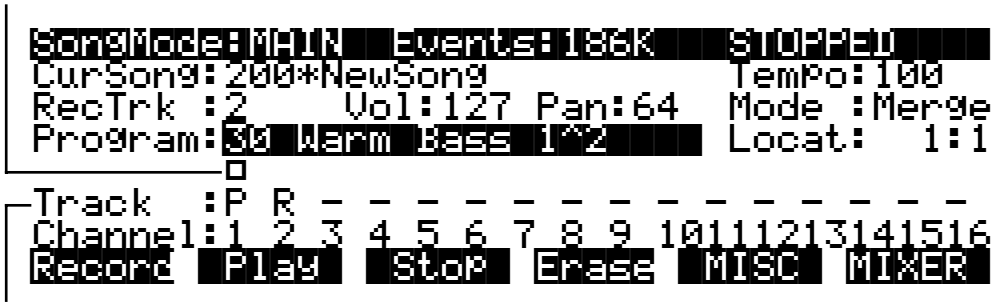
When you are satisfied with your drum loop, you can begin using it as the foundation for a song. What we'll do here is set RecMode to **Unloop** while leaving PlayMode set to **Loop**. This means that the drum loop will keep playing while we record new unlooped material of any length. The endpoint of the song will change to reflect the length of the newly recorded material.

1. Press the **MISC** soft button to bring up the MISC page.
2. Set the RecMode parameter to **Unloop**. Leave the PlayMode parameter set to **Loop**.

   Depending on the type of song you are recording, you may also want to turn quantization off before you record your bass part.

3. Press the **MAIN** soft button to return to the MAIN page.
4. Set the recording track (RecTrk) to Track 2.

This track already has material recorded on it.



Track status indicators: track 1 is set to Play, track 2 is set to Record. Tracks 3 through 16 are empty.

Since you previously assigned **Warm Bass 1^2** to channel 2, it should appear in the Program parameter when you set Track 2 as the recording track. Note, too, that the track status indicator for Track 1 changes to **P** (for **Play**) when you select Track 2 for recording. The small square above the track status indicator tells us that material is contained on that track.

5. Press the **Record** soft button to enter REC READY mode.
6. Press the **Play** soft button, then begin laying down a bass track.

Remember that by default there is a four-beat count off, during which time the Locat value is preceded by a minus sign (-). No material is recorded during the count off, though anything you play during the countoff gets quantized to the first Beat of the song. As you are recording the bass track, your drum loop will keep playing. Play for as long as you want; the sequencer will lengthen the song as needed.

7. Press the **Stop** soft button when you are done recording the bass.

   You will be given the usual save options. To keep what you've just recorded, press the **Yes** soft button followed by the **Replace** soft button.

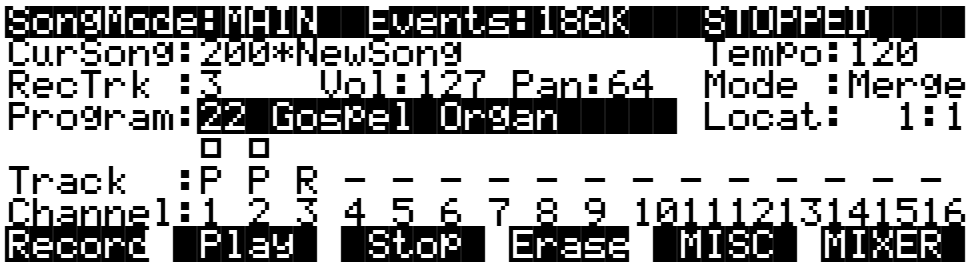
   Since you unlooped the drum track when you recorded the bass, you've changed the endpoint of the song to be wherever you stopped the bass track. You can check the endpoint (and change it, too, if you want) using the Event Editor, as described earlier.

Record the Remaining Instruments in Your Song

Now that you've defined your song with the bass and drum tracks, you can put the organ and lead (or whatever instruments you've chosen) into your song.

1. Set the recording track (RecTrk) on the MAIN page to Track 3.

   Notice the small squares above the track status indicators for Tracks 1 and 2, reminding you that you've now got material on two tracks.



2. Press the **MISC** soft button to bring up the MISC page.

3. Set RecMode to **FixLen**.

   Since you've defined the length of your song with the bass track, setting RecMode to **FixLen** means that the song will play through only once each time you record a new part.

4. Record the organ in the same way that you recorded the bass track in the previous section.

   Notice that you can do this from the MISC page, without returning to the MAIN page.

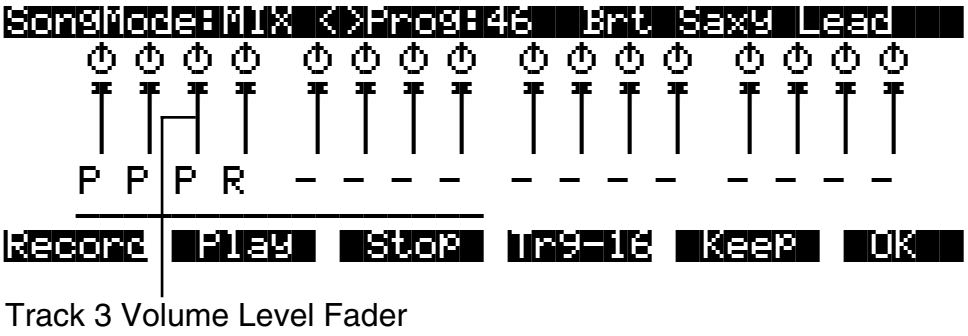
5. Continue recording instruments until you have played all the parts of your song.

Mix Your Song

The MIX page lets you change the panning and volume levels for the tracks in your song. Needless to say, this is one of the most important steps in the completion of your song production, and potentially one of the most creative. This example will keep things simple by showing you how to change the volume level of one of your instruments. We'll also take a quick look at the track mute feature.

1. Press the **MIXER** soft button to bring up the MIX page.

   The icons that represent pan-position knobs and volume-level faders resemble the controls on a traditional mixing board. Manipulating them should be quite intuitive. Simply position the cursor over a pan position knob or volume level fader, then turn the Alpha Wheel to set the level you want. On keyboard models, the sliders control the volume of the current bank of channels (as indicated by the line near the bottom of the display). In the diagram below, the sliders would control the volume on Channels 1–8.



Track 3 Volume Level Fader

   For example, suppose you want to turn down the organ on Track 3:

2. Use the **Right** or **Left** cursor button to position the cursor over Track 3's volume level fader on the MIX page.

   Although the tracks aren't numbered on the MIX page, they're laid out logically: left-to-right, from 1 through 16 consecutively. Track 3, then, is the third track from the left.

3. Use the Alpha Wheel to turn down the volume of the track by changing the position of the volume slider.

4. Press the **Keep** soft button and save the change.

   Now when you play back the song, Track 3's volume starts playing at the newly set level.

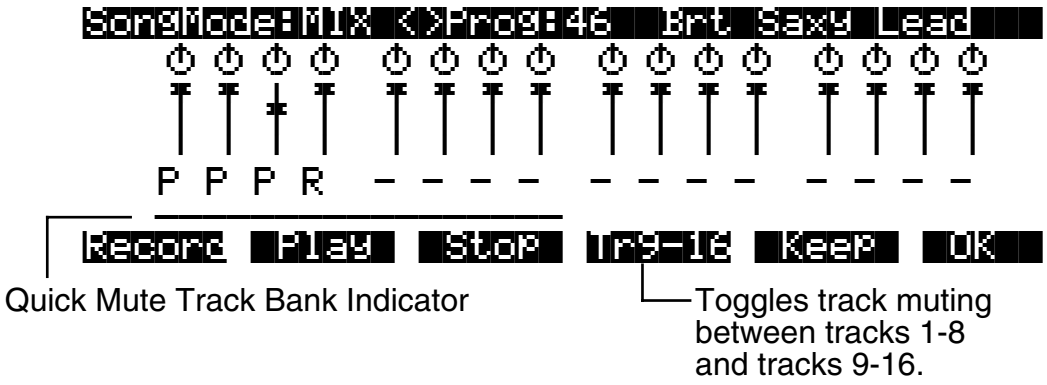
   You can also record real-time volume and pan changes from the MIX page or enter numeric values for these parameters on the MAIN page.

Using the Mode Buttons to Mute a Track

Finally, we'll take a quick look at the track mute feature, which lets you use the K2661's mode buttons to mute individual tracks. This can be invaluable during mixdown.

You may have noticed a horizontal line underneath the sliders for Tracks 1 through 8 on the MIX page. As the illustration below shows, this is the "Quick Mute Track Bank Indicator," showing which bank of eight tracks will respond to the eight track-mute buttons. The eight mode buttons

(Program, Setup, etc.) double as track-mute buttons while you're on the MIX page; press one or more of them and the corresponding tracks are muted Press them again to bring the track back into the mix.



Use the **Tr 1-8** / **Tr 9-16** soft button to toggle between banks of eight tracks, either 1–8 or 9–16. When you press this soft button, the horizontal bar repositions itself below the affected tracks. Table 12-1 shows the K2661's mode buttons, and which tracks they mute when you're on the MIX page:

Available Buttons	1-8	9-16
Program	1	9
Setup	2	10
Quick Access	3	11
Effects	4	12
MIDI	5	13
Master	6	14
Song	7	15
Disk	8	16

Table 12-1 Track Muting in Song Mode

Let's listen to our song with and without drums:

1. On the MIX page, press the **Play** soft button. The song, with all of its instruments, begins to play.
2. Press the **Program** mode button on the front panel. The Program-mode LED lights, and Track 1 (the drum track) is muted.
3. Press the **Program** mode button again to unmute the drum track.

   Using your K2661's front panel buttons, you can mute one or more tracks at once, or even mute eight tracks at a time.

Tutorial: Arrangements

The Arrangement Editor gives you a variety of ways to record and play songs. The following tutorial is designed to walk you through the steps of creating songs using the Arrangement Editor. Here are some typical tasks:

- Record two or more songs, then string them together in any order, as steps in an arrangement.
- Record additional tracks over the steps in an existing arrangement, saving the new tracks in the arrangement song.
- Use up to 32 tracks for recording and playback.
- Trigger songs or arrangements by striking keys (or triggering notes from any MIDI controller)—an excellent feature for live situations.

Creating an Arrangement

This involves recording and saving each section of your final piece of music as a separate song, then using an arrangement to string together the sections in any order you choose. There are a couple reasons you might want to do this.

First of all, many pieces of music tend to be composed in sections. If your music tends to feature various sections repeated in varying order, using the Arrangement Editor can be easier than copying those sections and pasting them into a single song.

The second reason has to do with memory requirements. No objects (aside from samples) can be larger than 64k (10,000 to 16,000 notes, depending on the amount of controller information you record). You may need to use arrangements to accommodate the size of long musical pieces.

When you're recording songs that you intend to combine into arrangements, it can be helpful to name the songs Part 1, Part 2… or Chorus, Verse… That way, when you are putting together the arrangement, you can quickly identify each section. You might also want to organize the IDs of the songs. For example, you could start numbering the songs at the second ID in a memory bank (**301**, **302**…), then save the arrangement song at the first ID in the bank (**300**, in this example). That way, you can create a file containing the arrangement song and its constituent songs, and when you load it into the K2661, the arrangement (the one you're likely to want to play) will be the first song in the bank.

Once you have your songs, you're ready to create another song to use as the arrangement.

1. In Song mode, select **1 NewSong** as the value for the CurSong parameter. This is important, because the arrangement song should not contain any note or controller information.
2. Press **Edit**, and set the Tempo parameter to match the tempos of the songs you'll be adding to the arrangement. (This assumes they are all the same tempo. We'll cover how to deal with different tempos later on.)
3. Press either **more** soft button, then press **Save**. The save dialog gives you the opportunity to rename the song and give it the ID of your choice. Press **Save** again when you've made the changes you want.
4. Press the **ARRANG** button (you're still in the Song Editor). The top line of the display tells you that you're looking at Step 1 of a song that contains one step. Cursor down to the Song parameter and select the song you want to use for the first step in the arrangement.

5. Press **Add** to add another step to the arrangement. Select the song you want for the second step. Continue adding steps and selecting songs as needed. If you need to get rid of a step, select the step and press the **Delete** soft button.

   If you press the **Play** soft button while on this page, you'll hear the currently selected step. (If the step's Mode parameter is set to Next, the K2661 will play the next step when the current step finishes.) Once you have more than one step in an arrangement, you can use the **Chan/Bank** buttons to scroll through the steps.

6. Save, then press **Exit** to return to the MAIN page in Song mode. Notice that there are now three dashes below the Program parameter. Press **Play**, and the dashes change to indicate the current song, and the current step. The Locate parameter shows the bar number of the arrangement, not the bar number of the current step. In other words, if the first step in an arrangement has 16 bars, then when Bar 1 of Step 2 is playing, Locate will show **17:1**, not **1:1**.

Arrangement Parameters: the ARRANGE page

Mutes

The Mutes parameter has 16 values, in groups of 4. By default, tracks are unmuted (active), as represented by the dashes. To mute a track, move the cursor to highlight the dash corresponding to the track you want to mute, and press either **Plus/Minus** button to change the dash to **M**. This mutes the track.

Muting tracks is a good way to make several different-sounding steps out of the same song. If you create a multi-step arrangement in which each step uses the same song—with different tracks muted in each step—you can bring different parts in and out in each step.

Xpose

You can transpose any step up or down. This allows you to transpose the song without having to edit the actual song data. Every track in the step gets transposed.

This is great for many sounds, but not so useful for steps containing programs that have different timbres assigned to different keys—like drum programs. Fortunately, you can designate any track as a drum track, which prevents it from getting transposed when you transpose the step. You must designate drum tracks in the individual songs that are used as steps in the arrangement, not in the arrangement song.

To designate a drum track, go to the COMMON page for the song containing the track in question. Find the DrumTrack parameter, and move the cursor to highlight the dash corresponding to the track in question. Press either **Plus/Minus** button to change the dash to a **D**. Don't forget to save.

Times

You can set any step to play from 1 to 120 times before stopping or continuing to the next step in the arrangement.

Mode

This is normally set to **Next**. In this case, the arrangement will play the next-highest-numbered step once the current step is finished. If the last step is set to **Next**, the arrangement will repeat Step 1. To make the song stop after the last step, set the last step's Mode parameter to **Stop**.

Arrangement Parameters: the COMMON page

Start Step

This determines the step number where the song will start. Normally this is **1**, but it can be any step in the arrangement.

Tempo Control

You can choose whether the tempo is controlled by the arrangement song itself or by each song in the arrangement. When set to **Song** it will use the tempo and time signature set in the arrangement song itself. When set to **Arrange**, it will use the various tempos and time signatures used in the arrangement's constituent songs.

Timing Issues

You might encounter timing problems when using the Arrangement Editor; notes can be delayed when the arrangement switches from step to step. Here's how to avoid the problem.

Each time you record a track for the first time, the K2661 places four events right at the beginning of the track: Bank Change, Program Change, Volume, and Pan. If you go into the Event Editor, you'll see these four messages appearing at 1:1:000. Normally they'll be the first four events you will see.

By the time you have recorded several tracks, these events start to become a large number of events all occurring at the exact same point in time. The K2661 processes these events sequentially, and if enough events happen at the same time, some of them get delayed. For example, if you have 10 tracks, then you will have 40 of those initial events, in addition to any note and controller info that also exist at 1:1:000 in a track.

To prevent the delays caused by too many events, you can delete unneeded events. Typically, you are probably not changing the Program, Volume, and Pan settings for each track when you switch from step to step. For example, quite often you might have the same program on a MIDI channel for all the steps. In this case, all of the program and bank change messages after the first step are not needed, and can be deleted. You can edit each step in the arrangement this way (don't remove these events from the first step, however).

There are two different methods you can use to get rid of these messages in a track. The simplest way is to go into the Event Editor. Use the **Chan/Bank** buttons to select the track whose events you want to edit—you can select each track individually, or select All to view the events from every track in the step. To remove an event, highlight it and press **Cut**.

The second way is to use the Erase function in the Track Editor. Again, choose the track with the **Chan/Bank** buttons. Set the From parameter to **1:1** and the To parameter also to **1:1**. Of course, you won't want to have Events set to All, or you'll eras any note events that occur at 1:1, as well as the unwanted events. If you set Events to **Program Change** and press **Go**, you'll erase the Program and Bank change events. You can then set it to **Controllers**. At this point, if you leave Ctl set to **All**, you can delete both the Pan and Volume events with one operation. But if you have other controller info that occurs at 1:1 (such as Mod Wheel or sustain pedal) then you would also be erasing those events. So you can use the Ctl parameter to select just Volume and just Pan, pressing **Go** after each selection.

In general, the Event-editor method is quicker if you are working on one track at a time. But if you have many tracks and know that you want to erase these events from all of them, using the Track Editor with all tracks selected is faster.

Of course, if you are changing the program changes, pan, or volume in a track when the song changes from step to step, you need to leave those events in, but typically you might be doing that in only one track, while six or seven other tracks stay the same.

Timing problems can also occur between steps due to improperly-located endpoints. If you have a timing problem, you should check in the Event Editor to make sure the end point of each step falls on the first beat of the bar *after* the last bar of the step. For example, if your step is 8 bars long, the end point should be at 9:1:000.

Removing Initial Events from Step One

Since you almost always want to have initial Program, Bank, Volume, and Pan events in an arrangement to make sure it plays properly, it makes sense to have those events in each track of the song used for the first step on the arrangement. But what if that same song is used in a later step, or Step 1 plays a number of times? In this case, as soon the step restarts, you have unneeded events that could contribute to delays.

In this case, the solution is to delete those initial events from the Step 1 song, and record them into the arrangement song. In the arrangement song, select a recording track, press **Record**, then highlight the Program parameter and select the program you want for the track. You can also select the Pan and Volume parameters if you want to set them to a specific volume. Once you have these parameters set, press **Stop**. You need to do this for each track that you are using in the song.

Recording Additional Tracks

So far, all of the recording we've described has been done in the individual songs used as steps. The arrangement song we created has no data in it.

But you can also record tracks in the arrangement song. For example, you might want to record a series of rhythm section grooves: just bass, drums, and maybe some comping parts. Now you can use those grooves as step in an arrangement, then record lead lines through the entire arrangement.

1. Follow Steps 1 through 6 of *Creating an Arrangement* on page 12-12 to create an arrangement song, using some different grooves you have created.

2. Start recording new tracks in the arrangement song. Remember that each MIDI channel can have only one program assigned to it. Therefore you may want to select the tracks you record in the arrangement song so that their MIDI channel assignments are different from those of the tracks in the step songs.

Maximizing Track Use

If you extend the previous example, you'll realize that you can actually make use of 32 MIDI channels—by creating an arrangement containing steps that use all 16 channels, then recording 16 channels of music in the arrangement song itself. Both the step songs and the arrangement song can play back through the K2661, through another instrument connected to the K2661's MIDI Out port, or through both.

It is important to remember that there are still only 16 MIDI channels, and any one MIDI channel can play only one program. Therefore there is no way to have more than 16 different programs playing at the same time on the K2661. But there are two reasons why you would want to use more than 16 tracks.

First, you can have two or more tracks assigned to the same MIDI channel. For instance, if you were recording drums, you might want to put different drums from the same program on different tracks, to make recording and editing easier. On the bottom line of the display on the MAIN page in Song mode, there are 16 channel parameters, one for each track. The numbers don't represent *tracks*; they represent the track's MIDI channel assignment. (The dashes—or

other characters—above the numbers represent the tracks. The dashes and characters are the values for the Track parameter.) You can assign any track to any MIDI channel.

The second way you can use more than 16 tracks is if you have an external sound module in addition to the K2661. Each track can be assigned to play only the K2661's internal sounds (local), or to be sent only to the MIDI Out, to play the external instrument. To assign the track for local or MIDI playback, go into the Song Editor and on the COMMON page you'll see 16 Track Destination parameters. If the value is a dash, the track is going to both the K2661 and its MIDI Out port. **L** means local, and plays the K2661 only. **M** means that the track goes only to the K2661's MIDI Out port. A value of **x** means that the track is muted.

In the following example, all the tracks in the step song play the K2661, while all the tracks in the arrangement song go to the MIDI Out port. You can also have the step songs and arrangement song set to the same track destinations, as long as it's OK for them to play the same sounds.

1. Create a song with multiple tracks and save it.
2. On the COMMON page in the Song Editor, set the TrackDest value for each track of this song to **L**. Save, then press **Exit** to return to the MAIN page in Song mode.
3. Using the Cursong parameter, call up **1 NewSong**, and press **Edit**, then **ARRANG**.
4. Using the Song parameter, call up the song you just recorded. This makes your song a step in the arrangement song, which you're currently editing. Press **Done** to return to the COMMON page.
5. Set the TrackDest parameter for each track to M, so that the arrangement song won't also play the K2661.
6. Save, then press **Exit** to return to the MAIN page in Song mode.
7. Record additional tracks as part of the arrangement song. You might have to record programs changes in each track of the arrangement song to set up the external instrument properly.

Triggering Arrangement Steps From the Keyboard

Each step in an arrangement can be triggered by playing a key (or triggering a note from any MIDI controller). This can be great for live performance, because you can repeat each step as many times as you like.

1. Go to the TRANSMIT page in MIDI mode, and assign a control setup that has a value of **On** for the Sync parameter on the COMMON page of the Setup Editor. Create one if you need to, and name it **SongSetup**. We'll explain why shortly why you need to use this control setup.
2. Go to Song mode, and create an arrangement, following Steps 1 through 6 of *Creating an Arrangement* on page 12-12.
3. Go to the COMMON page in the Song Editor. There are two parameters on this page for use with key triggering of steps:

   TriggerChan: Notes on this MIDI channel can trigger the current step. Notes on any other channels will not trigger the step. Set this to match the MIDI channel of the K2661 or whatever controller you're using to trigger the steps.

TriggerCtl: This determine if the keys will trigger the steps. Set this parameter to **ON**, so when you hit the appropriate note on the trigger channel, the step will start playing. If you set it to a MIDI Controller number that has a physical controller assigned to it, then the keys will trigger the step only when the controller is on (for switch controllers) or above its halfway point (for continuous controllers).

4. Press **ARRANG**, then press the **Chan/Bank Down** button until you see Step 1 in the top line of the display. Set the Mode parameter to a value of **Stop**.

5. Note the values for the LoKey and HiKey parameters, then set them to **E 1** and **E 2** by doing the following:

   - Press the **SetRng** soft button
   - Strike E 1 on the K2661 or your MIDI controller
   - Strike E 2

   Note the new values for LoKey and HiKey. Now the current step starts playing when you strike E 1. Strike another note (say E 2) while the step is playing, and on the first beat of the next bar, the step repeats, and all the tracks that aren't drum tracks get transposed up a corresponding number of semitones (in this case, an octave). Generally, when you're triggering steps using keystrikes, you'll hit the triggering key somewhere in the last bar of the current step. This causes the new step to start right after the end of the current step.

   You can also cause steps to start as soon as you hit the triggering note. To do this, go to the TRANSMIT page in MIDI mode, and assign a control setup that has a value of **Off** for the Sync parameter on the COMMON page of the Setup Editor.

6. Set the Latch parameter to a value of **On**. Now the steps will continue playing after you've released the triggering note.

7. Set the VelTrk parameter to a value of **Off** if you want the step to play back at the level at which you recorded it. Set it to **On** to vary the playback level according to the velocity of the keystrikes that trigger the step.

RAM Tracks

If you have the K2661 sampling option, you can create RAM Tracks, which combines Song mode with the sampler. The RAM Tracks feature enables you to create a sample during song playback, then have the K2661 do the work of building a program out of the sample. The K2661 also inserts the sample into the song so that it plays back in sync with the song.

Possibly the best feature of RAM Tracks is how it affects polyphony. By sampling the K2661's audio output, you can condense an entire song into a single track that uses only two voices of polyphony.

Two Important Concepts

RAM Tracks and Song Playback

You don't have to be *recording* a song to create a RAM track. The idea behind RAM tracks is that you can make a quick sample during playback of a song, then integrate that sample into the song. Of course, you *can* create a RAM track while recording a song, but it's often best to take one step at a time.

A Matter of Timing

The song must *already be playing* when you start sampling. There are several ways you can do this:

- Start the song, then at the appropriate location in the song, press **Record** on the SampleMode page, and start the sample input.
- Set the Thresh parameter on the SampleMode page to a dB value—one you know you'll exceed with your sample input signal. Start the song, then start your sample input at the appropriate location in the song. This method makes it easy to sync your sample with the song.
- Set Thresh to **Key**. Start the song, then at the appropriate location, then trigger the sampler by striking a key either on the K2661 keyboard (or on a MIDI source that's controlling the K2661), and start the sample input. You must send the trigger on the K2661's current MIDI channel.

Creating RAM Tracks

1. Start by configuring the sampler: go to Program mode, and press the **Sample** soft button to go to the SampleMode page. Set the Input parameter to **Analog**, and set the Source parameter: **Ext** for an external source, **Int** if you want to sample the K2661's output. Set the Time parameter to give you enough time to record the sample you want. Set the Mon parameter to **On** if you want the K2661 to play the sample input through its audio output. Set the Mode parameter to Mono (L), Mono (R), or Stereo, depending on your input signal. Adjust the Gain parameter to bring the signal level as close to 0 dB as possible.
2. Go to Song mode, and call up a song that has at least one empty track. If you plan to start sampling right at the top of the song, you might want to set the Click parameter (on the MISC page) to a value of **Cnt**, which gives you a countoff before the song starts playing (the value of the CountOff parameter—also on the MISC page— sets the number of bars of countoff).
3. Set the RecTrk parameter to an empty track.
4. Start the playback of the song. On keyboard models, press the **Play/Pause** button. On rack models, press the **Left** and **Right** cursor buttons at the same time.
5. Press **Record** to start sampling. When you have the sample, press **Stop** (if you run out of time or sample memory before you press **Stop**, the K2661 stops sampling automatically). Either way, the song stops its playback as well.
6. The K2661 prompts you to strike a key to set the sample root. Strike any key (or trigger any note) that you want, or press **Default** to set the root at C 4. The K2661 shows you the maximum signal level, or if the sample clipped, it shows you the number of clips. It also prompts you to save the sample.
7. Press **Yes** if you like the sample, and the save dialog appears. We recommend naming the sample now, to make it easy to keep track of it. The name you give the sample will also be the default name for the song, when the time comes to save the song.
8. Once you've saved the sample, the K2661 asks you if you want to place the sample into the current song. When you press **Yes**, the K2661 asks you to pick the track you want to use for the sample's playback. Pick any empty track: the track must be empty because the

K2661 will eventually create a new program for the sample, and that program must be on its own MIDI channel. Press **OK** when you've selected a track.

9. The K2661 creates a program, and shows you the new program's ID. It then prompts you to strike a key to specify a note for triggering the sample during the playback of the song. It can be any key; the K2661 automatically handles the transposition required to ensure that the sample plays back at the right pitch.

10. Go to the MAIN page in Song mode, and on the recording track you set in Step 3, you'll see the new program. The program assigned to this track has the same name you gave the sample when you saved it. If you look at the events on this track (on the EVENT page in the Song Editor), you'll see a PCHG event that selects your new program, and a note event corresponding to the key you struck to set the sample trigger.

11. Repeat Steps 5 through 9 to create additional samples and insert them into the song. You can use the same track, or a different, empty track. For this example, we'll use the same track. In this case, when you press **OK**, the K2661 asks you if you want to add the sample to the program that's already being used for the track (the program you created when you pressed **OK** in Step 8. Press **Yes**. The K2661 prompts you to strike a key, as in Step 9. If you strike a key that's already being used by one of the samples in the program, the K2661 alerts you, and lets you to assign a different key (press **No**) or the same key (press **Yes**—although if you do this, then the song will trigger all samples that share the same trigger key, every time the trigger key gets played).

12. If you use the same track, the K2661 creates another layer in the program on that track, and assigns the sample to it. You can record up to 32 samples on this track, since a VAST program can contain up to 32 layers. If you use a different track, the K2661 creates another new program when you place the sample into the song.

When you've recorded all the tracks you want, you can edit the programs assigned to those tracks, using all the features available for VAST synthesis.

***Note**: There's no way to synchronize sample playback exactly to MIDI. While the K2661 handles the synchronization extremely accurately, it's possible for the sample to drift away from the song playback, at a rate of up to .5 milliseconds per minute of playback. That's a minuscule amount, but it might matter to you. If you need to be more precise, we recommend that you keep your sample time short, and record a relatively large number of short samples, as opposed to a small number of long samples. This will virtually eliminate the risk of your samples drifting out of sync with the song playback.*

Using Song Mode

Selecting a Song for Playback

Select the Song parameter with the cursor buttons, then use any data entry method to scroll through the list of songs. Press the **Play** soft button, and the song will begin playing. Press the **Stop** soft button, and the song will stop and "rewind" to the beginning. If you press **Play** while the song is playing, the song will stop and the play pointer will revert to the Locate parameter, and will show your current location in the song. At this point you have two options. If you press the **Play** button again, the song will continue from its current location. If you press the **Stop** soft button, the song will return to 0:0.

The K2661 automatically selects programs for playback based on the MIDI channel(s) and the programs assigned to them at the time the song was recorded. When you start playback, the

K2661 sends program changes, on all relevant channels, to its sound engine and to the MIDI Out port if the PChng parameter on the MIDI-mode TRANSMIT page is turned on.

If you want to use a different program for playback than the one originally recorded, you have two alternatives. First, you can edit the song, changing each individual Program Change event (PCHG) to reflect the desired program IDs. This is done on the EVENT page in the Song Editor. Or you can set the RecTrk parameter to the track on which you want the program change, highlight the program parameter, press **Record**, select the desired, program, and press **Stop**.

Another alternative is to defeat the song's recorded program changes, and manually set each MIDI channel used by the song to play the desired program. Start by setting the ProgLock parameter to a value of **On**. The ProgLock parameter is found on the MIDI-mode CHANNELS page; you can set it independently for each of the 16 MIDI channels. When a channel's ProgLock parameter is set to a value of **On**, the K2661's sound engine will ignore all program changes it receives on that channel, whether it's via MIDI or from the K2661's front panel, or from within the song.

When you've set the ProgLock for each of the channels used in the song, go to Program mode, select the MIDI channels used by the song, and assign the programs you want to use. When you return to Song mode and play the song, the automatic program changes are defeated, and the song plays the programs you assigned. When you set ProgLock back to Off, the originally-recorded program changes take effect again.

Effect Selection During Recording and Playback

When you're recording or playing back a song, the setting for the FX Chan parameter (on the Effects-mode page) determines which studio (plus FXMods) gets applied to the song. Only one studio can be applied at a time, even for multi-part songs using more than one program. Depending on the combination of values for the FX Mode and FX Chan parameters in Effects mode, the FX channel may automatically track the current MIDI channel. In this case, if you change the current MIDI channel during playback (or during a MIDI recording) the current FX channel (and consequently the current effect) will change also, which might not suit your needs. Consequently, there's a way to force the FX channel to remain constant during playback or MIDI recording, even if you move to another mode during the playback or MIDI recording and change the current MIDI channel.

This is done by setting the FX Mode parameter to a value of **Auto**, and the FX Chan parameter to a value of **Current**—which is the most generally useful combination of settings for these parameters. In this case, while you're in Song mode—even if you move to another mode during playback or MIDI recording—the value of the FX Chan parameter automatically changes to match the song's effect channel (the value of the EffectChan parameter on the COMMON page in the Song Editor). Therefore the effects applied to the song are determined by the program assigned to the song's effect channel, and will not change, even if you change the current MIDI channel during playback or MIDI recording.

Of course, changing MIDI channels during playback or MIDI recording will not change the FX channel if the FX Channel parameter is set to a value from **1** to **16**, or if the FX Mode parameter is set to a value of **Master**.

Synchronizing Songs

The K2661 has an internal MIDI clock, which is always running at a speed set by the Tempo parameter (on the MAIN page). When you're in Song mode and the Clock parameter (on the MISC page) is set to a value of Internal (**Int**)—and the Sync parameter (also on the MISC page) is set to **Xmit** or **Both**— songs will sync to the K2661's internal clock. At this setting, the clock signal is sent to the K2661's MIDI Out port. This is standard MIDI Sync, and any device that accepts MIDI Sync will play in sync with the K2661.

If you set the Clock parameter to external (**Ext**), the K2661 expects to receive MIDI clock at its MIDI In port. Make sure that the Sync parameter on the MISC page in Song mode is set to **Recv** or **Both**, to enable the K2661 to receive sync messages as well as MIDI clock.

To play back a song, press **Play**, and the K2661 starts as soon as it receives both MIDI clock and a Song Start message. Or if you want to record, press **Record**, and the K2661 starts recording as soon as it receives both MIDI clock and a Song Start message.

If Sync has a value of **Off** or **Xmit**, the K2661 still uses the external clock, but you can't trigger recording or playback remotely; you have to use the K2661's soft buttons.

If you're using Song mode to capture a sequence that you've recorded on an external sequencer, you'll want to consider the Clock parameter's setting before you record via MIDI. If you have the Clock parameter set to **Ext**, the K2661 will follow the clock of your external sequencer. As a result, the notes in the song you create will fall regularly on the beats (unless your externally recorded sequence uses a time signature other than 4/4). This will make it easier for you to find the notes in the Song Editor. If you set the Clock parameter to **Int**, the notes in the song will not necessarily align with the beats of the measures in the song, but the song will play back exactly as you recorded it on the external sequencer—including tempo changes you may have incorporated into the externally recorded sequence. If the Clock parameter is set to **Ext**, tempo changes will not carry over to the K2661, and will not be heard when you play back the song.

Finally, keep in mind that when the Clock parameter is set to **Ext**, programs that use one or more of the Clock control sources (see Chapter 6 of the *Reference Guide*) will sync to the external MIDI signals. If no external clock signal is received, the Clock control sources are disabled.

Songs and Effects: A Brief Tutorial

On page 12-20 we discussed how to keep the effects constant during song playback and MIDI recording. For more complete control over the effects used in a song—including real-time control—we recommend dedicating one track of the song to effects control. Here's how to do it.

1. Go to Effects mode, and make sure that the value of FX Mode is **Auto**, and the value of FX Channel is **Current**.
2. Go to the MAIN page in Song mode, and call up a song.
3. Press **Edit**, which takes you to the COMMON page in the Song Editor.
4. Set the EffectChan parameter to the channel you want to use for effects control. Choose a channel that isn't being used for any of the existing tracks in the song. Channel 16 is the default click-track channel, so you probably don't want to use Channel 16. For this tutorial, we'll use Channel 15.
5. Save the song and exit the Song Editor. You're back on the MAIN page in Song mode.
6. Set the recording track (the RecTrk parameter) to match the effects channel that you set in Step 4—in this case, Channel 15. Note the **R** in the Track status indicator line.
7. Move the cursor to highlight the current program. This is where you select the program to be used for the current recording track. Since you aren't going to record any notes on this track, the program assignment doesn't matter. On the other hand, if you already have a program that uses a studio and FXMods that you like, use it here.
8. Press **Edit**, and since the cursor was highlighting an editable object (the program), you'll enter the Program Editor.
9. Go to the KDFX page, and choose a studio. Assign any FXMods that you want to use.

10. Save the program (we recommend renaming it as well), then press **Exit** to return to the MAIN page in Song mode.

So far, so good. Your song uses Channel 15 for effects control, and the effects for the song are determined by the studio used in the program on Channel 15. That is, every program in the song directs its output to this studio, according to the value of the Pair parameter on the OUTPUT page in the Program Editor.

You'll recall that a studio has four inputs, each of which can be responsible for a different effect (or no effect at all). You may want to edit each program in the song, to send its output to the desired studio input. There's a quicker way, however, that doesn't involve editing programs: you can determine program output (and consequently studio input) based on MIDI channels. For example, you can send Channel 1 to KDFX-A, in which case any program on Channel 1 will send its output to KDFX-A, regardless of the program's output settings.

1. Press the **MIDI** mode button to enter MIDI mode, and press the **CHANLS** soft button. This takes you to the CHANNELS page.

2. Press the **Chan/Bank Up** or **Down** button to display the settings for one of the channels you've used in your song. (the top line of the display shows you the current channel).

3. Change the value of the OutPair parameter. Any value other than **Prog** means that the output settings are determined by the *channel*, not by the program assigned to that channel.

4. Change the value of the OutPair for the other channels that you've used in the song.

Now you have all the outputs directed to the right studio inputs. Keep in mind, though, that the output settings are customized for the current song. You'll need to repeat this process for each song—unless you set OutPair back to **Prog** for every MIDI channel.

Next you'll need to make sure that the song always calls up the right studio.

1. Go to the MAIN page in Song mode, and make sure that the recording track is still the one that uses Channel 15. Also make sure that the program on that track is the one containing the studio you want to use for the song.

2. Record a couple of bars. This automatically puts a Program Change command at the beginning of the track. Each time you play the song, the K2661 selects that program—and consequently the studio and FXMods associated with that program.

That's it. If you want the song's effects to change during playback, use this track to record movements of the controllers that are designated as FXMods.

With one small difference, this approach to effects control also works if you're using an external sequencer. When you're recording in Song mode, the EffectChan parameter (on the COMMON page in the Song Editor) determines the channel used for effects control. When you're using an external sequencer, it works a bit differently.

1. Press the **Effects** mode button to enter Effects mode.

2. Set the value of the FX Mode parameter to **Program**.

3. Set the value of FX Channel to whatever channel you want to use for effects control.

4. Create a program that uses the studio and FXMods you want, and use that program on the channel you chose as the FX Channel.

Memory Limits

While there's no actual time limit to the length of the songs you record, their size is limited to 64K (or to the maximum amount of available free RAM space you have, if it's less than 64K). However, you can create longer songs by recording each section as a separate song, then putting it together with the Arrange feature. If you run out of RAM space while recording a song, the recorder stops and prompts you to save the song. It's a good idea to check your free RAM space before you begin recording a song, and to check the "Used" field as you record. If you've used all the available RAM for recording, you may find that when you go to the Song Editor to delete a song or edit its tempo, the K2661 tells you that there's not enough memory to edit. In this case you won't be able to edit any object greater than 4K in size. Objects smaller than 4K can still be edited, because the K2661 always reserves a minimum of 4K of RAM.

If you want to delete a song and the K2661 won't let you enter the Song Editor, select the default song (**1 NewSong**). Since it's smaller than 4K (as long as you haven't saved any changes to it), you'll be able to enter the Song Editor. Press the **Delete** soft button, then use the Alpha Wheel to select the program you want to delete. Press the **Delete** button again, and the song will be erased, freeing up enough RAM to edit other songs. (You could also delete the song in Master mode—by pressing Object, then Delete, to get to the file deletion dialog.)

Loading MIDI Files From Disk

If you have a Type 0 or Type 1 MIDI sequence file stored on a SmartMedia card or a SCSI device, you can load it into one of the RAM banks, and the K2661 will be able to play it from Song mode. If the MIDI file has the GM On Sysex message in it, the imported song will have the GM parameter set to On automatically.

Recording Multi-timbral Sequences via MIDI

You can record sequences from an external MIDI device using Song mode. Program numbers and MIDI channel assignments of multi-timbral sequences are recorded with the notes. To record via MIDI, connect the MIDI Out port of your sequencer to the K2661's MIDI In port. Select Song mode, and set the Clock parameter to External. This will sync the K2661 with the MIDI clock of the external sequencer.

You will probably want to set the Local Keyboard Channel parameter to **None** when recording from an external sequencer, since the rechannelizing effect of that parameter could have unintended results.

To record all your tracks in one pass, set the RecTrk parameter to **Mult** and make sure that for each channel of information on your source sequence, you have a track enabled to record and a unique channel assigned to that track. (The default setting of all tracks enabled to record on channels 1–16 will always work.)

You can also record individual tracks from your source sequence by setting the RecTrk parameter to a specific track. The K2661 will record only information coming in on the channel that the RecTrk parameter is set to.

Press the **Record** button, and the K2661 will wait for the first clock start from the sequencer. Make sure that your sequencer is set to send MIDI clock signals, and start the sequence. The K2661 will begin recording when it receives the first MIDI clock start from the sequencer. When the sequencer has finished its playback, press the **Stop** soft button, and the K2661 will stop recording and ask if you want to save the song.

Song Mode: 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, as well as other useful items.

Parameter	Range of Values	Default
Current Song (CurSong)	Song ID & Name	1 NewSong
Recording Track (RecTrk)	1 – 16, None, Mult	1
Program	Program ID & Name	Current Program
Setup	Setup ID & Name	Current Setup
Track Status	- (Empty), R, M, P	- (Empty)
Channel	1 – 16	1 – 16
Volume	0 – 127	127
Pan	0 – 127	64
Tempo	1 – 255 BPM	120 BPM
Mode	Merge, Erase	Merge
Location (Locat)	1:1 – 9999:9	1:1

The Events field on the top line displays the number of events that you can store in RAM. 375 K in the above example represents maximum available memory. Note that this figure shows the number of free *events*, each of which takes up about four bytes of RAM. That's why the number you see here is typically about 25% of the free RAM (in *kilobytes*) you see in the Samples field in the top line of the Disk mode and Master mode pages.

When the Song Status is REC READY or RECORDING, the Events field changes to Used, and indicates the percentage of the recording buffer that you have filled, instead of the free event space.

Song Status, also on the top line of the display, is always one of the following:

STOPPED The default sequencer status; also appears when you press the **Stop** or **Pause** button.

PLAYING Appears when the **Play** button is pressed, but only if the following conditions are true: the **Record** was not pressed prior to pressing Play, the Key Wait parameter is set to **Off**, and the Clock parameter is set to **Int** (or Clock is **Ext** and MIDI clock is detected).

REC READY Appears when the **Record** button is pressed while Song Status is STOPPED. REC READY flashes, indicating that the sequencer is waiting to start recording.

RECORDING Appears when the **Play** button is pressed while REC READY is flashing (unless Key Wait is **On** or the Clock is set to **Ext**). RECORDING also appears if the **Record** button is pressed while Song Status is PLAYING.

KEY WAIT Appears when the **Play** button is pressed, while Song Status is STOPPED or REC READY, if the KeyWait parameter on the MISC page is set to **On**. KEY WAIT flashes, indicating that recording or playing will begin when you strike a key.

EXT. CLOCK Appears when the **Play** button is pressed, while Song Status is STOPPED or REC READY, if the Clock parameter on the MISC page is set to **Ext**. EXT. CLOCK flashes to show that the K2661 is waiting for an external MIDI clock message to start recording or playing.

Current Song (CurSong)

This shows the ID and 16-character 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 data on them, and the internal clock is set to match the setting of the Tempo parameter.

Tempo

Controls tempo for the selected song. You can make temporary changes, record real time tempo changes, or set an initial tempo for the current song.

Whatever the tempo is set to when you record your first track will be the song's initial tempo. Temporary changes may be made during playback, but the tempo will reset to the initial tempo when the sequencer is STOPPED.

To change a song's initial tempo, press **Record** (the Song Status will change to REC READY), set the tempo desired, then press **Stop**. The initial tempo can also be changed with the Tempo parameter on the COMMON page in the Song Editor. The song will always start playback at the initial tempo, even though this tempo marker does not get recorded as a tempo event on any track.

If the sequencer is RECORDING, any tempo value changes will be recorded in real time. Unlike the special case of setting the initial tempo, any tempo changes recorded in real time are recorded as tempo events.

Fractional Tempos

You can use fractional tempos (120.5, etc.) in your sequence. However, the initial tempo can not be fractional, and you cannot enter a fractional number in the tempo parameter on the MAIN or COMMON pages. You must first record a real time tempo event, then go to the Event Editor and change it to a fractional amount.

To do this, press **Record**, then **Play**. The sequencer starts recording. Use any data entry method to choose a tempo. The value is unimportant since you will be changing it in the EVENT Editor. Next press **Stop** and save the song. Now when you go to the EVENT Editor , you will see a tempo event. You can now edit the value to a fractional amount. To have the song start immediately with the fractional tempo, edit its location to 1:1:000.

Recording Track (RecTrk)

Determines which track is record enabled. Set the record enabled track to **Multi** to record more than one channel simultaneously or to use a setup in your song.

When RecTrk is set to a single track (**1**–**16**), Record (R) is displayed for that track in the Track Status Indicator region (above the Track and Channels region). Conversely, with one exception, when any track's Status Indicator is changed to Record (R), that track is shown as the value for the RecTrk parameter.

The exception is when RecTrk is already set to **Mult**, you can select the record enabled tracks by toggling the Track Status Indicator to Record (R), and the RecTrk will remain set to **Mult**.

When **Mult** is initially selected, all of the empty tracks will be record enabled. Tracks containing data will remain set to play (P), but you can manually set them to record (R).

The parameter(s) below RecTrk change according to the value of RecTrk and in one case, the mode from which you enter Song mode. If RecTrk 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 change RecTrk to **None**, the display changes to show the Channel parameter followed by the Program parameter (although the Program parameter's *name* doesn't appear, just its *value*). If you switch through the channels, the program also changes, showing the program currently assigned to that channel.

A setting of **Mult** makes the parameters below RecTrk dependent on the mode from which you entered Song mode. If you enter Song mode from Program mode, the Channel and Program parameters appear below RecTrk. If you enter Song mode from Setup mode, only one parameter, Setup, appears.

Program

Scroll through the programs in memory to select the program before initially recording each track of your song. Any MIDI program changes on the current RecTrk or Chan cause the ID and name of the track's program to change during playback.

This parameter's name is not visible when RecTrk is set to **None** or **Mult** (to make room for the Chan parameter); just its value appears.

You'll see the Setup parameter instead of the Program parameter when you've entered Song mode from Setup mode. The Setup parameter functions similarly to Program.

Programs selected in Program mode or from a Quick Access bank are selected as the program on the current RecTrk when you return to Song mode.

To change a track's program quickly, press **Record**, select the program, then press **Stop**. Or you could press **MIXER** to go to the MIX page, change the program as desired, then press **Keep**. This preserves all changes you have made to any other tracks: volume, pan, tempo, etc.

Channel (Chan)

This parameter determines the control channel and is available only when RecTrk is set to **None** or **Mult**. When RecTrk is Mult, this parameter appears only if you have entered Song mode from Program mode. In this case, the Channel parameter gets squeezed onto the same line as the Program parameter, which is why you don't see the Program parameter's name, just its value.

Setup

Displays the ID and name of the setup to be recorded. This parameter is available when RecTrk is **Mult**, and you enter Song mode from Setup mode. The display diagram below shows an example of the Song-mode page with the Setup parameter replacing the Channel and Program parameters.

Using setups in Song mode takes a bit of extra planning. Since each zone in a setup uses a separate MIDI channel, you need to make sure that each setup zone has a corresponding track and channel allocation. It's important to know how many channels, and consequently how many tracks, are needed for recording a particular setup. Each setup can have up to eight zones that can respond to your playing differently, depending on what range of the keyboard is being played, or if certain velocity and/or controller values determines when a particular zone will respond. Be aware of the behavior of each setup you intend to record so that you can allocate the proper tracks and channels needed in your song.

Volume (Vol)

You can set an initial volume level for the playback and recording of each track as a value between **0** and **127**. If the channel of the RecTrk (or the control channel, if RecTrk is set to **Multi** or **None**) contains any recorded volume change (controller code 7), the change will be reflected as the Vol parameter's value in real time.

To change a track's initial volume quickly, press **Record**, change the value of Vol, then press **Stop**.

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 RecTrk or the control channel contains any panning data (controller code 10), the Pan parameter's initial value for the current track is modified in real time.

To change a track's initial pan position quickly, press **Record**, change the value of Pan, then press **Stop**.

Mode

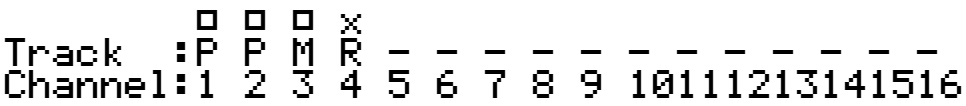
If Mode is set to **Merge** you will be able to overdub when recording on a track containing previously recorded data. You'll usually want to set Mode to **Merge** when RecMode (on the MISC page) is set to **Loop**. Otherwise, each time through the loop, the previously recorded information will be erased.

If you set Mode to **Erase**, the previously recorded data on the record enabled track will be replaced with the new data only during the Bars and Beats you are actually recording, and the previously recorded data before and after the newly recorded Bars and Beats will be preserved.

Location (Locat)

The Bar and Beat displayed as the Locate value changes relative to 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. Simply press **Stop** again to reset the song to the top (**1 : 1**).



Mode Indicators (+ and x):

Mode Indicators appear only for tracks that already contain data.

A plus sign (+) appears above the Track Status Indicator of a track set to record (R) when the Mode parameter is set to **Merge**.

An (x) appears above the Track Status Indicator of a track set to Record (R) when the Mode parameter is set to **Erase**.

Activity Indicators (□)

A small square (□) above the Track Status Indicator of a track set to **Play** (P) or **Mute** (M) means the track contains data.

During playback and recording, the indicators above tracks containing any MIDI data will flash a small, filled-in square when any MIDI activity is detected. The filled-in square also flashes over a track any time that there is incoming MIDI data on that track's channel, even while the sequencer is STOPPED.

Track Status Indicators

Using the **Up**, **Down**, **Left**, and **Right** cursor buttons to position the cursor onto a Track Status Indicator, you can toggle an empty track (-) into Record (R) with the Alpha Wheel or **Plus/Minus** buttons.

Once a track contains data, it will have a (P) as a Track Status Indicator, 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 RecTrk will display an (R), designating it as the recording track. If the RecTrk is set to **Mult**, initially all empty tracks will have Record (R) as a Track Status Indicator, any of which can be switched back to empty (-) if at any time recording on specific tracks is not desired.

If there isn't a track with an (R), the RecTrk parameter's value will be **None**. (The exception is when the RecTrk is set to **Mult** and you have switched all of the tracks out of record enable.)

Track Channels

Each track has a MIDI Channel that it uses to receive and transmit data. 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.

Soft Buttons on the MAIN Page

These buttons are similar to the transport controls on a tape deck. Some of those decks require you to press Play and Record simultaneously to begin recording. The K2661's transport buttons aren't like that, however. It's important that you press only one of these soft buttons at a time to insure proper recording start points, and to always be sure of the current sequencer status.

Record 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**.

If the RecTrk is set to None, pressing **Record** will select the first available empty track for recording, thus setting the RecTrk to the newly record-enabled track number and placing an (R) in that track's status display. Song Status will change to REC READY or RECORDING, depending on the previous Song Status as described above.

Play plays back any recorded data 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.

Pause and **Play** share the same soft button. **Pause** appears only when the Song Status is PLAYING or RECORDING. Pressing **Pause** while the song is playing will stop the playback (soft button switches to **Play**), 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**.

Stop 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 return to **1:1**.

Pressing **Stop** when the Song Status is RECORDING will always prompt the "Save changes to this song?" 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**.

Here are some useful alternatives to using these button presses:

- There are dedicated front panel buttons for **Record**, **Play**/**Pause**, and **Stop**. You'll find them just below the eight mode buttons.
- Footswitches can be assigned to **Play**/**Stop** and **Record**/**Stop**. On the MIDI-mode TRANSMIT page, assign either footswitch to controller number 102 or 103. Using controller 103, you can even record from within the Song Editor.
- Double button presses allow Song **Play**, **Pause**, and **Stop** soft button functions from most places where these buttons are not available. Use the cursor **Left**+**Right** double-press for **Play**/**Stop**, and use the cursor **Up**+**Down** double-press for **Play**/**Pause**.

Erase removes all channelized data from the track on which the cursor is currently positioned (on either the Track or Channel parameters) or from the record-enabled track if the cursor is positioned elsewhere. As described on page 12-32, a dialog appears that allows you to verify your intentions before permanently erasing any data. Once you've confirmed the erasure, it takes place immediately, so be sure you really want to erase the track before pressing the **OK** soft button. You will not be able to revert to a version of the song that includes the erased tracks—unless you've saved the earlier version to another ID. So be careful before you start removing data that you may not want to lose permanently.

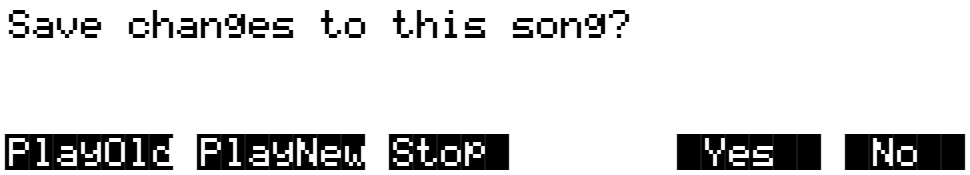
The Erase function doesn't show a dialog or erase any data if an empty track is selected.

MISC accesses more sequencer control parameters found on the Song-mode MISC page. These miscellaneous controls include record- and play-mode settings, auto punch-in points, quantization on input settings, tempo, and click attributes, as documented later in this chapter, starting on page 12-32.

MIXER lets you view a graphic representation of knobs and level faders for each track on the MIX page. You can modify program changes, volume and pan position on this page. Record status can also be selected here. The section on the Mixer begins on page 12-39.

Save this song? Dialog

The following dialog appears after you have recorded a track and pressed **Stop**, or if you have entered the Song Editor and made changes, then pressed Exit, or if you press **Save** in the Song Editor.



PlayOld appears along with the **PlayNew** soft button in the "Save this song?" dialog after the recording process has been stopped. Pressing **PlayOld** will play the current song, minus the last, but not yet saved, recorded data. The exception is when there is no previously recorded data (that is, recording the first track of a NewSong), then you will only have a **Play** soft button to audition the recorded data just entered.

PlayNew/**Play** soft buttons allow you to play all of the recorded data, including data on the track(s) you have just recorded.

Stop halts the playback of either the Old or the New version of the song you are currently auditioning. Press the **Stop** soft button to stop the playback or recording, and reset the song's location to either the default Bar 1, Beat 1 value, or to whatever location you defined in the Locat parameter.

Yes saves the data on the track(s) you just recorded. Whatever was played back when you pressed **PlayNew** will be the version of the song to be saved when you press Yes. The "Save New Song?" Dialog (shown below) will be displayed.

No returns you to the Song-mode page in which you were last recording, without saving any unsaved changes to the current song.

Save New song? Dialog

Saving a song requires that you assign it an ID and this is where you do so. If you select an ID of an existing song object in RAM, the **Save** soft button will become **Replace** and **Replace existing Song** will appear on the display as a warning and a chance to change your mind.

There are only 20 IDs available for song objects per bank in banks 100 - 900. In the zeros bank, there are 75, IDs 1–75. In the 200s bank there are IDs 200–219, in the 300s bank, IDs 300–319, and so on.

Object accesses some useful database functions while still in Song mode, before you actually save the current song. Pressing **Object** jumps you directly to the Object Utility, described on page 11-15. When you press **Done** on the Utility page, you will be returned to the "Save New Song" dialog.

The Rename, Save, and Cancel soft buttons function the same as they do in all other editors.

Erase Track Dialog

This dialog asks you if you are sure you want to erase a specific track. The track number will correspond to the track currently selected by the cursor position. When RecTrk is set to Multi or None, the Erase track function looks to the cursor position to determine the track to erase. If the cursor is positioned somewhere other than the Track or Channel parameters, Erase will have no effect. Erasing a track will not alter the song's End point, nor will it remove any tempo events, since these elements are common to all tracks in the song.

Yes erases all data on the selected track and returns to the MAIN Song mode. The song will keep the erased track record enabled, but it will be an empty track.

No aborts the erasing of the selected track and returns to the MAIN Song mode with all previously recorded tracks intact.

Song Mode: The MISC Page

This page contains parameters that determine how the sequencer behaves during playback and recording, and when the K2661 is connected to another MIDI sequencer. Most of these settings are stored in the Master Object, (all except the Auto punch-in points) and none of these are saved with the song.

Parameter	Range of Values	Default
Record Mode	Linear, Fixlen, Loop, Unloop, Auto	Linear
Play Mode	Linear, Loop, List, Chain	Loop
Key Wait	On, Off	Off
Locate	-25:2 – 999:4	1:1
Auto In	1:1 – 999:4	1:1
Auto Out	1:1 – 2500:	1:1
Input Quantize	Off, 1% – 100%	Off
Grid	1/1 – 1/384	1/8
Swing	-99% – 125%	0%
Sync	Both, Xmit, Recv, Off	Off
Clock	Int, Ext	Int
Tempo	Auto, Fixed	Auto
Countoff	Off, 1, 2, 3	1
Click	Off, Rec, On, Cnt	Rec
Click Channel	1 – 16	16
Click Program	1 – 999	198
Click Key	C-1 – G9	C4
Click Velocity	1 – 127	100

The top line displays the amount of free event space and the current sequencer state, which is one of the following: STOPPED, PLAYING, REC READY, RECORDING, KEY WAIT, or EXT. CLOCK.

RecMode

When recording the first track of a new song, you will be able to record as if you had an endless length of "tape" no matter what the recording mode is set to.

When you record the first track, all recording modes operate the same way. This is because until you define the length of a new song, its End point is the default setting of Bar 8001, the maximum amount of Bars in a song. The End point is referenced and modified in different ways depending on the RecMode.

The End point of a song is defined when:

1. The **Stop** button is pressed to end the recording of the first track. The new End point is aligned to the nearest downbeat of the (empty) Bar immediately following the last Bar you were recording when **Stop** was pressed.

2. **Stop** is pressed while recording any track past the previously set End point in Linear or UnLoop recording mode. Again, the new End point is aligned to the downbeat of the (empty) Bar immediately following the last Bar you were recording when **Stop** was pressed.

3. The AutoOut Bar and Beat is set past current End point, after recording in Auto RecMode, and when the first track is recorded in Auto RecMode, the AutoOut Bar and Beat becomes the End point.

4. A new End point is entered on the EVENTS page.

5. Using the Track-edit functions Copy, Insert, and Delete to alter the song's length.

The End point of a song is used as a loop point in Loop and UnLoop modes, and it defines the Fixed Length of a song when you record in FixLen mode.

Linear: Record as if you had a nearly endless length of "tape."

FixLen: The song will not continue recording past the End point of the song when the RecMode is set to **Fixed Length**. Recording will automatically stop at the End point.

Loop: While RECORDING, the song will play the data between 1 : 1 and the End point over and over, allowing you to overdub in each pass if the Mode parameter on the MAIN Song-mode page is set to **Merge**. Make sure the Mode parameter is set to **Merge** if you intend to overdub in Loop Record, or else each consecutive pass in Loop RecMode will erase the data recorded on the previous pass. While you are still recording in Loop mode, you may selectively erase individual note events by pressing and holding the **Enter** button and depressing the desired notes on the keyboard during the times you would like them erased. Once the song is saved, you can not use this feature to erase individual notes.

UnLoop: When recording in UnLoop RecMode, any existing tracks will be played back as if they were looping from Bar 1 : Beat 1 to the End 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've 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).

Auto: Set RecMode to **Auto** to punch-in record, (either in merge or erase mode), on a track between the Bars and Beats Defined in AutoIn and AutoOut. To punch in and continue recording until you press **Stop,** set the AutoOut point before the AutoIn point.

PlayMode

The PlayMode setting, along with the End point, determine how the song or songs are played back. The song's PlayMode setting will be ignored when the song is included as a step in an arrangement.

Linear: Set the PlayMode to **Linear** to hear the current song played only once, from the song position set in the Locate parameter to the End point. The song will be returned to the Locate Bar and Beat when it reaches the End point.

Loop: The Loop PlayMode will loop the current song from the End point back to Bar 1, Beat 1 continually during playback until **Stop** is pressed.

List: song objects in memory can be played back to back in numerical ID order starting from the current song followed by the song with the next highest ID. Once the current song reaches its End point, immediately the CurSong parameter is updated to the next highest song object ID and it will play from Bar 1, Beat 1 to its End point. When the song with the highest ID in

memory has played through to its End point, the sequencer will stop and that song will be the new **CurSong**.

Chain: For every song, there is a parameter called ChainTo found on the COMMON page that determines what other song, if any, will immediately follow this song's playback when PlayMode is set to **Chain**. When the current song ends, the ChainTo song will replace the previous CurSong, and if its ChainTo parameter is set to any value other than **0 None**, then the Chain PlayMode will continue playback with the next song being chained. When the last song in the chain has played through to its End point, the sequencer will stop and that song will be the new CurSong.

The most common use for the Chain PlayMode is to construct a set list of different songs. Since the songs chained together are played immediately after one another, we recommend that you include a few measures of silence either at the end or the beginning of each song in the Chain.

When you want to string songs together more seamlessly, you can create an arrangement with the Arrangement Editor. See page 12-12.

KeyWait

KeyWait specifies whether the sequencer will wait for a Note event before going into PLAYING or RECORDING status. With the KeyWait On, press the **Play** soft button while the sequencer is STOPPED or REC READY and the new status, KEY WAIT, will flash in the Song Status Field until a key is played. You can override the KEY WAIT status by pressing the **Play** soft button twice.

Locate

The Locate Bar and Beat will change in real time during play back and recording to reflect the song's current position. It can be set to a Bar and Beat before (negative values) or during a song. Once a song's length is defined, the End point is the maximum value for the Locate parameter. If Locate is not set to 1 : 1, the count off, if any, is disabled during play back or recording.

This parameter is identical to the Locate parameter on the MAIN page.

AutoIn

When you are in Auto record mode, AutoIn is the Bar and Beat when the recording will begin. If AutoIn is not set to 1 : 1, the count off, if any, is disabled. The AutoIn setting will not have an effect on recording unless the RecMode is set to **Auto**. When this parameter's value is highlighted, pressing the **In/Out** soft button updates only the AutoIn parameter; it doesn't update the AutoOut parameter.

AutoOut

When you are in Auto record mode, AutoOut is the Bar and Beat when the recording will stop. Set the AutoOut location earlier than the Bar and Beat defined as the AutoIn point in order to record to the very end of a song. The AutoOut setting will not have an effect on recording unless the RecMode is set to **Auto**.

Input Quantize (Quant)

This parameter determines how much Note events are moved towards grid locations upon the initial input of the events. If set to **Off**, no Quantizing will occur while you record, and the exact timing of your performance will be preserved during play back. If set to **100**%, every recorded Note event will be aligned to the closest grid location, defined by the Grid setting. Input

Quantize is used to quantize your performance as you record it in. However, you may wish to record without quantization and go back and quantize at a later point. To do this, use the Quantize function in the Track Editor.

Grid

This setting determines the size of the Input 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 (including triplets, for example, 1/12 = 1/8tr, 1/24 = 1/16tr, and so on) are available as the size of the Input Quantize grid. You can select commonly used Grid values by double-pressing the **Plus/Minus** buttons.

Swing

The Swing percentage is applied to the quantize grid. Zero percent swing is straight time, **100**% produces a swing (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.

Sync

The Sync parameter is used in conjunction with Clock. It controls transmission and reception of MIDI sync messages except actual clock. These are the messages it controls: Song Start, Song Stop, Song Continue, Song Select, and Song Position Pointer.

Song Select

Song Select is a command similar to a Program Change command; it enables you to select songs via MIDI. Like other MIDI messages, Song Select has 128 values. That's about half the number of songs you can store in the K2661, so if you have a lot of songs, you can't use Song Select to select all of them.

The K2661 maximizes the number of songs you *can* select by remapping Song Select values of 0–127 so they match the way songs are stored in the K2661's RAM banks (75 in the Zeros bank and 20 in each of the other nine banks). If you want to use Song Select extensively, you should number your songs according to the song IDs listed in the following table. Songs in the Zeros, 100s, and 900s banks are not available for selection with Song Select.

Song Select Value	Song ID
0–19	200–219
20–39	300–319
40–59	400–419
60–79	500–519
80–99	600–619
100–119	700–719
120–127	800–807

Song Position Pointer

The K2661 sends a Song Position Pointer message via MIDI when you start a song. The message indicates the location (Bar and Beat) at which the song starts playing—often that's the start of the song (1:1), but you can set the Locate parameter anywhere you want, and start the song from

there when you press **Play**. The K2661 also responds to Song Position Pointer messages received from an external source.

When you have the K2661 synced to another sequencer, the Song Position Pointer message shifts the auxiliary sequencer's start point correspondingly. This is normally an extremely convenient feature, but there's one thing to avoid.

The K2661 lets you set a negative value for Locate, which gives you a countoff before the song starts (if you do this, set the Countoff parameter on the MISC page to **Off**, so you don't repeat the countoff). Keep in mind that the Song Position Pointer message doesn't support negative values, so your auxiliary sequencer might lose sync if you use a countoff. The safest approach is never to start a song with a Locate value less than **1:1**.

Clock

Specifies the source clock as being internal or external. When the Clock is set to external (**Ext**), the K2661 will wait to receive MIDI clock data, via its MIDI In port, from another device capable of generating MIDI clock data before playback and real-time recording can begin.

Tempo

The Tempo parameter, when set to **Fixed**, provides a tempo lock feature to override any real-time tempo changes recorded into a sequence. If set to Auto, tempo changes will be respected.

CountOff

Selects the number of bars of countdown, if any, before playback or recording starts. This works in conjunction with the click, so if the Click parameter is set to **Off**, the CountOff setting will have no effect. If the click is set to record only, then the CountOff will happen only when RECORDING.

Click

The Click parameter controls the click behavior. Set to **Off**, there is no click, and consequently no CountOff. When it is set to **On**, a click is present during playback and recording. To have a click only while RECORDING, set the Click to **Rec**. A value of **Cnt** generates a click only during RECORDING CountOff, if any.

ClickCh

Specifies which MIDI channel will be used for the metronome click.

ClickPrg

If click is in use, ClickPrg specifies which program will be used as the metronome click's sound. The click channel will be locked on to this program internally, and this program number will be transmitted via MIDI on the click channel to external any device(s) when playback or record is started. The default click program is **198 Click**, which uses the Clave keymap.

ClickKey

The ClickKey is the note to be used for the metronome click.

ClickVel

ClickVel determines the attack velocity to be used by the metronome click. The first beat of each measure gets played at exactly this velocity level while the other beats scaled to about 90% of this value as a way to provide an accent.

If there's not enough of a distinction between Beat 1 and the other beats, you can do the following to extend the dynamic range of the click program:

1. Go to Program mode, and select Program **198 Click**, then press **Edit**.
2. Press the **more>** soft button, then the **F4AMP** soft button.
3. Select the Velocity Tracking (VelTrk) parameter, and increase its value. The more you increase it, the more difference you hear between Beat 1 and the other beats. Don't go too high, though. This may cause Beats 2, 3, and 4 to drop too low. When you save, we recommend using a different program name and ID, or at least a different ID.
4. Go back to Song mode, select the new program's ID as the value for the ClickPrg parameter, and start recording.

Soft Buttons on the MISC Page

Record, **Play(Pause)**, and **Stop** work the same as they do on the MAIN page, described on page 12-24.

New selects **1 NewSong** as the current song and jumps back to the MAIN page. The tracks in the new song will be empty, but all initial program, volume and pan settings, and all parameters in the MISC page remain set the same way they were in the previous song.

In/Out provides a quick way to enter the Auto punch-in points in real time, based on your current location in the song. When you press **In/Out**, the K2661 updates either the AutoIn or AutoOut parameter (or both), depending on their current values and the value of the Locate parameter.

Typically, you'll start song playback, press **In/Out** when you reach the desired punch-in point, then press it again when the song reaches the desired punch-out point.

More specifically, the first time you press **In/Out**, the K2661 sets AutoOut to match the current value of Locate. Press **In/Out** again, and the K2661 shifts the current value of Auto Out to the value of Auto In, and updates AutoOut to match the current value of Locate.

If the value of AutoIn or AutoOut is highlighted when you press **In/Out**, the K2661 updates only the selected value.

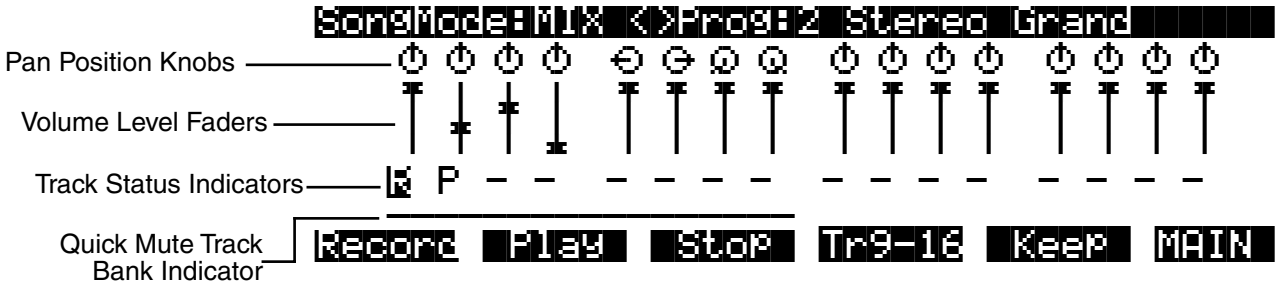
The AutoIn and AutoOut parameters display only Bars and Beats. However, the actual In and Out points will be precise to the Tick occurring at the time the **In/Out** button was pressed.

MAIN returns you to the MAIN page.

Song Mode: The MIX Page

The MIX page allows you to set and keep new initial settings for all sixteen tracks' program changes, volumes, and pan positions. You can set these three parameters for each track, then press the **Keep** button, prompting a dialog that asks if you really want to update these settings. Press **Yes** to make the changes. Another way to set these initial settings is to press **Record** to put the sequencer into REC READY status, make any desired changes, then press the **Stop** soft button.

You can also record real-time changes by changing the value of the highlighted fader or knob while recording on that track. If you do make recording changes in real time, though, make sure that RecMode is set to **Merge**, or else the data previously recorded on the track will be erased.



The top line of this page displays the program number and name for the currently highlighted track. The different tracks are selected by moving the cursor with the **Left** and **Right** cursor buttons. The program for each track can be changed in the MIX page with the **Chan/Bank** buttons. Pressing the **Chan/Bank** buttons at the same time will jump to the next bank of 100 programs.

Pan Position

Position the cursor over any one of the sixteen Pan Position "knobs" on the display and turn the Alpha Wheel to change the panning for the selected track. The graphic display will move smoothly between the left and right settings and these changes can be recorded in real time. Use the alphanumeric buttonpad to enter in a value between **0** (hard left) and **127** (hard right) if you want to have a track jump immediately to a new pan position. The default pan position is **64** (straight up).

Volume Level

Position the cursor over any one of the sixteen Volume Level "faders" on the display and turn the Alpha Wheel to change the MIDI Volume for the selected track. The graphic display will move smoothly, setting volume changes that can be recorded in real time. Use the alphanumeric buttonpad to enter in a value between **0** (no volume) and **127** (maximum volume) if you want to have a track jump immediately to a new volume level. The default value is **127** (maximum volume).

You can also use the sliders to adjust the volume of the currently selected bank of eight tracks.

Track Status Indicators

Using the **Up**, **Down**, **Left**, and **Right** cursor buttons to position the cursor onto a Track Status Indicator, you can toggle an empty track (-) into Record (R) with the Alpha Wheel or **Plus** or **Minus** buttons.

Once a track contains data, it will have a (P) as a Track Status Indicator, 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 RecTrk will display an (R), designating it as the record-enabled track. If the RecTrk is set to **Mult**, then all of the empty tracks will have Record (R) as their Track Status Indicator. If RecMode is not set to **Mult** and there isn't a track with an (R), the RecTrk parameter's value will be **None**. If you are in Multi record mode, and have turned all record-enabled tracks (R) back to empty (-) so that there isn't a track with an (R), the RecTrk remains set to **Mult**.

Quick Mute Track Bank Indicator

This parameter appears as an underscore directly below the graphics for either the bank of Tracks 1–8 or Tracks 9–16. It indicates which bank of eight tracks will respond to the Quick Mute feature, described with the **Tr 1-8**/**Tr9-16** soft buttons, below. It also indicates which tracks respond to the keyboard model's sliders for adjusting track volume.

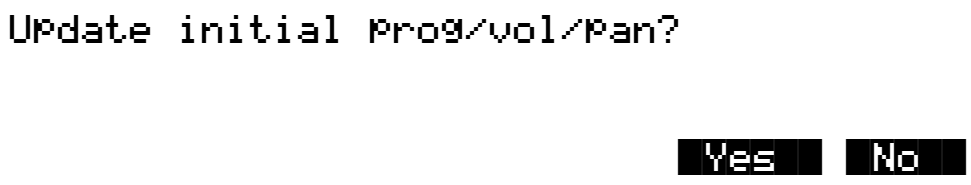
Soft Buttons on the MIX Page

Record, **Play(Pause)**, and **Stop** work the same as they do on the MAIN page, described earlier.

Tr 1-8 / (Tr 9-16): The eight mode select buttons to the left of the display are used as Track Mutes when on the MIX page. For example, press the **Setup** button to mute Track 2; notice that its track status indicator changes to **M**. Each of these buttons has an LED to indicate that the corresponding track is being muted, but since there are sixteen tracks and only eight buttons, this soft button will select, and display, the bank of eight tracks that can be muted in this fashion.

Press the **Tr 1-8** soft button to toggle the Quick Mute Track Bank Indicator under tracks 1 -8 or tracks 9 - 16, selecting which bank of eight tracks will respond to the Quick Mute feature.

Keep: If you have made any changes to the initial program, volume or panning of a track on the MIX page, press **Keep** to prompt this dialog:



Press **Yes** if you are sure you want to update the initial program change, MIDI volume, and pan settings for tracks already containing data in the current song, to the new values you just made on the MIX page. The settings will be modified and you are returned to the MIX page. Press **No** to abort the updating of the initial program change, MIDI volume and pan settings for the current song.

MAIN returns you to the MAIN page.

Chapter 13
Basic Disk Mode

Disk mode lets you load, save, back up, and copy files of objects between the K2661 and the outside world, through SmartMedia or the K2661's SCSI port. The K2661 works with 3.3v SmartMedia cards (the most common type) having a minimum size of 4 MB.

Most SCSI (Small Computer System Interface) devices will operate with the K2661 via its 25-pin SCSI ports. The most common use for these ports is to connect one or more hard disks (or removable drives like Zip or Syquest) for storing samples and other objects. You can also connect a CD-ROM drive for reading files to the K2661. The K2661 will treat a CD-ROM drive like any other SCSI device (except that you can't save files to it). The K2661 can read writable CDs (CD-Rs), although it can't write to them.

The K2661 can address up to 8 Gigabytes (8 G) of hard-disk space, in 2-G partitions. This is true for any hard disk formatted with the DOS-compatible FAT-16 format. Hard disks larger than 8 G can be formatted to make 8 G (in four partitions) accessible to the K2661. You can connect up to seven hard disks. See Chapter 13 of the *Musician's Guide* for more information about Disk Partitioning and other advanced features of Disk Mode.

Disk mode in the K2661 allows flexibility to organize disk files and their contents. Many powerful operations are included that can save a lot of time by allowing you to easily specify exactly what you want to load or save. Examples of this range from organizing related files into directories, to loading macros (lists of files or selected objects) from multiple SCSI disks, to setting up programs to automatically link with samples off of a CD-ROM.

Here's a summary of Disk-mode functionality:

- One SmartMedia slot
- One SCSI port
- MS-DOS file system compatibility
- Sample transfer using standard audio file formats AIFF and WAV (including support for looped and tuned WAV files)
- Support for Roland,™ Akai,™ and Ensoniq™ sample files
- SMDI sample transfers
- Support for song files (sequences) in MIDI Type 0 and Type 1 format
- Support for ISO 9660-format CDs: reading, copying, and backing up
- Support for reading writable CDs (CD-Rs): reading, copying, and backing up

Disk Mode Page

To enter Disk mode, press the **Disk** button, and the Disk-mode page will appear:

As usual, the current mode is displayed on the top line. At the middle of this line, the amount of available sample RAM is shown. To the right of the top line you see the amount of memory available for storing all other RAM objects.

In the center of the page is a line indicating the currently selected disk. Select different disks using any data-entry method. You can select a SmartMedia card, or SCSI IDs 0–7. (If you connect an Apple Macintosh® personal computer, don't select SCSI ID 7, since that's the SCSI ID of the Mac, which can't be changed. All SCSI devices connected in a network must have different SCSI IDs in order for the network to function.) When you want to communicate with any of the SCSI storage devices in your network, set the Current disk parameter to the value that matches the SCSI ID of the device you want to address. That is, the K2661 will interact with the SCSI storage device whose SCSI ID matches the value of the Current Disk parameter. If you choose a value of **SMedia**, the K2661 will communicate with SmartMedia.

The manual for your SCSI disk should tell you its SCSI ID. Most newer SCSI disks show their SCSI IDs on their rear panels, and many have adjustable SCSI IDs.

The currently selected device will be read from or written to when you load, save, rename, or delete files. Use the soft buttons to start any of these operations. Refer to *Disk Mode Soft Buttons* on page 13-6 for complete information.

Using SmartMedia Cards

You can use SmartMedia cards for all your backup and storage requirements. SmartMedia cards are sold in a variety of sizes; the K2661 will work with any size, so long as it's 4M or larger. Also, you should double-check to make sure that you always buy 3.3v cards, which is the most common type.

The SmartMedia card slot is on the back panel of the K2661, but it is easily accessible from the front of the instrument – just look for the SmartMedia logo and the blue LED. The gold contacts on the card must be facing up when you insert it into the K2661. You can remove a SmartMedia card anytime the blue LED is unlit.

***Caution**: Do not remove a SmartMedia card while the blue LED is lit; this can cause data corruption.*

Formatting a SmartMedia Card

SmartMedia cards come formatted and ready to use with the K2661. If you ever need to format a card, however, insert the SmartMedia card (with gold contacts up) into the K2661's SmartMedia slot, or in the SmartMedia slot of any computer with SmartMedia formatting capability. Make sure the card does not have a write-protection sticker attached.

Press the **Disk** button to enter Disk mode. Make sure the Current disk parameter says **SMedia**, so you don't accidentally format any SCSI devices you might have connected! Press the soft button labeled **Format**. The K2661 will ask you if you want to format, and a pair of **Yes/No** soft buttons will appear. Press the **Yes** soft button when you are ready to begin.

The K2661 will remind you that formatting will erase the SmartMedia card, and will give you two more chances to cancel the formatting procedure—we want to make sure you don't accidentally erase any cards. Press the **Yes** soft button to continue formatting. When formatting begins, the display will tell you that the card is being formatted. The blue SmartMedia LED will light.

Connecting a SCSI Device

It's easy to connect SCSI devices to the K2661's SCSI ports. Using a SCSI device will give you off-line storage, and can speed up your loading and saving operations considerably.

You'll need a SCSI cable with a 25-pin SCSI connector on the end to be connected to the K2661. If your SCSI device does not have a 25-pin connector at one end, you can find SCSI cables like these at any personal computer store. Connect the 25-pin end of the cable to either of the K2661's SCSI ports, and the other end to your SCSI device. Before you start connecting cables, however, please read the next section carefully. We've also included important information about SCSI in Chapter 6 of the *Musician's Reference*, as well as at www.kurzweilmusicsystems.com.

SCSI Termination

Simply put, SCSI termination prevents the electrical signals used by SCSI devices from being reflected from unconnected SCSI ports, and possibly disrupting the data stream. The K2661 is always terminated.

The rule for SCSI termination is that the two SCSI devices on the ends of a chain of SCSI devices must be terminated, and all devices in between, however many, must be unterminated. Newer SCSI devices usually make it easy to enable or disable their termination settings. Older SCSI devices may require an external terminator to be installed. These are available at all personal computer stores. Make sure you get the right size for your device (25-pin or 50-pin are common sizes).

It's impossible to describe all the possible configurations of SCSI devices, so we'll provide you with a few general guidelines that will cover the requirements for most SCSI systems. If you're chaining large numbers of SCSI devices together, you may have to do a little juggling, but chances are you'll already have some experience with SCSI termination.

First of all, it's *very* important that you terminate your SCSI system properly. Improper termination can result in lost data, can interfere with the operation of your SCSI devices, and over the long term, can damage them.

If your SCSI system includes a personal computer, you'll need to be sure that it is internally terminated. If you're not sure whether it's internally terminated, you should call your computer dealer for confirmation. If your SCSI system includes only the K2661 and an internally terminated computer, you're probably all set.

If you have an internally terminated computer, a K2661 and an external hard disk with *two* SCSI ports, setting up is also painless. Connect the computer's SCSI port to one of the hard disk's SCSI ports, and the K2661's SCSI port to the hard disk's other SCSI port. Make sure the hard disk is not terminated, since it's in the middle of the chain. In this configuration (with a terminated computer at one end and the K2661 at the other), you can chain up to six hard disks between them. Make sure they're all unterminated, and don't forget to set each disk's SCSI ID to a different value. Don't forget that the computer may have one or more internal SCSI drives; these must also be counted.

If you're planning to buy an external SCSI hard disk to use with your K2661, it's a good idea to buy one with two SCSI ports. Most new hard disks have two ports, and can be terminated or unterminated relatively easily. This gives you added flexibility, since you can install it at the end of a chain, leaving its termination in place, or in the middle of a chain, using both its SCSI ports, and removing its termination.

When your SCSI device is connected, you can select it with the Current disk parameter on the Disk-mode page. Use any data-entry method to select the SCSI ID that matches the SCSI ID of your SCSI device. If you're using the alphanumeric buttonpad to select the device, enter **8** to select SmartMedia. Newer SCSI devices usually have an external switch for setting their IDs. Older units may not have these; check your device's owner's manual for its SCSI ID.

Using your K2661 in a SCSI System

SCSI IDs

All devices in a chain of SCSI devices must have different SCSI IDs, including the K2661. The K2661's SCSI ID is set at 6 by default, and can be changed on the RECEIVE page in MIDI mode. If your SCSI system includes an Apple® Macintosh,® be sure not to use SCSI ID 7 for any of your other devices, since the Mac's SCSI ID is 7, and can't be changed. Generally, PCs with SCSI cards will also use SCSI ID 7 for their interface.

Once you've made sure that all connected devices are set to different SCSI IDs, you should be able to select the devices, format them, and start loading and saving files.

Formatting a SCSI Device

The procedure for formatting hard disks is essentially the same as with SmartMedia cards, once the SCSI device is selected with the CurrentDisk parameter. The K2661 will recognize the disk as a SCSI disk, and will warn you that formatting will erase the contents of the disk. Compared with personal computers, the K2661's formatting time for SCSI disks is surprisingly short.

See the *Musician's Guide* for information about Disk Partitioning.

Directories

A directory is a file on the disk that lets you group other files together as you might separate documents using folders in a file cabinet. You can create directories on K2661 Format SCSI drives and SmartMedia cards. You can even create directories within directories; these are called subdirectories.

Directories are very useful for organizing your sample, song, and program files. The K2661 provides many operations for setting up and managing the directories on your disks and the files within them.

Path

The Path field shows the current directory on the current disk if it is a K2661 format disk. This field is displayed upon returning to the Disk-mode page after you have pressed one of the disk function soft buttons and viewed the file contents of a specific disk. It stays visible on the Disk-mode page until you power down or do a soft reset.

The K2661 always starts at the root (top-level) directory when you power it up, or when you change the value of the CurrentDisk parameter. When you use the disk functions to view other directories, the Path field updates the current directory value to track your movements.

The root directory is displayed as a backslash:

```
Path = \
```

If you press the **Load** button and load a file from a subdirectory called SOUNDS, the Path field will appear as

```
Path = \SOUNDS\
```

The backslash character is a directory separator, as in the following Path:

```
Path = \NEWTUNE\SAMPLES\DOGS\
```

This represents the directory DOGS, which is a subdirectory of the SAMPLES directory, which is a subdirectory of the NEWTUNE directory in the root directory. If the path is too long to fit on the top line of the display, it gets abbreviated. The maximum length of a path in the K2661 is 64 characters (including the backslash characters).

Startup

The Startup parameter determines what disk will be used for loading the power-up macro file **BOOT.MAC** (see the *Musician's Guide*). If this is set to **None**, then the K2661 will power-up in a normal fashion. If this is set to a SCSI device or **SMedia**, when the K2661 is next powered on it will look for the **BOOT.MAC** file in the root directory of the specified disk, and load each of the entries in the macro specified within.

This feature provides a very flexible way to automatically configure your K2661's memory contents whenever you turn the power on.

Library

This feature works in conjunction with the macro feature to provide a way to distribute macro files that load data from removable media without having to know in advance the SCSI ID of the removable-media drive. A macro file stores its references to disks by DISK ID (SCSI ID or SmartMedia), or by either a "Library" or "Unspecified" designation (see the *Musician's Guide*). Typically, you would set the Library parameter to be the same as the SCSI ID of your CD-ROM drive, if you were loading macro files from a SmartMedia card or another SCSI disk that referenced CD-ROM files containing samples or keymaps.

Verify

Set Verify to **On** when you want the K2661 to verify saves, copies, and backups (the K2661 can't verify loads). The operations take longer, but it provides insurance against corrupted files.

Disk Drive Information

For SCSI disks, you'll see specific information about the current disk's manufacturer, model number and internal mechanism; for Smart Media cards, the manufacturer and card size are displayed. The K2661 requests this information from a SCSI disk when you select that disk with the Current Disk parameter. This information may be needed when determining if a given disk is compatible for SCSI operation with the K2661.

Macro On Indicator

When (Macro on) is visible, the K2661 records all file-loading operations in its macro table. See the *Musician's Guide*.

Disk Mode Soft Buttons

Here is a brief description of each of Disk mode's soft button:

Load	Load selected file(s) or object(s) from the current disk into K2661 memory.
Save	Save banks of objects, selected objects, or a macro as a K2661 file on the current disk.
Macro	Display the macro function page, where you can create and edit macros.
Delete	Delete files from the current disk if it is a K2661 disk.
Rename	Change the filename of a file on a K2661 disk.
Move	Change the location of a file from one directory to another (on the same disk).
Util	Check the free space, find files, and view directory organization and sizes on the current disk.
NewDir	Create a new directory on K2661 disks.
Backup	Hierarchical file backup between disks.
Copy	Single or multiple file copy between disks.
Sleep	Send SCSI sleep command to the current disk. See the discussion below.
Format	Format the current disk as a K2661 disk.

The Sleep Soft Button

Many SCSI devices will "sleep" when they've been idle for a few minutes. In other words, the disk will stop spinning, in order to save power and reduce wear. The K2661 lets you tell your SCSI devices to sleep. Just press the **Sleep** soft button, and if your devices have this feature, they will sleep. This is particularly useful in a quiet studio situation.

Any Disk-mode operation will "wake" the device again. The K2661 will ask you to wait while the device's disk starts spinning. As soon as the disk is spinning at full speed, the K2661 will execute the operation you selected. Some SCSI devices automatically sleep when they power up. (A device of this type usually provides a way to override this feature; check its manual.) Any Disk-mode operation will wake a disk in this case, as well.

File List Dialog

The file list dialog appears when you select a disk function (such as Load or Rename) to operate on one or more files on a disk. Here is a typical file list dialog, for the Load function:

When you enter this dialog, the K2661 displays the contents of the current directory, in an alphabetized scrolling list. If the current directory cannot be located (for example, if you've changed cards or removable hard disks), the K2661 displays the current disk's root directory. The root directory will also be selected if the disk was just chosen by the CurrentDisk parameter on the Disk-mode page (remember that the current directory is always set to the top level when the CurrentDisk parameter is changed, or if the K2661 has just been powered on).

The display for all disks (including SmartMedia) shows the 3-character extension of all files in the directory (except directories themselves). Extensions are created when the file is saved by the K2661. You cannot modify the extensions on the K2661. This is because the K2661 uses the extensions to tell it what kind of data the files contain.

Directories created by the K2661 have up to 8-character names, with no extension. A directory can have an extension if it is created on an external computer (more on this later).

Here is a list of extensions used by or accepted by the K2661:

.AIF Audio Interchange File Format (AIFF)

.KOS Kurzweil K2500 or K2661 operating system file

.KRZ Kurzweil K2000 format file

.K25 Kurzweil K2500 format file containing objects and/or sample data

.K26 Kurzweil K2600/K2661 format file containing objects and/or sample data

.MAC Kurzweil K2500, K2600, or K2661 disk macro file

.MID MIDI Type 0 or Type 1 sequence file

.WAV Microsoft RIFF WAVE format

***Note**: In most cases, when we refer to **.K26** files, we're including the older-format **.K25** and **.KRZ** files as well, since the K2661 can read these file formats.*

When loading files, the K2661 will try to find out the type of file if the extension is not the same as is suggested above (with one exception: **.MAC** files). The K2661 can create files with almost all of the above extensions; the exceptions are the older-format **.KRZ**, **.K25**, and **.KOS** files.

The top line of the file list contains several items of information pertaining to the currently displayed directory contents. A typical information line looks like this:

In the center of this line is an indicator of the number of files in the currently displayed directory. This number is grouped together with the number of selected files, for example:

This example indicates that you have selected none of the 54 files in the current directory,. File selection is possible in several of the disk functions (more on this below). The total number of files also includes any subdirectories of the current directory, but not the files within the subdirectories.

On the left end of the top line of the file list page is the current directory, sometimes in an abbreviated form. If you are in the root directory, the display will read:

If you are in the directory \MONDAY, the display will read:

If you are in a directory that is more than one level down from the root directory, such as \FX2\GLASS\BREAKING, the display will read:

The "..\" indicator tells you that you are more than one level down from the root directory.

The File Index

On the right side of the top line is the Index field. This tells the position of the highlighted file relative from the beginning of the file list. The first entry in a file list is index 1.

Typing a number on the alphanumeric buttonpad will automatically scroll the display to the corresponding entry in the file list. Typing an out-of-range value such as 999 is a quick shortcut to get to the end of the file list.

In addition to remembering the current directory on the most recently used disk, the K2661 also remembers the index within the file list for the current directory. For example, if you were to hit **Cancel** on the above page, go to Setup mode to check the current setup, then return to Disk mode to load a file, the file index would still show **3 DOORS.K26** after you pressed **Load**. This index is remembered until a new disk is selected by changing the value of the Current Disk parameter on the Disk-mode page.

There are exceptions to this however. For example, when a file is written to the disk using the Save function, the index will subsequently be set to the file that was just saved. The index can also be explicitly set using the List and Find utilities.

If there are no files in the current directory, then the index is 0, and no value appears for the File to load parameter:

The maximum number of files that can be accessed within a single directory is 360. If you have more files than this amount in a single directory, then you will not be able to view the entries past index 360.

While in this dialog, pressing the **Chan/Bank** buttons will scroll the file list either forward or backward by "pages" of 5 entries. It is often easier to scroll the list this way when looking to see if a particular file is present in a directory.

Soft Buttons in the File List Dialog

Use the **Select** soft button for multiple file selection in the Load, Delete, and Move functions. In the display below, there are two files selected (**DOORS.K26** and **FLUTE.K26**), as indicated by the asterisk (*****) following their filenames. If you pressed **OK** in the following display:

the files **DOORS.K26** and **FLUTE.K26** would be loaded.

The **Select** button will toggle the selection, meaning that if you press **Select** on a given file, the asterisk will go on if it is currently off, and vice-versa. Selecting can be done for files only, not for directories. You can select as many files as you wish using the **Select** button. There is also a way to select all files at once, or clear all file selections at once, using a double-press of the cursor buttons:

- **Left/Right** cursor double-press: Select All Files
- **Up/Down** cursor double-press: Clear All Selections

Pressing either the **Left** or **Right** cursor individually performs a separate function for finding directories, described below. You can select multiple files only within a single directory. Changing directories clears any selections.

Once you have selected one or more files, press **OK** to perform the disk function (in this example, Load) on all files marked with an asterisk, regardless of whether they're visible in the display. If there are no files marked with an asterisk, the function operates only on the highlighted file.

The **Root** soft button returns you to the top-level directory. If the display is already at the root directory (as indicated by the Dir field on the top line of the display) the only effect of pressing Root will be to reset the file index to1 if there are files in the directory.

The **Parent** soft button moves you up one level in the directory hierarchy. If the display is already at the root directory, this button has no effect.

The **Open** soft button performs a different operation depending on the disk function and the type of the currently highlighted file or directory (or selected files). In all disk functions, pressing **Open** on a directory—indicated by **(dir)** after the filename—will open that directory and display its file list.

When you first open a directory for viewing, the index is 1 (the first file in the list). The K2661 remembers the index of the previous directory you were in before you pressed **Open**, so if you return to that directory by pressing **Parent**, the index changes accordingly. This index is remembered for one level down, and therefore is useful when stepping through a list of subdirectories from a single directory level.

In the Load function, pressing **Open** for a standard **.K26** file will start the Load Object feature. This allows selected individual objects from the file to be loaded into the K2661. If **Open** is pressed on a macro file (**.MAC** extension), then individual file entries within a macro file can be selected for loading.

For all other functions, if **Open** is pressed when a **.K26** or a **.MAC** file is highlighted, the object file or the macro file will be opened for viewing. For example, pressing Open on a **.K26** file while in the Delete function will display the objects within the file in a scrollable list, however no delete action will be possible on the individual objects.

Pressing the **OK** soft button will cause the K2661 to proceed with the selected function. After pressing **OK**, there may be further dialogs such as bank specification (for the Load function), confirmation (for Delete), or name entry (for Rename). One exception to this is in the Load function; when a directory is highlighted, pressing **OK** is the same as pressing **Open** (it displays the contents of the highlighted directory).

The **Cancel** soft button exits the file list dialog, completing the disk function with or without any operation taking place. The K2661 returns to the Disk-mode page. Pressing the **Exit** button will do the same thing as **Cancel**.

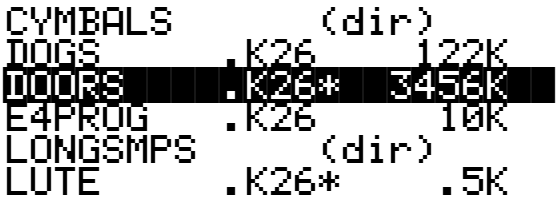
Total

The total size of all the files in the directory is indicated at the bottom left of the file display above the soft buttons. This total represents only the disk space used by the files in the directory being viewed. The K2661 includes a free space utility that indicates how much space is being used on the current disk. Also, there is a List utility that can be used to calculate the size of all files within a selected directory subtree.

Quick Scrolling to Subdirectories

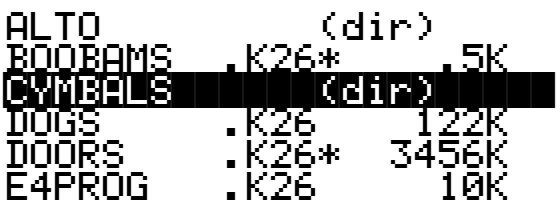
It is sometimes difficult to locate a subdirectory entry in the file list for the current directory, if there are many files in the current directory. To make this easier, individually pressing either the **Left** or **Right** cursor buttons will set the file index to the previous or next directory (respectively) in the current directory list. The index will wrap around the beginning or end of the list, so that repeated presses of either cursor button will cycle through all of the subdirectories. If you have many subdirectories, you can scroll through them all very quickly using this method.

For example, given the following file list display:



Pressing the **Right** cursor takes you two entries further to the next directory:

or, pressing the **Left** cursor takes you two entries back to the previous directory.



Creating Directories

As stated above, you can create directories for organizing your K2661 files, whether you are using SCSI or SmartMedia. You can create directories on any disk formatted by a K2661, K2600, K2500, or K2000.

Directories appear in the normal file list with the indicator (**dir**) to the right of the directory name.

There are two ways to create new directories.

- Press the **NewDir** button while on the Disk-mode page
- Press the **NewDir** button during the Save dialog.

Creating a Directory From the Disk Mode Page

When you press **NewDir**, the K2661 prompts you for the directory name:

Pressing **>>End** will take the cursor to the last character in the name. The **Choose** button allows you to grab a filename from the current disk (see the discussion of file-name grabbing, in *More Features of the Save Dialog* on page 13-26). Otherwise, the name will default to either **NEWFILE** after a powerup, or the name will be that of the most recent file saved or loaded. Once you choose a name to start with (or the default), you can edit the name using the **Left** and **Right** cursor buttons, the **Delete** and **Insert** soft buttons, and the **>>End** soft button. You can also use keyboard naming, as described on page 5-5.

After you have chosen the directory name and pressed **OK**, you have the choice of where (in what directory) to put the new directory you are creating.

Pressing **OK** will select the default path, which is the current directory. Pressing **Change** will allow you to view the disk, traversing its directories, until you find the one in which you want to create the new directory. In this case, pressing **OK** creates a directory called **THINGS** in the root directory.

The display shows that the K2661 has created the directory, then the Disk-mode page reappears.

Creating a Directory in the Save Dialog

As a convenience when saving files to a directory, you can press **Save** from the Disk-mode page and then press **NewDir** in the Save dialog. You'll get the same prompts as when you create a directory from the Disk-mode page. When you press OK, the display shows that the K2661 has created the directory, then the Save dialog reappears.

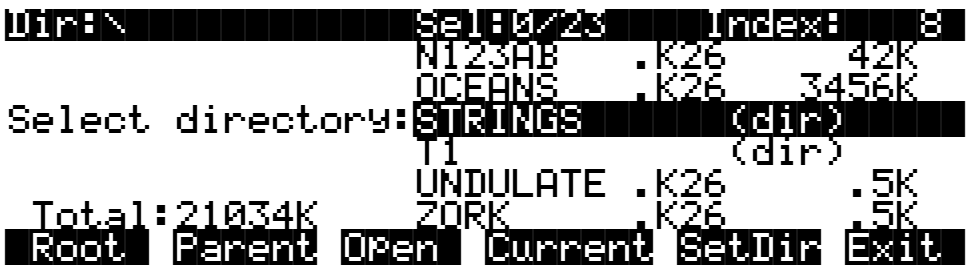
When you create a directory from within the Save dialog, the K2661 resets the current directory to the directory you just created.

The Directory Selection Dialog

When making a new directory, as well as in many of the disk functions, you will be presented with the opportunity to change the current directory, or the default directory for a disk operation. A good example is the "Use current directory? "prompt that you see when you create a directory. If you press **Change**, you will see a slightly modified file list dialog, through which you can select any directory on the disk. The display looks like this:

When you enter this dialog, you will be in whatever directory was displayed as the default. From here you can go into other directories by using the soft buttons Root, Parent, and Open. Notice that there is no **Select** button. This is because the purpose of this dialog is to choose a single directory as opposed to selecting multiple files. However, the Root, Parent, and Open buttons function exactly as described above (for the file list dialog). The Sel field (on the top line) shows you how many files/directories you have selected out of the total number of files/directories in the current directory.

If you've highlighted a directory, there is one additional soft button displayed, **SetDir**. Notice the **Current** button moves over one button to the left:



You can use either of two soft buttons to select a directory in this dialog.

Current — This selects the directory you are currently in (whose file list you are viewing), as specified in the Dir parameter on the top line of the display. For example, if you wished to select the directory STRINGS using the **Current** button, you would first press **Open** to display the contents of that directory, and then press **Current**. If you instead wanted to choose the root directory, you would simply press **Current**, since that is the directory you are viewing (notice the **Dir:** \ at the top).

SetDir — This selects the directory you are scrolled to, such as STRINGS in the display above. This method is often quicker and more convenient than pressing **Open** followed by **Current**, which does the same thing. The **SetDir** soft button is present in the display only when the scrollbar highlights a directory entry.

Disk Mode Functions

Now that you are familiar with the basics of creating directories and moving around in the K2661 file system, it is time to discuss some of the features provided in the disk functions themselves.

Loading Files

The **Load** button instructs the K2661 to copy a file from the current disk to the K2661's RAM. Press the **Load** button, and a list of files stored in the currently selected device will appear. Scroll through the list of files with the Alpha Wheel or **Plus/Minus** buttons, then press **OK**—or press **Cancel** to return to the Disk-mode page.

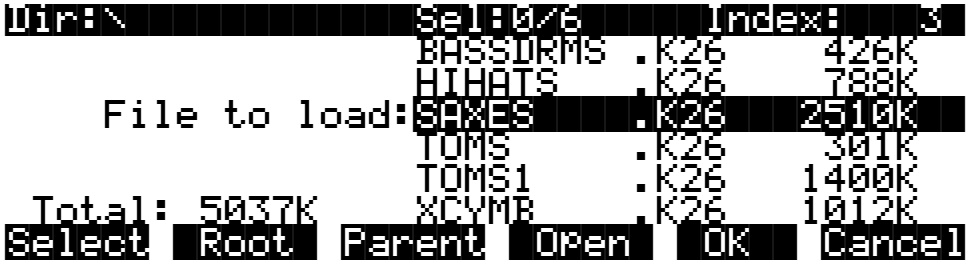
When you press **OK**, the Bank dialog will appear (as described in *Load Function Dialog* on page 13-19) and you'll be asked to select the memory bank to load the file into. Scroll through the list of banks with the Alpha Wheel or **Plus/Minus** buttons until the desired memory bank is highlighted, then press **OK**. Or press **Cancel** to back up a page and select another file to load. Once you have selected a bank to which to load, you will be asked to choose a method for loading. The method you choose determines how the objects in the file will be ordered when loaded into the bank.

Loading Individual Objects

Since files can contain over 3000 objects, it is often useful to load only a subset of the information contained in a K2661 file. Sometimes, this capability is necessary even to be able to load certain files, if the size of the file's samples or data is greater than the K2661's internal RAM size.

You can select individual objects or groups of objects (samples, programs, keymaps, effects, songs) for loading from within a single K2661 file.

The Load Object feature is accessible from within the Load File dialog. To activate it, scroll the file list until you have highlighted the file that you wish to load objects from:



Press **Open** to begin the Load Object dialog. (Note: The file must be in **.KRZ**, **.K25**, or **.K26** format in order to load individual objects from it.) The K2661 then scans the file contents in order to present a list of all of the objects in the file. Sometimes this procedure can take a few

moments, depending on how many objects are in the file. During this time, you will see the following display:

```
Reading file SAXES.K26  [...]

Select  Next  Type  Multi  OK  Cancel
```

The soft buttons in the above display do not become active until the process of scanning is finished. When this happens, the K2661 will display a list of the file's objects, in the exact order that they are stored in the file:

```
Func:LOAD      Sel:0/5              Index: 1

Sample  200 Tenor Sax1          G 2S   250K
Sample  201 Tenor Sax2          C 3S   179K
Sample  203 Tenor Sax3          F#3S   198K
Keymap  200 Tenor Sax                  176
Select  Next  Type  Multi  OK  Cancel
```

The objects in the list are usually grouped by type (sample, program, keymap, etc.). The list can be scrolled using the Alpha wheel or the **Up** or **Down** cursors. The **Chan/Bank** buttons on the front panel can be used for fast scrolling. The list will jump by five entries at a time, moving the entry on the bottom line to the top line.

Note: *When scrolling through large numbers of objects (more than 100), the K2661 may sometimes pause for a few seconds if it needs to get more information from the disk file. When this happens, some gyrating dots will briefly appear in place of the Index value on the top line of the display.*

Each line in the scrollable list represents one object, and displays the object's type, ID, name, and size. Samples have additional information: the sample's root key and a stereo sample indicator:

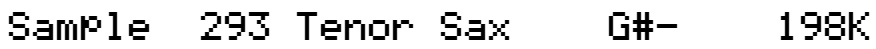
Object Type	ID	Name	Sample Info	Size
Sample	203	Tenor Sax3	F#3S	198K

The ID numbers are the same numbers that were used to reference the objects when the file was last saved by the K2661. These numbers will usually be different after the objects are loaded, depending upon the bank (for example, 200...299) and mode that is specified for loading. There is more information on these modes in the section called *Load Function Dialog* on page 13-19.

The Size field is interpreted differently for samples and nonsamples. For nonsamples (songs, programs, etc.), it shows the number of bytes used by the object in the file, and hence the amount of program memory that the object will occupy in the K2661. For samples, the size field shows the size of the all sample data associated with the object, and is displayed in kilobytes (K).

For samples, the letter S after the root key indicates a stereo sample.

Due to display space constraints, if the sample's root key happens to be in the lowest MIDI octave range (that is, C -1 through B -1), it will be displayed in a truncated form. For example, if a sample's root key was set to G#-1, the display would read:



The status line at the top of the display specifies the function being performed, the number of selected objects in the list followed by the total number of objects in the file, and the current list index:

As with the file list, entering in a number from the alphanumeric buttonpad will jump to the indexed entry, and typing in a large number like 9999 will go to the end of the list.

The soft buttons on this page are used for multiple selection of the objects in the list as well as for moving around the list when there are many items selected or listed. This same dialog is also used for many other functions in the K2661, namely for saving selected objects to disk and for several object utility functions that are described later.

Here is a brief description of each button's function, followed by a detailed explanation of its operation.

Select Select or deselect an object.

Next Jump to the next selected object.

Type Jump to the next object of a different type.

Multi Go to the Multiple Object Selector page.

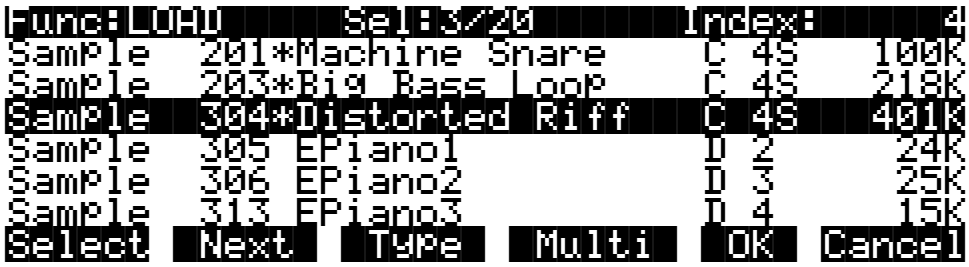
OK Tell K2661 to proceed to load the selected objects.

Cancel Exit back to the File List Dialog.

Press the **Select** button to choose the highlighted object for loading. An asterisk (*****) is placed in between the object name and the object ID for any items that are selected. Deselect a selected object by pressing **Select** again. The asterisk will disappear. The easiest way to choose objects for loading is to scroll the list and individually press **Select** on each object you want to load.

If you only want to select one object for loading, you need not select it with the **Select** button. Instead, pressing **OK** implicitly selects the highlighted object if there are no other objects selected. If there are objects selected, however, then the highlighted object will not be loaded unless it is selected.

This page shows three samples selected for loading (IDs 201, 203, and 304):



The **Next** button will cause the index into the list to jump to the next selected object, forward in the list. When the end of the list is reached, the search will wrap around from the beginning. If you have more than one object selected, then if you repeatedly press Next you can easily cycle through all selected items. If there are no items selected, then this button doesn't do anything.

The **Type** button jumps to the next object of a different type from the one that is currently highlighted. This is a convenient way to find a particular type of object in the list. If you want to skip over the samples and the keymaps in an object list and jump right to the programs, press **Type** about two or three times, stopping when you notice that a program is highlighted.

Press the **Multi** button to enter the Multiple Object Selector (described on page 13-34). This powerful utility can be used to control the selection or deselection of many objects, cross-referenced by object types and ranges of ID numbers.

When you are all done selecting objects to load, press **OK**. As stated above, if only one object is to be loaded, it is implicitly selected if it is the currently highlighted object and there are no other selected objects in the list.

Cancel returns to the file list dialog, highlighting the file you just opened. You can load the entire file after pressing **Cancel** by pressing **OK** when you return to the file list.

Shortcuts when Loading Objects

Select All/Deselect All

Selecting or deselecting all of the objects at once can be done with the same double-presses as described for the file list dialog, namely:

- **Left/Right** cursor double-press: Select All Objects
- **Up/Down** cursor double-press: Clear All Selections

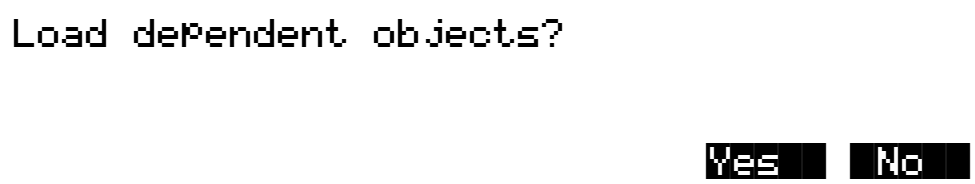
If you want to load most but not all of the items from a file (for example, if there happens to be a Master table in the file that you don't want to load), it may be fastest to first select all objects using the **Left/Right** double-press, and then manually deselect any unwanted items.

Viewing the Name Table

The name table is an object that appears in files that were created using the **Names** button in the "Save dependent objects?" dialog (see *The Name Table* on page 13-29). This object contains a list of dependent objects needed by the other objects in the file at the time the file was saved. There is more information about this later on, however it is worth mentioning here that a highlighted name table object's contents can be viewed by pressing either one of the **Left** or **Right** cursor buttons.

Loading Dependent Objects

When you press **OK** after selecting one or more objects, the K2661 will ask the following question:



This dialog appears because one or more of the selected objects might have dependents associated with them in the file. (Remember, dependents are those objects needed by other objects; samples are dependents of keymaps, effects and keymaps are dependents of programs, and so on.) When this dialog appears, it does not necessarily mean that there really are dependents of the selected objects. The K2661 will not know whether there are dependent objects in the file until it begins to read in the selected objects, and determines what their dependents are.

Answering **Yes** to the question tells the K2661 to also load the dependents. You may wish to answer **No** if, for example, you are simply loading a program or a keymap as a template for use with other objects. You can also manually select only some of an object's dependents, and then answer **No** to "Load dependent objects?" to prevent other unwanted dependents from being loaded.

To summarize, it is not necessary to select any of the dependents of an object if you plan on loading all of the dependents. As an example, for a file containing dozens of programs, keymaps, and samples, you may choose to highlight a certain program and press **OK**, and answer **Yes** to the "Load dependent objects?" question. The K2661 will do the rest, by only loading the samples and keymaps that are needed by the selected program.

Similarly, if you selected certain *keymaps* from a file, and then answered **Yes** to "Load dependent objects," the K2661 would figure out exactly what samples need to be loaded as dependents of the selected keymaps.

Auditioning Samples from a Disk File

Often when working with files that contain samples it is helpful to be able to hear what the samples sound like before loading all or part of the file. It is possible to audition samples in the file, from within the Load Object dialog.

To audition a sample, first scroll to the sample that you wish to hear. Then, press either the **Left** or **Right** cursor. The K2661 will load the sample (or 1 second of it if it's longer than a second). The audition starts from the very beginning of the sample data (note that if the first second of data is silence then you won't hear very much when the sample is auditioned). If the loop points fall within the first second of the stored sample data, they will be loaded as well. The K2661 display will blink after the completion of loading the sample audition data. When the sample segment has been loaded, it can then be played back at its root key as well as transposed up and down the keyboard.

Once a sample has been auditioned, it remains active across the keyboard until another sample is auditioned. The audition function ends when either **OK** or **Cancel** are pressed.

There must be sufficient sample RAM in the K2661 to load one second of the sound for auditioning. This amount varies according to the sample rate of the sample, but for most samples this will be less than 100K bytes. If the auditioned sample does not play, check that there is enough free sample memory in the K2661. It is also possible to see the following error if the K2661 object RAM is full or very near full:

```
Not enough memory to audition
```

Load Function Dialog

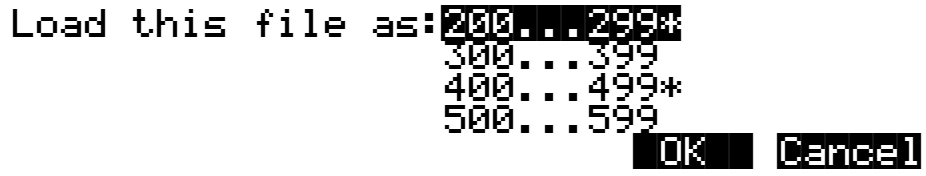
Bank Status Indicator

After you have chosen what you wish to load, you are presented with a dialog allowing you to determine what bank will be used to load the file's data. The bank-status indicator (an asterisk) indicates whether a bank contains objects.

If an asterisk is present after the bank number (for example, 400...499*), it means that there are objects in the bank, whether they are RAM or ROM objects. ROM objects are in most banks; the only completely empty banks are 200 and300.

If there is no asterisk on the line for a bank, it means the bank is empty.

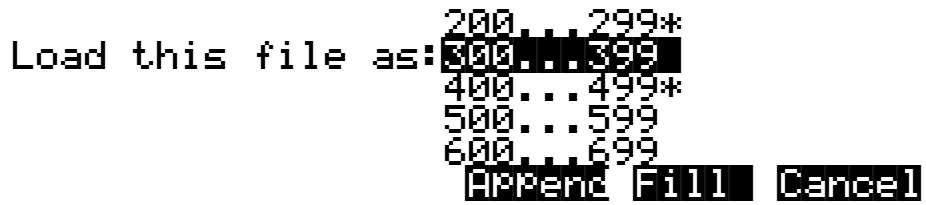
In the following dialog, there are user objects in the 200s and 400s bank, and possibly also in other banks that become visible when the selection is scrolled.



This indicator makes it easier to find an empty bank to use for loading, if needed.

Loading Methods

Once you have pressed **OK** to decide on what bank to use, you will see this dialog if the bank is empty:



You will see the following dialog if the bank contains any objects (in RAM or ROM):

The soft buttons control the mode for loading and renumbering of objects from the file. Here's how they work:

OvFill First deletes all RAM objects in the selected bank, and then loads objects using consecutive numbering.

Overwrt First deletes all RAM objects in the selected bank, and then loads objects using the object ID numbers stored in the file.

Merge Preserve the object ID numbers stored in the file for the objects to be loaded, overwrite objects already in memory if necessary.

Append Try to use the object ID numbers stored in the file for the objects to be loaded. If an ID number is already in use, increment the ID number until a free slot is found.

Fill Ignore the object ID numbers stored in the file. Try to use consecutive numbering from the beginning of the selected bank. If an ID number is already in use, increment the ID number until a free slot is found.

Cancel Cancel the mode selection, and go back to choosing a bank. Scrolling to a different bank value will have the same effect as Cancel.

Typically, you will just want to use the **Fill** method. **Append**, **Merge**, and **Overwrt** try to preserve the numbers stored with the objects in the file, but this should only really be necessary if you depend on program numbers or effect numbers to be at a certain MIDI program change number. **OvFill** is like **Fill** except the selected bank (or Everything) is cleared out before loading.

Overwrt and **OvFill** operate in different ways after a selected bank has been filled up for a given object type (for example, after you have loaded more than 100 programs into a bank). **Overwrt** will continue to preserve the objectIDs stored in the file, and will individually overwrite objects in the bank following the just filled bank. **OvFill** does not overwrite past the end of the selected bank; it instead skips over object IDs that are in use, loading only into unused IDs. Because of this difference, it can sometimes be faster to load a file using **OvFill** rather than **Overwrt**. However, this applies only if the objects to be loaded would extend past the end of a selected bank.

Note that when loading into a specific bank (as opposed to loading as "Everything"), the object IDs in the file are used as follows: The "bank" digit is ignored, and the remainder of the number is used when the K2661 rebanks the object ID into the bank that you specify. For example, if you save Program 453 into a file, and load it back into the 300s bank, the K2661 will use the number **53** when deciding upon a new object ID. If the 300s bank was previously empty, and the load mode is Append, then the program will end up with ID 353.

For loading as "Everything," the ID number for an object stored in a file is taken literally, and not rebanked (except if **Fill** or **OvFill** mode is chosen, in which case the K2661 will use ID numbers starting from 200).

The following example shows how each different loading methods affect how four programs load into a bank that already contains programs.

Example: Starting with the following objects already stored in the K2661 internal RAM:

Program ID	Program Name
200	Acoustic Piano 2
204	Bright Piano
205	Tin Ear Piano
210	Chorused Piano
211	Electric Piano 2

Suppose you were to load a file containing the following objects into the 200s bank:

Program ID	Program Name
405	Blues Organ
406	Gospel Organ
409	Cheezoid Organ
410	Internal Organ

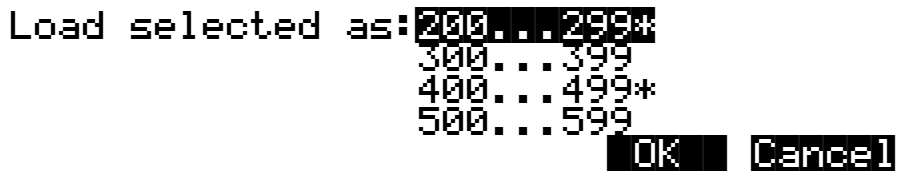
The following table shows the IDs that each program end up with when you load the organs (with IDs in the 400s) into the 200s bank, which contains the pianos. Note that in Merge mode, Organs 405 and 410 replace Pianos 205 and 210.

Original Program ID	Program Name	Program IDs After Loading				
		OvFill	Overwrt	Merge	Append	Fill
200	Acoustic Piano 2	Deleted	Deleted	200	200	200
204	Bright Piano	Deleted	Deleted	204	204	204
205	Tin Ear Piano	Deleted	Deleted	Deleted	205	205
210	Chorused Piano	Deleted	Deleted	Deleted	210	210
211	Electric Piano 2	Deleted	Deleted	211	211	211
405	Blues Organ	200	205	205	206	201
406	Gospel Organ	201	206	206	207	202
409	Cheezoid Organ	202	209	209	209	203
410	Internal Organ	203	210	210	212	206

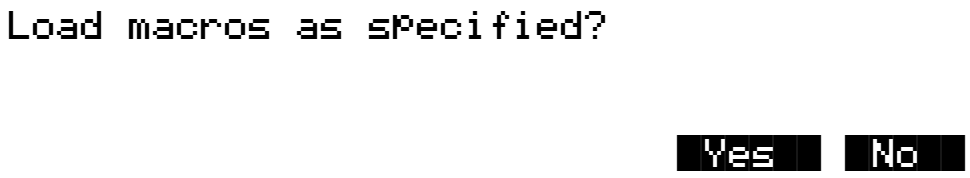
Selecting Multiple Files to Load

As stated previously, you can select multiple files for loading into the K2661 from within a single directory, in one operation. This is done from the file list dialog with the **Select** button.

After you have selected one or more files in this way, you will still choose a bank and mode to be used for the load process, just as with loading a single file. However, the dialog prompt will say Load selected as:



If you selected any macro files (**.MAC** extension) from the directory, then once you have select the mode for loading, you will see the question:



The answer to this question instructs the K2661 that any macro files will have their macro entries loaded according to the bank and mode:

Yes specified in the macro entry.

No currently specified for this multiple file load. In other words, whatever you select for Bank and Mode will override the instructions for each entry in the macro.

At this point the files will begin to load. When all the files have been successfully loaded or the load process has been aborted, the K2661 returns to the Disk-mode page.

If there are any errors encountered during a multiple file load, such as running out of object RAM, you will be asked once if you wish to abort the load. In some cases, you may wish to continue loading. If you continue (and don't abort), the only way to abort will be to use a special procedure described in the next paragraph.

Aborting a Multiple File Load

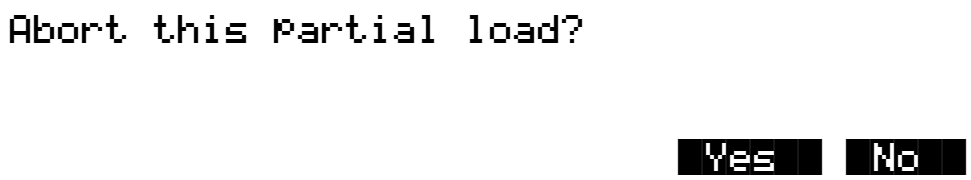
There is a way to abort the process of loading multiple files. Aborting can only be done "in between" files that are being loaded, and not during the load of any one file (short of powering off or soft-resetting the machine by pressing **+/-**, **0**, and **Clear** simultaneously, but this is not recommended!).

Aborting a multiple file load is done by pressing and holding down either of the Plus (+) or the Minus (-) buttons that are located just below the Alpha wheel. This should be done at least one-half second before you anticipate the current file to finish loading, or else the K2661 will not sense that you wish to abort the load.

You will see the following question after the current file being loaded is completed:

It may be a good idea to practice using this method of aborting a multiple file load, so that when the time comes that you accidentally select 100 files, you will remember how to abort the process. This same method (of holding the **Plus** or **Minus** buttons down) is also used to abort the Backup feature and the macro file load feature.

If you run out of object or sample RAM, you will have one opportunity to abort the load as explained above. However, if you continue from that point you may end up seeing the same error message "Memory is full" for each file that you had selected. This can be a rather tedious process, however it is still possible to abort out of this by holding down the **Plus** or **Minus** button simultaneously while pressing **Yes** when you see the following question:



More Load Function Features

There are more features having to do with the Load function that are described later on in this chapter, such as loading macro files and loading AIFF files.

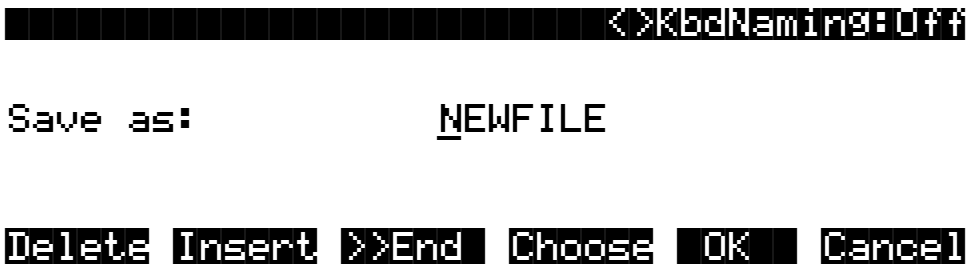
Saving Files

The **Save** button starts the process of saving from the K2661 to the currently selected device. When you press the **Save** soft button on the Disk-mode page you will see the bank dialog:

The **Macro** soft button will be present only if macro recording is turned on. (See the *Musician's Guide* for more information on macros.)

You can save an entire bank of objects, or by pressing the **Object** soft button, select individual objects to be saved. If you choose to save using the bank method, all RAM objects within that bank will be saved. (You cannot save ROM objects. If you wish to save a ROM object, such as a program, you must first save it internally as a RAM program.) If any objects within the selected bank have dependent RAM objects that exist in a different bank, you will be asked if you want to save dependent objects. See page 13-28 for more on saving dependent objects.

Use one of the data-entry methods to select a bank to be saved. If you press the **Cancel** soft button, you'll return to the Disk-mode page. After you've selected the bank, press **OK**. The following page will appear:



You can now name the file according to the naming procedures outlined in Chapter 5. You can enter up to eight characters. When you've entered a name, press **OK** to save the file as shown in the display, or press **Cancel** to return to the file dialog. When the file is saved, the K2661 adds an extension (**.K26**) to the filename. This enables the K2661 to recognize it as a Kurzweil file when it examines the disk's directory.

Saving Master and Everything Files

Among your choices in the Bank dialog are Master files and Everything files. Master files consist primarily of the items on the Master-mode page and the three MIDI-mode pages. They also include information like marked pages, view settings, and MIDI channel and program assignment. In fact, saving Master files (or dumping them via SysEx) is a good way to configure your K2661 (or another K2661) to your performance or sequencing needs. For example, you might save different Master files with every sequence you create using an external sequencer. Then, when you load the Master file, you would have all the correct programs assigned to the appropriate MIDI channels.

Everything files consist of the Master file parameters and every other RAM object. Saving an Everything file will literally save everything in RAM, including samples, into a single file.

Soft Buttons in the Save Selection Dialog

The meaning of the soft buttons in the "Save selection" dialog is as follows:

Export Save a sample or a song in an exported file format (that is, AIFF, WAVE, MIDI Type 0 or Type 1). This feature is described in the *Musician's Guide*.

Macro Save entries from the current macro table as a macro file (**.MAC**). This soft button is displayed only if macro file recording is on.

Object Save selected objects from the K2661's RAM.

NewDir Create a new directory on the current disk, and return to this dialog afterwards. This is described previously in *Creating Directories* on page 13-11.

OK Save all the objects from the highlighted bank (for example, 200...299), and optionally also save dependent objects.

Cancel Exit from the Save function.

Export, **Macro**, and **NewDir** are all explained in the *Musician's Guide*. This section will describe the process of saving K2661 objects into K2661 format disk files.

Saving Individual Objects

You can select any group of objects in the K2661's RAM for saving into a single file.To save individual objects, from the above dialog, press **Object**. The K2661 will display a scrollable list of all the objects in RAM, very similar to the display for the Load Object feature (described previously):

The procedures for saving objects are essentially the same as the procedures described on page 13-14 for loading objects.

Shortcuts when Saving Objects

Select All/Deselect All

Selecting or deselecting all of the objects at once can be done with the following double-presses (two front-panel buttons simultaneously pressed):

- **Left/Right** cursor double-press: Select All Objects
- **Up/Down** cursor double-press: Clear All Selections

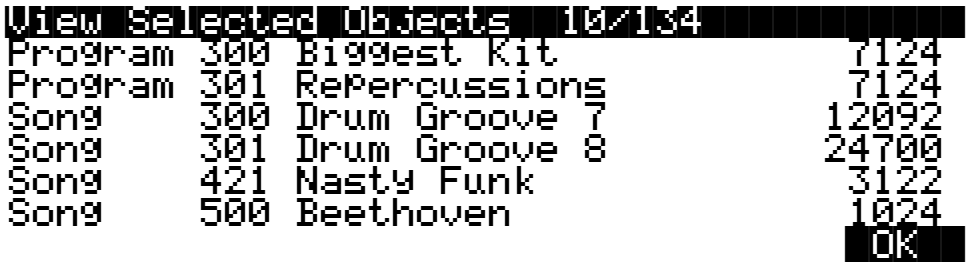
If you want to save most but not all of the items from a file (for example, if there are some songs in RAM that you don't want to be saved in the file), it may be fastest to first select all objects using the **Left**/**Right** double-press, and then manually deselect any unwanted items.

Viewing Selected Objects

When there are lots of objects selected, but they are scattered in the objects list, it can be helpful to be able to view a list of only the currently selected objects. Do this by double-pressing the **Chan/Bank** buttons.

- Double-press of **Chan/Bank** buttons: View Selected Objects

For example, if there were 10 objects selected, and you pressed both **Chan/Bank** buttons simultaneously, the K2661 would show a list similar to this:



The top line shows 10 objects selected out of the 134 that are currently in RAM. If the number of selected objects is larger than the 6 objects that fit on one page (as in this example), the list can be scrolled to view all of the information.

Note that this feature is not available in the Load Object dialog.

More Features of the Save Dialog

The Choose File Name Function

When entering in a filename for saving, there is a **Choose** soft button. When **Choose** is pressed from the file naming dialog, the K2661 will access the current disk directory and display the following:

The function of this dialog is to grab the text of any filename on the current disk, and either use it as a starting point in the file naming dialog, or else use the chosen filename exactly. This helps when replacing files on the disk (where the name must exactly match the file being replaced), or adding files to the disk that have similar names or appended revision numbers. You can save time by not having to enter the entire filename on the K2661's alphanumeric buttonpad.

The **Open** soft button is visible in the "Choose file name" dialog only when a subdirectory is highlighted.

Traversing directories from the Choose function does not change the current default directory.

Selecting the Directory to use for Saving a File

After you specify the filename when saving any file, select where to put it: by default it goes in the current directory, but you can specify any other directory on the current disk:

Pressing OK will accept the default path (the current directory), which in this example is the root directory (represented by the backslash character). Pressing **Change** will allow you to view the disk, traversing its directories, until you find the one in which you want to save the file. If you choose a different directory from the default, it will become the new default directory. For more information on selecting a directory, see *The Directory Selection Dialog* on page 13-13.

Saving Any File sets the File Index

After saving a file, you can go to any disk function (such as Load), and the just saved file will be automatically highlighted. This makes it easy to find a file that you have just saved, in case you want to delete it, add it to a macro, move it to a different directory, open it (if it is a **.K26** or a **.MAC** file), etc.

Auditioning Objects in RAM

When deciding which individual objects to save, it can be difficult to know if you are selecting the correct ones. This is especially true if many objects have similar or identical names, or if the names of the objects are not descriptive enough to know what they are. The K2661 has a feature that allows auditioning of samples, keymaps, programs, and songs right from the Save Object dialog (as well as all of the other object utility dialogs that are discussed later). To activate this feature, scroll to an object of an appropriate type to be auditioned, and press either the **Left** or **Right** cursor button. The display will blink, and the objects can now be heard as follows:

Samples play at their root key, as well as transposed across the keyboard. Stereo samples will play in stereo. Auditioning samples in this way is similar to listening to samples from the SampleMode page in Master mode. The samples are auditioned using a "hidden" program set up according to the parameters in Program **199 Default Program**. This default program can be customized if needed by editing and saving a new program 199.

If you audition any sample objects, the last one that you audition will become the "preview" sample the next time you go to the SampleMode page in Master mode. This can be a quick way to edit the sample without having to edit a program and a keymap.

Keymaps are reproduced accurately, and are played according to the parameters in Program **199 Default Program**. This default program in ROM is set up to have a 0% effects level (dry). Therefore, auditioning keymaps can be a very convenient way to hear them isolated from the effects.

Programs play exactly as they would if they were selected from the Program-mode page.

Songs start playing when either the **Left** or **Right** cursor button is pressed, and stop playing when either cursor is pressed while the song is playing. The most recent song that is auditioned from this page become the current song (as seen on the Song-mode page).

Setups play exactly as they would if they were selected from the Setup-mode page.

Once auditioned, the above object types remain active on the keyboard until another object is auditioned, or until **Cancel** is pressed. If a song is being auditioned, no other objects are auditioned until the song audition is stopped (by pressing one of the **Left** or **Right** cursor buttons).

Saving Dependent Objects

When you save a file, you may see a prompt as part of the Save dialog that asks you whether you want to save dependent objects. A dependent object is simply an object that's associated with another object. The dependent object can be stored in a different memory bank—for example, a RAM sample with ID 301 that's used in a program with ID 402, or in the same bank as the file being saved. Rather than forcing you to save dependent objects separately and to keep track of them yourself, the K2661 gives you the option of automatically saving the dependent objects as part of the file you save. When you load the file again, the dependent objects will be loaded along with the objects to which they're attached.

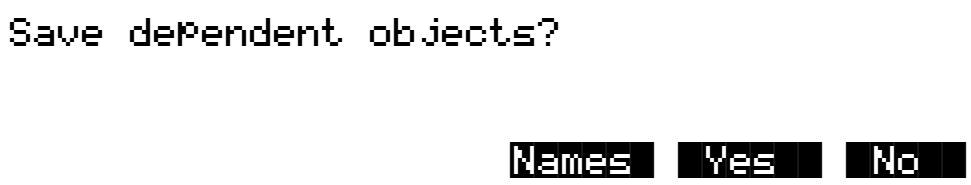
While the K2661 makes it easy for you to keep track of your dependent objects, you need to keep aware of what happens with dependent objects when saving to disk and reloading. First of all, make sure you have enough space available (on card or disk) to hold whatever RAM samples you are saving. Consider this example. Suppose you create 30 new programs, each of which uses a keymap containing four different RAM samples. If you save these programs to a disk file, and save dependent objects with them, you've created a file containing 30 programs and 120 dependent RAM samples. So far, so good. Suppose you then load that file into the 300s bank. The K2661 will load the 30 programs into the 300s bank just fine, but it will be able to load (at most) only the first 100 dependent objects to the 300s bank (each memory bank can hold a maximum of 100 objects of a given type). The remaining 20 dependent objects will be loaded into the 400s bank. If there are no objects of the same type in the 400s bank, there's no problem. But if there are objects of the same type in the 400s bank, some or all of them will be replaced by the newly loaded dependent objects.

The easiest way to prevent this is to make sure that you don't create more than 100 dependent objects attached to the other objects in a given memory bank. The easiest way to do *this* is to avoid creating dependent objects when possible, by saving objects with IDs in the same memory bank as the objects to which they're related. For example, if you create a program that uses RAM samples, and you save the program with ID 201, resaving the RAM samples used by that program with IDs in the 200s will prevent dependent objects from being created for that program. If you do this, you'll minimize the number of dependent objects you create, and you'll be unlikely to force dependent objects to be loaded into a higher-numbered memory bank when you load files.

Once you have selected objects for saving (either individually as just described or by bank selection), the K2661 will determine if any of the items chosen to save have any dependent objects in RAM that were not chosen. For example, if you select a program to be saved and nothing else (using the Save Object feature), the program may have dependent effects, keymaps,

and samples that are in RAM. Dependent objects that are in ROM (for example, ROM samples or keymaps) do not get saved to disk.

You will see the following dialog displayed if there are any dependent objects in RAM of any objects that were selected for saving:



Choosing **Yes** will cause any dependent objects to be saved in the file together with the selected objects. Choosing **No** means that unselected dependents will not be saved. The **Names** button creates a new kind of object to be stored in the file, called the name table.

The Name Table

A file's name table is a list of any dependent objects that were not explicitly selected for saving in the file. Each entry in the name table contains the object type, object ID, and the name of a dependent object.

A file's name table is used by the K2661 at only one time: when the file is loaded. At that time, the K2661 will search for dependent objects that were not saved in the file originally. The search matches dependent objects by name with objects that are already in RAM, and links them to the "parent" object. The name-table data are then discarded when the file load is finished. This search feature is referred to as **Relink-by-Name**.

Relink-by-name can help you work efficiently with K2661 objects and disk files. Careful use of this feature can save you many megabytes of disk storage. It can also free up time for working on music and production instead of waiting for sample data to be resaved.

Relink-by-Name allows you to save objects and their dependent objects separately (in multiple files) and be able to link them up later on by loading the files in the correct order. This can be a very efficient way of working with the K2661's many levels of dependent objects. The most common way in which Relink-by-Name speeds up development of sounds is when making small adjustments to a program that has as its dependents a large amount of sample data. You can separate the program and sample data, so that after changing a program parameter, only a file containing the program and a name table need be resaved.

When loading a file that contains a name table, the following rules should be observed in order for correct relinking to occur.

1. *Use unique names for dependent objects at every level***.** For example, if you were going to be relinking several samples from one file with a program and a keymap from another file, each sample should have a different name. Otherwise, the dependent objects (the samples) will not get relinked properly. This will create problems such as keymap ranges that don't play as they are supposed to.

2. *The dependents to be relinked must already be loaded*. Otherwise they will not be found and relinked when the file containing the parent objects is loaded. This constraint on the order of file loading can be made easier to work with by using the macro file feature (described

later). You can construct a macro file to automatically load the dependents files and the parent files in the correct order, making sure that any files containing dependents are loaded first. An alternative to loading the files with a macro would be to save the dependent and parent files in the same disk directory with similar filenames such that they will appear consecutively in the alphabetized file list. Once you have done this, it is easy to select both files for loading in the correct order.

These rules may appear complicated at first, but they will seem natural once you have worked out a few examples with your own files.

The search algorithm used for relinking dependent objects to their parent objects during loading is as follows:

The search for a dependent object (whose name matches that of an entry in the name table) begins at the beginning of the bank that is specified for loading the parent file. All possible IDs are then consecutively searched. When the last ID of the 900s bank has been searched (typically 999), the search will wrap around to ID 1 up until the end of the bank just before the specified bank. The search stops once a dependent with a matching name has been found and relinked.

For example, if a file containing a one-layer program is loaded into the 400s bank, and the file includes a name table that lists the layer's keymap by name, then the K2661 will begin to look through all possible keymap IDs starting at 400, until ID 999. The search then continues from ID 1, stopping at ID 399. If the search does not successfully find a match, the dependent will be unresolved, and in this example the program would show a value of "Object id not found" for its Keymap parameter, where the object id is the value that was stored in the file.

The search is done in this "circular" manner so as to allow you to direct which dependent objects get relinked. This may be necessary if you end up with multiple copies of dependent objects with the same name; you can differentiate between them by loading the parent file into a specific bank that is the same bank or "before" the bank containing the objects you wish to relink to. Note that this can only be taken so far, since it would be impossible for the K2661 to differentiate between objects with the same name within the *same* bank.

The relinking process happens in the background, without any notification or error messages if items cannot be relinked.

Working with Relink-by-Name

Here are a couple of more in-depth examples that can show how Relink-by-Name works in a practical situation.

Consider that your K2661's RAM contains the following one-layer program and also its dependent keymap and samples (the technique used in this example could well apply to any programs with any number of layers):

Program: Program 317 Steinwave Piano

Keymap: Keymap 300 Steinwave Piano

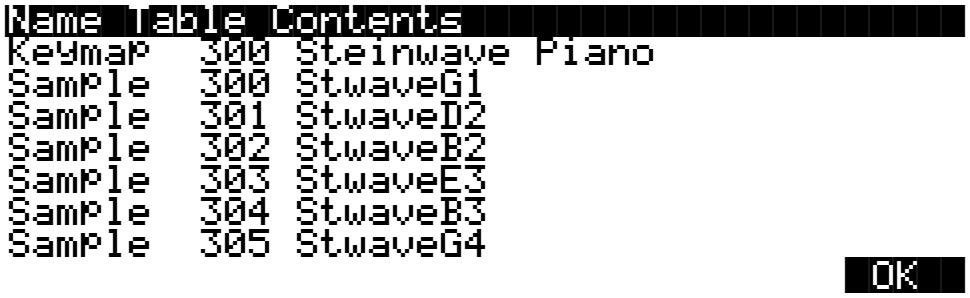
Samples: Sample 300 StwaveG1 ..... Sample 310 StwaveC7

In this case you might wish to save the samples and the keymap in one file, and the program in another file. So, from the Save Object dialog you could first select all the samples from 300-310, and Keymap 300, for saving into a file, let's say **STWAVE1.K26**.

You would then return to the Save Object dialog and save just Program 317 in a separate file in the same directory, let's say **STWAVE2.K26**…only this time, you will be asked the "Save dependent objects" question pictured above. Answer this by pressing **Names**.

After saving, the file **STWAVE2.K26** will contain two objects in it, Program 317 and a name table. You can easily verify this by going to the Load function (or any other disk function) and pressing **Open** on the file just saved (which should come up already highlighted). The display of objects for the file will look like this:

The name table will always be the first object in the list. You can verify the exact contents of the name table by using the "View Name Table" shortcut (as described on page 13-17); make sure the name table is highlighted, and press either the **Left** or **Right** cursor button (as if you were "auditioning" the name table). You would then see the following:



The Name Table Contents list shows what would have been saved in the file had you answered **Yes** to "Save dependent objects?" instead of answering by pressing **Names**. More importantly, it allows you to see what objects need to be in the K2661's RAM *before* loading this file.

The object IDs shown in the table are the same numbers that those dependent objects used at the time this file was saved. (The ID numbers are necessary in order for Relink-by-Name to function, since they are the "link" between the higher level objects and the names of the dependents.)

An important thing to notice about this particular name table is that the sample names are not needed by the K2661 for relinking purposes. In fact, the only information necessary for relinking the dependent objects of this file is the keymap object. The reason for this is that when this file containing the program is loaded, all of these dependent objects should already have been loaded, and the keymap should already be correctly linked to the samples. Although the samples' names are redundant from the K2661's point of view, they are included for free, so to speak, and you may find them very helpful if you ever need to know exactly what the dependents of this file were intended to be.

The Name Table Contents list is scrollable if there are more than seven objects in the name table.

Now that the two files **STWAVE1.K26** and **STWAVE2.K26** have been created using the name table, they can be reloaded and correctly relinked. The files can be loaded into any bank— they do not need to go back into the bank they were originally in—since the **STWAVE2.K26** file will search through all the banks to find the objects by name in order to relink them. In fact, if you were to immediately reload just the file containing the program (**STWAVE2.K26**), into any bank,

you would find that it was automatically relinked to the correct keymap, since the keymaps and samples are currently in memory.

Furthermore, you could edit the program and create more variations of it that reference the **Steinwave Piano** keymap, add ROM layers, and/or effects if desired, and resave all of the programs (and any effects) to the same or a new file (remember to press **Names** when you are asked "Save dependent objects?") You never have to resave the file **STWAVE1.K26** that contains the keymap and samples, if all you have done is edited the programs or added more of them. This can be a tremendous time-saver.

If the keymap and sample files are found on a CD-ROM disk, then using Relink-by-Name is not only a time-saver, but a disk-space saver as well. If you like the samples and keymaps from a CD-ROM file, there is no need to duplicate the sample data on your own writable hard disk. Instead, all you have to do is save a program file in the above manner, and then make sure the CD-ROM file is loaded first before you load the program file.

If you needed to add some sample data to the file (for example, you want to add a root to the keymap or process and reloop a sample from the CD-ROM), you can do this by explicitly selecting the new sample data and the keymap for saving along with the program and the name table. Then, the new sample would not be listed in the name table (it would be in the same file as the name table), and the keymap would be relinked to all of the samples by name instead of the program being relinked to the keymap (as before). What you put in the different files is up to you, and there is no limit to where you can break up the objects in one file or another. The main thing to be aware of are the two rules for Relink-by-name mentioned above:

1. *Files containing dependent objects must be loaded first*.
2. *Always use unique names for like objects types*. (NOTE: In cases where duplicate names exist in different banks, load the file(s) containing dependent objects, then load the file that contains the name table into the same bank or to the one just before it. This will prevent relinking conflicts.

As you will see later, you can create a macro file that will automatically load both of the files in the correct order, no matter what disks they are on or what disk directories they are in. By using macro files in this way, you can avoid having to explicitly load multiple files and remember the correct order each time.

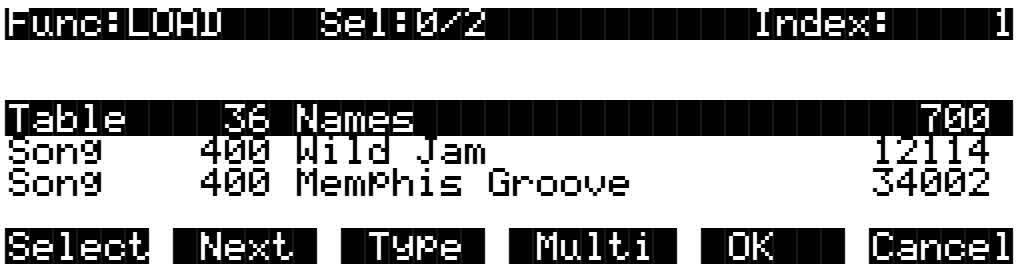
You can also use the Multiple Object Selector (see page 13-34) to help in the process of identifying dependent objects and parent objects that you want to place into separate files. For example, you could easily select all dependent keymaps and samples of any group of programs, to create a "dependents" file. Then, you could quickly select the programs and any other objects that you wanted to be relinked later on, and save them in another file.

Here is another practical example using songs (sequences). Suppose you have loaded several files into your K2661, such that you now have all your favorite instruments in RAM. Then, you make a bunch of songs using a combination of ROM programs and the RAM programs you loaded.

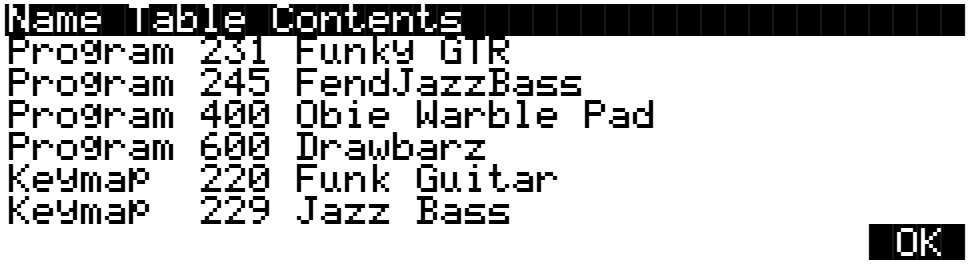
The dependent object structure of the songs would look something like this:

Songs	**400 Wild Jam**	**401 Memphis Groove**
Programs	**600 Drawbarz** **231 Funky GTR** **50 Studio Kit 1** (from ROM)	**245 FendJazzBass** **400 ObieWarble Pad**
Effects	ROM Effects	
Keymaps, Samples	Lots of 'em…	

In this case you might want to save all of the songs in one file, and be able to automatically relink the dependent programs used by the song tracks. All of the programs are presumably already saved in separate files. The only file that needs to be created is one that contains all of the song objects, plus a name table. Once again, this is done by selecting the songs from the Save Object dialog, and answering Names to "Save dependent objects?" The contents of this file can then be displayed by pressing Open (as was done for the previous example).



Also as shown in the previous example, you can display the contents of the name table:



Notice that the ROM program **50 Studio Kit 1** will not be listed in the name table. Any dependent objects that are in ROM do not need to be relinked by name. ROM objects are always directly referenced by their object ID number, since they don't get saved in any files.

Once the song file has been saved, it can be loaded at any time and correctly relinked, as long as the other files containing the necessary programs have already been loaded.

For this type of situation, where you may be working on songs always using a consistent set of programs, it is beneficial to make a macro file that can be loaded in one step to direct all of the various program files to be loaded. After that, any time you load a song file containing a name table referencing these programs, the songs should get relinked to the correct programs.

If you happen to have multiple copies of the necessary programs already loaded into different banks, you can control which bank of programs will be linked to the songs by choosing a certain bank to load the song file into. The relinked programs will be the first set encountered according to the Relink-by-Name search algorithm defined above.

Not Loading the Name Table

There may be a time that you wish to load objects from a file containing a name table, but you don't want the K2661 to relink any dependent objects according to the name table. This can be accomplished by "Opening" the file from the Load function, and selecting any desired objects from within the file, *except* the name table. The selected objects will be loaded into the bank you specify, however the Relink-by-Name mechanism will not function.

Relink-by-Name Processing Time

Normally, the time taken to relink several dependent objects using the name search will be insignificant, relative to the time it takes to load the data from the file. However, if you are attempting to relink a very large amount of dependents by loading one file (say, 200 samples or so), there may be a noticeable wait while the K2661 searches its object database for the dependents. If this happens, it's best to be patient.

Storing Objects in the Memory Banks

There is a separate bank of Object IDs for each object type. That is, you can store 999 programs, 999 samples, 255 songs, and so on. There are two groups of object types, based upon the number of available Object IDs. Table 13-1 shows the number of IDs and ID ranges—in ROM and in RAM—for both groups of object types.

Object Type	Total Available Object IDs	ROM ID Ranges	RAM ID Ranges
Samples Keymaps Programs Setups	999	1–99 100–199	200–299 300–399 400–499 500–599 600–699 700–799 800–899 900–999
Quick Access Banks Songs Velocity Maps Pressure Maps Intonation Tables	255	1–75	100–119 200–219 300–319 400–419 500–519 600–619 700–719 800–819 900–919

Table 13-1 Memory Banks: Object IDs Available for Different Object Types

The Multiple Object Selector Page

The Multiple Object Selector gives you several ways to select multiple objects for various operations—for example, to load all setups with IDs between 250 and 299, to save all programs in the 400s bank, including their dependent RAM keymaps (but not their dependent RAM samples), or to delete all samples whose name includes "Gazonk."

The Multiple Object Selector is available in two places:

- In Disk mode, in the Load and Save dialogs
- In Master mode, on the Object Utility pages—Move, Copy, Name, Delete, and Dump (see page 11-15)

Each of these dialogs and utility pages has a **Multi** soft button. Pressing it takes you to the Multiple Object Selector.

Using the Multiple Object Selector: An Overview

1. In Disk mode, press **Load** or **Save**, or in Master mode, press **Object**, then press **Move**, **Copy**, **Name**, **Delete**, or **Dump**. You'll see a list of objects that you can scroll through with the Alpha Wheel. (If you're in Disk mode and loading objects, you'll need to navigate through the directories and open a file before you'll see the list and the **Multi** button.) This list of objects—conveniently called the *object list*—is what the Multiple Object Selector searches through.

2. Instead of scrolling through the object list manually and pressing **Select** for each object you want to select, simply press **Multi**. The Multiple Object Selector appears.

3. Set the value of the Select parameter, which determines the operating mode for the Multiple Object Selector.

4. Set the values of any other parameters that are visible. Different parameters are visible depending on the value of the Select parameter. This step is called setting the *selection range*. The selection range determines which objects get selected when you execute the next step.

5. Press **Set**. In most modes, this selects every object in the selection range, and returns you to the page you were on before you pressed **Multi**. Notice the asterisks between the IDs and names of the selected objects.

6. Complete the operation you started in Step 1.

Operating Modes: The Select Parameter

The Multiple Object Selector has four operating modes, which determine how the Multiple Object Selector defines the selection range within the object list. Use the Select parameter to set the operating mode. There are four values:

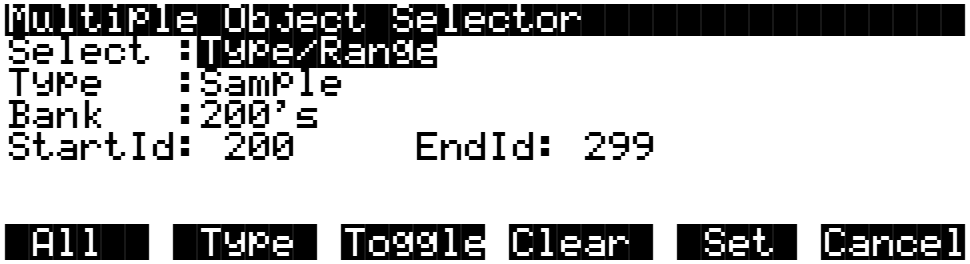
Type/Range — Restricts the selection range to a particular object type (like programs or samples), and lets you specify a range of IDs (like 1–100).

Dependents — Restricts the selection range to objects that are dependents of whatever object(s) you specify.

Everything — No restrictions; the entire object list becomes the selection range.

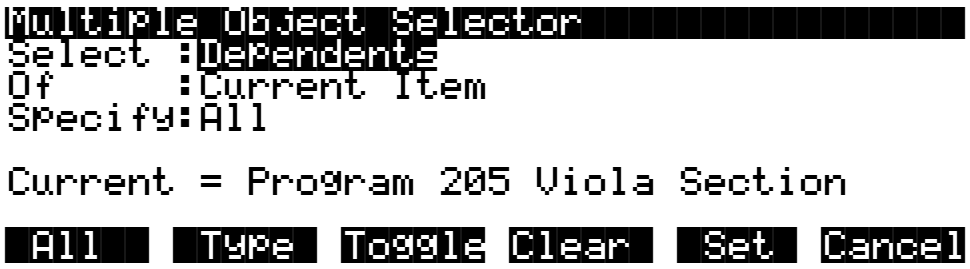
Search String — (**SearchStrg**) Restricts the selection range to objects whose names contain a string of characters that you specify (for example, all objects whose names include "clav").

The first two operating modes in the Multiple Object Selector have other parameters associated with them. The following diagram shows what Type/Range mode looks like.



Use this mode for operations on a particular type of object (like loading all setups, or just Setups 250–299). The Type, Bank, StartId and EndId parameters let you specify which objects to work with. See *Type/Range Mode* on page 13-39 for more information.

Change the value of the Select parameter to **Dependents** if you want to select objects based on their dependencies (for example, when you want to save 20 programs and their dependent keymaps). A different set of parameters appears.



You can't use this mode with the Load function, since the K2661 can't calculate dependencies on objects that aren't already in RAM. You can use this mode with all the other functions mentioned at the beginning of the Multiple Objects Selector section.

Use the Of parameter to specify whether you want to select dependents of the current object, or dependents of previously-selected objects. In the former case (with Of set to **Current Item**), pressing **Set** selects the dependents of the object showing in the Current field (Program **205 Viola Section** in the display above—it's always the object that was highlighted on the previous page). In the latter case (with Of set to **Selected Objects**), pressing **Set** selects all the objects that you marked for selection on the previous page (all objects with asterisks between their IDs and names).

The Specify parameter determines what types of dependent objects get selected when you press **Set**. This is handy when you want to save one type of dependent object, but not another. See *Dependents Mode* on page 13-40 for more information.

If you set the Select parameter to a value of Everything or SearchStrg, all other parameters disappear. In Everything mode, the K2661 selects every item in the list on the previous page. When you press **Set**, you'll return to that page, and see every object selected.

In SearchStrg mode, the K2661 selects every object whose name contains a user-defined string of characters. In this case, when you press **Set**, the K2661 prompts you to enter a string of characters using the alphanumeric buttonpad. Enter the characters, and press **OK**. The K2661 returns you to the page you were on before you pressed **Multi**, selecting the objects whose names contain your string.

Multiple Object Selector Soft Buttons

The Multiple Object Selector has six soft buttons:

Cancel probably doesn't need explanation; it takes you back to the previous page without changing the current selection of objects. The other buttons fall into two groups.

All and Type

The first two are short-cut buttons—one for selecting all objects (just like Everything mode), and one for selecting or deselecting all objects of a particular type.

All Returns the Select parameter to **Type/Range**, if it was not already set that way. Sets Type to **All Types** and Bank to **All Banks**, and also sets StartId to **0** and EndId to **999**. This is equivalent to using Everything mode. The advantage to using the **All** button is that you can select all objects, but still be in Type/Range mode, where you can refine the selection range (for example, all objects in the 400s bank, or all programs).

Type Returns the Select parameter to **Type/Range**, if it was not already set that way. Sets the Bank parameter to **All Banks**, and also the StartId to **0** and the EndId to **999**. The Type parameter's value matches the type of the object currently indexed from the object list. For example, if you scrolled to a setup object then pressed **Multi**, pressing the **Type** soft button would set up the Type parameter to **Setup**. This is usually used to quickly select or deselect all objects of a particular type by scrolling to the first object of that type, and then pressing **Multi-> Type-> Set or Multi-> Type-> Clear**. If you don't want to include all banks in the selection range, it is easy to adjust the Bank or ID parameters to narrow the range.

Toggle, Clear, and Set

In most cases, these soft buttons select or deselect the objects in the selection range, then return you to the previous page (the page you were on when you pressed **Multi**). The exception is SearchStrg mode, in which case pressing any of these three buttons prompts you to specify the string that determines the selection range.

Toggle For each of the objects in the specified range, toggle the selection status of the object. If an object is not already selected, this selects it (an asterisk will appear between its ID and name when you return to the previous page). If an object is already selected, this deselects it (asterisk disappears).

Clear Deselects all objects in the selection range.

Set Selects all objects in the selection range.

Example: Toggle

Toggle is useful when you want to select all objects in the list *except* those that meet certain conditions. For example, you may want to free up some RAM by deleting all objects that are not being used by a song that you're working on.

1. Go to Master mode, and press the **Object** soft button, then the **Delete** soft button. You'll see a list of RAM objects.
2. Highlight the song whose dependent objects you want to keep, then press **Multi**. The Multiple Object Selector appears.
3. Set the value of the Select parameter to **Dependents**, the value of the Of parameter to **Current Item**, and the value of the Specify parameter to **All**. This specifies that you want to select all dependents of the highlighted song.
4. Press **Set**. This selects all of the song's dependent objects, and returns you to the DELETE page, showing the list of RAM objects. Note the asterisks between the IDs and names of the selected objects.
5. Press **Multi** again, and set the value of Select to **Everything** (or press **All**).

6. Press **Toggle**. This selects everything that wasn't selected, and deselects everything that was. The result is that everything *not* used by your song is selected.
7. Press **OK**. If the K2661 asks whether you're sure, press **Yes**.

Example: Clear

Suppose you're in Disk mode, and you want to save everything in RAM except programs.

1. Press the Save soft button to call up the **Save** dialog, then press the **Object** soft button.
2. Select the entire object list by pressing the **Left/Right** cursor buttons together.
3. Press **Multi**. Set the Select parameter to a value of **Type/Range**.
4. Set the value of Type to Program, and the value of Bank to All Banks.
5. Press **Clear**. The K2661 returns to the Save dialog. As you scroll through the object list, you'll notice that no programs are selected, and all objects that aren't programs *are* selected.

Example: Set

Suppose you wanted to save all keymaps and samples in the 300s bank to a single file.

1. In Disk mode, press Save, then press Object.
2. Set the Select parameter to **Type/Range**, the Type parameter to **Keymap**, and the Bank parameter to **300's**.
3. Press **Set**. This selects all the keymaps in the 300s bank.
4. Press **Multi** again, change the Type parameter to **Sample**, and press **Set** again. Now all keymaps *and* samples in the 300s bank are selected.
5. Press **OK** and continue with the Save operation.

Entering Selection Criteria in the Multiple Object Selector

This section describes the operation of the selection modes provided on the Multiple Object Selector page. These are accessed by scrolling the Select: parameter to different values, as pictured above.

Type/Range Mode

This mode lets you select objects based on their type, and on a particular range of object IDs.

Parameter	Possible Values	Function
Type	Sample, Keymap, Effect, Program, Setup, QABank, VelMap, PrsMap, IntTbl, Song, Table, All Types	Sets the desired object type. The value **All Types** will select all of the other possible types.
Bank	000s, 100s, 200s, 300s, 400s, 500s, 600s, 700s, 800s, 900s, All Banks	Sets the desired bank. Changing this parameter causes the StartId and the EndId to be set to the limits of the chosen bank (for example, a value of 300s sets the StartId to 300 and the EndId to 399). A value of All Banks sets the StartId to 0 and the EndId to 999. *The actual range used for selections when Toggle, Set, or Clear is pressed is taken from the setting of the StartId and EndId parameters*. For example, if you set the Bank to 200s and then change the StartID to 300 and the EndID to 399, the 300s bank will be selected, not the 200s. The Bank parameter is used as a quick way to set up the ID range for an entire bank, or all banks.
StartID	0–999	Sets the specific starting ID of the selection range.
EndId	0–999	Sets the specific ending ID of the selection range.

Table 13-2 Object Selection by Type / Range

It is possible to set the EndId before the StartId. If this is the case, the selection range is empty.

Dependents Mode

This mode is used to select a group of objects that are dependents of other objects. This is not available when loading objects in Disk mode.

Parameter	Possible Values	Function
Of	Current Item, Selected Items	If set to **Current Item**, selection range is confined to those objects in the object list that are dependents of the currently indexed item (**Current =**), including the currently indexed item itself. If set to **Selected Items**, then the selection range includes any objects in the object list that are dependents of any currently selected objects (those with asterisks between their IDs and names). The currently indexed item is ignored unless it is already explicitly selected.
Specify	All, All->Keymap, All->Program, Keymap->Sample, Samples Only	This parameter is used to limit which dependent objects are included in the selection range for the appropriate objects included via the Of parameter. The normal setting is **All**, which means all dependents are included. The other settings are useful primarily when separating objects into different files for reloading later using macros and Relink-by-Name. If set to **All->Keymap**, then the selection range includes all dependent objects down to the level of keymaps. That is, samples will be excluded from the selection range. If set to **All->Program**, then the selection range includes any dependent objects down to the level of programs and effects (keymaps and samples are excluded from the selection range). **Keymap->Sample** includes all keymaps and samples that are dependent objects, and nothing else. **Samples Only** includes all samples that are dependent objects, and nothing else.
Current	Type, ID, and name of the currently indexed object	Displays the object that will be used if **Current Items** is the value of the Of parameter.

Table 13-3 Object Selection by Dependents

Everything Mode

Everything includes all objects in the list. You may prefer to use the **All** button for this purpose.

Search String (SearchStrg) Mode

This selection mode will ask for a search string to be entered, as soon as you press either the **Toggle**, **Clear**, or **Set** button. The range for the selection/deselection will be any objects whose names contain the search string, ignoring upper/lower case. As soon as you press the OK button after entering a search string, the K2661 executes the toggle, clear, or set command that you specified at the beginning of the search operation. SearchStrg mode is not available when loading objects.

Working with the Multiple Object Selector

The Multiple Object Selector minimizes button presses and quickly allows you to select whatever group of items you want from the K2661's RAM. It's available for all of the related object management functions.

You may notice that the cursor positions and parameter settings are remembered whenever you exit the Multi Selector dialog, even if you exit the dialog and choose a different function. For

example, if you end up doing a lot of selecting of samples, or of dependents at various levels, the parameters will stay set up the way you left them as you move from function to function (for example, from Copy to Delete to Save, etc.).

"Select Dependents" mode is very useful not just for saving dependents, but also for splitting up groups of objects for placing in different files. By using the optional settings for the Specify parameter (**All-> Keymap, All-> Program, Samples Only** etc.), you can separate the group of objects that you want to save at any level of the object tree that is necessary.

Examples of possible operations using Multiple Object Selector:

- Select all the keymaps that are dependents of a block of programs.
- Select all the samples starting from ID 398.
- Select all the objects that have "piano" in their object name.
- Select the programs, setups, and effects that are dependents of song 200.
- Select all of the keymaps and samples that are dependents of songs 400-410.

Chapter 14
Sampling and Live Mode

Setting Up For Sampling

Before you begin sampling, you'll need to connect the proper cables from your sample source to your K2661. The cables and input jacks you use depend on the sample format you choose, and the output configuration of your sample source.

Note that sampling requires the K2661 sampling option. Even without the sampling option, however, you still have access to all of the sample editing features covered in Chapter 14 of the *Musician's Guide* (on the CD-ROM). Samples can be loaded from disk, or dumped into the K2661 via MIDI Sample Dump Standard (SDS) or over SCSI using the SMDI protocol. See the *Musician's Reference* for information on the MIDI Sample Dump Standard and SMDI. Also see *SIMM Specifications* in the *Musician's Reference* for information about sample RAM requirements.

Cables and Input Jacks

If you're going to be sampling from an analog source, you have two options:

- For unbalanced signals, use a 1/4-inch mono or stereo cable connected to the 1/4-inch (HiZ) stereo analog input jack
- For balanced signals, use balanced XLR (cannon) cables connected to one or both of the XLR mono analog inputs

Although it's possible to send a balanced signal on a 1/4-inch cable, avoid sending a balanced signal to the 1/4-inch jack when you're making stereo samples, since doing so can cause phase cancellation in your signals.

Using a mono cable sends the signal to the K2661's left channel. If you use a mono cable, be sure to set the Mode parameter on the SampleMode page to a value of **Mono(L)**.

If you will be sampling from a digital source in AES digital format (either AES/EBU or S/PDIF), connect the input cable to the AES/SPDIF In jack in the sampling section of the rear panel. This jack is covered by a small plug which is easily removed before connecting the cable. This plug should be left in place whenever the optical input is not in use, since dust and dirt can cause the optical input to malfunction.

Entering The Sampler

There are two different ways to get to the SampleMode page. The method you choose depends on the type of sampling you are doing—how many samples you are making and whether you need custom keymaps.

The difference between the two methods is primarily a matter of ease of access to the Keymap Editor. Once you have made your samples, you need to assign to a keymap and assign that keymap to a layer in a program. Refer to the *Musician's Guide* for a step-by-step explanation of how to create keymaps.

From Program, Setup, Master, or Quick Access Mode

The simplest way to get to the SampleMode page is from Program, Setup, Master, or Quick Access Mode. Press the soft button labelled **Sample** on any of these pages. This is a good method to use if you are making only a couple of samples, or if you want to assign each sample to its own keymap and program. Once you have created and saved your sample, you can press the **Preview** soft button. This button provides a quick way to create a program and keymap, with your sample assigned across the entire range of the keyboard. The program is a one-layer program that uses the settings from the Program **199 Default Program**.

From the Keymap Editor

This is a better method to use if you're going to be doing lots of multi-sampling, or if you need to create custom keymaps in which you have your new samples assigned across the keyboard in one keymap. Call up Program **199 Default Program**. Press **Edit**, then **Keymap**. Select Keymap **168 Silence**, then press **Edit** again. This brings you to the Keymap Editor. (In fact you can choose any program and keymap you want to start with, but by choosing these, you are starting with a "blank slate.") Now from the Keymap Editor, press the **MIDI** mode button. This takes you to the SampleMode page. Once you have created and saved your samples, press **Exit**. You will now return to the Keymap-editor page, where you can immediately assign those samples across the keyboard. Once you have created and saved your keymap, you can either exit the Keymap Editor and create a program that uses your new keymap, or you can return to the SampleMode page for another round of sampling.

Sampling Analog Signals

The K2661's analog sampling input is optimized for a low-impedance line level signal (-10 dBm). With a line-level signal, an input gain setting of 0 dB should prevent any clipping of the sample even at maximum output from the source. You can compensate for lower input levels with the Gain parameter on the SampleMode page.

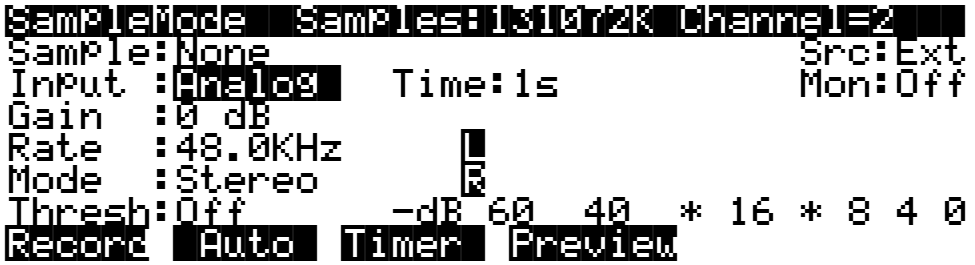
If you're sampling through a microphone, you'll probably want to use a preamp to optimize your signal-to-noise ratio. If you don't have a preamp, you can adjust the Gain parameter on the SampleMode page. A setting of **21 dB** will give you reasonable results for many applications. This will increase the noise level as well, however.

Running your sample signal through a mixer before sending it to the K2661 will give you the most flexibility in controlling your signal level, since you can use its gain or pad if needed. This may add noise to the signal, however. For the cleanest possible signal, you'll want to connect your sample source directly to the K2661. The best results will be achieved by sampling from a digital source, using one of the K2661's digital sample inputs.

Assuming your connections are made, you're ready to set up your first sample recording. Select the SampleMode page (refer to *Entering The Sampler* above). The top line of the SampleMode page gives you the amount of free sample memory, and the amount of free program memory.

Input

On the SampleMode page, you'll set the conditions for your sample recording. Depending on the input type you select, a different set of parameters will appear on this page. When you've selected analog input, the page appears as in the diagram below. The differences between analog and digital sampling are discussed in the section called *Sampling Digital Signals* on page 14-8.



The digital meters at the lower right of the display give a good indication of your sample level. When you send a signal from your sample source, you should see the meters respond.

Src

The possible values for the Src parameter are Internal (**Int**) or External (**Ext**). Choose a value of **Ext** when you want to sample the signal from an external source that's connected to one of the K2661's sampling inputs. Use a value of **Int** if you want to sample the K2661's own output.

Gain

The meters are calibrated in -dB units. A level of **0 dB** indicates the maximum signal without clipping. The sample will be free of clipping as long as the meter levels don't exceed 0 dB. For optimum results, you should adjust the K2661's Gain parameter (or the gain from your sample source) so that the signal stays below 0 dB. Otherwise, the signal will be clipped, causing the loss of sample data, and usually resulting in audible distortion of the resulting sample. A few clips (fewer than 100) may not cause any appreciable distortion. You'll get the best signal-to-noise ratio with meter levels as close to 0 dB as possible, although you'll find that samples with maximum meter readings as low as -12 dB can sound remarkably noise-free.

The relatively slow LCD output of the meter levels cannot show every peak in the incoming signal. Therefore, you won't necessarily see every transient in every sample you take. You will be able to see any transient that is clipped, however, since whenever a clip occurs, the K2661 will display the word "CLIP" above the meters, and will flash the Master-mode LED. It will also give you the number of clips in each sample before you save it.

Rate

After you've set your levels, you need to select the sample rate. You have four rates to choose from. The tradeoffs that determine your best sampling rate are frequency response and storage requirements. Higher sample rates capture more frequency content from your samples, but take up more memory. Lower rates give you more sample time, but don't give the same frequency response as higher rates. Rates of 29.4 or 32 KHz yield a flat response up to about 14 and 15 KHz, respectively. 44.1 and 48 KHz yield a flat response up to 20 KHz, which is the upper limit of audibility for most humans. The lower rates may be adequate for most sounds, since many sounds have little content above 15 KHz. Sounds with a great deal of high-frequency content, such as cymbals, should probably be sampled at the higher rates. You can save memory by using lower sample rates for sounds without much high-frequency content—acoustic or electric bass, for example.

Another consideration in selecting sample rate is the K2661's transposition range during sample playback. The K2661 transposes samples by changing the sample playback rate; the higher the playback rate, the higher the pitch of the sample. The K2661 can achieve a maximum sample playback rate of 96 KHz. Normally, a sample made at 48 KHz can be transposed up a maximum of one octave, since the playback rate doubles for every octave of upward transposition. If you set the SmpSkp (sample skipping) parameter (on the KEYMAP page in the Program Editor) to **Auto** or **On**, you can transpose up two octaves at 48 KHz. A sample made at 29.4 KHz can be transposed up approximately 21 semitones (an octave and a sixth)—or 42 semitones with SmpSkp set to **Auto** or **On**. There is no limit on downward transposition, regardless of the sample rate.

Each portion of a sample (each individual sample element made by the K2661 during the sampling process) takes up two bytes of sample memory. A one-second stereo sample at 48 KHz consists of 96,000 individual samples (48,000 x 2), taking up 192,000 bytes (about 188K) of sample memory. The same sample taken at 32 KHz takes up about 125K. A one-second mono sample taken at 32 KHz takes up about 63K.

If you plan to do a lot of sampling, you may be able to add more sample memory to your K2661 (if it's not already maxed out at 128 MB). SIMMs (Single In-line Memory Modules) are available at your dealer, or at most computer stores or mail-order houses. Be sure to read *Choosing and Installing SIMMs for K2661 Sample Memory* in the *K2661 Musician's Reference* before you go SIMM shopping, though.

At a sampling rate of 44.1 KHz, each megabyte of sample RAM that you add increases your sample time by about 11.5 seconds (5.5 seconds for stereo samples). At 48KHz, each megabyte gives you about 10 seconds of mono sampling, and about 5 seconds of stereo sampling. Table 14-1 lists the most common sample RAM configurations and their total sample time capacity (in seconds) at various sample rates.

Total RAM	Sampling Mode	Sampling Rate in KHz			
		29.4	32.0	44.1	48.0
64M	Mono	18:40	17:04	12:16	11:12
	Stereo	9:04	8:32	5:52	5:20
128M	Mono	37:20	34:08	24:32	22:24
	Stereo	18:08	17:04	11:44	10:40

Total Sampling Time (min:sec)

Table 14-1 RAM and Sampling Capacity

Mode

Use the Mode parameter to select mono or stereo sampling. (Keep in mind that stereo samples take up twice as much memory as mono samples.) Use a value of **Mono** for a mono signal. You can use either **Mono(L)** or **Mono(R)** to isolate either the left or right side of a stereo signal.

Audio sampling input doubles as a two channel "drum" trigger, allowing audio signals to trigger samples. On the SampleMode page, set Mode to **Trigger**. Adjust Thresh to control triggering sensitivity. This triggers the currently assigned click program. The left input will trigger click key note number +1, right input will trigger click key +2. The click key and click program can be accessed on the Song-mode MISC page.

There's also Live mode, which lets you connect any audio source to any of the K2661's sampling inputs (assuming you have the Sampling Option), and use that input just like a regular VAST program (the input goes through a DSP algorithm, then through KDFX, then to the audio

outputs). Set Mode to LiveIn to use Live mode. See page 14-10 for more information about Live mode.

Threshold (Thresh)

The Thresh parameter controls when the K2661 actually begins sampling incoming signals. If you set it to a value of **Off**, sampling begins immediately when you press the **Record** soft button. Otherwise the K2661 waits for the incoming signal to exceed a specified threshold before beginning to record. You can set the threshold from **-90** to **0 dB**, in 6 dB increments.

Sampler recording can also be triggered via the keyboard. Set Thresh to **Key**, then press **Auto**. Striking a MIDI note event now will trigger the sampler and assign the sample root to the key you struck, all in one easy step—making sample mapping easy and intuitive.

Time

The Time parameter lets you determine how long the sample will be. The available sample time is a function of the sample rate and the amount of available sample memory. The K2661 calculates this automatically, and limits the maximum value of the Time parameter accordingly. At a value of **0** for this parameter, the K2661 will not record. (Of course, you can always stop sampling before the specified time by pressing the **Stop** soft button.)

Sample

The Sample parameter lets you select any sample in memory for auditioning. This is a convenient way to listen to the samples you've made without having to create keymaps and programs for them manually. With a value of **None** for this parameter, the K2661 plays the last program or setup you selected before entering Sample mode. The list of values includes all ROM and RAM samples.

When you select a sample for auditioning, the K2661 automatically creates a temporary keymap and program, based on the settings for Program 199—which is a simple single-keymap program with few controller assignments—and the effects set to **0% wet** (**100% dry**). Any edits you've made to Program 199 are reflected in the sample you audition. When you exit the SampleMode page, the temporary keymap and program disappear until the next time you audition a sample. You can create regular RAM keymaps and programs using the **Preview** soft button; see the discussion of the **Preview** button in the section called *Recording Samples* on page 14-5.

If you don't have enough free program RAM, you may be unable to audition samples, since the K2661 won't have enough RAM to create the temporary keymap and program. In this case, deleting a few objects from RAM will restore the audition feature.

Monitor (Mon)

The Monitor parameter provides a convenient way to listen to what you're recording. When set to a value of **On**, any signal received at the analog sample input will appear at the K2661's Mix outputs and the headphone jack. Adjusting the input gain will affect the monitor gain as well. A clean monitor signal, however, does not guarantee a distortion-free sample. Always check the meters on the SampleMode page and look for the CLIP indicators to ensure that your sample is free of clipping. Note that the Mon parameter is not available when the Input parameter is set to a value of **Digital**. The Monitor feature applies only to the analog sampling inputs. You should monitor digital sources from the sources themselves.

Recording Samples

Press the **Record** soft button to begin the sample recording process. If the Thresh parameter is set to a value of **Off**, recording will begin immediately, and will continue for the number of

seconds indicated by the Time parameter. The display will indicate that recording is in process. Any other value for the Thresh parameter will cause the K2661 to wait until the specified threshold is exceeded, then recording will proceed normally. The display will indicate that you're making a threshold recording, but won't actually begin recording until the threshold is exceeded.

End the sampling process (either to save what you've done, or to abort) by pressing the **Stop** soft button.

When recording is complete, and you've pressed the **Stop** button, the K2661 will prompt you to strike a root key. The sample is assigned to the key you strike. This "root" is the key at which the sample will be played back without transposition. When sampling pitched sounds, it generally makes sense to assign a root key that matches the pitch of the original sample, although you can set the root key anywhere you like. If you press the **Default** soft button, the K2661 uses C 4. You can change the root key at any time on the MISC page in the Sample Editor.

When the root key has been assigned, the K2661 asks you if you want to save the sample. At this point the display will show one of two things—the number of clips, or if no clips occurred, the maximum level (in dB) of the sample signal.

You can listen to the sample before deciding whether to save it. If you decide not to keep the sample, press the **No** soft button, and you'll return to the SampleMode page. If you press **Yes**, you'll see the normal Save dialog. When you've saved the sample, you'll return to the SampleMode page. You'll also have the opportunity to name the sample. A recommended convention for naming samples is to include the root key as part of the name. This is particularly useful for pitched samples. Including the root key in the sample name helps when you are creating a keymap, because it tells you how much transposition of the sample you will hear depending on its key assignment.

Once the sample is recorded and saved, you may want to edit it, using the TRIM page, LOOP page, or any of the sample DSP functions.

The Auto Soft Button

To save time when sampling with either the analog or digital inputs, you can use the **Auto** soft button. If the Thresh parameter is set to **Off**, sampling begins immediately. Once sampling is complete and you've pressed Save, the K2661 automatically assigns a root key of C 4, and saves the sample to the first available ID above 199.

If Thresh is set to a dB value, sampling begins when the incoming signal exceeds the Thresh level. If Thresh is set to **Key**, sampling begins when you strike a key.

Auto sampling is useful when you're making a series of samples that you expect to have the same approximate signal level. Since auto sampling doesn't show you the maximum signal level or the number of clips in the sample, it's a good idea to make your first sample in the series using the **Record** button. Once you have the input signal at the right level, you can make the rest of the samples in the series with fewer button presses.

The Timer Soft Button

If you need to delay the beginning of your sample recording, you can press the **Timer** soft button instead of the **Record** or **Auto** soft buttons. This will begin a ten-second countdown before sample recording actually starts. The display will show the countdown. When the countdown reaches zero, The Program, Setup, MIDI, and Master-mode LEDs will flash three times.

If you have the Thresh parameter set to a value of **Off**, sample recording begins immediately after the LEDs flash. If you have the Thresh parameter set to a dB value, sampling begins when

the incoming signal exceeds the Thresh level. If Thresh is set to **Key**, sampling begins when you strike a key.

The Preview Soft Button

When you've finished taking a sample, you can press the **Preview** soft button to automatically create a keymap and program using the new sample. It uses the settings for the Program **199 Default Program** as a template. Unlike the temporary keymap that's created when you audition a sample (and disappears when you select another sample), the preview keymap and program are stored in RAM and can be selected at a later time. The program and keymap will have the same name as the sample.

When you press the **Preview** soft button, the Bank dialog appears, prompting you to select a bank where the preview program will be stored. Select a bank, then press the **OK** soft button. The K2661 creates a keymap and a program, using the lowest available ID numbers in that bank for both the keymap and the program. The display tells you the ID of the new program.

Multiple Sample Previews

The **Multi** soft button starts a process that lets you automatically build a program for previewing just about as many samples as you want (104 to be exact).

1. Press **Multi**. You'll see a list of available samples (keep in mind that these sample objects may consist of multiple sample roots). This list of sample objects is another version of the multiple object selector described on page 13-34.

2. Use the **Up/Down** cursor buttons and the **Select** soft button to highlight and select sample objects. The asterisk that appears indicates that the sample is selected. If you don't select any, the K2661 assumes you want to preview them all.

3. Press **OK**. If you've selected more than one sample, the K2661 asks you if you want to combine the sample objects into a single keymap and program. (If you've selected only one sample —one that doesn't consist of multiple sample roots—the K2661 returns to the Bank dialog, where you can select a different bank if you want, then press **OK**. The K2661 creates a keymap and program, tells you what the ID of the program is, and returns to the SampleMode page.)

4. At the "Combine into…" prompt, press **Yes** The K2661 asks you if you want a tuned layout. (If you press **No**, at the "Combine into…" prompt, you return to the Bank dialog, where you can select a different bank if you want, then press **OK**. The K2661 creates a keymap and program for *each sample root*. If you're previewing a number of sample objects that consist of multiple sample roots, the list of programs can get quite long. In most cases it's much more convenient to combine the samples into one program.

5. At the "Tuned Keymap Layout" prompt…decide how you want the sample objects to be laid out in the preview program. Pressing **Yes** maximizes the use of the keyboard. First you'll see the Bank dialog again. Press **OK**, and the K2661 takes the list of sample objects you selected in Step 2, and in order of their IDs, starts assigning them to their normal root keys. If two or more samples use the same root key(s), the most-recently assigned sample gets assigned to the next highest available key, and its coarse tune is adjusted so it plays at its root pitch. When all the roots are assigned to keys, the K2661 fills in between the roots, so all keys play one of the samples. The number of keys playing each sample depends on the total number of sample roots you're previewing. Tuned layouts are useful for previewing pitched samples.

Pressing **No** at the "Tuned Keymap Layout" prompt is useful for previewing large numbers of samples, or percussion samples. When you press **No**, you'll see the Bank dialog. Press **OK**, and the K2661 takes the list of sample objects you selected in Step 2, and in order of their IDs, starts assigning them to keys, beginning at C 2, one root per key. The coarse tune gets adjusted so they all play at their root pitches.Keys below C 2 play the sample assigned to C 2, transposed accordingly. Above the highest key used, you'll hear the sample with the highest key assignment, transposed accordingly up to the upper transposition limit.

In either case, after the K2661 finishes processing the samples, it tells you the ID of the preview program (or the lowest ID if it created more than one program), then returns to the SampleMode page, with the preview program as the current program.

Sampling the K2661's Output

You can sample the K2661's own sounds when in Analog sampling mode. To do so, set the Src parameter on the SampleMode page to a value of **Int**. Then, just press the **Record** soft button and start playing.

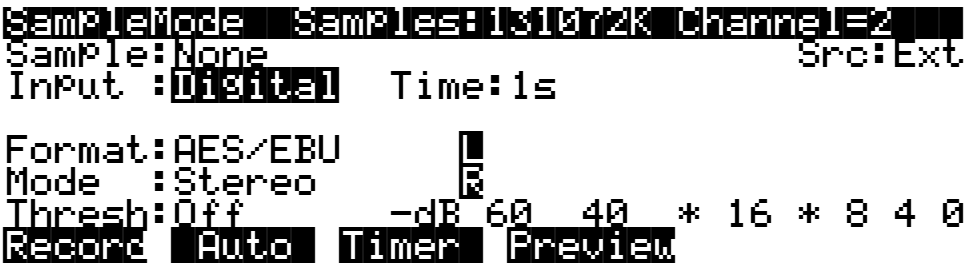
The K2661's "sample-while-play" capabilities offer a number of useful possibilities. It allows you, for example, to create composite sounds made up of several K2661 sounds or even sequences. This can help you make efficient use of the K2661's polyphony. By building composite sounds from other composite sounds, you could actually cause a frighteningly large number of K2661 sounds to become a single sample. The only constraints are your imagination—and the amount of sample RAM installed in your K2661.

You can also sample the K2661 directly into songs, using the RAM Tracks feature. See page 12-17.

Sampling Digital Signals

The process for sampling through either of the digital inputs is essentially the same as that for sampling analog signals, although there are a few additional parameters associated with digital sampling formats.

You'll notice that the SampleMode page changes considerably when you change the value of the Input parameter from **Analog** to **Digital**. There are a few more settings to be made before you start recording.



The first difference is the fact that there are no parameters for gain and sample rate. There's no need for a gain parameter because with digital sampling, since you're making an exact digital copy of the source signal. The Rate parameter is excluded because the K2661 automatically recognizes the source sample's rate and sets its own rate accordingly. Also, the Mon parameter does not appear when sampling digitally. Any monitoring you wish to do must be done from the sample source.

Format

Use the Format parameter to tell the K2661 the format of the incoming sample. Most consumer products use SPDIF (Sony/Philips Digital Interface Format), while most professional machines use the AES/EBU (Audio Engineering Society/European Broadcast Union) format. Refer to the owner's manual of your sample source for information regarding its digital format.

The Mode, Time, and Thresh parameters function for digital sampling just as they do for analog sampling.

If the K2661 detects an incoming clock signal, the display shows LOCK, and the sample rate of the signal. If you don't see LOCK, you're not getting signal, and you won't be able to sample. The K2661 automatically sets itself to the clock rate it detects. (For sample rates other than 48, 44.1 and 32, the rate doesn't show in the display, but the K2661 still samples the input correctly. You might need to adjust the coarse tune to get the proper root pitch.)

Src

The possible values for the Src parameter are Internal (Int) or External (Ext). Choose a value of **Ext** if you want to sample the signal from an external source that's connected to the AES/SPDIF In optical jack. Use a value if **Int** if you want to resample K2661 internal audio data. Note that the digital internal sampling source corresponds to output A from KDFX. Other outputs will not be sampled digitally.

Live Mode

If you have the sampling option, you can use what we call Live mode. In Live mode, the K2661 takes any input signal and routes it through the VAST DSP algorithms and KDFX. You can connect any audio source—synths, mics, CD players, anything—to any of the K2661's sampling inputs, and treat that input as if it were a regular VAST program.

The easiest way to use Live mode is to use one of the factory programs (**740**–**749**).Some of the programs are optimized for certain applications (for example, guitar cabinet simulations), while others are meant to be used as templates.

You can't use Live mode and make samples at the same time, since both features use the same internal components.

Creating a Live Mode Program

1. Press the **Sample** soft button to bring up the SampleMode page.
2. Set the Src parameter for the source you are using.

   For example, if you have plugged a microphone into the K2661's HiZ sampling input, choose **Ext**. Be careful if you choose **Int**, since you can inadvertently create a feedback loop.
3. Set the Mode parameter to **LiveIn**.

   Two samples will automatically be created: **197 Live Input L** at C 4 and **198 Live Input R**, also at C 4. The soft buttons on this page are disabled when you set Mode to **LiveIn**.
4. Use one or both of the live-input keymaps (**197** and **198**) in an existing LM program, or in one you create.

   For a stereo program, set Stereo to **On** on the KEYMAP page in the Program Editor.
5. Edit the program's parameters for the effect(s) you want to use.
6. Play C 4, then input the audio source that you want to run through Live mode.

   Hint: Set VelTrk on the EditProg F4 AMP page to **0 dB**; otherwise the velocity with which you strike C 4 will affect your output. For alternative ways of triggering the sound (for example, with assignable controller buttons or pedals), edit the control setup.

   You should now hear your VASTed audio source through the K2661's Mix outputs.

Live Mode Programs

ID	Program Name
740	LM VirtualDesk 1
741	LM VirtualDesk 2
742	LM EQ Room Hall
743	LM TubeAmp_ Gtr
744	LM Synth Sliders
745	LM EQ StIm Hall
746	LM ParaFlange
747	LM EQ Overload
748	LM Filters
749	LiveMode Default

Live mode also includes two Live mode keymaps at 197 and 198 (Left and Right respectively).

Usage Notes

To use the programs, you must hold down a key (C 4, unless you're going for a special effect) for the inputs to run through VAST. An alternative way to trigger the sound is to edit the control setup found in the MIDI-mode TRANSMIT page. For example, on the SWITCH page in the Setup Editor, you could set the switch type (SwType) to note toggle (Note T), and set the destination (Dest) to C 4. This allows you to turn the program on and off via a button press, and keeps sound sustaining while the button is on. Keep in mind that if you change the Live mode program, you need to restrike a key (or button) for the signal to go through that program.

You can also edit the Live mode keymap to ignore release if you want to use the keyboard to activate Live mode.

You cannot sample and use Live mode together, the two functions use the same components.

Some Ideas for Using Live Mode

If you've ever used an old-fashioned mono analog synthesizer with an audio input (anything from a Moog Rogue to an ARP 2500 or Serge Modular), you know how much fun it can be to pass a musical signal through the synth and modify it in real time with the filters, envelopes, modulators, etc. Live mode brings that concept to digital synthesis, and lets you use all of the power of the K2661 on any kind of input signal.

For starters, you can simply hook up a CD player to one of the K2661's sampling inputs, get a bunch of your favorite CDs, and start fooling around. (A turntable works well too.) Here are some ideas for going further:

Pitch Changing

Unlike an analog synthesizer, the K2661 makes it possible to alter the pitch of the incoming signal in real time. But the K2661 is not a conventional pitch shifter, so if you are used to working with such a device you will have to alter your thinking a little.

For example, when you bend the pitch down from the unity pitch (C 4), using a VAST function, it slows the playback of the incoming signal, but it doesn't change the rate at which the signal is coming in—your CD is still spinning, and putting out a constant audio signal. So as you lower

the pitch, the playback lags behind, and when you return the pitch to normal, the playback snaps back to the present—which means some of your audio literally disappears into the ether. If you bend the pitch down and hold it there for a while, eventually the buffer fills up and updates itself, and you will hear it snap forward in time, although the data playing will continue to be slowed down. Again, some of the audio disappears.

When you bend pitch upward, the K2661 plays buffered data from the input source, which enables the K2661 to "play ahead" of the input. You may hear some of the input data repeat when you release the pitch bend.

These details aside, all kinds of wonderful pitch effects are achievable. Here's an example.

1. Start with Program **749 LiveMode Default**.
2. Go to the PITCH page.
3. Assign LFO1 to **Src1**, with a depth of **-200ct**.
4. In order to keep the playback from constantly crossing above unity, set the Coarse parameter to **-2ST**.

Or try these settings:

Src1 **MWheel**

Depth **-1200c**

Src2 **LFO1** (On the LFO page, set LFO1's MnRate to **.50Hz**, MxRate to **20.00**, and RateCt to **Data**.)

DptCtl **MWheel**

MinDpt **0ct**

MaxDpt **1200ct**

Sometimes the Live-mode audio will sound discontinuous as LFOs and the buffers get out of sync. You might be able to smooth out the rough spots by making another layer with no pitch alterations, and crossfading between the layers:

1. Duplicate the layer.
2. Clear all the settings on the PITCH page.
3. Go to the OUTPUT page and set Crossfade to **MWhl** on both layers.
4. On layer 1, set XFadeSense to **Rvrs**; on layer 2, set XFadeSense to **Norm**.

Now at the Mod Wheel extremes, you will hear only one layer or the other, while in the middle, you will hear a combination of the pitch-modulated signal and the unmodulated signal. By experimenting with FUNs, you can get more precise crossfades.

The program **744 LM Synth Sliders** includes this kind of crossfade, tied to the Pitch Wheel, to implement a 3-layer crossfade. Moving the Pitch Wheel up fades to a layer which is bending the pitch up. The surprise is that moving the Pitch Wheel down bends the pitch down, then up again, crossfading to a layer that is playing back in reverse! Yes, reverse playback works with Live mode: on the KEYMAP page, set PlayBackMode to **Rvrs**.

Arpeggiator

You can also do controlled pitch shifting on incoming audio using the arpeggiator. By constantly sending new note starts, it is possible to bend the pitch without losing the tempo of the incoming signal.

It can work in both directions, although when you are shifting signals up in pitch, you're "borrowing" the audio from a few seconds previous.

1. Go to Setup mode and select **97 Control Setup**.
2. Press **Edit**, and on the CH/PRG page, set the program to **749 LiveMode Default**.
3. With the program highlighted, press **Edit** and go to the AMPENV page.
4. To make the crossfading less choppy, you want short attack and release segments: set Att1 to **0.06/100**% and Rel1 to **0.10/0**%.
5. Press **Exit** and save the program to some new ID.
6. Now go to the ARPEG page and set the Active parameter to **On**.
7. Set the Duration parameter to **99**%.
8. For this example, set Order to **Simultaneous** and Beats to **1/32**.
9. Tempo should already be **120**.

Now play C 4 and you'll hear the live signal at the correct pitch. Play G 3 and you will hear the signal pitched down a fourth. You can use the ribbon or similar controller to bend the pitch smoothly. Going above unity pitch will cause a jump back into the past.

Experiment with the Tempo, the Beats setting, the Duration value, and the AMPENV parameters to get useful variations on the program. Remember that because we set the Order to **Simultaneous**, you can play several notes at once. And finally, try setting Glissando to **On**.

Sustained Notes and Loops

If the incoming signal is a single, sustained pitch, like a saxophone note, then you can consider the Live mode keymap to be playing a normal, looped sound. In this case, the fact that an upward bend jumps back a few seconds is no big deal because the sound hasn't changed much during that time.

With this technique, melodies or chords can be played based on a segment of a live performance. Keep in mind that, unless your incoming signal is a C, notes and chords played on the K2661 keyboard will be transposed relative to the incoming pitch. Also remember that a rhythm pitched an octave down will play at half the speed, while one pitched an octave up will play twice as fast. Fifths produce a 3-against-2 pattern. To keep some sort of relative sync with the live signal, you may want to experiment with retriggering the notes, perhaps using the arpeggiator, at some appropriate tempo.

If the passage you want to play is long, and the input signal isn't so long—say, the sax player needs to take a breath—you may run into a problem as the K2661 tries to play the buffer where the audio was interrupted. If the input signal is mono, you might be able to overcome this by using a delay line to "hold" the signal. The delay line could be part of VAST, or it could be an external device, but either way its output is sent back to the K2661 through the unused Live mode input channel.

Chord Progressions

Record a few bars of block chords—all notes under C 4—into the sequencer, using a simple quarter-note or half-note pattern. What sound you use doesn't matter. Now replace the program on the recorded track with the Live mode default program. Play back the sequence (you will probably want it to loop), and at the same time play single notes from an external instrument into the K2661, at the same rhythm as your recorded chords. If you change the notes on the instrument, the chords will transpose. If you play intervals or chords, you're on your own as to the consequences!

Feedback

Live mode gives you the ability to feed back a live signal into itself, similar to pointing a microphone at the speaker it's sending audio to. Before you hook anything up, turn the volume down as low as you can.

Now go to the Sample page and set Source to **Internal**. Go to a multi-layer ROM program of your choice, and go to the Import page. Import Layer 1 from the Live-mode default program.

Play one note, then a few. As you play more notes, the noise will build up. You'll have a better time controlling the feedback loop if you have a healthy delay, with no dry path around it, in the loop. Perhaps add a little modulation of the loop to provide some pitch shifting, a big reverb, and a compressor to keep from blowing your ears out. Inject a little something from the synthesizer to get things started—and you are instantly transported to an alien dimension.

For more complexity, split the incoming signal and run it through multiple VAST layers in parallel—you can use up to 32, each one processing, panning, and routing the signal differently. You can crosslink the inputs and outputs (right into left, left into right) to create a double feedback loop for even more fun.

Chapter 15
Audio Outputs

Audio Configurations

There are several ways to get audio output from the K2661. The most common configuration is a pair of mono or stereo 1/4-inch cables connecting the Mix outputs of the K2661 to inputs on a mixer or keyboard amp. The Mix outputs carry the sum of all the signals routed to the separate analog outputs (A and B), including effects. Another common configuration is to use one or more of the separate analog outputs. Connecting to one of the separate outputs does not remove the corresponding portion of the signal from the MIX outputs (for example, if you connect cables to the A pair, you'll get the Output A signal at both the A outputs and the Mix outputs).

The audio output routing of the K2661 depends primarily on two parameters:

- The Pair parameter on the OUTPUT page in the Program Editor; this routes the signal from programs to Inputs A–D in KDFX
- The Output parameters (A–D) on the OUTPUT page in the Studio Editor; this routes the KDFX output to the physical audio outputs (optionally bypassing KDFX, or adding effects from the KDFX Aux bus)

In other words, individual programs route the audio signal from the K2661's sound engine into the effects processor (KDFX), while the studios assigned to those programs route the signal from KDFX to the jacks on the rear panel.

Of course, there are other options: you can set the value of the Outpair parameter (on the CHANNELS page in MIDI mode) to **KDFX-A**, **KDFX-B**, **KDFX-C**, or **KDFX-D**. If you set Outpair for Channel 1 to **KDFX-A**, for example, then every program on Channel 1 sends its audio signal from the sound engine to Input A of KDFX—overriding the program's routing.

You can also use the Out parameter on the CH/PRG page in the Setup Editor in the same way, forcing each zone of a setup to send its output to a particular KDFX input, overriding the settings of the programs in each zone.

***Note**: we recommend that you make the cable connection to the K2661 (or any instrument) after you've made your other audio connections, since this reduces the chance of creating static electricity that can cause an audible "pop" (and, in extreme cases, cause equipment damage).*

Audio Routing: Programs to KDFX

1. In any mode (typically Program mode), highlight a program name with the cursor, then press **Edit** to enter the Program Editor. Note how many layers there are in the program.
2. Press one of the **more** soft buttons until you see OUTPUT at the bottom of the display. Press the corresponding soft button to view the OUTPUT page for the current layer.
3. Set the value of the Pair parameter as desired. This value determines which KDFX input (A–D) gets the output from the current program layer.
4. Repeat this process for each layer in the program (or, if you're editing a setup, for every layer of every program in the setup).

Audio Routing: KDFX to Audio Outputs

Every program that uses KDFX has a studio assigned to it. The studio defines the KDFX parameters for the program to which it's assigned.

1. In the Program Editor, press one of the **more** soft buttons until you see KDFX at the bottom of the display. Press the corresponding soft button to view the KDFX page for the current layer.
2. Highlight the Studio parameter, then press **Edit** to enter the Studio Editor.
3. Press the **OUTPUT** soft button to view the OUTPUT page for the current studio. Note that it controls all layers of the program.
4. Set the values for each of the four Output parameters. These parameters represent the four pairs of outputs; the parameters' values specify which KDFX output bus gets routed to each of the analog outputs.

Using the Digital Outputs

Digital audio output is available at the ADAT/AES Out optical jack on the rear panel of the K2661. The format of the digital output stream can be chosen to match your other digital audio equipment. Formats supported by the K2661 include ADAT 8-channel, AES/EBU Professional 2-channel, and AES Consumer (also known as S/PDIF) 2-channel.

In ADAT digital format, the 8 channels correspond to the 4 stereo outputs found on the KDFX Output page. The AES 2-channel formats correspond to the output A stereo pair.

The table below summarizes the K2661's digital outputs:

	A Left	A Right	B Left	B Right	C Left	C Right	D Left	D Right
ADAT	1	2	3	4	5	6	7	8
AES	1	2						

***Note**: To use ADAT In, the ADAT Out cable must be connected to the sending device.*

The word length of the digital data can be set to match your other equipment. It is generally best to use 24-bit digital formats, since it increases dynamic range and reduces the effects of noise. However, some older equipment may not be compatible with 24-bit data and therefore the K2661 supports 16 and 20 bit digital word lengths.

Choosing digital format and word length is done in Master Mode. See *Digital Output Format* on page 11-11 for details.

The output sample rate is fixed at 48KHz. In any situation requiring different sample rates, you'll need to use a sample rate converter (like the DMTi). When you need a clock signal to synchronize two or more instruments, there are two options:

- Make the K2661 the master; it can't be slaved to an external clock signal. Use a sample rate converter, if necessary, to match the sample rates of your other instruments.
- Make another instrument the master. The K2661 won't respond to the clock signal. Use a sample rate converter, if necessary, to match the K2661's output rate to the master's rate.

When you need to slave one or more instruments or devices to an external master clock, the K2661 is necessarily the master, because it can't be slaved to an external clock.

Appendix A
K2661 Boot Block

The Boot Block is a part of the K2661 software that lets you update the K2661 operating system and objects from either a SCSI device or the SmartMedia drive. The Boot Block also provides diagnostics options for service personnel and a reset option.

Note: *Your K2661 comes from the factory with the operating system and ROM objects already installed. You do not need to run the K2661 Boot Block to start up a new K2661.*

Starting the Boot Block

When you start the K2661, it displays a "Please wait..." message and waits for approximately two seconds. Press and release the **Exit** button while the "Please wait..." message is displayed to start the Boot Block. Otherwise, the K2661 will start up normally.

When the Boot Block starts, it will test the K2661's files to make sure they are valid. Press the **OK** soft button to invoke the highlighted menu option.

Boot Block Main Menu

The Main Menu looks and functions similarly to other K2661 menus. Press one of these soft buttons to access a function:

- **Install** – lets you update the K2661's operating system, Boot Block, and/or objects from a SmartMedia card or disk drive connected via SCSI.
- **Run** – starts the K2661 in its regular operating mode.
- **Reset** – performs a hard reset.
- **DIAGS** – runs diagnostic tests for troubleshooting issues with the K2661.

Updating K2661 Software

From time-to-time, Kurzweil Music Systems may release updates to the K2661's operating system, Boot Block, and/or objects. Generally, these will be posted at our web site:

http://www.kurzweilmusicsystems.com/

Use the Boot Block, as described in this section, to install any software update. Updates can include:

- K2661 Operating System
- K2661 Objects (programs, setups, songs, FX studios, etc.)
- K2661 Boot Block

To load from a SmartMedia card you'll first need a way to copy files (e.g., updates that you've downloaded from the Kurzweil web site) to a SmartMedia card. Fortunately, SmartMedia drives are readily and inexpensively available from a variety of sources.

File types

There are three different types of files, each distinguished by a unique three-character extension, that you may encounter when loading software into the K2661:

- .**KOS** – K2661 operating system files
- .**K26** – K2661 object files
- .**KBB** – K2661 Boot Block files

Always check for special instructions that may be included with a software update, since some updates may require a hard reset or other action.

To load new K2661 software:

1. Press the **Install** soft button on the Boot Block Main Menu.

2. The K2661 will display a screen that lets you indicate the device from which you are installing. Use the alpha wheel to scroll to the device name (either SMedia if you are installing from SmartMedia, or a SCSI ID if you are installing from a SCSI device).

   If you are installing from a SCSI device, you may also need to set the SCSI ID of the K2661 on this page (SCSI ID 6 will be selected by default; if you've never changed the SCSI ID of your K2661, this should be alright).

3. After you press the **OK** button, the K2661 will list all the files in the top level directory on the SmartMedia card or SCSI device. You can use the alpha wheel, or the up, down, increment (+), or decrement (-) keys to navigate to the file(s) you want to load.

4. Use the Root, Parent, and Open soft buttons to move between directories:

   - **Root** takes you to the top level directory on the card.
   - **Parent** moves you up one directory level.
   - **Open** opens the currently selected directory.

5. Highlight a filename, then press the **Select** button. Press **Select** a second time to deselect an item.

   You can select multiple files from the selection list. The status line at the top of the screen will show the current directory, how many files are in this directory, and how many files you have currently selected. An index counter shows you where in the list the cursor is currently located.

   You can also double press the left and right cursor keys to select all the files in the current directory, with one exception. The exception is KBB files; if there is a single KBB file in the current directory, then it will be highlighted along with all the other files when you perform the double press. If there are several KBB files in the current directory, however, then the select-all double press will not select any of the KBB files.

6. Press the **OK** soft button when you're ready to load the selected file(s). The Boot Block will first test each segment of an OS or Object file before loading. If any problem is detected it will report that segment as corrupt.

   When the load is complete, press the **Done** soft button, then press the **Run** soft button to start the K2661 in its regular operating mode.

   Note: When you install a KBB file (Boot Block) the unit automatically restarts, running the new Boot Block.

Running Diagnostic Tests

The **DIAGS** soft button from the Boot Block Main Menu provides a list of available diagnostic tests. Since these tests are intended for service personnel, they are not described in this manual.

Resetting the K2661

Press the **Reset** soft button to perform a hard reset. This will restart your K2661, reset everything, and empty the unit's memory of any objects (program, setups, songs, etc.) you may have created. Therefore, you want to be absolutely sure that you want to perform a hard reset before you confirm this operation.

This option is the same as the Hard Reset option available from the Master page. There is also a less severe "soft" reset available by pressing **+/-**, **0**, and **Clear** simultaneously.

Appendix B
Standard K2661 ROM Objects

The preset programs in the K2661 are organized by instrument category. You'll find a few representatives of each instrument sampled, as well as synthesized instrument emulations, commonly used synthesizer timbres, and templates for new programming. We hope you find it a good starting point for your own work.

Groove Setups

Setups 1–30 are Groove Setups. Once you've installed the objects, you can access the setups by pressing the **Setup** button on the front panel of your K2661.

When you are playing a Groove Setup, you can activate a drum pattern (actually a song file) by pressing any key below C3 (C below middle C). Once triggered, the drum pattern is automatically held or latched (in other words, you do not need to keep holding the key down for the groove to continue playing). Most grooves have a bass sound assigned to the left hand keyboard region, as well as some sounds for right hand playing.

Use your K2661's large ribbon to activate a fill for the groove. (There is one groove that does not follow this convention, #2, where there is no fill on the ribbon. Instead, a 'toms fill' is activated when you play between C3 and C4 on the keyboard.)

Note: After pressing **panic**, grooves won't trigger; you must scroll away and then back for the setup to get the correct entry value.

Special Purpose Setups

There are three special setups at the end of the Zeros bank:

97 Control Setup Lets you define controller assignments in Program mode. Customize and select the control setup on the MIDI-mode TRANSMIT page.

98 Clear Setup A template for creating your own control assignments from a clear palette.

99 Default Setup Lets you create your own setups from our common settings (shown below). The NewZn parameter uses this setup as its template to create new zones.

Slider A: Data	Continuous Controller Pedal 1: Foot (MIDI 4)
Slider B: MIDI 22	Continuous Controller Pedal 2: Breath (MIDI 2)
Slider C: MIDI 23	Small Ribbon Position: Aux Bend 2
Slider D: MIDI 24	Small Ribbon Pressure: Mono Pressure
Slider E: MIDI 25	Large Ribbon: Aux Bend 1
Slider F: MIDI 26	Pitch Wheel: BendUp
Slider G: MIDI 27	Mod Wheel: MWhl
Slider H: MIDI 28	Panel Switch 1: Arpeggiator On/Off
Footswitch 1: Sustain	Panel Switch 2: MIDI 29
Footswitch 2: Sostenuto	Mono Pressure: MPress
Footswitch 3: Soft Pedal	
Footswitch 4: TapTempo	

Setups

See Groove Setups (above) for information about setups 1–30.

id	setup	long ribbon function
1	Tripped Up Fonk	Fill
2	Like Groovay	Clear Setup
3	1984 Funkhouse	Fill
4	On The Bell	Fill
5	FilteredFreak	Fill
6	MakinSweetLove	Fill
7	Tomsemble	Fill
8	Salsa-esque	Fill
9	Pickin&Grinnin	Fill
10	Funk Street	Fill
11	Rockin'Redneck	Fill
12	OldSkool SynJam	Fill
13	Progresso	Fill
14	Trio 4 Groovin	Fill
15	Fresh Tracks	Fill
16	Survival	Fill
17	SUV Ad?	Fill
18	80's LoveJam	Fill
19	Hoe Down!	Fill
20	FrEaKeD OuT	Fill
21	303/808 Madness	Fill
22	Dance Madness	Fill
23	Rave Madness	Fill
24	StrangeMixstriss	Fill
25	808Flangelicious	Fill
26	Surreal Groove	Fill
27	Hickup Groove	Fill
28	Newjack Groove	Fill
29	Nonlinear Jam	Fill
30	We Be JahMon	Fill
31	Nogorov Arp	pitch bend
32	Desert Rose	pitch bend
33	Arp Bell Pad	arp shift limit
34	Intergalactica	arp note shift
35	Flute Arps	pitch bend - flute arp layer only
36	Pad/Arp Rbn Walk	env ctl arp zone
37	Arp Bell Pad 2	delay feedback level
38	Hold & Tap	"percussion trigger, fx"
39	Aqua Ribbon	filter freq
40	Slo Wood Pad	LP Freq
41	Jazz Guitar Trio	pitch bend
42	Folk Rhythm Sect	pitch bend - bass only
43	Shades of Bombay	mark tree trigger
44	Jazz Ensemble	pitch bend
45	Stevie Bass/EP	pitch bend - bass only
46	Polar Reverie	pitch bend
47	Triple Trip	LP Freq
48	Vortex Coil	pitch bend
49	Barren Landscape	Lunar Wind trigger
50	Otherworldly	LP freq

id	setup	long ribbon function
51	Super Lush	pitch bend
52	Pad Soundscape	BP Freq
53	Glassy Eyed	pitch bend
54	Expansive	LP Freq
55	Ethereal Shadows	flanger feedback level
56	Sparkle & Bass	pitch bend
57	Vintage Poly	pitch bend
58	Big Analog	LP Resonance
59	Searing Lead	pitch bend
60	Poly Pitcher	pitch bend
61	Liquid Guitars	pitch bend
62	Roto 12 String	pitch bend
63	Nylon & Steel	pitch bend
64	Layered Guitars	pitch bend
65	We're Plucked	pitch bend
66	Cathedral	pitch bend
67	RbnSpltB3+MIDIPd	Splits (via zone mutes)
68	Registrations	pitch bend
69	Pipes & Choir	pitch bend
70	Elegant Grandeur	pitch bend
71	Cinematic Strngs	pitch bend
72	Chamber Players	pitch bend
73	18th Century	pitch bend
74	Harp/Fl & Str	pitch bend
75	Tutti Orch	pitch bend
76	Chorused Piano	pitch bend
77	Funky Keys	pitch bend
78	Piano & Vibes	pitch bend
79	FM & Tines EP	pitch bend
80	Ballad Keys	pitch bend
81	Gnu Age Piano	pitch bend
82	Digi Keys	pitch bend
83	FM & Tines EP 2	pitch bend
84	Big Key Stack	pitch bend
85	Dynamic Stack	pitch bend
86	Organ/Synth Solo	pitch bend - synth lead only
87	Guitar / Flute	pitch bend
88	Puffy Winds	pitch bend
89	Real & Syn Str	pitch bend
90	Ruggratts	pitch bend
91	Orchestral Keys	pitch bend
92	Tutti Strings	pitch bend
93	Orch Pno & Pizz	pitch bend
94	Press Roll Timps	pitch bend
95	Dreamy Fairlite	Filter Freq
96	Pad W/ Rotor	pitch bend
97	ControlSetup	pitch bend
98	Clear Setup	none
99	Default Setup	pitch bend

Programs

id	name	ctrl	function
1	Concert Piano	MIDI25	(aux) Hall Lvl+Time
		MIDI29	Soundboard W/D
		Soft Pedal is active	
2	Stereo Solo Pno	Data	InEQ: Treb
		MIDI25	(aux) Hall Lvl+Time
		MIDI29	Soundboard W/D
		Soft Pedal is active	
3	Piano & Strings	MWheel	String Balance - softer
		Data	String Balance - louder
		MIDI25	(aux) Hall Lvl+Time
		Soft Pedal is active	
4	Pno & Syn String	MWheel	String Fade
		Data	String Swell
		MIDI23	SRS Space
		MIDI25	"Room Rev Time, Wet/Dry"
5	Rock Grand	MIDI25	(aux) Hall Lvl+Time
		MIDI29	Soundboard W/D
		Soft Pedal is active	
6	Dyn Epiano	MWheel	Tremolo/ Vibrato
		Data	Chorus LFODepth+Rate, (aux) Plate Lvl cut+PreDly adj
		MIDI22	Chorus W/D
		MIDI23	Chorus LFODepth
		MIDI24	Chorus Xcouple
		MIDI25	(aux) Plate W/D+Decay Time
		MIDI26	Plate Room Size
		MIDI27	Chorus FB
		MIDI28	Chorus Tap Lvl
		MIDI29	Chorus Rate adj
7	Studio Class EP	MWheel	Stereo Tremolo
		Data	Tremolo Rate
		MIDI22	Phaser Rate
		MIDI23	Reverb Hi Freq Dampening (Brightness)
		MIDI24	PhaserWet/Dry
		MIDI25	Reverb Wet/Dry
		MIDI26	Distortion Warmth
		MIDI27	Distortion Drive
		MIDI28	Reverb Density
		MIDI29	Lo Freq Cut
8	The Phase EP	MWheel	Enables Stereo Tremolo
		Data	Tremolo Rate
		MIDI 22	Phaser Rate
		MIDI 23	Phaser Center Freq (Tone)
		MIDI 25	Reverb Wet/Dry

id	name	ctrl	function
9	Classic FM EPno	MWheel	"LFO Detune, Layer Delay"
		Data	Tine Overtones (modulator pitch)
		MIDI22	FM Depth
		MIDI23	Attack Rate
		MIDI24	LFO Pan Depth
		MIDI25	(Aux) Hall level
		MIDI26	FX3 Rev Time, Aux Hall Time
		MIDI27	Chorus Feedback
		MIDI28	Reverb Predelay
		MIDI29	Reverb in/out
10	Funk Clav	MWheel	Vibrato
		Data	Defeat release layer
		MIDI25	(Aux) Hall Level
		MIDI26	(Aux) HF Damping
		MIDI27	Compression Ratio & MakeUpGain
		MIDI28	(Aux) Pre-Delay
11	VAST B3	MWheel	Leslie Depth
		Data	Drawbar 1
		MIDI22	Drawbar 2
		MIDI23	Drawbar 3
		MIDI24	"Drawbar 4, EnvCtl: Imp"
		MIDI25	"Drawbar 5,6"
		MIDI26	Drawbar 7
		MIDI27	Drawbar 8
		MIDI28	Drawbar 9
		MIDI29	toggle: Vib/Chorus I/O
		Breath	"(aux) Plate Lvl, Dist Drive+adj, EQ Bass+Treb"
12	Gospel Organ	MWheel	Leslie Depth
		Data	Drawbar 1
		MIDI22	Drawbar 2
		MIDI23	"Drawbar 3, (aux) Plate Lvl"
		MIDI24	"Drawbar 4, Plate Time"
		MIDI25	KeyClick
		MIDI26	Perc Harmonic (Hi/Low)
		MIDI27	"HFDamp, Perc Decay"
		MIDI28	Cabinet Dist Drive + Lopass adj
		MIDI29	toggle: VibeChorus I/O
13	Overdrive Organ	MWheel	Leslie Depth
		Data	Drawbar 1
		MIDI22	Drawbar 2
		MIDI23	"Drawbar 3, (aux) Plate Lvl"
		MIDI24	"Drawbar 4, Plate Time"
		MIDI25	KeyClick
		MIDI26	Perc Harmonic (Hi/Low)
		MIDI27	"HFDamp, Perc Decay"
		MIDI28	Cab Dist Drive+Lopass adj
		MIDI29	toggle: VibeChorus I/O

id	name	ctrl	function
14	Chorus Organ	MWheel	Leslie depth
		Data	Timbre
		MIDI22	Vibrato/Chorus
		MIDI25	Reverb Time
		MIDI26	Trem Rate
		MIDI27	HF Damping
		MIDI29	Percussion
15	Chapel Organ	MWheel	Layer Detune
		Data	Switch Organ Stops
		MIDI22	All Pass Freq
		MIDI23	InEQ: Bass
		MIDI24	InEQ: Treble
		MIDI25	(Aux) Hall Level
		MIDI26	"FX1, (Aux) Size Scale"
		MIDI27	"FX1, (Aux) HF Damping"
		MIDI28	"FX1, (Aux) Pre-Delay"
16	Fast Strings	MWheel	Low pass filter cutoff (duller)
		MIDI25	Reverb Wet/Dry
		MIDI26	Reverb Time
		MIDI29	toggle: Room Ambience
17	Ster Slo Strings	MWheel	Lo Pass Res Filter Cut Off (duller)
		Data	Lo Pass non res filter Cut Off (duller)
		MIDI22	Lo Pass Res Filter Cut Off (Brighter)
		MIDI23	Env Atk Ctl
		MIDI24	Env Release Ctl
		MIDI25	(Aux) Hall Level
		MIDI26	(Aux) Hall Rev Time
		MIDI27	FX1 Reverb Wet/Dry (dryer)
		MIDI28	FX1 Reverb Time (shorter)
18	Solo Arco Violin	MWheel	Envelope Attack Rate
		Data	Low pass filter cutoff (duller)
		MIDI25	(Aux) Hall Level
		MIDI26	(Fx1) Room Wet/Dry (dryer)
		MPress	"Vibrato Rate, Depth"
19	Pachelbel Strngs	MWheel	Fade Solo Strings
		Data	Fade Ensemble Strings
		MIDI25	(Aux) Rev Time (ensemble strings)
		MIDI26	(Fx1) Rev Time (solo strings)
20	Grand Strings	MWheel	Sweeping Notch
		Data	Timbre (duller)
		MIDI25	(Aux) Hall Level
		MIDI26	(Aux) Rev Time
21	Cathedral Voices	MWheel	Timbre (brightness)
		Data	Enables Octave Layer
		MIDI25	(Aux) Hall Level
		MIDI26	"(Aux, FX1) rev time"

id	name	ctrl	function
22	Unearthly Vox	MWheel	Slow Vibrato depth
		Data	Low Pass Cutoff
		MIDI22	Xfade
		MIDI23	Panning
		MIDI25	(FX1) Room Wet/Dry
		MIDI26	(Aux) Hall Level
23	Air Voices	MWheel	Slow Vibrato Depth
		Data	Bandpass Center Freq
		MIDI22	Bandpass Width
		MIDI25	(Aux) Wet/Dry (dryer)
		MIDI26	"(Aux) HF Damping, Bass Roll-off"
		MIDI27	(Aux) Reverb Time
		MIDI28	(Aux) Treble Shelf Freq
24	Cath-drVox^8veVox	MW	"Vibrato+Rate (CathV), Sin Tremolo Rate (8veV)"
		Data	toggle: CathedralVox ^ 8veVox
		MIDI22	"EnvCtl: Att, LoPass Freq, Xfade Lo/Hi Vox(8veV)"
		MIDI23	"EnvCtl: Rel, Panner pos, 8ve jump(CathV)"
		MIDI24	InEQ: Treb cut
		MIDI25	(aux) Hall Lvl
		MIDI26	(aux) Hall Time+build Time
		MIDI27	Delay Mix+FB
		MIDI28	Flange Mix+FB
		MPress	"Vibrato+Rate (CathV), Sin Tremolo Rate (8veV)"
25	Choir Strings	Data	LoPass Freq cut+Res (string)
		MIDI22	LoPass Freq cut (vox)
		MIDI23	"Lyr detune, LoPass Res"
		MIDI24	Panner Width
		MIDI25	(aux) Room Lvl
		MIDI26	(aux) Room Time
		MIDI27	Flange Lvl
		MIDI28	Flange Tempo
		MIDI29	toggle: Room+Flange (string), ChHall+Hall (vox)
		Mpress	InEQ Bass & Treble
26	Aaron's Finale	MWheel	defeats vel. Crash
		Data	Layer Xfade Timpani and Orch Bass Drum
		MIDI22	Fade Octave String Layer
		MIDI23	Fade Trumpet Layer
		MIDI25	Reverb Time (all reverbs)
		MIDI26	(Aux) Wet/Dry
27	Fiery Orchestra	MWheel	defeats vel. Crash
		Data	Layer Xfade Timpani and Orch Bass Drum
		MIDI22	Fade Octave String Layer
		MIDI23	Fade Octave Brass Layer
		MIDI25	(Aux) Hall Level
		MIDI26	(FX1) Rev Time

id	name	ctrl	function
28	Total Cntrl Orch3	MWheel	defeats vel. Crash
		Data	Swaps Fr Horns for Trumpets
		MIDI25	(Aux) Hall Level
		MIDI26	Reverb Time (all verbs)
		Mpress	Swell
29	Jazz Band	MW	Tremolo (guitars)
		Data	toggle: Guitars + Horns
		MIDI22	toggle: Band and Drums
		MIDI23	Tremolo Rate
		MIDI25	"(aux) rvb Lvls, W/D"
		MIDI26	SRS Parameters (guitar Lyrs)
		MIDI27	(aux) rvb Times
		MIDI28	Early refl Lvl, Late Lvl cut
30	Rock Trio	MW	Leslie Depth
		Data	Defeats Ride Cymbal
		MIDI22	Vibrato/Chorus
		MIDI23	Swap Guitar for Organ
		Mpress	Pitch Bend on Guitar Layer
31	Steel Str Guitar	MWheel	Vibrato
		Data	Lyr Enable
		MIDI22	EnvCtl: Imp
		MIDI23	EnvCtl: Att+Dec
		MIDI24	EnvCtl: Rel
		MIDI25	(aux) Chamber W/D
		MIDI26	Chamber Time
		MIDI27	Chamber HFDamp
		MIDI28	Comp Ratio
		MIDI29	toggle: Pitch I/O
32	12 Str Guitar	MWheel	Chorusy Vibrato
		Data	Exciter gain
		MIDI25	(Aux) Wet/Dry
		MIDI26	(Aux) Reverb Time
		MIDI27	(Aux) Compression Ratio
33	Nylon Gtr & Str	MWheel	Vibrato (Guitar)
		Data	Fade Strings
		MIDI22	(FX1) Reverb Wet/Dry
		MIDI23	(FX1) Reverb Time
		MIDI25	(Aux) Reverb Level (Guitar)
		MIDI26	(Aux) Reverb Level (Strings)
34	Jazz Archtop Gtr	MWheel	Vibrato
		Data	Defeats Release Layer
		MIDI24	(Aux) Room Pre-Delay
		Miidi25	(Aux) Room Level
		MIDI26	(Aux) Rev Time
		MIDI27	Compression MakeUp Gain
		MIDI28	Compression Ratio

id	name	ctrl	function
35	Slow Chorus Gtr	MWheel	Tremolo Depth
		Data	Tremolo Rate
		MIDI22	Para EQ (VAST)
		MIDI23	Layer Detune
		MIDI24	Env Ctl (decay & release)
		MIDI25	(aux) Hall Lvl
		MIDI26	"Hall Time+HFDamp, Chorus W/D"
		MIDI27	"Enhc Lo Mix, Chorus FB"
		MIDI28	Enhc Hi Mix+Drive
		MIDI29	"toggle: Enhc + Chorus, Hall + Room"
		MPress	Vibrato
36	Tele In Room	MWheel	Vibrato
		Data	Tremolo Depth
		MIDI22	Tremolo Rate
		MIDI25	(Aux) Hall Level
		MIDI29	Toggle: Flanger
37	Guitar Mutes 1^2	MWheel	Vibrato
		Data	Toggle: to Stereo Guitar Mutes
		MIDI22	Para EQ (VAST)
		MIDI25	(Aux) Reverb Wet/Dry
		MIDI26	(Aux) Reverb Time
		MIDI27	(Aux) HF Damping
		MIDI28	(Aux) Compression Ratio
		Mpress	Vibrato ^2
38	Spark Guitar	MWheel	Vibrato
		Data	HFStim adj
		MIDI22	EnvCtl: Imp+Att
		MIDI23	EnvCtl: Dec
		MIDI24	EnvCtl: Rel
		MIDI25	(fx1) Room Mix, (aux) Hall Lvl
		MIDI26	Hall PreDly+Time
		MIDI27	Delay Mix (sys)
		MIDI28	Chorus Dly
		MIDI29	Chorus FB
		MPress	Vibrato
39	Wah Crunch MWFT	MWheel	Wah wah
		Foot	Wah wah
		Data	Cabinet Type
		MIDI25	(Aux) Room Level
		MIDI27	FX2 Delay Wet/Dry (dryer)
40	Crunchy Lead	MWheel	Vibrato
		Data	Lyr Enable
		MIDI22	(KDFX)Dist Drive
		MIDI23	(KDFX)Dist Freq
		MIDI24	EnvCtl: Dec+Rel
		MIDI25	"(aux) FDR Lvl, Hall Time"
		MIDI26	Flange FB
		MIDI27	Flange Tempo
		MIDI28	Delay Mix
		MIDI29	Delay FB
		MPress	Lyr Balance

id	name	ctrl	function
41	String Bass	MWheel	Vibrato
		Data	Ride Layer Enabled
		MIDI25	(FX1) Room Wet/Dry
		MIDI26	(Aux) Hall Level
		Mpress	Vibrato
42	Piano Trio	MWheel	Vibrato
		Data	Ride Cymbal Fade
		MIDI24	Treble EQ (KDFX)
		MIDI25	"(Aux) Hall Level, (FX1) wet/dry (dryer)"
		Mpress	Vibrato
43	Warm Bass 1^2	MWheel	Vibrato
		Data	toggle: Lyrs
		MIDI22	"LoPass adj, Shaper amt, EnvCtl: Imp+Att"
		MIDI23	"EnvCtl: Imp, Para-Bass+HighPass Freq"
		MIDI24	"EnvCtl: Rel, InEQ: Bass"
		MIDI25	(aux) Room Lvl
		MIDI26	Room Absorption
		MIDI27	Comp Ratio
		MIDI28	Comp: Att+Rel Time
		MIDI29	add EQ Morph
		MPress	Vibrato
44	Pick It Bass	MWheel	Vibrato
		Data	"Shaper, Para Treble boost"
		MIDI25	(Aux) Hall Level
		MIDI27	Compression Ratio & MakeUp Gain
		MIDI29	"Switch to FX2, Eq Morph"
		Mpress	Vibrato
45	Dual Bass Guitar	MWheel	Vibrato
		Data	Enable Mute at Medium Velocities
		MIDI25	(Aux) Hall Level
		MIDI27	Compression Ratio & MakeUp Gain
		MIDI29	"Switch to FX2, Eq Morph"
		Mpress	Vibrato
46	Moogy Bass One	MWheel	Vibrato
		Data	LoPass Freq
		MIDI22	LoPass Res
		MIDI23	Env Ctl: Attack & Impact
		MIDI24	Env Ctl: Release
		MIDI25	"(aux) Chorus Lvl+W/D, (fx2) Room Cut"
		MIDI26	"(fx2)Chorus Mix, Enhc Crossover 1"
		MIDI27	"Chorus FB, Enhc Cross-over 2"
		MIDI28	"Room HFDamp, Enhc Drive adj"
		MIDI29	toggle: ChorVerb + Enhc; Enhc Lo+Mid+Hi Drive
		MPress	Vibrato

id	name	ctrl	function
47	Mono Bass	MW	Vibrato
		Data	LoPass Freq
		MIDI22	"LoPass Freq, Impact"
		MIDI23	Env Ctl: Attack
		MIDI24	Env Ctl: release
		MIDI25	(aux) CDR Lvl+Hall Time
		MIDI26	Delay Mix
		MIDI27	Phaser FB Cut
		MIDI28	Phaser LFO Rate, Hall Mix
		MIDI29	"Chorus-Delay Cut, Phase Notch adj"
		MPress	Vibrato
48	Tee Bee This MW	MWheel	LoPass Freq
		Data	LoPass Res
		MIDI22	EnvCtl: Imp
		MIDI23	EnvCtl: Att
		MIDI24	EnvCtl: Rel
		MIDI25	(aux) Hall Lvl+adj
		MIDI26	Chorus W/D
		MIDI27	Chorus FB
		MIDI28	Chorus Tap Pan
		MIDI29	add Enhc
		MPress	Vibrato
49	Sequenting	MWheel	Vibrato
		Data	"Low Pass Freq, Low Pass Separation, Env Decay Ctl"
		MIDI22	Low Pass Resonance
		MIDI23	Low Pass Separation
		MIDI25	(FX1) Wet/Dry (dryer)
		MIDI26	(FX1) Reverb Time
		MIDI27	(Aux) Hall Level
		MIDI28	"(FX1) HF Damping, Bass Shelf EQ"
		MPress	Vibrato
50	Trent Bass	MWheel	LPGate Freq
		Data	"Saw+Shp Pitch, Atk Ctl"
		MIDI25	(FX1) Wet/Dry (dryer)
		MIDI26	(FX1) Reverb Time
		MIDI27	(Aux) Hall Level
		MIDI28	"(FX1) HF Damping, Bass Shelf EQ"
51	2 Live Kits 2 MW	MWheel	Multiple Layer toggle
		Data	"Pitch: Kicks, Toms"
		MIDI22	Pitch: Snares
		MIDI23	HF Stimul: Cymbal, HiHats
		MIDI24	"EnvCtl: Kicks, Snares, Toms, Cymbal"
		MIDI25	"(FX1)-(aux) Hall Lvl, (FX2) Plate PreDly"
		MIDI26	(FX2)-(aux) Hall Lvl
		MIDI27	(FX1) GateRvb W/D+Gate Threshold
		MIDI28	"Hall Time, Plate W/D"
		MIDI29	toggle: Plate RvrbTime boost-Megaverb!

id	name	ctrl	function
52	Jazz Kit II	MWheel	Pitch: AuxPerc
		Data	"Pitch: Kicks, Toms"
		MIDI22	Pitch: Snares
		MIDI23	"Gain: HiHats, Crash Cym"
		MIDI24	"EnvClt: Kicks, Toms"
		MIDI25	(FX1+2) Rooms W/D+Time
		MIDI26	"(FX1+2)- (aux) Hall Lvl, (FX2)- Mix Lvl"
		MIDI27	(FX2) In EQ: Treb cut
		MIDI28	(aux) Hall TrebShlf Freq+cut
53	Retro Skins MW	MWheel	Multiple Layer toggle
		Data	Pitch: Kicks
		MIDI22	Pitch: Snares
		MIDI23	"Filter Freq: Kicks, Toms, Ride, AuxPerc "
		MIDI24	EnvCtl: Kicks+Snares
		MIDI25	(FX1+2) Rooms W/D
		MIDI26	(aux) Room W/D
		MIDI27	(aux) Compressor Attack Time
		MIDI28	(FX1) InEQ: Bass+Treb
		MIDI29	toggle: Alien Skin Effect
54	Lo-Fi Vinyl Kit	MWheel	Pitch for most Needle FX and other SFX
		Data	"Pitch: Kicks, Toms, HiHats"
		MIDI22	"Pitch: Snares, Crash1"
		MIDI23	Assorted Filters: Kick, Toms, Snares, HiHats, Crashes, Ride (Resonant)
		MIDI24	"EnvClt: Kick, Toms, Snares"
		MIDI25	(FX1) Booth W/D
		MIDI26	(aux) Hall Lvl
		MIDI27	"(FX2) Pitcher W/D, (FX3) LaserVerb W/D"
		MIDI28	"(FX2) Pitcher Pitch, (FX3) LaserVerb Delay"
		MIDI29	toggle: Pitcher + LaserVerb

id	name	ctrl	function
55	VAST Sliders 808	MWheel	"AltStart control, Impact on most elements"
		Data	"Pitch: Kicks, Toms"
		MIDI22	"Pitch: Snares, NoizeToms"
		MIDI23	"EnvCtl: Kicks, Toms"
		MIDI24	"EnvCtl: Snares, HiHats, Crash2, NoizeToms"
		MIDI25	(FX1) Hall W/D
		MIDI26	(FX4)- (aux) Room Lvl (dry at very top)
		MIDI27	"Hall Time, Room Decay Time+HFDamp"
		MIDI28	"(FX2) Flange W/D+FB, (FX3) 8-Tap W/D"
		MIDI29	"toggle: 8-Tap I/O (Sys), Room Lvl adj"
56	Perc Section	MIDI22	"(FX1, FX3) Wet/Dry"
		MIDI23	(Fx2) Wet/Dry
		MIDI24	"Reverb Time FX1, FX2"
		MIDI25	(Aux) Reverb Time
		MIDI29	"Switch FX1, FX2"
57	Touch Drums	MWheel	Vibrato
		Data	Volume
		MIDI25	"(FX1) Wet/Dry, Absorb-tion"
		MIDI27	(FX2) Quantize Wet/Dry
		MIDI28	(FX2) Headroom (less)
		MIDI29	"Switch to FX bus 2, Quan-tize/Flange"
		Mpress	"Pitch Bend, Vibrato"
58	Vibraphone	MWheel	Tremolo Depth
		Data	Tremolo Rate
		MIDI22	"Partial Pitches, Layer Delay"
		MIDI23	InEQ: Bass
		MIDI24	InEQ: Treble
		MIDI25	(Aux) Reverb Level
		MIDI26	"(Aux) Reverb Time, Treble Shelf Gain"
		MIDI27	Chorus Mix
		MIDI28	Chorus Depth
59	Marimbae	MWheel	"EnvCtl: Rel, Tremolo"
		Data	Fade in Percussive Layer
		MIDI22	LP / HPass freq, HFStim Drive
		MIDI23	Timbre - Duller
		MIDI25	"(aux) Hall Lvl, Room W/D"
		MIDI26	Hall+Room Times
		MIDI29	toggle: Room + Compres-sor/Hall ^ Room I/O

id	name	ctrl	function
60	Dynamic Perc	MWheel	Switch Conga Layers
		Data	Conga Pitch when MW up
		MIDI25	"FX1,3 Wet/Dry"
		MIDI26	FX2 Wet/Dry
		MIDI27	"FX1,2 Rev Times"
		MIDI28	"(Aux) Wet/Dry, Rev Time"
		MIDI29	toggle; Reverbs FX1 & 2
61	Dynasax	MWheel	"Vibrato, LoPass Freq"
		Data	Lyr enable
		MIDI22	"Lyr AltCtl, LoPass Freq, Notch Freq, ParaTreb Freq"
		MIDI23	"Notch Width, LoPass Res, EnvCtl: Imp+Att"
		MIDI24	EnvCtl: Dec+Rel
		MIDI25	(aux) Hall Lvl
		MIDI26	Hall HFDamp+Decay Time
		MIDI27	Chorus Mix
		MIDI28	Delay (sys) Mix
		MIDI29	Hall PreDly + room size adj
		MPress	"Vibrato, LoPass Freq+Res, Shape adj"
		ChanSt	"Lyr AltCtl, EnvCtl: Rel"
62	Soft Alto	MWheel	"Vibrato, Env Ctl Atk"
		MIDI25	"FX1 Wet/Dry, Reverb Time"
		MIDI26	(Aux) Hall Level
		MPress	Vibrato Depth & Rate
63	DynTrum-pet^Miles	MWheel	"swell, Vibrato"
		Data	toggle: DynTrumpet ^ Miles
		MIDI22	LoPass Freq+Res
		MIDI23	"EnvCtl: Imp, InEQ: Bass"
		MIDI24	"EnvCtl: Rel, InEQ: Treb"
		MIDI25	"(fx1) Chamb W/D, (aux) Room Lvl"
		MIDI26	Chamb + Room Times
		MIDI27	"Chamb + Room HFDamp, Dist Drive"
		MIDI28	Dist LoPass Freq
		MIDI29	toggle: Chamb + Dist
		MPress	Vibrato
64	Harmon Mute Trp	MWheel	Vibrato
		Data	Low Pass Freq
		MIDI22	Bandpass Ctr Freq
		MIDI23	Bass Shelf EQ Gain (KDFX)
		MIDI24	Treble Shelf EQ Gain (KDFX)
		MIDI25	FX1 Wet/Dry, (Aux) Hall Level
		MIDI26	"FX1, Aux Reverb Time"
		MIDI27	"FX1, Aux HF Damping"
		MPress	Vibrato

id	name	ctrl	function
65	French Horn	MWheel	Swell
		Data	Low Pass Freq
		MIDI22	Resonance (Sliders A&B up full = Stopped [+] Mute
		MIDI25	FX3 Room Wet/Dry
		MIDI26	(Aux) Reverb Time
		Mpress	Vibrato
66	Big Band	MWheel	LoPass adj
		MIDI25	(aux) Room W/D
		MIDI26	Room Time
		MIDI27	Room PreDly
		MIDI28	Room HFDamp
		MIDI29	Enhc I/O
		MPress	Vibrato
67	Hip Brass	MWheel	Vibrato
		Data	Low Pass Freq
		MIDI25	FX1 Wet/Dry
		MIDI26	(Aux) Hall Level
		MIDI27	(Aux) HF Damping
		MIDI29	Sweep Filt I/O
		MPress	Swell
68	Brt Saxy Section	MWheel	Vibrato
		Data	"InEQ: Bass, LoPass Freq"
		MIDI22	InEQ: Treb
		MIDI23	"EnvCtl: Imp, Att+Dec"
		MIDI24	EnvCtl: Rel
		MIDI25	(aux) Room Lvl
		MIDI26	"Room W/D + HFDamp, InEQ: Treb Freq"
		MIDI27	Dist tube Drive
		MIDI28	Dist Warmth+Tone
		MIDI29	"toggle: Dist+EQ I/O, Room type"
		MPress	Vibrato
69	Brass Fanfare	MWheel	Vibrato
		Data	Fade in French Horn layer
		MIDI25	FX1 Room Wet/Dry
		MIDI26	"(Aux) Hall Level, FX1 Reverb Time"
		MIDI27	(Aux) HF Damping
		MIDI29	toggle: Hall
		MPress	Brass Swell
70	Pesante Horns	MWheel	Vibrato
		Data	Enable and Fade in Fr Hrn Section
		MIDI25	(Aux) Hall Level
		Mpress	Swell
71	Wendy's Flute	MWheel	Low Pass Freq
		Data	toggle: Flute Variation
		MIDI25	"(aux) Hall Level, Rev Time"
		MIDI29	toggle: Hall

id	name	ctrl	function
72	Crimson Flute	MWheel	Tremolo
		Data	HF Stimulator Drive
		MIDI22	FX1 Mix Delay
		MIDI25	FX1 Wet/Dry
		MIDI26	"(Aux) Wet/Dry, Decay Time"
		MIDI27	(Aux) Pre-Delay
		MIDI28	(Aux) HF Damping
73	Horn & Flute w/ Str	MWheel	"Vibrato, LoPass sep (expression / dynamic ctl)"
		Data	toggle: Horn ^ Solo String
		MIDI22	LoPass Freq+Res cut
		MIDI23	Ens Strings Vol cut
		MIDI24	Ens Strings EnvCtl: Att
		MIDI25	(aux) Hall Lvl
		MIDI26	Hall Time
		MIDI27	(FX1) Chapel W/D
		MIDI28	Chapel Time
		MIDI29	toggle: (Lyr 3+4) Chapel+Hall, (Lyr 1) Hall+Chapel
		MPress	Ens Strings Vibrato
		SostPd	toggle: Solo Strg I/O
74	Brahms Quintet	MWheel	Vibrato/Tremolo
		Data	Fade out Pizz Basses
		MIDI22	Fade out Brass
		MIDI25	"FX1 Wet/Dry, (Aux) Reverb Level"
		MIDI26	(Aux) Reverb Time
75	Kurz'd Pipe	MWheel	Vibrato
		Data	Fade Chiff Layer
		MIDI25	(Aux) Chamber Level
		MIDI26	(Aux) Reverb Time
		MIDI29	toggle: Pitcher
		Mpress	Vibrato
76	Synth Strings	MWheel	"Vibrato, modulation"
		Data	toggle: Lyr 1 ^ Lyr 3
		MIDI22	Lyr 1 up p5th ^ Lyr 3 up 8ve
		MIDI23	EnvCtl: Att
		MIDI24	EnvCtl: Imp+Rel
		MIDI25	(aux) Plate Lvl
		MIDI26	"Chorus W/D, Dist Drive"
		MIDI27	Chorus FB
		MIDI28	Dist Bass+Treb tone
		MIDI29	toggle: Chorus + Distortion
		MPress	"Vibrato, modulation"

id	name	ctrl	function
77	ABCD = ADSR !	MWheel	Vibrato
		Data	Filter Envelope Attack
		MIDI22	Filter Envelope Decay
		MIDI23	Envelope Sustain Level
		MIDI24	Envelope Release
		MIDI25	Reverb Wet/Dry
		MIDI26	Reverb Time
		MIDI27	Chorus Delay Wet/Dry (dryer)
78	Memorymoog	MWheel	Vibrato
		Data	"Low Pass Freq,Env Ctl Attack & Release"
		MIDI23	(Aux) Lazerverb spacing
		MIDI24	(Aux) Lazerverb Contour
		MIDI25	FX1 Hall Wet/Dry
		MIDI26	FX1 Reverb Time
		MIDI27	"(Aux) Lazerverb Level, Feedback level"
		MIDI28	(Aux) Dly Coarse
		Mpress	Vibrato
79	OB Pad	MWheel	Vibrato
		Data	LoPass Freq, EnvCtl: Att+Rel
		MIDI22	LoPass Res
		MIDI25	(aux) Plate Lvl+Time
		MIDI26	"Enhc Lo Drive+Mix, Chorus W/D "
		MIDI27	"Enhc Mid Drive, Mid Mix"
		MIDI28	"Enhc Hi Drive, Hi Mix, InEQ: Treb"
		MIDI29	toggle: Enhancer + Chorus
		MPress	Vibrato
80	TeknoBallCrusher	MWheel	Vibrato
		Data	"EnvCtl: Att, Notch Freq"
		MIDI22	saw 8ve jump (Lyr 1)
		MIDI23	EnvCtl: Impact
		MIDI24	EnvCtl: Rel
		MIDI25	(aux) Room Lvl
		MIDI26	Chorus W/D; Dist Drive cut
		MIDI27	Chorus Rate; Dist warmth cut
		MIDI28	Chorus FB; Dist cab LoPass
		MIDI29	toggle: Chorus + Distortion
		MPress	Vibrato

id	name	ctrl	function
81	AlaZawi Take 2	MWheel	Vibrato
		Data	LoPass Freq+Res
		MIDI22	LoPass Freq cut
		MIDI23	InEQ: Bass
		MIDI24	InEQ: Treb
		MIDI25	(aux) Hall Lvl+Decay Time
		MIDI26	Hall PreDly+HFDamp
		MIDI27	Chorus W/D+Pan
		MIDI28	MDelay W/D
		MIDI29	toggle: Clean +MDelayChorus
		Breath	LoPass Freq+Res adj
		MPress	Vibrato
82	Round Lead	MWheel	Vibrato
		Data	FM Depth (timbre)
		MIDI22	Layer Delay
		MIDI23	"Env Ctl, atk & decay"
		MIDI24	Release Rate
		MIDI25	(Aux) Hall Level
		MIDI26	(Aux) Flanger Level
		MIDI27	(Aux) Delay Level
		MIDI28	(Aux) All effects on/off
		MPress	"Vibrato, FM Depth (timbre)"
83	Mono Triple Lead	MWheel	Vibrato
		Data	Shaper Gain
		MIDI22	Low Pass Freq
		MIDI23	Non-Linear Mixer Gain
		MIDI25	FX3 Wet/Dry
		MIDI26	FX3 and Aux Rev Times
		MIDI27	Chorus Mix
		MIDI28	Delay Mix
		MIDI29	(Aux) Level
		MPress	Vibrato
84	Jordan's Lead	MWheel	Vibrato
		Data	Low Pass Freq & Res
		MIDI22	Resonance Layer 2
		MIDI25	(Aux) Level and Rev Time
		MIDI26	"Delay Mix, Mid EQ"
		MIDI27	(Aux) Flanger Feedback
		MIDI28	(Aux) Flanger Tempo
		MIDI29	Distortion Drive
		MPress	Fade in Feedback Layer
85	Dist Saw Lead	MWheel	Xfade Octave Feedback, Vibrato
		Data	Low Pass Freq
		MIDI22	4P Low Pass Separation and Resonance
		MIDI25	(Aux) Hall Level
		MIDI26	(Aux) Wet/Dry
		MPress	Vibrato

id	name	ctrl	function
86	Instant Enya	MWheel	Vibrato
		Data	Lyr 1 Octave Pitch Shift
		MIDI22	Lyr 2 Low Pass Freq
		MIDI23	Bass Shelf EQ Gain (KDFX)
		MIDI24	Treble Shelf EQ Gain (KDFX)
		MIDI25	(Aux) Hall Level
		MIDI26	Chorus Delay
		MIDI27	Chorus Depth
		MIDI28	Mix Delay
		MIDI29	(Aux) Pre-Delay, Decay Time
		MPress	Vibrato
87	SynKey	MWheel	Vibrato
		Data	Modulator Pitch (timbre)
		MIDI22	Layer enable
		MIDI23	"Env Ctl Atk Rate, Decay Rate"
		MIDI24	Release Rate
		MIDI25	(Aux) Hall Level, Hall Size Scale
		MIDI26	(Aux) Flanger feedback level
		MIDI27	"(Aux) Delay level, Delay Feedback leve"
		MIDI28	(Aux) Delay Time
		MIDI29	(Aux) Delay Level (off/on)
		MPress	Vibrato Rate
88	Tubular Bells	MWheel	Tremolo
		Data	Pitch
		MIDI22	Modulator Pitches
		MIDI23	Attack Rate
		MIDI24	Release Rate
		MIDI25	"(FX3) Delay amount, (FX2) Phaser wet/dry"
		MIDI26	Flanger Depth
		MIDI27	(Aux) Reverb Decay Time
		MIDI28	"(FX2, FX3) Aux send, (FX3) Wet/Dry"
		MIDI29	Toggle FX3 (Flange/decay/verb)– FX2 (Phaser)

id	name	ctrl	function
89	Digicomp	MWheel	Vibrato
		Data	"Env Ctl: Atk Rate, Dec Rate"
		MIDI22	(FX2) Env Follower Threshold
		MIDI23	(FX2) Freq Sweep
		MIDI24	(FX2) Resonance
		MIDI25	(FX2) Filter Type
		MIDI26	(FX2) Minimum Freq
		MIDI27	(FX2) Release Rate
		MIDI28	"(FX3) Feedback Level, LF Damping"
		MIDI29	Switch FX2 (env follower) to FX3 (Spectral 4Tap
		Mpress	Vibrato
90	New Highbells	MWheel	Vibrato
		Data	Pitch (sine+)
		MIDI25	"(FX1) Wet/Dry, Rev Time"
		MIDI26	(Aux) Reverb Level
		MIDI29	toggle: FX1 (Plate) - FX2 (Flange)
		Mpress	Vibrato
91	Portal	MWheel	none
		Data	High Pass Freq
		MIDI22	Saw+ Pitch
		MIDI23	LFO depth - LP Freq
		MIDI24	Resonance
		MIDI25	(Aux) Hall Level
		MIDI26	(Aux) Reverb Time
		MIDI27	Flange Wet/Dry
92	Beauty Pad	MWheel	Vibrato Depth
		Data	"All Pass Freq, Lyr 2 Detune"
		MIDI22	Lyr 3 Pan Position
		MIDI25	(Aux) Wet/Dry (dryer)
		MIDI26	(Aux) Reverb Time (less)
		Mpress	Vibrato Depth
93	Amp Mod Pad	MWheel	Vibrato
		Data	Low Pass Freq
		MIDI25	(Aux) Hall Wet/Dry (dryer)
		MIDI26	(Aux) Reverb Time
		MIDI27	(Aux) HF Damping
94	Light Mist	MWheel	Vibrato
		Data	Low Pass Freq
		MIDI22	Pitch adj
		MIDI23	InEQ: Bass
		MIDI24	InEQ: Treb
		MIDI25	(aux) Hall Lvl
		MIDI26	Chorus Delay Time
		MIDI27	Chorus Delay Depth
		MIDI28	Delay Mix (sys)
		MIDI29	Hall Time+PreDly adj
		MPress	Vibrato

id	name	ctrl	function
95	Soft Pad	MWheel	7 step LFO depth - pitch
		Data	Low Pass Freq
		MIDI22	Resonance
		MIDI23	4P Low Pass Separation
		MIDI24	Octave Shift Lyr 1
		MIDI25	FX1 & 2 Wet/Dry (dryer)
		MIDI26	FX2 Chorus Feedback Level
		MIDI27	FX2 LFO Depth
		MIDI28	FX2 LFO Rate
96	Eyes Wired Shut	MWheel	Vibrato Depth
		Data	ShapeModOsc Pitch
		MIDI25	FX1 Wet/Dry, FX2 Hall Level
		MIDI26	FX1 HF Damping
		MIDI27	"FX2 Frequency, Out Gain"
		MIDI28	FX2 Resonance
		MIDI29	toggle: Hall to Resonant Filter
		Mpress	Vibrato
97	Ethereal Strings	MWheel	Band Pass Freq, Width, Amplitude
		Data	Lyr enable
		MIDI22	BandPass Freq + Width - Lyr 2
		MIDI23	BandPass Width - Lyr 3
		MIDI24	InEQ: Treb
		MIDI25	(aux) Hall Lvl
		MIDI26	Hall Decay Time
		MIDI27	Flange W/D
		MIDI28	Flange FB
		MIDI29	"toggle: Flange + CDR, InEQ: Bass"
		MPress	BandPass Freq
98	Sync Waves	MWheel	Slow pitch mod Master Sync Osc
		Data	Pitch Slave Sync Osc
		MIDI22	Low Pass Freq
		MIDI23	4P Low Pass Separation
		MIDI24	Hi Pass Freq
		MIDI25	"SRS Out, (Aux) Wet/Dry (dryer)"
		MIDI26	(Aux) Reverb Time
		MIDI27	(Aux) HF Damping
		MIDI28	SRS Center Ctl
99	Tripoli 2	MWheel	Vibrato
		Data	Pitch
		MIDI22	Resonance
		MIDI23	Xfade
		MIDI24	Low Pass Freq
		MIDI25	Shaper
		MIDI26	LP2 Res Gain
		MIDI27	"Bass EQ Freq, Gain"

id	name	ctrl	function
100	Monolith	MWheel	Vibrato
		Data	Low Pass Freq
		MIDI25	(Aux) Wet/Dry
		MIDI26	(Aux) HF Damping
		Mpress	Pitch Layer 2
101	Soft Piano	MIDI25	(aux) Hall Lvl+Time
		Soft Pedal is active	
102	Piano for Lyrs	MIDI25	(aux) Hall Lvl
		MIDI26	Hall Time
		MIDI29	Soundboard W/D
103	Grand & Electric	MWheel	E Pno Vibrato + ParaTreb
		MIDI23	InEQ: Bass
		MIDI24	InEQ: Treb
		MIDI25	(aux) Hall Lvl
		MIDI26	Chorus W/D
		MIDI27	Chorus FB
		MIDI28	Chorus XCouple
		MIDI29	(aux) Early Ref Lvl
		Soft Ped	Softens Elec Piano
104	E Grand Stack	MWheel	String Lvl
		Data	InEQ: Treb boost
		MIDI25	(aux) Room Lvl, (aux) FDR W/D
		MIDI26	Flange Mix
		MIDI27	Flange Tempo
		MIDI28	Enhc Lo/Mid Drive
		MIDI29	FDR Delay Mix adj
105	ClassicPi-ano&Vox	MWheel	Vox Lvl
		Data	Vox Balance, Piano Treb boost
		MIDI22	Vox EQ Bass
		MIDI23	"Vox EQ Treb, St Image Mix"
		MIDI25	"(aux) Hall Lvl, Room W/D"
		MIDI26	Room and Hall Times
		MIDI27	St Image In Gain
		MIDI28	St Image CenterGain
		MIDI29	Vox St Image L/R Delay
106	Brt Concert Pno	Data	InEQ: Treb
		MIDI25	(aux) Hall Lvl+Time
		MIDI29	Soundboard W/D
		Soft Pedal is active	
107	Modified Piano	Data	InEQ: Treb
		MIDI25	(aux) Hall Lvl+Time
		MIDI29	Soundboard W/D
		Soft Pedal is active	
108	Studio Grand	MIDI25	(aux) Hall Lvl+Time
		MIDI29	Soundboard Rvb Enable
		Soft Pedal is Active	
109	Orchestral Piano	MIDI25	(aux) Hall Level + Time + HF Damp (less), FX1 Wet/Dry (less)
		MIDI29	Soundboard Rvb Enable
		Soft Pedal is Active	
110	Honky-Tonk	MWheel	Tremolo
		MIDI25	(aux) Hall Time
		MIDI26	(aux) Chorus Mix
		MIDI27	Chorus FB
		MIDI28	(aux) Delay Mix
		MIDI29	Delay Time adj
111	Fonk Epno MW	MWheel	Wah Filter
		Foot	Wah Filter
		Data	Tremolo Depth
		MIDI22	Tremolo Rate
		MIDI23	Env Ctl: Atk
		MIDI24	"EnvCtl: Rel, Bass EQ (KDFX)"
		MIDI25	(aux) Hall Lvl
		MIDI26	Hall Time
		MIDI27	4Tap W/D
		MIDI28	4Tap FB
		MIDI29	4Tap I/O
112	Trip Wah Clav	MWheel	Wah Filter
		Foot	Wah Filter
		Data	Enable Release Layer
		MIDI22	Low Pass Freq
		MIDI25	"(Aux) Hall Level, Rev Time"
		MIDI26	(Aux) HF Damping
		MIDI27	Compression Ratio & MakeUpGain
		MIDI28	(Aux) Pre-Delay
113	FM E Piano	MWheel	Chorusy Vibrato
		Data	Layer 1 Pitch
		MIDI22	Modulator Pitch Lyr 2
		MIDI23	Modulator Pitch Lyr 3
		MIDI25	"(FX1) Enhancer In/Out, (FX2) Chorus Wet/Dry, (FX3) CDR Wet/Dry"
		MIDI26	Enhancer Crossover
		MIDI27	Chorus Feedback Level
		MIDI28	Chorus Depth
114	Stage EP	MWheel	Tremolo Depth
		Data	Tremolo Rate
		MIDI22	Low Pass Freq & Res
		MIDI23	Bass EQ Gain (KDFX)
		MIDI25	(FX1) Wet/Dry
		MIDI26	(FX1) Rev Time
		MIDI27	(FX1) HF Damping
115	Growlin' EP	MWheel	Tremolo Depth
		Data	Tremolo Rate
		MIDI22	Resonance
		MIDI25	"(Aux) Room Level, Wet/Dry"
		MIDI26	"(Aux) Rev Time, Size Scale"
		MIDI27	(Aux) HF Damping
		MIDI28	"(FX3) Cabinet LP, Warmth"
		MIDI29	Alt Sample Start

id	name	ctrl	function
116	Ballad Organ	MWheel	Leslie Depth
		Data	Drawbar 1
		MIDI22	Drawbar 2
		MIDI23	"Drawbar 3, (aux) Plate Lvl"
		MIDI24	"Drawbar 4, Plate Time"
		MIDI25	KeyClick
		MIDI26	Perc Harmonic (Hi/Low)
		MIDI27	"HFDamp, Perc Decay"
		MIDI28	Cabinet Dist Drive+Lopass
		MIDI29	toggle: VibeChorus I/O
117	Cookin Bee	MWheel	Leslie Depth
		Data	Distortion Drive
		MIDI22	Vibrato/Chorus
		MIDI23	"(FX2) Hi,Lo Gain"
		MIDI24	"(FX2) Hi,Lo Trem"
		MIDI25	(Aux) Plate Level
		MIDI26	(Aux) Rev Time
		MIDI27	(Aux) HF Damping
118	Dance Perc Bass	MWheel	Vibrato
		Data	Disable Layer 2
		MIDI22	"Disable Layer 3, Para EQ Width Lyr 2"
		MIDI23	"Hi Pass Separation, Para EQ"
		MIDI24	Hi Pass Resonance, Env Ctl: Atk
		MIDI25	(Aux) Hall Wet/Dry
		MIDI26	(Aux) Rev Time
		MIDI27	(Aux) HF Damping
		MIDI28	Treble Shelve Freq
119	Chiffy Pipes	MWheel	Decrescendo
		Data	LoPass Freq
		MIDI22	Key Click
		MIDI23	Vibrato
		MIDI25	(aux) Hall Lvl+W/D
		MIDI26	Hall Time
		MIDI27	Hall Early Ref Lvl
		MIDI29	"toggle: Chorus I/O, Hall HFDamp+PreDly"
120	Pipe Organ 4	Data	Subtle Pitch and LP Filter modulation
		MIDI25	(FX1) Rev Time
		MIDI26	(Aux) Rev Time
121	Marcato String Orch	MWheel	Alt Attack: switched
		Data	Enable Octave Layer
		MIDI22	Treble Shelve EQ
		MIDI23	Bass Shelve EQ
		MIDI25	Hall Wet/Dry
		MIDI26	Reverb Time
122	Adagio Strings	MWheel	none
		Data	Treble Shelf EQ
		MIDI22	Bass Shelf EQ
		MIDI25	Hall Wet/Dry
		MIDI26	Reverb Time

id	name	ctrl	function
123	Brighter Pizz	MWheel	EQ Duller
		Data	Shaper
		MIDI25	"Hall Wet/Dry, Rev Time"
		MIDI26	HF Damping
124	Slo Solo Cello	MWheel	4P Low Pass Separation
		Data	"Low Pass Freq, Resonance"
		MIDI22	Env Ctl: Decay
		MIDI23	Env Ctl: Attack
		MIDI25	(Aux) Hall Level
		MIDI26	"(Aux) Reverb Time, HF Damping"
		MIDI27	(FX1) Wet/Dry
		MIDI28	(FX1) HF Damping
		MIDI29	"toggle: Aux off, FX1 change Room preset"
		Mpress	Increase Vibrato Depth
125	Arco Bass	MWheel	Vibrato
		Data	Env Ctl: Attack
		MIDI22	Para Bass EQ
		MIDI25	(Aux) Hall Level
		MIDI26	(FX1) Wet/Dry
		Mpress	Vibrato
126	Solo Strings	MWheel	Env Ctl: Attack
		Data	Low Pass Freq
		MIDI22	Shaper
		MIDI25	(Aux) Hall Level
		MIDI26	"(Aux) Reverb Time, HF Damping"
		MIDI27	(FX1) Wet/Dry
		Mpress	Vibrato
127	Touch Strings	MWheel	Vibrato
		Data	Env Ctl: Atk & Release
		MIDI25	FX1 Wet/Dry
128	Mixed Choir	MWheel	Vibrato+Rate
		Data	Lyr XFade
		MIDI22	"EnvCtl: Rel, Notch + ParaTreb Freq"
		MIDI23	"InEQ: Bass, ParaTreb, Notch Width"
		MIDI24	InEQ: Treb
		MIDI25	(aux) Hall Lvl
		MIDI26	Room W/D
		MIDI27	Room Time
		MIDI28	Infinite Decay on Keydown
		MIDI29	Infinite Decay
		MPress	Vibrato+Rate
129	Bamboo Voices	MWheel	"Vibrato, Para EQ Freq"
		Data	Boost Vox Layer
		MIDI23	Bass EQ (KDFX)
		MIDI24	Treble EQ (KDFX)
		MIDI25	(Aux) Hall Level, FX1 Wet/Dry
		MIDI26	FX1 Rev Time
		MPress	Vibrato

id	name	ctrl	function
130	Syn Orch Power	MWheel	Vibrato+Rate
		Data	LP2Res Freq
		MIDI22	Env Ctl: Release (faster)
		MIDI25	(Aux) Reverb Time
		MIDI26	FX2 Chorus Wet/Dry
		MIDI27	FX2 Chorus Feedback Level
		MIDI28	FX2 Chorus LFO Rate
		MIDI29	Switch to FX2 Chorus
		MPress	Vibrato+Rate
131	Strummer Guitar	MWheel	Vibrato
		Data	Enhancer Drive & Gain (less)
		MIDI25	(Aux) Reverb Wet/Dry
		MIDI26	(Aux) HF Damping
		MIDI27	(Aux) Compression Ratio
		MIDI29	Switch to FX2 Pitcher
		MPress	Vibrato
132	Blue Moods	MWheel	Slight Vibrato, String Balance
		Data	String Balance, Gtr Hi Freq Cut
		MIDI22	EnvCtl: Imp+Att
		MIDI23	EnvCtl: Dec
		MIDI24	EnvCtl: Rel
		MIDI25	(aux) Hall Lvl
		MIDI26	Hall Time+HFDamp
		MIDI27	"Enhc Lo Mix, Chorus W/D"
		MIDI28	Enhc Hi Mix+Drive, Chorus FB
		MIDI29	"toggle: Enhc + Chorus, Hall + Room"
		MPress	Vibrato
133	ES335	MWheel	Notch Filt Tremolo
		Data	Para Mid Freq
		MIDI22	"Para Mid Amp (ES335), "
		MIDI23	EnvCtl: Att
		MIDI24	EnvCtl: Rel
		MIDI25	(aux) Hall Mix
		MIDI26	"Hall HFDamp, InEQ: Bass+Treb (Abercrmbie)"
		MIDI27	Chorus Mix
		MIDI28	Delay Mix
		MIDI29	Turns off Semi-Tone Pitch Bend
		MPress	Vibrato
		PWheel	Simulates Fretboard Slide (ES335)

id	name	ctrl	function
134	Kotolin	MWheel	Para EQ AMP
		Data	"Para EQ Freq, Width, Depth"
		MIDI22	EnvCtl: Imp
		MIDI23	EnvCtl: Att
		MIDI24	EnvCtl: Rel
		MIDI25	"(aux) Hall Lvl, (Fx3) Rvb Time"
		MIDI26	(Fx2) Phase W/D
		MIDI27	"Phase L/R LFO, (Fx3) Flange Mix"
		MIDI28	Delay Mix
		MIDI29	"Buss toggle:, Phaser LFO Rate"
		MPress	Vibrato
135	Dreamguitar	MWheel	Vibrato
		Data	Octave Pitch shift Pad layer
		MIDI22	Notch Freq
		MIDI25	"FX1 Rev Mix, (Aux) Hall Level"
		MIDI26	"(Aux) Pre-Delay, Rev Time"
		MIDI27	"FX1 Rev W/D, Delay Mix"
		MIDI28	Chorus Delay
		MIDI29	Chorus Feedback
		MPress	Vibrato
136	Hyper Guitar	MWheel	Vibrato
		Data	Enhancer Amplitude
		MIDI22	Env Ctl: Decay
		MIDI23	Treble Shelf EQ Gain
		MIDI25	(Aux) Hall Level
		MIDI26	FX2 Wet/Dry
		MIDI27	FX2 LFO Rate
		MIDI29	Toggle: effect to Stereo Image
		MPress	Vibrato
137	SliderDistJazzGt	MWheel	Vibrato/Tremolo
		Data	Enables Dist Gtr Lyrs
		MIDI22	"Para EQ ^ Hi Freq Stim Drive, Dist EQ"
		MIDI23	"EnvCtl: Imp, Dist Drive"
		MIDI24	EnvCtl: Rel
		MIDI25	(aux) FDR Hall Lvl, Rvb Time
		MIDI26	Flange FB
		MIDI27	Flange Tempo
		MIDI28	Delay Mix
		MIDI29	Delay FB
		MPress	"Vibrato, Harmonics Lvl"
		PWheel	(Dist Lyr) +2/-12 Pitch Bend

id	name	ctrl	function
138	Liquid T Lead	MWheel	Vibrato
		Data	EnvCtl: Att, LoPass Freq+Res
		MIDI22	"Lopass Freq+Res, Steep Bass Freq"
		MIDI23	EnvCtl: Imp
		MIDI24	EnvCtl: Rel
		MIDI25	(aux) Hall Lvl
		MIDI26	"Hall Time+HFDamp, Chorus FB"
		MIDI27	"Delay Mix, SRS EQ"
		MIDI28	"Delay FB, SRS Centerspace"
		MIDI29	toggle: CHDelay + SRS
		MPress	Vibrato, Lyr Enable (Harmonics)
139	Hammeron Synth	MWheel	Steep Resonant Bass Freq
		Data	"Cabinet Preset, Out Gain (KDFX)"
		MIDI22	(Aux) Hall Level
		MIDI23	MD Wet/Dry
		MIDI24	Chorus Wet/Dry
		MIDI25	Bass Tone
		MIDI26	Mid Tone
		MIDI27	Treble Tone
		MIDI28	FX1 Aux Level
		MIDI29	toggle FX
		MPress	"Steep Resonant Bass Freq, Tube Drive"
140	CeeTaur	MWheel	Vibrato
		Data	Low Pass Freq
		MIDI22	EnvCtl: Imp
		MIDI23	EnvCtl: Att
		MIDI24	EnvCtl: Rel
		MIDI25	(aux) Hall Lvl, (Fx3) Rvb Time
		MIDI26	(Fx2) Phase W/D
		MIDI27	Phase L/R LFO, (Fx3) Flange Mix
		MIDI28	Delay Mix
		MIDI29	Bus toggle:, Phaser LFO Rate
		MPress	Vibrato
141	Brite Stand-up	MWheel	Vibrato
		Data	"Octave Pitch Shift Layer 2, (Aux) Ambience Level"
142	DualBass^Slp-Bass	MWheel	Vibrato
		Data	toggle: DualBass + SlpBass
		MIDI22	"EnvCtl: Dec, BandPass adj, ParaTreb"
		MIDI23	EnvCtl : Att+Imp
		MIDI24	EnvCtl: Rel
		MIDI25	(aux) Room Lvl+Time
		MIDI26	Phaser Notch/ BP ^ Enhc LoDrive+Delay
		MIDI27	Phaser Center Freq L ^ Enhc Hi Mix
		MIDI28	Phaser Center Freq R ^ Enhc Mid Mix
		MIDI29	Phaser FB boost * Enhc Crossover Freq
		MPress	Vibrato
143	Sust Bass	MWheel	Vibrato
		Data	"BandPass Freq+Width, EnvCtl: Imp, LoPass adj"
		MIDI22	EnvCtl: Imp
		MIDI23	EnvCtl: Rel
		MIDI24	In EQ: Bass
		MIDI25	Comp Att Time
		MIDI26	Comp Rel Time
		MIDI27	Comp Ratio
		MIDI28	Comp ThReshhold
		MIDI29	"toggle: Comp I/O, (aux) Room I/O"
		MPress	Vibrato
144	Fonkin Bass	MWheel	Vibrato
		Data	Low Pass Freq
		MIDI24	Bass EQ Gain (KDFX)
		MIDI25	Comp Att Time
		MIDI26	Comp Rel Time
		MIDI27	Comp Ratio
		MIDI28	Comp ThReshhold
		MIDI29	(Aux) Room Level
145	Synth Fretless	MWheel	Vibrato
		Data	"Shaper amt, HiPass Freq"
		MIDI22	InEQ: Bass
		MIDI23	EnvCtl: Imp
		MIDI24	EnvCtl: Rel
		MIDI25	(aux) Hall Lvl
		MIDI26	"Flange W/D, Chorus W/D"
		MIDI27	"Flange FB, Chorus FB"
		MIDI28	"Flange L/R Phase, Chorus Rate"
		MIDI29	toggle: Flange + Chorus
		MPress	"Vibrato, Shaper adj, Flange W/D"

id	name	ctrl	function
146	SquashStudioKit	MWheel	AltControl: Toms
		Data	"Pitch: Kicks, Snares, Toms, HiHats"
		MIDI22	Snare Filters
		MIDI23	Kick Filters
		MIDI24	"EnvCtl: Kicks, Snares, Toms"
		MIDI25	"(FX1+2)- (aux) Room Lvl+Time, (FX2)- Mix Lvl "
		MIDI26	(FX2) Compressor Ratio+Gain
		MIDI27	Room HFDamp
		MIDI28	"toggle: Enhancer HiDrive, Room PreDly"
		MIDI29	Enhancer Hi Delay Time
147	Garage Kit II MW	MWheel	Multiple Layer toggle
		Data	"Pitch: Kicks, Toms"
		MIDI22	"Pitch: Snares, Crash2"
		MIDI23	"EnvCtl: Kicks, Toms"
		MIDI24	"EnvCtl: Snares, HiHats"
		MIDI25	(aux) RoomGate Absorption+Gain
		MIDI26	(FX3) Compression control
		MIDI27	(FX3) InEQ: Treb
		MIDI28	(FX3) InEQ: Bass
		MIDI29	"toggle: (aux) Room type, Lopass adj"
148	Studio Kit II MW	MWheel	Multiple Layer toggle
		Data	"Pitch: Kicks, Toms"
		MIDI22	"Pitch: Snares, Crash2"
		MIDI25	"FX1 Wet/Dry, FX1+2 Aux Levels, Aux Rev Time"
		MIDI26	"FX1 Rev Time,FX2 Wet/Dry"
149	General MIDI Kit	MWheel	"Assorted Filters, on most elements"
		Data	"PItch: Kicks (B1, C2), and Toms"
		MIDI22	"Pitch: Snares (D2, E2), HiHats, Ride, Crash (C#3)"
		MIDI23	"Pitch: Congas, Timbales, many other elements"
		MIDI24	EnvCtl / ASR Amp Env: Kicks (above), Snares (above) Toms, Crashes, Ride, Triangle, Ding (A#1)
		MIDI25	(FX1) Room W/D
		MIDI26	Room Rvrb Time
		MIDI27	"(aux) Hall Lvl, (FX1) Mix Lvl"
		MIDI28	(FX1) Compressor Ratio+Threshold+Rel Time
		MIDI29	"toggle: (FX1) Room+Booth, (aux) Hall+""Slither Booth"""

id	name	ctrl	function
150	ElectroDrum-setGM	MWheel	(FX2) Resonant Filter Freq
		Data	"Filter: Kicks, Toms, assorted other elements"
		MIDI22	"Pitch: Snares, some Toms, Cymbals,+other elements"
		MIDI23	"Filter: Snares, Cymbals, HiHats, Synth Boing"
		MIDI24	EnvCtl: most elements
		MIDI25	"(FX1) Room W/D, (FX3) Echo W/D, (aux) Hall W/D+Lvl"
		MIDI26	"Room Time, (aux) Hall Lvl"
		MIDI27	Hall Late Rvrb Time
		MIDI28	(FX3) Delay Feedback (only a few elements)
		MIDI29	"toggle: Room + ResFilt, Delay + Room"
151	QuestHipKit	MWheel	EP Chord Tremolo
		Data	Low Pass Freq Snare
		MIDI22	EP Chord Low Pass Freq
		MIDI23	EP Chord Resonance
		MIDI25	"FX1,2,3 Aux Level, FX3 Reverb Mix"
		MIDI26	Aux Rev Time
		MIDI27	FX3 Flanger Feedback Level
		MIDI29	"Toggle FX3, FX2"
152	e Drums	MWheel	none
		Data	"Pitch Toms, Kicks"
		MIDI22	Pitch Snares
		MIDI23	Para EQ Toms
		MIDI25	(aux) Hall Level
		MIDI26	"FX1 Wet/Dry, Rev Time"
		MIDI27	(aux) Reverb Time
153	SmallKit+Perc MW	MWheel	Cowbell + Shaker Enable
		Data	Pitch: Kit elements (Kick, Snare, HiHats, Toms, Cymbals)
		MIDI22	Pitch: Congas, Timbales, Agogo, Clave, Cowbell (MW)
		MIDI23	Filters: Cabasas, Tambourines, Clave, Agogo, Timbales, Kick, Snare, HiHats, Toms, Cowbell (MW)
		MIDI24	Pitch+Filter: Cabasas, Shaker (MW), Tambourine (F#3, F#4)
		MIDI25	(FX1+2) Rooms W/D
		MIDI26	Rooms' Times
		MIDI27	"(aux) Plate Lvl, (FX4) Mix Lvl, (FX3) Hall W/D"
		MIDI28	Plate Time
		MIDI29	toggle: Room + Hall

id	name	ctrl	function
154	Steel Drumz	MWheel	Vibrato
		Data	Low Pass Freq
		MIDI 22	Resonance
		MIDI25	FX1 Wet/Dry
		MIDI26	FX2 Wet/Dry
		MIDI27	FX2 Flanger Feedback Leve
		MIDI28	FX2 LFO Tempo
		MIDI29	toggle: to Flanger
155	Trumpet Flourish	Wheel	Shaper
		Data	Low Pass Freq
		MIDI25	"FX1, Aux Reverb Time"
		MIDI26	Aux HF Damping
156	Mr. Parker	MWheel	Vibrato
		Data	LoPass Freq
		MIDI22	LoPass Res
		MIDI23	LoPass Freq
		MIDI24	EnvCtl: Att+Rel
		MIDI25	(aux) Plate W/D
		MIDI26	Plate Time
		MIDI27	Chorus Mix
		MIDI28	Delay Mix (sys)
		MIDI29	"Plate LFO adj, Delay FB"
		MPress	Pitch Bend down
157	Almost Muted (MW)	MWheel	"Vibrato, mute adj"
		Data	LoPass Freq
		MIDI22	HiPass Freq
		MIDI23	EnvCtl: Imp
		MIDI24	EnvCtl: Rel
		MIDI25	(fx1) Room W/D+Time
		MIDI26	Room HFDamp
		MIDI27	InEQ: Bass
		MIDI28	InEQ: Treb
		MIDI29	EQMorph I/O
		MPress	Vibrato
158	Solo Trombone	MWheel	"Vibrato, Low Pass Freq"
		Data	Low Pass Freq
		MIDI23	Env Ctl: Release
		MIDI24	Treble Shelf EQ
		MIDI25	FX1 Wet/Dry, (aux) Hall Level
		MIDI26	FX1 HF Damping
		Mpress	"Vibrato, volume"
159	Trumpets	MWheel	Vibrato
		Data	Low Pass Freq
		MIDI22	InEQ:Bass
		MIDI23	EnvCtl: Imp
		MIDI24	EnvCtl: Rel
		MIDI25	(aux) Chamber Lvl
		MIDI26	Chamber Time+HFDamp
		MIDI27	InEQ: Treb
		MIDI28	Chorus FB
		MIDI29	Chorus I/O
		MPress	Swell

id	name	ctrl	function
160	Flute^WWind Sect	MWheel	Low Pass Freq - Flute
		Data	toggle: Flute^WWind Sect
		MIDI22	Fade in Chiff Layer - Flute
		MIDI25	(Aux) Hall Level (less)
		MIDI26	"FX1 Absorption, HF Damping, Wet/Dry"
		MIDI27	FX3 Wet/Dry, Feedback Level
		MIDI28	FX3 Tempo
		MIDI29	toggle 4tap
		MPress	"Vibrato, WWind Sect"
161	Oboe ^ Eng Hrn	MWheel	Low Pass Freq
		Data	toggle: Oboe ^ Eng Hrn
		MIDI25	"FX1, (aux) Reverb Time"
		MIDI26	(aux) HF Damping
		MPress	Vibrato
162	Clarinet	MWheel	Vibrato
		Data	Low Pass Freq
		MIDI25	FX1 Wet/Dry
		MIDI26	"FX1, Aux Reverb Time"
		MPress	Vibrato
163	Bassoon	MWheel	Vibrato
		Data	Low Pass Freq
		MIDI25	FX1 Wet/Dry
		MIDI26	"FX1, Aux Reverb Time"
		MPress	Vibrato
164	Accordion	MWheel	Vibrato
		Data	Enable Layer 3&4
		MIDI22	fade out layer 2
		MIDI23	InEQ: Bass
		MIDI24	InEQ: Treble
		MIDI25	FX1 Wet/Dry
		MIDI26	"FX1 Reverb Time,FX2 Feedback Level"
		MIDI27	"FX2 Ctr Freq, LFO Dpth"
		MIDI28	(Aux) HF Damping
		MIDI29	toggle: Room^Phaser
		MPress	Vibrato
165	Matrix 12	MWheel	Vibrato
		Data	Low Pass Freq, Env Ctl: Att, Dec
		MIDI22	Octave Shift Saw+
		MIDI23	Env Ctl: Release
		MIDI24	Impact
		MIDI25	(Aux) Plate Level
		MIDI26	Delay Feedback
		MIDI27	Delay HF Damping (FX3)
		MIDI28	(aux) HF Damping
		MIDI29	Switch in Delay
		MPress	Vibrato

id	name	ctrl	function
166	OB Brass	MWheel	Vibrato
		Data	LoPass Freq
		MIDI22	LoPass Freq
		MIDI23	"EnvCtl: Attack, Release"
		MIDI24	EnvCtl: Impact
		MIDI25	(aux) Plate Lvl+Time
		MIDI26	Enhc Lo Drive+Mix, Chorus W/D
		MIDI27	"Enhc Mid Drive, Mid Mix"
		MIDI28	"Enhc Hi Drive, Hi Mix, InEQ: Treb"
		MIDI29	toggle: Enhancer + Chorus
		MPress	Vibrato
167	PWM Comper	MWheel	Vibrato
		Data	Env Ctl: Attack
		MIDI22	Env Ctl: Release
		MIDI25	FX1b Reverb Wet/Dry
		MIDI26	(Aux) Hall Level
		MIDI27	FX1a Chorus Wet/Dry
		MIDI28	FX1a Chorus Feedback Level
168	Soft Matrix 12	MWheel	Vibrato
		Data	LoPass Freq
		MIDI22	Pitch Shift - Fifths
		MIDI23	EnvCtl: Decay
		MIDI24	EnvCtl: Release
		MIDI25	(aux) Hall Level
		MIDI26	"(aux) Decay Time, Room Size, HF Damp"
		MIDI27	FX3 Delay Wet/Dry
		MIDI28	FX3 Delay Feedback
		MIDI29	Switch in Delay
		MPress	Vibrato
169	Synth Brass	MWheel	Vibrato
		Data	Low Pass Freq
		MIDI23	Env Ctl: Attack
		MIDI24	Env Ctl: Release
		MIDI25	(Aux) Hall Level
		MIDI26	Chorus Mix
		MIDI27	Delay Mix
		MIDI28	Delay Time
		MIDI29	"toggle Chorus, Env Follower"
		MPress	Low Pass Freq Lyr 1
170	Moogy Bass Too	MWheel	Vibrato
		Data	"Low Pass Freq, Impact"
		MIDI22	Resonance
		MIDI24	Env Ctl: Release
		MIDI25	"(aux) Hall Level, Aux Wet/Dry"
		MIDI26	Chorus Mix
		MIDI27	Chorus Feedback
		MIDI28	FX2 Rev HF Damping
		MIDI29	toggle: Chorus^ Enhancer
		MPress	Vibrato

id	name	ctrl	function
171	Chirp Bass	MWheel	Vibrato
		Data	HiPass Freq
		MIDI22	LoPass Res
		MIDI23	Env Ctl: Impact
		MIDI24	EnvCtl: Att+Rel
		MIDI25	(aux) Room Lvl
		MIDI26	"Flange W/D, Chorus W/D"
		MIDI27	"Flange FB, Chorus FB"
		MIDI28	"Flange LFO Period, Chorus Tap Delay"
		MIDI29	toggle: Flange + Chorus
		PW	Octave Shift
172	Pulsepluck	MWheel	Vibrato
		Data	Pulse Width
		MIDI22	Env Ctl: Attack
		MIDI23	Env Ctl: Impact
		MIDI24	Disable Layer 3
		MIDI25	(Aux) Wet/Dry
		MIDI26	(Aux) Reverb Time
		MIDI27	(Aux) HF Damping
		MIDI28	(Aux) Treble Shelf Freq
173	Resoshape	MWheel	Pitch Modulation
		Data	Shaper Layer 1
		MIDI22	Shaper Layer 2
		MIDI23	Bandpass Width
		MIDI24	Global LFO Rate
		MIDI25	FX1 Wet/Dry, (aux) Wet/Dry
		MIDI26	FX1 Course Xcursion
		MIDI27	FX1 Flange Feedback Level
		MIDI28	FX1 HF Damping
174	Solar Lead	MWheel	Vibrato
		Data	Low Pass Freq
		MIDI22	Resonance
		MIDI25	(Aux) Wet/Dry
		MIDI26	(Aux) Reverb Time
		MIDI27	(Aux) HF Damping
		MPress	Vibrato
175	Flutey Leads	MWheel	Vibrato
		Data	Pitch - Octave Shift
		MIDI22	InEQ: Bass
		MIDI23	InEQ: Treb
		MIDI24	EnvCtl: Rel
		MIDI25	(aux) Hall Lvl, (FX3) Hall Mix
		MIDI26	(aux) Hall HFDamp+PreDly
		MIDI27	Chorus Mix
		MIDI28	Chorus Depth
		MIDI29	toggle: CDR + Room
		MPress	Vibrato

id	name	ctrl	function
176	TM Lead	MWheel	Octave Harmonic Feedback
		Data	Low Pass Freq
		MIDI22	Resonance
		MIDI24	! Gain
		MIDI25	(Aux) Hall Level
		MIDI26	(Aux) Wet/Dry
		MIDI27	FX3 Delay Time
		MPress	Vibrato
177	Modular Lead	MWheel	Vibrato
		Data	Octave Pitch Shift Layer 1
		MIDI22	Low Pass Freq, fade Layer 1
		MIDI23	EnvCtl: Att
		MIDI24	EnvCtl: Rel
		MIDI25	(aux) Level
		MIDI27	Chorus Feedback
		MPress	Vibrato
178	BrassyFluty Lead	MWheel	Vibrato
		Data	Low Pass Freq
		MIDI22	Resonance
		MIDI24	Env Ctl: Release
		MIDI25	(Aux) Hall Level
		MIDI26	(Aux) Decay Time, HF Damping
		MPress	Swell
179	Retrosiren	MWheel	Vibrato
		Data	Low Pass Freq
		MIDI22	Env Ctl: Attack
		MIDI23	Env Ctl: Impact
		MIDI24	Env Ctl: Release
		MIDI25	FX1 Wet/Dry
		MIDI26	(Aux) Hall Level
		MIDI27	(Aux) Reverb Time
		MPress	Vibrato
180	Odysseus	MWheel	Vibrato
		Data	Bandpass Freq
		MIDI22	Low Pass Freq
		MIDI23	Sine + Freq
		MIDI24	Low Pass Freq
		MIDI25	FX1 (aux) Wet/Dry
		MIDI26	FX1 Loop Level
		MIDI27	(Aux) Spacing
		MIDI28	(Aux) HF Damping

id	name	ctrl	function
181	Synth Caliopies	MWheel	Vibrato
		Data	Lyr disable(up); LoPass Res
		MIDI22	BandPass Freq; LoPass Freq
		MIDI23	"LoPass Freq+Res, Hipass Freq, Treb boost"
		MIDI24	EnvCtl: Att+Rel
		MIDI25	"(aux) Hall Lvl, Room W/D"
		MIDI26	Phaser FB
		MIDI27	Phaser LFO Rate
		MIDI29	"toggle: Room+Phaser(Lyr 1+3), Phaser+CDR(Lyr 2+4)"
		MPress	Vibrato
182	Harmonica	MWheel	Vibrato
		Data	InEQ: Bass
		MIDI22	InEQ: Treb
		MIDI23	Env Ctl: Attack
		MIDI24	Env Ctl: Release
		MIDI25	(Fx1) Room W/D, (aux) Hall Lvl
		MIDI26	"Room Time, Phase FB"
		MIDI27	"(aux) Hall adj, Phase Center Freq+LFODepth"
		MIDI28	(aux) Hall HFDamp
		MIDI29	toggle: Room + Phaser
		MPress	Vibrato
183	Space Log	MWheel	Vibrato
		Data	Pitch Shift
		MIDI25	(Aux) Wet/Dry
		MIDI26	(Aux) Rev Time
		Mpress	Vibrato
184	Brite Bells	MWheel	Vibrato
		Data	Gain
		MIDI22	Sine+ Pitch
		MIDI23	Env Ctl: Decay
		MIDI25	FX1 Wet/Dry, (Aux) Room Level
		MIDI29	toggle Hall^Chorus
		Mpress	Vibrato
185	Glasswaves	MWheel	Vibrato
		Data	Non Lin Gain, Low Pass Freq
		MIDI22	InEQ: Bass
		MIDI25	FX1 Wet/Dry, (Aux) Hall Level
		MIDI29	toggle Hall^Chorus
		Mpress	Vibrato

id	name	ctrl	function
186	Meditator	MWheel	Vibrato
		Data	Low Pass Freq + Res
		MIDI22	"HFstim adj, Lyr Pitch adj"
		MIDI23	Bandpass Freq
		MIDI25	(aux) Hall Lvl + Decay Time ^ Miniverb Lvl
		MIDI26	Flang W/D ^ Minivrb Time + PreDly
		MIDI27	Flange FB
		MIDI28	Delay FB
		MIDI29	toggle: Flange + CDR
		MPress	Vibrato
187	Chariots	MWheel	Vibrato
		Data	Octave Pitch Shift
		MIDI23	Env Ctl: Attack
		MIDI24	Env Ctl: Release
		MIDI25	(Aux) Hall Level
		MIDI26	(Aux) Reverb Time
		MIDI29	(Aux) Hall Level
188	Heaven Stack	MWheel	Vibrato
		Data	Hi Freq Stimulator Drive (less)
		MIDI22	Fade Out Layer 1
		MIDI24	Env Ctl: Release
		MIDI25	(Aux) Room Level
		MIDI26	"(Aux) Reverb Time, FX2 Chorus Wet/Dry"
		MIDI27	FX2 Chorus LFO Rate
		MIDI28	FX2 Chorus Feedback Level
		MIDI29	Switch in FX2 Chorus
		MPress	Vibrato
189	Vortex Rev	MWheel	Vibrato
		Data	HiPass Freqs+Width
		MIDI22	Lyr Xfade
		MIDI23	InEQ: Bass
		MIDI24	"InEQ: Treb, EnvCtl: Att+Rel"
		MIDI25	(aux) Hall Time
		MIDI26	Hall PreDly
		MIDI27	Chorus Depth+Delay
		MIDI28	Delay Mix+FB
		MIDI29	Hall HFDamp
		MPress	Vibrato

id	name	ctrl	function
190	Luscious	MWheel	Vibrato
		Data	"Panner LFO Rate, Lyr Delay, Lyr Xfade"
		MIDI22	EnvCtl: Imp+Att
		MIDI23	"InEQ: Bass, EnvCtl: Dec"
		MIDI24	"InEQ: Treb, EnvCtl: Rel"
		MIDI25	(aux) Hall Time+PreDly+HFDamp
		MIDI26	Flange Mix
		MIDI27	Flange Rate
		MIDI28	Flange FB
		MIDI29	Hall PreDly adj
		MPress	Vibrato
		Tempo	LoPass Freq
191	Sphaerique	MWheel	Vibrato
		Data	High Pass Freq
		MIDI22	All Pass Freq
		MIDI23	Octave Shift Layer 2
		MIDI24	Env Ctl: Attack
		MIDI25	(Aux) Wet/Dry
		MIDI26	(Aux) Reverb Time
		MIDI27	(Aux) HF Damping
		MIDI28	InA Bass EQ
192	Padifier	MWheel	Vibrato
		Data	Low Pass Freq
		MIDI22	Env Ctl: Attack
		MIDI23	Env Ctl: Release
		MIDI24	FX3 Delay Mix
		MIDI25	"(Aux) Hall Level, FX3 Reverb Mix"
		MIDI26	"(Aux), FX3 Reverb Time"
		MIDI27	FX3 Chorus Mix
		MIDI28	FX3 Chorus Depth
		MIDI29	toggle: Chorus^Room
		Mpress	Vibrato
193	Tang Vox Pad	MWheel	Vibrato
		Data	Pitch Layer 2
		MIDI22	Low Pass Freq
		MIDI23	"Env Ctl: Att, Rel"
		MIDI24	Env Ct: Decay
		MIDI25	(Aux) Wet/Dry
		MIDI26	(Aux) Reverb Time
		MIDI27	(Aux) HF Damping
		MIDI28	(Aux) Treble Shelf Freq
		Mpress	Vibrato
194	Interference	MWheel	Wrap
		Data	Shaper
		MIDI25	(Aux) Room Level
		MIDI26	(Aux) HF Damping
		MIDI27	FX1 4 Tap Mix

id	name	ctrl	function
195	One Shot	MWheel	Vibrato
		Data	LPGate Freq
		MIDI22	Saw+ Pitch Layer 1
		MIDI23	Saw+ Pitch Layer 2
		MIDI24	Env Ctl: Release
		MIDI25	"FX3, Aux Wet/Dry (dryer)"
		MIDI26	(Aux) Hall Level (less)
		MIDI27	FX3 Tap Delays, Loop Length
		MIDI28	FX3 HF Damping
196	Integrated Circuit	MWheel	Saw+ Pitch
		Data	Hi Pass Freq
		MIDI22	Saw+ Pitch
		MIDI23	Low Pass Freq
		MIDI24	Env Ctl: Attack
		MIDI25	(Aux) Hall Level
		MIDI26	(Aux) Rev Time
		MIDI27	Chorus Feedback
		MIDI28	Chorus Depth
197	Doomsday	MWheel	"Pitch, Shaper Layer 2"
		MIDI25	(Aux) Hall Level
		MIDI26	(Aux) Decay Time
198	Click		
199	Default Program		
730	L'il Nipper Kit	MWheel	SFX Pitch
		Data	"Pitch: Kick, Toms"
		MIDI22	"Pitch: Snares, AuxPerc"
		MIDI23	"Filter: Hihats, Cymbals"
		MIDI24	"EnvCtl: Kicks, Snares"
		MIDI25	(aux) Plate Time
		MIDI26	(FX3) Laserverb Spacing
		MIDI27	(FX2) Pitcher Pitch, Pitcher W/D
		MIDI28	Pitcher control
		MIDI29	Laserverb Delay+Contour+FB
		MPress	AuxPerc Pitch

id	name	ctrl	function
731	Industry Set II	MWheel	Filter Resonance (A#4-C5)
		Data	"AltControl on some layers," Pitch on Kick-like elements and some Toms
		MIDI22	Various Pitch controls on many elements
		MIDI23	Filters or Modulation Pitch on many elements
		MIDI24	EnvCtl: assorted kinds of control on many elements
		MIDI25	(FX2) Flange W/D, InEQ: Bass
		MIDI26	"(aux) Hall Lvl, (FX2) Mix Lvl"
		MIDI27	(FX3) DistEQ W/D+Gain Adjust
		MIDI28	Distortion Warmth
		MIDI29	toggle: RoomType: Hall + Delay
		MPress	Filter Resonance (A#4-C5)
732	Technoo Kit	MWheel	Alternate Kick (B2-C3)
		Data	Pitch: nearly all elements
		MIDI22	"Filter: Kicks, AuxPerc"
		MIDI23	"Filter: Snares, Toms, Ride, Crashes, HiHats (A#1-B1)"
		MIDI24	"EnvCtl: Kicks, Snares (not G#1-A1), Ride, Choke Cym"
		MIDI25	(FX1) Gated Reverb W/D
		MIDI26	Gated Reverb Time
		MIDI27	(FX1+2) (aux) LaserVerb Lvl
		MIDI28	(FX4) LaserVerb Lvl
		MIDI29	toggle: GateRvb HFDamp+Gate Threshold

id	name	ctrl	function
733	Geo-Kit MW+22	MWheel	Multiple Layer toggle
		Data	"Pitch: Kicks, Snares, Toms, ""Shaker"""
		MIDI22	Crossfade to tertiary Kicks; Pitch: Elec. Snare only
		MIDI23	Filter: Kicks, Snares, HiHats, Crashes, Ride, Shaker Amp LFO: SFX (A6-B6)
		MIDI24	EnvCtl: most Kicks, Snares, Toms, Shaker, Elec HiHat LFO Rate: SFX (A6-B6)
		MIDI25	(FX3) Mix Lvl, (aux) GateRvb Lvl
		MIDI26	"(FX4) Mix Lvl, GateRvb Lvl"
		MIDI27	(FX3) Compressor Smooth-Time+MakeUpGain
		MIDI28	(FX2) EnvFlt Freq Sweep+Threshold, (FX1) Delay Lvl
		MIDI29	toggle: Compressor + ChorDelay
734	Slam 'n Drums I	MIDI25	"(FX1) Rev Time, Wet/Dry, HF Damping"
		MIDI26	"(FX1) Aux Level, InA EQ Treb"
		MIDI27	"(FX2, FX4) Aux Level"
		MIDI28	(FX2) Wet/Dry
735	Bottom-Feed^Pulse	MWheel	Vibrato
		Data	toggle: BottomFeed ^ Pulse
		MIDI22	"LoPass Gate+Freq, EnvCtl: Imp+Att"
		MIDI23	EnvCtl: Att+Dec, Saw Pitch adj
		MIDI24	EnvCtl: Rel
		MIDI25	(aux) Room Lvl, (FX3)Hall Mix
		MIDI26	Chorus Mix
		MIDI27	Chorus Rate
		MIDI28	Chorus FB
		MIDI29	toggle: Chorus(4Tap) + Flange
		MPress	Vibrato

id	name	ctrl	function
736	Lowdown Bass	MWheel	"Vibrato, HiPass Freq (Chirp)"
		Data	LoPass Gate
		MIDI22	EnvCtl: Imp
		MIDI23	EnvCtl: Att
		MIDI24	"Lyr Enable, EnvCtl: Dec+Rel"
		MIDI25	(aux) Dist Lvl
		MIDI26	"Dist Drive, Mid EQ cut, Flange W/D"
		MIDI27	"InEQ: Bass, Flange FB"
		MIDI28	Cab HiPass
		MIDI29	toggle: EQ + Flange
		MPress	Vibrato
737	SustBass^Mix-Bass	MWheel	"Vibrato, LoPass Freq"
		Data	toggle: SustBass + MixBass
		MIDI22	"BandPass Freq+Width, EnvCtl: Imp, LoPass adj"
		MIDI23	EnvCtl: Rel
		MIDI24	In EQ: Bass
		MIDI25	Comp Att Time
		MIDI26	Comp Rel Time
		MIDI27	Comp Ratio
		MIDI28	Comp Threshhold
		MIDI29	"toggle: Comp I/O, (aux) Room I/O"
		MPress	Vibrato
738	SkoolBass^SImple	MWheel	Vibrato
		Data	toggle: SkoolBass ^ SImple
		MIDI22	"Pulse Width+Freq, Pitch adj, EnvCtl: Imp+Att"
		MIDI23	"Dist Drive adj, EnvCtl: Dec"
		MIDI24	EnvCtl: Rel
		MIDI25	(aux) Room Lvl
		MIDI26	Phase Notch/ Dry, Dist W/D"
		MIDI27	"Phase Center Freq, Dist Drive adj
		MIDI28	Phase LFO Depth, Dist Bass adj
		MIDI29	"toggle: Phase + Dist, Room Time adj"
		MPress	Vibrato
		AttVel	LoPass gate
		GKey-Num	L/R Phase
739	Default Triple		

id	name	ctrl	function
770	Mellostr^ShineOn	MWheel	Vibrato
		Data	toggle: Mellostr ^ ShineOn
		MIDI22	LoPass+BandPass Freq+Width
		MIDI23	"EnvCtl: Att, LoPass Res"
		MIDI24	EnvCtl: Rel
		MIDI25	(aux) Room Lvl, Hall absorption
		MIDI26	"Filt Res, Chorus FB"
		MIDI27	"Filt Freq, Chorus Rate"
		MIDI28	"Filt Vibrato, Delay Mix"
		MIDI29	toggle: Res Filt + ChorDelay (Mellostr only)
		MPress	"Vibrato, HiPass Freq"
771	Arystal^InTheAir	MWheel	Vibrato
		Data	toggle: Arystal ^ InTheAir
		MIDI22	Lyr Pitch adj ^ LoPass adj
		MIDI23	"LoPass Freq ^ Saw Pitch, Lyr detune"
		MIDI24	"Lyr Pitch adj, Lyr Xfade"
		MIDI25	(aux) Hall Lvl+Time
		MIDI26	Chorus W/D
		MIDI27	Chorus FB
		MIDI28	Chorus Rate
		MIDI29	"ChorusDelay I/O (sys), InEQ: Treb boost"
		MPress	Vibrato
		ControlD	amp cut
772	Padify	MWheel	Vibrato
		Data	none
		MIDI22	LoPass Freq
		MIDI23	InEQ: Bass
		MIDI24	InEQ: Treb
		MIDI25	(aux) Hall Lvl
		MIDI26	Chorus Delay Time
		MIDI27	Chorus Delay Depth
		MIDI28	Delay Mix (sys)
		MIDI29	Hall Time+PreDly adj
		MPress	Vibrato
773	Oronico-Kno^Shift	MWheel	Vibrato
		Data	toggle: OronicoKno + Shift
		MIDI22	"HFstim adj, Pan adj"
		MIDI23	"InEQ: Bass, Lyr Xfade"
		MIDI24	InEQ: Treb, Pan adj, EnvCtl: Rel
		MIDI25	(aux) Hall Lvl
		MIDI26	Hall Decay Time+PreDly
		MIDI27	Delay Mix (sys)
		MIDI28	Chorus Delay Time
		MIDI29	Chorus Depth adj
		MPress	Vibrato
		AttVel	AltCtl

id	name	ctrl	function
774	WispSingrs^Glass	MWheel	"Vibrato, LoPass Res"
		Data	toggle: WispSingrs + Glass
		MIDI22	LoPass Freq+Res, HiPass Freq
		MIDI23	"LoPass Freq, HiPass Res+Freq, Lyr Lvls"
		MIDI24	EnvCtl: Att+Rel
		MIDI25	(aux) Hall + (fx1) Hall W/D
		MIDI26	Hall Times+HFDamp
		MIDI27	Chorus W/D
		MIDI28	Delay W/D (sys)
		MIDI29	toggle: Hall + CDR
		MPress	Vibrato
775	Cymbal Singers	MWheel	Vibrato
		Data	Lyr 3 volume (ride cymbal)
		MIDI22	BandPass Wdth, HiPass Res
		MIDI23	Pan LFO adj
		MIDI24	InEQ: Treb cut
		MIDI25	(aux) LaserVrb Lvl
		MIDI26	LaserVrb contour
		MIDI27	Pitch LFO Rate
		MIDI28	Flange FB
		MIDI29	toggle: Pitcher + Pitcher-Flange
		MPress	"Vibrato, BandPass Freq"
		KeyNum	EnvCtl: Att+Dec
		GKeyNum	Pitcher Pitch+Weights
		PWheel	BandPass Freq
776	Mad Three-O	MWheel	Vibrato
		Data	Low Pass Freq
		MIDI22	"Resonance, 4Pole LP Separation, Distortion"
		MIDI23	Low Pass Freq
		MIDI24	Env Ctl: Decay
		MIDI25	Xfade
		MIDI27	(Aux) Level
		MIDI28	FX3 Delay Mix
		MIDI29	"FX3 Flange Mix, Rvb Mix"
		MPress	Vibrato
777	AlaskaGlide (MW)	MWheel	toggle: Alaska + Glide
		Data	EnvCtl: Imp
		MIDI22	EnvCtl: Att
		MIDI23	EnvCtl: Dec
		MIDI24	EnvCtl: Rel
		MIDI25	(aux) Hall Lvls
		MIDI26	FDR W/D
		MIDI27	InEQ: Bass
		MIDI28	InEQ: Treb
		MIDI29	FlgDelayrvb I/O
		MPress	Vibrato, Lyr detune, LoPass Freq, Flange XCurs + FB

id	name	ctrl	function
778	Detooner^BigPMW	MWheel	Vibrato
		Data	toggle: Detooner ^ BigPMW
		MIDI22	"P5th jump ^ LoPass Freq, EnvCtl: Att+Rel"
		MIDI23	"Notch Freq ^ Dist drv, EnvCtl: Imp"
		MIDI24	"PWM Width, Dist drv"
		MIDI25	(aux) Laser Lvl
		MIDI26	(aux) Laser contour+FB
		MIDI27	"Flange FB+L/R phase, Phaser Ctr Freq"
		MIDI28	Flnge W/D cut, Phser W/D
		MIDI29	toggle: Flange + Phaser
		MPress	Vibrato
779	Razor Saw	MWheel	Vibrato
		Data	"LoPass LFO Rate, Shaper amt, EnvCtl: Att+Dec "
		MIDI22	EnvCtl: Rel
		MIDI23	InEQ: Bass
		MIDI24	InEQ: Treb
		MIDI25	(aux) Hall Lvl+PreDly+Time+HFDmp
		MIDI26	Delay FB+Mix
		MIDI27	Chorus Depth+Rate
		MIDI28	Chorus FB
		MIDI29	toggle: Delay I/O
		MPress	Vibrato
780	DynOrch^WTel-lOrc	MWheel	string and brass balance
		Data	toggle: DynOrch ^ WTel-lOrch
		MIDI22	"ParaMid and LoPass Freq, Shaper Drive"
		MIDI23	"Shaper amt, LoPass Freq"
		MIDI25	(aux) Hall Lvl cut
		MIDI26	Chapel + Hall Times
		MIDI29	toggle: Chapel/Hall + Hall/Room
		MPress	"(DynOrch) Volume swell, shaper amt"
		SostPd	"Lyr enable, Room Time"
781	OrcBrs^French-Bone	MWheel	Vibrato
		Data	toggle: OrcBrs ^ French-Bone
		MIDI22	InEQ: Bass
		MIDI23	"InEQ: Treb, LoPass Freq"
		MIDI24	EnvCtl: Imp + Rel
		MIDI25	(aux) Hall Mix
		MIDI26	"Hall Time, Mix adj, Pan Rate(Fx3)"
		MIDI27	Chorus Mix
		MIDI28	Delay Mix
		MIDI29	"Hall PreDly, Pan I/O"
		MPress	"Swell, Vibrato Depth"

id	name	ctrl	function
782	Synth Bell 1^2	MWheel	Vibrto, Pan adj, LoPass Res
		Data	"toggle: Synth Bells 1 + 2, AltCtl adj"
		MIDI22	"LoPass Res, BandPass Width, EnvCtl: Rel"
		MIDI23	Pan adj
		MIDI24	Pitch LFO adj
		MIDI25	aux Hall Lvl, (fx1) Chapel W/D
		MIDI26	"Hall HFDamp+Time, Chapel Time"
		MIDI27	"Chapel preDelay, SRS center Freq adj"
		MIDI28	"Chapel EarlyRef+Late Lvls, SRS EQ adj"
		MIDI29	toggle: Chapel + SRS
		BKeyNu	EnvCtl: Att+Dec+Rel
		MPress	Vibrato
783	Crystaline^RX7	MWheel	Shaper ctl, Vibrto ^ Pan adj
		Data	toggle: Crystaline ^ RX7
		MIDI22	"ShapeMod osc Pitch, Shape amt ^ LoPass Freq, Pitch adj"
		MIDI23	"LoPass Res, EnvCtl: Att"
		MIDI24	EnvCtl: Rel
		MIDI25	(aux) Room Lvl
		MIDI26	Room Decay Time+HFDamp
		MIDI27	"Chorus W/D, Echo W/D"
		MIDI28	"Chorus FB, Echo FB"
		MIDI29	toggle: Chorus + Echo
		MIDI70	Lyr AltCtl
784	Enter-prize^MTree	MWheel	"Vibrato, Tremolo"
		Data	toggle: Enterprize ^ MTree
		MIDI22	"Pitch jump, HFStim ^ EnvCtl: Att+Dec"
		MIDI23	HiPass Freq, Dist Drive
		MIDI24	DSP XFade, Pitch adj, EnvCtl: Rel
		MIDI25	(aux) Acid Room Lvl
		MIDI26	"Acid dry Lvl cut, Dist Drive adj ^ LasrVrb W/D"
		MIDI27	Dist warmth ^ LasrVrb Delay Time
		MIDI28	Dist Freq adj ^ LasrVrb cntr
		MIDI29	Distortion I/O
		MPress	"Vibrato, Tremolo"
		AttVel	EnvCtl: Rel

id	name	ctrl	function
785	RaveStrg^Solina	MWheel	"Vibrato, Lyr detune(Sol)"
		Data	toggle: RaveStrg ^ Solina
		MIDI22	EnvCtl: Att+Rel
		MIDI23	"EnvCtl: Dec ^ Ptch mod, Notch LFO Rate"
		MIDI24	"Flange Mix, Spin W/D"
		MIDI25	(aux) Room Lvl
		MIDI26	Spin Pitcher Mix ^ MovDelay W/D
		MIDI27	Spin Pitcher Weights
		MIDI28	Spin Pitcher ptch (rapid echo Rate)
		MIDI29	"toggle: Spin I/O, Room HFDamp+Time"
		MPress	Vibrato
786	Mellotron (MW)	MWheel	"3-way toggle: Ens Strg, Solo Strg(dwn 8ve), Flute"
		Data	Octave jump
		MIDI22	LoPass Freq; ParaTreb Freq ; HiFreqStim Freq
		MIDI23	"Dist Drv, Xfade dpth; ParaTreb dpth; HFStim Drv"
		MIDI25	(aux) Hall Lvl
		MIDI26	Hall Time
		MIDI27	Room Lvl
		MIDI28	Room Time
		MPress	Vibrato
787	Funk O Matic	MWheel	"Vibrato, Vibrato Rate"
		Data	LoPass Freq
		MIDI22	Shaper amt, LoPass Freq cut
		MIDI23	Dist Drive
		MIDI24	(Lyr 1+3) 8ve drop
		MIDI25	Env Filt thReshold
		MIDI26	Env Filt min Freq
		MIDI27	(aux) Sweep Filt W/D
		MIDI28	(aux) Sweep Filt min Freq
		MIDI29	toggle: Env Filt - BandPass and HiPass
		MPress	"Vibrato, Lyr detune"
788	Buzz Kill	MWheel	Pitch modulation
		Data	LoPass Freq
		MIDI22	LoPass Res cut, Dist Drv cut
		MIDI23	"EnvCtl: Att, Flange LFO"
		MIDI24	EnvCtl: Rel, Flnge L/R phse
		MIDI25	Flange Delay Tempo
		MIDI26	Flange FB
		MIDI27	(aux) CDR Lvl cut
		MIDI28	(aux) Delay Mix
		MIDI29	(aux) Hall W/D+Time adj
		MPress	LoPass Freq
789	Grand+Elec 1	MWheel	Lyr Balance
		MIDI25	(aux) Hall Lvl, Room W/D

id	name	ctrl	function
790	Fluid Grand	Data	Wet/Dry Mix
		MIDI25	(Aux) FDR Level
		MIDI26	(Aux) Wet/Dry, Delay Mix
		MIDI27	(Aux) Flanger Mix
		MIDI28	(Aux) Flanger tempo
791	Haunted Piano	MWheel	Harp Balance
		MIDI25	(Aux) FLRev Lvl, Rev Time
		MIDI26	Flange Tempo
		MIDI27	(FX3) Wet/Dry
792	DrkPno^ArakisPno	MWheel	Vibrato (ArakisPno)
		Data	toggle: DrkPno ^ ArakisPno
		MIDI22	detune
		MIDI25	(aux) Chorus/Plate Lvl + W/D
		MIDI26	Plate Time
		MIDI27	Chorus FB
		MIDI28	Chorus Mix
		MPress	Vibrato (ArakisPno)
793	Funky Piano	MWheel	ParaEQ LFO Depth
		MIDI23	InEQ: Bass
		MIDI24	InEQ: Treb
		MIDI25	(aux) Room Lvl+Time
		MIDI26	Flange W/D
		MIDI27	Flange FB
		MIDI28	Flange XCouple
		MIDI29	Flange LFO Tempo
		MPress	ParaEQ Depth
794	Water Piano	MWheel	Vibrato
		MIDI25	(Aux) FDR Level
		MIDI26	(Aux) Wet/Dry, Delay Mix
		MIDI27	(Aux) Flanger Mix
		MIDI28	(Aux) Flanger tempo
		Mpress	Vibrato
795	Piano Chase	MWheel	Vibrato (Strings)
		MIDI23	InEQ: Bass
		MIDI24	InEQ: Treb
		MIDI25	(aux) Plate Lvl+Time
		MIDI26	Flange W/D
		MIDI27	Flange FB, aux Decay Time
		MIDI28	Flange LFO Tempo
		MIDI29	Flange XCouple
		MPress	Vibrato (Strings)
		Sost Ped	Disables Strings

id	name	ctrl	function
796	Noise Toys	MWheel	"Pitch LFO, Shaper amt"
		Data	"Pitch (Sine+) adj, BandPass Freq, Dist amt"
		MIDI22	"Pitch adj, Shaper LFO, HiPass Freq"
		MIDI23	LoPass + HiPass Freq, EnvCtl: Att
		MIDI24	EnvCtl: Rel
		MIDI25	(aux) Hall Lvl
		MIDI26	LrsDelay W/D, Pitch W/D
		MIDI27	"LsrDelay contour, Pitch pair weights"
		MIDI28	Pitch odd weights
		MIDI29	toggle: Laser + Pitch
		MPress	"Vibrato, Pitch LFO adj"
		PWheel	Shaper adj
		Tempo	LsrDelay Delay coarse + spacing
797	Environments	MWheel	"hi bird" LFO Rate, Pan adj
		Data	"lo bird" LFO Rate"
		MIDI22	"ParaEQ Freq, shaper amt"
		MIDI23	"Pitch adj, LoPass Freq, BandPass Freq+Width"
		MIDI24	"HiPass Freq, Pitch (sine)"
		MIDI25	Chorus Lvl, rvb Lvl, CDR W/D
		MIDI26	(fx2) Chorus W/D
		MIDI27	Phaser W/D
		MIDI28	CDR W/D
		MIDI29	Chorus Rate
		MPress	InEQ: Bass
		MIDI70	AltCtl
798	Lunar Wind	MWheel	LoPass Freq+Res
		Data	Pitch adj
		MIDI22	"LoPass Res, Pan adj"
		MIDI23	Panner sweep
		MIDI25	(aux) Room Lvl
		MIDI26	Pitcher W/D
		MIDI27	Flange Mix (sys)
		MIDI28	Pitcher Pitch
		MIDI29	toggle: Pitcher I/O
		MPress	"LoPass Freq, Pan LFO"
		ChanS	EnvCtl: Rel
		Breath	LoPass adj

id	name	ctrl	function
799	Gremlin Groupies	MWheel	Lyr Pitch, LoPass Freq+Res, Wrap adj
		Data	"Lyr Pitch, LoPass LFO adj"
		MIDI22	"Lyr Pitch, Pitch (Sine) adj"
		MIDI23	Lyr Pitch adj
		MIDI24	"Lyr Pitch, Wrap adj"
		MIDI25	(aux) Hall Lvl
		MIDI26	Pitcher W/D, LsrDelay Time+W/D
		MIDI27	Ptcher wts pair, Lsr Spacing
		MIDI28	Ptcher wts odd, Lsr Contr
		MIDI29	toggle: Pitcher + LaserDly

Appendix C
Contemporary ROM Block Objects

This Appendix describes the Contemporary ROM objects provided with your K2661.

Programs

Ethnic / World Instruments	
800	Jungle Jam
801	Mbira Stack
802	Ritual Metals
803	Prepared Mbira
804	Balinesque
805	Ambient Bells
806	World Jam 1
807	World Jam 2
808	India Jam
809	Slo Wood Flute
810	Hybrid Pan Flute
811	Chiff Brass Lead
812	Bell Players
813	Prs Koto
814	Medicine Man
815	Mbira
816	Kotobira
817	Cartoon Perc
818	CowGogiBell
819	Perc Pan Lead
820	Trippy Organ
821	Koto Followers
822	Hybrid Horn
Keyboards	
823	Dyno EP Lead
824	ParaKoto
825	Super Clav
826	StrataClav
827	Touch Clav
828	Bad Klav
829	Rad Rotor
830	B-2001
831	Perc Organ
832	Drawbar Organ CS
Brass and Reeds	
833	Bebop Alto Sax
834	Soft Alto Sax
835	Soprano Sax
836	Low Soft Sax
837	Air Reeds CS
838	Jazz Muted Trp
839	Jazz Lab Band
840	Harmon Section
841	Sfz Cres Brass
842	Neo Stabs
843	Gtr Jazz Band
844	Full Rock Band
Drum Kits	
845	World Rave Kit
846	Punch Gate Kit
847	Shadow Kit
848	Fat Traps
849	Generator Kit
850	Shudder Kit
851	Crowd Stomper
852	Econo Kit
853	EDrum Kit 1
854	EDrum Kit 2
Loops	
855	Dog Chases Tail
856	Saw Loop Factory
Basses	
857	Two Live Bass
858	Dual/Tri Bass
859	Clav-o-Bass
860	Chirp Bass
861	DigiBass
862	Mono Synth Bass
863	Touch MiniBass
864	Ostinato Bass
865	House Bass
866	Dubb Bass
Guitars	
867	Straight Strat
868	Chorus Gtr
869	Strataguitar
870	Elect 12 String
871	Dyn Jazz Guitar
872	Pedal Steel
873	Strummer DistGtr
874	Rock Axe
875	Hammeron
876	Rock Axe mono
Synths	
877	Attack Stack
878	Skinny Lead
879	Q Sweep SynClav
880	Anna Mini
881	Ballad Stack
882	Big Stack
883	BrazKnuckles
884	Hybrid Breath
885	Hybrid Stack
886	Eye Saw
887	Mello Hyb Brass
888	Sizzl E Pno
889	My JayDee
890	Slo SynthOrch
891	SpaceStation
892	Glass Web
893	Circus Music
894	Mandala
895	Slow Strat
896	Fluid Koto
897	Koreana Pad
898	Tangerine
899	Planet 9

Setups

800	HyperGroov<-C4->
801	PianoPad w/Percs
802	Slo Held Arper
803	Don'tGetFooled
804	Touch Game
805	BeatBoy E1
806	ZawiClav Split
807	Dyn Piano Pad
808	Pulsar Stack
809	Mt Chicorora C2
810	Hold Low 3sec Rb
811	Mettlorfus Pad
812	Black Keys xtra
813	Jungle Jammer
814	Huge Rock Band
815	Rock Ballad
816	Jazz Setup
817	Two Touchers
818	Frontier prs
819	Eclectric Grand
820	Bad Trip FtSw/MW
821	WhirliToys
822	PluckSynths Perc
823	SusPed RhythmJam
824	Ballad Piano Pad
825	Big AnaLoveVibe
826	ShockBreaks PSw1
827	Four Pluckers
828	WaterPiano Pad
829	Padded Room
830	AtmosPolySphere
831	Breath Pad
832	Trippy Jam
833	MeditationGuits
834	Cool Down Funk
835	Tek`Groov C5->
836	Big Fat Split
837	The Pump C2
838	Ana Basses
839	Multi Followers
840	Plucksynths
841	10 Leagues Under
842	Gremlin Arps
843	Broken Toys
844	Two Synth
845	Machine Shop
846	Farawaway Place
847	BehindEnemyLines
848	Tunnel Visionprs
849	Seismic Trance
850	Medal

QA Banks

800	Bands
801	Grooves
802	World
803	Pop
804	More Keys
805	More Analog
806	Leads
807	Trio Parts
808	Techno
809	Texture

Keymaps

800	Hybrid Pan
801	Glass Rim Tone
802	Synth Vox
803	Orch Pad
804	Koreana
805	Heaven Bells
806	MIDI Stack
807	Synth Brass
808	DigiBass
809	AnaBass
810	Mini Saw
811	EBass Pick
812	EBass Slap
813	Clean Elec Gtr
814	Distorted Guitar
815	Dist Harmonics
816	Clav
817	Tone Wheel Organ
818	Muted Trumpet
819	Soft Alto Sax
820	Koto
821	Mbira
822	Tabla Ta
823	Tabla Tin
824	Tabla Dhin
825	Tabla/Bayan Dha
826	Bayan
827	Ghatam Bass Tone
828	Small Ghatam
829	Ghatam Shell
830	Ghatam Slap
831	Dumbek Open Tone
832	Dumbek Brt Tone
833	Dumbek Tek
834	Dumbek Snap
835	Dumbek Dry Dum
836	Djembe Tone
837	Djembe Cl Slap
838	Djembe Open Slap
839	Djembe Finger
840	Djembe w/ Stick
841	Muzhar
842	Talking Drum Lo
843	Talking Drum Hi
844	Luna Drum Dry
845	Luna Drum Hi
846	Log Drum Lo
847	Log Drum Hi
848	Shakers/Tamborim
849	Gankogui Bell Lo
850	Gankogui Bell Hi

851	Tibetan Cymbal
852	Tibetan Bowl
853	Indo Bowl Gong
854	Prev Ethnic Perc
855	Cartoon Perc
856	Prev EDrum Map
857	Toms Map
858	ProcKick/Snr Map
859	EDrum Kit 1
860	EDrum Kit 2
861	1 Lyr Proc Kit
862	Industry Perc
863	Tuned Loops
870	PreparedMbira L1
871	PreparedMbira L2
872	World Jam 1 L1
873	World Jam 1 L2
874	World Jam 1 L3
875	India Jam L1
876	India Jam L2
877	World Jam 2 L1
878	World Jam 2 L2
879	World Jam 2 L3
880	World Jam 2 L4
881	World Jam 2 L5
882	World Jam 2 L6
883	World Jam 2 L7
884	World Jam 2 L8
885	CowGogiBell L1
886	Dual Log Drum
887	Jungle ProcDrms
888	JungleBrushTip1
889	JungleBrushTip2
890	Jungle Birds
891	Jungle Ghtm rel
892	Jungle Tabla
893	Jungle Dumbek
894	Jungle ProcDrms2
895	Jungle GhtmStrgt
896	Syn Bass Pick
897	ARP SAW
898	ARP PW30%
899	OB PW25%

Samples

800	Hybrid Pan
801	Glass Rim Tone
802	Synth Vox
803	Orch Pad
804	Koreana
805	Heaven Bells
806	MIDI Stack
807	Synth Brass
808	DigiBass
809	AnaBass
810	Mini Saw
811	EBass Pick
812	EBass Slap
813	Clean Elec Gtr
814	Distorted Guitar
815	Dist Harmonics
816	Clav
817	Tone Wheel Organ
818	Muted Trumpet
819	Soft Alto Sax
820	Koto
821	Mbira
822	Tabla Ta
823	Tabla Tin
824	Tabla Dhin
825	Tabla/Bayan Dha
826	Bayan
827	Ghatam Bass Tone
828	Small Ghatam
829	Ghatam Shell
830	Ghatam Slap
831	Dumbek Open Tone
832	Dumbek Brt Tone
833	Dumbek Tek
834	Dumbek Snap
835	Dumbek Dry Dum
836	Djembe Tone
837	Djembe Cl Slap
838	Djembe Open Slap
839	Djembe Finger
840	Djembe w/ Stick
841	Muzhar
842	Talking Drum Lo
843	Talking Drum Hi
844	Luna Drum Dry
845	Luna Drum Hi
846	Log Drum Lo
847	Log Drum Hi
848	Shakers/Tamborim
849	Gankogui Bell Lo
850	Gankogui Bell Hi

851	Tibetan Cymbal
852	Tibetan Bowl
853	Indo Bowl Gong
854	EDrum1 Kick
855	EDrum1 Snare
856	EDrum1 Rim
857	EDrum1 Hi Tom
858	EDrum1 Crash
859	EDrum1 Cowbell
860	EDrum1 Clave
861	EDrum1 Shaker
862	EDrum2 Kick1
863	EDrum2 Kick2
864	EDrum2 Kick3
865	EDrum2 Snare1
866	EDrum2 Snare2
867	EDrum2 Snare3
868	EDrum2 HH Open
869	EDrum2 HH Close
870	EDrum2 Clap
871	EDrum2 Conga
872	Hi Proc Tom
873	Hi Mid Proc Tom
874	Lo Mid Proc Tom
875	Lo Proc Tom
876	Syn Toms
877	Proc Kicks
878	Proc Snares
879	Rvs Proc Kicks
880	Rvs Proc Snares
881	Bayan Mute
882	Alt Muzhar Rim
883	Alt Tabla Ta
884	Alt Maracas
885	Alt Shakere
886	Syn Bass Pick
887	Alt Log Drum Lo
888	Alt Tibetan Cym
891	Dumbek Mute Slap
896	ROM Loops
897	ARP SAW
898	ARP PW30%
899	OB PW25%

Program Control Assignments

This list describes how each of the preset programs can be modulated or altered by various controllers. Only those control assignments that may not be immediately evident are listed. Control assignments like attack velocity and keynumber apply to most programs.

Prg ID	Program Name	Mod Wheel	Data	MPress	Comments
Ethnic / World Instruments					
800	Jungle Jam	This program uses the mirror image drum mapping, symmetrical around D4. Identical or similar drum articulations are found at equal distances above and below D4, with extras outside the center region. Mod wheel disables layered “chirps" and fades rain stick on A0. Data slider enables "screamers" on G5-C6.			
801	Mbira Stack	Vibrato			
802	Ritual Metals	Vibrato		Vibrato	
803	Prepared Mbira		Pitch change		
804	Balinesque	Pan flute fade			
805	Ambient Bells	Vibrato		Vibrato	
806	World Jam 1		Pitch change		Mirror image drum mapping
807	World Jam 2		Pitch change	Layer pitch	Mirror image drum mapping
808	India Jam	Tablas appear at center with the mirror-image mapping, tuned to C. Pressure controls pitch for the bayan and RH lead sound. LH drone may be played as broken chord C2,G2,C3,G3 and held with sustain or sostenuto. Mod Wheel fades the drone. Data Slider controls Wet/Dry mix.			
809	Slo Wood Flute	Less tremolo		Filter ctl	
810	Hybrid Pan Flute	Tremolo		Tremolo	
811	Chiff Brass Lead	Vibrato, Swell	Unison layers	Vibrato, Filter	
812	Bell Players	Muzhar fade	Tibetan cym env ctl		
813	Prs Koto			Pitch mod	
814	Medicine Man				
815	Mbira	Release ctl	Tremolo		
816	Kotobira	Mbira balance			
817	Cartoon Perc		Wet/Dry mix		
818	CowGogiBell	Alt start	Layer select		
819	Perc Pan Lead	Vibrato			
820	Trippy Organ	Vibrato		Vibrato	
821	Koto Followers	Vibrato		Vibrato	
822	Hybrid Horn	Balance (bell)		Timbre ctl, Vibrato	
Keyboards					
823	Dyno EP Lead	Tremolo, Env ctl			
824	ParaKoto	Pad tremolo			
825	Super Clav	Phase clav enable	Disable release	Filter rate	
826	StrataClav	Vibrato		Vibrato	
827	Touch Clav	EQ, Vibrato	Disables release	Filter control	
828	Bad Klav				
829	Rad Rotor	Rotary speaker			
830	B-2001	Rotary speaker	Perc balance	Rotary speaker	
831	Perc Organ	Rotary speaker	Perc balance	Rotary speaker	
832	Drawbar Organ CS	Rotary speaker	Filter ctl		
Brass and Reeds					
833	Bebop Alto Sax	Attack ctl		Vibrato	
834	Soft Alto Sax			Vibrato, Swell	
835	Soprano Sax	Vibrato, Swell		Vibrato, Swell	
836	Low Soft Sax			Vibrato	
837	Air Reeds CS	Vibrato	Harmonica enable	Harmonica vibrato	

Prg ID	Program Name	Mod Wheel	Data	MPress	Comments
838	Jazz Muted Trp				
839	Jazz Lab Band			Vibrato, Swell	
840	Harmon Section	Vibrato		Vibrato, Swell	
841	Sfz Cres Brass	Vibrato	Wet/Dry mix	Vibrato, Swell	
842	Neo Stabs	Vibrato		Vibrato, Filter ctl	
843	Gtr Jazz Band	LH bass is layered with ride for walking rhythm section. LH hard strikes trigger kick/snare. Data slider switches RH from guitar to horn section; SostPed holds horns and adds bright tenor.			
844	Full Rock Band	LH bass is layered with kick/snare for driving rhythm section. At *ff*, crash cymbal is triggered. Mod wheel and pressure enable rotary speaker for RH organ. Data slider switches LH to walking rhythm section, and RH to guitar solo.			
Drum Kits					
845	World Rave Kit	Disable chirps	Wet/Dry mix, Disable claps (G6-G#6)		
846	Punch Gate Kit		Wet/Dry mix		
847	Shadow Kit	Flanging (A#3-B3)	Wet/Dry mix		
848	Fat Traps	Filter (C2-A#2)	Wet/Dry mix		
849	Generator Kit	Disable claps (G3-G#3)	Wet/Dry mix		
850	Shudder Kit		Wet/Dry mix		
851	Crowd Stomper		Wet/Dry mix		
852	Econo Kit	Gate time (G3-C#4)	Wet/Dry mix		
853	EDrum Kit 1	Gate time (B2-D#3, G3-C#4), Pitch (D6)	Wet/Dry mix	Pitch (D6)	Sust ped chokes cymbal (F#5)
854	EDrum Kit 2	Filter ctl (A#1-C2, F#6-C7)	Wet/Dry mix		
Loops					
855	Dog Chases Tail	Various loop effects	Tempo (pitch)		Loops below E4 are tuned to play together, as are loops above E4.
856	Saw Loop Factory	Layer balance	Tempo (pitch)		
Basses					
857	Two Live Bass	Vibrato	Layer select	Vibrato	
858	Dual/Tri Bass	Vibrato	Ghost note enable	Vibrato	
859	Clav-o-Bass	Vibrato	Wet/Dry mix	Vibrato	
860	ChirpBass	Vibrato	Wet/Dry mix	Vibrato	
861	DigiBass				
862	Mono Synth Bass		Filter		Pitch bend goes +2/-12ST
863	Touch MiniBass	Vibrato		Vibrato, Swell	
864	Ostinato Bass		EQ		
865	House Bass	Vibrato	Release ctl	Vibrato	
866	Dubb Bass	Vibrato	Release ctl	Vibrato	
Guitars					
867	Straight Strat	Tremolo	EQ		
868	Chorus Gtr		Wet/Dry mix	Detune	
869	Strataguitar	Alt start			
870	Elect 12 String	Detune	Wet/Dry mix, EQ	Vibrato	
871	Dyn Jazz Guitar		Wet/Dry mix		PBend gives fretboard slide
872	Pedal Steel	Vibrato		Vibrato	
873	Strummer DistGtr	Vibrato		Vibrato	
874	Rock Axe	Alt start	EQ	Feedback	
875	Hammeron	Timbre ctl		Timbre ctl	
876	Rock Axe Mono	Alt start	EQ, Delay	Feedback	
Synth Timbres					
877	Attack Stack	Vibrato	Wet/Dry mix	Vibrato	

Prg ID	Program Name	Mod Wheel	Data	MPress	Comments
878	SkinnyLead	Vibrato	Overdrive enable	Vibrato, Filter	
879	Q Sweep SynClav	Vibrato	Sweep rate ctl	Vibrato	
880	Anna Mini	Vibrato		Vibrato	
881	Ballad Stack	Swell		Swell	
882	Big Stack	Vibrato	Env ctl	Vibrato	
883	BrazKnuckles	Swell	EQ		
884	Hybrid Breath	Envelope ctl, EQ	Envelope ctl, Wet/Dry mix	Vibrato	
885	Hybrid Stack		Layer balance		
886	Eye Saw	Vibrato	Release ctl, Filter	Vibrato	
887	Mello Hyb Brass				
888	Sizzl E Pno	Pad balance			
889	My JayDee	Vibrato	Release ctl	Vibrato	
890	Slo SynthOrch	Filter effect			
891	SpaceStation	Vibrato	Envelope ctl	Vibrato	
892	Glass Web	EQ	Delay ctl		
893	Circus Music	Vibrato		Vibrato	
Pads					
894	Mandala	Filter ctl	Pitch change		
895	Slow Strat	Vibrato	Filter sweep enable	Vibrato	
896	Fluid Koto	Vibrato		Vibrato	
897	Koreana Pad	Tremolo	Filter, Wet/Dry mix		
898	Tangerine	Enable 5th	Envelope Ctl	Vibrato	
899	Planet 9				

Controller Assignments: Contemporary ROM Block

This supplement lists the controller assignments for all programs and setups in the Contemporary ROM sound block.

Secondary Effects

Some of the programs in the Contemporary block use a programming technique called *secondary effects*, in which the processing on one or more layers of the program can be changed with the press of a button. Secondary effects in these programs are enabled by PSw2 (or by any physical controller assigned to send MIDI 29). PSw2 acts as a toggle between the primary effect and the secondary effect. It switches off one of the two FXBus sends on an Input page (sets its Lvl parameter to **Off**), and simultaneously turns on the other FXBus send (sets its Lvl parameter to **0.0 dB**).

The following diagram shows the effect of pressing PSw2 on the settings for FXBus1 and FXBus2.

PSw2 Status	Value of Lvl Parameter on Input Page	
	FXBus1	FXBus2
Off	0.0 dB	Off
On	Off	O.0 dB

In most cases, toggling effects with PSw2 affects only a single layer on a single input pair. In some cases, however, the switching is more complicated, and toggling effects moves one or more layers to different FX buses. Toggling effects may also change EQ settings, or the Aux reverb's decay time, depending on the program.

The following segment from the controller listings shows an example of secondary effects. Secondary effects appear in italics. In this example, when PSw2 is off, the program's input routings result in a room reverb effect, Slider B controls the wet/dry mix of this reverb. When PSw2 is on, the routing changes, resulting in a flange effect. In this case, Slider B is inactive, Slider C controls the aux room reverb level, and Slider D controls both the flange level and the crosscouple amount.

Program		Studio		Controller Assignments	
ID	Name	ID	Name		
999	SuperSynth	9	RmFlgChDly Room	B	room1 reverb wet/dry
				C	*aux room reverb level*
				D	*flange level*, *flange Xcouple*
				PSw2	toggle: room1 reverb/*flange*

Program Control Assignments

Program		Studio		Controller Assignments	
ID	Name	ID	Name		
800	Jungle Jam	62	BthQFlg4Tap Hall	B	hall reverb level (FX1+FX2)
				C	hall reverb level (FX4)
				E	*quantization dynamic range*
				F	*flange feedback*
				G	*flange tempo*
				H	*quantization wet/dry*
				PSw2	quantization + flange in/out
801	Mbira Stack	99	auxPhsrFldblHall	B	hall reverb level
				C	hall reverb level
				E	*phaser LFO rate & center frequency*
				F	*phaser rate scale*
				PSw2	phaser *in*/out, EQ treble boost
802	Ritual Metals	39	RmDsRotFl4t RvCm	B	chamber reverb level, *chamber reverb level*
				C	room reverb wet/dry
				D	*chamber reverb level*
				E	*Lo & Hi rate*
				PSw2	toggle: room reverb/*rotary + distortion*
803	Prepared Mbira	7	RoomFlgEcho Hall	B	room reverb wet/dry & time
				C	hall reverb level & time, *flange wet/dry*
				D	*flange feedback level*
				E	*flange LFO tempo*
				F	*hall reverb level & high-frequency damp, flange high-frequency damp*
				PSw2	toggle: room reverb/*flange*
804	Balinesque	7	RoomFlgEcho Hall	B	room reverb wet/dry
				C	hall reverb level (hybrid pan)
				D	echo wet/dry (hybrid pan)
				E	*hall reverb level*
				F	*flange wet/dry*
				G	*flange feedback level*
				H	*flange LFO tempo*
				PSw2	toggle: room reverb/*flange*
805	Ambient Bells	94	auxChorMDly Hall	B	hall reverb level
				C	delay wet/dry
				PSw2	MDly in/*out*, EQ parameters
806	World Jam 1	34	RoomCmpChor Hall	B	room reverb wet/dry
				C	room reverb size scale
				D	*hall reverb level*
				PSw2	toggle: room reverb/*comp*
807	World Jam 2	3	RoomChorCDR Hall	B	hall reverb level
				C	room reverb time
				D	hall reverb decay time
				E	*hall reverb level*
				PSw2	toggle: room reverb/*chorus*
808	India Jam	27	RoomSRSRoom Room	B	aux room reverb level (C0 - F5)
				C	aux room reverb level (F#5 - C 8)
				D	*aux reverb level (C0 - F5)*
				PSw2	toggle: room reverb & *SRS*
809	Slo Wood Flute	69	auxPtchDst+ Chmb	B	chamber reverb level
				C	chamber reverb time
				PSw2	*adds pitcher*
810	Hybrid Pan Flute	7	RoomFlgEcho Hall	B	hall reverb level, *hall reverb level*
				C	room reverb time
				D	room reverb high-frequency damp
				PSw2	toggle: room reverb/*flange*
811	Chiff Brass Lead	26	RoomSrsCDR Hall	B	hall reverb level
				C	room reverb wet/dry, reverb time (synth brass)
				D	*delay level*
				PSw2	toggle: SRS/*CDR* (pan flute)

Program		Studio		Controller Assignments	
ID	**Name**	**ID**	**Name**		
812	Bell Players	11	RoomFlngCDR Hall	B	hall reverb level
				C	room reverb & flange wet/dry
				PSw2	toggle: room + flange/*flange + CDR*
813	Prs Koto	9	RmFlgChDly Room	B	room1 reverb wet/dry
				C	*aux room reverb level*
				D	*flange level, flange Xcouple*
				PSw2	toggle: room1 reverb/*flange*
814	Medicine Man	7	RoomFlgEcho Hall	B	hall reverb level, room reverb cut
				D	*hall reverb level*
				E	*flange LFO tempo*
				PSw2	toggle: room reverb/*flange*
815	Mbira	7	RoomFlgEcho Hall	B	room reverb wet/dry
				D	*hall reverb level*
				F	*flange feedback level*
				G	*flange LFO tempo*
				PSw2	toggle: room reverb/*flange*
816	Kotobira	11	RoomFlngCDR Hall	B	hall reverb level
				D	*hall reverb level*
				E	*flange feedback level*
				F	*flange LFO tempo*
				G	*flange Xcouple*
				PSw2	toggle: room reverb/*flange*
817	Cartoon Perc	62	BthQFlg4Tap Hall	B	booth reverb wet/dry
				D	*hall reverb level*
				E	*quantization + flange level (dynamic range)*
				PSw2	toggle: booth reverb/*quantization + flange*
818	CowGogiBell	76	HallGateFl4T Bth	B	booth reverb level
				C	hall reverb wet/dry
				D	booth reverb time
				E	*booth reverb level*
				PSw2	toggle: hall/*gate*
819	Perc Pan Lead	98	auxFlngCDR Hall	B	hall reverb level & time
				C	delay mix
				D	*hall reverb level*
				PSw2	CDR in/*out*, EQ treble boost
820	Trippy Organ	126	GtRvShapMDl Room	B	gated reverb gate time
				C	gated reverb reverb time
				D	*shaper amount*
				PSw2	toggle: gated reverb/*shaper*
821	Koto Followers	3	RoomChorCDR Hall	B	hall reverb level
				C	*CDR reverb mix, hall reverb level*
				D	*delay mix*
				E	*delay feedback*
				F	*chorus feedback*
				PSw2	toggle: chorus/*CDR*
822	Hybrid Horn	10	ChmbFlgGtRv Hall	B	hall reverb level
				C	flange wet/dry
				D	*hall reverb level*
				E	*gated reverb wet/dry*
				F	*gate time*
				G	*gate release time*
				PSw2	toggle: flanger/*gated reverb*
823	Dyno EP Lead	3	RoomChorCDR Hall	B	CDR reverb time
				C	CDR delay mix
				D	hall reverb level
				E	*hall reverb level*
				F	*hall reverb wet/dry, time & high-frequency damp*
				PSw2	toggle: CDR/*room reverb*
824	ParaKoto	92	auxFlgDist+ Hall	B	hall reverb level
				C	flange wet/dry
				D	*hall reverb level*
				PSw2	toggle: flange/*distortion*

Controller Assignments: Contemporary ROM Block

Program		Studio		Controller Assignments	
ID	**Name**	**ID**	**Name**		
825	Super Clav	92	auxFlgDist+ Hall	B	hall reverb level
				C	flange feedback level
				D	*delay wet/dry*
				PSw2	toggle: flange/*distortion+delay+chorus*
826	StrataClav	92	auxFlgDist+ Hall	B	hall reverb level
				C	flange feedback level
				PSw2	toggle: flange/*distortion+delay+chorus*
827	Touch Clav	92	auxFlgDist+ Hall	B	hall reverb level
				C	flange wet/dry & feedback level
				PSw2	toggle: flange/*distortion+delay+chorus*
828	Bad Klav	91	auxChrDist+ Hall	B	hall reverb level
				C	*chorus feedback level*
				D	*reverb level*
				PSw2	chorus *in*/out
829 830 831 832	Rad Rotor B-2001 Perc Organ Drawbar Organ CS	145	auxRotaryFDR Plt	B	vib+chorus in/out, vib/chorus config
				C	plate reverb level
				D	plate reverb time
				E	rotary hi & lo gain
				F	rotary trem level
				G	plate reverb high-frequency damp
				MWheel	rotary rate
				PSw2	toggle: rotary/*FDR*
833	Bebop Alto Sax	25	RmRotoFl4T CmpRv	B	room reverb wet/dry, reverb time
				C	aux comp & reverb level
				MW	rotor speed
				PSw2	toggle: room reverb/*rotary effect*
834	Soft Alto Sax	65	ChamDstEcho Room	B	room reverb level
				C	room reverb time
				D	chamber wet/dry
				E	*room reverb level*
				F	EQ treble boost
				PSw2	toggle: chamber & *distortion, EQ*
835	Soprano Sax	63	ChmbTremCDR Room	B	CDR reverb level
				C	CDR chorus mix
				D	CDR delay mix
				E	*room reverb level*
				F	*chamber reverb level*
				G	EQ treble cut
				PSw2	toggle: CDR/*chamber reverb*
836	Low Soft Sax	6	RoomFlngCDR Hall	B	hall reverb level
				C	room reverb wet/dry
				D	room reverb time
				E	EQ treble boost
				F	*hall reverb level*
				G	*flange wet/dry*
				H	*flange feedback level*
				PSw2	toggle: room reverb/*flange*
837	Air Reeds CS	34	RoomCmpChor Hall	B	room reverb wet/dry & hall reverb level
				C	room reverb time
				D	room reverb high-frequency damp
				E	*hall reverb level*
				PSw2	toggle: room reverb & *compressor*
838	Jazz Muted Trp	23	RmSweepEcho Hall	B	room reverb wet/dry, hall reverb level, *hall reverb time*
				C	room reverb time
				D	room & hall reverbs high-frequency damp
				E	*hall reverb level*
				PSw2	toggle: room reverb/*LFO filt sweep*

Program		Studio		Controller Assignments	
ID	**Name**	**ID**	**Name**		
839	Jazz Lab Band	3	RoomChorCDR Hall	B	room reverb wet/dry, hall reverb level
				C	room reverb time
				D	room reverb high-frequency damp
				E	*hall reverb level*
				F	*chorus wet/dry*
				G	*chorus feedback level*
				PSw2	toggle: room reverb/*chorus*
840	Harmon Section	73	auxChorFlRv Cmb4	B	chamber reverb level
				C	chamber reverb absorption, high-frequency damp, treble cut
				D	*chamber reverb level*
				E	*chorus feedback level*
				F	*chorus wet/dry*
				PSw2	chorus *in*/out
841	Sfz Cres Brass	111	PltEnvFl4T Room	B	plate reverb wet/dry, room reverb level
				C	room reverb high-frequency damp, lopass frequency
				D	*room reverb level*
				F	*env filt resonance*
				G	*env filt minimum frequency*
				GAttVel	*env filt frequency sweep range*
				PSw2	toggle: plate reverb/*env filt*
842	Neo Stabs	127	GtdEnhcStIm Room	B	room reverb level
				C	room reverb time
				D	gate reverb wet/dry, room reverb pre-delay
				E	gated reverb gate release rate
				F	*room reverb level*
				G	*enhancer EQ high boost*
				PSw2	toggle: gated reverb/*enhancer*
843	Gtr Jazz Band	42	RoomRmHall Hall	B	hall reverb level
				C	room1 reverb wet/dry (bass & drums)
				D	room2 reverb wet/dry (gtr & horns)
				E	room2 reverb time (gtr & horns)
				PSw2	*room2 size (gtr & horns)*
844	Full Rock Band	25	RmRotoFl4T CmpRv	B	vib config & in/out
				C	chamber reverb wet/dry
				D	flange feedback+4Tap mix (guitars)
				MW/SoftPd	rotary speed
				PSw2	*tap level*
845	World Rave Kit	132	GtRbSwpFlt FlDly	B	gated reverb wet/dry
				C	*sweep filt wet/dry*
				D	gated reverb time
				E	flange delay level
				PSw2	toggle: gated reverb/*sweep filt*
846	Punch Gate Kit	154	RoomRoomSRS CmRv	B	room reverb level & aux reverb level; room reverb absorption cut
				C	compress+reverb level (hi-hat & snare)
				PSw2	*compressor release time, config*
847	Shadow Kit	155	RoomRoom Room	B	reverb levels
				C	aux room level (elec. drum kit C#6-G 9)
				PSw2	reverb boost
848	Fat Traps	7	RoomFlgEcho Hall	B	room reverb wet/dry
				C	flange wet/dry & feedback level
				D	hall reverb level
				PSw2	*room reverb time cut, flange tempo*
849	Generator Kit	158	EnhcSp4T Hall	B	hall reverb level
				C	3-band enhancer (in/out)
				D	tap delay wet/dry
				PSw2	hall reverb time, EQ, echo length, high-frequency damp
850	Shudder Kit	75	HallPtchLsr Hall	B	aux hall reverb level, room size
				C	pitcher wet/dry
				D	hall reverb wet/dry
				E	Pitcher pitch
				PSw2	toggle: Pitcher/*LaserVerb*

Controller Assignments: Contemporary ROM Block

Program		Studio		Controller Assignments	
ID	Name	ID	Name		
851	Crowd Stomper	154	RoomRoomSRS CmRv	B	FX1 reverb wet/dry, aux reverb wet/dry & time
				C	FX1 aux level & predelay, *FX2 reverb time*
				PSw2	toggle: room1/*room2 reverbs*
852	Econo Kit	38	RoomCmpCh4T Hall	B	hall reverb level & time
				C	room reverb wet/dry & time
				PSw2	toggle: compressor/*chorus+4Tap*
853	EDrum Kit 1	135	ChDlDstEQ Hall	B	hall reverb level
				C	distortion wet/dry
				D	chorus/delay wet/dry
				E	hall high-frequency damp, late reverb time
854	EDrum Kit 2	154	RoomRoomSRS CmRv	B	reverb levels
				C	aux reverb level
				PSw2	toggle room reverb/*SRS*
855	Dog Chases Tail	57	auxDistLasr Acid	B	reverb level (FX2)
				C	reverb level (FX3)
				D	reverb level (FX1)
				E	*LaserVerb wet/dry*
				PSw2	in A: distortion *in*/out; in B: toggle: distortion & *LaserVerb*
856	Saw Loop Factory	123	FlgEnv4Tap Plate	Data	Filter threshold, frequency & EQ
				B	reverb level
				C	env filt wet/dry
				D	filt resonance
				PSw2	toggle: env filt/*4Tap, EQ*
857	Two Live Bass	61	CompEQmphCh Room	B	room reverb level
				C	comp ratio
				D	*EQMorph panning*
				GAttVel	*EQMorph config*
				PSw2	toggle: compressor/*EQMorph*
858	Dual/Tri Bass	61	CompEQmphCh Room	B	room reverb level
				C	comp ratio
				D	EQ treble boost
				E	*room reverb level*
				F	*EQ gain*
				G	*EQ frequency scale*
				PSw2	toggle: comp/*EQmorph*
859	Clav-o-Bass	58	EnhcManPhs Room	B	room reverb level
				C	notch control
				D	*phaser LFO rate*
				PSw2	*phaser feedback boost*
860	Chirp Bass	130	auxEnvSp4T GtVrb	B	gated reverb level
				C	env filt wet/dry
				D	env filt attk rate
				E	*gated reverb level*
				F	*delay wet/dry*
				MWheel	env filt frequency sweep
				MPress	env filt resonance
				PSw2	toggle: env filt/*delay*
861	DigiBass	69	auxPtchDst+ Chmb	B	chamber reverb level
				C	pitcher wet/dry
				D	pitcher pitch
				E	odd wts
				F	pitch offset LFO
				F	*chamber reverb level*
				G	*distortion level*
				MPress	Pitcher pair wts.
				PSw2	toggle: pitcher/*distortion+*
862	Mono Synth Bass	57	auxDistLasr Acid	B	reverb level
				C	distortion wet/dry
				D	distortion drive
				E	*LaserDelay time*
				PSw2	toggle: distortion/*LaserDelay*

Program		Studio		Controller Assignments	
ID	**Name**	**ID**	**Name**		
863	Touch MiniBass	23	RmSweepEcho Hall	B	hall reverb level
				C	sweep filt wet/dry
				D	sweep filt LFO period
				E	sweep filter phase
				F	sweep filter LFO amplitude min frequency
				G	sweep filter LFO amplitude max frequency
				PSw2	toggle: sweep filt/*echo*
864	Ostinato Bass	62	BthQFlg4Tap Hall	B	hall reverb level
				C	booth reverb wet/dry
				D	*quantization+flange wet/dry & mix*
				E	*flange wet/dry*
				F	*flange feedback*
				PSw2	toggle: booth/aux hall & *quantization+flange*
865	House Bass	77	HallChorFDR Room	B	hall reverb wet/dry, *room reverb level*
				C	*chorus wet/dry*
				PSw2	toggle: hall reverb/*chorus*
866	Dubb Bass bad	90	auxPhsrFDR Hall	B	hall reverb level
				C	*phaser LFO depth*
				D	*phaser LFO rate*
				PSw2	vib phaser *in*/out
867	Straight Strat	6	RoomFlngCDR Hall	B	hall reverb level & high-frequency damp
				C	CDR wet/dry
				PSw2	toggle: CDR/*room reverb*
868	Chorus Gtr	63	ChmbTremCDR Room	B	room reverb level
				C	*CDR wet/dry*
				D	*CDR reverb mix*
				E	*CDR chorus mix*
				F	*CDR delay mix*
				PSw2	tremolo/*CDR*
869	Strataguitar	101	auxFlLsr SwHall	B	hall reverb level
				C	LaserVerb wet/dry
				PSw2	flange in/*out*, EQ, *LaserVerb config*
870	Elect 12 String	39	RmDsRotFl4t RvCm	B	reverb+comp level
				C	flange mix
				D	flange tempo
				E	flange Xcursion
				F	tap delay mix
				G	flange+4T wet/dry, out gain
				MW	rotor rate
				PSw2	toggle: rotary+distortion/*flng+4Tap*
871	Dyn Jazz Guitar	101	auxFlngLasr Hall	B	hall reverb level
				C	hall reverb time
				D	*flange wet/dry*
				E	*flange LFO tempo*
				F	*flange feedback level*
				PSw2	*flange in/out*
872	Pedal Steel	101	auxFlngLasr Hall	B	reverb level, time, high-frequency damp
				D	*flange feedback level*
				E	*flange LFO tempo*
				PSw2	*adds flange*
873	Strummer DistGtr	94	auxChorMDly Hall	B	hall reverb level
				C	delay wet/dry
				PSw2	chorus in/*out*
874	Rock Axe	93	auxChrDst+ Hall	B	delay wet/dry, hall reverb level
				C	chorus feedback level
				D	chorus rate
				E	chorus depth (left channel)
				PSw2	*distortion EQ*, chorus *in*/out
875	Hammeron	16	RoomPhsrCDR Hall	B	hall reverb level
				C	delay level
				PSw2	toggle: CDR/*room*

Controller Assignments: Contemporary ROM Block

Program		Studio		Controller Assignments	
ID	Name	ID	Name		
876	Rock Axe mono	93	auxChrDst+ Hall	B	delay level, reverb level
				C	*distortion+chorus wet/dry*
				D	*distortion+chorus feedback level*
				E	*distortion+chorus rate*
				F	*distortion+chorus depth*
				PSw2	toggle: chorus/*distortion+chorus+delay*
877	Attack Stack	84	HallFlgChDl Hall	B	reverb levels, times
				C	high-frequency damp, EQ boost
				PSw2	toggle: hall/*flange*
878	Skinny Lead	137	AuxChorFlng CDR	B	CDR level, reverb time
				C	flange wet/dry & feedback level, treble cut
				D	CDR chorus feedback
				E	flange LFO tempo
				G	CDR delay tempo & feedback
				PSw2	flange LFO1 phase, CDR chorus rate cut, EQ
879	Q Sweep SynClav	137	AuxChorFlng CDR	B	CDR level, reverb time
				C	chorus wet/dry, bass cut
				D	chorus feedback & Xcouple
				E	CDR delay mix
				F	CDR delay tempo
				G	CDR delay feedback
				H	CDR delay wet/dry
				PSw2	toggle: chorus+CDR/*flange*
880	Anna Mini	13	RmFlgFXFlng Flng	B	flange levels
				C	FX2 flange tempo & level
				D	FX2 flange feedback level
				E	EQ bass boost
				F	aux flange wet/dry & feedback level
				G	aux flange LFO tempo
				PSw2	toggle: “Delirium” & “*Throaty*” flanges
881	Ballad Stack	29	RoomSrsCDR CDR	B	aux CDR level
				C	aux CDR chorus feedback level
				D	aux CDR delay feedback & mix level
				E	aux CDR chorus rate
				F	aux CDR delay tempo
				G	SRS center frequency cut, space boost
				PSw2	toggle: SRS/*CDR*
882	Big Stack	85	Hall Room SRS	B	hall reverb wet/dry
				C	SRS level
				D	SRS center/space, EQ lo & hi boost
				PSw2	hall in/out, *EQ*
883	BrazKnuckles	85	Hall Room SRS	B	hall reverb wet/dry & decay time
				C	SRS level
				D	SRS center/space
				E	SRS EQ boost
				PSw2	hall reverb in/*out*, EQ, *SRS panning*
884	Hybrid Breath	140	EnhcChorChDl PCD	B	PCD chorus feedback level
				C	PCD delay feedback & mix level
				D	PCD level
				PSw2	chorus *in*/out
885	Hybrid Stack	13	RmFlgFXFlng Flng	B	reverb wet/dry & quality
				C	aux flange level
				D	aux LFO tempo
				E	aux flange wet/dry & feedback level
				PSw2	toggle: room+aux flange/*flange*
886	Eye Saw	13	RmFlgFXFlng Flng	B	aux flange level, EQ
				C	flange wet/dry
				D	flange feedback level
				E	aux flange wet/dry & feedback level
				F	aux LFO tempo
				G	flange Xcursion, LFO tempo & Xcouple

Program		Studio		Controller Assignments	
ID	**Name**	**ID**	**Name**		
887	Mello Hyb Brass	3	RoomChorCDR Hall	B	room & hall reverb level, room wet/dry
				C	chorus feedback level
				D	chorus Xcouple
				GAttVel	EQ bass boost
				PSw2	toggle: room & *chorus*
888	Sizzl E Pno	97	auxPhasStIm Hall	B	hall reverb level, time, & high-frequency damp
				C	phaser wet/dry
				D	phaser LFO rate
				E	*hall reverb level*
				F	*EQ, stereo image spread & ctr gain*
				PSw2	toggle: phaser/*stereo image*
889	My JayDee	8	RmFlngStImg Garg	B	reverb level
				C	reverb high-frequency damp (all)
				PSw2	toggle: room reverb/*flange*
890	Slo SynthOrch	97	auxPhasStIm Hall	B	hall reverb wet/dry & time
				C	EQ boost, stereo image in gain
				D	hall reverb early reflection boost, late real cut
				PSw2	*stereo image mix*
891	SpaceStation	8	RmFlngStImg Garg	B	EQ mod
				F	flange feedback level
				G	flange LFO tempo, garage reverb level
				H	garage reverb wet/dry
				PSw2	*stereo image mix*
892	Glass Web	152	auxFlgDst+ ChLsD	B	aux chorus/delay level, flange LFO tempo, aux chorus mix & feedback
				C	flange feedback
				D	aux chorus/LaserDelay wet/dry
				E	aux delay feedback
				F	aux delay tempo
				G	flange wet/dry & Xcurs, aux chorus rate
893	Circus Music	151	ChDlSp4TFlDl Phs	B	4Tap wet/dry
				C	4Tap feedback level
				D	phaser level, 4Tap mix level
				E	4Tap feedback image
				F	phaser feedback
				G	phaser notch/bandpass
				H	4Tap delay tempo
				MWheel	phaser rate
				GKeyNum	4Tap pitch adjust
894	Mandala	151	ChDlSp4TFlDl Phs	B	phaser level (koto)
				C	4Tap wet/dry & feedback (koto)
				D	4Tap feedback image
				E	phaser feedback
				F	4tap delay tempo
				GKeyNum	4Tap pitch adjust
				MWheel	phaser rate
895	Slow Strat	136	auxDPanCDR ChPlt	B	aux chorus/plate reverb level
				C	panner LFO rate & pulse width
				D	aux chorus feedback
				E	aux chorus depth
				F	aux chorus Xcouple
896	Fluid Koto	151	ChDlSp4TFlDl Phs	B	phaser level, EQ
				C	tap delay wet/dry & feedback
				D	tap delay feedback image
				E	phaser feedback
				H	tap delay tempo
				GKeyNum	tap delay pitch adjust
				MW	aux phaser center frequency
897	Koreana Pad	134	ChorChorCDR Spac	B	space reverb level, tap chorus wet/dry
				C	tap chorus feedback
				D	tap chorus LFO rate
				E	chorus feedback level
				PSw2	toggle: tap chorus/*chorus*

Controller Assignments: Contemporary ROM Block

Program		Studio		Controller Assignments	
ID	Name	ID	Name		
898	Tangerine	140	EnhcChorChDl PCD	B	PCD chorus feedback, enhancer mid & lo drive
				C	PCD delay mix & feedback
				D	PCD level
899	Planet 9	137	AuxChorFlng CDR	B	CDR level & reverb mix & time
				C	flange wet/dry & feedback, EQ
				D	CDR chorus feedback
				E	flange LFO tempo
				F	flange LFO phase
				G	CDR delay tempo & feedback

Setup Control Assignments

Setup		Studio		Controller Assignments	
ID	Name	ID	Name		
800	HyperGroov<-C4->	112	PlatEnvFl4T Filt	E	filter type
				F	filter level
				G	reverb wet/dry & quality; flange feedback level
801	PianoPad w/Percs	74	HallFlgChDl Room	E	filter flange feedback
				F	flute & percussion reverb level
				G	piano reverb wet/dry
802	Slo Held Arper	6	RoomFlngCDR Hall	G	piano/vox reverb wet/dry & delay level
803	Don'tGetFooled	25	RmRotoFl4T CmpRv	F	Flange level
				G	aux reverb wet/dry
				H	4-Tap level
				PSw1	Arpeggiator in/out
				PSw2	*vib/chorus* in/out
				MW/SoftPd	rotor rate
804	Touch Game	114	PltTEnvFlg Plate	F	perc reverb wet/dry & env filter expression
				G	comp reverb wet/dry & env filter expression
805	BeatBoy E1	67	ChmbEnv4Tap GtRv	E	kick/snare gate time
				F	pad-under-lead flamdelay wet/dry
				G	aux reverb wet/dry
806	ZawiClav Split	92	auxFlgDist+ Hall	G	lead MDdelay/ feedback
				MPress	lead tube drive
807	Dyn Piano Pad	159	Room RoomChr SRS	F	SRS center/space EQ level
				G	SRS reverb wet/dry
808	Pulsar Stack	153	auxFlgDst+ ChLs2	D	lead-pad flange level/feedback
				E	lead-pad hi-frequency damp
				F	lead-pad delay color
				G	lead-pad flange gain/LFO Tempo
809	Mt Chicorora C2	71	auxChorFlRv Cmb2	G	perc reverb time
				MWheel	pad bass boost
810	Hold Low 3sec Rb	78	HallPtchPtFl Lsr	Data	bass & lead LaserVerb feedback level
				G	bass & lead LaserVerb wet/dry
				SmRbn	slithery alien effect
				Tempo	bass & lead delay & pitch
811	Mettlorfus Pad	69	auxPtchDst+ Chmb	E	perc pitch level
				F	perc reverb
				G	lead drive outgain level
				LgRbn	perc pitch quality
				MPress	lead drive crunch
812	Black Keys xtra	6	RoomFlngCDR Hall	E	kit Flange level
				F	Perc chorus+delay+reverb level
				G	kit reverb level & perc (Zone 1) reverb wet/dry
813	Jungle Jammer	23	RmSweepEcho Hall	F	right-hand perc sweep filter level
				G	right-hand perc reverb wet/dry

Setup		Studio		Controller Assignments	
ID	Name	ID	Name		
814	Huge Rock Band	25	RmRotoFl4T CmpRv	E	lead reverb wet/dry, band delay level
				F	aux reverb wet/dry
				G	rotor trigger
				PSw1	zone mutes
				PSw2	vib in/out
815	Rock Ballad	39	RmDsRotFl4t RvCm	F	distorted gtr flange level
				G	kit reverb time
				H	aux reverb wet/dry
				SoftPd	rotor trigger
816	Jazz Setup	94	auxChorMDly Hall	E	lead delay level & feedback
				F	bass chorus wet/dry
				G	reverb level
817	Two Touchers	94	auxChorMDly Hall	E	right-hand lead delay wet/dry
				F	right-hand lead reverb level
				G	left-hand comp reverb level
818	Frontier prs	23	RmSweepEcho Hall	G	pad reverb level
819	Electric Grand	43	Room Room Hall	E	piano1 reverb wet/dry
				F	piano2 reverb wet/dry
				G	hall reverb level
820	Bad Trip FtSw/MW	55	auxDistLasr Room	F	LaserDelay time
				G	room reverb level
821	WhirliToys	90	auxPhsrFDR Hall	E	(Zones 1, 3, 7) flange level & feedback
				F	(Zones 1, 3, 7) delay level; flange + delay wet/dry
				G	hall reverb level
822	PluckSynths Perc	72	auxChorFlRv Cmb3	F	fluty synth orch flange level
				G	chamber reverb level
823	SusPed RhythmJam	68	CmbrShapLsr Hall	F	lead LaserVerb wet/dry
				G	aux reverb wet/dry & chamber wet/dry
				GAttVel	lead LaserVerb delay time/contour
				Sustain	comp shaper intensity
824	Ballad Piano Pad	82	HallRsFltChDl Rm	F	pad resonant filter wet/dry
				G	pad reverb send
				GKeyNum	bass EQ frequency
				Sustain	filter sweep ASR
825	Big AnaLoveVibe	63	ChmbTremCDR Room	G	room reverb level; CDR wet/dry
				GAttVel	stack panning tremolo rate/depth
826	ShockBreaks Psw1	17	RmPhsrQuFlg Hall	F	flange wet/dry, feedback level
				G	hall reverb level
				PSw1	quantization distortion effect
827	Four Pluckers	75	HallPtchLsr Hall	E	LaserDelay coarse
				F	LaserDelay fine
				G	aux reverb level; LaserDelay spacing
				H	LaserDelay contour
				GKeyNum	pitch tracking
828	WaterPiano Pad	56	auxEnhSp4T Class	F	pad delay wet/dry
				G	lead reverb level
829	Padded Room	94	auxChorMDly Hall	F	lead delay wet/dry
				G	hall reverb level
830	AtmosPolySphere	90	auxPhsrFDR Hall	G	pad flange/delay/reverb wet/dry
831	Breath Pad	63	ChmbTremCDR Room	G	lead delay wet/dry, feedback, high-frequency damp
				MPress	pad tremolo Tempo, room reverb level
832	Trippy Jam	74	HallFlgChDl Room	F	organ flange feedback
				G	bell-lead room reverb level; organ flange feedback
				GAttVel	bell-lead delay mix level
833	MeditationGuits	63	ChmbTremCDR Room	F	lead chorus mix level
				G	lead reverb wet/dry, room reverb level, delay feedback
834	Cool Down Funk	137	auxChorFlng CDR	F	clav flange wet/dry & excursion; CDR delay wet/dry
				G	CDR reverb level & E Piano treble boost
835	Tek`Groov C5->	128	Gtd2ChrEcho 2Vrb	F	bass reverb level
				G	kits reverb level
836	Big Fat Split	6	RoomFlngCDR Hall	F	bass hall reverb level
				G	lead delay mix, hall reverb level

Controller Assignments: Contemporary ROM Block

Setup		Studio		Controller Assignments	
ID	Name	ID	Name		
837	The Pump C2	21	RmEQmph4Tp Space	D	kit EQ frequency and morph
				E	kit delay wet/dry
				F	kit aux reverb level
				G	kick, snare, bass aux reverb level
838	Ana Basses	62	BthQFlg4Tap Hall	F	lead quantize-flange wet/dry
				G	lead hall reverb level
839	Multi Followers	33	ChmbCompCDR Hall	F	pad delay
				G	room & hall reverb level
840	Plucksynths	6	RoomFlngCDR Hall	F	pad chorus rate, quality
				G	lead reverb wet/dry, time; mix hall reverb level
841	10 Leagues Under	90	auxPhsrFDR Hall	G	pad hall reverb level, FDR wet/dry
				Chan S	pad treble boost, phaser wet/dry
842	Gremlin Arps	75	HallPtchLsr Hall	G	arp pitcher & LaserVerb wet/dry
				MPress	pitcher LFO rate
843	Broken Toys	76	HallGateFl4T Bth	F	booth reverb level
				G	delay depth
844	Two Synth	33	ChmbCompCDR Hall	G	hall reverb level, pad hi boost, piano lo boost
845	Machine Shop	17	RmPhsrQuFlg Hall	D	kit1 phaser wet/dry
				E	kit2 quantize + flange wet/dry
				F	lead reverb wet/dry
				G	hall reverb level
				Tempo	hall reverb space, phaser rate
846	Farawaway Place	90	auxPhsrFDR Hall	F	pad hall reverb level
				G	organ hall reverb level
847	BehindEnemyLines	91	auxChrDist+ Hall	G	hall reverb level, MDdelay wet/dry
848	Tunnel Visionprs	6	RoomFlngCDR Hall	E	flange wet/dry
				F	CDR wet/dry
				G	hall reverb level
				Chan S	treble boost & fade
849	Seismic Trance	132	GVrbSwpFlt DlyFl	E	kit gateverb wet/dry
				F	kit gate threshold level
				G	delay + flange wet/dry, sweep filter wet/dry
850	Medal	74	HallFlgChDl Room	E	pad chorus/delay wet/dry
				F	brazz level
				G	brazz reverb level

Appendix D
Orchestral ROM Block Objects

This Appendix describes the Orchestral ROM objects provided with your K2661.

Programs

Orchestras	
793	Grand,Harp&Lead
900	TotalCntrl Orch1
901	TotalCntrl Orch2
902	BaroqueOrchestra
903	Oboe&Flute w/Str
904	Horn&Flute w/Str
905	Trp&Horns w/Str
Winds	
906	Piccolo
907	Orchestral Flute
908	Solo Flute
909	Orchestral Oboe
910	Solo Oboe
911	2nd Oboe
912	Orch EnglishHorn
913	Solo EnglishHorn
914	Orch Clarinet
915	Solo Clarinet
916	Orch Bassoon
917	Solo Bassoon
918	Woodwinds 1
919	Woodwinds 2
Brass	
920	Dynamic Trumpet
921	Copland Sft Trp
922	Orch Trumpet
923	Soft Trumpet
924	Strght Mute Trp
925	French Horn MW
926	Slow Horn
927	F Horn Con Sord
928	F Horns a2 MW
929	French Horn Sec1
930	French Horn Sec2
931	Solo Trombone
932	Tuba
933	Dyn Hi Brass
934	Dyn Lo Brass
935	Dyn Brass & Horn
936	Soaring Brass
937	MarcatoViolin MW
938	Solo Violin
939	2nd Violin
940	Orch Viola
941	Solo Viola
942	Slow Viola
Solo Strings	
943	Marcato Cello MW
944	Solo Cello
945	Slow Cello
946	Arco Dbl Bass
947	Slow Arco Bass
948	Brt Dbl Bass
String Sections	
949	Touch Strings
950	Fast Strings MW
951	Chamber Section
952	Sfz Strings MW
953	Sweet Strings
954	Baroque Strg Ens
955	Big String Ens
956	Bass String Sec
957	Pizzicato String
958	Wet Pizz
959	Arco & Pizz
Plucked Strings	
960	Classical Guitar
961	Virtuoso Guitar
962	Acoustic Bass
963	Snappy Jazz Bass
964	Dynamic Harp
965	Harp w/8ve CTL
966	Harp Arps
Keyboards	
967	Celesta
968	Pipes
969	Pedal Pipes 2
970	Church Bells
971	Glockenspiel
Percussion	
972	Xylophone
973	Chimes
974	Timpani/Chimes
975	Timpani
976	Timpani & Perc
977	Big Drum Corp
978	Orch Percussion1
979	Orch Percussion2
980	Jam Corp
981	Conga & Perc
982	Woody Jam Rack
983	Metal Garden
984	Hot Tamali Kit
985	Funk Kit
986	Magic Guitar
987	Glass Bow 2
988	Synth Orch
989	Nooage InstaHarp
990	AC Dream
991	Synth Dulcimer
992	Glistener
993	Afro Multi CTL
994	Tranquil Sleigh
995	Batman Strings
996	Ethnoo Lead
997	Orch Pad CTL
998	Choral Sleigh
999	Pad Nine

Setups

900	Deep Piano Rbn
901	Choir & Harp
902	Orchestrator
903	Piano Concerto
904	Xmas Carols
905	Sideline Perc
906	TonalGroov C5->
907	Exotic Grooves
908	Lunar Harp
909	Themes
910	Wet Piano
911	Enter the Jester
912	Tap the Jester
913	Hybrid Strings
914	Wonderous Spaces
915	Metal Orch Pad
916	Toon prs
917	Tranquil Sea
918	Sick Clock Jam
919	Orc Split
920	Baroque Brass
921	Unison Orchestra
922	Unison w/Pizz
923	Switch Orchestra
924	Pizz/Str/Winds
925	Harp Arps Cmaj
926	Desert Bloom E1
927	Exotic Charge
928	ET Comes Home
929	Fanfare Orch
930	Switch Orch 2
931	Orbiting Venus
932	Glass Dulcimer
933	Hybrid Reeds
934	Two Hand Pizz
935	Slo Str & Horn
936	Pianist Band
937	Prepared Pianos
938	FSW1 solo winds
939	Strings&Winds
940	Str Ens Solo MW
941	Pno&Vox&Pizz
942	Down Wind SmRbn
943	Guitar & Piano
944	Cirrus 9
945	Dry Plucks
946	String Collage
947	Esoterica
948	Poseidon
949	Stalkers
950	Diabolic Trickle

QA Banks

900	Piano Patch
901	Full Orch
902	Strings
903	Horns
904	Winds
905	Solo Orch
906	Perc Pit
907	Perc Ens
908	Moody
909	Exotic

Keymaps

900	Oboe
901	English Horn
902	Bassoon
903	Clarinet
904	Bassoon/Oboe
905	Bsn/EHrn/Oboe
906	Flute 2
907	Eng Horn/Oboe
910	Soft Trumpet
911	French Horn
912	French Hrn Sec
913	Tuba
914	Tuba/Horn
915	Tuba/Hrn Sec
916	Tuba/Sft Trmp
917	Trombet
918	Trumpbone
919	Trombne/SftTrmpt
920	Timpani
921	Snare Roll
922	Snare Hit
923	Orch Bass Drum
924	Orch Crash
925	Tam Tam
926	Triangle
927	Tambourine Roll
928	Tamb Hit
929	Sleigh Bells
930	Woodblock
931	Low Clave
932	Castanet Hit
933	Castanet Up
934	Dry Snares
935	Amb Snares
936	Bass Drums
937	Orch Perc Units
938	Orch Perc Full
939	Misc Percussion
940	2Hand Amb Kit
941	2Hand Dry Kit
942	2H Kit Unit1
943	2H Kit Unit2
944	Xylophone
945	Glockenspiel
946	Chimes
947	2Hand DrumCorp
948	Lite Metal
949	Woody Perc
950	Celeste

951	Plucked Harp
952	Harp Gliss
953	Nylon String Gtr
954	Nylon Str noA2
955	Nylon for dulc
957	Acoustic Bass
960	Pizz Strings
961	Full Kbd DblBass
962	Solo Violin
963	Solo Viola
964	Solo Cello
965	fast Solo Cello
966	Solo Double Bass
967	Bass/Cello
968	Bass/Cello/Vio
969	Cello/Vla/Cello
970	Cello/Vla/Vln
971	Ens Strings 2
972	Solo Section 1
973	Solo Section 2
978	Harparps 2
979	BassDrum/Timp
980	Organ Wave 8
981	Buzz Wave 2
982	Ahh Buzz Wave
983	OB Wave 1
984	OB Wave 2
985	OB Wave 3
986	Tenor tune alt
987	Dual Ride 1
988	Black Fills C
989	Orc Perc Preview
990	<GM>Standard Kit
991	<GM> Orch Kit
992	Castanets x 3
993	Tambourine x 3
994	Black Fills B
995	Black Fills A
996	2HandDrumCrp NB
997	Sleigh Loop
998	BD Rumble <V2.0>
999	Church Bell

Samples

900	Oboe
901	English Horn
902	Bassoon
903	Clarinet
904	Dbl Reeds
910	SoftTrump
911	French Horn
912	FrenchHrnSect
913	Tuba
914	Synth Accord
915	Tuba % Horn
920	Timp
921	Snare Roll
922	Snare Hit
923	Orch Bass
924	Orch Crash
925	Tam Tam
926	Triangle
927	Tamb Roll
928	Tamb Hit
929	Sleigh Bells
930	Woodblock
931	Low Clave
932	Castanet Hit
933	Castanet Up
934	Bi TamTam<v2.0>
935	Orch Crash ignf
937	Dark Triangle
938	MuteTriangle
939	Triangle (rel)
944	Xylophone
945	Glockenspiel
946	Chimes
950	Celeste
951	Harp
953	Nylon String Gt
957	Acoustic Bass
960	Pizz Strings
962	Solo Violin
963	Solo Viola
964	Solo Cello
965	Fast Solo Cello
966	Solo Double Bass
967	Conga Tone ignrl
968	Amb Kick 3 va
980	Organ Wave 8

981	Buzz Wave 2
982	Ahh Buzz Wave
983	OB Wave 1
984	OB Wave 2
985	OB Wave 3
988	Jackhammer
989	Scratch
990	Zap 1
991	Alarm Bell
992	DeepHouseClave
993	ChinaCrash
994	Dry Side Stick
995	Med Open Hi Hat
996	Syn Vibra Stick
997	Sleigh Loop
998	BD Rumble <v2.0>
999	Church Bell

Program Control Assignments

The preset programs in the K2661 Orchestral ROM are organized by category. You can either use them as they are or as a good starting point for your own work. There are many ways to put expressivity and variety in a single program by assigning controllers to the various DSP functions in its layers. This list describes how each of the preset programs can be modulated or altered by various controllers. Only those control assignments that may not be immediately evident are listed. Control assignments like attack velocity and keynumber apply to most programs.

Prg ID	Program Name	Mod Wheel	Data	MPress	Comments
Pianos					
788	Piano Trio		Ride cymbal fade	Vibrato - Bass	
789	Pno & Syn String	String fade	Stringswell		
790	Fluid Grand		Wet/Dry mix		
791	Haunted Piano	Harp balance	Wet/Dry mix		
792	Xylopiano	Release ctl	Wet/Dry mix		
793	Grand,Harp&Lead	Lead tremolo	Lead fade	Lead tremolo	Sustain pedal does not affect the lead sound
Orchestras					
900	TotalCntrl Orch1	Layer bal	Adds brass & flute, boosts strings	Swell (trp out - ww solo)	
901	TotalCntrl Orch2	Layer bal, adds harp	Layer balance, adds horns/ cuts woodwinds	Swell	
902	BaroqueOrchestra	None	None	Swell	Sost ped disables brass
903	Oboe&Flute w/Str	Strings fadeout	Disables strings	None	
904	Horn&Flute w/Str	Strings fadeout	Disables strings	None	
905	Trp&Horns w/Str	Strings fadeout	Disables strings	None	
Winds					
906	Piccolo	None	Wet/Dry mix	None	
907	Orchestral Flute	Envelope control (slower)	Wet/Dry mix	None	
908	Solo Flute	Timbre (brighter)	Wet/Dry mix	None	
909	Orchestral Oboe	Swell	Wet/Dry mix, rate & depth	Vibrato	
910	Solo Oboe	Vibrato off	Wet/Dry mix	Swell	
911	2nd Oboe	Vibrato off	Wet/Dry mix	Swell	
912	Orch EnglishHorn	Swell	Wet/Dry mix, rate & depth	Vibrato	
913	Solo EnglishHorn	Vibrato off	Wet/Dry mix	Swell	
914	Orch Clarinet	Swell	Wet/Dry mix	Vibrato depth	
915	Solo Clarinet	Swell	Wet/Dry mix	Swell	
916	Orch Bassoon	Swell	Wet/Dry mix	Vibrato depth	
917	Solo Bassoon	Vibrato off	Wet/Dry mix	Swell	
918	Woodwinds 1	None	Wet/Dry mix	None	
919	Woodwinds 2	None	Wet/Dry mix, rate & depth	Swell, vibrato	

Prg ID	Program Name	Mod Wheel	Data	MPress	Comments
Brass					
920	Dynamic Trumpet	Swell	Wet/Dry mix	Vibrato depth	
921	Copland Sft Trp	Vibrato off	Wet/Dry mix	Swell	
922	Orch Trumpet	Timbre (darker)	Envelope Control	Swell, vibrato rate & depth	
923	Soft Trumpet	None	Wet/Dry mix	Vibrato depth	
924	Strght Mute Trp	Vibrato off	Wet/Dry mix	Swell	
925	French Horn MW	Timbre (brighter)	Wet/Dry mix	Vibrato rate & depth	
926	Slow Horn	Vibrato	Wet/Dry mix	None	
927	F Horn Con Sord	Timbre (brighter)	Wet/Dry mix	Vibrato depth	
928	F Horn a2 MW	Timbre (brighter)	Wet/Dry mix	None	
929	French Horn Sec1	None	Wet/Dry mix	Slight swell	
930	French Horn Sec2	None	Wet/Dry mix	Swell	
931	Solo Trombone	Selects legato layer	Wet/Dry mix	Slight swell when MW is off	
932	Tuba	Vibrato rate & depth	Wet/Dry mix	Vibrato rate & depth	
933	Dyn Hi Brass	Swell, legato	Wet/Dry mix	Swell	
934	Dyn Lo Brass	Swell, legato	Wet/Dry mix	Swell	
935	Dyn Brass & Horn	Timbre (darker)	Wet/Dry mix	None	
936	Soaring Brass	None	Wet/Dry mix	None	
937	MarcatoViolin MW	Spiccato articulation	Wet/Dry mix	Vibrato rate & depth	
938	Solo Violin	Delays auto-vibrato	Wet/Dry mix	Vibrato rate & depth	
939	2nd Violin	Envelope control	Wet/Dry mix	Vibrato rate	
940	Orch Viola	Release time (shorter)	Wet/Dry mix	Vibrato depth	
941	Solo Viola	Delays auto-vibrato	Wet/Dry mix	Vibrato rate & depth	
942	Slow Viola	Timbre (darker)	Wet/Dry mix	Swell, vibrato rate & depth	
943	MarcatoCello MW	Spiccato articulation	Wet/Dry mix	Vibrato rate & depth	
944	Solo Cello	Delays auto-vibrato	Wet/Dry mix	Vibrato rate & depth	
945	Slow Cello	Timbre (brighter)	Wet/Dry mix	Vibrato rate, swell	
946	Arco Dbl Bass	Bass boost	Wet/Dry mix	Vibrato depth	
947	Slow Arco Bass	Delays auto-vibrato	Wet/Dry mix	Swell, vibrato rate & depth	
948	Brt Dbl Bass	Decrescendo	Wet/Dry mix	Vibrato rate	
Section Strings					
949	Touch Strings	Timbre (brighter)	Envelope Control	Swell	
950	Fast Strings MW	Selects faster strings	Timbre (darker), Wet/Dry mix	Swell	
951	Chamber Section	None	Wet/Dry mix	Vibrato depth	
952	Sfz Strings MW	Tremolo	None	Swell	
953	Sweet Strings	Fade out	Wet/Dry mix	Vibrato depth	
954	Baroque Strg Ens	Bass boost, layer delay	Wet/Dry mix	Swell	
955	Big String Ens	None	Wet/Dry mix	Swell	
956	Bass String Sec	Bass boost on solo layer	Wet/Dry mix	None	
957	Pizzicato String	Timbre (darker)	Wet/Dry mix	None	
958	Wet Pizz	Treble boost	Wet/Dry mix	None	
959	Arco & Pizz	Timbre (brighter), layer balance	Enables 2nd string layer, stereo panning	Swell	

Prg ID	Program Name	Mod Wheel	Data	MPress	Comments
Plucked Strings					
960	Classical Guitar	Fade/disables key-up layer	Wet/Dry mix	None	
961	Virtuoso Guitar	Vibrato rate & depth	Wet/Dry mix	None	Sost ped enables stacato envelope
962	Acoustic Bass	Vibrato rate & depth	Wet/Dry mix	None	
963	Snappy Jazz Bass	Vibrato rate & depth	Pitch of snap, disables ride	Vibrato rate & depth	Sost ped disables ride cymbal
964	Dynamic Harp	Release time (longer)	Wet/Dry mix	None	
965	Harp w/8ve CTL	Brightness	Enables octave	None	
966	Harp Arps	None	Selects diminished	None	
Keyboards					
967	Celesta	None	Wet/Dry mix	None	
968	Pipes	Timbre (hollow)	Wet/Dry mix	None	
969	Pedal Pipes	None	None	None	
970	Church Bells	Distance	Timbre (brighter)	None	
Percussion					
971	Glockenspiel	None	Wet/Dry mix	None	Sus ped enables key-up layer (for rolls)
972	Xylophone	Timbre (fuller)	Wet/Dry mix	None	Sus ped enables key-up layer (for rolls)
973	Chimes	None	Wet/Dry mix	None	
974	Timpani/Chimes	Alt attack (timp)	Wet/Dry mix	None	
975	Timpani	Alt attack	Wet/Dry mix	None	Sus ped enables key-up layer (for rolls)
976	Timpani & Perc	Alt attack (timp)	None	None	Sost ped enables bass drum. Sus ped dampens.
977	Big Drum Corp	None	Enables both fill layers (black keys: f#3-a#4)	None	Sost ped switches layers. Sus ped dampens.
978	Orch Percussion1	None	Switches fill layers	None	Sus ped dampens
979	Orch Percussion2	None	Wet/Dry mix	None	Sus ped dampens
980	Jam Corp	Alt attack	Pitch control (black keys: f#3-a#4)	None	
981	Conga & Perc	Pitch control	Wet/Dry mix	None	
982	Woody Jam Rack	Pitch control up to 1200ct	Enables random drum layer	None	
983	Metal Garden	Pitch control up to 1200ct	Pitch control down to -1200ct	None	
984	Hot Tamali Kit	Tunes drums, alt atk on snares	Switches to old drum map	None	
985	Funk Kit	Tunes drums	Switches to old drum map	None	

Controller Assignments: Orchestral ROM Block

This section lists the controller assignments for all programs and setups in the Orchestral ROM sound block.

Secondary Effects

Some of the programs in the Orchestral block use a programming technique called *secondary effects*, in which the processing on one or more layers of the program can be changed with the press of a button. Secondary effects in these programs are enabled by PSw2 (or by any physical controller assigned to send MIDI 29). PSw2 acts as a toggle between the primary effect and the secondary effect. It switches off one of the two FXBus sends on an Input page (sets its Lvl parameter to **Off**), and simultaneously turns on the other FXBus send (sets its Lvl parameter to **0.0 dB**).

The following diagram shows the effect of pressing PSw2 on the settings for FXBus1 and FXBus2.

PSw2 Status	Value of Lvl Parameter on Input Page	
	FXBus1	FXBus2
Off	0.0 dB	Off
On	Off	O.0 dB

In most cases, toggling effects with PSw2 affects only a single layer on a single input pair. In some cases, however, the switching is more complicated, and toggling effects moves one or more layers to different FX buses. Toggling effects may also change EQ settings, or the Aux reverb's decay time, depending on the program.

The following segment from the controller listings shows an example of secondary effects. Secondary effects appear in italics. In this example, when PSw2 is off, the program's input routings result in a room reverb effect, Slider B controls the wet/dry mix of this reverb. When PSw2 is on, the routing changes, resulting in a flange effect. In this case, Slider B is inactive, Slider C controls the aux room reverb level, and Slider D controls both the flange level and the crosscouple amount.

Program		Studio		Controller Assignments	
ID	Name	ID	Name		
999	SuperSynth	9	RmFlgChDly Room	B	room1 reverb wet/dry
				C	*aux room reverb level*
				D	*flange level*, *flange Xcouple*
				PSw2	toggle: room1 reverb/*flange*

Program Control Assignments

Program		Studio		Controller Assignments	
ID	Name	ID	Name		
900	TotalCntrl Orch1	110	Chapel Room Hall	B	room, hall, & chapel reverb time
				C	chapel level
				PSw2	toggle room reverb
901	TotalCntrl Orch2	110	Chapel Room Hall	B	room, hall, & chapel reverb level & time
				PSw2	toggle chapel
902	Baroque Orchestra	110	Chapel Room Hall	B	room, hall, and chapel reverb level & time
				PSw2	toggle chapel
903	Oboe&Flute w/Str	108	ChapelSRS Hall	B	chapel reverb wet/dry & time
904	Horn&Flute w/Str	110	Chapel Room Hall	B	room & hall reverb level, room reverb time
905	Trp&Horns w/Str	110	Chapel Room Hall	B	room & hall reverb level
				PSw2	decreases reverb time
906	Piccolo	42	RoomRmHall Hall	B	aux hall reverb level & time, room reverb wet/dry
				PSw2	decreases aux hall brightness
907	Orchestral Flute	42	RoomRmHall Hall	B	aux hall reverb level & time
				PSw2	increases room (FX1) time
908	Solo Flute	42	RoomRmHall Hall	B	aux hall reverb level & time, room reverb time
				PSw2	decreases aux hall brightness
909	Orchestral Oboe	42	RoomRmHall Hall	B	aux hall reverb level & time
				PSw2	decreases aux hall brightness and room (FX1) time
910	Solo Oboe	42	RoomRmHall Hall	B	aux hall reverb level & time
				PSw2	decreases aux hall brightness and room (FX1) time
911	2nd Oboe	42	RoomRmHall Hall	B	aux hall reverb level
912	Orch EnglishHorn	42	RoomRmHall Hall	B	aux hall reverb level & time
913	Solo EnglishHorn	42	RoomRmHall Hall	B	aux hall reverb level & time
914	Orch Clarinet	42	RoomRmHall Hall	B	aux hall reverb level & time
915	Solo Clarinet	42	RoomRmHall Hall	B	aux hall reverb level & time
916	Orch Bassoon	42	RoomRmHall Hall	B	aux hall reverb level & time
917	Solo Bassoon	42	RoomRmHall Hall	B	aux hall reverb level & time
918	Woodwinds 1	42	RoomRmHall Hall	B	aux hall reverb level & time
919	Woodwinds 2	42	RoomRmHall Hall	B	aux hall reverb level & time
920	Dynamic Trumpet	34	RoomCmpChor Hall	B	room & hall reverb level & time
921	Copland Sft Trp	42	RoomRmHall Hall	B	aux hall reverb level
922	Orch Trumpet	42	RoomRmHall Hall	B	aux hall reverb level, room reverb time
923	Soft Trumpet	42	RoomRmHall Hall	B	aux hall reverb level
924	Strght Mute Trp	35	RoomComp Hall	B	aux hall reverb level
925	French Horn MW	44	Room Hall Hall	B	aux hall reverb level, room reverb time
926	Slow Horn	44	Room Hall Hall	B	aux hall reverb level, room reverb time
927	F Horn Con Sord	44	Room Hall Hall	B	aux hall reverb level & time, room reverb time
928	F Horn a2 MW	44	Room Hall Hall	B	aux hall reverb level, room reverb time
				MWheel	aux hall time
929	French Horn Sec	44	Room Hall Hall	B	aux hall reverb level, room reverb time
930	French Horn Sec2	44	Room Hall Hall	B	aux hall reverb level, room reverb time
931	Solo Trombone	44	Room Hall Hall	B	aux hall reverb level, room reverb time
932	Tuba	44	Room Hall Hall	B	room & aux hall reverb level
933	Dyn Hi Brass	42	RoomRmHall Hall	B	room (FX1) time & aux hall reverb level
				C	*room (FX2) wet/dry*
				D	*room (FX2) high-frequency damp*
				E	*room (FX2) time*
				PSw2	toggle room (FX1) and *room (FX2)*
934	Dyn Lo Brass	44	Room Hall Hall	B	aux hall reverb level, room reverb time
				C	aux hall high-frequency damp
				PSw2	toggle room
935	Dyn Brass & Horn	44	Room Hall Hall	B	aux hall reverb level & *room reverb time*
				MWheel	room reverb roll-off
				PSw2	toggle room
936	Soaring Brass	44	Room Hall Hall	B	aux hall reverb level & time
937	MarcatoViolin MW	35	RoomComp Hall	B	room & hall reverb level
938	Solo Violin	35	RoomComp Hall	B	room & hall reverb level

Program		Studio		Controller Assignments	
ID	Name	ID	Name		
939	2nd Violin	35	RoomComp Hall	B	hall reverb level
				C	room level
940	Orch Viola	35	RoomComp Hall	B	room & hall reverb level
941	Solo Viola	35	RoomComp Hall	B	room & hall reverb level
942	Slow Viola	35	RoomComp Hall	B	hall reverb level
943	MarcatoCello MW	35	RoomComp Hall	B	room & hall reverb level
944	Solo Cello	35	RoomComp Hall	B	room & hall reverb level
945	Slow Cello	35	RoomComp Hall	B	room & hall reverb level
946	Arco Dbl Bass	35	RoomComp Hall	B	hall reverb level
				C	room level
947	Slow Arco Bass	35	RoomComp Hall	B	room & hall reverb level
948	Brt Dbl Bass	35	RoomComp Hall	B	room & hall reverb level
949	Touch Strings	86	Hall Room Room	B	hall reverb wet/dry & time
950	Fast Strings MW	86	Hall Room Room	B	hall reverb wet/dry & time
951	Chamber Section	86	Hall Room Room	B	hall reverb time
952	Sfz Strings MW	86	Hall Room Room	B	hall reverb wet/dry & time
953	Sweet Strings	86	Hall Room Room	B	hall reverb wet/dry & time
954	Baroque Strg Ens	86	Hall Room Room	B	hall reverb wet/dry & time
955	Big String Ens	86	Hall Room Room	B	hall reverb wet/dry & time
956	Bass String Sec	86	Hall Room Room	B	hall reverb wet/dry & time
957	Pizzicato String	86	Hall Room Room	B	hall reverb wet/dry & time,high-frequency damp
958	Wet Pizz	86	Hall Room Room	B	hall reverb wet/dry & time, high-frequency damp
959	Arco & Pizz	86	Hall Room Room	B	hall reverb wet/dry & time, high-frequency damp
960	Classical Guitar	108	ChapelSRS Hall	B	chapel reverb wet/dry & time
961	Virtuoso Guitar	108	ChapelSRS Hall	B	chapel reverb wet/dry & time
962	Acoustic Bass	108	ChapelSRS Hall	B	room reverb wet/dry
963	Snappy Jazz Bass	108	ChapelSRS Hall	B	room reverb wet/dry
964	Dynamic Harp	108	ChapelSRS Hall	B	chapel reverb wet/dry & time
965	Harp w/8ve CTL	108	ChapelSRS Hall	B	chapel reverb wet/dry & time
966	Harp Arps	108	ChapelSRS Hall	B	chapel reverb wet/dry & time
967	Celesta	108	ChapelSRS Hall	B	chapel reverb wet/dry & time
968	Pipes	108	ChapelSRS Hall	B	chapel reverb wet/dry
				C	hall reverb level
969	Pedal Pipes 2	108	ChapelSRS Hall	B	chapel reverb wet/dry
				C	hall reverb level
970	Church Bells	109	ChapelSRS Hall2	B	room & hall reverb level
971	Glockenspiel	108	ChapelSRS Hall	B	chapel reverb wet/dry & time
				C	hall reverb level
972	Xylophone	108	ChapelSRS Hall	B	chapel reverb wet/dry
				C	hall reverb level
973	Chimes	109	ChapelSRS Hall2	B	chapel reverb wet/dry
				C	hall reverb level
974	Timpani/Chimes	108	ChapelSRS Hall	B	chapel & hall reverb level & time
975	Timpani	108	ChapelSRS Hall	B	chapel reverb wet/dry
				C	hall reverb level
976	Timpani & Perc	110	Chapel Room Hall	B	chapel reverb wet/dry & time
				C	hall reverb level
977	Big Drum Corp	89	HallRoomChr Hall	B	reverb wet/dry
978	Orch Percussion1	100	auxSRSRoom Hall	B	hall reverb level
				C	dry level cut
979	Orch Percussion2	100	auxSRSRoom Hall	B	hall reverb level
980	Jam Corp	89	HallRoomChr Hall	B	reverb wet/dry
				C	reverb absorption amount
981	Conga & Perc	45	Room Room Hall2	B	room reverb wet/dry
				C	hall reverb level
982	Woody Jam Rack	37	BthComp SRS Hall	B	reverb wet/dry
				C	reverb absorption amount
983	Metal Garden	62	BthQFlg4Tap Hall	B	booth reverb wet/dry & absorption amount
				C	hall reverb level
984	Hot Tamali Kit	38	RoomCmpCh4T Hall	B	room reverb wet/dry & time
				C	hall reverb level & time
				D	high-frequency damp level
985	Funk Kit	158	EnhcSp4T Hall	B	aux reverb level

Controller Assignments: Orchestral ROM Block

Program		Studio		Controller Assignments	
ID	**Name**	**ID**	**Name**		
986	Magic Guitar	3	RoomChorCDR Hall	B	hall reverb level
				C	*chorus+delay+reverb wet/dry*
				D	*reverb wet/dry*
987	Glass Bow 2	26	RoomSrsCDR Hall	B	hall reverb level
988	Synth Orch	52	auxChrMDly Room	B	room reverb level
				C	room reverb time
				D	LFO depth
				SostPd	infinite decay i/o
989	Nooage InstaHarp	102	auxEnh4Tap Hall	B	hall reverb level
990	AC Dream	121	auxMPFlgLasr Plt	B	reverb level
991	Synth Dulcimer	40	RoomRmHall Hall	B	aux hall reverb level
992	Glistener	113	PltEnvFl4T Plate	B	aux plate reverb level
				C	flange + delay wet/dry
993	Afro Multi CTL	129	GtdEnhcStIm Hall	B	hall reverb level
				C	gate reverb wet/dry
994	Tranquil Sleigh	74	HallFlgChDl Room	B	room reverb level
				C	flange wet/dry
995	Batman Strings	11	RoomFlngCDR Hall	B	Batcave reverb level
				C	flange wet/dry
996	Ethnoo Lead	119	auxChorDist+ Plt	B	plate reverb level
				C	chorus wet/dry
				D	tube drive level
				E	MD delay wet/dry
				F	MD delay time
				G	MD delay feedback
997	Orch Pad CTL	66	ChamFlg4Tap Hall	B	room & hall reverb level
				C	hall reverb decay time
				D	EQ bass boost
				E	EQ treble boost
998	Choral Sleigh	2	RmChorChRv Hall	B	aux hall reverb level, *voice aux level*
				C	voice room reverb wet/dry
				MWheel	pad chorus wet/dry, *voice chorus wet/dry*
				PSw2	toggles room & *chorus*
999	Pad Nine	98	auxFlngCDR Hall	B	hall reverb level
				C	hall reverb time
				D	hall reverb level
				F	*flange wet/dry*
				G	*flange feedback level*
				PSw2	*toggle flanger*

Setup Control Assignments

Setup		Studio		Controller Assignments	
ID	Name	ID	Name		
900	Deep Piano Rbn	16	RoomPhsrCDR Hall	G	CDR wet/dry, pad & piano hall reverb level
901	Choir & Harp	42	RoomRmHall Hall	E	room wet/dry & time
				F	choir hall reverb time
				G	all zones (aux) hall2 level
902	Orchestrator	133	ChRvStlEcho Hall	G	chorus/reverb wet/dry
903	Piano Concerto	42	RoomRmHall Hall	E	woodwinds and brass reverb wet/dry
				F	strings and perc reverb wet/dry
				G	aux reverb level
				H	piano reverb wet/dry
904	Xmas Carols	44	Room Hall Hall	E	brass room reverb wet/dry
				F	chimes and timpani hall reverb wet/dry
				G	all zones hall2 reverb level
905	Sideline Perc	89	HallRoomChr Hall	F	drums and perc chorus wet/dry
				G	reverb level
906	TonalGroov C5->	34	RoomCmpChor Hall	G	hall reverb level
907	Exotic Grooves	149	auxPtchRoom RvCm	G	perc aux reverb level
908	Lunar Harp	133	ChRvStlEcho Hall	G	pad & harp chorus/reverb wet/dry, harp hall reverb level
909	Themes	77	HallChorFDR Room	F	choir chorus wet/dry
				G	room reverb level
910	Wet Piano	42	RoomRmHall Hall	F	piano distance
				G	hall reverb level; flute room reverb level
				H	piano lead reverb wet/dry room
911	enter the Jester	42	RoomRmHall Hall	G	reverb level & time
912	Tap the Jester	42	RoomRmHall Hall	G	reverb level & time
913	Hybrid Strings	42	RoomRmHall Hall	F	pad reverb wet/dry
				G	aux reverb level
914	Wonderous Spaces	74	HallFlgChDl Room	F	harp delay mix wet/dry
				G	room reverb level
915	Metal Orch Pad	11	RoomFlngCDR Hall	G	hall reverb level & time
916	Toon prs	42	RoomRmHall Hall	G	aux reverb level
917	Tranquil Sea	11	RoomFlngCDR Hall	G	hall reverb level
918	Sick Clock Jam	149	auxPtchRoom RvCm	G	bell aux reverb level
				GAttVel	bass reverb/compressor level
919	Orc Split	26	RoomSrsCDR Hall	G	reverb level
920	Baroque Brass	45	Room Room Hall2	G	hall2 reverb level
921	Unison Orchestra	45	Room Room Hall2	G	hall2 reverb level
922	Unison w/Pizz	45	Room Room Hall2	G	hall2 reverb level
923	Switch Orchestra	100	auxSRSRoom Hall	G	hall reverb level
924	Pizz/Str/Winds	2	RmChorChRv Hall	G	aux reverb level
925	Harp Arps Cmaj	121	auxMPFlgLasr Plt	G	plate reverb level
926	Desert Bloom E1	6	RoomFlngCDR Hall	G	string pad flange wet/dry
927	Exotic Charge	33	ChmbCompCDR Hall	F	pad delay mix wet/dry
				G	reverb level
928	ET Comes Home	129	GtdEnhcStIm Hall	G	hall reverb level
929	Fanfare Orch	1	RoomChorDly Hall	E	delay mix wet/dry, chorus feedback level
				F	chorus mix wet/dry
				G	hall reverb wet/dry & delay wet/dry
930	Switch Orch 2	1	RoomChorDly Hall	E	delay mix wet/dry
				F	chorus mix wet/dry
				G	reverb level & delay wet/dry
931	Orbiting Venus	80	HallChrEcho Room	E	echo feedback image
				F	chorus wet/dry & feedback
				G	echo wet/dry & high-frequency damp reverb wet/dry
				H	echo feedback level
932	Glass Dulcimer	81	HallChorCDR Hall	E	CDR delay mix level; chorus feedback level
				F	chorus wet/dry
				G	pad reverb wet/dry
				H	delay mix level, chorus feedback level

Controller Assignments: Orchestral ROM Block

Setup		Studio		Controller Assignments	
ID	**Name**	**ID**	**Name**		
933	Hybrid Reeds	1	RoomChorDly Hall	E	lead delay mix
				F	lead chorus mix
				G	reverb & effects wet/dry
934	Two Hand Pizz	1	RoomChorDly Hall	G	reverb wet/dry
				GAttVel	bass cut
935	Slo Str & Horn	47	Room Room Hall2	G	reverb wet/dry
936	Pianist Band	159	Room RoomChr SRS	F	drums reverb wet/dry
				G	piano reverb wet/dry & time
				H	*SRS center/space*
				PSw2	SRS in/out
937	Prepared Pianos	16	RoomPhsrCDR Hall	E	toggles reverb delay effect
				F	toggles reverb density effect
				G	room1 reverb wet/dry, time, high-frequency damp, diffusion
938	FSW1 solo winds	47	Room Room Hall2	E	pad reverb wet/dry
				F	pad hall2 reverb level
				G	lead hall2 reverb level
939	Strings&Winds	47	Room Room Hall2	E	winds reverb wet/dry
				F	winds hall2 reverb level
				G	strings hall2 reverb level
940	Str Ens Solo MW	48	Room Hall Hall2	F	room reverb level
				G	hall2 reverb level
				MWheel	treble EQ gain
941	Pno&Vox&Pizz	31	RoomSRSRoom Chmb	F	room1 & room2 reverb wet/dry
				G	chamber reverb level
942	Down Wind SmRbn	5	RoomChrCh4T Hall	G	reverb & chorus & delay wet/dry
				MWheel	wind chorus LFO rate
943	Gtr & Piano	134	ChDlyChrCDR Spac	D	acoustic guitar delay mix, piano chorus wet/dry
				E	electric guitar chorus wet/dry
				F	electric guitar chorus feedback
				G	acoustic guitar reverb wet/dry, electric guitar chorus depth
				H	acoustic guitar chorus mix, electric guitar & piano rates
944	Cirrus 9	103	EnhcChorCDR Hall	E	hall reverb level & enhancer high drive
				F	pad chorus wet/dry & chorus rate
				G	hall reverb space, pad chorus feedback
945	Dry Plucks	5	RoomChrCh4T Hall	F	bass chorus wet/dry & feedback level
				G	piano reverb level
946	String Collage	32	RoomSRSRoom Hall	F	hall reverb time
				G	hall reverb level
947	Esoterica	107	ChorChorFlg Hall	F	“Cymbal Thing” level
				G	hall reverb level
948	Poseidon	59	EnhrFlg8Tap Room	D	pan balance
				E	pad EQ frequency & bass gain
				F	pad treble boost
				G	pad flange feedback
				H	pad flange LFO Tempo
949	Stalkers	138	auxEnhcSp4T CDR	F	CDR delay mix
				G	CDR reverb level
950	Diabolic Trickle	15	ChmbFlngCDR Verb	F	aux reverb level, pad chorus level, feedback, & rate
				G	bell reverb level, doom feedback

Appendix E
General MIDI

General MIDI (GM) is an addition to the original MIDI specification that assigns sounds to specific channel numbers, program numbers, and note values. The K2661's GM Mode feature (described in Chapter 11 of the *Musician's Guide*) sets up your instrument for GM in a single step. Using General MIDI, you can share song files between different devices with reasonably consistent performance.

Many GM song files are commercially available, and they'll sound great on your K2661.

GM Drum Kits

The table below lists the drum kits provided with GM Mode for the K2661. The location for the kits (as shown in columns 1 and 2 of the table) will depend on whether or not GM Mode is enabled. You can also create own GM drum kits and store them at locations 528-535.

GM Mode Program No.	Standard Mode Program No.	Drum Kit Name
1	528	Standard Kit Pan
9	529	Room Kit Pan
17	530	Power Kit Pan
25	531	Synth Kit Pan
26	532	Analog Kit Pan
33	533	Jazz Kit Pan
41	534	Brush Kit Pan
49	535	Orch Kit Pan

General MIDI Programs

The table below shows the 128 General MIDI programs. The ID numbers shown are the locations that these programs will occupy in GM Mode. In Standard Mode the program numbers will be 400-527.

You can create your own GM sets as well, provided that you store the programs at 400-527 and the drum kits at 528-535.

1	Grand Piano	33	Acoustic Bass	65	Soprano Sax	97	Ice Rain
2	Bright Piano	34	Fingered Bass	66	Alto Sax	98	Soundtrack
3	Electric Grand	35	Picked Bass	67	Tenor Sax	99	Crystal
4	Honky-Tonk Piano	36	Fretless Bass	68	Baritone Sax	100	Atmosphere
5	Elec Piano 1	37	Slap Bass 1	69	Oboe	101	Brightness
6	Elec Piano 2	38	Slap Bass 2	70	English Horn	102	Goblins
7	Harpsichord	39	Synth Bass 1	71	Bassoon	103	Echo Drops
8	Clavinet	40	Synth Bass 2	72	Clarinet	104	Sci-fi Pad
9	Celeste	41	Violin	73	Piccolo	105	Sitar
10	Glockenspiel	42	Viola	74	Flute	106	Banjo
11	Music Box	43	Cello	75	Recorder	107	Shamisen
12	Vibraphone	44	Contrabass	76	Pan Flute	108	Koto
13	Marimba	45	Tremolo Strings	77	Blown Bottle	109	Kalimba
14	Xylophone	46	Pizzicato String	78	Shakuhachi	110	Bagpipe
15	Tubular Bells	47	Plucked Harp	79	Whistle	111	Fiddle
16	Dulcimer	48	Timpani	80	Ocarina	112	Shanai
17	Drawbar Organ	49	Ensemble Strings	81	Square Wave	113	Tinkle Bell
18	Perc Organ	50	Slow Strings	82	Sawtooth Wave	114	Agogo
19	Rock Organ	51	Synth Strings 1	83	Synth Calliope	115	Steel Drums
20	Church Organ	52	Synth Strings 2	84	Chiff Lead	116	Woodblock
21	Reed Organ	53	Choir Oohs	85	Charang	117	Taiko Drum
22	Accordion	54	Voice Oohs	86	Solo Vox	118	Melodic Toms
23	Harmonica	55	Synth Vox	87	Fifths Saw Wave	119	Synth Drums
24	Bandoneon	56	Orchestra Hit	88	Bass & Lead	120	Reverse Cymbal
25	Nylon Str Guitar	57	Trumpet	89	Fantasia Pad	121	Gtr Fret Noise
26	Steel Str Guitar	58	Trombone	90	Warm Pad	122	Breath Noise
27	Jazz Guitar	59	Tuba	91	Poly Synth Pad	123	Seashore
28	Clean Guitar	60	Muted Trumpet	92	Space Voice Pad	124	Birds
29	Muted Guitar	61	French Horn	93	Bowed Glass Pad	125	Telephone
30	Overdrive Guitar	62	Brass Section	94	Metallic Pad	126	Helicopter
31	Distorted Guitar	63	Synth Brass 1	95	Halo Pad	127	Applause
32	Guitar Harmonics	64	Synth Brass 2	96	Sweep Pad	128	Gun Shot

Standard Mode Controller Assignments

ID	Name	Ctrl	Function
400	Grand Piano	MWheel	Vibrato
		MIDI 22	Reverb Wet/Dry level
		MIDI 23	Reverb Time
		MIDI 24	Aux Lo Pass
		MIDI 25	L/R PreDelay Time
401	Bright Piano	MWheel	Vibrato
		MIDI 22	Reverb Wet/Dry level
		MIDI 23	Reverb Time
		MIDI 24	Aux Lo Pass
		MIDI 25	L/R PreDelay Time
402	Electric Grand	MWheel	Vibrato
		MIDI 22	Reverb Wet/Dry level
		MIDI 23	Reverb Time
		MIDI 24	Aux Lo Pass
		MIDI 25	L/R PreDelay Time
403	Honky Tonk	MWheel	Vibrato
		MIDI 22	Reverb Wet/Dry level
		MIDI 23	Reverb Time
		MIDI 24	HF Dampening
404	Elec Piano 1	MWheel	Vibrato
		MIDI 22	Reverb Wet/Dry level
		MIDI 23	Reverb Time
		MIDI 24	HF Dampening
		MIDI 25	L/R PreDelay Time
405	Elec Piano 2	MWheel	Vibrato
		MIDI 22	Reverb Wet/Dry level
		MIDI 23	Reverb Time
		MIDI 24	HF Dampening
		MIDI 25	L/R PreDelay Time
406	Harpsichord	MWheel	Vibrato
		MIDI 22	Reverb Wet/Dry level
		MIDI 23	Reverb Time
		MIDI 24	HF Dampening
		MIDI 25	L/R PreDelay Time
407	Clavinet	MWheel	Vibrato
		MIDI 22	Reverb Wet/Dry level
		MIDI 23	Reverb Time
		MIDI 24	HF Dampening
		MIDI 25	L/R PreDelay Time
408	Celeste	MWheel	Vibrato
		MIDI 22	Reverb Wet/Dry level
		MIDI 23	Reverb Time
		MIDI 24	HF Dampening
		MIDI 25	L/R PreDelay Time
409	Glockenspiel	MWheel	Vibrato
		MIDI 22	Reverb Wet/Dry level
		MIDI 23	Reverb Time
		MIDI 24	HF Dampening
		MIDI 25	L/R PreDelay Time
410	Music Box	MWheel	Vibrato
		MIDI 22	Reverb Wet/Dry level
		MIDI 23	Reverb Time
		MIDI 24	HF Dampening
		MIDI 25	L/R PreDelay Time
411	Vibraphone	MWheel	Vibrato
		MIDI 22	Reverb Wet/Dry level
		MIDI 23	Reverb Time
		MIDI 24	HF Dampening
		MIDI 25	L/R PreDelay Time
412	Marimba	MWheel	Vibrato
		MIDI 22	Reverb Wet/Dry level
		MIDI 23	Reverb Time
		MIDI 24	HF Dampening
		MIDI 25	L/R PreDelay Time
413	Xylophone	MWheel	Vibrato
		MIDI 22	Reverb Wet/Dry level
		MIDI 23	Reverb Time
		MIDI 24	HF Dampening
		MIDI 25	L/R PreDelay Time
414	Tubular Bell	MWheel	Vibrato
		MIDI 22	Reverb Wet/Dry level
		MIDI 23	Reverb Time
		MIDI 24	HF Dampening
		MIDI 25	L/R PreDelay Time
415	Santur	MWheel	Vibrato
		MIDI 22	Reverb Wet/Dry level
		MIDI 23	Reverb Time
		MIDI 24	HF Dampening
		MIDI 25	L/R PreDelay Time
		MIDI 26	Absorption
416	Drawbar Organ	MIDI 22	Reverb Wet/Dry level
		MIDI 23	Reverb Time
		MIDI 25	Vib/Chor In/Out
		MIDI 26	Aux Level
		MIDI 29 (Sw2)	Leslie Fast/Slow

ID	Name	Ctrl	Function
417	Perc Organ	MIDI 22	Reverb Wet/Dry level
		MIDI 23	Reverb Time
		MIDI 24	HF Dampening
		MIDI 25	Vib/Chor In/Out
		MIDI 26	Aux Level
		MIDI 29 (Sw2)	Leslie Fast/Slow
418	Rock Organ	MIDI 22	Reverb Wet/Dry level
		MIDI 23	Reverb Time
		MIDI 24	HF Dampening
		MIDI 25	Vib/Chor In/Out
		MIDI 26	Aux Level
		MIDI 29 (Sw2)	Leslie Fast/Slow
419	Church Organ	MWheel	Vibrato
		MIDI 22	Reverb Wet/Dry level
		MIDI 23	Reverb Time
		MIDI 24	HF Dampening
		MIDI 25	L/R PreDelay Time
420	Reed Organ	MWheel	Vibrato
		MIDI 22	Reverb Wet/Dry level
		MIDI 23	Reverb Time
		MIDI 24	HF Dampening
		MIDI 25	L/R PreDelay Time
421	Accordion	MWheel	Vibrato
		MIDI 22	Reverb Wet/Dry level
		MIDI 23	Reverb Time
		MIDI 24	HF Dampening
		MIDI 25	L/R PreDelay Time
		MIDI 26	LFO Rate
422	Harmonica	MWheel	Vibrato
		MIDI 22	Reverb Wet/Dry level
		MIDI 23	Reverb Time
		MIDI 24	HF Dampening
		MIDI 25	L/R PreDelay Time
		MIDI 26	LFO Rate
423	Bandoneon	MWheel	Vibrato
		MIDI 22	Reverb Wet/Dry level
		MIDI 23	Reverb Time
		MIDI 24	HF Dampening
		MIDI 25	L/R PreDelay Time
424	Nylon Guitar	MWheel	Vibrato
		MIDI 22	Reverb Wet/Dry level
		MIDI 23	Reverb Time
		MIDI 24	HF Dampening
		MIDI 25	L/R PreDelay Time

ID	Name	Ctrl	Function
425	Steel Str Guitar	MWheel	Vibrato
		MIDI 22	Reverb Wet/Dry level
		MIDI 23	Reverb Time
		MIDI 24	HF Dampening
		MIDI 25	L/R PreDelay Time
426	Jazz Guitar	MWheel	Vibrato
		MIDI 22	Reverb Wet/Dry level
		MIDI 23	Reverb Time
		MIDI 24	HF Dampening
		MIDI 25	L/R PreDelay Time
427	Clean Elec Guitar	MWheel	Vibrato
		MIDI 22	Reverb Wet/Dry level
		MIDI 23	Reverb Time
		MIDI 24	HF Dampening
		MIDI 25	L/R PreDelay Time
		MIDI 29 (Sw2)	Delay ON/Off
428	Muted Guitar	MWheel	Vibrato
		MIDI 22	Reverb Wet/Dry level
		MIDI 23	Reverb Time
		MIDI 24	HF Dampening
		MIDI 25	L/R PreDelay Time
		MIDI 29 (Sw2)	Delay ON/Off
429	OD Guitar	MWheel	Vibrato
		MIDI 22	Reverb Wet/Dry level
		MIDI 23	Reverb Time
		MIDI 24	Lo Pass
		MIDI 25	L/R PreDelay Time
430	Dist Guitar	MWheel	Vibrato
		MIDI 22	Reverb Wet/Dry level
		MIDI 23	L/R Delay Fdbk
		MIDI 29 (Sw2)	Alt start
431	Gtr Harmonics	MWheel	Vibrato
		MIDI 22	Reverb Wet/Dry level
		MIDI 23	L/R Delay Fdbk
432	Acoustic Bass	MWheel	Vibrato
		MIDI 22	Reverb Wet/Dry level
		MIDI 23	Reverb Time
		MIDI 24	HF Damping
		MIDI 25	L/R PreDelay Time
		MIDI 26	FX1 Aux Level
433	Finger Bass	MWheel	Vibrato
		MIDI 22	Reverb Wet/Dry level
		MIDI 23	Reverb Time
		MIDI 24	HF Dampening
		MIDI 25	L/R PreDelay Time

ID	Name	Ctrl	Function
434	Pick Bass	MWheel	Vibrato
		MIDI 22	Reverb Wet/Dry level
		MIDI 23	Reverb Time
		MIDI 24	HF Dampening
		MIDI 25	L/R PreDelay Time
435	Fretless Bass	MWheel	Vibrato
		MIDI 22	Reverb Wet/Dry level
		MIDI 23	Reverb Time
		MIDI 24	HF Dampening
		MIDI 25	L/R PreDelay Time
436	Slap Bass 1	MWheel	Vibrato
		MIDI 22	Reverb Wet/Dry level
		MIDI 23	Reverb Time
		MIDI 24	HF Dampening
		MIDI 25	L/R PreDelay Time
437	Slap Bass 2	MWheel	Vibrato
		MIDI 22	Reverb Wet/Dry level
		MIDI 23	Reverb Time
		MIDI 24	HF Dampening
		MIDI 25	L/R PreDelay Time
438	Synth Bass 1	MWheel	Vibrato
		MIDI 22	Reverb Wet/Dry level
		MIDI 23	Reverb Time
		MIDI 24	HF Dampening
		MIDI 25	L/R PreDelay Time
439	Synth Bass 2	MWheel	Vibrato
		MIDI 22	Reverb Wet/Dry level
		MIDI 23	Reverb Time
		MIDI 24	HF Dampening
		MIDI 25	L/R PreDelay Time
440	Violin	MWheel	Vibrato
		MIDI 22	Reverb Wet/Dry level
		MIDI 23	Reverb Time
		MIDI 24	HF Dampening
		MIDI 25	L/R PreDelay Time
441	Viola	MWheel	Vibrato
		MIDI 22	Reverb Wet/Dry level
		MIDI 23	Reverb Time
		MIDI 24	HF Dampening
		MIDI 25	L/R PreDelay Time
442	Cello	MWheel	Vibrato
		MIDI 22	Reverb Wet/Dry level
		MIDI 23	Absorption
		MIDI 24	HF Dampening
		MIDI 25	L/R PreDelay Time

ID	Name	Ctrl	Function
443	Contrabass	MWheel	Vibrato
		MIDI 22	Reverb Wet/Dry level
		MIDI 23	Reverb Time
		MIDI 24	HF Dampening
		MIDI 25	L/R PreDelay Time
444	Trem Strings	MWheel	Vibrato
		MIDI 22	Reverb Wet/Dry level
		MIDI 23	Reverb Time
		MIDI 24	HF Dampening
		MIDI 25	L/R PreDelay Time
445	Pizz Strings	MWheel	Vibrato
		MIDI 22	Reverb Wet/Dry level
		MIDI 23	Reverb Time
		MIDI 24	HF Dampening
		MIDI 25	L/R PreDelay Time
446	Harp	MWheel	Vibrato
		MIDI 22	Reverb Wet/Dry level
		MIDI 23	Reverb Time
		MIDI 24	HF Dampening
		MIDI 25	L/R PreDelay Time
447	Timpani	MWheel	Vibrato
		MIDI 22	Reverb Wet/Dry level
		MIDI 23	Reverb Time
		MIDI 24	HF Dampening
		MIDI 25	L/R PreDelay Time
448	Strings	MWheel	Vibrato
		MIDI 22	Reverb Wet/Dry level
		MIDI 23	Reverb Time
		MIDI 24	HF Dampening
		MIDI 25	L/R PreDelay Time
449	Slo Strings	MWheel	Vibrato
		MIDI 22	Reverb Wet/Dry level
		MIDI 23	Reverb Time
		MIDI 24	HF Dampening
		MIDI 25	L/R PreDelay Time
450	Syn Strings 1	MWheel	Vibrato
		MIDI 22	Reverb Wet/Dry level
		MIDI 23	Reverb Time
		MIDI 24	HF Dampening
		MIDI 25	L/R PreDelay Time
451	Syn Strings 2	MWheel	Vibrato
		MIDI 22	Reverb Wet/Dry level
		MIDI 23	Reverb Time
		MIDI 24	HF Dampening
		MIDI 25	L/R PreDelay Time

ID	Name	Ctrl	Function
452	Choir Aahs	MWheel	Vibrato
		MIDI 22	Reverb Wet/Dry level
		MIDI 23	Reverb Time
		MIDI 24	HF Dampening
		MIDI 25	L/R PreDelay Time
453	Voice Doos	MWheel	Vibrato
		MIDI 22	Reverb Wet/Dry level
		MIDI 23	Reverb Time
		MIDI 24	HF Dampening
		MIDI 25	L/R PreDelay Time
		MIDI 26	FX1 Aux Level
454	Syn Vox	MWheel	Vibrato
		MIDI 22	Reverb Wet/Dry level
		MIDI 23	Reverb Time
		MIDI 24	HF Dampening
		MIDI 25	L/R PreDelay Time
455	Orchestra Hit	MWheel	Vibrato
		MIDI 22	Reverb Wet/Dry level
		MIDI 23	Reverb Time
		MIDI 24	HF Dampening
		MIDI 25	L/R PreDelay Time
456	Trumpet	MWheel	Vibrato
		MIDI 22	Reverb Wet/Dry level
		MIDI 23	Reverb Time
		MIDI 24	HF Dampening
		MIDI 25	L/R PreDelay Time
457	Trombone	MWheel	Vibrato
		MIDI 22	Reverb Wet/Dry level
		MIDI 23	Reverb Time
		MIDI 24	HF Dampening
		MIDI 25	L/R PreDelay Time
458	Tuba	MWheel	Vibrato
		MIDI 22	Reverb Wet/Dry level
		MIDI 23	Reverb Time
		MIDI 24	HF Dampening
		MIDI 25	L/R PreDelay Time
459	Muted Trumpet	MWheel	Vibrato
		MIDI 22	Reverb Wet/Dry level
		MIDI 23	Reverb Time
		MIDI 24	HF Dampening
		MIDI 25	L/R PreDelay Time
460	French Horns	MWheel	Vibrato
		MIDI 22	Reverb Wet/Dry level
		MIDI 23	Reverb Time
		MIDI 24	HF Dampening
		MIDI 25	L/R PreDelay Time
461	Brass Section	MWheel	Vibrato
		MIDI 22	Reverb Wet/Dry level
		MIDI 23	Reverb Time
		MIDI 24	HF Dampening
		MIDI 25	L/R PreDelay Time
462	Synth Brass 1	MWheel	Vibrato
		MIDI 22	Reverb Wet/Dry level
		MIDI 23	Reverb Time
		MIDI 24	HF Dampening
		MIDI 25	L/R PreDelay Time
463	Synth Brass 2	MWheel	Vibrato
		MIDI 22	Reverb Wet/Dry level
		MIDI 23	Reverb Time
		MIDI 24	HF Dampening
		MIDI 25	L/R PreDelay Time
464	Soprano Sax	MWheel	Vibrato
		MIDI 22	Reverb Wet/Dry level
		MIDI 23	Reverb Time
		MIDI 24	HF Dampening
		MIDI 25	L/R PreDelay Time
465	Alto Sax	MWheel	Vibrato
		MIDI 22	Reverb Wet/Dry level
		MIDI 23	Reverb Time
		MIDI 24	HF Dampening
		MIDI 25	L/R PreDelay Time
466	Tenor Sax	MWheel	Vibrato
		MIDI 22	Reverb Wet/Dry level
		MIDI 23	Reverb Time
		MIDI 24	HF Dampening
		MIDI 25	L/R PreDelay Time
467	Baritone Sax	MWheel	Vibrato
		MIDI 22	Reverb Wet/Dry level
		MIDI 23	Reverb Time
		MIDI 24	HF Dampening
		MIDI 25	L/R PreDelay Time
468	Oboe	MWheel	Vibrato
		MIDI 22	Reverb Wet/Dry level
		MIDI 23	Reverb Time
		MIDI 24	HF Dampening
		MIDI 25	L/R PreDelay Time
469	English Horn	MWheel	Vibrato
		MIDI 22	Reverb Wet/Dry level
		MIDI 23	Reverb Time
		MIDI 24	HF Dampening
		MIDI 25	L/R PreDelay Time

ID	Name	Ctrl	Function
470	Bassoon	MWheel	Vibrato
		MIDI 22	Reverb Wet/Dry level
		MIDI 23	Reverb Time
		MIDI 24	HF Dampening
		MIDI 25	L/R PreDelay Time
471	Clarinet	MWheel	Vibrato
		MIDI 22	Reverb Wet/Dry level
		MIDI 23	Reverb Time
		MIDI 24	HF Dampening
		MIDI 25	L/R PreDelay Time
472	Piccolo	MWheel	Vibrato
		MIDI 22	Reverb Wet/Dry level
		MIDI 23	Reverb Time
		MIDI 24	HF Dampening
		MIDI 25	L/R PreDelay Time
473	Flute	MWheel	Vibrato
		MIDI 22	Reverb Wet/Dry level
		MIDI 23	Reverb Time
		MIDI 24	HF Dampening
		MIDI 25	L/R PreDelay Time
474	Recorder	MWheel	Vibrato
		MIDI 22	Reverb Wet/Dry level
		MIDI 23	Reverb Time
		MIDI 24	HF Dampening
		MIDI 25	L/R PreDelay Time
475	Pan Flute	MWheel	Vibrato
		MIDI 22	Reverb Wet/Dry level
		MIDI 23	Reverb Time
		MIDI 24	HF Dampening
		MIDI 25	L/R PreDelay Time
476	Bottle Blow	MWheel	Vibrato
		MIDI 22	"Wet/Dry level, Feedback Level"
		MIDI 23	L/R Dly Time
477	Shakuhachi	MWheel	Vibrato
		MIDI 22	Reverb Wet/Dry level
		MIDI 23	Reverb Time
		MIDI 24	HF Dampening
		MIDI 25	L/R PreDelay Time
478	Whistle	MWheel	Vibrato
		MIDI 22	Reverb Wet/Dry level
		MIDI 23	Reverb Time
		MIDI 24	HF Dampening
		MIDI 25	L/R PreDelay Time

ID	Name	Ctrl	Function
479	Ocarina	MWheel	Vibrato
		MIDI 22	Reverb Wet/Dry level
		MIDI 23	Reverb Time
		MIDI 24	HF Dampening
		MIDI 25	L/R PreDelay Time
480	Square Wave	MWheel	Vibrato
		MIDI 22	Reverb Wet/Dry level
		MIDI 23	Reverb Time
		MIDI 24	HF Dampening
		MIDI 25	L/R PreDelay Time
481	Saw Wave	MWheel	Vibrato
		MIDI 22	Reverb Wet/Dry level
		MIDI 23	Reverb Time
		MIDI 24	HF Dampening
		MIDI 25	L/R PreDelay Time
482	Syn Calliope	MWheel	Vibrato
		MIDI 22	Reverb Wet/Dry level
		MIDI 23	Reverb Time
		MIDI 24	HF Dampening
		MIDI 25	L/R PreDelay Time
483	Chiffer Lead	MWheel	Vibrato
		MIDI 22	Reverb Wet/Dry level
		MIDI 23	Reverb Time
		MIDI 24	HF Dampening
		MIDI 25	L/R PreDelay Time
484	Charang	MWheel	Vibrato
		MIDI 22	Reverb Wet/Dry level
		MIDI 23	Reverb Time
		MIDI 24	HF Dampening
		MIDI 25	L/R PreDelay Time
485	Solo Vox	MWheel	Vibrato
		MIDI 22	Reverb Wet/Dry level
		MIDI 23	Reverb Time
		MIDI 24	HF Dampening
		MIDI 25	L/R PreDelay Time
486	5th Saw Wave	MWheel	Vibrato
		MIDI 22	Reverb Wet/Dry level
		MIDI 23	Reverb Time
		MIDI 24	HF Dampening
		MIDI 25	Mix Delay
487	Bass & Lead	MWheel	Vibrato
		MIDI 22	Reverb Wet/Dry level
		MIDI 23	Reverb Time
		MIDI 24	HF Dampening
		MIDI 25	L/R PreDelay Time

ID	Name	Ctrl	Function
488	Fantasia	MWheel	Vibrato
		MIDI 22	Reverb Wet/Dry level
		MIDI 23	Reverb Time
		MIDI 24	HF Dampening
		MIDI 25	L/R PreDelay Time
489	Warm Pad	MWheel	Vibrato
		MIDI 22	Reverb Wet/Dry level
		MIDI 23	Reverb Time
		MIDI 24	HF Dampening
		MIDI 25	L/R PreDelay Time
490	Poly Synth	MWheel	Vibrato
		MIDI 22	Reverb Wet/Dry level
		MIDI 23	Reverb Time
		MIDI 24	HF Dampening
		MIDI 25	L/R PreDelay Time
491	Space Voice	MWheel	Vibrato
		MIDI 22	Reverb Wet/Dry level
		MIDI 23	Reverb Time
		MIDI 24	HF Dampening
		MIDI 25	L/R PreDelay Time
492	Bowed Glass	MWheel	Vibrato
		MIDI 22	Reverb Wet/Dry level
		MIDI 23	Reverb Time
		MIDI 24	HF Dampening
		MIDI 25	L/R PreDelay Time
493	Metallic Pad	MWheel	Vibrato
		MIDI 22	Reverb Wet/Dry level
		MIDI 23	Reverb Time
		MIDI 24	HF Dampening
		MIDI 25	L/R PreDelay Time
494	Halo Pad	MWheel	Vibrato
		MIDI 22	Reverb Wet/Dry level
		MIDI 23	Reverb Time
		MIDI 24	HF Dampening
		MIDI 25	L/R PreDelay Time
495	Sweep Pad	MWheel	Vibrato
		MIDI 22	Reverb Wet/Dry level
		MIDI 23	Reverb Time
		MIDI 24	HF Dampening
496	Ice Rain	MWheel	Vibrato
		MIDI 22	Reverb Wet/Dry level
		MIDI 23	L/R Mix Delay
		MIDI 24	L/R Delay Feedback
		MIDI 25	Delay Tempo
497	Soundtrack	MWheel	Vibrato
		MIDI 22	Reverb Wet/Dry level
		MIDI 23	L/R Mix Reverb
		MIDI 24	L/R Delay Time
498	Crystal	MWheel	Vibrato
		MIDI 22	Reverb Wet/Dry level
		MIDI 23	Reverb Time
		MIDI 24	HF Dampening
		MIDI 25	L/R PreDelay Time
499	Atmosphere	MWheel	Vibrato
		MIDI 22	Reverb Wet/Dry level
		MIDI 23	Reverb Time
		MIDI 24	HF Dampening
		MIDI 25	L/R PreDelay Time
500	Brightness	MWheel	Vibrato
		MIDI 22	Reverb Wet/Dry level
		MIDI 23	Reverb Time/Absorption
		MIDI 24	HF Dampening
		MIDI 25	L/R PreDelay Time
501	Goblins	MWheel	Vibrato
		MIDI 22	Reverb Wet/Dry level
		MIDI 23	Reverb Time
		MIDI 24	Lo Pass
		MIDI 25	L/R PreDelay Time
		MIDI 26	Aux LateRvb Time
502	Echo Drop	MWheel	Vibrato
		MIDI 22	Reverb Wet/Dry level
		MIDI 23	Reverb Time
		MIDI 24	HF Damping
		MIDI 25	L/R PreDelay Time
503	Star Theme	MWheel	Vibrato
		MIDI 22	Reverb Wet/Dry level
		MIDI 23	Reverb Time
		MIDI 24	HF Damping
		MIDI 25	L/R PreDelay Time
504	Sitar	MWheel	Vibrato
		MIDI 22	Reverb Wet/Dry level
		MIDI 23	Reverb Time
		MIDI 24	HF Damping
		MIDI 25	L/R PreDelay Time
505	Banjo	MWheel	Vibrato
		MIDI 22	Reverb Wet/Dry level
		MIDI 23	Reverb Time
		MIDI 24	HF Damping
		MIDI 25	"L/R PreDelay Time, Build Time"

ID	Name	Ctrl	Function
506	Shamisen	MWheel	Vibrato
		MIDI 22	Reverb Wet/Dry level
		MIDI 23	Reverb Time
		MIDI 24	HF Damping
		MIDI 25	L/R PreDelay Time
507	Koto	MWheel	Vibrato
		MIDI 22	Reverb Wet/Dry level
		MIDI 23	Reverb Time
		MIDI 24	HF Damping
		MIDI 25	L/R PreDelay Time
508	Kalimba	MWheel	Vibrato
		MIDI 22	Reverb Wet/Dry level
		MIDI 23	Reverb Time
		MIDI 24	HF Damping
		MIDI 25	L/R PreDelay Time
509	Bagpipe	MWheel	Vibrato
		MIDI 22	Reverb Wet/Dry level
		MIDI 23	Reverb Time
		MIDI 24	HF Damping
		MIDI 25	L/R PreDelay Time
510	Fiddle	MWheel	Vibrato
		MIDI 22	Reverb Wet/Dry level
		MIDI 23	Reverb Time
		MIDI 24	HF Damping
		MIDI 25	L/R PreDelay Time
511	Shanai	MWheel	Vibrato
		MIDI 22	Reverb Wet/Dry level
		MIDI 23	Reverb Time
		MIDI 24	HF Damping
		MIDI 25	L/R PreDelay Time
		MIDI 26	Wet/Dry of Delay
512	Tinkle Bell	MWheel	Vibrato
		MIDI 22	Reverb Wet/Dry level
		MIDI 23	Reverb Time
		MIDI 24	HF Damping
		MIDI 25	L/R PreDelay Time
		MIDI 26	Mix Delay
513	Agogo	MWheel	Vibrato
		MIDI 22	Reverb Wet/Dry level
		MIDI 23	Reverb Time
		MIDI 24	HF Damping
		MIDI 25	L/R PreDelay Time
514	Steel Drum	MWheel	Vibrato
		MIDI 22	Reverb Wet/Dry level
		MIDI 23	Reverb Time
		MIDI 24	HF Damping
		MIDI 25	L/R PreDelay Time

ID	Name	Ctrl	Function
515	Woodblock	MWheel	Vibrato
		MIDI 22	Reverb Wet/Dry level
		MIDI 23	Reverb Time
		MIDI 24	HF Damping
		MIDI 25	L/R PreDelay Time
516	Taiko Drum	MWheel	Vibrato
		MIDI 22	Reverb Wet/Dry level
		MIDI 23	Reverb Time
		MIDI 24	HF Damping
		MIDI 25	L/R PreDelay Time
517	Melodic Drum	MWheel	Vibrato
		MIDI 22	Reverb Wet/Dry level
		MIDI 23	Reverb Time
		MIDI 24	HF Damping
		MIDI 25	L/R PreDelay Time
		MIDI 29 (Sw2)	Aux Lvl
518	Synth Drum	MWheel	Vibrato
		MIDI 22	Reverb Wet/Dry level
		MIDI 23	Reverb Time
		MIDI 24	HF Damping
		MIDI 25	L/R PreDelay Time
519	Rev Cymbal	MWheel	Vibrato
		MIDI 22	Reverb Wet/Dry level
		MIDI 23	Reverb Time
		MIDI 24	HF Damping
520	Gtr. Fret Noise	MWheel	Vibrato
		MIDI 22	Reverb Wet/Dry level
		MIDI 23	Reverb Time
		MIDI 24	HF Damping
		MIDI 25	L/R PreDelay Time
521	Breath Noise	MWheel	Vibrato
		MIDI 22	Reverb Wet/Dry level
		MIDI 23	Reverb Time
		MIDI 24	HF Damping
		MIDI 25	L/R PreDelay Time
522	Seashore	MWheel	Vibrato
		MIDI 22	Reverb Wet/Dry level
		MIDI 23	Reverb Time
		MIDI 24	HF Damping
		MIDI 25	L/R PreDelay Time
523	Birds	MWheel	Vibrato
		MIDI 22	Reverb Wet/Dry level
		MIDI 23	Reverb Time
		MIDI 24	HF Damping
		MIDI 25	L/R PreDelay Time

ID	Name	Ctrl	Function
524	Telephone	MWheel	Vibrato
		MIDI 22	Reverb Wet/Dry level
		MIDI 23	Reverb Time
		MIDI 24	HF Damping
		MIDI 25	L/R PreDelay Time
525	Helicopter	MWheel	Vibrato
		MIDI 22	Wet/Dry level
526	Applause	MWheel	Vibrato
		MIDI 22	Reverb Wet/Dry level
		MIDI 23	Reverb Time
		MIDI 24	HF Damping
527	Gunshot	MWheel	Vibrato
		MIDI 22	Reverb Wet/Dry level
		MIDI 23	Reverb Time
		MIDI 24	HF Damping
		MIDI 25	L/R PreDelay Time
528	Standard Kit	MWheel	Vibrato
		MIDI 22	Reverb Wet/Dry level
		MIDI 23	Reverb Time
		MIDI 24	HF Damping
		MIDI 25	L/R PreDelay Time
529	Room Kit	MWheel	Vibrato
		MIDI 22	Reverb Wet/Dry level
		MIDI 23	Reverb Time
		MIDI 24	HF Damping
		MIDI 25	L/R PreDelay Time
530	Power Kit	MWheel	Vibrato
		MIDI 22	Reverb Wet/Dry level
		MIDI 23	Reverb Time
		MIDI 24	HF Damping
		MIDI 25	L/R PreDelay Time
531	Synth Kit	MWheel	Vibrato
		MIDI 22	Reverb Wet/Dry level
		MIDI 23	LFO Period
		MIDI 24	HF Damping
		MIDI 25	Min/Max Frequency
532	Analog Kit	MWheel	Vibrato
		MIDI 22	Reverb Wet/Dry level
		MIDI 23	LFO Period
		MIDI 24	HF Damping
		MIDI 25	Min/Max Frequency
533	Jazz Kit	MWheel	Vibrato
		MIDI 22	Reverb Wet/Dry level
		MIDI 23	Reverb Time
		MIDI 24	HF Damping
		MIDI 25	L/R PreDelay Time
534	Brush Kit	MWheel	Vibrato
		MIDI 22	Reverb Wet/Dry level
		MIDI 23	Reverb Time
		MIDI 24	HF Damping
		MIDI 25	L/R PreDelay Time
535	Orch Kit	MWheel	Vibrato
		MIDI 22	Reverb Wet/Dry level
		MIDI 23	Reverb Time
		MIDI 24	HF Damping
		MIDI 25	L/R PreDelay Time

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