

E - M U S Y S T E M S , I N C .

E M U S Y S T E M S
EMULATOR
T H R E E
REFERENCE
M A N U A L



Emulator III
Reference Manual
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■ FI 401 Rev. D

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Important Notice: In order to obtain warranty service on your Emulator III, the serial number sticker on the back panel must be intact, and you must have a sales receipt or other proof of purchase. If there is no serial number sticker on your Emulator III, please contact E-mu Systems at once.



WARNING: READ THIS FIRST!

IMPORTANT SAFETY INSTRUCTIONS

Use in countries other than the U.S.A. may require the use of a different line cord or attachment plug, or both. To reduce the risk of fire or electric shock, refer servicing to qualified service personnel. To reduce risk of fire or electric shock do not expose this product to rain or moisture.

GROUNDING INSTRUCTIONS

This product must be grounded. If it should malfunction or break down, grounding provides a path of least resistance for electric current, reducing the risk of electric shock. This product is equipped with a cord having an equipment-grounding conductor and a grounding plug. The plug must be plugged into an appropriate outlet properly installed and grounded in accordance with all local codes and ordinances.

DANGER

Improper connection of equipment grounding conductor can result in the risk of electric shock. Check with a qualified electrician or service personnel if you are in doubt as to whether the product is properly grounded. Do not modify the plug provided with this product. If it will not fit the outlet, have a proper outlet installed by a qualified technician.

CAUTION

If the 6100, EIIIxp is rack mounted, a standard 19 inch open frame rack must be used.

USER-MAINTENANCE INSTRUCTIONS

1. The EIIIxp should be kept clean and dust free. Periodically wipe the unit with a clean, lint free cloth. Do not use solvents or cleaners.
2. There are no user lubrication or adjustment requirements.
3. Refer all other servicing to qualified service personnel.

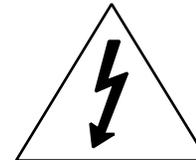
INSTRUCTIONS PERTAINING TO A RISK OF FIRE, ELECTRIC SHOCK, OR INJURY TO PERSONS

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

1. Read all instructions before using the EIIIxp.
2. To reduce the risk of injury, close supervision is necessary when the EIIIxp is used near children.
3. Do not use the EIIIxp near water — for example near a bathtub, washbowl, kitchen sink, in a wet basement, on a wet bar, or near or in a swimming pool.
4. The EIIIxp should be situated so that its location or position does not interfere with its proper ventilation.
5. The EIIIxp should be located away from heat sources such as radiators, heat registers, fireplaces, stoves, or ovens.
6. The EIIIxp should only be connected to a power supply of the type described in the operating instructions and as marked on the product.
7. Care should be taken so that objects do not fall and liquids are not spilled into the enclosure of the EIIIxp through openings.



■ This symbol is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.



■ This symbol 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.

8. This EIIIxp 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 this plug into the outlet, do not defeat the safety purpose of the plug. Contact an electrician to replace your obsolete outlet.

9. The power supply cord of the EIIIxp should be unplugged from the outlet when left unused for a long period of time.

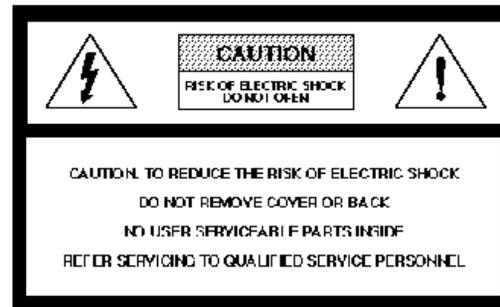
10. This product, in combination with an amplifier and headphones and speakers, may be capable of producing sound levels that could cause permanent hearing loss. Do not operate for a long period of time at a high volume level or at a level that is uncomfortable. If you experience any hearing loss or ringing in the ears, consult an audiologist.

11. The product should be serviced by qualified service personnel when:

- A. The power supply cord has been damaged; or
- B. Objects have fallen, or liquid has been spilled into the product; or
- C. The product has been exposed to rain; or
- D. The product has been dropped or the enclosure damaged; or
- E. The EIIIxp does not operate normally or exhibits a marked change in performance.

12. All servicing should be referred to qualified service personnel.

SAVE THESE INSTRUCTIONS



RADIO and TELEVISION INTERFERENCE

The equipment described in this manual generates and uses radio-frequency energy. If it is not installed and used properly-- that is, in strict accordance with our instructions - it may cause interference with radio and television reception.

This equipment has been tested and complies with the limits for a Class A computing device in accordance with the specifications in Subpart J of Part 15 of the FCC rules. These rules are designed to provide reasonable protection against such interference in a residential installation. However, there is no guarantee that the interference will not occur in a particular installation, especially if a "rabbit ear" TV antenna is used.

If the EIIIxp *does* cause interference to radio or television reception, you can try to correct the interference by using one or more of the following measures:

- Turn the television or radio antenna until the interference stops.
- Move the EIIIxp to one side or the other of the television or radio.
- Move the EIIIxp farther away from the television or radio.
- Plug the EIIIxp into an outlet on a different circuit than the television or radio.
- Consider installing a rooftop antenna with a coaxial lead-in between the antenna and television set.

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GENERAL INSTRUCTIONS



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INTRODUCTION

This is the reference manual for the Emulator Three X Digital Sound Production System. It contains detailed information on all aspects of the EIII's operation.

If you are totally unfamiliar with samplers and synthesizers in general, you may need more information than this manual provides. We suggest that you read some of the many books and magazines on the subject of music synthesis in order to learn the basics while you are learning about the Emulator III. This will help you to get the most out of this extremely powerful instrument.

The functions of the Emulator III are detailed in this manual by their module. Screen displays and step-by-step instructions are described for all aspects of use and operation. ■ Sidebars are used to highlight important points or to give useful operational tips which might not be readily apparent.

We encourage you to take a moment now to read the E-mu Systems warranty and to fill out and send in your warranty registration card. By doing so, you are assured of receiving news of all updates and manual revisions.

What's an EIII?

The EIII is the latest in the long line of E-mu sampling products, beginning with the Emulator I and evolving into the EII and EIII. In developing the EIII, we have retained the logical and easy-to-use user interface of the EIII and enhanced it with our all-digital, state-of-the-art G-chip and H-chip hardware. The G-chip allows noise-free sample transposition over a ± 5 octave range. The H-chips retain the warm character of analog filters while keeping the signal entirely in the digital domain.

The EIII can be used as an EIII expander unit or as a stand-alone sample playback system. In addition, the EIII is fully compatible with the original EIII and has full access to the huge library of sounds available from E-mu and other sources.

Some of the major enhancements from the original EIII are as follows:

- 32 megabytes of sample RAM (non-proprietary, user installable)
- 32 audio channels (16 stereo)
- 8 polyphonic, balanced audio outputs
- Up to 999 samples per bank
- Up to 256 presets per bank
- All digital signal path for lower noise and improved reliability
- Digital I/O (S/PDIF, AES/EBU)
- Improved user interface simplifies multi-timbral operation

One difference from the original EIII is in the deliberate omission of analog sample inputs. We have discovered that most people do not sample their own sounds and we feel that you should not have to pay for a expensive feature that you may not use. Furthermore, the widespread use of portable DAT recorders incorporating digital I/O makes built-in A/D converters redundant. Any audio gear incorporating an A/D converter and digital I/O can function as a sampling "front end" for the EIII.

You should plan on purchasing a mass storage device for use with the EIII, if you don't already own one. When dealing with large banks of up to 32 MB, a floppy disk drive simply doesn't cut it even for back-up. An optical or hard disk is an absolute must!

The EIII is an extremely powerful and reliable, fourth generation instrument. We at E-mu Systems sincerely hope it will help you realize and further your musical dreams.

INITIAL SCSI SETUP

In order to move sounds in and out of the EIIIX you need a mass storage device such as a hard disk or optical disk. The EIIIX can load and save sounds using the floppy disk drive, but this is really a terrible waste of your time. Plan on getting a mass storage device as soon as possible. If your EIIIX has a built-in hard disk drive, you can skip this section and go directly to the connection instructions. This initial setup section contains step-by-step instructions on how to connect the EIIIX to the following SCSI setups:

- Connecting the EIIIX to a pre-formatted and loaded hard disk.
- Connecting the EIIIX to an un-formatted hard (or optical) disk.

Connecting EIIIX to a Pre-formatted Hard Disk

(Your EIIIX dealer has pre-formatted a hard disk drive for you and loaded it with sounds.)

1. Position the SCSI device and the EIIIX in a stable location.

Hard disk drives are particularly susceptible to shock and vibration. Make sure that you position your hard disk where it won't be bumped or moved while in use.

2. Connect the SCSI device to your EIIIX. Connect the EIIIX to your SCSI system using a quality SCSI cable. There are two type of SCSI cables in regular use: 50-pin Centronics type and the 25-pin DB connector type. The EIIIX uses the Centronics type connector. If your external SCSI device uses the DB connector you can use an adaptor cable to eliminate the mismatch.

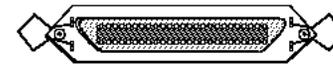
3. Turn on the external SCSI device.

4. Wait about five seconds, then apply power to the EIIIX. The EIIIX should power up normally.

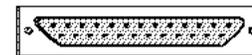
5. Check the SCSI connection. Press LOAD BANK. Use the data slider to scroll through the available presets and press ENTER to load the desired preset.

6. Connect the EIIIX to your audio mixer and MIDI setup.

■ If you are unfamiliar with connecting a SCSI systems or need additional information, please refer to the section "USING SCSI".



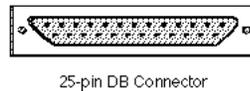
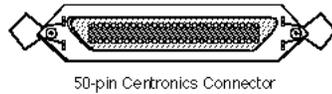
50-pin Centronics Connector



25-pin DB Connector

▼ Turn all devices OFF whenever you change the SCSI cable. Devices left on when the cable is unplugged, may not respond properly until powered off and on.

Connecting EIIIX to an Unformatted Hard Disk



■ Always use 50-pin Centronics-type cables with the EIIIX. These cables have much better electrical characteristics and have fewer problems.

▼ Turn all devices OFF whenever you change the SCSI cable. Devices left on when the cable is unplugged, may not respond properly until powered off and on.

1. Position the SCSI device and the EIIIX in a stable location. Hard disk drives are particularly susceptible to shock and vibration. Make sure that you position your hard disk where it won't be bumped or moved while in use.

2. Connect the SCSI device to your EIIIX. Connect the EIIIX to your SCSI system using a quality SCSI cable. There are two type of SCSI cables in regular use, 50-pin Centronics type and the 25-pin DB connector type. The EIIIX uses the Centronics type connector. If your external SCSI device uses the DB connector you can use an adaptor cable to eliminate the mismatch.

3. Set the SCSI ID of your external SCSI device to any number other than 5. (5 is the default ID of the EIIIX). Consult the operation manual of your SCSI device for this procedure.

4. Turn on the external SCSI device.

5. Insert the software floppy disk supplied with your EIIIX into the floppy disk drive. Insert the disk, metal end first with the label side up.

6. Apply power to the EIIIX. The EIIIX should power up normally. It will wait a few seconds, then begin loading the floppy disk software. Remove the floppy disk when the EIII has finished loading and put it aside in a safe place.

7. Make sure your hard disk really is unformatted. Formatting a hard disk erases all the data on it. Press the **Load** button. If the display reads, "No Valid Drives" the drive isn't formatted. Continue on to step eight.

8. Format the hard disk. Press the Master/Global button, then 77 on the numeric keypad. The display should read, "FORMAT DISK". Use the data slider to select your hard disk, then press ENTER. The display asks, "Are You Sure?" Press the Inc/Yes button to confirm. Formatting takes a few minutes. Time to take a break.

9. Copy the floppy disk software onto the hard disk. Use the Copy Software function (Master/Globals, 7, 4). The display shows:

COPY SOFTWARE from
D0 Floppy Drive

Select a Drive

Press ENTER. The display now asks you to insert the software disk. Insert the software disk supplied with your EIIIX. **Press ENTER.** The display now shows:

```
COPY SOFTWARE from
DO Floppy Drive

Erases Bank! OK? Y/N
```

Press the Inc/Yes button. (Don't worry. Since you haven't loaded anything into the bank yet, there is nothing to be erased.) The software will be loaded from the floppy disk into the EIIIX's memory. The display now shows:

```
COPY SOFTWARE into
DO Floppy Drive
D1 Hard Disk Name
Select a Drive
```

Your hard disk should be listed on line 3 of the display. If it is not, use the data slider to select it. **Press ENTER.**

10. Reboot the System. Remove the floppy disk from the drive if you haven't already. Turn off the EIIIX and the hard disk, then turn both units back on. The EIIIX should now boot from your hard disk.

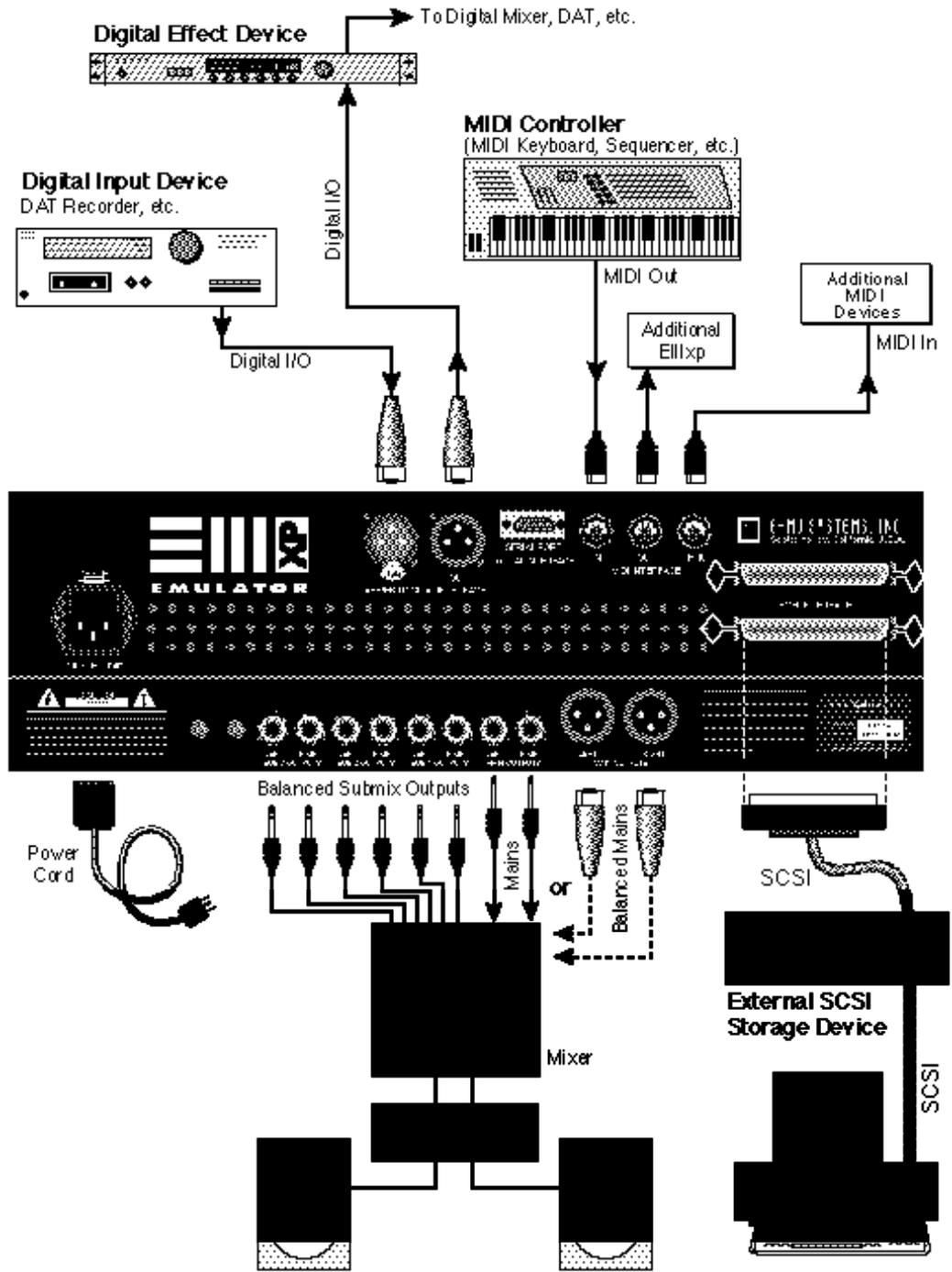
Put your software floppy disk in a safe place in case anything ever goes wrong.

(You should make another copy of the software floppy disk as a backup. Simply use the same formatting and software copying procedure you just performed except that you choose floppy disk instead of the hard disk when asked.)

■ If you are unfamiliar with connecting a SCSI systems or need additional information, please refer to the section "USING SCSI".

■ The EIIIX software should not be copied to more than one disk drive. The EIIIX will always boot from the drive with the lowest ID number. Use the Erase Software function (MASTER, Disk Utilities, 9) to remove the software from a disk drive.

▼ Turn all devices OFF whenever you change the SCSI cable. Devices left on when the cable is unplugged, may not respond properly until powered off and on.



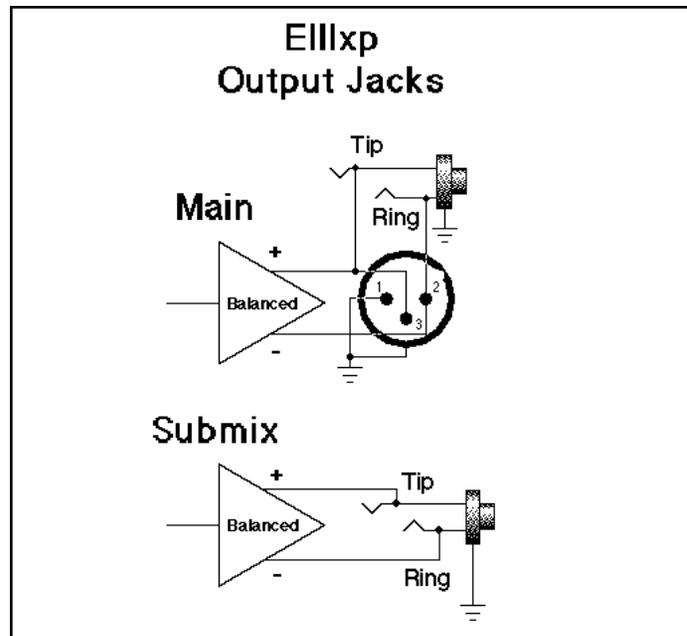
CONNECTION INSTRUCTIONS

Connecting to a Mixer

■ **Main Outputs:** The Emulator IIIX has provisions for a variety of output connection schemes. The most common hookup will probably be using the main stereo outputs. The outputs of the EIIIIX are all balanced, but they can be used as unbalanced outputs by grounding the negative pin. Output level is +4 dBm (approximately 12 volts p-p). Output impedance is 10 Ω . The EIIIIX will also drive stereo headphones, which can be plugged directly into the headphone output on the front panel.

■ **Submix Outputs:** In addition to the main stereo outputs, the EIIIIX has three additional pairs of submix outputs that can be used when individual processing on specific instruments is desired. These outputs are all +4 dBm and are balanced. Output impedance is 10 Ω . Any combination of channels can be programmed to appear at any of the submix output pairs (1, 2 or 3). Any keyboard zone (key range) can be assigned to any submix pair using the Output Channel function in the Dynamic Processing module. MIDI channels can be assigned to submix outputs using the Multimode Mix function in the Master/Globals module.

■ *The submix outputs use a "plug sensing" scheme which re-routes the signal to the main outputs if a plug is not inserted.*



This diagram shows how the EIIIIX output jacks are wired. The submix outputs function as unbalanced outputs when a standard mono plug is inserted.

Stereo Headphone Output

The headphone output is located on the left side of the front panel and is capable of driving all types of stereo headphones. The output level is controlled by the master volume slider.

MIDI Connection

The Emulator IIIX provides a MIDI IN, a MIDI OUT and a MIDI THRU port.

■ The MIDI IN port on the EIIIIX connects to the MIDI OUT port of an external MIDI controller which could be a keyboard, a sequencer, MIDI drum kit or whatever. Note that the EIIIIX can only respond to information that your controller transmits. If your MIDI keyboard does not have velocity and pressure sensitivity, the EIIIIX will not respond to velocity and pressure.

■ MIDI OUT can be connected to another MIDI instrument or computer. The MIDI OUT jack is used to transmit preset change information, MIDI sample dump information (transfers sample data) or for MIDI Overflow mode, which allows a second EIIIIX to be connected to the MIDI OUT to double the number of channels. See Preset Definition, 6, MIDI for more details.

■ MIDI THRU simply re-transmits any information received at the MIDI IN port. **Use cords that have been designed specifically for MIDI.** While regular 5 pin DIN cords may work, they are not shielded correctly for MIDI use and may cause ground loops between equipment.

Digital I/O

The digital input and output jacks allow you to transfer audio back and forth with other digital devices equipped with either AES/EBU or S/PDIF digital I/O. The digital input allows you to sample directly from a DAT recorder or other digital device. The digital output reflects the data at the main outputs of the EIIIIX. See the Sample Management module and Main output Format (*located under Special in the Master/Globals menu*) for more information.

SCSI

The SCSI connectors are high-speed parallel interfaces which are normally used to interface the EIIIIX with external mass storage devices such as hard disks or magneto-optical discs. A SCSI port can also be used to link the EIIIIX with an external computer for extremely fast file transfers.

For more information on SCSI installation, see the section, "Using SCSI". You may also want to refer to the operation manual that accompanies your external SCSI device.

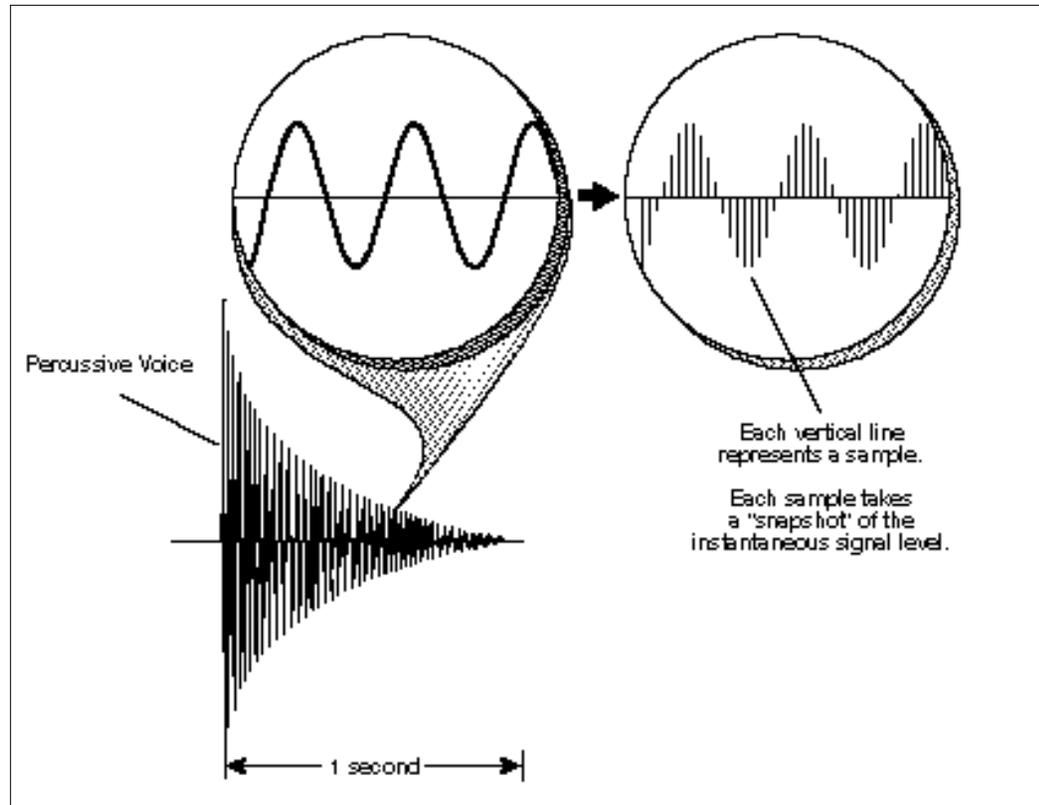
110V / 220V Operation

The Emulator IIIIX may be used in either 110 volt or 220 volt environments at either 50 Hz or 60 Hz. No change of voltage settings is required. **The EIIIIX automatically switches itself for 100 or 220 Volt operation.**

AC Power Connection and Fuse

The AC power connector is where the Emulator IIIIX gets its power. The fuse receptacle is located directly over the power receptacle. Before changing or checking a fuse, UNPLUG the power cord. To remove the fuse holder, squeeze the two tabs located on either side of the fuse holder together. The fuse holder will now pop out with its two fuses. The Emulator IIIIX uses two 2-amp, 250 volt fast-blo mini-fuses. The EIIIIX should not normally blow fuses. If a fuse that has been replaced blows again, do not attempt another replacement. Have the unit serviced!

SAMPLING BASICS



DIGITAL SAMPLING. The signal level is repeatedly measured at a high rate and the measurements stored in digital memory. On playback, the measurements are converted back into voltages to reconstruct the original waveform.

Throughout this manual we will use the terms and concepts described and defined below. Read through this section carefully, even if you don't retain it all. You can refer back periodically as you read through the manual until you understand the basics and definitions.

The Emulator III is conceptually like a tape recorder. However, the recording process is very different since the EIII digitally records into its computer memory. Sounds for the EIII can be loaded via removable-media hard disk, magneto-optical disk, CD-ROM using the SCSI interface; or through the AES/EBU Digital interface; or through MIDI using MIDI Sample Dump.

Computers can accept information only in the form of numbers, so first the EIIIX accepts audio signals coded into binary numbers. Samplers work by examining (sampling) the incoming signal level at a very high rate (44,100 times a second for compact discs), and sequentially records these different levels in memory. Once stored, these samples may be played back (in the proper sequence, of course) to reconstruct the original signal. For instance, if a two-second sound was being sampled at 44.1 kHz, it would require (2 X 44,100) or 88,200 samples to be recorded. As you might imagine, shorter sounds require fewer samples.

A sound can be manipulated once it has been recorded. Playing back the samples in reverse order from which they were stored plays the sound backwards. Playing back the samples at a faster rate than the rate at which they were stored raises the pitch. Playing back at a slower rate lowers the pitch, much like a tape recorder's variable speed control.

How the Emulator IIX Organizes Sounds

Sure, you're anxious to start coaxing wonderful sounds from the instrument—but the following is a necessary part of learning how to play the Emulator IIX. It is important to understand how the EIIIX organizes sounds in order to make best use of the instrument in the shortest possible time. Many terms will be introduced now that show up later in the manual.

You can think of the EIIIX as resembling a collection of sound-organizing modules, all contained within an EIIIX bank. Pathways indicate how information flows within the EIIIX. Let's take a closer look at what makes up this information, and how it is transferred from one section of the instrument to another. We'll start with individual samples, then work our way through the system.

The Sample

Loading in any sound in mono or stereo creates a sample, the raw material with which the EIIIX works. The total available sampling time can be divided up any way you like—one long sample, lots of short samples, a few medium samples, or any combination thereof.

The term sample commonly means two different things:

- 1) A digital recording of a complete sound, or
 - 2) each snapshot of the sound that makes up the complete sample.
- Confusing? You bet! In this manual, we'll assume sample means the complete recorded sound unless indicated otherwise.

■ *Since wide-range transposition alters the sample's timbre, it is often necessary to use multiple samples and transpose each one over a small range to give the most realistic sound. This is particularly true with acoustic instruments.*

You can modify a raw sample in several ways:

■ **Transposition:** A sample can be transposed up or down in pitch to cover a particular range of the keyboard. By doing this, it is not necessary to record a sample for every key.

■ **Digital Processing:** Digital processing consists of **Looping** a sample (allowing even short samples to play indefinitely).

■ **Dynamic Processing:** Just as synthesizers include signal processors (filter, voltage-controlled amplifier, envelope generators, LFO, and so on) to modify the sounds produced by the synth's oscillators, the Emulator IIIX includes similar modules for modifying raw samples or combinations of samples.

DEFINITIONS

The Preset

As mentioned above, a sample can be assigned to a single note on the keyboard, or transposed polyphonically to cover a wider keyboard range. **A preset is one entire keyboard setup.** The process of assigning, and optionally transposing, samples to specific ranges of the keyboard is called making a preset. Making a preset is a three-step process:

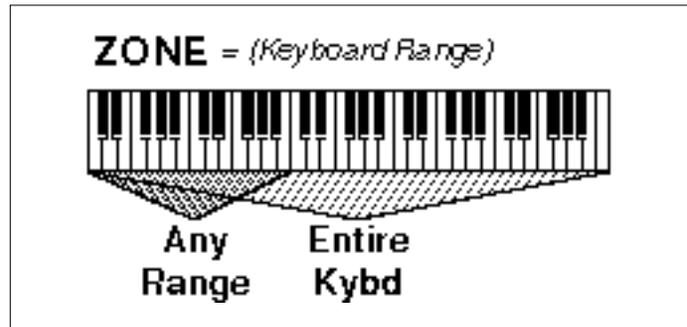
1. Create the preset and give it a number and name. The bank can hold up to 256 Presets (000-255).

2. Place samples to different keyboard ranges. For example, with five samples you could assign each sample to cover one octave of the keyboard. A sample can be assigned more than once within a given preset, and assigned to more than one preset.

3. Choose from a number of the available options that further define the preset. Some examples are: assigning samples to partially or fully overlap other samples, thus producing doubling effects, or assigning dynamic control to individual samples in a preset. You can modify zone parameters, add arpeggiation, and set up MIDI and dynamic processing parameters.

The Zone

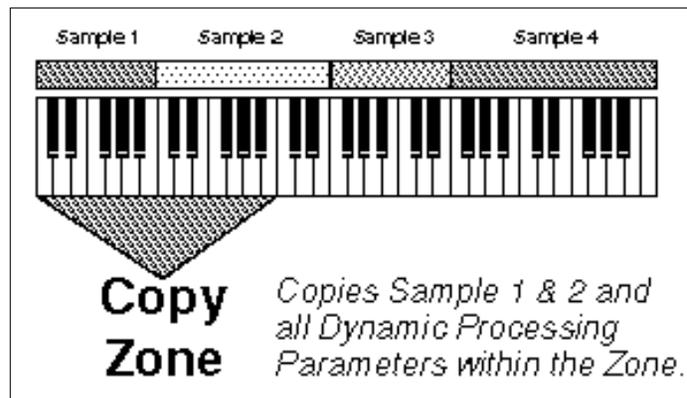
A particular range of the keyboard is called a zone. This can include one or more samples. The zone's boundaries need not be the same as the boundaries of the samples contained in the zone. Zones free you from having to think about where the actual samples are assigned. You just select a range of keyboard (a zone) and go!



As an example, suppose you wanted to set the velocity response for the entire keyboard. You would first select the zone range by playing the lowest and highest keys when prompted by the EIII. Next you would set the velocity response (in the Dynamic Processing module). Done.

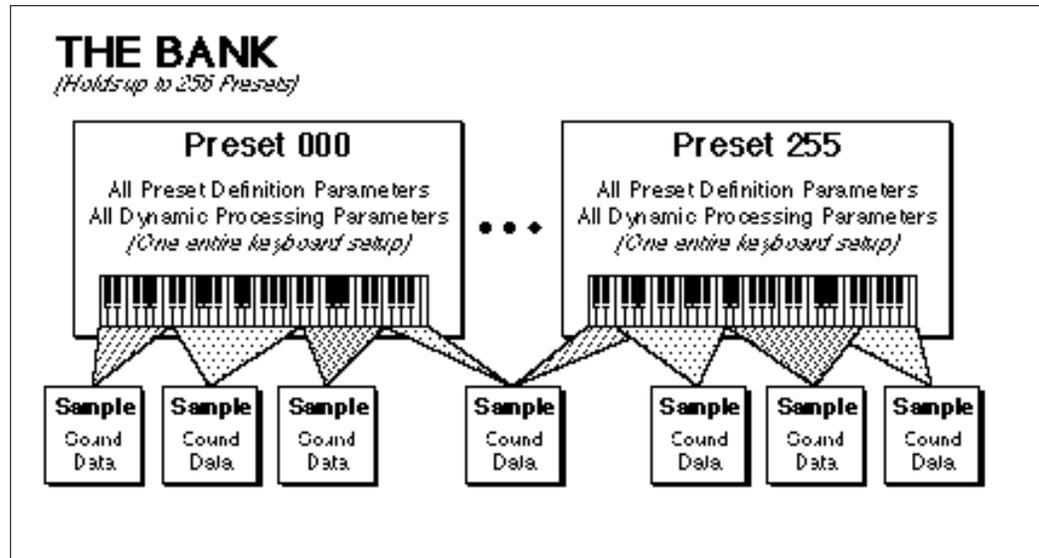
Now, suppose you wanted just the lower half of the keyboard to pan from left to right as you play up the keyboard. You would simply select a zone for the lower half of the keyboard, then change the pan settings as desired.

When you copy a zone, the appropriate samples will be picked up along with the Dynamic Processing parameters.



The Bank

The memory bank contains samples, zones and presets. **Everything.** Consider the bank as the central storehouse for all of the Emulator III's data. Although the memory is volatile, meaning that the data disappears when you turn off power, all bank data can be saved permanently to the hard disk drive or other media to keep a record of your work.



The Internal Drive

A disk drive is a mass-storage memory device that stores banks. The Emulator III has a built-in floppy disk drive which is used mainly for operating system software. (The operating system of a computer are the instructions that tell the computer what to do.) However, other types of drives, as described below, can connect to the EIII to provide sound storage.

■ **Floppy Disk Drive (Drive 0):** The floppy disk drive accommodates 3.5", double-sided, double-density (DSDD) floppy disks. The floppy drive on the EIII is used mainly as a convenient way to periodically update the operating system software although it can be used to load and save sounds. Because of the larger bank size of the EIII, the floppy disk is not practical for backing-up sound data.

When the E-mu wizards come up with exciting new enhancements, the new software is usually distributed on floppy disk. As described later in the manual, this software can be copied on to a hard disk and made a permanent part of the EIII.

External Drives

The EIIIIX includes a SCSI (Small Computer Systems Interface) connector on the rear panel. This interface is commonly used in the computer industry, so many devices made to work with computers—particularly mass storage devices—will also work with the EIIIIX. Here are some of the types of mass storage devices that can plug into the EIIIIX's SCSI connector.

■ **Hard Disk Drive:** A hard disk provides the advantages of much higher memory capacity and far faster access time. Transferring data to and from the EIIIIX is quite straightforward. However, you cannot remove a hard disk and replace it with another one—the disk is a permanent part of the drive. There are three main cautions involved with hard disks:

- Hard disks are sensitive to extreme mechanical shocks. If your hard disk falls off a keyboard stand, chances are the hard disk will be damaged.
- Make sure power is not interrupted when you write data to the hard disk.
- Hard disks have reached a very high level of reliability. However, they can fail from time to time (as can any part of a computer), so any data should be backed up periodically and regularly on some other medium.

■ **Removable-media Hard Disk Drives:** These are similar to normal hard disk drives except that the disk itself can be removed and replaced with another disk. Disk densities can range from 44 Mbytes to well over 100 Mbytes per platter. Removable-media hard disk drives allow you to build a sound library of unlimited size and are quite handy for transferring sounds between machines.

■ **CD-ROM Drive:** A CD-ROM is a playback-only (data cannot be written to it) mass storage memory device whose capacity is approximately 660 Megabytes. Quality CD-ROM libraries are available from several companies. (Northstar, Optical Media International, E-mu Systems, Inc.) These can be loaded into the bank as easily as you would load from a hard disk.

■ **Magneto-Optical Drive:** Basically a read/writable CD, these high speed, high density storage devices are currently the hottest thing around for storing large amounts of sound data. Typically a magneto-optical drive can upwards of 300 Mb per side and the removable cartridges can be used over and over. Disk access time is comparable to a normal hard disk, and is sometimes even faster!
Advantages: High-speed, high-density, reliable, removable.
Disadvantage: High cost (*although prices are dropping fast*).

ADDITIONAL DEFINITIONS

The Primary and Secondary Sample

An Emulator III key provides for two channels. These contain the primary and secondary samples. For example, the primary sample might be a guitar note and the secondary sample a detuned version of the same guitar note. When played together, you hear chorusing. Also, a preset contains information about how the keyboard dynamics affect the primary and secondary samples. As an example, the primary sample could be that of a drum hit played softly, and the secondary of a drum hit played loudly. Thus, playing the keyboard softly would play the primary sample, and playing the keyboard more forcefully would play the secondary sample.

The Current Preset

When you load a bank, a preset will be ready to play and the display will show the preset number. This is the current preset. If you select another preset, or create a preset, that will become the current preset.

The Current Sample

When loading an individual sample, you will need to specify the sample number and name into which the sound should be recorded. This is called the current sample.

Modules

A module controls a particular set of functions in the Emulator III. There are six main modules: **Master/Globals**, **Preset Management**, **Preset Definition**, **Sample Management**, **Digital Processing**, and **Dynamic Processing**.

■ **Activating a Module and the Module Identifier:** To work with a module, you must first activate it. Press the button associated with the desired module. The display will then show the Module Identifier and invite you to select a submodule.

■ **Submodule:** Each module contains several numbered submodules that set controls for additional functions. There are two ways to select a submodule within the module. You can move the data slider until the display shows the desired submodule, then press **ENTER**. As you work with the EIII, though, you will start to memorize the submodule numbers and will probably find it faster to simply key in the appropriate submodule number using the numeric keypad. When using the keypad, it is not necessary to press **ENTER**. Pressing either the module button or the Escape button will cancel the operation.

■ *If a module is already active, and you are finished with one submodule, you do not need to re-activate the module—just key in the new submodule number.*

Saving

The bank only retains data for as long as the Emulator III is plugged in and turned on. Of course, we don't expect you to leave the thing on all the time, which brings us to the subject of saving data.

Pressing the **SAVE** button on the Control Panel shuttles all the bank data (samples and presets) to the drive of your choice. A hard disk permanently stores data so that even after turning off the Emulator III, the disk will contain a record of your work.

IF YOU DO NOT SAVE A BANK, ALL BANK DATA WILL BE LOST WHEN YOU TURN OFF THE MACHINE.

Do not wait until the end of a session to save. Save your work periodically in case of power failure or some other unforeseen circumstance that might erase the bank's memory. Hard disks are *not* infallible. All hard disk banks should be backed up periodically to another hard disk or other media. Should you improve the preset, sample, or sequence later, you can always replace the original with the revised version. And if something goes wrong, the original will still be available to save you the ordeal of starting from scratch. **Whenever you have done enough work that you would hate to lose it, back it up!**

Since the disk contains a record of the bank data, loading the disk back into the bank transfers all the sample and preset data into the bank. This will replace the existing bank data, if any.

Booting

Booting is a computer term that means "having the computer read the software necessary for its operation from the disk." (It's easy to see why this was shortened to booting.) The EIII automatically boots itself from a hard disk when you turn it on. Once booted, the instrument is ready to go. If the hard disk is damaged for some reason, the EIII can be booted from a suitable floppy disk.

Default

A default setting is what we've judged to be a useful initial setting, and remains in effect until you change it. For example, if you create a new preset, the arpeggiator will default to Off. Had it defaulted to the on position, all new presets would be arpeggiated.

■ *If you want to maintain compatibility with the original EIII, use function Master, 5 "Save as EIII Bank". This will allow the EIII to load your EIII bank.*

The Cursor

The cursor is that small flashing line on the display. It sits under the number or letter that will be altered if you enter data. Entering a new value will overwrite the number or letter above the cursor, whereupon the cursor will move on to the next number or letter (if applicable). If the EIII is expecting a two or three-digit number, in most cases you must enter all the required digits even if some of these are zeroes (called leading zeroes). For example, if the EIII is expecting a three-digit number and you want to enter 8, you would enter 008. If it is expecting a single-digit number, entering 8 would be sufficient.

Data Slider & Increment/Decrement Buttons

In virtually all instances where the data slider selects options, the Increment (Inc/Yes) and Decrement (Dec/No) switches duplicate the slider. Press Inc/Yes to increase a value, or Dec/No to decrease.

Selecting

When the instructions say to select an option, you can use whatever method is most comfortable for you: the data slider, the Increment/Decrement buttons, the numeric keypad (if applicable) and, when naming, the keyboard keys. Some functions do not implement all these options; you can't go wrong by trying, though. If a function doesn't respond to the numeric keypad, for instance, then pressing the keypad will have no effect. Use the data slider or the Inc/Dec buttons instead.

The Big Re-Cap

- A sample is a raw sound that is loaded into the bank.
- To create a new preset, make sure you have all the samples required for the preset in the bank, number and name a preset, then assign combinations of samples from the bank to specific sections of the keyboard. By specifying one or more of these samples (or portions thereof) as a zone, the zone may then be processed by the EIII's dynamic signal processors.
- After arranging a bank, it can be saved to one or more drives.
- Since loading from a hard disk fills the bank with samples and presets, you can group these samples into new presets, process the samples contained in particular zones, or alter existing presets.

MASTER VOLUME **2-2**

DATA SLIDER **2-2**

INC/DEC BUTTONS **2-2**

TEN KEY PAD **2-2**

ESCAPE **2-3**

ENTER **2-3**

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MASTER VOLUME

The **Master Volume Slider** controls the volume of every audio output on the EIII including the submix and headphone outputs. The master volume slider is a digital control. For maximum dynamic range it should be kept near the maximum position.

Controls

DATA SLIDER

Using the **Data Slider** is the most common way to change parameter values on the EIII. Moving the slider changes either the data over the flashing cursor or scrolls through options in the display.

INCREMENT/DECREMENT BUTTONS

On all EIII menus where the data slider selects options, the **Increment (Inc/Yes)** and **Decrement (Dec/No) Buttons** duplicate the slider function. The increment/decrement should be used when a finer degree of control is required. They can also be used for selecting Yes or No.

TEN KEY PAD

The **Ten Key Pad** is used to enter data in precise amounts. For instance, if you wanted to jump to preset 10, enter 10 on the ten key pad and the new preset number will be instantly selected, eliminating the process of finding the number with the data slider and then pressing **ENTER**.

ESCAPE

The **Escape** button lets you back out of the module by one menu each time the button is pressed. It can also be used anytime you do not want to execute a particular function (*bail out*). In the Sample Management module, pressing the Escape button terminates the sampling process.

ENTER

Controls

A flashing **ENTER** LED means that the EIIIX wants you to do something, indicating either that data needs to be entered, or that pressing the **ENTER** button will activate an operation. If the **ENTER** LED is lit steadily, pressing **ENTER** is optional. Doing so will exit you from the function and return you to the Module Identifier. You also have the option of going directly to another function within the module.

AUDITION

The **Audition Button** allows you to play notes on the EIIIX directly from the front panel without a MIDI keyboard being connected. The note that will be played is selected from the Audition Key function, located under Special in the Master/Globals module.

CURSOR/PAGE

The **Cursor** is a small flashing line that appears in the display window under the data that is currently being edited. The **Cursor/Page Buttons** are used to move the cursor around in the display. The buttons are marked with arrows to indicate the direction of movement. Some of the functions on the Emulator IIX have more options than will fit on a single page of the display. In this case the < and > arrows become the **Page** selects, allowing you to move through the various pages of the display.

CURSOR/ PAGE

■ *Selecting Presets using the left and right cursor keys only works when the ELIX is NOT in Multimode.*

Controls

PRESET SELECTION

The Cursor/Page keys perform the following functions:

1. Moving the cursor. To move the flashing cursor line in a particular direction in order to select a different function, simply press the corresponding cursor key.

2. Selecting the display page. In many submodules, a single screen of the LCD cannot display all the available parameters. Arrows (< ->) in the display indicate that there are additional screens which may be viewed by pressing the corresponding cursor button.

3. Selecting presets. When no modules are selected, and the cursor is placed under the preset number, presets may be incremented or decremented by pressing the left and right cursor buttons. This method is useful for live performance - arrange your presets in the desired order, and step through them as needed.

4. Adding or deleting a space when naming. A quick and easy way to add or delete a space when naming samples or presets is to use the left and right cursor keys. The up key adds a space and the down key deletes a space.

Selecting the Current Preset

With no modules active, the display will show the Current Preset name and number on line 1 of the display. The blinking cursor will appear under the preset number's first digit. **There are five ways to change the Current Preset:**

1. Enter a three-digit number with the keypad. If you enter a number for which there is no Preset, the lower display line will show the illegal Preset number and say Empty Preset. Try again.

2. Move the data slider or the increment buttons. The top display line will continue to show the Current Preset, but the lower line will scroll through the available Presets as you move the data slider. When the lower line shows the Preset that you want as the Current Preset, press ENTER.

3. Increment or decrement the Current Preset (as displayed in the top line) with the left and right cursor buttons. This method is useful for live performance—arrange your Presets in the desired order, and step through them as needed.

4. Use a footswitch to advance through the presets.

5. Use a MIDI program change command. Receive Preset Change must be enabled (Preset Definition, 6, MIDI).

To see the Current Preset number at any time, de-activate any active modules and look at the display.

SAVE BANK

A bank consists of presets and samples. The **Save** function saves this data from the Emulator III's memory bank to the floppy disk, hard disk or other external SCSI device.

1. Press Save.

2. If necessary, select the drive top which the bank will be saved. The EIII will default to the current drive. If you want to choose a different drive, place the cursor under the drive number in line two, select the appropriate drive and press **ENTER**.

SAVE BANK into
D1 Internal HD

Select a Drive

3. Select the bank number to which the bank will be saved, then press ENTER. Empty banks are indicated as such, along with their bank number on line three. Or, you can overwrite an existing bank.

SAVE BANK into
D1 Internal HD
B00 Stereo Grand X
Select a Bank

EIII banks always have an "X" at the end of the bank name to differentiate it from an EII bank.

4. After pressing ENTER the bank will be saved. The display will say: Saving Bank. The display will revert to the preset selection screen.

Controls

■ If you want to maintain compatibility with the original EIII, use function Master, 5 "Save as EIII Bank". This will allow the EIII to load your EIII bank.

▼ You cannot load and save floppy disk files from the original EIII.

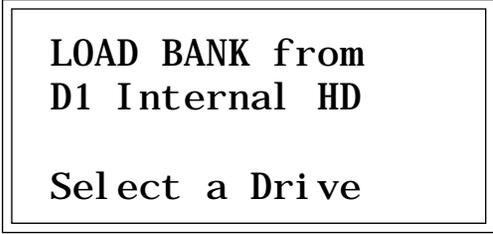
LOAD BANK

Controls

A bank consists of presets and samples. The **Load** function loads this data into the Emulator IIX's memory bank from the floppy disk, hard disk or other external SCSI device.

1. Press Load.

2. If necessary, select the drive containing the bank to be loaded. The EIIIX will default to the current drive. If you want to choose a different drive, place the cursor under the drive number in line two, select the appropriate drive and press **ENTER**.

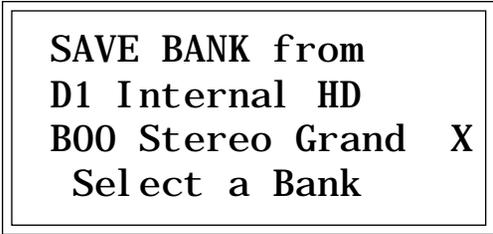


LOAD BANK from
D1 Internal HD
Select a Drive

■ *EIIIX banks will not load into the original EIII. If you want to maintain compatibility with the EIII, use function Master, 5 "Save as EIII Bank". This will allow the EIII to load your EIIIX bank.*

▼ *You cannot load and save floppy disk files from the original EIII.*

3. Select the bank number that contains the bank to be loaded, then press ENTER. The display will say: Loading Bank. After a few seconds, the bank will be loaded. The display will revert to the preset selection screen.



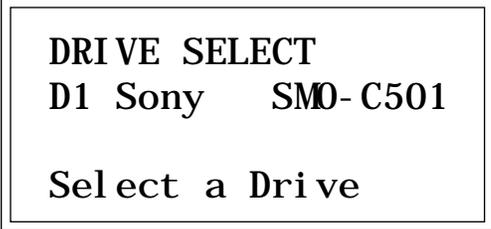
SAVE BANK from
D1 Internal HD
B00 Stereo Grand X
Select a Bank

EIIIX banks always have an "X" at the end of the bank name to differentiate it from an EIII bank.

DRIVE SELECT

The **Drive Select Button** selects which storage device will be used when loading or saving. The Emulator III X may have an internal hard disk and/or several external SCSI devices connected. **Drive Select** allows you to select which storage device will be used.

1. Press Drive Select. The display shows:



DRIVE SELECT
D1 Sony SMO- C501
Select a Drive

Controls

2. Use the Data Slider or 10 Key Pad to select the desired drive, then press ENTER. Any subsequent Load or Save operations will now use the selected drive.

MULTIMODE

Controls

The **Multimode Button** puts the Emulator III X into Multimode, where it can receive on up to 16 MIDI channels at once. Multimode is used for multi-timbral sequencing and when using a keyboard that can transmit on more than one MIDI channel at a time. The Multimode screen is where you assign presets to MIDI channels for multi-timbral sequencing. You can also set the volume and stereo pan position for each channel's preset.

1. **Press Multimode.** The display shows:

MIDI CHANNEL:	01
Volume:	127
Pan +00
000 Synth Flute	

2. **Use the cursor buttons to select one of the following parameters to edit.** The volume, pan and preset can be programmed for each of the 16 MIDI channels. Use the data slider or inc/dec buttons to change the MIDI channel, Volume or Pan setting. **If you do not want the EIII X to respond to certain MIDI channels, set the preset for those channels to "Unassigned" which is located just below preset 000.**

▼ Pan **adds** to the pan settings made in the dynamic processing module. Setting the Dynamic Processing Pan to 00 allows the Pan parameter to have total control of stereo positioning.

MIDI CHANNEL:	02
Volume:	116
Pan - 01
Unassigned	

3. **After assigning the Preset, Volume and Pan setting for each MIDI channel, press ENTER.** The display will revert to the preset selection screen.

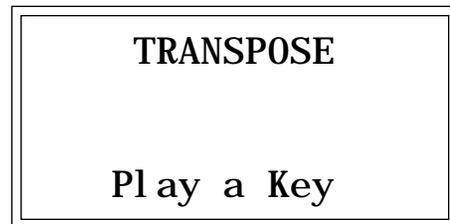
TRANSCOPE

This function transposes the entire EIII in half-step intervals up to \pm one octave. When in multimode, all channels will be transposed. When the EIII is in Transpose mode, the Transpose LED will be lit steadily. A new transposition can be selected at any time, regardless of whether or not the Transpose LED is lit.

Some applications are:

- Use one key's fingerings in a different key. Modulate to a different key without having to use different fingerings.
- Use transpose to easily reach hidden zones that lie beyond the ends of the physical keyboard.

1. Press and hold Transpose. Its LED flashes, and the display shows:



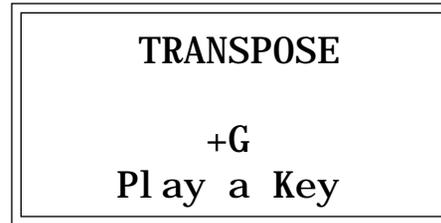
2. While holding Transpose, select the desired transposition interval. All transpositions are referenced to C2, the second C from the left hand side of the keyboard.

Some examples are:

- To transpose down one octave, press C1.
- To transpose up one octave, press C3.
- To transpose up a fourth, press F2.

Note that pressing keys C#3-C4, C#4-C5, or C#5-C6 will, in each case, produce the same effect as pressing keys C#2-C3.

3. While holding Transpose, check the display to confirm the transposition interval. Upward transpositions are indicated with a + symbol, downward transpositions with a - symbol. For example, if the EIII \bar{X} is transposed up a fifth, the display will show:



TRANSPOSE
+G
Play a Key

4. Release Transpose to retain the transposition. The Transpose LED stays lit to remind you that the EIII \bar{X} is transposed.

5. To cancel the transposition, press and hold Transpose and press C2. Display line three will go blank. Release Transpose and the LED should now be off.



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THE EIII MODULAR SYSTEM

Each module of the Emulator IIIX affects a certain area of the Emulator IIIX's operation. You first select a module, then choose which parameter with the module you wish to adjust.

Each module will be discussed in detail later on; the following is intended mostly as background information.

■ **Function Buttons:** These are the buttons that get you going. Load Bank and Enter load disk data into the EIII, Save Bank lets you save your work to disk, and Transpose, as you probably suspect, transposes the keyboard.

■ **Master/Globals:** This module contains functions that affect the overall keyboard or bank: Master Tune, Memory Available, Erase Bank, Rename Bank Save as EIII Bank, various disk utilities, global MIDI settings and the Special commands.

■ **Sample Management:** This module allows you to input sounds from the digital I/O port or through MIDI into the bank.

■ **Digital Processing:** With this module, you may edit the loop (i.e. infinitely sustain) any portion of the sample.

■ **Preset Management:** This module handles the preset “house-keeping duties”, including load presets or entire banks from disk, create, copy, rename, or erase presets and check on how much memory space a preset uses up.

■ **Preset Definition:** This module lets you change parameters within a given preset. You can set up the arpeggiator or MIDI options, assign pitch bend and modulation wheels to control various parameters in realtime, copy or erase zones, edit the sample assignment, and set some keyboard parameters (dynamics and crossfade between overlapping samples).

■ **Dynamic Processing:** This module sets parameters that are familiar to those who have worked with analog synthesizers. You can set the dynamics by adjusting the VCA envelope, control timbre using the VCF (filter) and its associated AHDSR envelope generator, modulate the signal with the LFO, tie the keyboard velocity to various parameters, set the tuning, attenuation, and delay for each zone, and more.

Activating a Module, Selecting Functions, and De-activating a Module

Here is important background information on how to access the various module functions. As the Guided Tours progress, this information will relate to practical examples.

■ **Activating:** Each module has an associated switch. Most of these are in the right-most section indicated by the blue bars next to the buttons. Pushing the associated switch activates the module, and is indicated by an LED next to the switch. Upon activation, the top line of the display will show the Module Identifier (such as Master/Globals, Preset Management, etc.). In some cases, upon activation the display will ask you to specify the current zone or current sample (as described in the next guided tour).

■ **Selecting Functions:** Each module includes a printed list of functions on the front panel. These functions are available when the module is active. To select a module function, key in its associated number with the keypad.

■ **De-activating:** When you're finished with the module, either press its button again to de-activate, or activate a new module. Pressing the Escape button will move you back out of the module by one menu.

■ *Remember: if you want to save modified presets, save the altered bank to disk. Otherwise, any changes will be lost as soon as power to the Emulator III is interrupted.*



■ *Any time you make a mistake, get confused or otherwise "lost in the module" and want to bail out, you can de-activate, then reactivate the module and try again. The Escape button works in a similar manner.*

Guided Tour No. 1: MEET THE EIII

Welcome to the Guided Tours! If you have just met the Emulator III for the first time, we suggest that you follow these tours until you complete the Guided Tours section. This will get you up and running on the EIII in the fastest possible time. Also, you'll learn some tricks in this section that will come in handy as you play some more with the Emulator III. This tour covers how to:

- Load a Bank from the Hard Disk
- Select Different Presets within the Bank
- Load and Save to Floppy Disks
- Tune the EIII to Other Instruments
- Transpose the Keyboard

Guided
Tours

Loading a Bank From the Hard Disk

Press the Load button. The display says: Load Bank, and shows the name and number of the current bank. Use the data slider to scroll through the available hard disk banks. Stop when you find the bank you want, then press ENTER.

An alternate method of loading a hard disk bank is to press Load, then type in the number of the bank using the numeric keypad. The display will show the current preset number and name. The cursor will flash underneath the first digit. Start playing the keyboard and adjust the master volume slider for a comfortable listening level.

Selecting Different Presets

The bank you just loaded contains several presets. To call up a new current preset, use the up/down cursor buttons to position the cursor under the preset number, then use the keypad underneath the display. Note that leading zeroes must be entered for preset numbers (i.e. type 0, 0 and 2, not just 2, to call up preset 002). Now type 0, 0 then 2 on the keypad; these will replace the numbers indicated by the flashing cursor.

Now call up more presets. If you enter a number for which there is no preset, the display will list the entered preset number and say "Empty Preset". Try again.

To scroll through the presets available in the bank, move the data slider. The various preset names will scroll on the lower display line. When this line shows the desired preset, press ENTER to make that the current preset. This is an alternative preset selection method.

Yet another method is to use the left and right cursor buttons to increment or decrement through the presets. This method allows you to arrange your presets in the proper order, then access them sequentially with a single press of a button.

When you're ready to check out some more sounds, proceed.

Saving Data to a Hard Disk

The hard disk drive is used to make permanent backups of your work. The capacity of the floppy drive is too small to make efficient back-ups, therefore only the hard disk (or its equivalent) can be used for sound storage.

■ To Save a Bank to Disk:

1. Press the Save button. Position the cursor under the drive number in line two. Select the disk drive using the data slider. **Press ENTER.**

2. Use the Data Slider to select an Empty Bank. Empty banks are indicated as such, along with their bank number on line three. Saving to a non-empty bank erases the bank that was previously saved there.

3. Press ENTER to save the Bank. The display will revert to the preset selection screen.

Tuning the EIIIX to Other Instruments

Refer to the Master/Globals module, 1. Master Tune. This function demonstrates how the Emulator IIX uses the data slider to adjust a parameter. Play the keyboard while adjusting the data slider to change the overall tuning.

Transposing the Keyboard

Refer to the function button Transpose. While holding the transpose button, play a key on the keyboard in the lower two octaves. The second C from the bottom (C2) corresponds to normal or no transposition. All transpositions are based from this C2 key. For example, pressing the G key above C2 will transpose the keyboard up a perfect fifth. If the keyboard has been transposed, the transpose LED will stay lit. Press and hold the transpose button while pressing C2 to return to normal transposition.

Guided Tour No. 2: SPECIFYING THE CURRENT SAMPLE and THE CURRENT ZONE

The Emulator IIIX has two modules dedicated exclusively to processing **samples** within a preset: Digital Processing and Sample Management. Each sample stored in a bank can be processed by the Digital Processing module independently. Therefore, we need a way to specify the current sample, which is the individual sample to be processed.

The concept of the current sample is important. To process one sample out of a preset, assign the current sample to be that one sample, and process it.

Zones are sections of the keyboard which can be selected to apply Dynamic Processing parameters or to be copied, erased or loaded from another preset. A copied zone contains samples as well as analog parameters. A zone can be one key or the entire keyboard range.



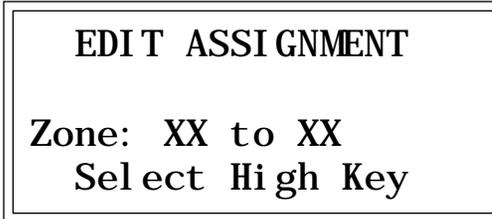
■ To Identify Which Keyboard Keys Belong to Which Sample:

- 1. Activate the Preset Definition module.***
- 2. Select 2. Edit Assignment.***

```
EDIT ASSIGNMENT
P00 pri D2
p01 Sample Name
No Secondary Sample
```

3. Play a key on the keyboard. Line two shows the preset number and the last key pressed. Line three shows the primary sample assigned to the key, and line four shows the secondary sample, if any, assigned to the key. As you run your fingers up and down the keyboard, the primary and or secondary sample numbers will change indicating the keyboard range of those samples. Moving the data slider will also show you the sample boundaries.

4. Choose a sample and press ENTER. The display now shows the range of the current zone on the upper line of the display. Don't play any keys but press ENTER again. Now the display shows something like this, where XX is the name of the key (such as D2).



EDIT ASSIGNMENT
Zone: XX to XX
Select High Key

Specifying the Zone of the Dynamic Processing Module

Now that we know how many samples there are in the preset, and the range covered by each sample, let's specify a range of keys to be altered by the Dynamic Processing Module, starting with the lowest key.

- 1. Activate the Dynamic Processing module.**
- 2. Select 0. Select Zone.**

3. Specify the range of the zone. The display instructs you to "Select Low Key". Press the lowest key on the keyboard, then press the ENTER button (whose LED is now flashing). The display then instructs you to "Select High Key". Press a key on the keyboard near the top of the keyboard, then press ENTER. The display now shows the current zone and prompts you to "Select a Submodule".

At this point, you can begin modifying the sounds in the bank with the Dynamic Processing module. The assigned current zone will remain as is until you either change the current zone assignment, change presets, or load another bank. If you switch between modules, the current zone remains as assigned (unless you select the Digital Processing Module, which will be a subject of a later tour).

Before proceeding, look over Dynamic Processing, 0. Select Zone to help reinforce what you've learned. Now that you know what a zone is and how to specify it, we've reached the end of this tour. Feel free to come back any time to refresh your memory. In the next tour, we'll see how to modify samples with the Dynamic Processing section.

Guided Tour No. 3: DYNAMIC PROCESSING OF A ZONE

The Dynamic Processing module consists of several interesting sound processing functions. Let's start with the Filter and VCA sections, as they are among the most important.

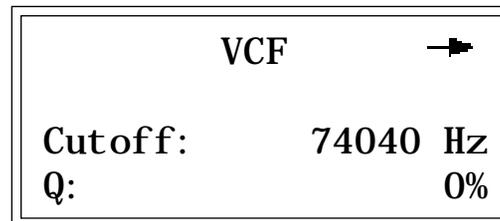
The VCA function contains 32 Voltage Controlled Amplifiers that control the amplitude envelope of a sound. The filter function contains 32 Voltage Controlled Filters that control the timbre of a sound. (Note: The voltage controlled filters and amplifiers are actually implemented digitally. The names VCF and VCA are kept for EIII compatibility.)

Working with the Filter

You could activate the Filter Setup function directly by keying in 3. However, let's investigate another way to select the filter function. Move the data slider to catalog the various Dynamic Processing functions. When the display shows function 3. VCF, press ENTER.

■ To Change the Filter Cutoff Frequency:

1. **Activate the Dynamic Processing module, 3. VCF.** The display should look something like this:



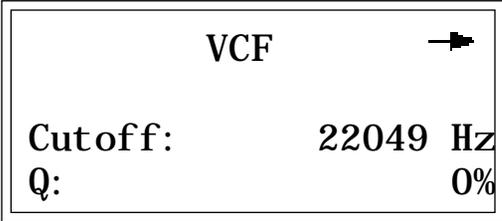
Play with the up and down cursor buttons. Note how you can move the cursor under the various parameters to be adjusted. For now, move the cursor under the Cutoff frequency on line three.

2. **Select the filter cutoff frequency.** To do this, vary the data slider. Note how the numbers to the right of cutoff change. Lower numbers mean a lower filter cutoff frequency (less high frequencies). Higher numbers mean a higher filter cutoff frequency (more high frequencies). Observe how only the notes within the current zone are affected by the slider setting.

■ You must re-trigger a note to hear any changes. Holding down a note and playing the slider will not change the sound; you must play the note after changing the slider to hear the results. This is true when making any changes to the sound, not just while you're in the filter function or the Dynamic Processing Module.

Now might be a good time to mention that although we are changing the sounds in the bank, the sounds on the disk remain unchanged. This is because we haven't saved the bank to disk. You can fool around with the bank sounds as much as you want without having to worry about altering the original sounds on the disk.

■ To Change Filter Q:

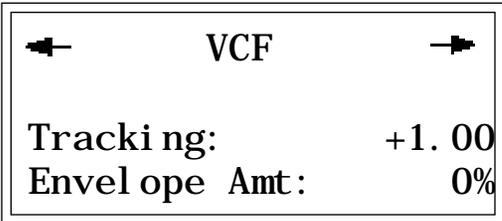


1. Move the cursor to the Q% on line four. Vary the slider to change the sharpness of the sound. Higher numbers give a sharper sound. Again, this affects only the range of notes covered by the current zone. Set the Q at about 60 and proceed.

2. Move the cursor back to Cutoff on line three. Vary the data slider. Note how this produces a sort of wa-wa effect. Remember, you have to re-trigger the key to hear the results of changing the Q. Set Cutoff to 200 Hz and Q to about 50. The range of notes covered by the current zone should sound muted.

■ To Change the Filter Cutoff Envelope:

1. Select page two by pressing the right cursor arrow.



Investigate the effects of envelope control over the filtered sound by moving the cursor to the Envelope Amount. Use the slider to set a value of +40%. This allows the envelope to control the filter cutoff frequency.

2. Select page three by pressing the right cursor.

← VCF Attack:	0. 20s
Hold:	0. 00s
Decay:	0. 00s
Sustain: 99%	Rel : 0. 40s

Move the cursor under the Attack time on line one and vary the slider. With larger values, it will take more attack time for the filter frequency to go from lowest to highest cutoff frequency. Vary the various envelope parameters, and observe the effect these changes have on the sound.

To check out inverted envelopes, set the envelope parameters as follows:

← VCF Attack:	0. 20s
Hold:	0. 00s
Decay:	0. 00s
Sustain: 99%	Rel : 0. 40s

Play and hold a chord. This is a non-inverting envelope in the sense that the envelope increases the filter cutoff frequency above the initial cutoff. To select an inverting envelope where the cutoff decreases below the initial cutoff, press the left cursor arrow.

←	VCF	→
Tracking:	+1. 00	
Envelope Amt:	0%	

3. Move the cursor to Envelope Amount and select -40% to invert the envelope. The envelope effect is not all that noticeable when you play a chord. This is because the envelope forces the cutoff frequency

in a negative direction. Since the cutoff frequency is already fairly low, it can't go that much lower. Now go back to the cutoff frequency and increase it. The effect will be far more noticeable since there will be more range available for the negative going envelope excursion.

If you feel like experimenting, play with the Tracking control to affect the way the filter frequency tracks the keyboard pitch.

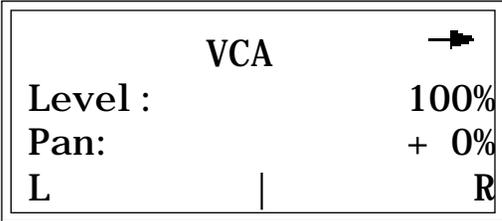
Before proceeding with the tour, set Cutoff Frequency to 22049, Q to 00, Envelope Amount to +00, and Tracking to 1.00. Set the envelope Attack to 0.00s, Hold to 0.00s, Decay to 0.00s, Sustain to 100%, and Release to 0.49s. After entering these values, press ENTER to return to the Module Identifier.

Fun With Voltage Controlled Amplifiers

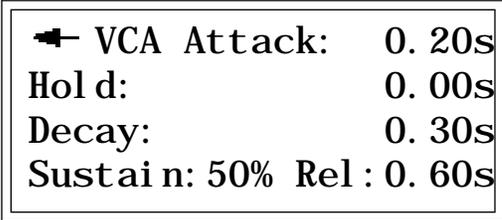
In preparation for the following experiments, let's change the Current Zone to include the entire keyboard.

1. **Select Submodule 0. Select Zone.** Move the data slider to the bottom of its travel and press ENTER. Now move the data slider to the top of its travel and press ENTER again. You have now specified the entire keyboard as the current zone.

2. **Select the 2. VCA function.** The display shows:



3. **Select the next page of the VCA controls with the right cursor.**

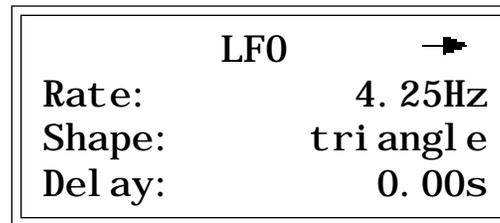


Move the cursor under the various envelope parameters and observe how different settings affect the sound. Before moving on, make sure you have a sound that is fairly sustained with little or no envelope attack time.

Other Dynamic Processing Options

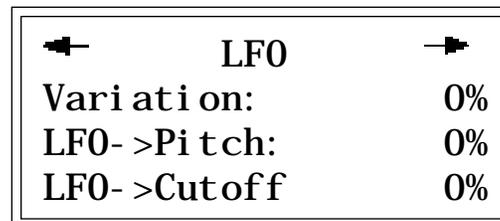
1. Select 1. Setup. Note how the tuning, delay, and chorus controls affect the sound.

2. Add some Low Frequency Oscillator effects. Select the 4. LFO function. The display shows:



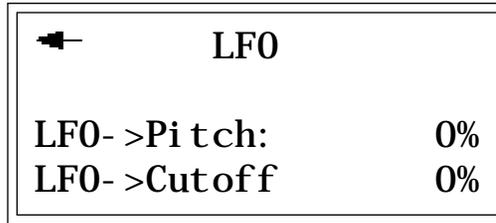
If the LFO rate is different, change the rate so that it is about 4.25 Hz.

3. Use the right cursor/page button to move to the next page of the LFO controls. The display will show something like this:



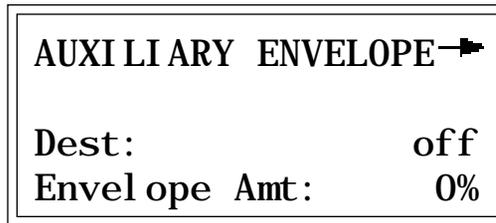
Position the cursor under each display option. Vary the data slider and observe how this affects the sound. Adding LFO to Cutoff might not sound all that noticeable. If you want a more obvious effect, bounce back to function 3. VCF and set the Cutoff to about 200 Hz and Q to about 50. This should make the LFOs effect more noticeable.

4. Select page three of the LFO controls. The display will show:
If the LFO settings aren't to your liking, use the left cursor/page button to change the LFO rate, delay, and variation.



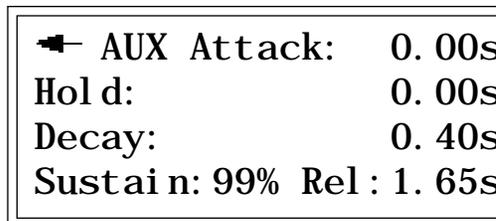
The Auxiliary Envelope

1. Select 5. Auxiliary Envelope. The display shows the first page:
Move the cursor under Destination on line two, and use the data



slider to scroll through the auxiliary envelope destinations. Select Pitch as the destination, then set the Envelope Amount to -50%.

2. Select the next page using the right cursor. Set the parameters so that the display looks like this:



Now play the keyboard. Notes will bend up, since we are using an inverted envelope, to pitch and then hold there. This is an effect common in many natural sounds.

Vary the various envelope parameters, and observe the effect these changes have on the sound.

Understanding Velocity

By now you probably have a pretty messy sound as a result of all these exercises. Let's start with a clean slate.

- 1. Press the Load Bank button, then ENTER to re-load the bank.**
- 2. When the bank is loaded, activate the Dynamic Processing module.**
- 3. Specify a zone.** Let's make the entire keyboard the current zone. Since the default zone is the entire keyboard we don't have to do anything!
- 4. Select 6. Velocity To.** The display will look something like this:

VELOCITY TO		→
Pitch:		+0%
VCA Level:		+0%
VCA Attack:		+0%

Moving on to the next velocity page we see:

←	VELOCITY TO	→
VCF Cutoff:		+0%
VCF Q:		+0%
VCF Attack:		+0%

Moving on to the last velocity page we see:

←	VELOCITY TO	
Pan:		+0%
Sample Start:		+0%
Auxiliary Env:		+0%

Move the slider to select different values, and note the effects. With positive velocity sent to the VCA, the EIII plays softer as you play softer. In other words, the EIII equates harder play with the nominal volume setting and goes down from there as you play softer.

Continue to move the cursor to the other available parameters and vary the slider. Notice that the filter cutoff frequency lowers as you play softer. The amount downward change is dependent on the value in the display.

Filter Q is affected differently than Level or Filter Cutoff. It raises from the initial setting as you play harder. Also, note that velocity can be set to affect Q inversely. In other words, if the filter is set to a high Q setting, playing harder on the keyboard will lower the Q.

Remember that the velocity-to-envelope Attack setting interacts with the initial envelope Attack settings. Call up the envelope Attack parameters for the filter and VCA and see how different values interact with different velocity values.

Guided Tour No. 4: REALTIME CONTROL PROGRAMMING

Ever wanted to add vibrato to a grand piano? Or bend its pitch? The Realtime Control functions in the Preset Definition module can do this, and lots more.

Pitch-Bending

First, let's check out pitch-bending. Pitch-bend can be enabled or disabled for any zone within a preset. Let's have pitch bend affect only the lower half of the keyboard. Activate Dynamic Processing, 0. Select Zone. Specify the upper half of the keyboard as the current zone.

Next key in Dynamic Processing, 8. Realtime Control Enable. Use the cursor/page buttons to see a list of modulation destinations. Pitch will be set to On. Press Off, and like magic, you can now pitch-bend only the lower half of the keyboard. If modulation does not seem to be affecting a zone, make sure that modulation is enabled.

Want to change the pitch bend range? Activate the Preset Definition module, 6. MIDI.

Modulation Wheel Destinations

The Emulator IIIX offers two modulation options: Pre-programmed, which adds a constant, selectable amount of modulation, and Real-time, where the player adds in modulation by using one of the wheels or other controller.

Each Emulator IIIX wheel can be assigned to a particular destination. For example, if the left wheel is assigned to pitch, then rotating the wheel bends pitch. If assigned to the filter, rotating the wheel varies the cutoff frequency.

Let's set up for the next part of the tour. Choose preset 01 as the current preset if it is not already selected. Activate the Dynamic Processing module and assign the entire keyboard as the current zone if necessary. Select 8. Realtime Control Enable. Use the cursor/page buttons to select On for all of the Enable options. This will make it easier to hear the results of the next series of experiments.



Now activate the Preset Definition module, 0. Realtime Controls. To make “live” playing as simple as possible, the display works somewhat differently for this module. The display shows:

REALTIME CONTROLS
1 Left Wheel
1 Pitch
Select a Controller

Use the data slider to scroll through the available Realtime Control sources and their currently assigned destinations.

■ **Emulator IIIX Control Sources**

- 1: Left Wheel
- 2: Right Wheel
- 3: Pressure
- 4: Control Pedal (plugs into rear panel pedal jack)
- 5: MIDI Control A (can be assigned to any MIDI controller #)
- 6: MIDI Control B (can be assigned to any MIDI controller #)
- 7: Footswitch 1 (on your MIDI controller)
- 8: Footswitch 2 (on your MIDI controller)

■ **Emulator IIIX Modulation Destinations**

- | | |
|---------------|------------------|
| 0: Off | 5: LFO -> Cutoff |
| 1: Pitch | 6: LFO ->VCA |
| 2: VCF Cutoff | 7: Pan |
| 3: VCA Level | 8: Attack |
| 4: LFO->Pitch | 9: Crossfade |

■ **EIII X Footswitch Destinations**

- | | |
|-----------------------|----------------------|
| 0: Off | 4: Arpeggiator Latch |
| 1: Sustain | 5: Preset Increment |
| 2: Cross/Switch | 6: Preset Decrement |
| 3: Arpeggiator On/Off | |

Each of the modulation destinations (0-9) can be controlled by control source 1, 2, 3, or 4, or via data sent over MIDI. Each of the footswitch destinations (0-6) can be controlled by sources 7 and 8.

You’ll be happy to know that Realtime Control settings are memorized for each individual preset, so if desired, each preset can react to the Realtime controls and MIDI controllers in different ways.

Selecting a Control Source and Destination

1. Activate the Preset Definition module, 0. Realtime Controls.

2. Select the left wheel as a control source. Move the cursor down to the next line. The display will direct you to “Select a Destination”. The left wheel should be assigned to 1: Pitch. Vary the wheel and check that the keyboard pitch is indeed affected. If sections of the keyboard are not affected, check that pitch control is enabled (Dynamic Processing, 8. Realtime Control Enable).

Now try assigning the left wheel to 2: VCF Cutoff. Rotating the wheel towards you should produce a more muted sound.

If you assign 3: VCA Level, the left wheel will affect overall volume.

If you feel adventurous, check out the other control destinations. Note that if you select a destination that is already specified for one of the other control sources, the old assignment will be de-selected and that control source will be turned off (0).

Think about it for a bit... the left wheel can control a destination, the right wheel can control a different one (as can the pedal), and there are MIDI control possibilities as well. These assignments can be different for each preset, and particular controller destinations can be disabled for different presets and samples. We’re talking versatile here, so if you feel like taking out the next couple of hours and checking out all the possibilities, by all means, do so!

Oh yes, and there are footswitches too. But before experimenting with the footswitches (sources 7 and 8), we need to understand the difference between looped and unlooped sounds. Basically, a sustain looped sound is one where a portion of the sound is put into an infinite repeat loop for as long as you hold down the key. This is similar to the infinite repeat function on digital delay lines. Looping allows you to sustain a normally non-sustaining sound for as long as you like. An unlooped sound is not artificially sustained, and therefore lasts its normal length.

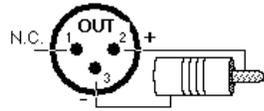
Keeping this in mind, refer to the Preset Definition module, 0. Realtime Controls, footswitch destinations 0-6. Assign various functions to the footswitches. You will find that some sounds lend themselves to the sustain function better than other sounds, and we heartily encourage you to experiment.

■ One control source can control up to six destinations. This can be done by setting more than one source to the same controller number in the MIDI submodule (Preset Definition, 6).

For example, by setting right wheel **and** pressure to 01, (in the MIDI submodule) the mod. wheel on your controller will now control **two** sources in the realtime controls submodule.

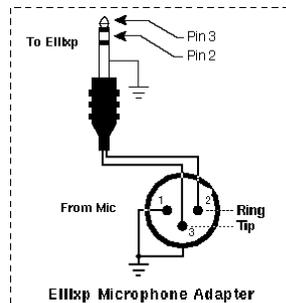


Guided Tour No. 5: BASIC SAMPLING



■ To connect the EIIIX to S/PDIF format machines, an adapter cable wired as shown above should be used. Always use video-grade cabling when connecting digital I/O.

Guided
Tours



■ To connect a standard XLR type microphone to the analog input of the EIIIX, an adapter cable wired as shown above should be used.

Sampling involves more than just sticking a microphone in front of something—sampling is an art. This guided tour gives you the basics, and also lays the groundwork for the guided tour of the Digital Processing Module. In preparation for this guided tour, please read section 5, Sample Management module.

Sampling with a DAT Recorder

The EIIIX can sample from either analog or digital sources. Your EIIIX may or may not be equipped with the optional analog inputs. Without the analog inputs you will need to have some sort of device with a digital audio output such as a DAT or stand-alone A/D converter unit. To sample from a DAT recorder, connect the digital output of the DAT to the digital input of the EIIIX. Either the AES/EBU or the consumer S/PDIF formats can be used. By putting the DAT recorder in record/pause mode you can sample directly into the EIIIX just as if it had analog sample inputs. Playing a DAT tape works the same way. For this tour, plug a microphone into the DAT recorder.

Sampling with the Optional Analog Inputs

If you wish to use the analog sampling inputs for this guided tour, simply connect a microphone directly to either the left or right analog input.

1. **Activate the Master/Globals module.**

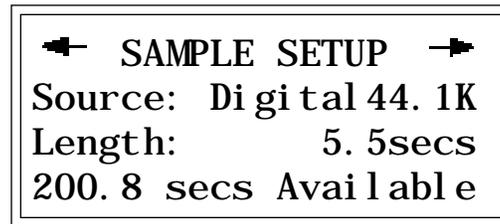
2. **Select 3. Erase Bank.** Answer **Yes** to the display's query. This clears out the memory, which gives us maximum sampling time.

3. **Activate the Sample Management Module, 5. Setup.** The display shows:

SETUP	Gain: -10dB
Thresh:	
L: on	
R: on	

If you are sampling in mono, move the cursor to the input that you are not using and turn it off with the On/Off buttons. Otherwise, leave both channels on.

4. Use the right cursor/page button to view the next page of the Setup section.

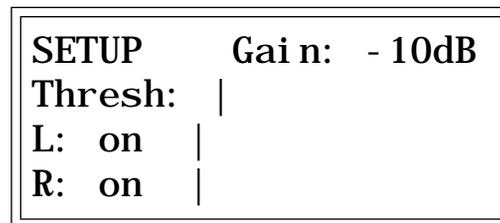


← SAMPLE SETUP →
Source: Digital 44.1K
Length: 5.5secs
200.8 secs Available

Check the available sampling time. This will vary depending on how much memory you have in your EIII.

5. Change the source using the data slider to match the type of input you are using. If you are using the analog sample inputs, set the source to either Analog 29.4 kHz or Analog 44.1 kHz. If you are using the digital inputs, set the source to Digital 32 kHz, 44.1 kHz or 48 kHz to match the sample rate of your input device. (If the digital sample is set incorrectly the sample will play back at the wrong pitch.)

6. Use the right cursor/page button to go back to the first page.



SETUP Gain: -10dB
Thresh: |
L: on |
R: on |

With the connection peak into the microphone, you should see the VU meter move, indicating that the EIII is receiving signal.

If you are using the analog inputs, place the cursor on line one of the display and use the data slider to adjust the input gain. Speak into the microphone and observe the bar graph display. Adjust the gain so that the peak bar comes close to the extreme right side without actually reaching it. (The gain control has no effect on the digital input.)

If you are using a DAT recorder, make sure the DAT is in record/pause mode. You should see the bar graph display move as you speak into the mic; if not, check your connections.

7. Go on to the third page of Sample Setup by pressing the right cursor button twice. The display shows:

SAMPLE SETUP(Auto)	
Truncate:	off
Normal i ze:	off
Pl acement:	12keys

Set the automatic parameters as shown. The auto-placement parameter determines where the samples we are going to take will be automatically placed. In this case, with auto-placement set at 12 keys, the first sample will be placed on the lowest octave (C1 to B1), the next sample on the next octave up (C2 to B2), and so on.

8. Go back to the first page and set the Threshold using the data slider. Set it up a few bars from the bottom so that the EIII does not trigger on the ambient room noise. Press ENTER to return to the Module Identifier.

9. Select 7. Arm Sampling. You're ready to sample! Speak into the microphone. As soon as the level exceeds the threshold, the display will say "Sampling." Chat away freely . If you run out of inspiration, press **Escape** to stop sampling.

More Sampling

Continue to experiment with sampling. Try setting a particular sample length, or using forced sampling instead of threshold-sensitive sampling, or assigning the sampled sound to other portions of the keyboard. Also, practice terminating the sampling process.

Let's try another sample. Notice that the EIII, will overwrite the existing sample unless you exit and re-enter the sample module. The new sample is automatically assigned to the next higher octave. This assignment can always be modified in the Sample Management module, 6. Place Sample.

Saving the Sample

To save the sample as part of a preset, de-activate the Sample/Management module. Since memory was cleared prior to sampling, the EIIIIX created a preset (00) called "Untitled Preset." This is the preset that holds your new sample. Had you sampled into a bank with existing presets, the sample would have been stored with the current preset.

Remember, this guided tour is intended simply as an overview to give you a feel for the sampling process. Good sampling requires skill, patience, and above all, practice!

Guided Tour No. 6: DIGITAL PROCESSING

Background and Setup

Digital processing allows you loop samples stored in the bank. In this guided tour we'll learn how to do this. First, though, we need to create a couple of samples with which we can practice.

1. Clear the bank of memory. Use the Master/Globals module, 3. Erase Bank.

2. Make a sample of yourself speaking. Following the directions in Guided Tour No. 5, select a four second sample length (Sample Management module, 5. Setup). After setting the threshold and other parameters, arm sampling and start jabbering.

3. Take another four second sample. De-activate, then re-activate the module to sample. You will not have to do any setup — just hit 7. Arm Sampling, and talk away. You will then have two samples suitable for experimentation.

4. Assign your samples to a keyboard zone. Use 6. Place Sample.

Choosing the Current Sample

Activate the Digital Processing module. This module acts upon the current sample. To select another sample, press 0. Select Sample.

Truncating A Sample

Use the Digital Processing module, 3. Truncation, to truncate the ends off samples. Vary the data slider as you play a key in the range assigned to the current sample. Notice the start of the sample will disappear. Use this technique to get rid of silence at the start of a sample or for effects. Move the cursor using the up and down arrow keys to the End display. Use the data slider to truncate any undesired part off the end of the sample.

When you are satisfied with your truncating efforts, press ENTER. The EIII makes a backup of the sample on the hard disk, in case you decide that you don't like the truncation after all.

If desired, change the current sample (Digital Processing, 0. Select Sample) and experiment with truncating the other sample you took.

Looping A Sample

If you haven't yet done so, activate the Digital Processing Module and assign the current sample.

1. Select 2. Loop to graphically see how looping affects a sample. Since the loop function is on, if you play and hold a key in the current sample, it will play indefinitely.

2. Try modifying the loop. Adjust the Start and Length values. Note that if the length equals the full length of the sample, you will not be able to set a new start point. Reduce the length, and you should be able to adjust the start point. For practice, try looping individual words or sentence fragments.

A Practice Sampling Session

Plug a microphone into the rear panel right Sample Input jack (or through a DAT into the digital I/O).

1. Erase all memory (Master/Globals, 3. Erase Bank).

2. Set the Sample Source for either Analog or Digital sampling (Sample Management, 5. Setup). "Source" is located on the second page in the Setup submodule. If you are using the digital inputs, match the sample rate to that of your DAT recorder or the sample will play back at the wrong pitch.

3. Set the level (Sample Management, 5. Setup). Sing *Ahhhh* into the microphone. (This is an easy sound to loop.) The VU level should not quite reach the top of its range. Adjust the gain using the data slider, until a good level is attained.

4. Set the threshold (Sample Management, 5. Setup). This should be set about five or six bars from the left. When the input sound exceeds this level, recording will start.

5. Select 7. Arm Sampling, to arm the sampling process. OK, now get ready to sing *Ahhhhh*.

6. Sing Ahhhhh! When you are out of breath, press ENTER to stop sampling.

7. Play the keyboard in the assigned range to hear the results. The sound should default to the lower keyboard range, C1-B1.

8. Truncate the silence off of the beginning and end of the sound. Activate the Digital Processing module. The EIIX will default to the only sample in the unit, which is the one you just made.

Now select 3, Truncation to enable the truncation function. Adjust the start and end points by moving the slider to remove any silence or unwanted portion of the sound. You must play the keyboard after you move the data slider in order to hear the results of the slider change. Press ENTER, then No to exit truncation.

9. Activate the Digital Processing module, 2. Loop. Now we are ready to loop the sound.

To loop, first move the data slider to make the loop length about half a second long. Next, move the start point into the sustained portion of the *ahhh* sound so that the ticking sound becomes softer. The idea is to loop the “*hhh*” portion of the “*ahhh*” but not the “*a*” part. The loop length can be adjusted so that it matches the rhythm or wavering of the sound. When you get a fairly good loop press ENTER. The display says: “Auto Correlate? Y/N.” Press Yes. You now should have a fairly good loop. If not, adjust the start point and again Auto Correlate. It takes practice, but you’ll get it.

That’s it! Feel free to play around with other digital and dynamic processors such as the filter, chorus and LFO.

So basically, these are the steps you will go through every time you have a sampling session:

- Take the sample
- Truncate the sample
- Loop the sample, if desired
- Assign the sample to a keyboard position
- Continue to refine and make presets

Of course, you will probably develop your own order and style of sampling techniques.

The purpose of this guided tour is to acquaint you with the concept of looping. There is much more to the subject than simply fooling around with looping words from a spoken sample. Please remember too that looping is a very complex process which requires a great deal of practice to achieve proficiency. The best way to fully understand looping is to experiment with a variety of signals.

Time To Save?

Maybe you haven’t created any masterpieces during these experiments...but maybe you have. If you want to save a preset to disk, by all means do so.

More Digital Magic

Let's play The Backwards Talking Game! In preparation for this fun, erase all memory (Master/Globals, 3. Erase Bank), then take a sample of your voice speaking your own name.

1. **Activate the Digital Processing Module.**
2. **Select 1. Playback Setup.** The display shows:

<p>PLAYBACK SETUP Loop Type: forward Loop in Release: on Reverse Playback: off</p>
--

3. **Move the cursor to Reverse Playback and select on.** Now play the sample back. It is backwards! Now practice saying your name backwards until you feel that you have learned it well. Think you've got it, do you? OK, now sample yourself saying the reversed version of your name, and then of course..... reverse *that*. We guarantee loads of fun and maybe some surprising insights.



Cut and Paste

1. **Erase all memory (Master/Globals, 3. Erase Bank).**
2. **Take yet another sample of your voice.** Set the sample length to about 1.2 seconds. This time say, "Cut and Paste". Pronounce the words clearly and distinctly.
3. **Activate the Digital Processing module, 5. Cut Section.** We are going to rearrange this sample phrase to say: Paste and Cut. The display shows:

CUT	secs	samples
Start:	0. 00	00000
End:	1. 00	44096
Size:	1. 00	44096

■ Use the left and right cursor keys to adjust the cut and paste points once you get close. The left and right cursor keys will only select zero crossing points.

The original pitch of the sample will appear on key C4, the fourth C up from the bottom.

4. Move the cursor under End on line three. Adjust the data slider so that only the word “cut” is heard. Press ENTER. The display will inform you that the EIII is backing up the sample, and then will return you to the module identifier.

5. Select 6. Paste. The display shows:

```
PASTE  secs samples
Offset: 0.00 00000

Select Location
```

Adjust the offset past that “tt” sound of the word *paste*. Again use the left and right cursor keys once you get close. Press ENTER. The sample should now say, “and paste, cut”.

6. Go back to 5. Cut Section. Cut out the word “and” using the same procedure you used for “cut”.

7. Adjust the offset past the “tt” sound of the word *paste*. Back in 6. Paste Section, use the left and right cursor keys to adjust the offset once you get close. Press ENTER. The sample should now say, “paste and cut”, although it might sound a little strange. That’s the basic technique. Practice makes perfect.

Now that you have gotten a feel for cut and paste, make up your own experiments using the various other options such as mixing and crossfading.

DSP

Let’s try using a couple of DSP functions. In preparation, sample your voice saying “Ahhh” for one second. This time when you sample, set the Gain so that the signal only reaches about halfway up the VU meter at its peak. Also make sure that the sample time runs out before you finish singing so that the sample is cut off prematurely. We’re intentionally creating problems so that we can fix them using Taper and Gain Change.

First, let's boost the gain to full level using one of the digital tools, Gain Change. The term for this operation is called normalization.

1. **Activate the Digital Processing module.**

2. **Select 8, Digital Tools, 2-Change Gain.** The display shows:

GAIN	secs	samples
Start:	0.00	00000
End:	1.00	44096
Size:	1.00	44096

We want to normalize the entire sample (which is already selected), so just press ENTER. The display now shows:

GAIN CHANGE	
Amount:	+00dB
+XXdb = Normalize	

where XX is the amount of gain needed to achieve normalization or full level. Set the amount of gain so that it matches the normalization reading and press ENTER. The display shows:

FADE	secs	samples
Start:	0.00	00000
End:	1.00	44096
Size:	1.00	44096

We don't want a fade in this example, so simply press ENTER to affect the gain change. The sample should now be at a higher volume. Note that you can use the Digital Processing module, 9. Undo to cancel the effects of Gain Change. Use this feature to further experiment with different Gain Change settings.

3. **Select 7, Taper.** Now let's taper the end of the sample so that it smoothly fades out instead of ending in a thump. The display shows:



TAPER	secs	samples
Start:	0.00	00000
End:	1.00	44096
Size:	1.00	44096

Move the start point to about 0.70 seconds and press ENTER. The display changes to:

TAPER	
Start Amount:	0.00db
End Amount:	-96db
Type:	Linear

The Start and End amounts on lines two and three are already at the correct settings. There will be no attenuation at the Start point, tapering to full attenuation at the End point of the sample.

4. Move the cursor under the curve Type on line four. Select Exponential Curve 2, then press ENTER. The sample should now smoothly fade out instead of ending abruptly. And remember that Digital Processing, 9. Undo will cancel the effects of Taper. You can use this feature to further experiment with different Taper settings.

Guided Tour No. 7: MANAGING THE BANK

The following functions don't necessarily do terribly glamorous things, but they are exceedingly useful for managing your banks of sound data. This guided tour acquaints you with these utilities. To see how they work, load any bank from the hard disk.

Erasing A Preset

Activate the Preset Management module, 3. Erase Preset and erase preset 01. Don't worry, it will just be gone from the bank, not the disk. And we can get it back anyway by...

Loading A Preset

Refer again to the Preset Management module, 1. Load Preset. This time load preset 01. Now it's back in the bank again.

This is the basic method for creating a bank with presets from other banks. The bank can only be saved as a whole. Therefore, individual presets are loaded into the bank, and when the bank is arranged to your specifications, it is then saved to disk.

Other Bank Management Functions

The other bank management functions, including copy, rename, create, and preset size, are pretty much self-explanatory. Refer to the Preset Management module, 4. Copy Preset, 2. Rename Preset, 5. Create Preset, and 6. Preset Size. Try these various functions to get a feel for how they work.



Guided Tour No. 8: ON YOUR OWN

The proceeding guided tours cover only the basics. To cover every possibility of how to use the XP would drown you in words. It's better that you just start playing! The best way to learn the EIIIIX is to power up and dive right in. Remember, you can experiment as much as you want on stuff in the bank. You have to actually save the bank to disk in order to alter the contents of the disk. In case you're a nervous type, you can even lock the disk.

Try to spend some time not playing, but rather practicing, with the instrument. After you're a bit more familiar with the EIIIIX, read the Manual and delve deeply into a particular module or function. The Emulator Three XP is like an audio construction set, where sounds can be captured, held, processed, mutated, sped up, slowed down... and so much more. Take advantage of all it has to offer.

The more you practice with your EIIIIX, the more you'll be able to put your personal stamp on the music you play. And when you do play, you'll know the instrument well enough so that you are free to concentrate solely on your music. Because that's what matters.

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1. MASTER TUNE

Master Tune adjusts the tuning of all the samples in the current bank, so that you can tune the Emulator III to other instruments.

1. Activate Master/Globals module.

2. Select Submodule 1.

3. Select the desired tuning offset. This is variable from -100 (one semitone below concert pitch) to +100 (one semitone above concert pitch).

```
MASTER TUNE
Offset: +  0.0 cents
Transpose:      off
Select Tuning Offset
```

4. Select the Transpose amount. Transpose allows you to transpose the Emulator III without the use of a keyboard. The transpose range is \pm one octave.

5. Press ENTER to exit the submodule. The Emulator III will return to the Module Identifier.



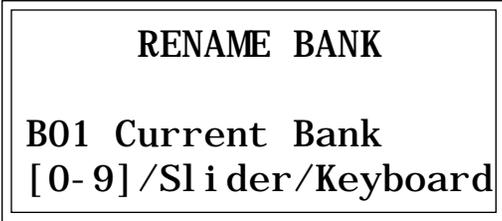
2. RENAME BANK

This submodule allows you to rename any bank.

1. **Activate Master/Globals module.**

2. **Select Submodule 2.**

3. **Rename the bank.** Choose the characters to be changed with the left and right cursor buttons. Select the desired characters by using the ten key pad, data slider and keyboard. You can also use the up cursor to insert spaces and the down cursor to delete spaces.



4. **Press ENTER to exit the submodule.** The EIII will return to the Module Identifier

■ Use the data slider to access the full character set. The keyboard does not have enough keys to access all available characters.

■ An EIII bank will always have an "X" as the last character of the name in order to differentiate it from a standard EIII bank.



3. ERASE BANK

Erasing a bank erases ALL the memory in the Emulator IIIIX, which includes all samples, presets, and sequences.

1. Activate Master/Globals module.

2. Select Submodule 3.

3. Decide if you really want to erase the bank. The display will inform you that you are about to erase all samples, presets, and sequences in the current bank.

■ *After erasing the bank, the EIIIIX will automatically create an empty preset for you.*

ERASE BANK
Erases All Presets,
& Samples!
Are You Sure? Y/N

4. Press Yes to erase the bank or No to cancel the operation. In either case, the EIIIIX will return to the Module Identifier.



4. DYNAMIC ALLOCATION

This function (when on) bypasses the channel assignments made in the Channel Assignment submodule of the Dynamic Processing module, and allows all of the 32 voices to be assigned in a circular manner as needed.

1. *Activate Master/Globals module.*
2. *Select Submodule 4.*
3. *Select whether dynamic allocation is on or off.*

```
DYNAMIC ALLOCATION
Mode:                off
Select on/off
```

4. *Press ENTER to exit the submodule.* The EIII will return to the Module Identifier.

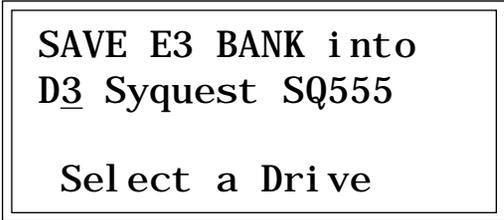
5. SAVE AS EIII BANK

This function allows you to save an EIII bank in the original EIII bank format so that it can be read by an EIII (the EIII is the predecessor of the EIII). If the bank you are trying to save exceeds 8 Mb, or has more than 100 presets or 100 samples, you will not be allowed to save as an EIII bank.

1. Activate Master/Globals module.

2. Select Submodule 6.

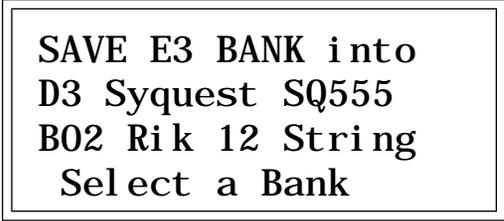
3. If necessary, select the drive to which the bank will be saved. The EIII will default to the current drive. If you want to choose a different drive, place the cursor under the drive number in line two of the display, select the appropriate drive and press **ENTER**.



SAVE E3 BANK into
D3 Syquest SQ555

Select a Drive

4. Select the bank number to which the bank will be saved. Empty banks will be indicated as such, along with their bank number on line three. Or, you can overwrite an existing bank.



SAVE E3 BANK into
D3 Syquest SQ555
B02 Rik 12 String

Select a Bank

5. After selecting the bank number and drive, press ENTER. The display will say "Saving Bank". After a few seconds, the bank will be saved. The display will revert to the preset selection screen.

6. MEMORY AVAILABLE

Memory Available shows how much of each type of memory is available, both as a percentage of available memory and in bytes. For example, if you have used up 90.0% of the available preset memory, the display will show that there is 10.0% preset memory remaining.

1. **Activate Master/Globals module.**

2. **Select Submodule 6.**

3. **Observe the display.** Line three shows the percentage and amount of preset memory available. Line four shows the percentage and amount of sample memory available. Line four shows the number of sequencer events available.

```
MEMORY AVAILABLE
Preset: 99.8% 127K
Sample: 100% 32.0M
```

4. **Press ENTER to exit the submodule.** The EIIIX will return to the Module Identifier.

Memory Defragment: When samples are erased or truncated, the memory is left fragmented until the bank is saved to disk. Fragmented memory may limit new sample size, even though you have plenty of memory left. This hidden function allows you to manually defragment.

1. **Press the Inc/Yes button while in Memory Available.**

```
COLLECT SAMPLE MEM
Collect Memory? Y/N
```

2. **Press Yes to collect the samples, No to exit the submodule.**

7. DISK UTILITIES

Disk Utilities include several additional numbered sub-sections. Here are brief descriptions of each sub-section. More extensive descriptions follow.

- **0. SCSI Setup:** Allows you to change the EIIIX's SCSI ID number and configure SCSI for a McIntosh on the bus.
- **1. Mount Drives:** Instructs the Emulator IIX to check the SCSI bus for the presence of SCSI devices.
- **2. Rename Disk Bank:** Allows you to change the name of any bank on any of the available hard drives.
- **3. Erase Disk Bank:** Allows you to erase any bank from any of the available hard drives.
- **4. Copy Software:** Allows you to update and make new copies of the operating software supplied on a floppy disk by E-mu Systems or your authorized dealer.
- **5. Lock Bank and Drive:** Prevents a specific bank and/or drive from being overwritten.
- **6. Disk Status:** For a hard disk drive, this function displays the amount of space that is available, and if the drive is locked or not. For floppy disks this function indicates if it is a software disk, the name and number of a bank disk, and if the disk is blank.
- **7. Format Disk:** Initializes a floppy disk, or the hard drive, to store Emulator IIX data.
- **8. Backup and Restore:** Although E-mu has taken every precaution to ensure reliable components, hard disk drives *can* fail from time to time. This function allows you to backup the hard disk contents on another hard disk or other SCSI media, and if necessary, re-construct the hard disk from the data on the backup disk.
- **9. Erase Software:** Allows you to erase the EIIIX software from a hard disk drive.

■ 0. SCSI SETUP

This utility allows you to change the SCSI ID number of the EIIIX itself (not it's internal hard disk) in the event that it conflicts with a device on the SCSI bus having the same ID number.

The SCSI interface, located as a 25-pin connector on the back panel, allows the EIIIX to communicate with external storage devices. The EIIIX can support seven SCSI devices (including it's internal HD if it has one). Each device on the SCSI bus has it's own ID number so that it can distinguish its data from data meant for other SCSI devices. If a SCSI device is added to your system which has the same ID number as an existing device, a SCSI error would occur. To remedy this situation, the ID number on the new device will have to be changed. Consult the operation manual of the external device for information on changing the SCSI ID number.

The EIIIX also contains special SCSI software that allows two "master" devices (the EIIIX and a McIntosh) to coexist on the SCSI bus. If you have a Macintosh computer connected to the EIIIX SCSI bus, the Mac on SCSI bus function should be turned On.

1. *Activate Master/Globals module.*
2. *Select 7. Disk Utilities, 0. SCSI Setup (7/0).*
3. *Select the new SCSI ID number.*

SCSI SETUP	
EIIIX SCSI ID:	5
Mac on SCSI Bus:	no

4. *If a Macintosh is present on the SCSI bus, turn "Mac on SCSI Bus" On.*

5. *Press ENTER to exit the submodule.* The EIIIX will save your choices to the System and return to the Module Identifier.

■ Use the "Mount Drives" utility whenever an external SCSI device does not appear on the list of available devices.

■ 1. Mount Drives

This utility instructs the EIIIX to check the SCSI bus for the presence of SCSI devices.

If a SCSI device has been powered up after the Emulator IIX, it will not appear in the list of available devices. The Mount Drives utility tells the EIIIX to check the SCSI bus and to add any SCSI devices that it finds to its list of available SCSI devices. Normally, if the external devices are powered up before the EIIIX, this will be done automatically.

1. **Activate Master/Globals module.**
2. **Select 7. Disk Utilities, 1. Mount Drives (7/1).**
3. **The Emulator IIX will mount the drives, then return to the Module Identifier.**

■ 2. Rename Disk Bank

This function allows you to name your banks.

1. **Activate Master/Globals module.**
2. **Select 7. Disk Utilities, 2. Rename Disk Bank (7/2).**
3. **Select an installed drive, then press ENTER.**

```
RENAME DISK BANK
D1  QUANTUM LP1055
B01 12 String      X
Select a Drive
```

4. **Select the bank to be renamed, then press ENTER.**
5. **Rename the bank.** Choose the characters to be changed with the left and right cursor buttons. Select the desired characters by using the ten key pad, data slider and keyboard. You can also use the up cursor to insert spaces and the down cursor to delete spaces.

```
RENAME DISK BANK
D1  QUANTUM LP1055
B01 12 String      X
[0-9]/Slider/Kybd
```

5. Press **ENTER** to exit the submodule. The EIIIX will return to the Module Identifier.

■ **3. Erase Disk Bank**

With this utility, banks can be erased from any of the available drives.

1. **Activate Master/Globals module.**
2. **Select 7. Disk Utilities, 3. Erase Bank (7/3).**
3. **If you wish to select a different drive, press the up cursor. If not, proceed to step 5.**
4. **Select the drive containing the bank to be erased, then press ENTER.**

■ The display will advise you if you try to erase a bank or drive that is locked. Unlock the bank and/or drive before proceeding.

```
ERASE DISK BANK
D1  QUANTUM LP1055
B01 12 String
      Select a Drive
```

X



5. **Select the bank to be erased, then press ENTER.**

```
ERASE DISK BANK
D1  QUANTUM LP1055
B01 12 String      X
      Select a Bank
```

■ The "X" at the end of the bank name indicates that the bank is an EIIIX bank.

6. **Decide if in fact you want to erase the selected bank.** The display will ask if you're sure.

7. **Press Yes to erase the bank or No to cancel the operation.** In either case, the EIIIX will return to the Module Identifier.

■ *If there is not enough sample memory left to accommodate the new software, the display will ask if you want to erase the bank. Press **Yes** to erase the bank and continue loading software from the drive. Press **No** to cancel the operation so that you can save the bank first, before copying the new software.*

■ *If you copied new software to the boot drive, now is a good time to power the Emulator IIIIX off and on.*

Master/
Globals

■ *If the disk you are copying to is an unformatted floppy, you will be asked if you wish to format the disk. Press **Yes** to format the floppy disk, or insert a formatted disk and press **No**.*

■ 4. Copy Software

From time to time, the E-mu engineers devise new operating system software intended to enhance or add new features to the EIIIIX's existing capabilities. This software is distributed on a floppy disk. Software should be copied over to the hard disk so that the new system will automatically load whenever you turn on the EIIIIX. The system software should be resident on only one hard disk drive in your equipment setup. If you do not install new software on the hard disk you will have to load it from the floppy disk each time you power up the machine.

Each version of the operating system is numbered, and is indicated when you select 8. Special, 6. Software Version (8/6). Copying software on to the hard disk will not change any other data like samples, presets, and sequences. It is a good idea to keep at least two backup copies of the system software on floppy disk.

1. Activate Master/Globals module.

2. Select 7. Disk Utilities, 4. Copy Software (7/4).

3. Select the drive containing the new software and press ENTER. Usually this will be the floppy drive. After pressing ENTER, the display will inform you that the new software is being loaded.

COPY SOFTWARE from
D0 Floppy Drive

Select a Drive

4. Select the destination drive for the new software and press ENTER. Typically, this will be the Emulator IIIIX's internal hard disk drive. After pressing ENTER, the software will be copied and the EIIIIX will return to the Module Identifier.

COPY SOFTWARE into
D0 Floppy Drive

D1 Quantum LP1055

Select a Drive

■ 5. Lock Bank and Drive

If you don't want to risk curious hands unintentionally erasing a bank or drive, here's a safeguard. A complete drive or any bank within that drive can be locked against inadvertent erasure or tampering, and subsequently unlocked as needed.

1. **Activate Master/Globals module.**

2. **Select 7. Disk Utilities, 5. Lock Bank/Drive (7/5).**

3. **If you want to lock a drive or change the current drive, press the up cursor button. If not, go on to step 6.** The display will show the current drive and its lock status, whether on or off.

LOCK DRIVE: off
D1 Current Drive

Select a Drive

4. **Select the drive to be locked or unlocked, then press ENTER.**

5. **Select whether lock is on or off, then press ENTER.**

6. **Select the bank to be locked or unlocked, then press ENTER.** The display will show the current bank and its lock status, whether on or off.

LOCK BANK: off
D1 Selected Drive
B00 Current Bank

Select a Bank

7. **Select whether lock is on or off, then press ENTER.** The EIIIX will return to the Module Identifier.

▼ *When using multiple EIIIX's, the bank will only be locked when accessed from the EIIIX that locked it. Any other EIIIX on the SCSI buss can still erase the bank.*

Master/
Globals

■ *This function will not let you lock a floppy disk. To lock a floppy, open the write-protect window on the disk.*

■ 6. Disk Status

This function displays the amount of space that is available on a hard disk drive and if the drive is locked or not. For floppy disks, this function indicates if it is a software disk, the name and number of a bank disk, or if the disk is blank.

1. *Activate Master/Globals module.*
2. *Select 7. Disk Utilities, 6. Disk Status (7/6).*
3. *Select a drive, then press ENTER.* If selecting the floppy drive, insert a disk before pressing ENTER.

```
DISK STATUS
D0 Floppy Drive

Select a Drive
```

4. *One of the following displays will appear:*

```
DISK STATUS
D1 Main Drive
Avail: 20.7% 8.49Mb
88 Banks Unlocked
```

```
DISK STATUS
D0 Floppy Drive
Software: Ver. 1.0
Software Floppy Disk
```

```
DISK STATUS
D0 Floppy Drive

Floppy Disk is Blank
```

5. To select another disk, press **ENTER** and return to step 3.

6. Press the **Master/Globals** button to exit the submodule. The **EIIIX** will return to the Module Identifier.

■ 7. Format Disk

Before a new floppy disk or hard disk can record or store any data, it first must be told how to record this data. This is called formatting. The floppy disk formatting procedure should be run on any new disk, or on recycled disks previously used with other systems (such as home computers), since these will not be formatted correctly for the Emulator **IIIX**.

1. Activate **Master/Globals** module.

2. Select 7. Disk Utilities, 7. Format Disk (7/7).

3. Select the drive to be formatted and press **ENTER**. The **EIIIX** will default to the floppy drive.

FORMAT DISK
D0 Floppy Drive

Select a Drive

■ Formatting a floppy disk will not erase the bank currently in memory.

4. Consider the implications of your action. Formatting a floppy or hard disk erases all information on that disk *completely*. The display will inquire if in fact you want to do this.

5. Press **Yes** to continue the formatting procedure or **No** to cancel the operation and return to the Module Identifier.

6. If in step 3 you selected the floppy drive, insert a floppy disk, and press **ENTER**. Formatting takes about 20 seconds.

7. After formatting a floppy disk, format another, if desired. The display will ask if you want to format another floppy. To do this, press **Yes**, remove the current disk, insert a new disk, and press **ENTER**. Otherwise, press **No** to cancel the operation and return to the Module Identifier.

■ The recommended type of R/W Optical drive for the EIIIX uses the Sony type cartridge. Brand names include Sony, Pinnacle, PLI, and Alphasronics to name a few.

FORMATTING HARD DISKS

This works exactly like formatting a floppy disk except when the display asks you to "Select a Drive", you should select the hard disk instead of the floppy. If the hard disk is not listed, use Disk Utilities 1, to Mount Drive. The hard disk drive should now be listed. Formatting a hard drive takes several minutes, depending on the size of the HD.

R/W OPTICAL DISKS

Read/Write Optical disks are formatted in the same way as a hard disk. Use optical disk cartridges with 512 bytes/sector rather than the 1024 byte/sector type. New optical disk cartridges usually come with the "low level" formatting already in place. If so, the disk will format normally. If this low level formatting has not been performed, the EIIIX will interrupt the formatting process and show a "SCSI Hardware Error". If this happens, follow the procedure for Low Level formatting on the next page, then format the disk in the normal way.

Note: Optical disks always verify the data as it is written and so do not require the long verify process that occurs after formatting has been completed. You can save hours of time by ejecting the cartridge and re-booting the system after the "VERIFYING FORMAT" message appears in the EIIIX display (about 10 seconds).

HARD DISK INTERLEAVE

The Emulator Three contains an internal list of recognized hard disk drives. The list contains parameter information designed to optimize the interface between the EIIIX and the drive. The following hard disk drive brands are currently listed:

■ Miniscribe	2:1 interleave
■ Rodime	2:1 interleave
■ CDC	1:1 interleave
■ Syquest	1:1 interleave
■ Qume	4:1 interleave
■ Quantum	1:1 interleave

Other hard disk brands will probably also work. If in doubt, the best idea is to try out the drive with the EIIIX before you buy it. If your brand of hard drive is not listed but works with the EIIIX, you may be able to optimize its performance even further.

8. There is a hidden menu when the display asks: "Are You Sure?".

Before choosing Yes or No you may choose one of the following hard disk interleave options:

	0---	Uses the EIIIX's default interleave for the type of HD.
Fast	1---	1:1 interleave
	2---	2:1 interleave (this is the EIIIX's default setting)
	3---	3:1 interleave
	4---	4:1 interleave
	5---	5:1 interleave
	6---	6:1 interleave
	7---	7:1 interleave
Slow	8---	8:1 interleave
	9---	Optical Disk Low Level Formatting

After formatting the HD, measure the time it takes to save a file to the hard disk using the different interleaves. The fastest one wins! The lower the interleave ratio, the faster the hard disk.

Option #9 allows you to perform a low level format on a "virgin" optical platter (of the Sony type only). Most optical disks that you buy will already have this low level formatting, but some don't and will not be recognized by the EIIIX. This utility allow you to perform the function. This takes about 25 minutes, so don't do it unless absolutely necessary.

■ 8. Backup

This module allows you to backup and restore a portion or the entire contents of the hard disk. This function makes it so easy that you really will have *no* excuse for not backing up all your hard disk banks. If you'd *hate* to lose it, BACK IT UP.

To Backup to another Hard Disk:

1. *When the display asks you for the source drive (from), select the disk drive to be backed-up, then press ENTER.*

BACKUP from
D0 Main Drive

Select a Drive

▼ *In order to use the back-up function, BOTH drives must be unlocked.*

2. The display asks you for the destination drive (into). Select the disk drive to which the information will be saved, then press ENTER.

▼ A disk drive cannot be backed-up to itself.

```
BACKUP into
D0 Main Drive
D1 Removable Media
Select a Drive
```

3. Select between Automatic or Interactive backup modes.

```
BACKUP from
D0 Main Drive
D1 Removable Media
Mode: Interactive
```



■ **Automatic Mode** : transfers the complete contents of the source hard disk (or just the updated banks) to the destination drive without prompting you at each bank.

■ **Interactive Mode**: transfers the banks of the source hard disk drive to the destination drive, but prompts you to select each source and destination bank.

4. Select the backup mode and press ENTER.

5. Select the **Bank Type**. The display shows:

```
BACKUP from
D0 Main Drive
D1 Removable Media
Bank Type: All
```

-
- **All:** Copies all the banks on your hard disk.
 - **Updated:** Copies only those banks which have been modified since your last back up.
 - **Range:** Copies a selected range of disk banks.

6. Select the bank type and press ENTER. If you selected **All** or **Updated** as the bank type, the screen shown in step 7 will appear.

If you selected **Range** as the bank type the following screen will appear:

```
BACKUP Low Range:
D0 Main Drive
D1 Removable Media
13 Baby Burps      X
```

■ The "X" at the end of the bank name indicates that the bank is an EIIIX bank.

7. Select the low bank of the range. In this menu, you select the lowest bank in the range of banks which will be copied to the destination hard disk.

```
BACKUP High Range:
D0 Main Drive
D1 Removable Media
22 Dog Barks      X
```

8. Select the high bank of the range.

9. Press ENTER when the highest bank in the range has been selected. The following screen will appear:

```
BACKUP
D0 Main Drive
D1 Removable Media
Bank Dest: SameBank
```

■ **Same Bank:** Copies the banks into the same numbered bank locations on the destination disk.

■ **Empty Bank:** Copies the banks into the lowest consecutive empty bank locations on the destination disk.

10. Select the bank destination and press ENTER. The display will inquire if you are sure. Press **Yes** if you are, and backup will proceed. Press **No** to cancel the operation and return to the Module Identifier.

During the Backup procedure, the display will show the banks being copied.

To Restore:

To restore your backed-up disk, simply reverse the source and destination drives following the directions for backup.

■ **9. Erase Software**

With this function, software can be erased from any of the hard disk drives. If the EIIIX operating system software has been copied onto more than one hard disk, you might want to erase it so that the EIIIX will boot from a particular drive. This utility allows you to do it.

- 1. Activate Master/Globals module.**
- 2. Select 7. Disk Utilities, 9. Erase Software (7/9).**
- 3. Select the drive containing the software to be erased, then press ENTER.**

ERASE SOFTWARE
D0 Main Drive

Select a Drive

4. Decide if you really want to erase the software. The display will ask if you really want to do this.

5. Press Yes to erase the software or No to cancel the operation. In either case, the EIIIX will return to the Module Identifier.

8. SPECIAL

This section contains several additional numbered functions. Here are short descriptions of each sub-module. More extensive descriptions follow.

- **1. Audition Key:** Allows the Emulator IIIX to be played without a keyboard. This function sets the key that will be played when the Audition button on the front panel is pressed.
- **2. Recalibrate:** Allows you to recalibrate the action of the data and volume sliders on the front panel.
- **3. Contrast:** This function allows you to adjust the contrast of the front panel LCD .
- **4. Headroom:** Allows you to adjust the amount of available headroom of the EIII's D/A converters.
- **5. Main Output Format:** This function adjusts the EIII for optimum performance when using either the main analog outputs or the digital I/O.
- **6. Software Version:** States the current version of the operating system software.
- **7. Disable Channels:** If an Emulator IIIX output channel fails, you can locate and disable it with this function.
- **8. Volume Curve:** Allows you to select 1 of 8 volume response curves. These curves are applied to any controller that affects the final volume, such as volume envelope, MIDI volume, etc.

■ To Access Any of the Special Functions:

1. *Activate Master/Globals.*
2. *Select Submodule 8 and press ENTER.*
3. *Select the desired function in Submodule 8 and press ENTER.*

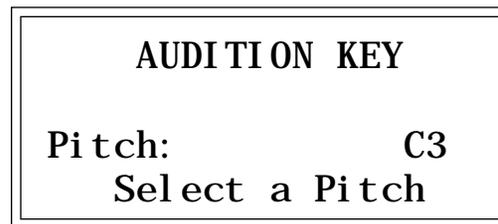


■ *The Audition button allows you to preview samples directly from the hard disk when you are in the "Load Sample" screen.*

■ 1. Audition Key

This screen allows you to set the key that will be played when the Audition button on the front panel is pressed. The audition button allows you to audition sounds from the EIII with having a MIDI keyboard connected.

1. **Activate Master/Globals module.**
2. **Select 8. Special, 1. Audition Key (8/1).**
3. **Select the pitch to be auditioned when the audition button is pressed.**

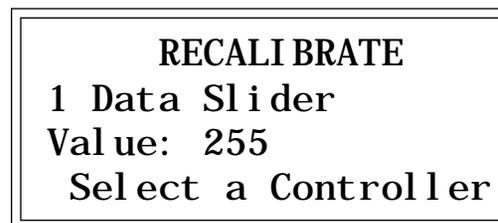


5. **Press ENTER to exit the submodule.** The EIII will return to the Module Identifier.

■ 2. Recalibrate

With this function you can set minimum and maximum values for the data and volume sliders. If you feel that the sliders are not working correctly, it may be time to recalibrate.

1. **Activate Master/Globals module.**
2. **Select 8. Special, 2. Recalibrate (8/2).**
3. **Select the controller to be recalibrated using the inc/dec buttons, then press ENTER.** Moving the slider shows the current range of movement. The values should range from 000-255.



4. Move the slider to the minimum position, then press ENTER.

The display now shows the pre-processed values for the slider.

RECALIBRATE
1 Data Slider
Min: 000E
Set Minimum Value

5. Move the slider to the maximum position, then press ENTER.

RECALIBRATE
1 Data Slider
Min: 000E Max: 0302
Set Maximum Value

6. Check the movement of the slider. The value shown should range from 000-255. **Press ENTER.**

7. To save the calibration, press Yes. To cancel the calibration, press No. In either case, the display will jump ahead to the next slider to be recalibrated. When both sliders have been recalibrated, the EIIX will return to the Module Identifier.

■ 3. Contrast

This function allows you to change the viewing angle of the LCD so that it may be easily read from either above or below. The angle is adjustable from +7 to -8. Positive values make the display easier to read when viewed from below. Negative values make the display easier to read from above.

1. Activate Master/Globals module.

2. Select 8. Special , 3. Contrast (8/3)

3. Select the desired contrast setting.

■ *The headroom adjustment also controls the level on the digital audio output.*

CONTRAST
Contrast: - 2
Select Contrast

4. Press ENTER to exit the submodule. The EIIIIX will return to the Module Identifier.

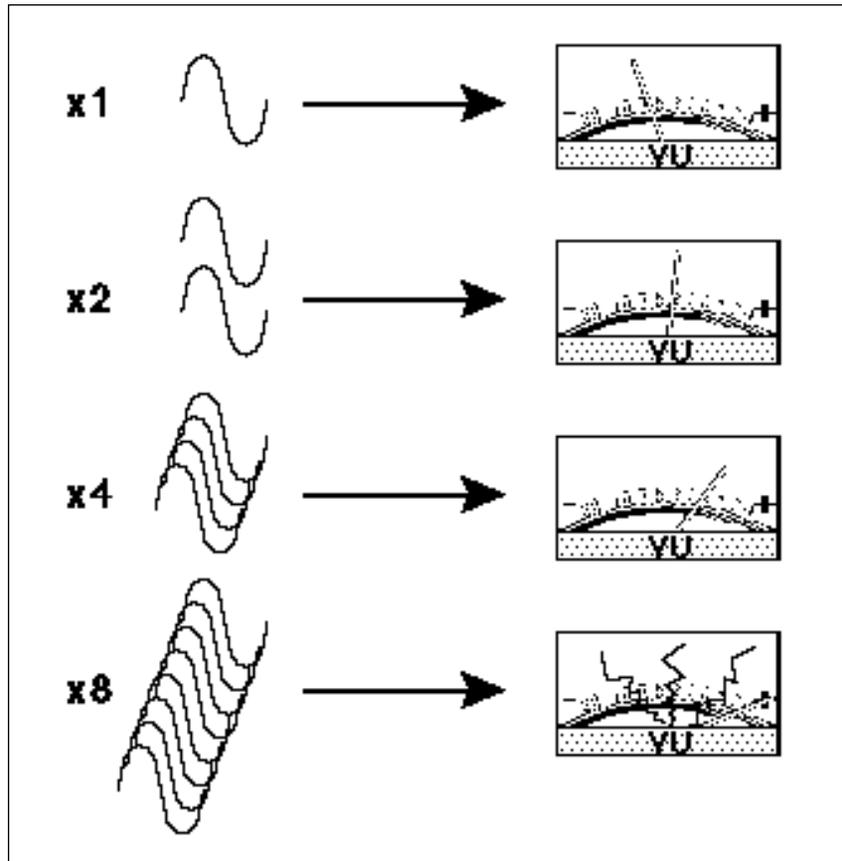
■ **4. Headroom**

Headroom is the amount of dynamic range remaining before clipping will occur. Sampling instruments are quite different from a CD player, since a sampler plays multiple channels at once. Each channel boosts the headroom requirement by 3 dB. The amount of headroom on the EIIIIX is adjustable from 0 dB to 15 dB in 1 dB increments (with the front panel volume control set to maximum). A headroom setting of 0 dB for example, will provide the hottest output level, (and the highest signal to noise ratio) but may cause “clipping” if too many notes are played at once. The default headroom setting is 10 dB, which maintains an excellent signal to noise ratio while keeping a reasonable amount of headroom in reserve. If you hear clipping from the EIIIIX, raise the amount of headroom. The headroom setting is retained when power is switched off.

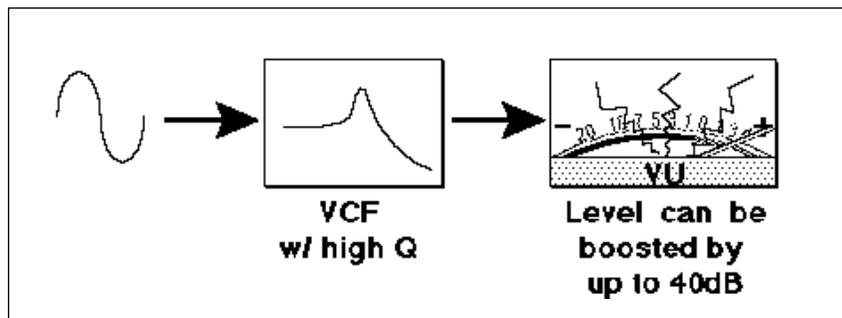
- 1. **Activate Master/Globals module.**
- 2. **Select 8. Special , 4. Headroom (8/4)**
- 3. **Select the desired amount of headroom.** The amount of remaining headroom is variable from 0 dB to 15 dB in 1 dB increments.

HEADROOM
Headroom: 10dB
Select Headroom

4. Press ENTER to exit the submodule. The EIIIIX will return to the Module Identifier.



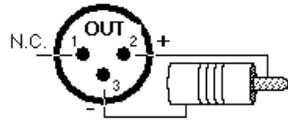
Each channel played adds +3dB to the output of the E11X. The headroom control allows you to add more channels without clipping.



The VCF can boost the signal by up to 40 dB with high amounts of resonance.

▼ Always use high-quality, low-capacitance, three-wire cable for the AES/EBU interface to insure data integrity.

■ When connecting the digital output to consumer audio gear, it may be necessary to use an adapter cable. This adapter should be constructed using video-grade coaxial cable.



Master/
Globals

▼ The headroom adjustment, the master volume control, and VCA level all control the level on the digital audio output. These controls can be adjusted when transferring digital audio to optimize the signal level.

For a single channel output, the maximum output level of the E11X will be -6 dB.

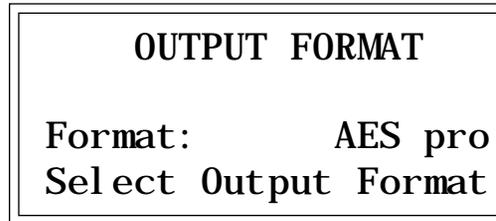
■ 5. Main Output Format

The E11X is equipped with a digital audio output for interfacing with other digital audio equipment. Both the S/PDIF (consumer) and the AES/EBU (professional) format are supported. The digital audio interface carries two channels of audio information which mirrors the audio at the main outputs. Both audio and digital I/O data are always active. This function optimizes the E11X's output for whatever format is being used.

1. Activate Master/Globals module.

2. Select 8. Special , 5. Main Output Format (8/5)

3. Select the desired output format. Use the data slider or inc/dec buttons to select between analog, AES consumer digital or AES professional digital output.

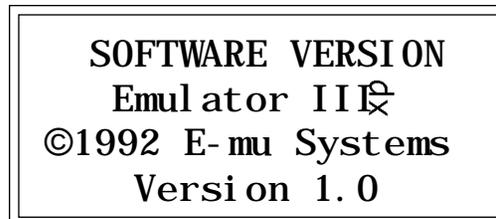


4. Press ENTER to exit the submodule. The E11X will return to the Module Identifier.

■ 6. Software Version

1. Activate Master/Globals module.

2. Select 8. Special , 6. Software Version (8/6)



3. The display shows the disk software version.

4. Press ENTER to exit the submodule. The EIII will return to the Module Identifier.

■ 7. Disable Channels

In rare situations, a channel can fail. It may go quietly, or it may produce unwanted sounds. In either case, the individual output channel can be temporarily turned off so as not to cause problems until it can be repaired.

1. Activate Master/Globals module.

2. Select 8. Special, 7. Disable Channels (8/7).

3. Use the left/right cursor buttons to place the cursor under the channel to be disabled. The channel number is shown on line 4 of the display. As notes are played, the display will show small bar graphs of the VCA envelopes for each of the 32 channels, making it easier to determine which channel is bad.

```
DISABLE CHANNELS
--- X -----
-----
Channel =01
```

4. When the cursor is under the channel to be edited, press Off to disable, or On to enable. If the channel is disabled, it will be indicated by a small "X" in that location. There are two rows of 16 channels shown in the display.

5. Press ENTER to exit the submodule. The EIII will return to the Module Identifier.

■ 8. Volume Curve

The Emulator IIIIX contains 8 different volume response curves. These curves should not be confused with MIDI velocity curves. The curves are only applied to controls which affect the final output VCA. They were originally designed to match the EIII's response to that of the original EIII, but a few more were added for variety. Choose the curve that has the smoothest volume response with your particular sequencer or controller.

1. *Activate Master/Globals module.*
2. *Select 8. Special, 8. Volume Curve (8/8).*
3. *Select the desired volume curve.* Refer to the diagrams below and on the next page.

VOLUME CURVE

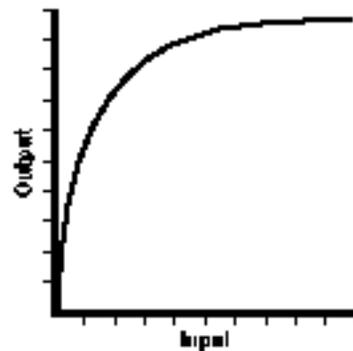
Curve: 2

Select Curve

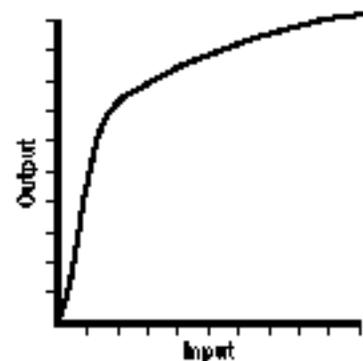
4. *Press ENTER to exit the submodule.* The EIIIIX will return you to the Module Identifier.

Master/
Globals

VOLUME CURVES

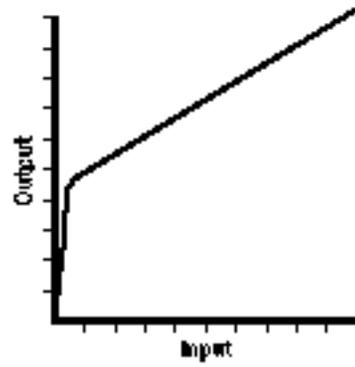


CURVE 0

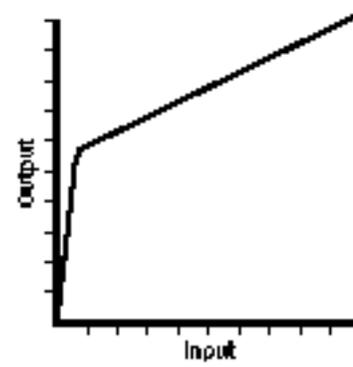


CURVE 1

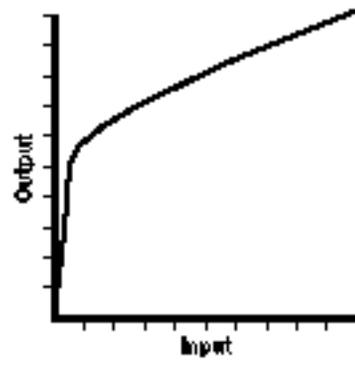
VOLUME CURVES



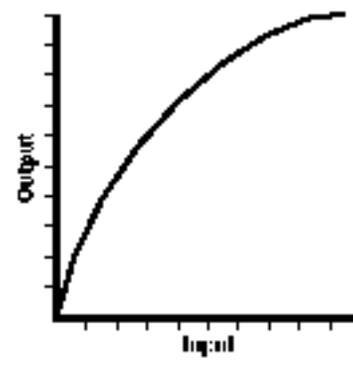
CURVE 2



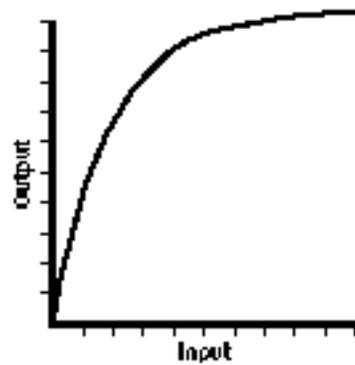
CURVE 3



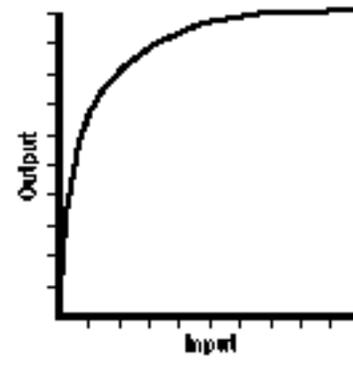
CURVE 4



CURVE 5



CURVE 6



CURVE 7

Master/
Globals

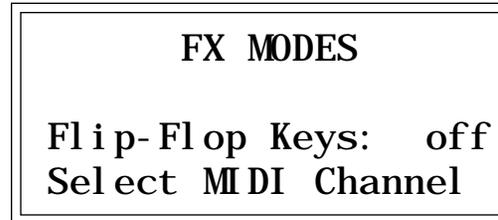
■ 9. FX Modes

This submenu contains the Flip-Flop Keys function, which was designed for sound effects work. When flip-flop keys is turned on pressing a key will toggle that note on. Pressing the same key again, will toggle the note off. This mode is useful when you want to trigger a long sample (such as background ambience) and have it continue playing without having to hold the key. Flip-flop keys only operates on a single MIDI channel.

1. *Activate Master/Globals module.*

2. *Select 8. Special, 9. FX Modes (8/9).*

3. *Select the desired MIDI channel for Flip-Flop Keys.* Select from MIDI channels 1-16 or Off.



4. *Press ENTER to exit the submodule.* The EIIIX will return you to the Module Identifier.

9. MIDI

This section contains several additional numbered functions. The MIDI global functions act on the entire EIII. MIDI functions that operate on specific presets are located in the Preset Definition menu. Here are short descriptions of each sub-module. More extensive descriptions follow.

■ **1. MIDI Mix:** Allows you to monitor and change the volume and pan settings of all 16 MIDI channels at once. It also lets you override the submix output settings made in the zone and assign them according to MIDI channel.

■ **2. MIDI Globals:** MIDI global commands override the MIDI settings programmed for each preset in the Preset Definition module and return us to a simpler time when MIDI settings affected all presets.

■ **3. MIDI Load Bank:** This feature allows a MIDI command to load banks from a hard disk.

■ **4. MIDI Volume Pedal Global Override:** Allows an external MIDI controller (pedal) to function like a master volume pedal.

■ **5. MIDI Volume/Pan:** This function automatically routes the MIDI controllers 7 and 10 to volume and pan. It also disables controllers 7 and 10 in the Preset Definition MIDI submodule.

■ **6. Multimode Enable:** Selects whether or not Multimode On/Off is set globally or dependent on each bank.

■ To Access Any of the MIDI Functions:

1. *Activate Master/Globals.*
2. *Select Submodule 9 and press ENTER.*
3. *Select the desired function in Submodule 9 and press ENTER.*



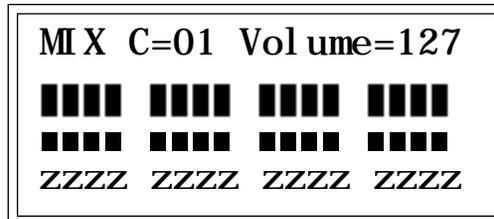
■ 1. MIDI Mix

The MIDI Mix screen is very useful in that it allows you to easily fine tune the volume and pan of each preset. In addition, it allows you to override the output channel setting programmed in the Dynamic Processing module and route each MIDI channel to the output of your choice. These volume and pan settings can also be accessed from the multimode screen, but the MIDI Mix may be more convenient for mixdown, since the volume and pan settings for all channels are visible. Any volume and pan changes made over MIDI will be reflected in the screen. (Volume = MIDI continuous controller channel #7, Pan = MIDI continuous controller channel #10)

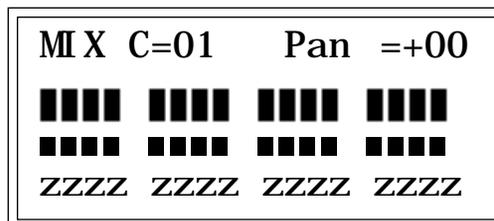
1. **Activate Master/Globals module.**

2. **Select Submodule 4.**

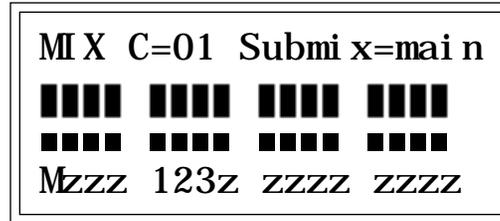
3. **Select a MIDI channel.** Use the left-right cursor buttons to scroll through the MIDI channels. Each time you press the cursor button, the cursor moves to the next channel's bar graph volume display in line two. The top line of the EIII display shows the MIDI channel and a decimal readout of the volume setting for that channel. Use the data slider or inc/dec buttons to change the volume levels.



4. **Move the cursor down to line three.** The volume display on line one now changes to display the pan setting for the currently selected MIDI channel. Pan *adds* to the pan setting made in the dynamic processing zone it is NOT an absolute pan setting. Use the left-right cursor buttons to scroll through the MIDI channels.



5. **Move the cursor to line four of the display.** The pan display on line one now changes to display the output channel assignment for the currently selected MIDI channel. Use the data entry control or data slider to select the main outputs or submix outputs 1, 2 or 3, or zone (z), in which the outputs assignments programmed in the Dynamic Processing module for each zone are used. Selecting main, 1, 2, or 3 will override the output channel selections made in the Dynamic Processing module. Use the left-right cursor buttons to scroll through the MIDI channels.

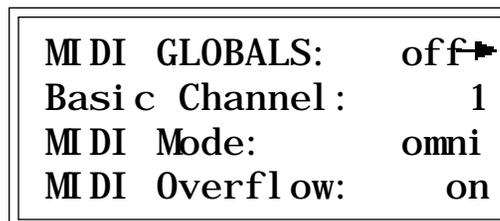


6. **Press ENTER to exit the submodule.** The EIIIX will return to the Module Identifier.

■ 2. MIDI Globals

MIDI Global commands override the MIDI settings programmed for each preset in the Preset Definition, MIDI submodule. When MIDI Globals are **On**, the MIDI settings for each preset are ignored (except Realtime Controls). When MIDI Globals are turned **Off**, the MIDI settings for each preset are valid. For explanations of each MIDI parameter refer to the Preset Definition module, 6. MIDI.

1. **Activate Master/Globals module.**
2. **Select 8. Special, 7. MIDI Globals (8/7).**
3. **Move the cursor to the parameter(s) to be adjusted, and select the desired value(s) with the data slider.** The first page shows:



■ **Omni mode** - the EIIIX receives MIDI data on any and all channels, but plays only the current preset.

■ **Poly mode** - the EIIIX receives MIDI data only on the selected MIDI channel and plays the current preset.

■ **Multi mode** - (Multi LED lit) the EIIIX receives MIDI data on any and all channels and plays the preset assigned to each MIDI channel in the Multi screen.

4. *Select page two by pressing the right cursor button.* The second page shows:

MIDI GLOBALS	
Send Preset Chg:	on
Recv Preset Chg:	on

5. *Press ENTER to exit the submodule.* The changes will be stored and the EIIIX will return to the Module Identifier.

■ 3. MIDI Load Bank

This feature allows a MIDI command to load banks from the hard disk. The “Magic Preset” is a preset number which tells the EIIIX that the next preset change command that it receives over MIDI is the bank number to be loaded. Therefore, to load a hard disk bank over MIDI, two program change commands must be sent, the Magic Preset and the bank number. For example, if the Magic Preset is set at “P85”, and the EIIIX receives a preset change command of 85 followed by a preset change command of 11, the EIIIX will load bank 11 from the hard disk. If multiple SCSI drives are connected, the EIIIX will load from the drive most recently accessed. The Magic Preset is user definable and can be turned off or set to any preset number from 0 to 127. MIDI Load Bank always works, regardless of MIDI Global or MIDI submodule settings.

1. *Activate Master/Globals module.*
2. *Select 9. MIDI, 3. MIDI Load Bank (9/3).*

MIDI LOAD BANK	
Magi c Preset:	
Pxx	Off

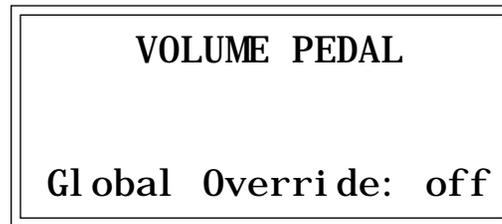
3. *Select the Magic Preset or Off to disable MIDI Load Bank.*

4. Press ENTER to exit the submodule. The changes will be stored and the EIIIX will return to the Module Identifier.

■ 4. MIDI Volume Pedal

This command overrides any footpedal assignments made in the Controllers Enable submodule and forces the footpedal to become a volume pedal (*emulating the front panel volume slider*). Volume Pedal Global Override can be turned **On** or **Off** (default is Off). This setting is stored as part of the System Software and will remain in its setting after the EIIIX is powered down and re-booted.

1. **Activate Master/Globals module.**
2. **Select 9. MIDI, 4. Volume Pedal (9/4)**



■ The "Pedal" can be programmed to any MIDI continuous controller number in the Preset Definition, MIDI submodule.

3. **Select whether volume pedal global override is on or off.**

4. Press ENTER to exit the submodule. The changes will be stored and the EIIIX will return to the Module Identifier.

■ 5. MIDI Volume/Pan

When this function is turned **On**, the MIDI continuous controllers 7 and 10 will be routed to volume and pan whenever the EIIIX is multimode. (*Volume and Pan are the standard functions of these two controller numbers.*) Whenever the EIIIX is in multimode, MIDI controllers 7 and 10 control volume and pan and their assignments in the Preset Definition submodule will be ignored. When not in multimode, MIDI controllers 7 and 10 function as programmed in the Preset Definition submodule.

When MIDI Volume/Pan is turned **Off**, volume and pan must be programmed for each preset in the Preset Definition MIDI submodule.

1. *Activate Master/Globals module.*

2. *Select 9. MIDI, 5. Volume/Pan (9/5)*

```
MIDI VOLUME/PAN
Route MIDI volume &
pan to MIDI Mix in
multimode?          yes
```

3. *Select whether or not you want the EIIIX to respond to the volume and pan MIDI controllers (7 & 10) when in multimode.*

4. *Press ENTER to exit the submodule.* The changes will be stored and the EIIIX will return to the Module Identifier.

■ 6. *Multimode Enable*

Multimode Enable consists of two functions. “Boot in Multi” automatically turns multimode on whenever the unit is powered up. When “Use Bank State” is enabled (yes), the state of Multimode (on or off) will be saved along with the bank. Therefore, if multimode was on when the bank was saved, it will be turned on when the bank is loaded.

1. *Activate Master/Globals module.*

2. *Select 9. MIDI, 6. Multimode Enable (9/6)*

```
MULTIMODE ENABLE

Boot in Multi:      yes
Use Bank State:     yes
```

3. *Select whether or not you want Multimode to be global or bank dependent, then press ENTER*

4. *Press ENTER to exit the submodule.* The changes will be stored and the EIIIX will return to the Module Identifier.

0. IMPORT

This section contains the import utilities which are used to load and convert sound files from other equipment.

■ **0. Akai Import:** Allows the Emulator IIIIX to read and convert programs and samples from the Akai S1000 and S1100 samplers.

■ **1. Emax II Import:** Allows the Emulator IIIIX to read and convert presets and samples from the Emax II sampler.

■ **To Access Any of the Import Functions:**

1. Activate Master/Globals

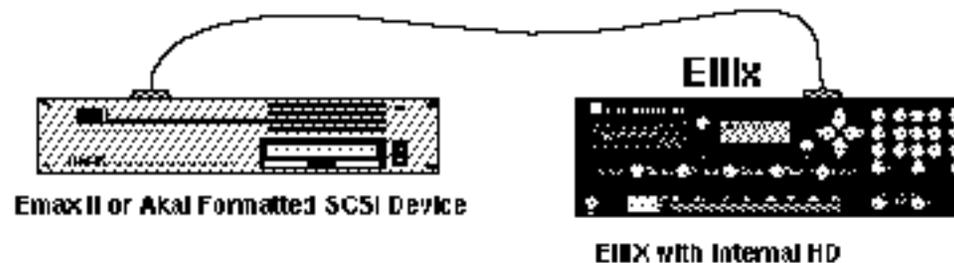
2. Select Submodule 0 and press ENTER.

3. Select the desired function in Submodule 0 and press ENTER.

■ **0. Akai Import**

The Akai Import function allows you to import Programs, Samples or entire Volumes from the Akai S1000 (and S1100) samplers and convert them into an EIIIIX bank. Data is imported into the EIIIIX, from an Akai formatted SCSI device. Load time varies and may be either slightly longer or even shorter than the Akai in many cases. There are a few fundamental differences between the Akai samplers and the EIIIIX. For this reason a number of the Akai program parameters are ignored during the conversion process. In most cases, however, the converted programs and samples should sound and behave very similarly to the originals.

Master/
Globals



Connect the EIIIIX to an Akai or Emax II formatted SCSI device.

1. **Activate Master/Globals module.**
2. **Select 0, Import, 0. Akai Import (0/0)**

AKAI I M P O R T
Select a Submodule

3. **Select the desired import function.** There are three options available. Refer to the chart below.

0 Akai SCSI Setup

Allows the EIIIX to specify the ID of the Akai device.

1 Akai Import Options

Contains several options related to the import process.

2 Akai Load/Convert

Allows you to browse through the Akai SCSI device, select the volume, programs or samples to import and start the import process.

An Akai SCSI device is NOT mounted and accessed like a normal EIIIX drive (the load and drive buttons will not access the Akai drive). Instead, it is accessed and operated using the Akai menus. Only one Akai SCSI device can be known to the EIIIX at any given time.

Akai Setup

4. **Press 0 on the keypad to select Akai SCSI Setup.** This step is necessary for the EIIIX to recognize the Akai SCSI device. The display shows:

AKAI SCSI SETUP →
SCSI ID: SEARCH
TOSHIBA CD-ROM DRIVE
Select SEARCH or ID

The setup screen is used to select the SCSI ID of the attached Akai SCSI device. The SCSI ID may be selected by using the inc/dec buttons, or by typing the digit (1-7) directly using the EIIIIX keypad. The default choice, "Search" instructs the EIIIIX to search for the first Akai device in the SCSI chain. Normally you will use "Search" unless you want to select a specific Akai device out of several on the SCSI bus. Press ENTER, to confirm your choice and return to the option select screen.

▼ **WARNING:** If you have an Akai S1000 or S1100 connected to the SCSI bus, you **MUST** enter the SCSI ID number of the Sampler (not the HD). Failure to do so will cause the system to crash. **Press the right cursor button for the next screen, then select the ID number of the S1000 or S1100.** This ID number is remembered on power down. Press ENTER, to confirm your choice and return to the option select screen.

5. Press 1 to select the Import Options screen. The following screen will appear. Press ENTER when you have selected your choices.

```
AKAI IMPORT OPTIONS →
Adjust loops:         on
Full placement:      on
Combine - L/- R:     off
```

■ **Adjust Loops**

Sample looping is implemented differently on the EIIIIX and the Akai. Because of this difference, certain sample loops may "tick" slightly or appear out of tune after being transferred from the Akai. This function will automatically repair any incorrect sample loops after being transferred. Be advised that the transfer may take slightly longer (up to 15% more time) with Adjust Loops turned On.

■ **Full Placement**

The Akai files may have samples placed on multiple layers in a program. The EIIIIX only allows a primary and secondary layer in a preset. Turning the Full Placement function On instructs the EIIIIX to create "Linked" EIIIIX presets if an Akai preset has more than 2 layers. Velocity crossfade assignments for these links will be ignored. Any linked presets will be placed after the main presets in the preset list.

If Full Placement is set to Off, the first two samples assigned to a key will be placed in the primary and secondary positions for the key, and any subsequent samples assigned to the key will be ignored.

▼ *Drive 0 cannot be used since the EIIIIX uses this number for the floppy disk.*

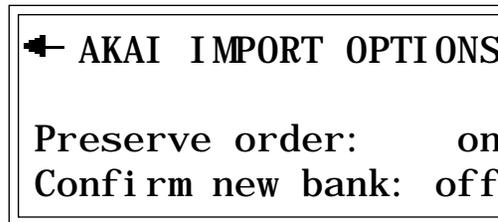
Akai Import Options

■ **Combine -L/-R**

When this option is set to “On”, the EIIIX will look within an Akai keygroup for left/right samples that can be combined into a single stereo sample. If the first 10 characters of the 12 character sample name match, and the last two characters of the two samples are ‘-L’ and ‘-R’, they are combined into an EIIIX stereo sample. Program parameters for the new stereo sample are taken from the left sample. The right side parameters are ignored.

When Combine -L/-R is set to “Off”, stereo samples are not combined and each sample will be placed in a separate EIIIX zone.

6. *Select page two by pressing the right cursor.*



■ **Preserve Order**

When set to “On”, the EIIIX will attempt to map Akai program numbers to EIIIX preset numbers. If extra “link” presets need to be created in order to place all samples within an Akai program, they will be placed *after* all the base presets.

For example, the Akai S1000 permits multiple programs to have the same program number (as a way of linking multiple sounds). If three programs are set to program number, and “Preserve Order” is On, The EIIIX will place the first program at preset 0 (if it not already filled), and the next two at locations 126 and 127. All three presets will be linked together so that all will sound when preset 0 is selected.

When Preserve Order is turned “Off”, presets will be placed sequentially in the lowest free preset location.

■ **Confirm New Bank**

When this function is set to On the EIIIX will issue an extra prompt whenever a load operation is about to destroy the current bank.

Akai Mini-Glossary

Partition = Akai hard disks are divided into partitions of 30, 40, 50, or 60 Mbytes, unlike the EIIIX which sees the hard disk as one continuous area.

Volume = An Akai partition can contain up to 128 Volumes. A Volume is a collection of Programs, equivalent to an EIIIX bank. Volumes are limited to a total of 64 sample, 'program' and 'drum setting' files.

Program = Equivalent to an EIIIX Preset.

7. Press 2 to select the Akai Load/Convert screen. Immediately after Load/Convert is selected, the EIIIX will attempt to read and verify the Akai disk using Search mode or using the SCSI ID selected in the SCSI Setup screen. If Search mode was selected, the following screen will appear:

A rectangular screen with a double-line border. The text is centered and reads "AKAI LOAD" on the top line and "Searchi ng. . ." on the bottom line.

If an Akai disk cannot be found, an error message will be generated indicating: "No Akai Device Found". If a valid Akai device is found, the following screen will appear:

A rectangular screen with a double-line border. The text is centered and reads "AKAI LOAD from" on the top line, "P: A Vol : PIANOS" on the second line, and "Select Partit ion" on the third line.

8. Use the inc/dec buttons to select the Partition number, then use the right cursor button to move to the next parameter (or press ENTER).

"P" stands for Partition. Akai partitions are indicated by letters A-Z. The first volume in the partition is displayed next to the partition letter.

Akai Load

■ *The cursor buttons can be used to **go back** to the previous field.*

8. Use the inc/dec buttons or the data slider to select the Volume. When the desired Volume is located, press ENTER or use the right cursor button to move on to the next screen.

```
AKAI LOAD from
P: A  Vol : PIANOS

Select Volume
```

9. Use the inc/dec buttons or the data slider to select the Program. Press ENTER to load and convert a single program. “All” allows you to load and convert all programs in the volume. Selecting “None” allows you to load samples only.

```
AKAI LOAD from
P: A  Vol : PIANOS
Program: Full Grand

Select Program
```

If “All” is selected, the following screen will appear:

```
AKAI LOAD from
P: A  Vol : PIANOS
Program: **ALL**
Overwrite Bank?  Y/N
```

Programs and samples may be loaded into a new bank (Overwrite Bank = Yes) or merged with the existing bank (No).

10. Press Yes to overwrite the current bank or No to merge the programs with the existing bank. Loading will begin immediately.

▼ If a converted preset NAME already exists in the current bank, two presets may be created with the same name, even though they might not be different.

When the conversion is complete, the following screen will appear:

```
AKAI LOAD
..... Completed.....
Load Another?   Y/N
```

If Yes is selected, the Volume select screen will appear and a new volume, program or sample can be selected. The "Overwrite Bank?" prompt will not appear. Data will be merged with the current bank.

Important Note:

Certain Akai disks have samples and programs stored in separate volumes in order to save space on the disk. If you have an Akai disk using this format, follow these instructions.

- 1) Load the volume containing the samples.
- 2) Answer "Y" to "Load Another?".
- 3) Load the preset volume.

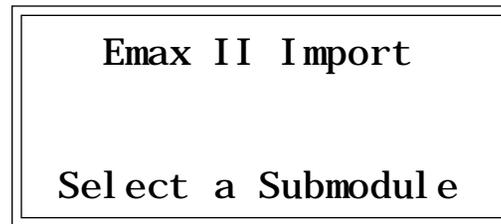
The above warning only applies to Akai banks with Samples and Programs stored in different Volumes.

12. Press No to exit the submodule. The EHX will return to the Module Identifier.

■ 1. Emax II Import

The Emax II Import function allows you to import Presets, Samples or entire Banks from the Emax II sampler and convert them into an EIIIIX bank. Data is imported into the EIIIIX, from an Emax II formatted SCSI device. Load time will be approximately twice that of the Emax II. There are a few fundamental differences between the Emax II and the EIIIIX. For this reason a few parameters are ignored during the conversion process. In most cases, however, the converted presets and samples should sound and behave very similarly to the originals.

1. *Activate Master/Globals module.*
2. *Select 0, Import, 1. Emax II Import (0/1)*



3. *Select the desired import function.* There are three options available. Refer to the chart below.

0 Emax II SCSI Setup
Allows the EIIIIX to specify the ID of the Emax II device.
1 Emax II Import Options
Gives the option to confirm before erasing data.
2 Emax II Load
Allows you to browse through the Emax II SCSI device, select the bank, presets or samples to import and start the import process.

An Emax II SCSI device is NOT mounted and accessed like a normal EIIIIX drive (the load and drive buttons will not access the Emax II drive). Instead, it is accessed and operated using the Emax II import menus. Only one Emax or Akai SCSI device can be known to the EIIIIX at any given time.

Emax II Setup

4. Press 0 on the keypad to select Emax II SCSI Setup. This step is necessary for the EIIIX to recognize the Emax II SCSI device. The display shows:

```
Emax II SCSI SETUP
SCSI ID:      SEARCH
TOSHIBA CD-ROM DRIVE
Select SEARCH or ID
```

▼ Drive 0 cannot be used since the EIIIX uses this number for the floppy disk.

The setup screen is used to select the SCSI ID of the attached Emax II SCSI device. The SCSI ID may be selected by using the inc/dec buttons, or by typing the digit (1-7) directly using the EIIIX keypad. The default choice, "Search" instructs the EIIIX to search for the first Emax II device in the SCSI chain. Normally you will always use "Search" unless you want to select a specific Emax II device out of several on the SCSI bus. Press ENTER, to confirm your choice and return to the option select screen.

Emax II Import Options



5. Press 1 to select the Import Options screen. The following screen will appear. When this function is set to Yes, the EIIIX will issue an extra prompt whenever a load operation is about to destroy the current bank. Press ENTER after selecting your choice.

```
EmaxII IMPORT OPTIONS

Confirm new bank: no
```

Emax II Load

6. Press 2 to select the Emax II Load screen. Immediately after Load is selected, the EIIIX will attempt to read and verify the Emax II disk using Search mode or using the SCSI ID selected in the SCSI Setup screen.

Emax II LOAD from
B01 Bosendorf8M

Select Bank

If an Emax II disk cannot be found, an error message will be generated indicating: "No Emax Drive Found".

7. Use the inc/dec buttons or the data slider to select the bank to load. When the correct bank is displayed, press ENTER.

The following screen will appear:

Emax II LOAD from
B01 Bosendorf8M

*** ALL PRESETS ***

Select Preset

8. Press ENTER to select All Presets in the bank or use the inc/dec buttons or the data slider to select a specific preset. Another option is "All Samples" which will only load the samples. Press ENTER. The "Overwrite Bank" warning only appears if "All Presets" or "All Samples" was selected (and "Confirm New Bank" was enabled). If a specific preset was chosen the warning will not appear and the preset (and associated samples) will be merged with the current bank.

Emax II LOAD from
B01 Bosendorf8M

*** ALL PRESETS***

Overwrite Bank? Y/N

9. Select Yes to overwrite the current bank or No to merge the data with the current bank. Loading will begin immediately.

Emax II LOAD
Converting sample...
S01 647.0k
■■■

Sample Size

- Since samples do not have names in the Emax II, they are imported into the EIIX with Sxx appended to the bank name, where xx is the number of the sample. Example: Bosendorf8M_S02.
- Bank and preset names retain their names from Emax II.

Emax II LOAD
..... Completed.....
Load Another? Y/N

If Yes is selected, the Bank select screen will appear and a new Bank, Preset or Sample can be selected.

10. Press No to exit the submodule. The EIIX will return to the Module Identifier.

0. SELECT SAMPLE	5-2
1. LOAD SAMPLE	5-3
2. RENAME SAMPLE	5-5
3. ERASE SAMPLE	5-6
4. COPY SAMPLE	5-7
5. SETUP	5-8
6. PLACE SAMPLE	5-10
7. ARM SAMPLING	5-12
8. FORCE SAMPLING	5-13
9. MIDI SAMPLE DUMP	5-14

0. SELECT SAMPLE

This submodule selects a sample for placing on the keyboard, or the sample into which a sound will be recorded.

1. Activate Sample Management module.

2. Select Submodule 0.

3. Select the desired sample and press ENTER. As you scroll through non-empty samples, the display will show the sample number, name, sampling rate, sampling length, how many presets use the sample, and whether the sample is stereo, left, or right. And, as you scroll through the samples, they will be playable on the keyboard.

SELECT SAMPLE	
S00 Selected Sample	
Stereo	44100Hz
10 Presets	5.3secs

Sample
Manage

1. LOAD SAMPLE

Samples can be loaded individually from the internal hard disk, or external storage devices.

1. **Activate Sample Management module.**
2. **Select Submodule 1.**
3. **If you wish to select a different drive, then press the up cursor button. If not, proceed to step five.**
4. **Select the drive containing the sample to be loaded, then press ENTER.**

LOAD SAMPLE from
D1 100MB HD

Select a Drive

■ Pressing the Audition Button from this submodule auditions the samples directly from the hard disk, without having to first load them.

5. **Select the bank that contains the sample to be loaded, then press ENTER.**

LOAD SAMPLE from
D1 100MB HD
B00 Current Bank
Select a Drive

Sample
Manage

6. **Select the sample to be loaded, then press ENTER.** As you scroll through the samples, the display shows the names of the existing samples, whether stereo or mono, sampling rate, and sample length.

LOAD SAMPLE from
S00 Current Sample
Stereo 44100Hz
 3. 0secs

7. Select the destination sample number into which the source sample will be loaded, then press ENTER. If you try to overwrite an existing sample, you will be asked if you do want to overwrite. Enter **Yes** to replace the existing sample, **No** to cancel the operation.

LOAD SAMPLE into
S00 Selected Sample
S00 Empty Sample
Select Dest Sample

8. If desired, rename the sample. Choose the characters to be changed with the left and right cursor buttons. Select the desired characters by using the ten key pad, data slider and keyboard. You can also use the up cursor to insert spaces and the down cursor to delete spaces. (See Sample Management, 2. Rename Sample.)

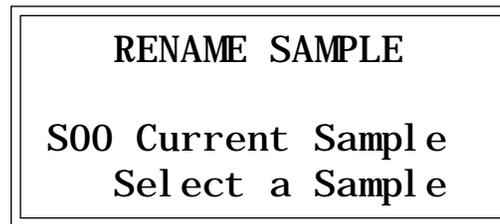
9. Press ENTER to exit the submodule. The EIIIIX will return to the Module Identifier.

Sample
Manage

2. RENAME SAMPLE

This submodule allows you to rename any sample.

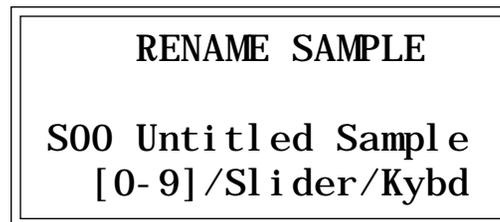
1. **Activate Sample Management module.**
2. **Select Submodule 2.**
3. **Scroll through the samples available for renaming, then press ENTER.**



RENAME SAMPLE
S00 Current Sample
Select a Sample

■ Use the data slider or Increment/Decrement buttons to access the full character set. Most keyboards do not have enough keys to access all available characters.

4. **Rename the sample.** Choose the characters to be changed with the right and left cursor buttons. Select the desired characters by using the ten key pad, data slider and keyboard. You can also use the up cursor to insert spaces and the down cursor to delete spaces.



RENAME SAMPLE
S00 Untitled Sample
[0-9]/Slider/Kybd

■ See the available character chart on page 1-26 for a complete listing of characters.

5. **Press ENTER to exit the submodule.** The EIIIIX will return to the Module Identifier.



3. ERASE SAMPLE

Individual samples can be erased from the bank loaded into the Emulator IIIIX, and newly created locked samples currently in memory can be erased using this function.

1. **Activate Sample Management module.**
2. **Select Submodule 3.**
3. **Select the sample to be erased, then press ENTER.**

```
ERASE SAMPLE
S00 Current Sample
Select a Sample
```

4. **If the sample is stereo, select whether you want to erase the left side, right side, or the entire stereo sample.**

```
ERASE SAMPLE
S00 Selected Sample
Side:          Stereo
Select L/R/Stereo
```

5. **Decide if you really want to erase the sample.** The EIIIIX will inquire if you are sure.

6. **Press Yes to erase the sample, or No to cancel the operation.** In either case the EIIIIX will return to the Module Identifier.



4. COPY SAMPLE

Samples can be copied to other sample numbers within the same bank.

1. **Activate Sample Management module.**
2. **Select Submodule 4.**
3. **Select the sample to be copied, then press ENTER.**

COPY SAMPLE
S00 Current Sample
Select Source Sample

4. **Select the destination sample number into which the source sample will be copied, then press ENTER.** If you try to overwrite an existing sample, you will be asked if you do want to overwrite. Enter **Yes** to replace the existing sample, or **No** to cancel the operation.

COPY SAMPLE to
S00 Selected Sample
S00 Empty Sample
Select Dest Sample

5. **Rename the sample.** Choose the characters to be changed with the right and left cursor buttons. Select the desired characters by using the ten key pad, data slider and keyboard. You can also use the up cursor to insert spaces and the down cursor to delete spaces.

6. **Press ENTER to exit the submodule.** The EIIX will return to the Module Identifier.



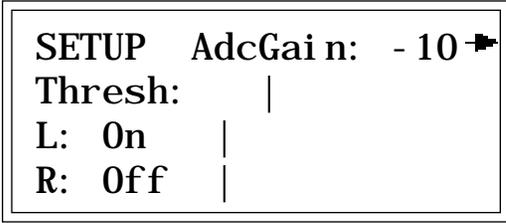
5. SETUP

In this submodule, you will prepare the Emulator IIIIX for sampling. Either the digital input or the optional analog inputs can be sampled.

1. Activate Sample module. If you want to sample into the sample number shown on the display, you need do nothing except proceed to the next step. To sample into a different sample number, refer to 0. Select Sample.

2. Select Submodule 5.

3. Use the cursor buttons to select one of the following parameters to edit. Page one displays:



```
SETUP  AdcGain:  - 10 ←
Thresh:  |
L:  On    |
R:  Off   |
```

■ **Gain:** Set the analog sample level with the data slider so that the left and right side meters indicate optimum sampling level. Play the sound to be sampled and observe the bar graph display. The signal level should be set so that the peak bar comes close to the extreme right side without actually reaching it. The gain is adjustable from -10 dB to +40 dB in 2 dB steps. This control has no effect on the digital input.

■ **Thresh:** (Threshold) Set the sampling threshold with the data slider. If you arm sampling (7. Arm Sampling) and the signal to be sampled exceeds the threshold, sampling will begin.

■ **L:** (Left Channel) Line three shows the left input level, record status, and whether on or off. Press **On** or **Off** to enable or disable recording into the left channel. When sampling into one channel only, turn off the other channel to conserve memory.

■ **R:** (Right Channel) Line four shows the right input level, record status, and whether on or off. Press **On** or **Off** to enable or disable recording into the left channel. When sampling into one channel only, turn off the other channel to conserve memory.

4. Select page two by pressing the right cursor button. Page two shows:

Sample
Manage

■ *The EIIIIX will actually capture samples just before the threshold is exceeded to preserve the attack portion of the sound (12mS at 44100Hz, 17mS at 29400Hz).*

← SAMPLE SETUP →
Source: Digital 44.1K
Length: 20.5secs
200.8secs Available

■ **Source:** Choose between 44.1 kHz, 48 kHz or 32 kHz sample rates when using the digital input or 29.4 kHz or 44.1 kHz when using the analog inputs. When using the digital input, the display setting should match the sample rate of the incoming digital data, otherwise the sample will play back at the wrong pitch.

■ **Length:** This allows you to select the amount of sampling (recording) time. The maximum available length depends on the amount of memory available and the sampling rate.

5. **Select page three by pressing the right cursor.** Page three shows the following parameters:

← SAMPLE SETUP(Auto) →
Truncate: off
Normalize: absolute
Placement: 24keys

■ **Auto Truncate:** automatically truncates the start, end, or both start and end as soon as the sample is taken. Selecting Off disables auto-tuncation.

■ **Auto Normalize:** increases the amplitude of a sound until the peak amplitude of the loudest sample reaches 100% of full scale. If either Absolute or Relative is selected this is done automatically after the sample is taken. Selecting Off disables auto-normalization. Relative increases the amplitude of stereo samples until the peak sample of either the left or right sample reaches 100% of full level. The relative amplitudes of the left or right samples remain intact. Selecting absolute will increase the amplitude of both the left and right samples to full level. When sampling in mono, selecting absolute or relative makes no difference.

■ **Auto Placement:** selects the transposition range in which new samples will be placed. For example, selecting a range of 24 keys places the next sample over a 24 key range with the original pitch in the center of that range. Selecting “white keys” places each new sample on the next white key, which is useful for sound effects. Selecting “all keys” places a new sample across the entire keyboard.

Sample
Manage

6. **Select page four by pressing the right cursor.** The display shows:

■ *Monitor Through* allows you to monitor through the main outputs while sampling is occurring. It is **NOT** active in the VU meter screen.



Monitor through while sampling allows you to hear the sampled signal through the main outputs while sampling is occurring. Monitor through is **NOT** active at any other time. The VU meters are disabled during the actual sampling process but are active during the setup procedure. With Monitor Through "Off", the main outputs remain silent during sampling.

7. **Press ENTER to exit the submodule.** The EIIIX will return to the Module Identifier.

Sample
Manage

5. PLACE SAMPLE

Samples in the bank can be placed to cover a particular range of the keyboard.

1. Activate Sample Management module. The display will show the current sample number and name. If this is not the sample you want to place, refer to Sample Management, 0. Select Sample.

2. Select Submodule 6.

3. Select whether you want to place the sample to a primary or secondary zone, then press ENTER.

PLACE SAMPLE
pri
Select pri /sec

4. Select the original pitch of the sample, then press ENTER. As you select notes, the display will show the samples mapped into the preset.

PLACE SAMPLE
pri G1
Select Original Key

5. Select the lowest key of the sample range, then press ENTER. The display will indicate the preset status (described in step four).

PLACE SAMPLE
pri G1 C1
Select Low Key

Sample
Manage

■ *Preset templates may be created by assigning empty samples and analog parameters to keyboard locations and then saving the bank.*

6. Select the highest key of the sample range, then press ENTER.
The display will indicate the preset status (as described in step four).

PLACE SAMPLE
pri G1 C1 to B1
Select High Key

7. If the display asks Overwrite Zone? press Yes to overwrite, or No to return to the Module Identifier. If you press Yes to overwrite, any previously assigned samples that fall within the just-specified keyboard zone will be de-assigned from that zone.

Sample
Manage

7. ARM SAMPLING

Upon initiating this submodule, the EIII will begin sampling as soon as the sound to be sampled exceeds the threshold set in Sample, 5. Setup.

1. Activate Sample module.

2. Select Submodule 7. If you did not select a specific empty sample prior to arming, the first empty sample will be automatically selected. To overwrite an existing sample, erase it first.

3. Play the sound to be sampled. When the sound level exceeds the threshold set in 5. Setup, the display will indicate that sampling has begun.

4. Terminate sampling. This will occur automatically after reaching the end of the sample length set in 5. Setup, or if the EIII runs out of memory. To stop sampling manually, press **ESCAPE**. In any case, the display will return to the Module Identifier.

5. Decide if you like the sample. Play the keyboard. If you don't like the sample, re-arm sampling or force sampling and re-sample *before* de-activating the module. Once you de-activate the module, the sample will be locked against re-sampling. To erase a locked sample, use 3. Erase Sample.

■ See also “Basic Sampling” in the *Guided Tours* section of this manual.

Sample
Manage

8. FORCE SAMPLING

Force Sampling lets you initiate sampling manually as an alternative to threshold-sensitive sampling. This is useful for situations where the signal to be sampled is more or less continuous. Continuous signals greatly complicate the threshold-setting process described in Sample, 5. Setup. Upon initiating this submodule, the Emulator IIIX will begin sampling immediately.

1. Activate Sample module.

■ See also “Basic Sampling” in the Guided Tours section of this manual.

2. Select Submodule 8 when you are ready to begin sampling. If you did not select a specific empty sample prior to force sampling, the first empty sample will be automatically selected. To overwrite an existing sample, erase it first.

3. Wait as the signal is sampled.

4. Terminate sampling. This will occur automatically after reaching the end of the sample length (if set in 5. Setup), or if the EIII runs out of memory. To stop sampling manually, press **ESCAPE**. In any case, the display will return to the Module Identifier.

5. Decide if you like the sample. Play the keyboard. If you don't like the sample, re-arm sampling or force sampling again and re-sample *BEFORE* de-activating the module. Once you de-activate the module, the sample will be protected against re-sampling.



9. MIDI SAMPLE DUMP

MIDI Sample Dump allows sample data to be transferred to and from the EIII using the MIDI Sample Dump Standard. The EIII can transmit sample data with a word size of either 14 or 16 bits (Certain instruments such as the SP-1200 require the use of the 14 bit word size). In addition, for instruments that use 14 bits or less, 14 bit mode transmits data 30% faster.

Before initiating MIDI Sample Dump, make sure that the MIDI cables are properly connected. A single MIDI cable (open-loop) is sufficient but the data transfer will be much faster if two MIDI cables are used (closed-loop). The closed-loop allows the two units to handshake and prevents idle time between each data packet. The cables should be connected between the MIDI In and MIDI Out of both units.

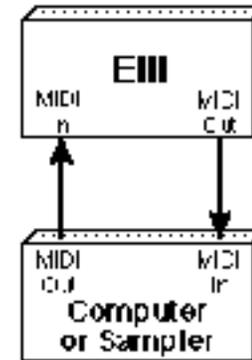
In the Sample Dump Standard and in the EIII, samples are assigned numbers. The EIII sample number and the MIDI sample number remain the same. For example, sample #36 transferred from another device to the EIII will be placed in sample location 36.

When transferring samples to the Emax, the sample location numbers correspond to sample dump MIDI key numbers. For example, a sample placed in location #60 in the EIII, once transmitted, will be placed on MIDI key #60 (middle C) of the Emax. If sample location #36 is chosen as a reception location on the EIII, the EIII will request that the sample placed on MIDI key # 36 (C1) of the Emax be sent.

1. **Activate Sample Management module.**
2. **Select Submodule 9.**
3. **Select whether you want to transmit or receive a sample and press ENTER.**

SAMPLE DUMP
Direction: Transmit

Select Direction



■ A "closed-loop" connection greatly accelerates MIDI data transfer.

Sample Management

4. Select the word size and press ENTER.

SAMPLE DUMP
Direction: Transmit
Word Size: 16 Bits
Select 14/16 Bits

5. Select a sample to be transmitted and press ENTER. If the selected sample is stereo, the EIII will ask you to select which side is to be transmitted.

SAMPLE DUMP
Direction: Transmit
S01 Selected Sample
Select a Sample

6. Press ENTER to begin the Sample Dump.

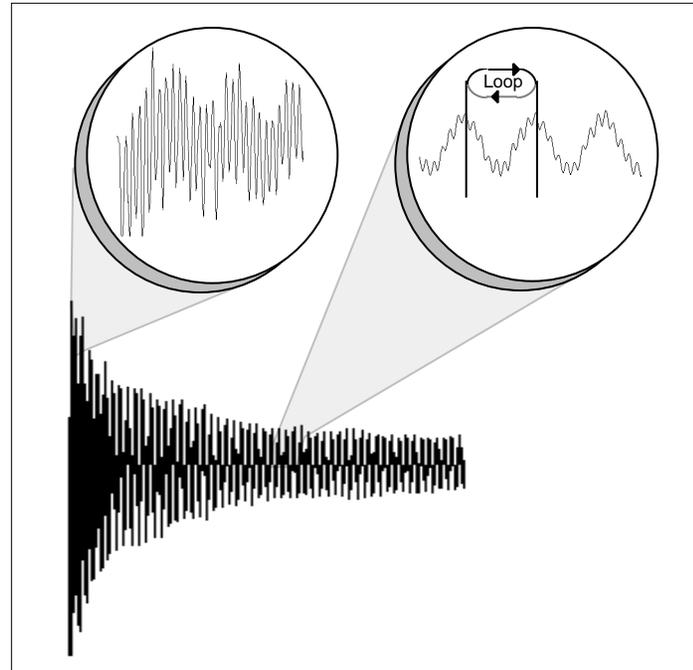
Sample
Manage

<i>BACKGROUND</i>	<i>7-2</i>
<i>0. SELECT SAMPLE</i>	<i>7-7</i>
<i>1. SETUP</i>	<i>7-8</i>
<i>2. LOOP</i>	<i>7-10</i>
<i>3. TRUNCATION</i>	<i>7-13</i>
<i>4. COPY SECTION</i>	<i>7-14</i>
<i>5. CUT SECTION</i>	<i>7-16</i>
<i>6. PASTE SECTION</i>	<i>7-18</i>
<i>7. DIGITAL TOOLS I</i>	<i>7-20</i>
0. Sample Calculator	7-23
1. Taper	7-24
2. Gain Change	7-26
3. Reverse Section	7-28
4. Stereo <-> Mono	7-29
5. Left <-> Right	7-29
6. DC Filter	7-30
7. Sample Integrity	7-31
<i>8. DIGITAL TOOLS II</i>	<i>7-32</i>
1. Sample Rate Convert	7-33
2. Digital Tuning	7-34
3. Compressor	7-35
4. Parametric EQ	7-39
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6. Pitch Change	7-42
7. Transform Multiplication	7-43
8. Doppler/Pan	7-44
9. Exciter	7-50
<i>9. UNDO</i>	<i>7-54</i>

BACKGROUND: ABOUT LOOPING

Sampling is the process of storing sounds in digital memory. Since each individual sample (not the complete sample, but each element of the sample) requires one memory slot, memory requirements increase if you sample long sounds or use high sampling rates.

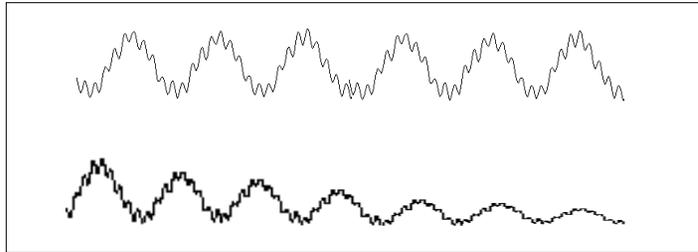
■ **How Looping Works:** Looping is a technique that can extend a sound's length without using lots of memory. It is based on the fact that many sounds start off with a complex attack transient, then settle down to a comparatively steady sound. Listen carefully to a plucked guitar string. The first part of the sound consists of a complex mixture of pick noise and several harmonics; after a while, the string decays down to a pretty steady repetitive waveform.



Since the latter part of the waveform is repetitive, there is no need to waste memory sampling several seconds of it. Instead, you can mark off a loop of the repetitive section, and instruct the EIII to play that looped section for as long as the key is held down. After playing to the end of the loop, the EIII will jump back to the beginning of the loop and play through the loop again. This process repeats until you release the key playing back the sample.

■ **Creating Attack & Decay Characteristics for the Looped Portion:**

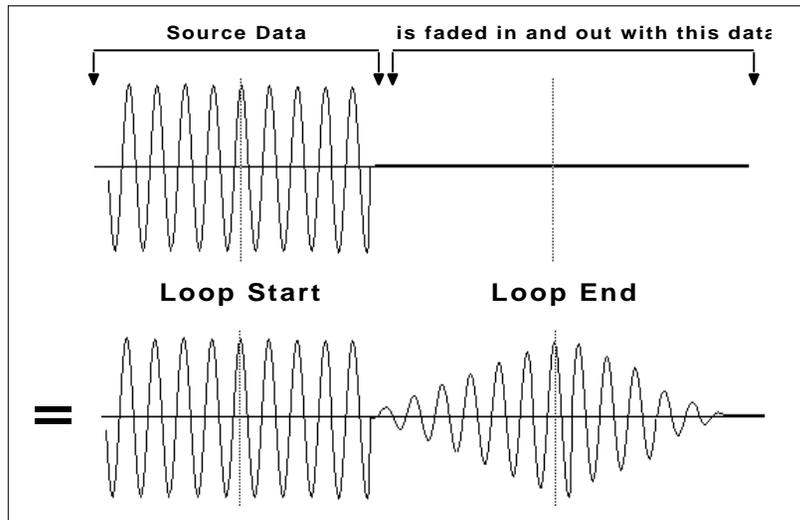
One potential problem is that the loop repeats at the same level. This is usually acceptable for sustaining instruments (flute, organ, brass, etc.), but is unacceptable for plucked or struck sounds, which decay over time. Fortunately, the Dynamic Processing module provides a means to shape the attack, sustain, and decay characteristics of a sample. You can create a decay during the looped portion, and simulate pluck or struck sounds.



Artificial Decay can be applied to a looped sound.

■ **Loop Compression:** The looped section of the sample can be compressed, which “evens out” any changes in amplitude. Changes in amplitude can cause “breathing” effects, thumping or clicks.

■ **Crossfade Looping:** The Emulator IIIX fades between the beginning and end of the loop so that as the end fades out, the beginning fades in. This virtually eliminates the clicks and pops that can occur with other types of looping.

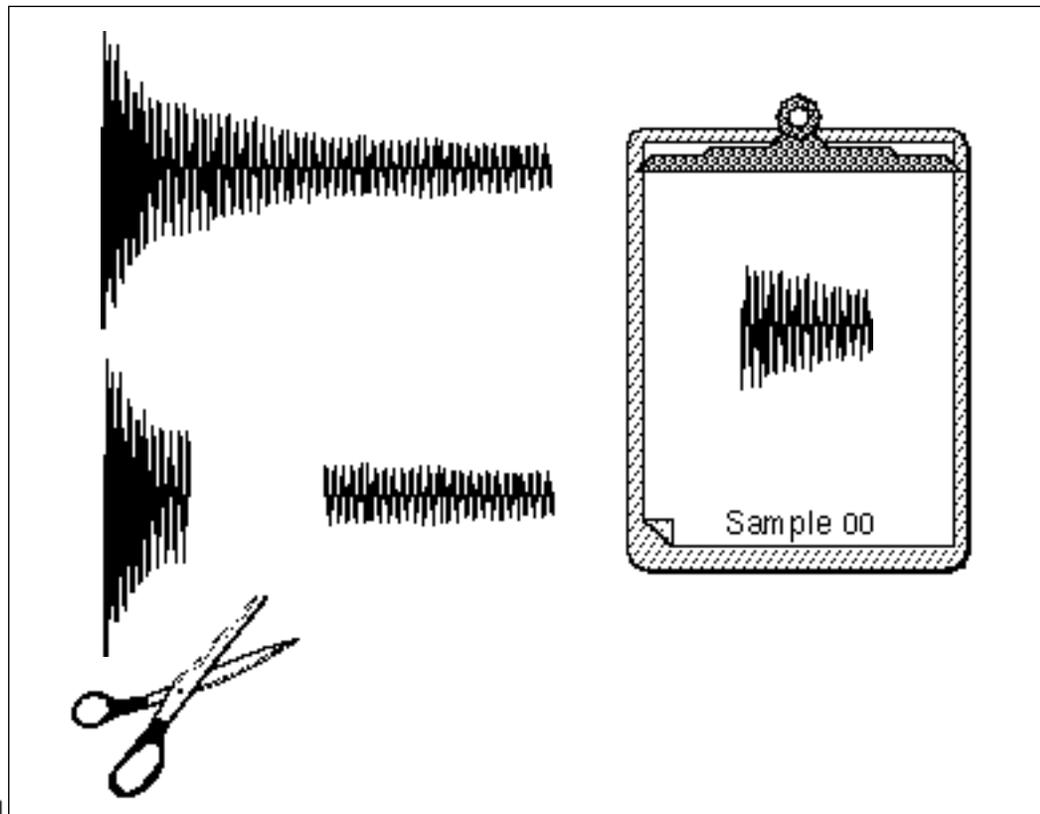


Crossfade Looping takes sound data from around the loop start point and fades it into the sound data around the loop end point so that the data at those loop points is

BACKGROUND: CUT, COPY, PASTE & UNDO

■ *The clipboard contents are designated as Sample 00.*

Imagine a printout of a sample. Now imagine that you have a pair of scissors capable of cutting a piece out of that sample (or a copy of that piece if you don't want to affect the original), as well as a clipboard to neatly hold the cut or copied piece. Now imagine that you can either perfectly insert the clipboard contents at any given point in any sample, or mix the clipboard contents in with any sample, starting at any designated point. The Emulator IIIIX can do all this, and all electronically. The EIIIIX also provides Auto Correlation and optional Crossfade functions that result in seamless transitions between the cut, copied, and pasted parts.



**Digital
processing**

CLIPBOARD DATA. The clipboard will retain data until replaced by other data to be copied, cut, or backed up. This occurs with several EIIIIX operations where you want to be able to undo an action that doesn't work out as anticipated. Since clipboard data stays intact when you call up another sample, data can be cut or copied from one sample and pasted to another.

■ **Undo and Redo:** During several Emulator III digital processing operations such as cut, paste, and sample rate conversion, the EIII will automatically back up the sample being processed and store this backup on the system drive. If you do not like the results of the processing, you can call up the Undo function, and restore the original sample from the system drive. (Ah, if only life itself was so simple.) Best of all, the processed sample will now move onto the system drive. Thus, if you decide you liked the processed version better after all, you can actually undo the undo. (Redo.)

■ **Insufficient System Drive Memory:** The display will inform you if there is not enough memory to back up a sample onto the system drive. You then have two choices: either free up some additional memory by erasing banks on the system drive, or call up the Undo function (Digital Processing, 9. Undo) and disable the backup process. Of course, if backup is disabled, you will not be able to undo an operation.

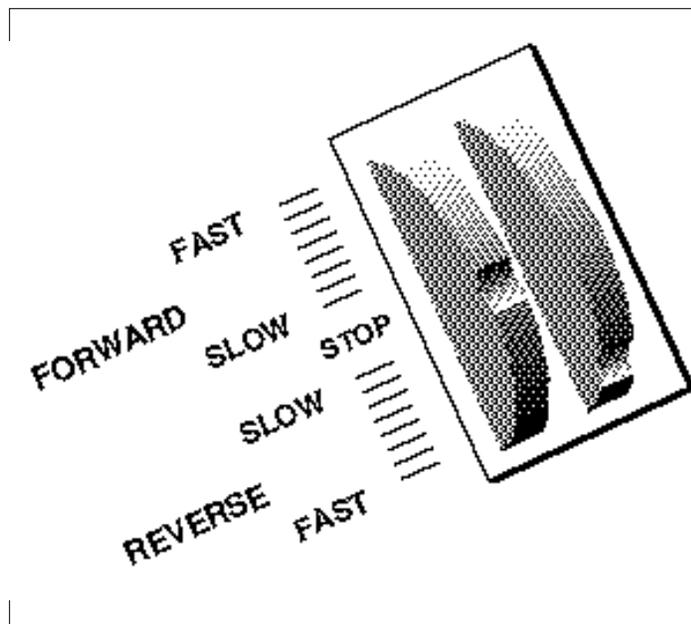
■ **Typical Applications:** Typical cut/copy/paste applications would be to splice the beginning of one sample to the end of another, or to mix two samples together to conserve memory. (Do this by copying an entire sample, then pasting it at the beginning of the second sample using the mix option.) You can splice an attack transient on to a synthesizer waveform loop to produce realistic sounds that take up virtually no memory, or take out a pop or click in a sample. Another possibility is for flanging and chorusing. Paste (mix) a sample to itself, offset from the beginning by a few hundred samples or so, to thicken up the sound.

We suggest you practice cut, copy, and paste techniques on a spoken phrase. Samples of political speeches can be particularly amusing when subjected to cut and paste operations.

BACKGROUND: THE SCRUB WHEEL

The Scrub Wheel is an Emulator III function that allows you to use the pitch wheel in many Digital Processing functions to quickly move through a sound, similar in concept to rocking the reels of a reel-to-reel tape recorder. The scrub wheel makes it easy to locate a particular section of a sound because you are able to hear the sound as you move through it.

To use the scrub wheel, move the pitch wheel of the EIII or your MIDI keyboard while in a Digital Processing function such as Truncation or Looping. If the pitch wheel is moved slightly forward, the sound will play slowly through its length. If the wheel is pushed forward all the way, the sound will play through faster. If the wheel is moved backwards (towards you) the sound will play backwards through the sound. The scrub wheel operates like the accelerator on your car: the harder you press it, the faster it goes.



EIII SCRUB WHEEL. Move the wheel slightly to advance slowly through the sound. Move the wheel more to advance quickly through the sound.

0. SELECT SAMPLE

This function allows you to choose the sample to be looped. The resulting current sample will remain as designated until you either select a different sample, change presets, or load another bank. While in the Digital Processing module, the current sample will be placed over the full keyboard range, and all other samples will be muted.

1. Activate Digital Processing module.

2. Select Submodule 0.

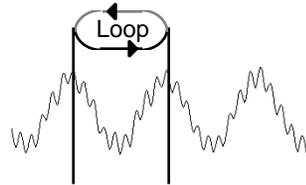
3. Select a sample to be processed. As you scroll through non-empty samples, the display will show the sample number, name, sampling rate, sample length, how many presets use the sample and whether or not the sample is stereo, left or right. Also as you scroll, each sample will be playable on the keyboard over its entire available range.

SELECT SAMPLE	
S01 C6 Sample	
Stereo	36000 Hz
5 Presets	1.6 secs

4. Press ENTER to exit the submodule. The EIII will return to the Module Identifier.

1. SETUP

▼ *Samples imported from the original EIII having forwards/backward loops will play back on the EIII. However, the loop data will be permanently modified to contain both the forwards and backwards sound data. Changing the loop points on imported samples having forwards/backwards loops could have unpredictable results and is not recommended.*



This submodule lets you select the type of loop, the playback mode, and set various parameters concerning other Digital Processing functions. For more information, see *Background: About Looping* at the beginning of this section.

1. **Activate Digital Processing module.**
2. **Select Submodule 1.**
3. **Select the loop type on line two.**

<p style="text-align: center;">SETUP</p> <p>Loop Type: forward</p> <p>Loop in Release: on</p> <p>Reverse Playback: off</p>

Your choices are:

- **Off:** The loop is disabled and the sample plays as recorded.
- **Forward:** The sample plays normally until it reaches the end of the loop. It then jumps back to the start point and replays through the loop. Upon reaching the loop end, it again re-plays the loop. This looping process continues for as long as the key is pressed.

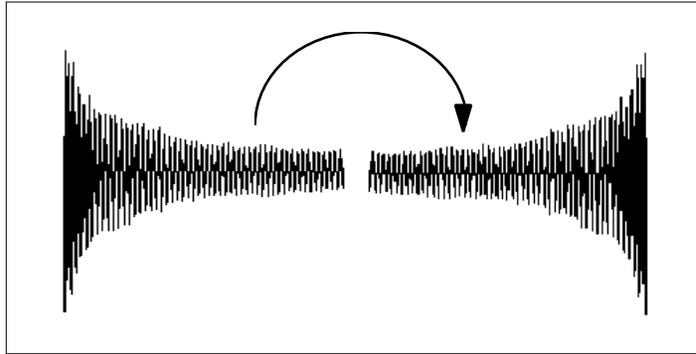
4. **Select whether Loop in Release on line three is on or off.** Here are your choices:

- **Off:** Lifting your finger off a key initiates the release phase of the VCA envelope. If Loop in Release is off, the loop will not continue during the release phase. The portion of the sample after the loop will be played during release. The signal may cut off abruptly after you remove your fingers from the keys if the sample has been truncated after the loop.
- **On:** With Loop in Release on, the loop will keep playing—even after you lift your finger off the key—for the duration of the VCA release.

5. Select whether *Reverse Playback on line four is on or off*. Here are your choices:

■ **Off:** The sample plays back as recorded.

■ **On:** The sample is played back in the reverse order in which it was recorded. For example, a percussive sound, when played backwards, will have an attack time instead of a decay time.



■ *If a sample ends in a loop, playing it backwards will repeat the loop. The sample will not play back prior to the loop start.*

10. Press **ENTER** to exit the submodule. The EIIIIX will return to the Module Identifier.

2. LOOP

If you have a difficult time finding good loop points, the EHX can assist you with the Auto Correlation function. If Auto Correlation doesn't produce acceptable results, the beginning and end of a loop can be Crossfaded to help mask loop discontinuities. For more information, see *Background: About Looping* at the beginning of this section.

1. Activate Digital Processing module.

2. Select Submodule 2.

LOOP	secs	samples
Start:	1.96	43280
End:	3.54	78162
Size:	1.58	34882

3. Select the values for the start point on line two and the loop size on line four that give the best looping effect, then press ENTER. The left and right cursor will change the start point and/or size so that the loop automatically falls on positive zero crossing points in the waveform.

The sample size equals the difference in samples between the start and end points. These settings interact in the following ways:

- Changing the size will automatically change the end point, so that the difference in samples between the start and end points remains equal to the size.
- Changing the start point will change the end point to maintain a constant size.
- Changing the end point changes the size, and the start point remains constant.

4. The display will inquire if you want to Auto Correlate. Press YES to Auto Correlate, or NO to proceed directly to step six, Compress Loop. Auto Correlation uses artificial intelligence techniques to choose optimum loop points. Without Auto Correlation, unless you are proficient with sampling techniques, loops will usually have discontinuities between the splice points that can produce annoying ticks, pops, or other glitches.

LOOP	secs	samples
Start:	1.96	43280
End:	3.54	78162
Auto Correlate? Y/N		

With Auto Correlation, the Emulator IIIX looks for loop points near the ones you chose that can be spliced together with minimum discontinuity. Occasionally it will be impossible for either you or the EIII to locate a perfect splice point, but in most cases you'll find that Auto Correlation, combined with practice and experimentation, can produce very smooth loops.

5. If desired, repeat steps three and four, until the best possible loop results. When you're finished looping, press NO in step four and carry on.

LOOP	secs	samples
Start:	1.96	43280
End:	3.54	78162
Compress Loop? Y/N		

6. The display will inquire if you want to Compress the Loop. Press Yes to Compress, or No to proceed directly to step seven, Crossfade Loop. Compressing just the loop portion of the sound is yet another way to achieve a smooth sounding loop. Compression "evens out" the changes in level during the loop which are perceived by the listener as amplitude modulation.

7. Select the Crossfade Loop size and type, then press ENTER. Crossfading means that as one part of the loop fades out, the other fades in. Instead of butt-splicing the end of the loop back to the beginning when forward looping, (or butt-splicing the loop end and start points with forward/backward looping), Crossfade looping smoothly crossfades between the two sounds on either side of the splice. Crossfading virtually eliminates any loop glitches, although there may be level variations instead. These variations are not as noticeable as loop glitches. For more information, see *Background: About Looping* at the beginning of this section.

■ If a sample's loop disappears as soon as you have left the Digital Processing module, check to see if the loop function has been disabled in Dynamic Processing, 1. Setup.

■ *If there is not enough disk memory to back up a sample, the EIIX will not let you crossfade unless you go into Digital Processing, 9. Undo, and disable the backup process.*

LOOP	secs	samples
Start:	1.96	43280
End:	3.54	78162
Compress Loop? Y/N		

Your Crossfade looping type choices are:

■ **EqPwr:** (Equal Power) This is a weighted crossfade that produces no apparent level shift. It is the most commonly used mode.

■ **Linear:** This provides a straight mathematical crossfade. Use Linear mode with samples whose splice points are already close to optimum, such as a sample that has already been Auto Correlated.

When you press **ENTER**, the sample will be backed up so that crossfade looping can be undone (in Digital Processing, 9. Undo) if you are not happy with the results.

8. Press YES to truncate (discard) all samples after the loop end, or NO to retain the samples after the loop end. If you might want to re-loop the sample later, or try different loop points, press **NO**. If you are satisfied with the loop, press **YES**. This will save memory and the EIIX will return to the Module Identifier.

9. If you are not satisfied with the resulting crossfade or compression, or didn't really want to truncate those samples past the end point, proceed to Digital Processing, 9. Undo.

3. TRUNCATION

Truncation shortens a sample's length by trimming off individual samples from the beginning and/or end. Truncation is most often used to remove unneeded portions of a sample to conserve memory, but it can also be used to change instrument characteristics such as removing the attack from a plucked string note or isolating a particular section of a sample.

1. **Activate Digital Processing module.**
2. **Select Submodule 3.**
3. **Truncate the desired amount of samples from the start on line two and/or the end on line three, then press ENTER.**

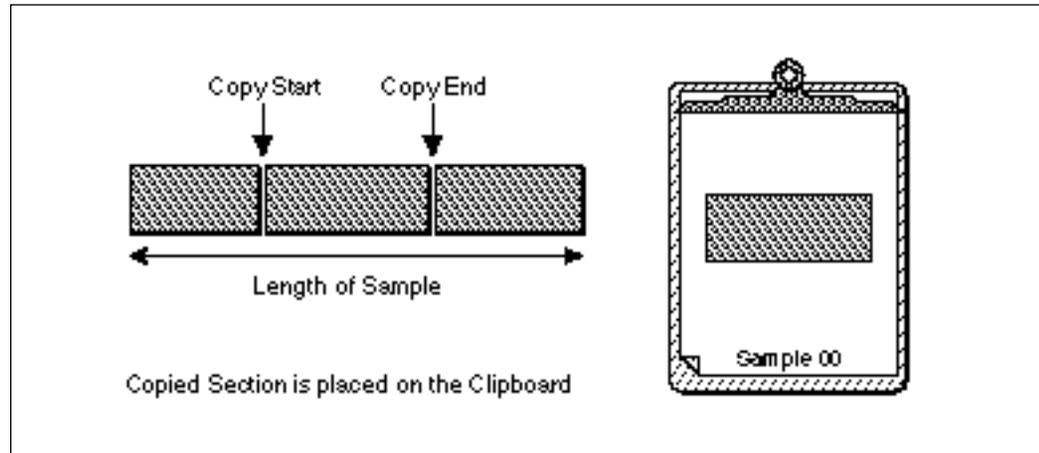
TRUNC	secs	samples
Start:	0. 00	00001
End:	2. 43	53610
Si ze:	2. 43	53610

■ The left and right cursor keys will change the start and end points so that they automatically fall on positive zero crossing points in the waveform.

The sample size equals the difference in samples between the start and end points. Because of this, these settings interact with the size value on line four in these ways:

- Truncating the start will cause the size to change to maintain a constant end point.
 - Truncating the end will cause the size to change to maintain a constant start point.
4. **If you are not satisfied with the resulting truncation, or want to compare before and after, proceed to Digital Processing, 9. Undo.**

4. COPY SECTION



Portions of a sample can be cut, copied, and pasted to other samples, or the samples from which they came. The Copy function allows you to duplicate a section of a sample, and store that duplicate in a special part of memory called the clipboard. For more information see the section *Background: Cut, Copy, Paste, and Undo*.

1. **Activate Digital Processing module.**
2. **Select Submodule 4.**
3. **Select the sample that you want to copy a section from, then press ENTER.**

COPY SECTION from
S01 Selected Sample

Select a Sample

4. **If the sample is stereo, the following screen will appear. Select the right side, left side, or both sides (stereo), then press ENTER.** Otherwise, proceed to the next step.

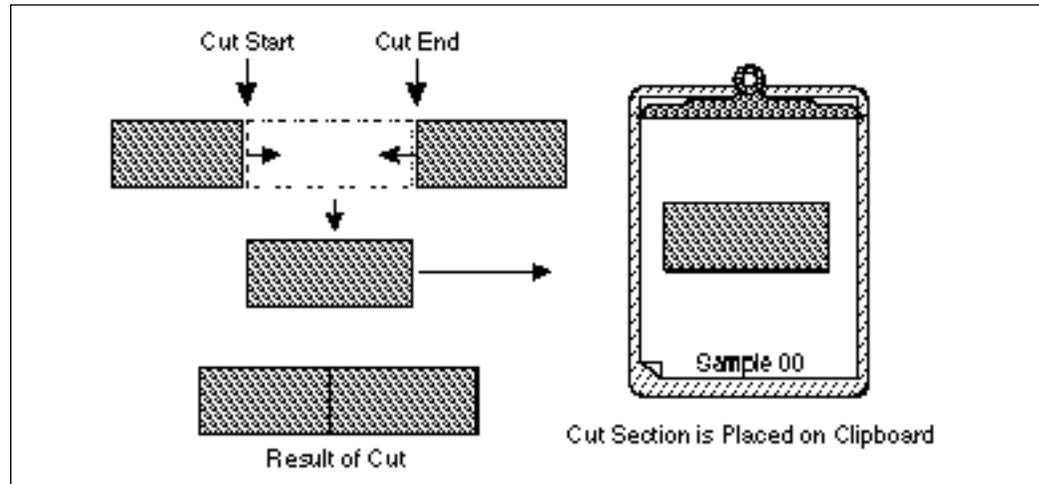
COPY SECTION from
S01 Selected Sample
Side: Stereo
Select L/R/Stereo

5. Specify the start point on line two and end point on line three for the portion of the sample to be copied, then press ENTER.

Use the up and down cursor to choose the appropriate line. The size of the portion to be copied on line four will change to reflect changes in the start and end points. Pressing ENTER saves the selected portion in the clipboard. Copying does not affect the original sample. The clipboard will retain this data until replaced by something else to be copied, cut, or backed up.

COPY	secs	samples
Start:	0.00	00001
End:	1.61	57881
Size:	1.61	57881

5. CUT SECTION



Portions of a sample can be cut, copied, and pasted to other samples, or the samples from which they came. The Cut function removes a section of a sample, and stores the cut portion in a special part of memory called the clipboard. For more information see the section *Background: Cut, Copy, Paste, and Undo*.

1. **Activate Digital Processing module.**
2. **Select Submodule 5.**
3. **Select the sample that you want to cut a section from, then press ENTER.**

■ The left and right cursor will change the start and end points so that they automatically fall on positive zero crossing points in the waveform.

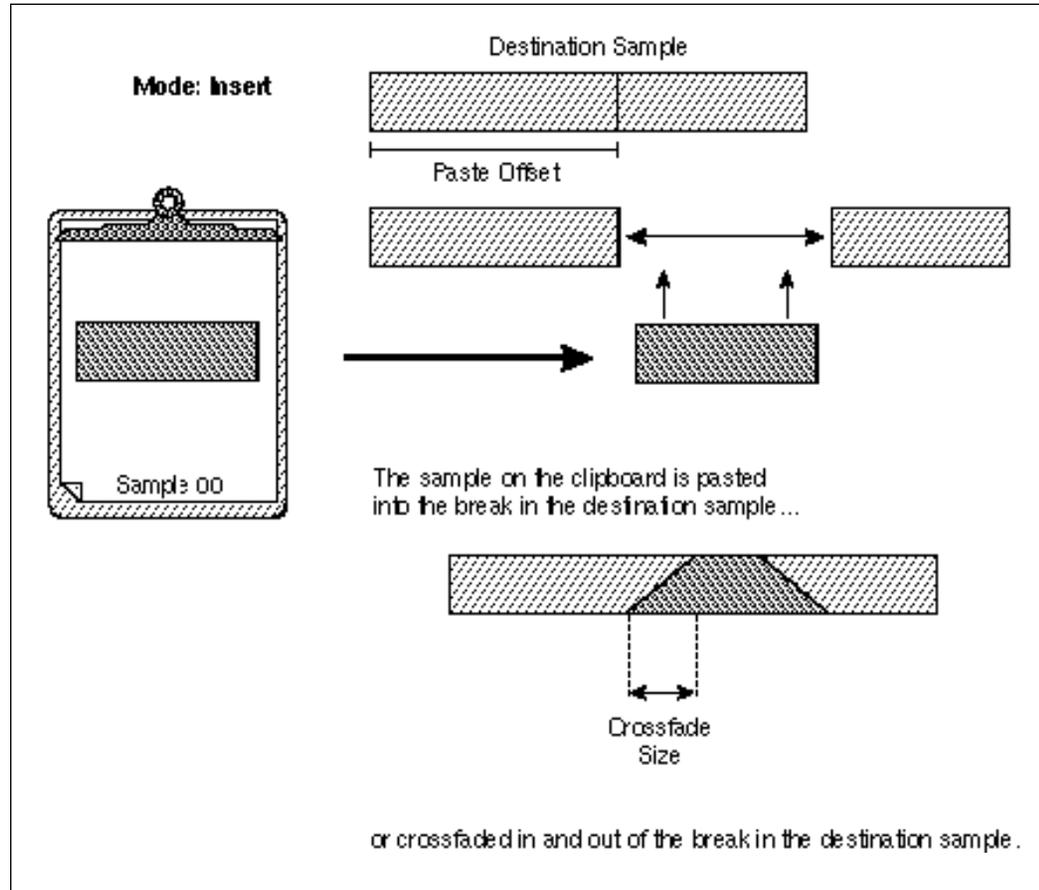
CUT SECTION from
S01 Selected Sample
Select a Sample

4. **Specify the start point on line two, and the end point on line three for the portion of the sample to be cut, then press ENTER.** Use the up and down cursor to choose the appropriate line. The size of the portion to be cut on line four will change to reflect changes in the start and end points. Cutting affects the original sample by deleting the part being cut. The clipboard will retain this data until replaced by something else to be copied or cut.

CUT	secs	samples
Start:	0.00	00001
End:	1.61	57881

5. If you are not satisfied with the resulting cut, proceed to Digital Processing, 9. Undo.

6. PASTE SECTION



Portions of a sample can be cut, copied, and pasted to other samples, or the samples from which they came. Paste takes the clipboard contents and either inserts them in a sample at a specified point, or mixes them with a sample starting at a specified point. For more information see the section *Background: Cut, Copy, Paste, and Undo*.

1. **Activate Digital Processing module.**
2. **Select Submodule 6.**
3. **Select the sample that you want to paste the clipboard contents into, then press ENTER.**

```
PASTE SECTION into
S00 Selected Sample
Select Dest Sample
```

4. Specify the paste point on line two as an offset (in samples) relative to the beginning of the sample, then press ENTER.

```
PASTE secs samples
Offset 0.00 000001

Select Location
```

■ The left and right cursor will change the paste point so that it automatically falls on a positive zero crossing point in the waveform.

5. Choose whether to insert or mix the clipboard contents at the point selected in step three, then press ENTER.

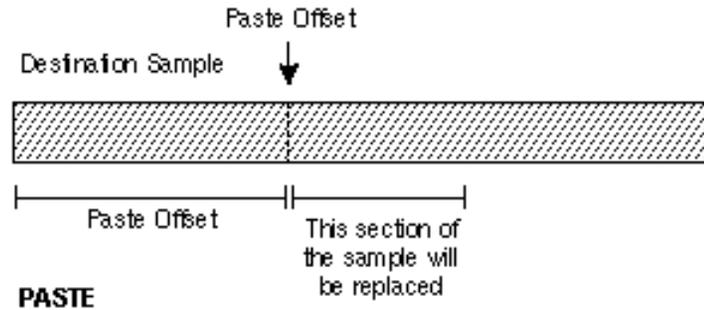
```
PASTE secs samples
Offset 1.06 33943
Mode: Insert
Select Insert/Mix
```

■ Use Copy Sample to paste the contents of the clipboard to an empty sample location.

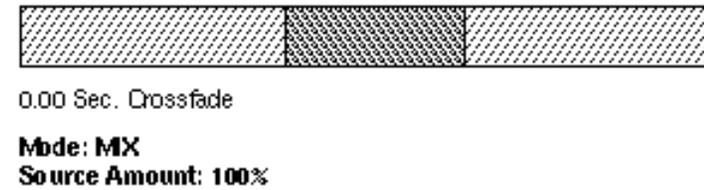
Insert opens up a space in the sample into which the clipboard contents fit. Equal Power Mix and Linear Mix combine the clipboard contents with existing samples, starting at the point selected in step three. Normally, you will always use Equal Power. Use Linear Mix when the signals are very similar or when Equal Power causes a gain in amplitude.

6. If you chose insert in step five, proceed to the next step. If you chose mix in step five, select the level of the contents to be mixed, then press ENTER. 100% indicates a replacement.

```
PASTE secs samples
Offset 1.06 33943
Mode: Equal Power Mix
Source Amount: 100%
```



■ *Mixing with a source amount of 100% can be used to replace one side of a stereo sample.*



7. *Select the Crossfade size and type, then press ENTER.*

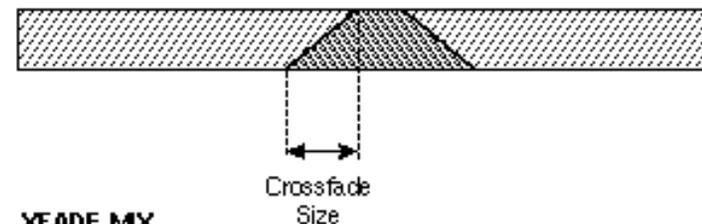
XFADE	secs	samples
Size:	0.00	00000
Type:		Linear

Crossfading minimizes glitches from pasting dissimilar sections of samples. When creating time delay and flanging/chorus effects, do not select any Xfade time for best results. Your choices are:

■ *If the clipboard sample rate does not match that of the current sample, the E11X will first change the sample rate of the clipboard.*

■ **EqPwr:** (Equal Power) This is a weighted crossfade that produces no apparent level shift. It is the most commonly used mode.

■ **Linear:** This provides a straight mathematical crossfade.



XFADE MX
Source Amount: 100%



0.00 Sec. Crossfade

Mode: Mix

Source Amount: 50%



Crossfade
Size

XFADE MIX

Source Amount: 50%

8. Press ENTER to perform the paste.

9. If you are not satisfied with the paste, or want to compare before and after, proceed to Digital Processing, 9. Undo.

7. DIGITAL TOOLS I

This submodule contains several additional numbered functions. These are extremely useful utilities for manipulating samples. The following is a short description of each function.

- **0. Sample Calculator:** Calculates and displays the optimum pitch to sample rate ratios for single cycle loops at the desired pitch.
- **1. Taper:** Adds a fade-in and or fade-out to the sample, thus smoothing out samples with abrupt beginnings or endings.
- **2. Gain Change:** Alters the level of all or a part of a sample.
- **3. Reverse:** Reverses all or part of a sample.
- **4. Stereo <-> Mono:** Converts a stereo sample to mono or a mono sample to stereo.
- **5. Left <-> Right:** Swaps sides if the current sample is stereo or moves a mono sample to the other side.
- **6. DC Filter:** Removes the DC component from a sample, centering the waveform around the zero axis.
- **7. Sample Integrity:** Samples transferred from the original EIII will occasionally have slight looping problems. This function quickly remedies the problem.

■ 0. Sample Calculator

1. *Activate Digital Processing module.*

2. *Select 7. Digital Tools I, 0. Sample Calculator (7/0).* The display will reveal the Sample Calculator.

SAMPLE CALCULATOR
PITCH: 440HZ A3
Sample Rate: 44100Hz
Single Cycle: 100.22

■ *Use the Sample Calculator to compute sample rates for perfect single cycle loops.*

3. *Select the pitch using either the keyboard or data slider.* The number of samples in a single cycle changes for each note.

4. *Select sample rate on line three. Use the increment/decrement buttons to change the value.* The number of samples in a single cycle changes for each sample rate.

■ 1. Taper

TITLE: Taper Diag
CREATOR: Adobe Illustrator(TM)
CR DATE: 2/8/88 11:50 AM

■ *Taper the ends of sounds before splicing to avoid clicks or pops at the splice points.*

Taper allows you to create an artificial decay on percussion samples in which the original decay is absent, create an artificial fast attack on a sound (such as a bowed violin with a slow attack), or clean up background noise when editing dialog. The diagram above shows the effect of Taper gain and attenuation on a sample using the Linear and Exp 3 curves.

1. Activate Digital Processing module.

2. Select 7. Digital Tools I, 2. Taper (7/2).

3. If the current sample is stereo, the following screen will appear. Select the left side, right side, or both sides (stereo), then press ENTER. Otherwise, proceed to the next step.

■ *The left and right cursor keys will change the start and end points so that they automatically fall on positive zero crossing points in the waveform.*

TAPER

Side: Stereo
Select L/R/Stereo

4. Select the desired taper points and press ENTER. The display will show the current taper points, which will be the endpoints of the current sample.

TAPER	secs	samples
Start:	0.00	000000
End:	3.13	137873
Size:	3.13	137873

TAPER	
Start Amount:	0. 00dB
End Amount:	- 96dB
Type:	Linear

■ When using taper gain, be careful to avoid clipping the signal. The normalize display in the Gain Change submodule may be used as a headroom indicator.

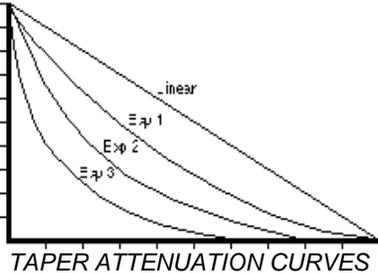
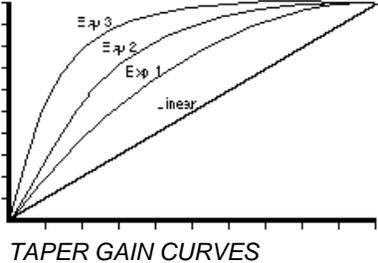
5. Move the cursor to the parameter to be selected, select the desired value(s) with the data slider and press ENTER. The sample will be tapered between the selected start and end points with the type of curve selected.

■ **Start Amount:** is the amount of gain or attenuation applied at the start of the taper and is variable from -96 to +96 dB.

■ **End Amount:** is the amount of gain or attenuation applied at the end of the taper and is also variable from -96 to +96 dB.

■ **Type:** selects the type of taper curve: Linear, Exp 1, Exp 2, Exp 3. Graphs of these curves are shown below.

6. If you are not satisfied with the resulting taper, or want to compare before and after, proceed to Digital Processing, 9. Undo.



■ 2. Gain Change

Gain Change alters the level of all or part of a sample.

1. **Activate Digital Processing module.**

2. **Select 7, Digital Tools I, 2. Change Gain (7/2).**

3. **If the current sample is stereo, the following screen will appear. Select the left side, right side, or both sides (stereo), then press ENTER.** Otherwise, proceed to the next step.

■ *Boosting the sample gain more than the amount specified to normalize will result in clipping which may or may not be audible. Use the normalize display as a headroom indicator.*

```
CHANGE GAIN

Side: Stereo
Select L/R/Stereo
```

4. **Select the desired gain change points and press ENTER.**

■ *The left and right cursor will change the start and end points so that they automatically fall on positive zero crossing points in the waveform.*

```
GAIN      secs  samples
Start:    0. 00 000000
End:      3. 13 137873
Size:     3. 13 137873
```

The display will show the current gain change points, which will be the end points of the current sample. After pressing **ENTER**, the EHX will compute the amount of gain change necessary to achieve normalization or 0dB headroom.

5. **Select the desired boost or cut with the data slider and press ENTER.** The amount of boost or cut is variable from -96 dB to +96dB in 1 dB steps.

```
CHANGE GAIN

Amount:           +00dB
+04dB = Normal i ze
```



Gain fade-out and fade-in using the exponential 3 curve.

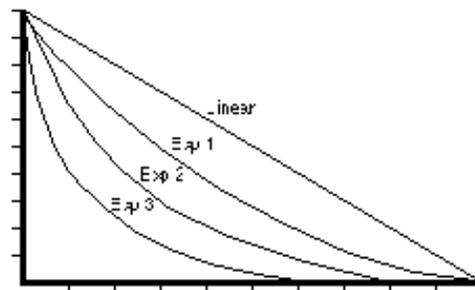
6. Move the cursor to the parameter(s) to be adjusted, select the desired value(s) with the data slider and press ENTER. The sample will be tapered between the selected start and end points with the type of curve selected.

FADE	secs	samples
Size:	0.00	000000
Type:		Linear

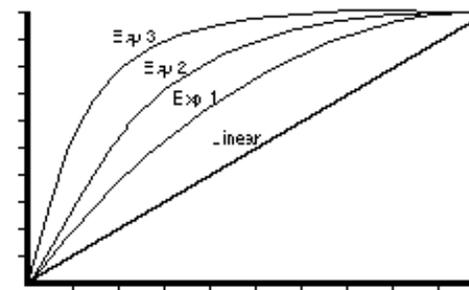
■ **Size:** sets the size of the crossfade between gain change and no gain change. This is variable from 0 to 1/2 the sample size.

■ **Type:** selects the type of gain curve: Linear, Exp 1, Exp 2, Exp 3.

7. If you are not satisfied with the resulting gain change, or want to compare before and after, proceed to Digital Processing, 9. Undo.



GAIN CHANGE ATTENUATION CURVES



GAIN CHANGE GAIN CURVES

■ 3. Reverse Section

Reverses all or part of a sample.

1. *Activate Digital Processing module.*

2. *Select 7, Digital Tools I, 3. Reverse Section (7/3).*

3. *If the current sample is stereo, the following screen will appear. Select the left side, right side, or both sides (stereo), then press ENTER.* Otherwise, proceed to the next step.

REVERSE SECTION
Side: Stereo
Select L/R/Stereo

4. *Select the desired section of the sample to be reversed and press ENTER.*

REVERSE	secs	samples
Start:	0.00	000000
End:	3.13	137873
Size:	3.13	137873

The display will show the current points at which the sound will be reversed, which will be the endpoints of the current sample. The sample will be reversed between the selected start and end points.

5. *If you are not satisfied with the resulting reversal, or want to compare before and after, proceed to Digital Processing, 9. Undo.*

■ 4. Stereo <-> Mono

Converts a stereo sample to mono or a mono sample to stereo.

1. *Activate Digital Processing module.*

2. *Select 7. Digital Tools I, 4. Stereo <-> Mono (7/4).* The display will inquire if you want to convert the current sample to stereo (if it is mono) or to mono (if it is stereo).



```
STEREO <- > MONO

Convert to Mono?
```

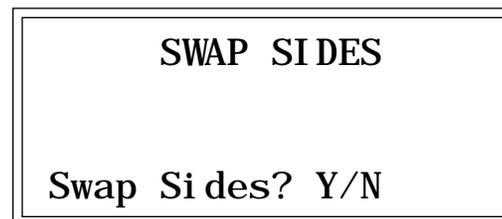
3. *Press YES to convert the sample to stereo or mono or NO to exit the submodule.* The EIIIX will return to the Module Identifier.

■ 5. Left <-> Right

Swaps sides if the current sample is stereo or moves a mono sample to the other side.

1. *Activate Digital Processing module.*

2. *Select 7. Digital Tools I, 5. Swap Sides (7/5).* The display will inquire if you want to swap sides if the current sample is stereo, or move the sample to the other side if it is in mono.



```
SWAP SIDES

Swap Si des? Y/N
```

3. *Press YES to swap or change sides or NO to exit the submodule.* The EIIIX will return to the Module Identifier.

■ 6. DC Filter

Removes the DC component from a sample, centering the waveform around the zero axis.

1. **Activate Digital Processing module.**

2. **Select 7. Digital Tools I, 6. DC Filter (7/6).** The EIIIX will immediately begin scanning the current sample for DC offset.

DC FILTER

Scanning . . .

When scanning is complete, the display will show:

▼ *If the sample sounds clipped after DC filtering, Undo, then attenuate the sample by 2 dB. Next, DC filter the sample and Normalize (using Gain Change).*

DC FILTER

L- 32129	25198	-	419
R- 30809	28246	-	199

Hit Enter to Filter

Left/Right
Negative
Peak

Left/Right
Positive
Peak

sign

Left/Right
Offset
(samples)

The positive and negative peaks are expressed in 16-bit samples. The offset is the DC bias present in the sample. Full scale is the maximum level of a 16-bit number.

+32767 = Full Scale (positive)
-32768 = Full Scale (negative)

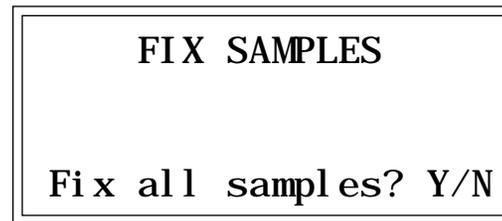
3. **Press ENTER to filter DC offset or Escape to exit the submodule.** The EIIIX will return to the Module Identifier.

■ 7. *Sample Integrity*

Because of the difference in pitch shifting methods between the EIII and the original EII, samples transferred from the original EII will occasionally have slight looping problems. This function quickly remedies the problem, fixing all samples within the bank.

1. *Activate Digital Processing module.*

2. *Select 7. Digital Tools I, 7. Sample Integrity (7/7).* The display shows:



FIX SAMPLES

Fix all samples? Y/N

3. *Press ENTER to fix samples in the bank.* The EIII will only modify loops which are in need of repair.

8. DIGITAL TOOLS II

This submodule contains nine more digital functions. These are extremely useful utilities for manipulating samples. Following is a short description of each function.

- **1. Sample Rate Convert:** Converts the sample to any sample rate between 7000 Hz and 50000 Hz.
- **2. Digital Tuning:** Digitally re-tunes a sample within a range of ± 1 octave.
- **3. Compressor:** The compressor dynamically changes the gain of the sample based on the amplitude envelope of the sample. This is a non-realtime implementation of a full featured dynamic range compressor.
- **4. Parametric Equalizer:** This is a digital (non real-time) implementation of a one band parametric EQ, with +12 dB boost or -48 dB of cut and completely variable frequency and bandwidth controls.
- **5. Time Compression:** This function changes the length of a sample without changing the pitch. This can be very useful for fitting samples to the beat of a song or fitting dialog into a spot. Samples can be compressed or expanded in length from 50% to 200%.
- **6. Pitch Change:** This function changes the pitch of a sample without changing the time relationships between events. The maximum amount of pitch change is ± 1200 cents (\pm one octave).
- **7. Transform Multiplication:** This function merges two sounds together in a unique way which can create many strange and beautiful sonic textures. Frequencies common to the original sounds are accentuated while uncommon frequencies are discarded.
- **8. Doppler/Pan:** This unique function allows you to dramatically move a sound from front to back and side to side in a 2-D space. Several pre-computed paths as well as 10 user-definable paths are available.
- **9. Exciter:** This function adds brilliance and “cut” to a sample helping it to stand out in a mix. The Exciter works by adding high order harmonics related to the source material.

■ 1. Sample Rate Convert

Sampling at a high sample rate provides better frequency response than sampling at a slower rate, but it uses up more memory. If you need to reclaim some of that memory, and are willing to trade off sample frequency response, samples can be converted from a higher rate to a lower one. Use your ear to compare sounds at the two sample rates. If you can't tell the difference, use the lower rate.

Sample Rate Conversion can be used for saving memory, increasing the upward transposition range of a sound, or exactly matching the sample rate to a multiple of the sounds frequency for perfect single cycle loop (use the sample calculator).

1. Activate Digital Processing module.

2. Select 8, Digital Tools II, 1. Sample Rate Convert (8/1). The display will show the current sample rate and sample size.

SAMPLE RATE CVT f: 0	
Rate:	22050Hz
Size:	107220
Loop Size:	5035.00

3. Select the new sample rate and press ENTER. The display will update the sample size to reflect the new sample rate. The Loop Size display shows the size of the resulting loop. If a fractional number is shown, you may want to adjust the sample rate until the loop size is an integer, otherwise the loop size will be slightly altered by the conversion process.

The "f" in the upper right corner indicates the reconstruction filter that will be used in the resampling process. Higher numbers indicate more interpolation filtering (cutting more high frequencies). There are six interpolation filter frequencies (0-5).

4. If you are not satisfied with the resulting sample rate conversion, or want to compare before and after, proceed to Digital Processing, 9. Undo.

■ 2. Digital Tuning

Digital Tuning allows you to change the pitch of a sound in order to splice or combine it with another sound of a different pitch. Try offsetting the pitch of a copied sample by a few cents, then combine it with the original for flange and chorus effects. If a sample is slightly out of tune, it is usually better to fix the sample once and for all, rather than re-tune the sample when it is placed on the keyboard.

1. Activate Digital Processing module.

2. Select 8. Digital Tools II, 2. Digital Tuning (8/2). The display will show the current tuning offset, sample size and loop size.

3. Select the desired amount of re-tuning, then press ENTER. The display will update the sample size to reflect the new tuning. The loop size display shows the size of the resulting loop. If a fractional number is shown, listen to the resulting loop carefully. The loop size will be slightly altered by the conversion process.

The “f” in the upper right corner indicates the reconstruction filter that will be used in the resampling process. Higher numbers indicate more interpolation filtering (cutting more high frequencies). There are six interpolation filter frequencies (0-5).

■ Re-tuning pitch downward increases the sample size. Re-tuning pitch upward decreases the sample size.

DIGITAL TUNING	f: 0
Tuning:	+1200 cents
Size:	209882
Loop Size:	69930.00

4. If you are not satisfied with the resulting re-tuning, or want to compare before and after, proceed to Digital Processing, 9. Undo.

■ 3. Digital Compressor

The Digital Compressor is a digital (non-realtime) equivalent of an analog dynamic range compressor with attack and release times, adjustable threshold, adjustable ratio, and three modes of operation.

1. **Activate Digital Processing module.**

2. **Select 8. Digital Tools II, 3. Digital Compressor (8/3).**

3. **If the current sample is stereo, the following screen will appear. Select the left side, right side, or both sides (stereo), then press Enter.** Otherwise proceed to the next step.

```

DIGITAL COMPRESSOR

Side: Stereo
Select L/R/Stereo

```

4. **Select the desired area to be compressed and press ENTER.**

```

COMPRESSsecs samples
Start:  0. 00 000000
End:    3. 13 137873
Size:   3. 13 137873

```

The display will show the current points of the sample to be compressed, which will be the start and end points of the current sample. Select the section of the sample to be compressed, then press ENTER.

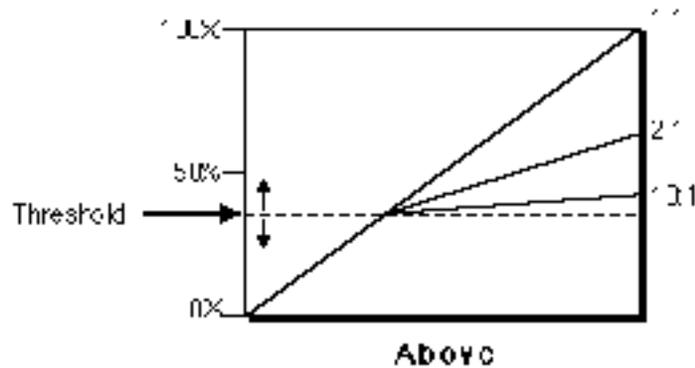
```

COMPRESSOR Mode: rms
Thres:   center 100%
Ratio:           4. 00: 1
Atk: 999ms  Rel : 999ms

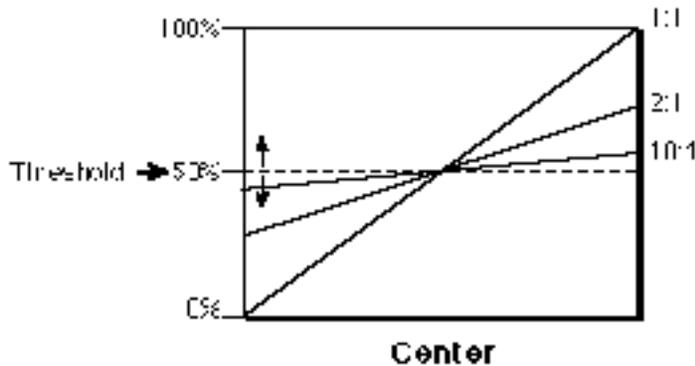
```

5. **Position the cursor under the desired parameter and adjust the value using the data slider.**

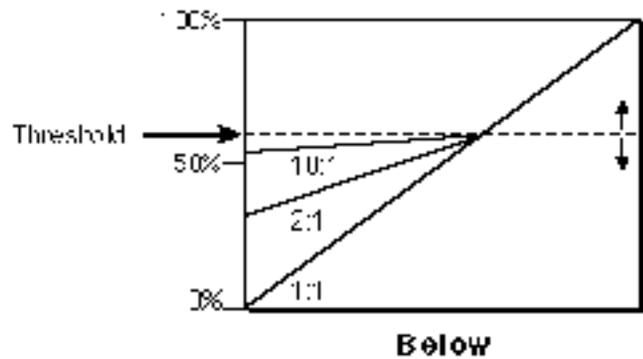
■ *Note: The gain setting which is in effect at the end point of the selected section will remain in effect for the rest of the sample. This is done to prevent nasty pops and phase problems caused by an abrupt transition back to the normal gain.*



Only signal levels above the threshold % will be affected by the compressor.



Signal levels above as well as below the threshold % will be affected by the compressor.



Only signal levels below the threshold % will be affected by the compressor.

■ **Mode:** RMS or Peak.

RMS = root-mean-square or an “average of the magnitude of the signal”. RMS represents the “true” energy content of a signal.

Peak = Uses the peak amplitude of a signal to determine the amplitude. The peak amplitude is a meaningful measurement in a digital system because of the 96db (16-bit) headroom limit.

■ **Threshold:** Above, Center, Below, %

Above = Only signal levels above the threshold % will be affected by the compressor.

Center = Signal levels above as well as below the threshold % will be affected by the compressor.

Below = Only signal levels below the threshold % will be affected by the compressor.

% = Determines the threshold level as a percentage of 100% of 16-bits.

■ **Compression Ratio:** Variable from 0.01 : 1 to 99.8 : 1.

Determines the amount of compression or expansion. Ratios of greater than 1:1 compress dynamic range. Ratios of less than 1:1 expand dynamic range.

Compression: Reduces the amount of dynamic range. Levels remain more constant.

Expansion: Expands the amount of dynamic range. Changes in level are exaggerated.

Attack Time: Determines how quickly the gain will be turned down. The attack time is variable from 0 to 999 milliseconds.

Release Time: Determines how quickly the gain will be turned up. The release time is variable from 0 to 999 milliseconds.

Using the Digital Compressor

● **Limiter** - A limiter prevents the signal from exceeding a preset level (threshold). Signal levels below the threshold will be unaffected.

Set the controls as follows:

Threshold: Above, XX% (where XX is the limit point).

Ratio: >10:1

Attack Time: 1 mS

Release Time: approximately 100 mS

● **Musical Compression (i.e. Guitar)** - This type of compression tries to keep the volume constant, generally to increase the sustain of the instrument. As the note dies away, the compressor will boost the level in an effort to keep the level constant.

Set the controls as follows:

Threshold: Center, XX% (where XX is the compression point).

Ratio: approximately 4:1

Attack Time: 1 mS to 100 mS

Release Time: > 100 mS

● **Noise Reduction** - Noise reduction will reduce low levels even further in the assumption that low levels are noise.

Set the controls as follows:

Threshold: Below, approx. 30%

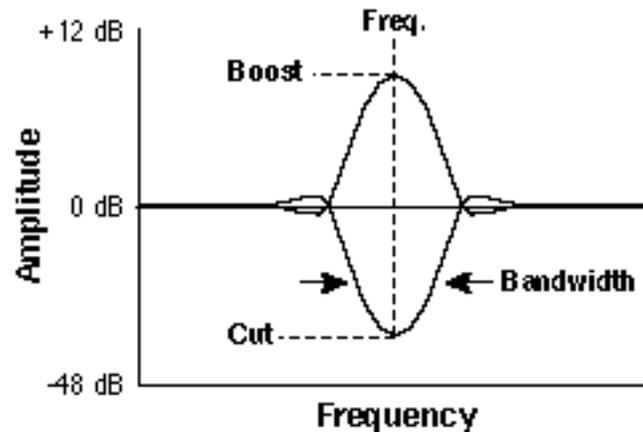
Ratio: approximately 0.7:1

Attack Time: approximately 100 mS

Release Time: approximately 100 mS

■ 4. Parametric Equalizer

Parametric EQ allows you adjust the individual parameters of the filter. Boost and Cut controls “how much” of the signal will be boosted or cut. Center Frequency sets the center frequency to be boosted or cut, and the Bandwidth control sets the width of the band to be boosted or cut. The three parameters are diagrammed below.



The parametric equalizer is a digital (non real-time) equivalent of an analog equalizer with +12 db of boost and a whopping -48 dB of cut. Accurate center frequency and bandwidth controls are similarly precise and exceptionally wide range.

1. *Activate Digital Processing module.*
2. *Select 8. Digital Tools II, 4. Parametric EQ (8/4).*
3. *If the current sample is stereo, the following screen will appear. Select the left side, right side, or both sides (stereo), then press ENTER. Otherwise proceed to the next step.*

PARAMETRIC EQ

Side: Stereo
Select L/R/Stereo

4. Select the desired points to be EQ'ed and press ENTER.

■ The left and right cursor keys will change the start and end points so that they automatically fall on positive zero crossing points in the waveform. This will minimize clicks in the sound when processing only part of a sample.

EQ	secs	samples
Start:	0.00	000000
End:	3.13	137873
Size:	3.13	137873

The display will show the current points of the sample to be equalized, which will be the start and end points of the current sample. Select the section of sample to be EQ'ed, then press ENTER.

5. Move the cursor to the parameter(s) to be adjusted, select the desired values with the data slider, and press ENTER.

■ A standard parametric equalizer is useful to locate the frequencies which need EQ. The digital EQ can then be used to actually filter the sample with ultra-low noise and phase linear response.

PARAMETRIC EQ	
Gain:	+12dB
Center Freq:	1000Hz
Bandwidth:	50Hz

6. If you are not satisfied with the resulting EQ or want to compare before and after, proceed to Digital Processing, 9. Undo.

■ 5. Time Compression

This function allows you to change the length of a sample without changing the pitch. This is a useful function for fitting samples to the beat of a song or fitting dialog into a spot. Samples can be compressed or expanded in length from 50% to 200%.

1. **Activate Digital Processing module.**

2. **Select 8. Digital Tools II, 5. Time Compression (8/5).**

The display will show the current time compression ratio and signal type.

TIME COMPRESSION	
Ratio:	110%
Type:	broad
Length:	3.1 ==> 3.4

■ Time Compression Ratio
200% = Double Length
50% = Half Length

3. **Select the desired time compression (or expansion) ratio.** The lower line of the display changes to show the resulting length of the compressed or expanded sample.

4. **Select the general type of sample to be processed.**

The choices are:

deep Predominant deep bass (to 14 Hz)
bass Predominant bass (to 20 Hz)
mid-1 Average source material
mid-2 Average source material (high-mids)
high Source material with high frequencies
tight Maintains time accuracy - Drum loops
broad Low bass energy but critical highs
broad-smooth Both high & low freq. - Smooth output
difficult Inharmonic or broadband material
noisy Non-pitched - Sound Effects, etc.

■ If you are not happy with the results of Time Compression, simply Undo, then choose another algorithm.

5. **If you are not satisfied with the resulting Time Compression or want to compare before and after, proceed to Digital Processing, 9. Undo.**

■ 6. Pitch Change

This function is the exact opposite of Time Compression in that it changes the pitch of a sample without changing the time. The maximum amount of pitch change is ± 1200 cents (\pm one octave).

1. **Activate Digital Processing module.**

2. **Select 8. Digital Tools II, 6. Pitch Change (8/6).**

The display will show the current amount of pitch change in cents (1/100 of a semitone) and signal type.

PITCH CHANGE	
Tune:	+ 52cts
Type:	mi d- 2

3. **Select the desired pitch change amount.** The lower line of the display changes to show the resulting length of the compressed or expanded sample.

4. **Select the general type of sample to be processed.**

The choices are:

deep Predominant deep bass (to 14 Hz)
bass Predominant bass (to 20 Hz)
mid-1 Average source material
mid-2 Average source material (high-mids)
high Source material with high frequencies
tight Maintains time accuracy - Drum loops
broad Low bass energy but critical highs
broad-smooth Both high & low freq. - Smooth output
difficult Inharmonic or broadband material
noisy Non-pitched - Sound Effects, etc.

5. **If you are not satisfied with the resulting Pitch Change or want to compare before and after, proceed to Digital Processing, 9. Undo.**

■ 7. Transform Multiplication

This function merges two sounds together in a way that frequencies common to both sounds are accentuated while uncommon frequencies are discarded. Because of this characteristic, Transform Multiplication tends to work best with sounds that are harmonically rich. The length of the resulting sample will be equal to that of the current sample.

1. **Activate Digital Processing module.**
2. **Select Submodule 0 (Select Sample).**
3. **Select the first source sample to be multiplied, then press Enter.**
4. **Select 8. Digital Tools II, 7. Transform Multiplication (8/7).**
The display will show:

```
TRANSFORM MULTIPLY
072 Flute C4
L   0.1secs 29312Hz
Select Second Sample
```

5. **Select the second sample to be multiplied using the inc/dec buttons, the data slider or the keypad.** The third line of the display shows the characteristics of the second sample (L, R, or L/R), the length and the sample rate.

6. **Press ENTER to select the second sample.**
The display shows the time required to process the samples.

```
TRANSFORM MULTIPLY

Will take 26 mins. .
Continue? Y/N
```

7. **Press Yes to start the computation or No to return to the Module Identifier.**

▼ *Transform Multiplication can take quite a bit of time with longer samples. Begin your experiments with short samples or even attacks as these give good initial results.*

■ Transform Multiplication Ideas

- *Try using the same sound for both samples.*
- *Splicing silence to the beginnings or ends of short samples can change the spectral characteristics of the result.*
- *Using speech as one of the sources, it is possible to "speak from within" violins, bassoons, cymbals etc.*

8. If you are not satisfied with the resulting Transform Multiplication or want to compare before and after, proceed to Digital Processing, 9. Undo.

■ 8. Doppler/Pan

This function allows you to apply either a pre-programmed or user-definable sound path to a mono sample or the left side of a stereo sample. The result is a stereo sample with pitch shifted and left-right gains adjusted according to the path. The sound can move dramatically forward-back and left-right in a 2-D space in front of the listener. Several pre-programmed paths and up to 10 user-definable paths are available with up to 26 points per path.

1. Activate Digital Processing module.

2. Select 8. Digital Tools II, 8. Doppler/Pan (8/8).

The display will show the current path, level threshold and Doppler status.

DOPPLER/PAN	- >
Path:	small circle
Doppler:	on
Threshold:	- 44dB

3. Select the desired Path for the Doppler/Pan. The lower line of the display changes to show the resulting length of the compressed or expanded sample. The choices are:

Fast-by (L->R) Sound moves left to right quickly

Slow-by (L->R) Sound moves left to right slowly

Far->Near (fast) Sound moves far away to close quickly

Far->Near (slow) ... Sound moves far away to close slowly

Near->Far (fast) Sound moves close to far away quickly

Near->Far (slow) ... Sound moves close to far away slowly

Small Circle Sound moves in an 8 ft. circle in front

Medium Circle Sound moves in a 50 ft. circle in front

Large Circle Sound moves in a 120 ft. circle in front

Huge Circle Sound moves in a 250 ft. circle in front

Random 1 Sound moves in a random path

Random 2 Sound moves in a different random path

User Path 1-10 Sound moves in a user programmed path

The pre-computed paths are always initially scaled to the length of the sample, although this time may be changed using the Duration parameter (see below). The 10 user defined paths are saved along with the bank so that they may be applied to other samples over multiple user sessions.

4. Turn Doppler Pitch Shift On or Off. With Doppler turned Off, only the panning effect will be enabled.

5. Set the amplitude Threshold. Certain sound paths may take the sound source very far away from the listener, resulting in little or no resulting amplitude. The “Threshold” parameter specifies the maximum amplitude attenuation of the original sample that will ever occur. By setting this parameter appropriately, the user can ensure that the resulting sample will produce at least a minimum amplitude output at every point along the path. A setting of 0dB would prevent any amplitude changes whatsoever. A setting of -96dB would not prevent the sound from completely fading away at some points.

6. Press ENTER to continue. The Path Parameters screen (shown below) will appear.

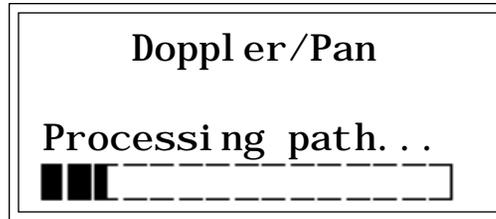
PATH PARAMETERS	
Duration:	3.06s
Auto-repeat:	off

7. Select a shorter Path Duration if desired. The Path Duration allows you to scale the path time so that it runs to completion in a time shorter than the length of the sample. The default value is always the length of the sample. If auto-repeat is off (see below), the sound will remain at the end of the path until the sample is complete.

8. Turn Auto-repeat On or Off as desired. Auto-repeat causes the path to repeat if the end is reached before the sample has completely played. Auto-repeat will only occur if path duration is set to a value less than the sample length. The default setting for Auto-repeat is Off.

■ Pressing the Right Cursor button from the initial screen selects the Path Management screen described on the following page.

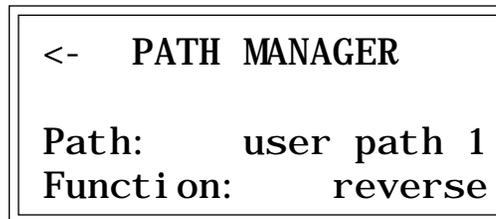
9. Press **ENTER** to begin processing the sample. The display shows:



10. If you are not satisfied with the resulting Doppler/Pan or want to compare before and after, proceed to Digital Processing, 9. Undo.

PATH MANAGEMENT SCREEN

Sound paths may optionally be edited and processed in a number of ways. If the right cursor is pressed in the initial Doppler/Pan screen, the Path Manager screen appears:



The path may be selected in this screen as well. "Function" specifies the path processing function. The available functions are:

- editedit a user path
- copycopy a path into one of the user paths
- reversecause a user path to be played in reverse
- flipflip a user path around the X-axis
- offsetapply an x and/or y offset to a user path
- clearinitialize a user path

The pre-programmed paths must first be copied to a user location before they can be edited.

■ Copy Path

This function copies a pre-programmed or user path to a user path. When Copy Path is selected, the following screen will appear:

```
COPY PATH
From:  medi um circle
To   :   user path 1
Select Source Path
```

Select the source and destination paths, then press **ENTER** to copy the path.

■ Reverse Path

This function reverses the direction of a user path. When Reverse Path is selected, the following screen will appear:

```
REVERSE PATH
Reversing path:
  user path 2
Are You Sure? Y/N
```

■ Flip Path

This function causes a user path to be mirrored around the “X” axis so that points that were to the left side of the listener are now on the right and vice-versa. Selecting Flip Path causes the following screen to appear:

```
FLIP PATH
Flipping path:
  user path 2
Are You Sure? Y/N
```

■ Offset Path

This function allows you to add an offset to the left and right path points, moving the entire path closer or farther, or more to the left or right. The X offset adds to all X values; the Y offset adds to all Y values in the path. The resulting sums are clipped to the coordinate system (shown under Path Edit). When Offset Path is selected, the following screen will appear:

■ The "X" offset varies the L-R position. The "Y" offset varies the front-back position.

```
OFFSET PATH
X offset:    +265
Y offset:    +  0
Enter X offset
```

Press ENTER to add the offsets to the path.

■ Clear Path

This function clears all x,y and time values to zero. If this "zero" path were used to process a sample, the sound would not move. When Clear Path is selected, the following screen will appear:

```
CLEAR PATH
Clearing path:
user path 2
Are You Sure? Y/N
```

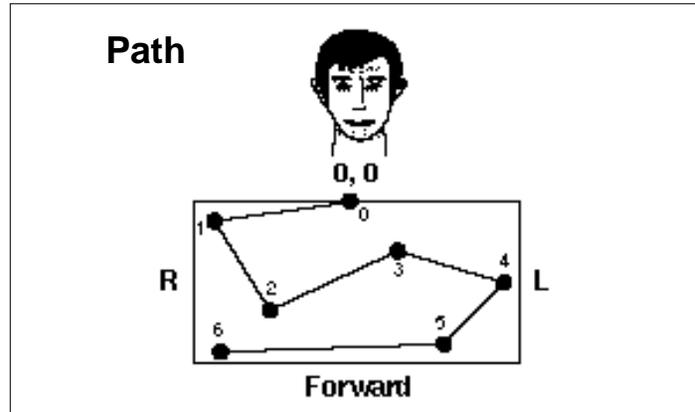
Press YES to clear the path.

■ Path Edit

The Edit Path function allows you to specify up to 26 points and times for each of the ten available paths. When Path Edit is selected, the following screen will appear:

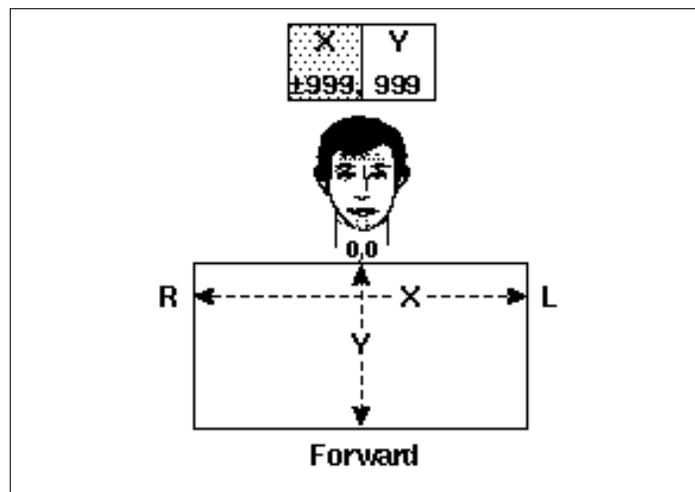
```
PATH EDIT
0  0.00s [- 999, 500]
1  0.52s [+  0,  0]
2  0.86s [+224, 999]
```

Each line of this screen is a point in the path, specified by [X,Y] position (numbers inside the [brackets]) and a time, in seconds. The point number is the left-most number of each line and may not be edited. By using the inc/dec or the slider while the cursor is under a point number, the path edit screen can be scrolled to display and edit all 26 points.

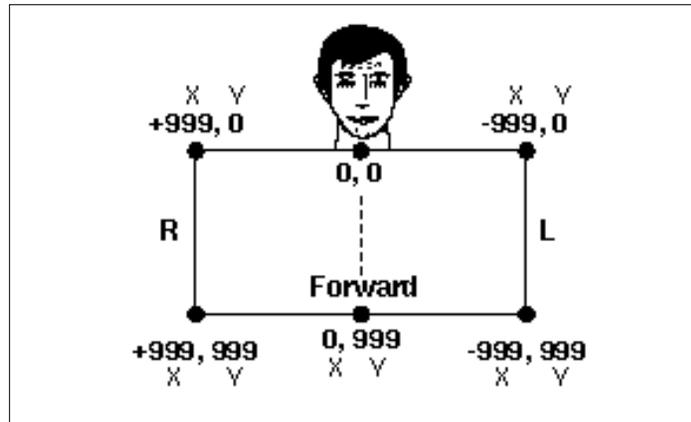


Up to 26 points defining the sound location can be specified. Each point has an associated time parameter to move the sound from the previous point.

X-Y coordinates are specified in 10ths of feet. X values range from 999 (-99.9 feet) to +999 (99.9 feet), Y values from 0 to 999 (99.9 feet). The listener is considered to be at [0,0] as shown below:



The first part of the coordinate designates the left/right position. The second part of the coordinate designates the forward positioning.



The diagram above shows the extreme positions of the path coordinates.

Time values range from 0 to the length of the current sample. Note that if this path is applied to a *different* sample, all time values will be scaled to the length of the different sample.

Once path editing is complete, press **ENTER** to return to the Path Management screen. When the path is ready to apply to the sample, press the left cursor button while in the Path Management screen to return to the main Doppler/Pan screen. Press **ENTER** again to move ahead to the Path Parameters screen and once more to process the sample.

■ 9. Exciter

This function adds brilliance and “cut” to a sample making it stand out in a mix. The effect is especially effective on vocal samples to which it adds sheen, clarity and presence. The Exciter works by generating new harmonics related to the source material. Any section of a sample can be processed, and the exciter effect can be programmably faded in and out.

1. **Activate Digital Processing module.**

2. **Select 8. Digital Tools II, 9. Doppler/Pan (8/9).**

3. **If the current sample is stereo, the following screen will appear. Select the left side, right side, or both sides (stereo), then press ENTER.** Otherwise, proceed to the next step

EXCI TER

Side: Stereo
Select L/RStereo

4. Select the desired points in the sample and press ENTER. The display will show the current points to be processed, which will be the endpoints of the current sample.

EXCI TER	secs	samples
Start:	0. 00	00000
End:	2. 95	35421
Size:	2. 95	35421

5. Move the cursor to the parameter to be selected, select the desired value(s) with the data slider and press ENTER. The sample will be processed with the exciter effect between the selected start and end points and with the selected fade-in/fade-out times.

EXCI TER

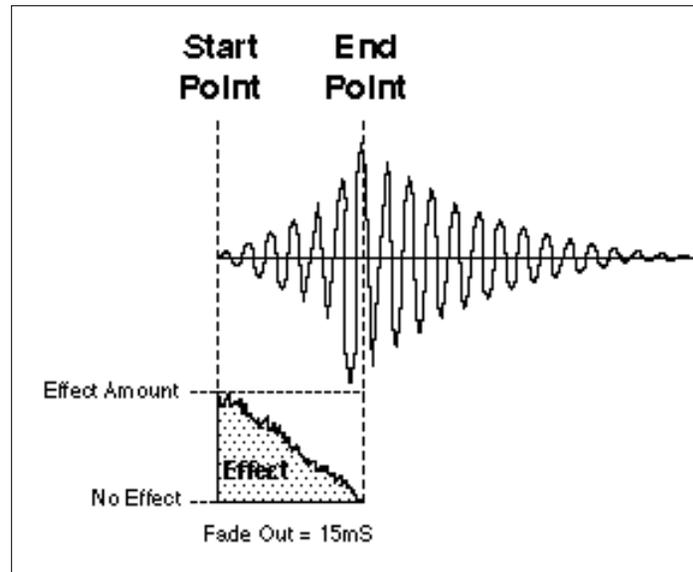
Amount: 018%
Tune: 5
FadeIn: 000 Out: 000ms

- Amount** The intensity of the effect. (Lower values (<40%) work well as they keep the effect subtle.)
- Tune** The frequency range of the effect. Higher number emphasize higher frequencies.
- Fade In** The length of time for an effect to fade-in from zero to "Amount".
- Fade Out** The length of time for an effect to fade-out from "Amount" to zero.

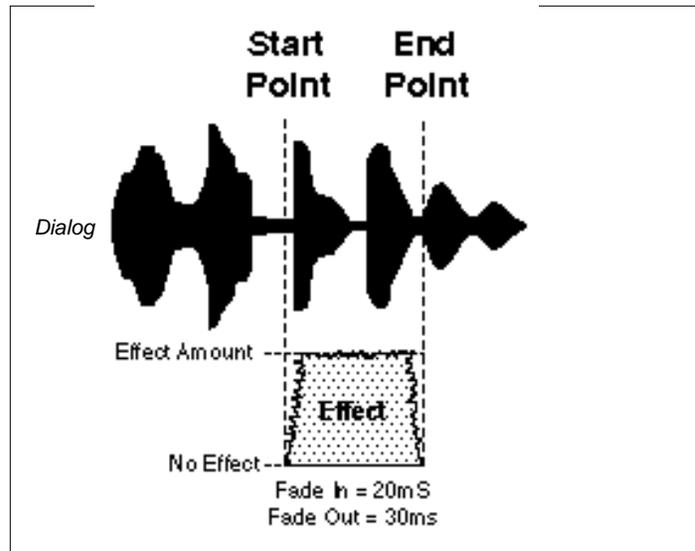
6. If you are not satisfied with the resulting Excitation or want to compare before and after, proceed to Digital Processing, 9. Undo.

Using the Digital Exciter

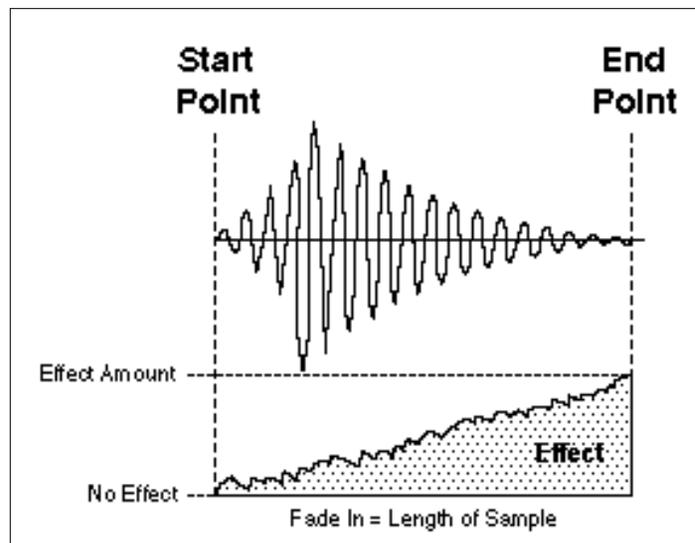
● **Attack (only) Processing** - Set the Start Point to 0, and the End Point to some small value (.15 secs) to match the attack time of the sample. Set the Fade-in to 0 and the Fade-out to match the End Point value (.15 secs). The attack portion of the sample will have full excitation which fades out during the attack.



- Highlighting a Single Phrase or Note in a long Sample - Mark a little more than the desired region with the Start and End points. Use a Medium Fade-in and Fade-out with moderate excitement amount to bring out the selected audio event.



- Increase Apparent Sustain of Decaying Sounds - Use a long Fade-in to add harmonic energy to the sound as it evolves.



9. UNDO

Have you ever wanted a time machine so that you could go back and undo a mistake? This function may be the next best thing.

■ **To Restore A Sample To Its Original State:**

1. *Activate Digital Processing module.*
2. *Select Submodule 9.*

```
UNDO  TRUNCATION
S00   Selected Sample

Backup:          enabled
```

The display will show whether backup is currently enabled or not. If backup is not enabled, you will not be able to restore the sample. Otherwise, press **ENTER**. The original sample will be restored, the processed sample will be stored in the clipboard, and the Emulator IIX will return to the Module Identifier.

■ **To Compare A Processed Sample With the Original Sample:**

1. *Activate Digital Processing module.*
2. *Select Submodule 9.*

```
REDO  Truncation
S00   Selected Sample

Backup:          enabled
```

The display will show whether backup is currently enabled or not. If backup is not enabled, you will not be able to compare samples.

Otherwise, press **ENTER**. The original sample will be restored, the processed sample will be stored in the clipboard, and the EIIIX will return to the Module Identifier.

3. Re-select Submodule 9. The processed sample will be restored, and the original sample will be stored in the clipboard. You can continue switching back and forth between the processed and original samples by repeating this step until you decide which sample you want to keep.

■ **To Disable or Enable the Backup Process:**

1. Activate Digital Processing module.

2. Select Submodule 9.

```
REDO Truncat ion
S00 Selected Sampl e

Backup:      di sabl ed
```

The display will show whether backup is currently enabled or not. Use the Increment/Decrement buttons to choose whether the backup function is enabled or disabled, then press **ENTER**.

PRESET MANAGEMENT

- 1. LOAD PRESET 6-2**
- 2. RENAME PRESET 6-4**
- 3. ERASE PRESET 6-5**
- 4. COPY PRESET 6-6**
- 5. CREATE PRESET 6-7**
- 6. PRESET SIZE 6-8**
- 7. STACK MODE 6-9**
- 8. VELOCITY SWITCH 6-10**
LEVEL
- 9. MERGE PRESETS 6-11**



1. LOAD PRESET

A preset, with its samples, can be loaded from the internal hard disk or external storage devices.

1. *Activate Preset Management module.*
2. *Select Submodule 1.*
3. *If you wish to select a different drive, move the cursor to the drive number. If not, go to step 5.*
4. *Select the drive containing the preset to be loaded, then press ENTER.*

LOAD PRESET from
D1 Main HD

Select a Drive

5. *Select the bank number that contains the preset to be loaded, then press ENTER.*

LOAD PRESET from
D1 Main HD
B00 Current Bank
Select a Bank

6. *Select the preset to be loaded, then press ENTER.*

LOAD PRESET from
P00 Current Preset

Select Source Preset

7. Select the destination preset number into which the source preset will be loaded, then press ENTER. If you try to overwrite an existing preset, you will be asked if you are sure. Enter **Yes** to replace the existing sample, or **No** to cancel the operation.

LOAD PRESET into
P00 Selected Preset
P00 Empty Preset
Select Dest Preset

8. If desired, rename the preset. Choose the characters to be changed with the left and right cursor buttons. Select the desired characters by using the ten key pad, data slider and keyboard. You can also use the up cursor to insert spaces and the down cursor to delete spaces. (See 2. Rename Preset.)

9. Press ENTER to exit the submodule. The EIIIIX will return to the Module Identifier.

■ *If you load a preset that uses samples already present in the bank, new copies of the samples will not be loaded. This technique saves a great deal of memory space. However the samples must be identical, even to the name, otherwise new samples will be loaded.*

2. RENAME PRESET

This submodule allows you to rename any preset in the Emulator III's current bank.

■ Use the Data Slider or Increment/Decrement buttons to access the full character set; the keyboard does not have enough keys to access all available characters.

1. **Activate Preset Management module.**

2. **Select Submodule 2.**

3. **Scroll through the presets available for renaming. When the display shows the desired preset, press ENTER.**

```
RENAME PRESET
P00 Current Preset
Select a Preset
```

■ See the available character chart in the appendix for a complete listing of characters.

4. **Rename the preset.** Choose the characters to be changed with the left and right cursor buttons. Select the desired characters by using the ten key pad, data slider, and keyboard. You can also use the up cursor to insert spaces and the down cursor to delete spaces.

```
RENAME PRESET
P00 Untitled Preset
[0-9]/Slider/Kybd
```

5. **Press ENTER to exit the submodule.** The EIII will return to the Module Identifier.

3. ERASE PRESET

Individual presets, with or without their samples, can be erased from the bank loaded into the Emulator IIIX to free up memory space.

1. **Activate Preset Management module.**
2. **Select Submodule 3.**
3. **Select the preset to be erased, then press ENTER.**

ERASE PRESET

P00 Current Preset

Select a Preset

■ *Erasing a preset won't necessarily free up sample memory if the same samples are used in other presets that are not erased.*

4. **Press Yes to erase the preset, or No to cancel the operation.**
If the preset you are erasing contains samples unique to this preset, you will be asked if you want to Erase Samples Also? Enter **Yes** to erase the unique samples, or **No** to erase the preset. In either case the EIII will return to the Module Identifier.

4. COPY PRESET

■ Copying a preset will not make copies of the samples used in the preset.

Presets can be copied to other preset numbers within the same bank. This is useful if you want to create variations on a particular preset. For example, you may want to alter the MIDI, velocity, or arpeggiator setups, or Dynamic Processing parameters.

1. **Activate Preset Management module.**
2. **Select Submodule 4.**
3. **Select the preset to be copied, then press ENTER.**

COPY PRESET from
P00 Current Preset

Select Source Preset

4. **Select the destination preset number into which the source preset will be copied, then press ENTER.** If you try to overwrite an existing preset, you will be asked if you want to overwrite. Press **Yes** to replace the existing sample, or **No** to cancel the operation.

COPY PRESET into
P00 Selected Preset
P01 Empty Preset

Select Dest Preset

5. **If desired, rename the preset.** Choose the characters to be changed with the left and right cursor buttons. Select the desired characters by using the ten key pad, data slider and keyboard. You can also use the up cursor to insert spaces and the down cursor to delete spaces.

6. **Press ENTER to exit the submodule.** The EIII will return to the Module Identifier.

5. CREATE PRESET

An empty preset must be initialized by the Emulator IIIIX before it can hold samples. This initialization process is called creating a preset.

1. Activate Preset Management module.

2. Select Submodule 5.

3. Select the preset to be created, then press ENTER. If you try to overwrite an existing preset, you will be asked if you want to overwrite. Enter **Yes** to replace the existing preset, or **No** to cancel the operation.

CREATE PRESET

P00 Empty Preset

Select a Preset

5. If desired, rename the preset. Choose the characters to be changed with the left and right cursor buttons. Select the desired characters by using the ten key pad, data slider and keyboard. You can also use the up cursor to insert spaces and the down cursor to delete spaces.

6. Press ENTER to exit the submodule. The EIIIIX will return to the Module Identifier.

6. PRESET SIZE

How much bank memory does a preset require? Use this function to find out.

1. **Activate Preset Management module.**
2. **Select Submodule 6.**

3. **Scroll through the preset numbers and select the Preset whose size you want to check.** The second line shows the selected preset, the third line the amount of preset memory used (both as a percentage of the total bank memory and as an absolute number of bytes), and the fourth line the amount of sample memory used (both as a percentage of the total bank memory and as an absolute number of bytes).

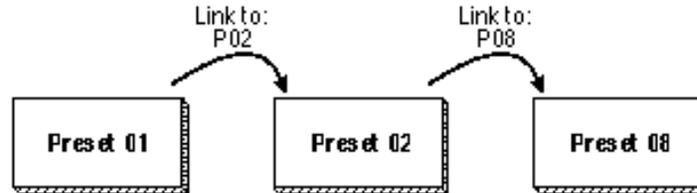
■ *The percentages of sample memory used may add up to considerably more than 100% if the same samples are used in several presets.*

```
PRESET SIZE
P00 Current Preset
Preset: . 7%      922
Sample: 9. 2% 1543716
```

4. **Press ENTER to exit the submodule.** The EIII will return to the Module Identifier.

7. STACK MODE

Stack Mode allows you to place multiple presets on each key of the keyboard. In stack mode, the current preset can be linked with another preset. The linked preset can in turn, be linked with another preset and so on until all of the available channels are used up. As an example, suppose you link preset 01 to preset 02 and that preset 02 has previously been linked to preset 08. When preset 01 is played, presets 02 and 08 will play as well. When preset 02 is played, preset 08 will also play. The polyphony of the Emulator IIIIX will vary according to the voice architecture of each preset in the stack. If two presets are linked to themselves, forming a loop, those two presets will play in unison up to the channel limit of the EIIIIX.



1. *Select the current preset.*
2. *Activate Preset Management module.*
3. *Select submodule 7.*
4. *Use the data slider to choose the preset (or none) that will be linked to the current preset.*

<p style="text-align: center;">STACK MODE</p> <p>Link to: Pxx No Link</p>

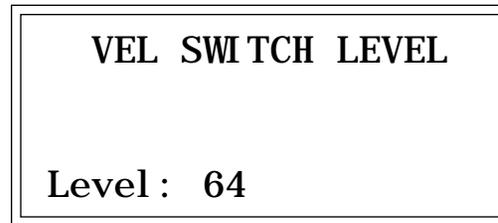
5. *Press ENTER to exit the submodule.* The EIIIIX will return to the Module Identifier.



8. VELOCITY SWITCH LEVEL

The velocity cross-switch function in the Preset Definition module, (5. Crossfade/Switch) allows overlapping samples to be switched according to key velocity. This function sets the velocity at which samples are cross-switched.

1. **Activate Preset Management module.**
2. **Select submodule 8.**
3. **Use the data slider to select the velocity at which samples will be cross-switched.** Velocity values range from one to 127.



4. **Press ENTER to exit the submodule.** The EIII will return to the Module Identifier.

9. MERGE PRESETS

This function allows you to load all the presets from any bank on any hard disk into the currently loaded bank. This is a very handy feature when you want to create massive, multi preset banks.

1. **Activate Preset Management module.**

2. **Select submodule 9.**

3. **If necessary, select the drive from which you wish to load the bank.** The EIII will default to the current drive. If you want to choose a different drive, place the cursor under the drive number in line two of the display, select the appropriate drive and press ENTER.

```
MERGE PRESETS from
D1 Main HD

Select a Drive
```

4. **Select the bank number you wish to load into the current bank, then press ENTER.**

```
MERGE PRESETS from
D1 Main HD
B01 Selected Bank

Select a Bank
```

5. **Select the preset number at which the new presets will be placed.** Presets in the selected bank will be added to the current bank starting at the number you specify. Presets will not be overwritten under any circumstances.

6. Press *ENTER* to merge the presets. The display will say show the new locations of the presets in the bank, then return you to the Module Identifier.

MERGE PRESETS into

025 Empty Preset

Select Dest Preset

Preset
Manage

BACKGROUND 9-2

0. SELECT ZONE 9-4

1. SETUP 9-6

2. VCA 9-8

3. VCF 9-10

4. LFO 9-13

**5. AUXILIARY
ENVELOPE 9-15**

6. VELOCITY TO 9-17

7. KEYBOARD MODE 9-20

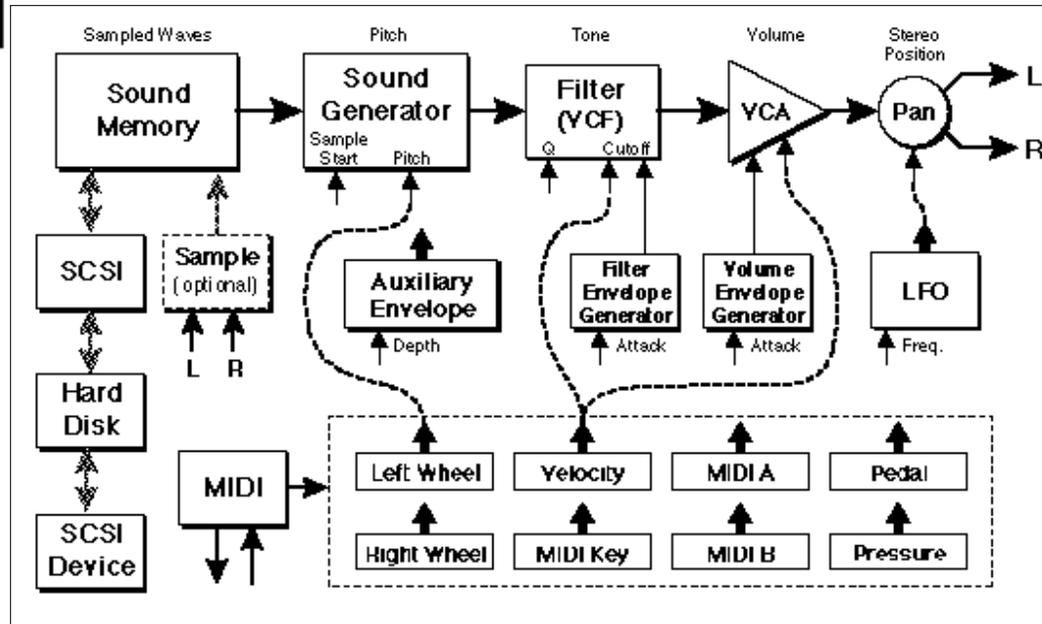
**8. REALTIME
CONTROL ENABLE 9-22**

**9. OUTPUT
CHANNELS 9-23**

BACKGROUND: DYNAMIC PROCESSING

Dynamic Processing

The Dynamic Processing section of the Emulator III provides you with all the intuitive control options of an analog synthesizer. But since you are starting with complex, digitally sampled sounds instead of simple square or sawtooth waveforms, the possibilities are multiplied dramatically. Each of the 32 channels contains three AHDSR type envelope generators, one multi-waveform LFO with delay and variation, one 24 dB/octave low pass filter (VCF) with resonance, one level VCA, one stereo panning network, and an extremely flexible routing scheme which ties everything together. The diagram below illustrates the layout of an EIII channel.



The block diagram illustrates the general architecture of the EIII. The dotted lines show how realtime controllers, envelopes and LFOs can be routed to modulate the sound.

Each key on the keyboard can contain two zones (primary and secondary, just like samples), and each of these can have completely different sets of analog parameters applied to it. The zone concept makes the programming and modifying of parameters quite straightforward.

The Zone Concept

A zone is simply a selected range of the keyboard. That's it! Nothing mysterious about it. Dynamic processing parameters can be programmed for any range of the keyboard (zone) regardless of where the samples lie. For instance, a completely different pan, LFO rate, and VCA envelope can be set for each individual key, or range of keys.

Zones can be set differently for each parameter you are adjusting. For example, the VCF cutoff can be set to one value for the entire keyboard, the pan position can be set for each individual key, and then the VCA envelope can be set for a portion, or all of the keyboard. Simply define the zone for the desired keyboard range and change the parameter. That's all there is to it.

Quick Zone

Quick Zone offers an especially fast and efficient means of creating and accessing zones in the Dynamic Processing module. When Quick Zone is "On", all you need to do in order to create or access a zone is press down the keys on the keyboard defining the range and access the Dynamic Processing parameters. For example, if two keys such as C2 and A#3 are held down and the filter cutoff is changed, then all samples in the range C2-A#3 will be assigned the new filter cutoff value. The pressed keys are latched in exactly the same way as in Arpeggiator Latch mode.

To access Quick Zone, enter the Dynamic Processing module. The display will show:

```
ANALOG PROCESSING
P00 both C#1 to C#5
Quick Zone:      off
Select a Submodule
```

Use the left and right cursor buttons to select: Off, Pri, Sec or Both. Quick Zone remains on until you turn it off or until the EIII is rebooted.

Dynamic
Processing

▼ Be careful! Quick Zone can be a bit confusing at times. It was designed as a shortcut for the advanced programmer.

0. SELECT ZONE

Dynamic
Processing

This submodule lets you specify the keyboard zone to be processed.

1. *Activate Dynamic Processing module.*

2. *Select Submodule 0.*

3. *If there are both primary and secondary samples assigned to the preset, select whether the zone will contain both samples, just the primary, or just the secondary. Press ENTER.* If the preset contains only primary or secondary samples, the EIIIIX will bypass this screen and proceed immediately to step 4.

```
SELECT ZONE
P00 both

Select pri/sec/both
```

4. *Select the lowest key of the zone and press ENTER.* The default is to the lowest note of the lowest sample. You can select a different low key in two ways. The data slider scrolls through the lowest key of each sample on the keyboard. (The data slider is the fastest selection method if you want the lowest key of the zone to coincide with the lowest note of a sample.) Or, you can use the keyboard to specify any note as the lowest note of the zone.

```
SELECT ZONE
P00 both C#1

Select Low Key
```

The second line shows the note being played on the keyboard (or scrolled with the data slider). After selecting a note, the third line will display the primary sample number, and the fourth line will display the secondary sample number associated with the note on line two.

5. Select the highest key of the zone and press ENTER. The default is to the highest note of the sample that contains the previously specified low note. You can select a different high key in two ways. The data slider scrolls through the highest key of each sample on the keyboard. (The data slider is the fastest selection method if you want the highest key of the zone to coincide with the highest note of a sample.) Or, you can use the keyboard to specify any note as the highest note of the zone.

SELECT ZONE
P00 both C#1 to C#5

Select High Key

The second line shows the note being played on the keyboard (or scrolled with the data slider). After selecting a note, the third line will display the primary sample number, and the fourth line will display the secondary sample number associated with the note on line two. After pressing **ENTER**, the zone selection process is complete and the EIIX will return to the Module Identifier.

■ *If there are no samples in the selected zone, the EIIX will return to the beginning of the zone selection process. The zone will remain as specified until you either select a new zone, change presets, load another bank, or edit the assignment of the keyboard.*

Dynamic
Processing

1. SETUP

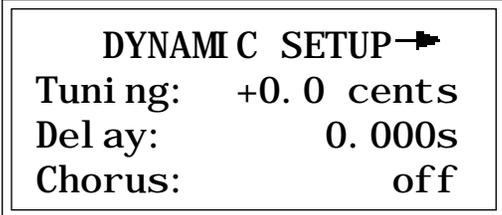
Dynamic
Processing

This module establishes the controls for several functions, including tuning, delay before onset of a note, and chorus on/off.

1. **Activate Dynamic Processing module.**

2. **Select Submodule 1.**

3. **Move the cursor to the parameter(s) to be adjusted, and select the desired value(s) with the data slider.** The display shows:



DYNAMIC SETUP →

Tuning: +0.0 cents
Delay: 0.000s
Chorus: off

■ **To program alternate tunings:** Each key can be individually tuned by selecting it as a zone and then adjusting the tuning. To use the tuning “template” with other sounds, load in new samples to the existing sample numbers. Return the samples to their original pitches using the Original Key function.

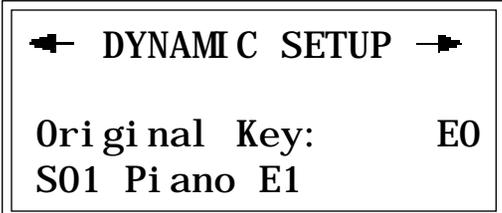
■ **Caution:** If a zone contains more than one sample, the new original key will be assigned to all samples in the selected zone.

■ **Tuning:** varies the zone pitch over a range of -100 to +100 cents. (One hundred cents equals 1 semitone.)

■ **Delay:** varies the time between when a MIDI Note On message is received and the onset of the note, up to 1.53 seconds.

■ **Chorus:** “thickens” the sound by doubling the primary sample and detuning the doubled sample somewhat. Chorus uses two channels. When chorus is on, the number of available channels in the zone will be cut in half. Chorus cannot be used with stereo samples.

4. **Select page two by pressing the right cursor button.** The second page displays the following parameters for the selected zone.



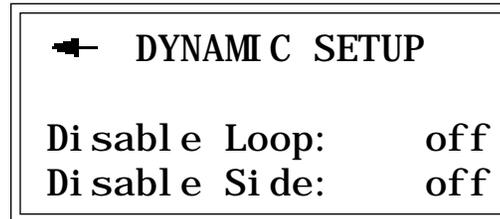
← DYNAMIC SETUP →

Original Key: E0
S01 Piano E1

■ **Original Key:** allows you to change the original key of any samples in the selected zone.

■ **Change Sample Number:** allows you to reassign any sample in the bank to the selected zone.

5. **Select page three by pressing the right cursor button.** The third page displays the following parameters for the selected zone.



■ **Caution:** If a zone contains more than one sample, the new sample will overwrite the previous sample assignment.

■ **Disable Loop:** turns off the loop for any samples within the selected zone for the current preset and overrides any loop settings made in the Digital Processing module for the current preset.

■ **Disable Side:** turns off playback of either the left or right side of a stereo sample within the selected zone.

6. **Press ENTER to exit the submodule.** The EIIIIX will return to the Module Identifier.

2. VCA

Dynamic
Processing

▼ When VCA Level is set to 100%, additional modulation from pedals, LFOs, etc., will not increase the level. You must reduce the VCA level from the 100% mark for additional modulation to have any effect.

■ The stereo placement may additionally be modulated via the LFO (Dynamic Processing, 4. LFO), keyboard dynamics (Dynamic Processing, 6. Velocity to Pan) or realtime controls (Preset Definition, 0. Realtime Controls). The actual stereo position will be the sum of the initial placements and any modulations.

The Voltage-Controlled Amplifier (VCA) submodule contains two pages. Page one sets the overall zone level and stereo placement (pan). Page two sets the AHDSR envelope characteristics that alter VCA dynamics with respect to time.

1. **Activate Dynamic Processing module.**

2. **Select Submodule 2.**

3. **Move the cursor to the parameter(s) to be adjusted, and select the desired value(s) with the data slider.** The first page reads:

VCA		→
Level :		100%
Pan:		+000%
L		R

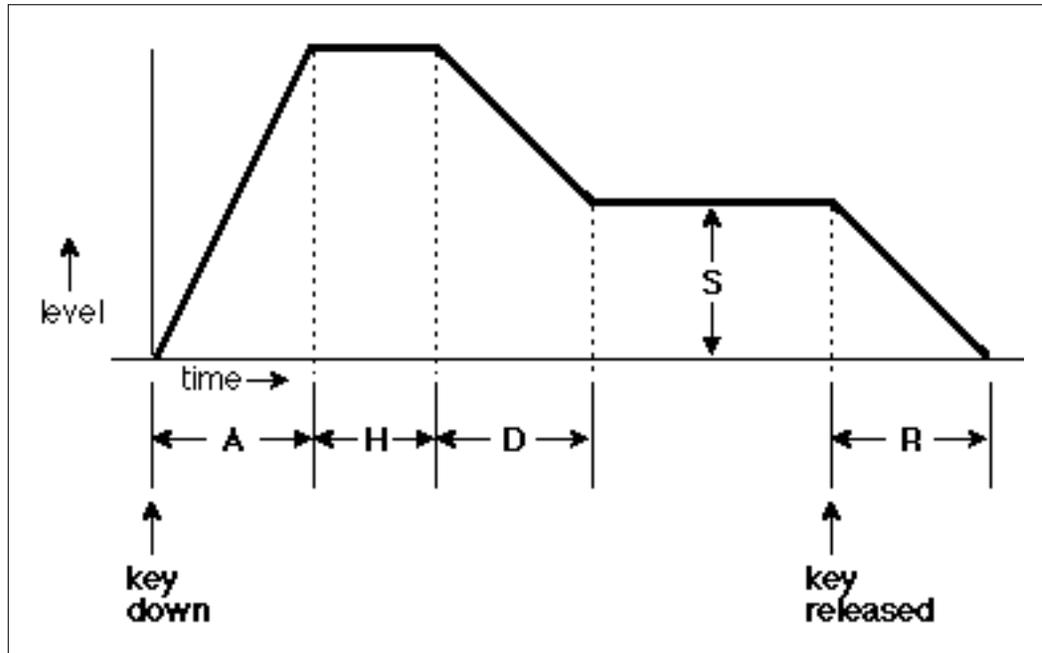
■ **Level:** is variable from 0 to 100%.

■ **Pan:** is continuously variable from +100, where the zone appears at the right extreme of the stereo image; through 0, where the zone appears at the center of the stereo image; to -100, where the zone appears at the left extreme of the stereo image. The display graphically indicates the stereo position on the bottom line. The initial placement may have to be adjusted as modulation is applied to pan.

4. **Select page two by pressing the right cursor button.** The second page displays the following parameters for the VCA AHDSR envelope generator:

←	VCA Attack:	0.00s
	Hold:	0.00s
	Decay:	0.00s
	Sus: 100%	Rel: 1.04s

Refer to the following diagrams and definitions to understand how each parameter affects dynamics



AHDSR ENVELOPE GENERATOR STAGES. If the key is released during the Hold (H) phase, the Release (R) phase begins.

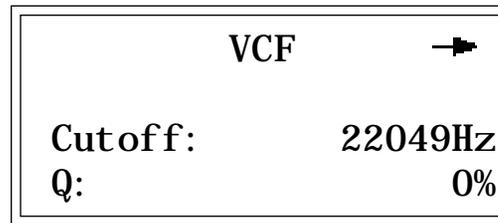
- **A: Attack** varies the VCA envelope attack time from 0 to 163.69 seconds.
- **H: Hold** sets the duration of the peak, from 0 to 21.69 seconds. If a key is held down longer than the hold duration, the decay phase will begin. If a key is released during the hold duration, the release phase will begin.
- **D: Decay** varies the initial decay time from 0 to 163.69 seconds.
- **S: Sus (Sustain)** varies the envelope sustain level from 0 to 100% of the peak level.
- **R: Rel (Release)** varies the release time from 0 to 163.69 seconds.

5. Press ENTER to exit the submodule. The EIIIIX will return to the Module Identifier.

3. VCF

The Voltage-Controlled Filter (VCF) submodule contains three pages. Page one determines the filter's initial cutoff frequency and Q (resonance). Page two determines the effect of keyboard position on cutoff frequency, and the extent to which the associated AHDSR envelope affects the filter cutoff frequency (envelope amount). Page three sets the VCF AHDSR envelope characteristics. These alter timbre with respect to time.

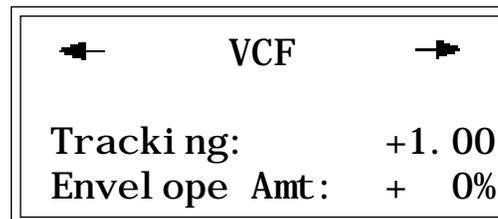
1. *Activate Dynamic Processing module.*
2. *Select Submodule 3.*
3. *Move the cursor to the parameter(s) to be adjusted, and select the desired value(s) with the data slider.* The first page reveals:

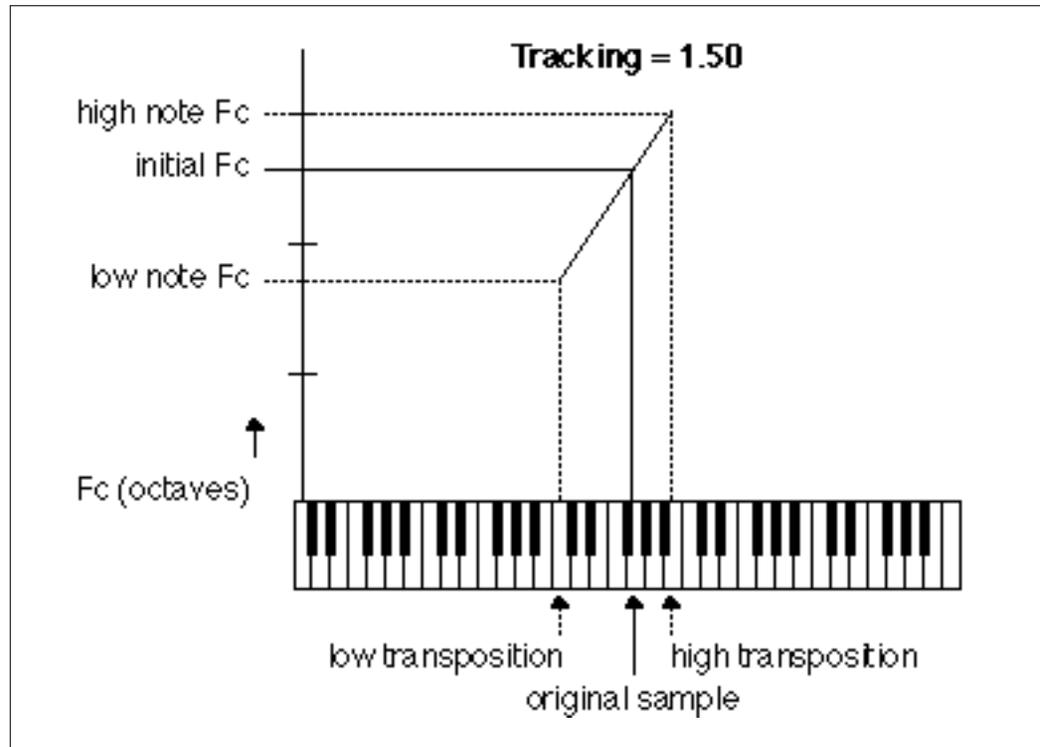


■ **VCF Cutoff:** varies the lowpass filter cutoff from 0 Hz to 22049Hz. Higher values correspond to higher filter cutoff frequencies, hence a sound with more treble. The maximum filter sweep range is most obvious with envelope amount set to +0.

■ **Q:** varies the resonance from 0 to 100%. Higher values correspond to increased resonance, which accentuates the frequency response at the filter cutoff frequency. This produces a sharper, more whistling sound.

4. *Select page two by pressing the right cursor button.* The second page shows:

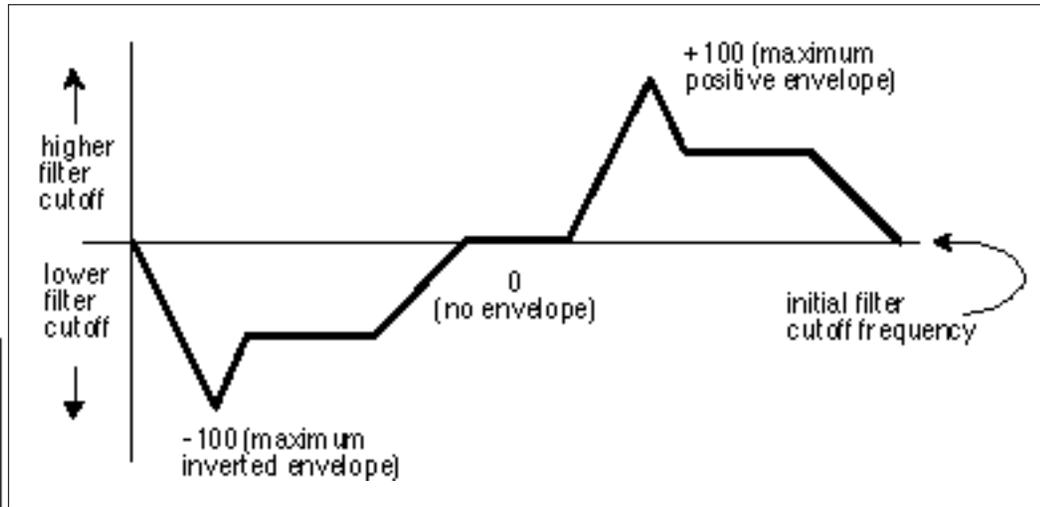




KEYBOARD TRACKING. This varies the filter cutoff with respect to the notes being played.

■ **Tracking:** varies the filter cutoff with respect to the note(s) being played on the keyboard from -2.00 to +2.00. With 0.00 tracking, the filter cutoff will not be affected by the keyboard pitch. With tracking set to -2.00, the filter cutoff will increase at one-quarter the rate at which pitch increases. With tracking set to +2.00, the filter cutoff will increase at twice the rate at which pitch increases. Intermediate values give intermediate degrees of tracking. With negative tracking, a sample will become progressively less bright as you play higher up in the zone. This is useful with some bass sounds, and to even out frequency response variations between samples when multi-sampling. With 0.00 tracking, a sample's timbre remains constant over the selected zone. This generally gives the most realistic synthesizer and instrument sounds. With positive tracking, the sample's timbre becomes brighter as you play higher up in the zone.

■ **Envelope Amt:** varies the effect of the filter envelope on the filter cutoff frequency from -100, which is the maximum inverted envelope, through +00, which has no effect from the envelope, to +100, which is the maximum positive envelope. It is usually necessary to raise the filter cutoff value when using inverted envelopes.



FILTER ENVELOPE. Filter cutoff can be modulated with an inverted or non-inverted VCF envelope.

5. **Select page three by pressing the right cursor button.** The third page displays the following parameters for the VCF AHDSR envelope generator:

← VCF Attack:	0.00s
Hold:	0.00s
Decay:	0.00s
Sus: 100% Rel:	1.04s

■ **A: Attack** varies the VCA envelope attack time from 0 to 163.69 seconds.

■ **H: Hold** sets the duration of the peak, from 0 to 21.69 seconds. If a key is held down longer than the hold duration, the decay phase will begin. If a key is released during the hold duration, the release phase will begin.

■ **D: Decay** varies the initial decay time from 0 to 163.69 seconds.

■ **S: Sus (Sustain)** varies the envelope sustain level from 0 to 100% of the peak level.

■ **R: Rel (Release)** varies the release time from 0 to 163.69 seconds.

6. **Press ENTER to exit the submodule.** The EIII will return to the Module Identifier.

4. LFO

The Low-Frequency Oscillator (LFO) submodule contains three pages. Page one sets the LFO rate, the shape of the LFO waveform, and the delay before onset of modulation. Pages two and three determine the degree to which the rate will be varied as you play different notes (LFO variation), the LFO's destination(s): pitch (which produces vibrato), the VCF cutoff, the VCA amplitude (produces tremolo—attention surf music and Bo Diddley fans), and panning (spatial modulation). The amount of modulation (index) sent to each destination is variable from 0 to 100%.

1. **Activate Dynamic Processing module.**

2. **Select Submodule 4.**

3. **Move the cursor to the parameter(s) to be adjusted, and select the desired value(s) with the data slider.** The first page shows:

LFO		→
Rate:	4.25Hz	
Shape:	triangle	
Delay:	0.00s	

■ **LFO Rate:** varies the LFO speed from 0.08 Hz to 18.14 Hz.

■ **LFO Shape:** selects the waveshape of the LFO. The available LFO waveforms are: triangle, sine, sawtooth and square.

■ **LFO Delay:** sets the amount of time between hitting a key and the onset of modulation. This simulates an effect often used by string players, where the vibrato is brought in only after the initial note pitch has been clearly established. The delay range is from 0 to 21.69 seconds.

4. **Select page two by pressing the right cursor button.** The second page shows:

←	LFO	→
Variation:		0%
LFO->Pitch:		0%
LFO->Cutoff:		0%

■ **LFO Variation:** provides a way to create the illusion of multiple players, each having an individual modulation rate. The depth of LFO modulation applied to each parameter is variable from 0 to 100%. With 0% variation, each key will have the same LFO rate. Increasing variation (to a maximum of 100%) alters the LFO rate for each key you play. The higher the number, the greater the variation in LFO rate. For effects such as ensemble playing, the variation feature is invaluable.

■ **LFO —>Pitch:** produces vibrato effects.

■ **LFO —>Cutoff:** varies the VCF's cutoff frequency in a cyclic fashion. This is useful for adding shimmering effects to a sound.

5. Select page three by pressing the right cursor button. The third page displays the following LFO routing options:

← LFO	
LFO- >VCA:	0%
LFO- >Pan:	0%

■ **LFO —> VCA:** produces tremolo effects by altering the overall level of a zone in a cyclic fashion.

■ **LFO —> Pan:** cyclically varies the placement of the audio output of a zone within the stereo field.

6. Press ENTER to exit the submodule. The EIII will return to the Module Identifier.

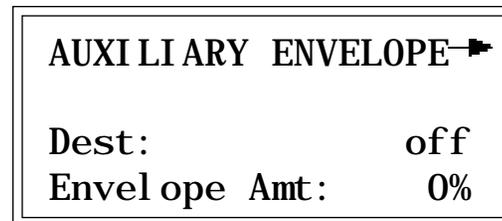
5. AUXILIARY ENVELOPE

Just what you have always wanted: a supplementary utility envelope that can be placed at any of several points in the Dynamic Processing signal path. This submodule contains two pages. Page one establishes the auxiliary envelope destination and amount, and page two determines the AHDSR envelope characteristics.

1. **Activate Dynamic Processing module.**

2. **Select Submodule 5.**

3. **Move the cursor to the parameter(s) to be adjusted, and select the desired value(s) with the data slider.** The first page shows:

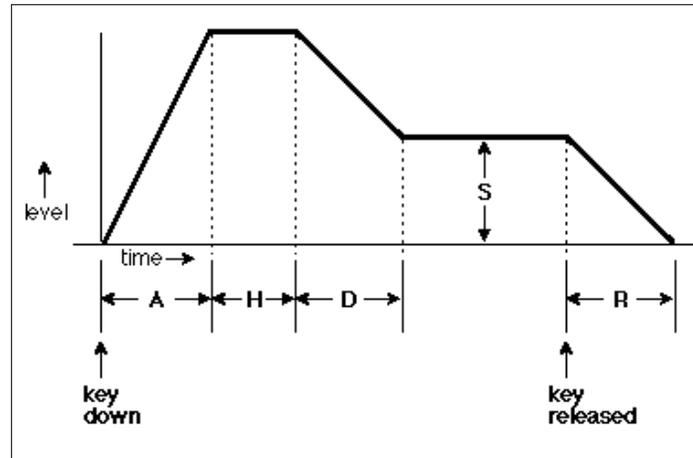


Dynamic
Processing

■ **Destination:** determines which parameter will be controlled by the envelope. These are: Pitch, Pan, LFO rate, or one of the four LFO destinations (LFO->Pitch, LFO->VCA, LFO->VCF, LFO->Pan). Using the auxiliary envelope to control pitch gives automatic pitch-bending. Controlling the LFO rate can increase (or decrease) the LFO speed over the duration of a note. Adding envelope control to an LFO destination allows modulation to fade in or out over the duration of a note.

■ **Envelope Amt:** varies the depth of the envelope's effect on the chosen destination. It is variable from -100, the maximum inverted envelope, through +00 (no effect from the envelope), to +100, the maximum positive envelope. When using inverted envelopes, it is usually necessary to raise the LFO depth for the destination selected in step 5 of Dynamic Processing, 4. LFO.

4. **Select page two by pressing the right cursor button.** The second page displays the following parameters for the auxiliary AHDSR envelope generator:



AHDSR ENVELOPE GENERATOR STAGES. If the key is released during the Hold (H) phase, the Release (R) phase begins.

← Aux Attack:	0.00s
Hold:	0.00s
Decay:	0.00s
Sus: 100% Rel:	1.04s

Refer to the definitions below to understand how each parameter affects the envelope.

■ **A: Attack** varies the VCA envelope attack time from 0 to 163.69 seconds.

■ **H: Hold** sets the duration of the peak, from 0 to 21.69 seconds. If a key is held down longer than the hold duration, the decay phase will begin. If a key is released during the hold duration, the release phase will begin.

■ **D: Decay** varies the initial decay time from 0 to 163.69 seconds.

■ **S: Sus (Sustain)** varies the envelope sustain level from 0 to 100% of the peak level.

■ **R: Rel (Release)** varies the release time from 0 to 163.69 seconds.

5. Press ENTER to exit the submodule. The EIIIIX will return to the Module Identifier.

6. VELOCITY TO

Velocity data from your MIDI keyboard, sequencer or other controller can control any or all of nine different parameters, as selected on three pages in this submodule.

1. *Activate Dynamic Processing module.*

2. *Select Submodule 6.*

3. *Move the cursor to the parameter(s) to be adjusted, and select the desired value(s) with the data slider.* The first page shows:

VELOCITY TO: 	
Pitch:	+0%
VCA Level:	+0%
VCA Attack:	+0%

Values are adjustable from -100% to +100%.

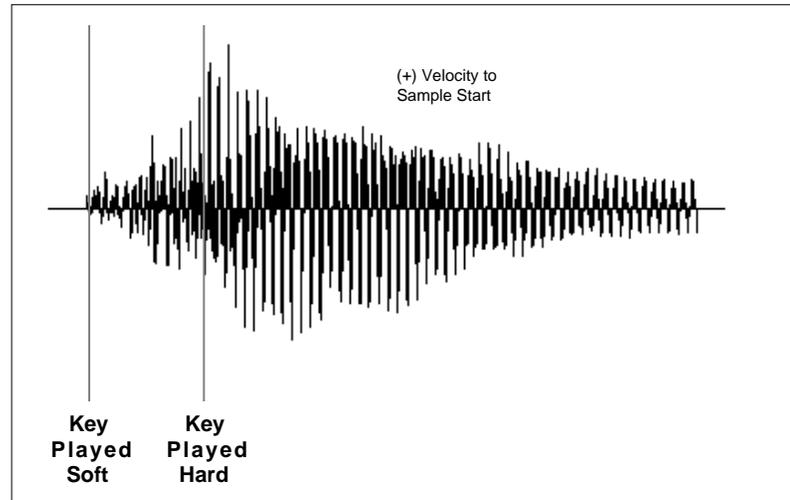
■ **Pitch:** ties velocity to pitch. With negative values, playing more forcefully lowers pitch. With positive values, playing more forcefully raises pitch.

■ **VCA Level:** ties velocity to overall amplitude. At 0%, the overall level remains at the maximum level set in Dynamic Processing, 2. VCA, and produces the loudest possible dynamics, no matter how forcefully or softly you play the keyboard. Progressively higher positive values give a progressively wider dynamic range by lowering the level as you play more softly (standard dynamics). Progressively higher negative values give a progressively wider dynamic range by lowering the level as you play more forcefully (reverse dynamics). Use velocity to add dynamics to sampled sounds that don't contain dynamics, such as samples from older synthesizers.

■ **VCA Attack:** ties velocity to the VCA envelope attack time. With negative values, playing softly gives shorter attack times and playing more forcefully lengthens the attack. With positive values, playing softly gives longer attack times, while playing more forcefully shortens the attack. VCA attack is useful for string and horn sounds, where bowing or blowing softly produces a slower attack than rapid bowing or blowing, which produces a much faster attack.

Dynamic
Processing

■ *The VCA Attack settings interact with the VCA AHDSR attack time setting (Dynamic Processing, 2. VCA). You will probably need to fine tune the AHDSR attack time setting for optimum results.*



■ *Since each zone can have its own keyboard velocity settings, lower register bass sounds can have minimum dynamics to provide a constant bottom, while upper register lead sounds can be played more dynamically.*

4. *Select page two by pressing the right cursor button. The second page shows:*

← VELOCITY TO: →	
VCF Cutoff:	+0%
VCF Q:	+0%
VCF Attack:	+0%

■ **VCF Cutoff:** ties velocity to the filter cutoff frequency. At 0%, the cutoff remains as set in Dynamic Processing, 3. VCF, no matter how forcefully or softly you play the keyboard. Progressively higher positive values give a progressively wider cutoff frequency range by lowering the cutoff as you play more softly. Progressively higher negative values give a progressively wider cutoff frequency range by lowering the cutoff as you play more forcefully. Acoustic instruments often sound brighter when played forcefully. You can simulate this effect by tying VCF Cutoff to keyboard dynamics.

■ **VCF Q:** ties velocity to filter Q. At 0%, the Q remains as set in Dynamic Processing, 3. VCF, no matter how forcefully or softly you play the keyboard. Progressively higher positive values give a progressively wider Q range by lowering the Q as you play more softly. Progressively higher negative values give a progressively wider Q range by lowering the Q as you play more forcefully. Increasing Q thins out a sound, yet also increases its sharpness.

Tying this to velocity can work well with percussive samples when you want a more intense, but not necessarily louder, sound. Overall volume levels can change with changes in Q; this is normal.

■ **VCF Attack:** ties velocity to VCF envelope attack time. With negative values, playing softly gives shorter attack times, while playing more forcefully lengthens the attack. With positive values, playing softly gives longer attack times. And, as you might expect by now, playing more forcefully shortens the attack.

■ *The Cutoff and Q settings interact with the VCF controls (Dynamic Processing, 3. VCF). You will probably need to adjust the VCF settings for optimum results.*

5. **Select page three by pressing the right cursor button.** The third page displays:

← VELOCITY TO:	
Pan:	+0%
Sample Start:	+0%
Aux Envelope:	+0%

Dynamic
Processing

■ **Pan:** ties velocity to stereo placement. At 0%, the Pan position remains as set in Dynamic Processing, 2. VCA no matter how forcefully or softly you play the keyboard. Progressively higher positive values shift the stereo image further to the right as you play more forcefully. Progressively higher negative values shift the stereo image further to the left as you play more forcefully. The higher the value, the greater the difference in stereo spread between soft and forceful keyboard playing.

■ **Sample Start:** ties velocity to where the sample begins playing when you hit a key. At 0%, the sample plays normally no matter how forcefully or softly you play the keyboard. Progressively higher positive values move the sample start point further towards the sample's end, thus cutting off the attack portion of the sample. Progressively higher negative values move the start point backwards, beginning at the end of the sample.

■ **Auxiliary Env:** ties velocity to the Auxiliary Envelope's depth. At 0%, the effect of the Auxiliary Envelope remains as set in Dynamic Processing, 5. Auxiliary Envelope no matter how forcefully or softly you play the keyboard. Progressively higher positive values increase the envelope depth as you play more forcefully. Progressively higher negative values decrease the envelope depth as you play more forcefully.

6. **Press ENTER to exit the submodule.** The EIII will return to the Module Identifier.

7. KEYBOARD MODE

This submodule lets you alter the way the keyboard processes the notes (not the sounds) that you play. Options include a gate or trigger Envelope Mode, a monophonic Solo Mode, Arpeggiator on/off, and a Nontranspose function for maintaining a constant pitch throughout a zone.

1. *Activate Dynamic Processing module.*
2. *Select Submodule 7.*
3. *Move the cursor to the parameter(s) to be adjusted, and select on or off with the data slider.* The first page reads:

KEYBOARD MODE →	
Mode:	trigger
Solo:	off
Arpeggiator:	on

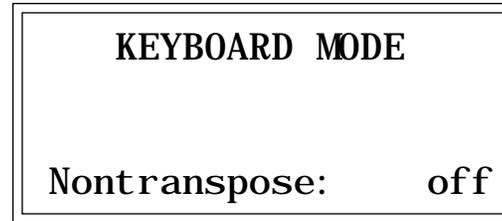
■ **Env Mode:** chooses between gate mode or trigger mode. In gate mode, the AHDSR envelopes react as described earlier. Holding down a key cycles through the AHDS stages, and releasing initiates the Release phase. In trigger mode, pressing a key, however briefly, cycles through the AHD stages and ignores the SR stages. Trigger mode is usually the best mode to use when triggering the EIII from external drum pads.

■ **Solo:** provides the playing action of a monophonic synthesizer with single triggering and last-note priority. Solo mode produces more realistic effects when working with monophonic instrument sounds such as solo trumpet, flute, or sax, since this mode does not allow you to play a chord.

■ **Arpeggiator:** enables or disables arpeggiation from this zone of the keyboard. Arpeggiator parameters are set in Preset Definition, 7. Arpeggiator.

4. Select page two by pressing the right cursor button.

The second page shows:



■ *If you have a sound effect layered behind a melodic line, but don't want the effect to transpose as you play the melody, Nontranspose the sound effect.*

■ **Nontranspose:** lets a sample play throughout its assigned zone at its original pitch only—there will be no transposition. This is useful when determining the original note at which a sample was recorded. Nontranspose is also useful if you're playing drum parts from the keyboard. Assigning a drum sound to a range consisting of several keys provides an easier target than being forced to hit a single key.

5. Press ENTER to exit the submodule. The EIII will return to the Module Identifier.

8. REALTIME CONTROL ENABLE

■ **Off** prevents the realtime control destination from being affected by the realtime controls; **On** (the default) allows the destinations to be affected by the realtime controls.

Dynamic
Processing

This function allows you to exempt specific realtime control destinations within a zone from being affected by the realtime controls.

1. **Activate Dynamic Processing module.**

2. **Select Submodule 8.**

3. **Move the cursor to the parameter(s) to be adjusted, and select On or Off with the data slider.** The first page reads:

CONTROLLERS ENABLE →	
Pi tch:	on
VCF Cutoff:	on
Level :	on

4. **Select page two by pressing the right cursor button.** The second page controls the following realtime control destinations:

← CONTROLLERS ENABLE →	
LFO- >Pi tch:	on
LFO- >VCF Cutoff:	on
LFO- >VCA:	on

5. **Select page three by pressing the right cursor button.** The third page controls the following realtime control destinations:

← CONTROLLERS ENABLE	
Attack:	on
Pan:	on

6. **Press ENTER to exit the submodule.** The EIII will return to the Module Identifier.

9. OUTPUT CHANNELS

This function allows you to restrict the number of output channels assigned to a particular zone and to route the zone to any pair of output jacks.

The Emulator III has 32 channels, which means that a maximum of 32 different samples can be playing at once. A zone with only primary samples assigned would use one channel per note played. A zone with primary *and* secondary samples assigned would use two channels per note.

This function is useful when you wish to process certain sounds separately from the others or when you want to protect certain instruments such as drums or bass from getting “stolen” by other parts in your sequence.

The output channel assignments are disabled when the Dynamic Allocation function (Master/Globals, 4) is turned On.

1. **Activate Dynamic Processing module.**
2. **Select Submodule 9.**
3. **Select the lowest channel that you want the zone to use.**

OUTPUT CHANNELS	
Lowest Channel :	01
Highest Channel :	32
Submix :	main

4. **Move the cursor to line four and select the highest channel that you want the zone to use.**

(For example, selecting channels 01 (lowest) through 04 (highest) limits the zone to four channels. 01 through 32 allows the zone to use all channels.

5. **Press ENTER to exit the submodule.** The EIII will return to the Module Identifier.

▼ *When all 32 channels are sounding and another key is played, the EIII will “steal” a channel from the oldest sounding note. This is known as channel “ripping”.*



■ *To “protect” a certain zone from channel ripping: Assign output channels such that the protected zone’s channels are not used in any other keyboard zone.*

■ *If a plug is not inserted into a submix jack, any zone assigned to that jack will be re-routed to the main outputs.*



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<i>TERMINATION</i>	<i>10-5</i>
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SCSI BASICS

SCSI (pronounced skuzzy) stands for Small Computer System Interface. SCSI is an industry standard hardware and software specification that allows high-speed data transfers between different pieces of equipment. SCSI devices can include hard disks, tape drives, optical disks and other types of digital equipment.

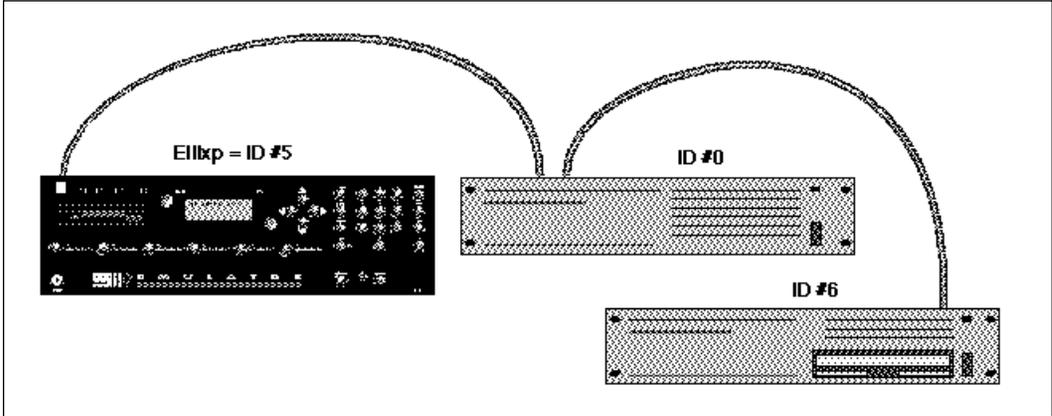
Why Use SCSI?

- **SCSI is fast!** SCSI is a parallel interface which transmits eight bits of information at a time at high speed over the SCSI cable. MIDI, in comparison, is a serial interface which can only send one bit of information at a time over its line.
- **Compatibility:** Since SCSI is an industry standard, equipment from many different manufacturers can be linked to work together.
- **Expandability:** Up to eight SCSI devices can be linked together, including the Emulator III and its internal hard disk.

Using
SCSI

The SCSI Bus

You may have noticed that the rear panel of most external storage devices have two SCSI connectors. This is because SCSI devices are connected together in a chain arrangement. The wires that connect the different pieces of equipment are called the SCSI bus.

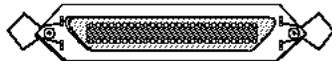


Each device on the SCSI bus must have its own unique ID number (0-7).

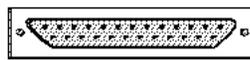
Using
SCSI

▼ Make sure you do not have two devices with the same ID number since this can cause damage to the startup directories of the Macintosh or the EIIIX.

■ The Emulator IIIX can change its ID number in order to accommodate external devices having fixed ID numbers.



50-pin Centronics Connector



25-pin DB Connector

▼ Always use 50-pin Centronics-type cables with the EIIIX. These cables have much better electrical characteristics and have fewer problems. Additionally, make sure that all 50 pins of the cables are actually wired. Some SCSI cables have only half of the pins wired.

ID Numbers

Each device on the SCSI bus has its own ID number so that it can distinguish its data from data meant for another device. If the EIIIX wants to save data to a device with ID-2 for instance, all the other devices on the SCSI bus will ignore that data. If two devices have the same ID number, chaos will surely reign. Each device **must** have its own unique ID number.

The SCSI ID number of the Macintosh is fixed at ID-7 and cannot be changed. The SCSI ID numbers of most other devices **can** be changed.

Many SCSI devices have hardware defined ID numbers, which means that there is a little switch on the device to change the ID number. The ID number of devices such as the RM45 removable media HD can only be changed by its internal jumper. This should be left to an E-mu authorized dealer or service center. Most newer SCSI devices have a switch on the front or the back of the unit which allows the ID number to be easily identified and changed.

The following is a list of the default SCSI ID numbers:

ID - 7 (fixed)	Macintosh
ID - 6	Original EIII (this number can be changed)
ID - 5	EIIIX (this number can be changed)
ID - 4	Unassigned
ID - 3	Unassigned
ID - 2	EIIIX internal hard disk (if installed)
ID - 1	Original EIII internal hard disk
ID - 0	Internal Macintosh HD (if installed)

Types of SCSI Cables

There are two basic types of SCSI cables in use: DB25 and 50-pin Centronics. The two types of cable can be identified by their connectors, which are quite different. When buying SCSI extension cables, it is important to choose ones with the right type of connectors, since the two types will not interconnect without a special adapter. The type of SCSI connectors on the original EIII are DB25 connectors. These are the type found most often on the back of personal computers. The SCSI connectors on the EIIIX are the 50-pin Centronics type. Use only high quality shielded cables that have all the pins connected. Many cables only have some of the pins wired.

Length of SCSI Cables

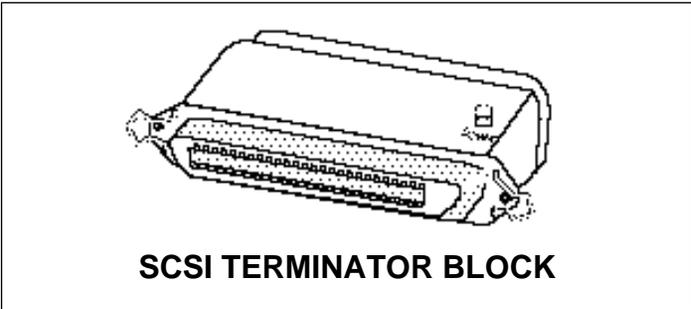
The total length of the SCSI chain should not exceed 15 feet. A general rule for SCSI cables is: **The Shorter the Better!**

TERMINATORS

Terminating resistors or terminators are special resistor packs that are installed on the first and last device in the SCSI chain. Terminators are used to reduce line echos or standing waves on the SCSI bus. An analogy in an audio system would be impedance matching.

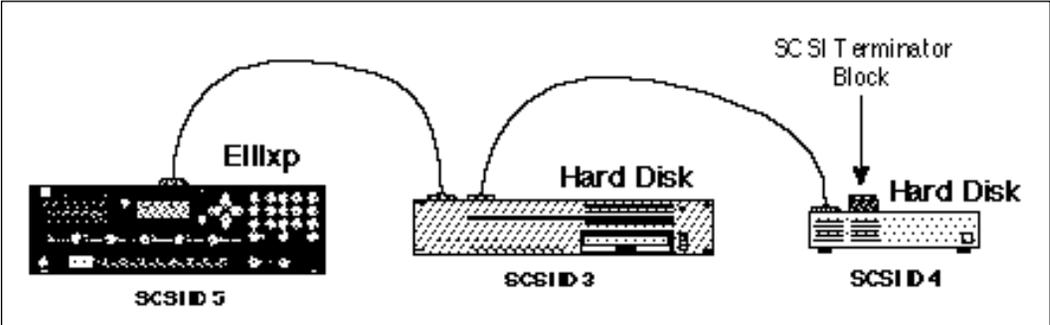
Terminators can either be hidden inside a SCSI device or they can take the form of termination blocks which can simply be plugged into the SCSI port.

▼ Turn all devices OFF whenever you change the SCSI cable. Devices left on when the cable is unplugged, may not respond properly until powered off and on.



Using SCSI

Terminators apply power to an array of resistors to ensure a full 5 volt swing between high and low levels on the SCSI line. The host system (Macintosh or EIII) is required to provide termination power. Termination power has its own wire in the SCSI cable and supplies power to the termination block. On external hard disk drives, SCSI terminator power is almost always turned OFF and the drives are left un-terminated.



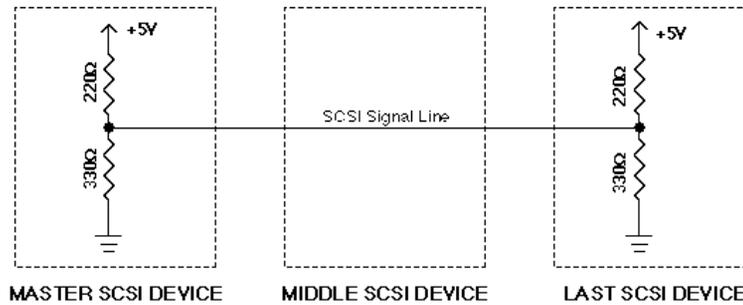
In this example every device has a separate SCSI ID number. In this configuration the EIIIx should have its internal jumper changed to supply termination power. The last device in the chain is terminated with a

■ Some termination blocks have a LED to indicate whether or not termination power is being supplied - a very useful feature.

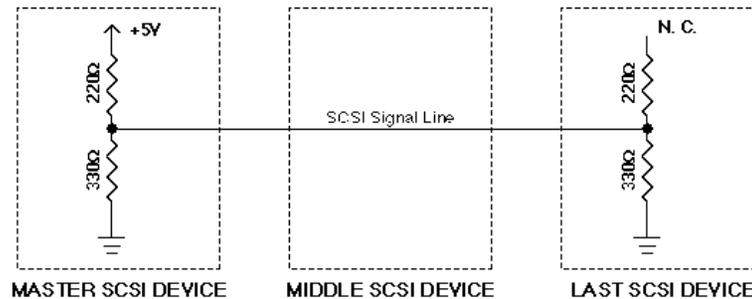
The EIIIX is shipped with termination power disconnected, but with the termination resistors left in place. This is the proper configuration for the EIIIX to be connected at the end on a SCSI chain with a Macintosh at the other end. The EIIIX can supply termination power by connecting an internal jumper. The more devices you have connected to SCSI and the longer your cables are, the more it becomes important to have the cables properly powered and terminated.

Termination Power Explained

The diagram below shows a simplified ideal SCSI line. At each end we have an identical termination with a 220 Ω resistor to +5 volts and a 330 Ω resistor connected to ground.

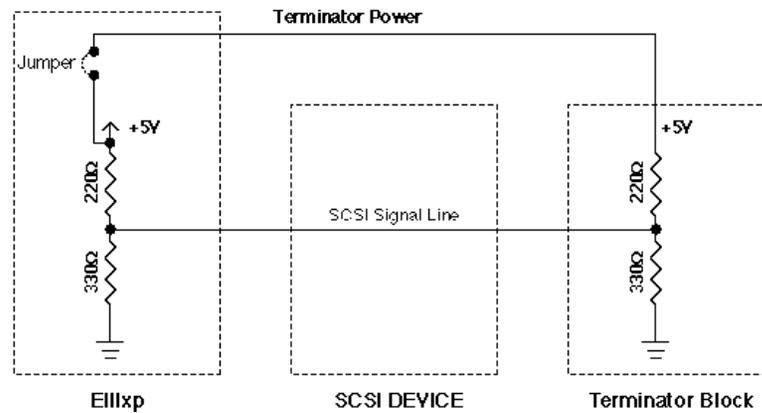


“Master” devices such as the Macintosh and the EIIIX are configured internally as shown below. External SCSI devices (hard disks, optical disks, etc.) are usually shipped without any sort of termination. The easiest way to add the termination resistors to an external SCSI device is through the use of a termination block which plugs into the second SCSI connector on the SCSI device.



Simply by plugging in the termination block we have added the resistors, but the termination block does not have +5 volts supplied to it. Another wire in the SCSI cable has been reserved for “Terminator Power”.

The diagram below shows how terminator power is supplied.



An internal jumper in the EIIIX allows terminator power to be supplied from the EIIIX to the terminator block. Contact your authorized E-mu service center to have this service performed.

WARNING

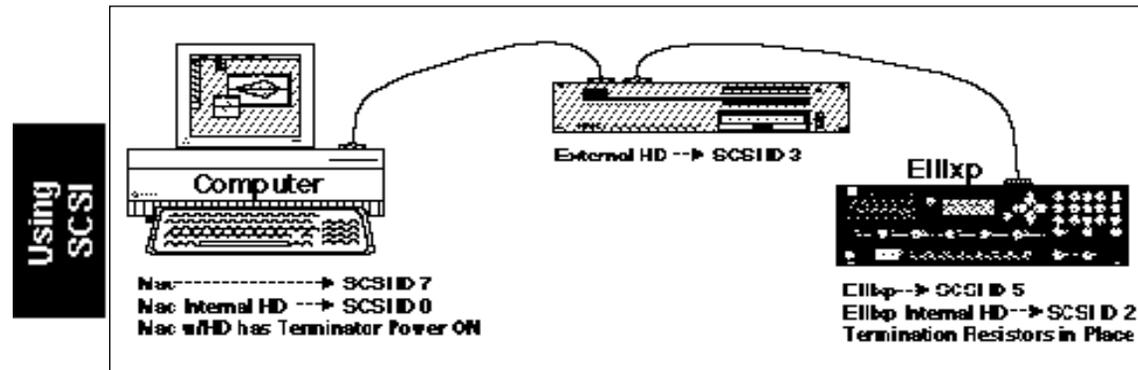
Connecting the terminator power jumper on the EIIIX when the SCSI terminator power line already has power may cause serious damage to the EIIIX and to the other SCSI device!

The termination power jumper in the EIIIX should be connected **ONLY** if you are sure that no other device is supplying terminator power. The concept of terminator power is simple: **Only one device on the SCSI chain should supply terminator power.** Normally power is always supplied by the computer. Therefore, if a computer will be connected to the SCSI chain, don't connect terminator power on the EIIIX!

Some terminator blocks have a LED which shows the presence of +5 volts. We highly recommend this type of terminator block if you will be changing your SCSI setup often.

MULTIPLE HOSTS

A unique situation arises when connecting a Macintosh computer and an EIII to the SCSI bus. Now we have *two* host computers on the bus! We ship the EIII with terminator power turned OFF, but with the termination resistors left in place. This is the ideal situation for connecting the EIII and Macintosh via SCSI. The Macintosh should be positioned at one end of the chain and the EIII at the other. The SCSI chain is properly terminated at each end by the Mac and the EIII. Devices in the middle of the chain should not have termination resistors installed.



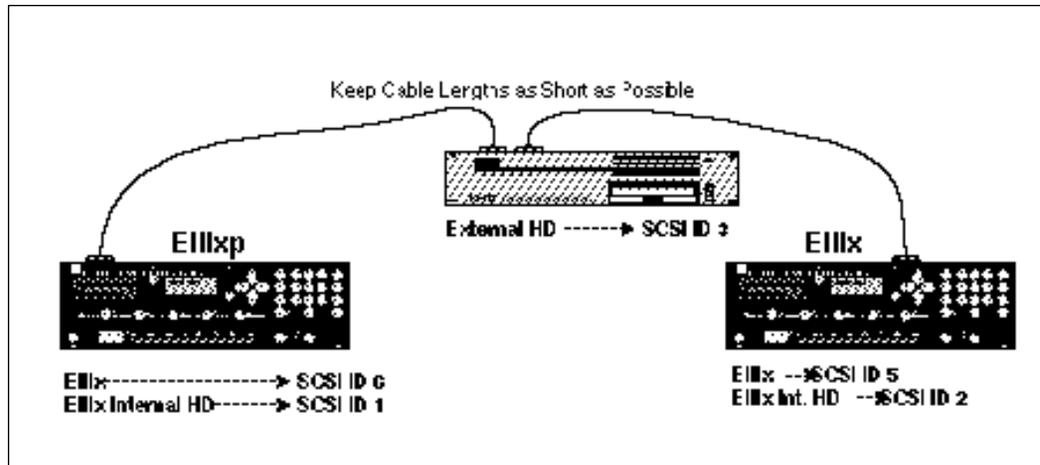
The Macintosh and the EIII should be connected to the ends of the SCSI chain.

SCSI was originally designed to be used with a single computer and several disk drives. This system only works correctly because of special SCSI bus arbitration software in the EIII. Everything can be powered up at once. The EIII and the Macintosh will coexist peacefully allowing you to transfer sound files back and forth using Passport's Alchemy™ or Digidesign's Sound Designer II™.

MULTIPLE EIII's

The EIII and EIII 2.4 software adds arbitration to the SCSI protocol so that every device can share the bus without a system crash. Two EIII's can even simultaneously read from a single SCSI device!

- Two EIII's (or an EIII and an EIII) can share the same sound effects library, without having to duplicate the storage media. Note: You may encounter SCSI problems when using EIII with EIII.
- Two EIII's can act as one 64 channel machine by using MIDI overflow mode and sharing the same storage media.

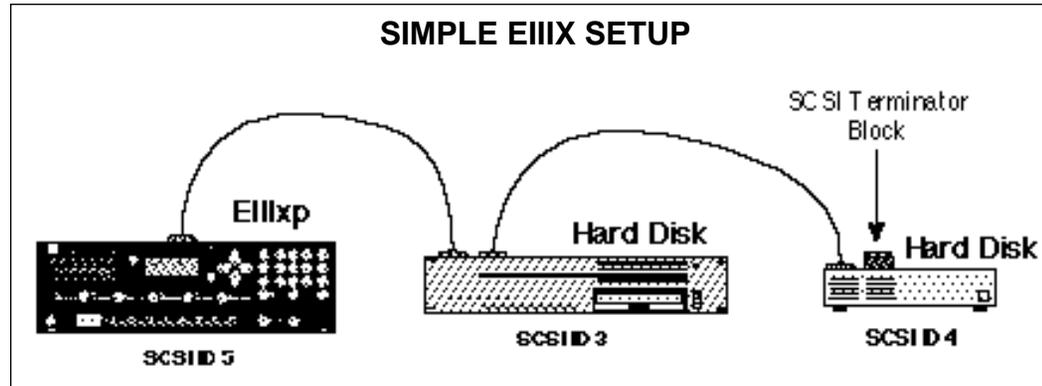


Two EIIIx's should be connected to the ends of the SCSI chain.

When connecting your system for use with multiple EIIIx's please observe the following rules:

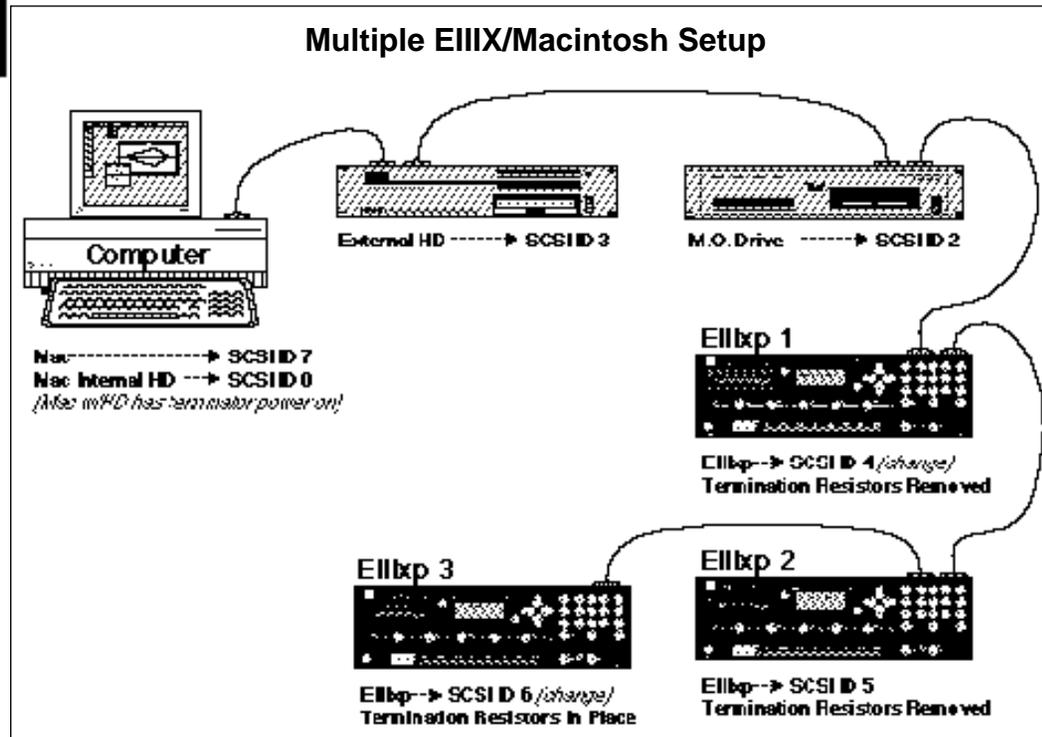
- Keep SCSI cable lengths as short as possible (preferably under 12 feet total when using an EIII).
- Make sure that each SCSI device has its own unique ID number. (Remember that the EIII and EIIIx each use up an ID number in addition to their internal hard disks.)
- The ID number of the EIII or EIIIx can be changed in software (MASTER/GLOBALS, Disk Utilities, 1). The ID number of the internal hard disks can only be changed by internal jumper. This operation can be performed by your authorized E-mu Service Center.
- Make sure the system is correctly terminated - The EIII's should be on the ends of the SCSI chain. (The EIII and the EIIIx are shipped terminated with termination power OFF.)

CONNECTION EXAMPLES



In this simple scenario, the EIIIX is the "Host Computer" and does not contain its own internal hard disk. A small system such as this may work fine without the terminator block being powered.

Using SCSI



SCSI PROBLEMS

In diagnosing SCSI problems the first rule is: **Don't panic, experiment!** If you have several SCSI devices hooked up, try disconnecting one of the devices and maybe change the order of the units on the line. There are quite a number of different SCSI drives on the market each with slightly different electrical characteristics. The following checklist may help you find the solution to your unique SCSI setup.

- 1. Read the documentation again.** Learn all you can about your peripheral devices. The answer to your problem may be right in front of you.
- 2. Check the SCSI ID numbers.** No two numbers on the bus can be the same.
- 3. Play with the order in which devices are powered up.** Normally the "Big Bang" method works best (turn everything on at once), but another order may work better in your unique system. Experiment!
- 4. Always suspect the cable when something doesn't work on the SCSI bus.** Remember: The shorter the cables are, the better.
- 5. Simplify the situation.** Disconnect one or more drives until you get the system to work. Try turning off Multifinder until you get everything up and running.
- 6. Are the ends of the SCSI bus terminated?** If the EIIIX is the only "Master" on the bus, is termination power supplied to the last device? Try inserting a termination block in the center of a long SCSI chain.
- 7. Try lifting the grounds on the EIIIX or the external SCSI devices.** Use a three-to-two prong ground lift plug. Try changing outlets.
- 8. Are you using software version 2.4 with an EIII?** This is absolutely necessary as this was the first version to contain the bus arbitration software. All versions of EIIIX software contain bus arbitration software.
- 9. If all else fails, call us.** We're here if you need us. 408-438-1921 Telephone support hours are 9:00 to 5:00 PST, Monday through Friday.



SCSI NOISE ON THE AUDIO LINE

In some cases, EIIIIX connected to the SCSI bus and to a mixer produces noise (beeps) from the mixer output. This noise typically is on a threshold-of-hearing level when the proper audio level is set. In some setups noise get worse, especially when Macintosh is present on SCSI bus. In some cases no noise is detected. When measuring the output (or listening to) EIIIIX own outputs, no noise is detected.

The following measures, depending on a setup, will either completely eliminate the noise or bring it down to an unaudible level:

■ **USE BALANCED OUTPUTS**

This completely solves the noise problem (even with Macintosh on the SCSI bus).

■ **USE STEREO 1/4" CABLES WITH UNBALANCED INPUTS OF YOUR MIXER**

This will eliminate ground as as a signal conductor since the EIIIIX 1/4" jacks are indeed BALANCED outputs. This brings the noise to the extremely low level which is barely audible only when all the sliders of a mixer are all the way up (don't play samples in this settings - you may blow your speakers).

Using
SCSI

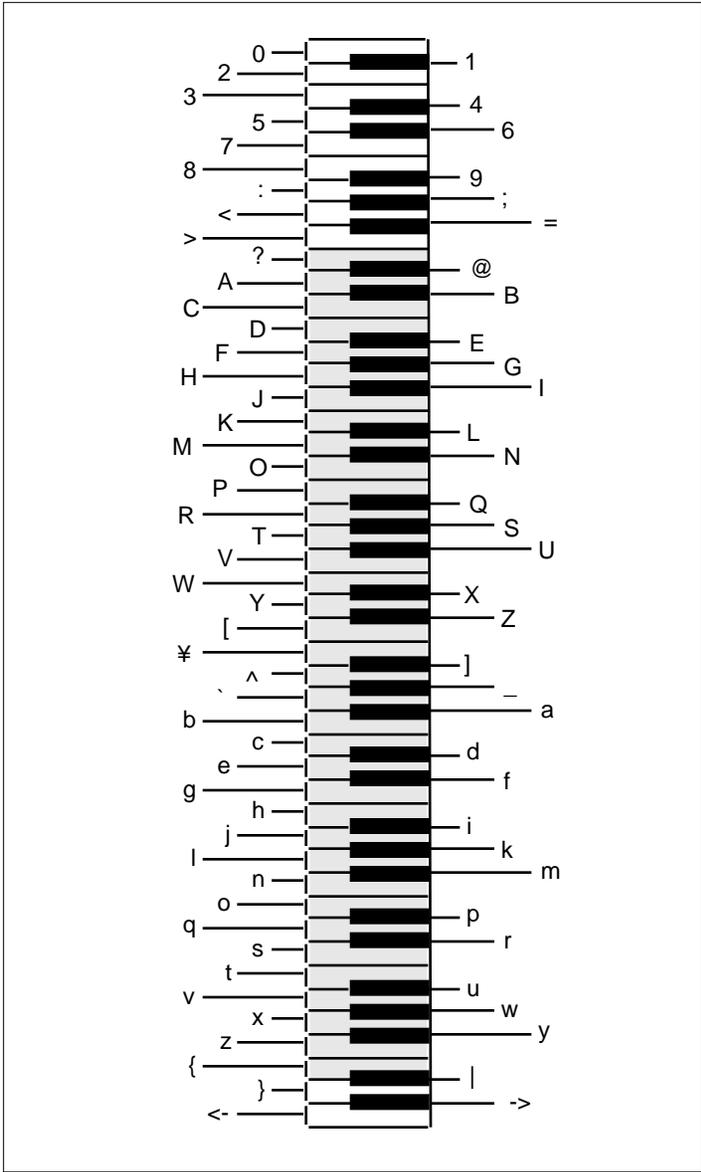


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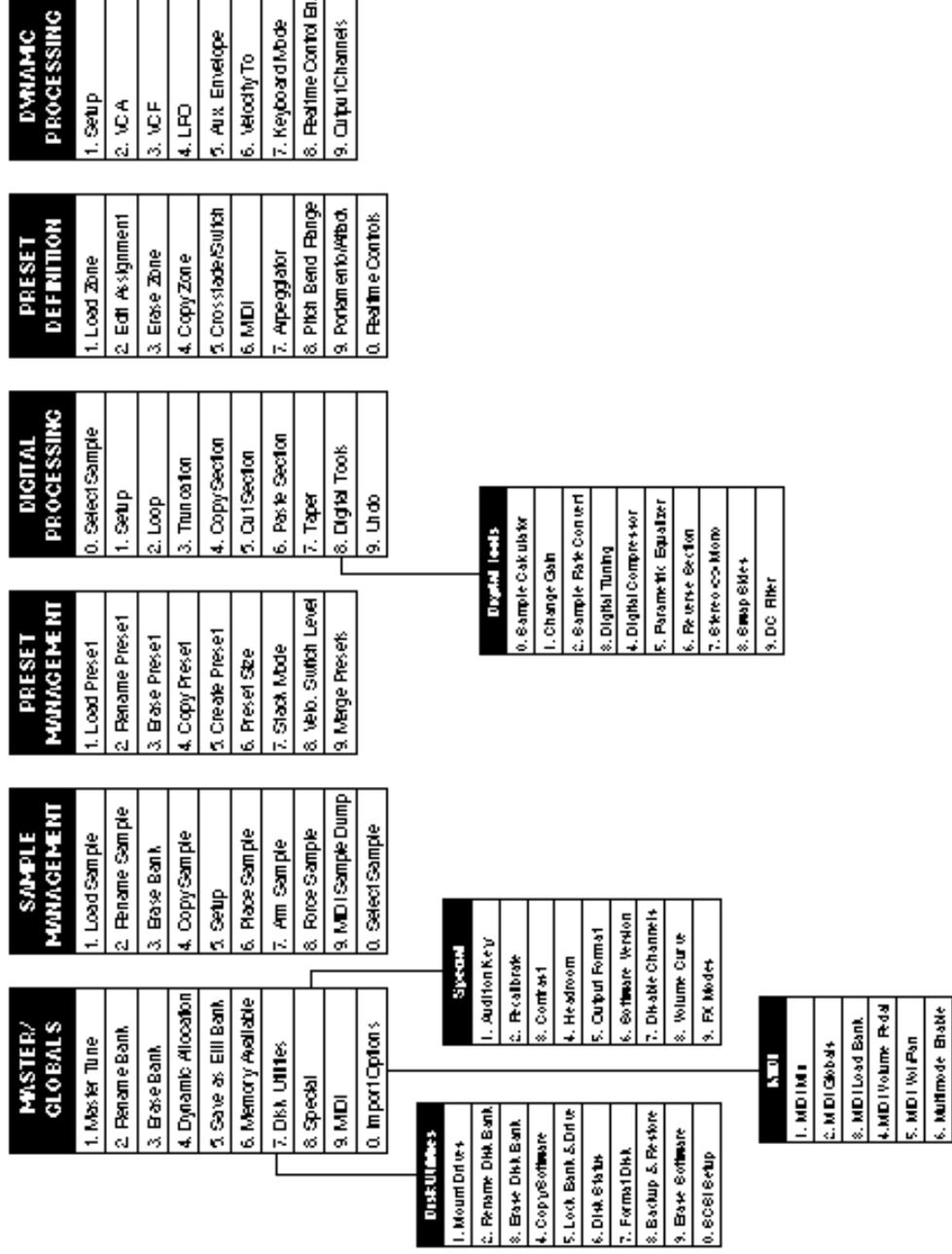
■ The shaded area represents a standard five octave keyboard range.

Appendix

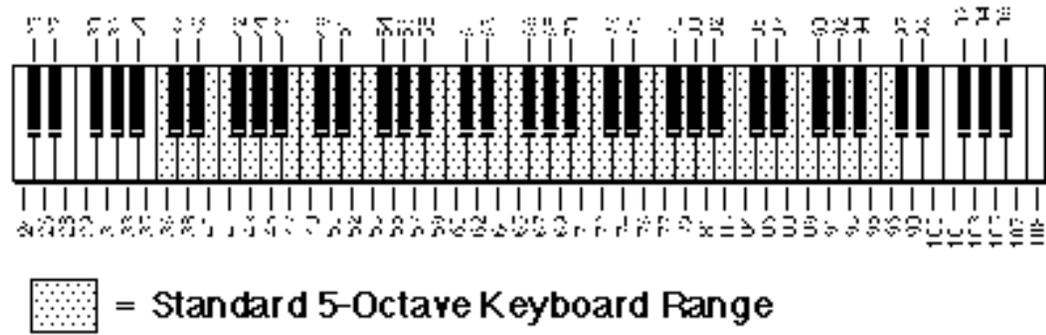


AVAILABLE CHARACTERS. Banks, drives, samples and presets can be named or renamed using these characters. Select the characters using the ten key pad, data slider, and keyboard. You can also use the up cursor to insert spaces and the down cursor to delete spaces. There are also additional characters (not shown above) which are only available through use of the data slider or increment/decrement buttons.

EIIX MENU MAP



MIDI KEY NUMBERS



EIII X MIDI IMPLEMENTATION CHART

MIDI Command	Transmitted?	Received?	Comments
Note Off	X	X	Keys#21 thru 108 (A1thru C7)
Note On	X	X	Keys#21 thru 108 (A1thru C7)
Poly Key Pressure	-	-	
Control Change	X	X	Controllers # 0 thru 31
Program Change	X	X	Program # (preset#) 0 thru 127
Channel Pressure	X	X	
Pitch Wheel	X	X	
Sustain Footswitch	X	X	Controllers #64 thru 79
Local Control on/off	-	-	
All Notes Off	-	X	
Omni Mode off/on	-	-	Ignores mode, turns all notes off
Mono Mode	-	-	Ignores mode, turns all notes off
Poly Mode	-	-	Ignores mode, turns all notes off
Song Position Pointer	-	-	
Song Select	-	-	
Tune Request	-	-	
Timing clock	-	X	
MIDI Time Code	-	-	
Start Sequence	-	-	
Continue Sequence	-	-	
Stop Sequence	-	-	
Active Sensing	-	-	
System Reset	-	-	
System Exclusives	-	-	Not Yet Implemented

X = item implemented
 - = item not implemented

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Appendix

■ **Multimode**

Multimode is an Emulator III X MIDI mode designed to enhance the Sequencer/MIDI interface. It is basically equivalent to Poly Mode On for all 16 MIDI channels simultaneously.

When Multimode is on, the OMNI/POLY setting is ignored, but the MIDI Notes/Wheels flag of the current preset is still checked by EIII X to determine whether to accept or ignore incoming MIDI performance data.

EIII X SPECIFICATIONS

Number of Voices	32 mono, 16 stereo
Memory	8 MB standard, 32MB maximum
Outputs	8 individual 1/4" balanced, polyphonic
Output Level	+4dbm nominal, max 12 volts p-p
Output Impedance	50 Ω , will drive 600 load
Data Encoding	Input: 16 bit Output: 18 bit
Digital I/O	AES/EBU or S/PDIF formats, XLR conn.
SCSI	Two 50 pin connectors, advanced links
Sample Rate	44.1 kHz
Pitch Shifting	constant sample rate technology
Frequency Response	20 Hz to 21 kHz
THD + N	Less than 0.05%
THD	Less than 0.03%
Signal/Quiescent Noise ...	Better than 100 dB
Stereo Phase	Phase Coherent $\pm 1^\circ$ at 1 kHz
Weight	19 lbs. (8.6 kg) for standard unit
Dimensions	17.25" (44cm)W, 5.25" (13cm)H, 13.5" (34cm)L
Power	100-240 VAC, 50/60 Hz, less than 50 watts

ERROR CODES

This section explains some of the error codes you might possibly encounter while working with the Emulator Three. This listing covers only the error codes whose meaning might be confusing or unclear. Most of the error codes explanations in the EIIIIX are readily apparent.

Preset Memory Full!

Not enough preset memory for the operation.

Sample Memory Full!

Not enough sample memory for the operation.

Drive Not Formatted!

Trying to access a hard drive that has not been formatted for the EIIIIX.

No Valid Drives!

1) Conflicting SCSI devices. 2) No SCSI termination at each SCSI cable end. 3) SCSI cable too long. 4) Reboot entire system after changing SCSI cables or ID numbers.

SCSI Hardware Error!

No HD, Cable, No power, Wrong SCSI ID number.

SCSI Media Error!

Media defect on the hard disk. Call Service Center.

SCSI Bank Locked!

Trying to write to a locked bank.

Floppy Seek Error!

Bad disk or floppy drive.

FD Data Lost Error!

Bad disk or floppy drive.

Floppy Disk Error!

Bad disk or floppy drive.

FD Data CRC Error!

Bad disk or floppy drive.

FD Data Save Error!

Bad disk or floppy drive.

Not Enough Memory

Trying to load in a bank that is too large.

Wrong Floppy Type!

Sound disk <-> Software Disk.

Wrong Floppy Number!

Wrong disk in loading sequence.

Insert Unlocked FD!

Floppy disk is locked.

No Samples in Preset!

No samples mapped to any zones.

No Samples Exist!

No samples in bank.

No Presets Exist!

No presets in bank.

Sample Overload!

A/D converter headroom has been exceeded.

TROUBLESHOOTING

This section explains some of the problems you might possibly encounter while working with the Emulator IIIIX. Before assuming that your EIIIIX is faulty, check the following list which details the corrective action you can take yourself without having to call a service center. If you have any doubts or questions, get in touch with your nearest E-mu dealer or call the E-mu customer service department at (408) 438-1921, between the hours of 8:30 am and 5:30 pm Monday through Friday.

The Emulator IIIIX will not boot.

If the Emulator IIIIX fails to boot, first disconnect any external SCSI devices and try again. External SCSI devices should be switched on before the Emulator IIIIX.

Problem:

The unit is completely dead. No lights, no sound.

Cause:

The fuse may be blown.

Solution:

The two fuses are located on the AC power receptacle. Squeeze the two tabs together to open the fuse drawer and check the fuses. The EIIIIX uses two 250V, 2A, fast-blo mini-fuses. If a fuse that has been replaced blows again, do not attempt another replacement. Consult your dealer or authorized E-mu service center.

Problem:

The unit is completely dead. No lights no sound. Fuse is OK.

Cause:

The power supply may be damaged.

Solution:

Consult your dealer or authorized E-mu service center.

Problem:

The unit lights up and the hard disk starts, but does not boot.

Cause:

The operating system on the hard disk may have been damaged.

Solution:

Try booting the EIIIIX from floppy disk based software. If the unit still won't boot, consult your dealer or authorized E-mu service center. If the unit boots from the floppy software, try copying the software to the internal hard disk (Master/Globals module, 7. Disk Utilities, 4. Copy Software). As a last resort, reformat the hard disk.

Audio Problems

Problem:

The EIIIIX powers up normally, but does not make any sound.

Cause:

Proper audio connections may not have been made.

Solution:

Try listening directly to the stereo output using headphones to verify that the EIIIIX is at fault. Check that proper audio connections have been made.

Problem:

The EIIIIX powers up normally, but does not make any sound.

Cause:

The front panel controls (volume slider) may need recalibration.

Solution:

Recalibrate the front panel controls using the Recalibrate function located under Special in the Master/Globals module.

Problem:

The EIIIIX powers up normally, but does not make any sound.

Cause:

All output channels are disabled.

Solution:

Enable all channels using the Disable Channels function (Master/Globals module, 8. Special, 7. Disable Channels).

Problem:

The EIIIIX powers up normally, but does not make any sound.

Cause:

Proper MIDI connections may not have been made.

Solution:

Try pressing the Audition key on the front panel. Check that proper MIDI connections have been made.

Problem:

The digital audio output level is too low when a single channel is played.

Cause:

Because of the nature of sampling instruments, each additional channel played adds +3dB to the headroom requirement. A single channel on the EIIIIX comes out about -6 dB down.

Solution:

Make sure the Master Volume control is at maximum. Set the headroom adjustment (Master/Globals, Special, 4) to 0 dB. All volume adjustments in the EIIIIX affect the digital output level.

Audio Problems (cont)

Problem:

Certain sounds do not play polyphonically.

Cause:

The zone may be in solo mode, or only assigned to one output channel.

Solution:

Disable solo mode and check output channel assignment.

Problem:

Certain sounds cut off prematurely.

Cause:

More than 32 mono, or 16 stereo channels are playing. Or, if specific output channels are assigned, two sounds may be “ripping each other off”.

Solution:

Check output channel assignment (Dynamic Processing, 9). Try turning Dynamic Allocation (Master/Globals, 4) on. Set release times on VCA to a shorter setting.

Problem:

Stereo samples are only heard out of one side.

Cause:

Disable side function is turned on.

Solution:

Turn disable side function (Dynamic Processing,1) off in the zone.

Problem:

Audible hum in system when EIIIIX is connected.

Cause:

There is a ground loop present in the audio system.

Solution:

Find and eliminate the ground loop.

Functional Problems

Problem:

Front panel buttons double trigger.

Cause:

Buttons need cleaning.

Solution:

Consult your dealer or authorized E-mu service center.

Functional Problems (cont)

Problem:

Looping only works while in the Digital Processing module.

Cause:

Disable Loop function is turned on.

Solution:

Turn disable loop function (Dynamic Processing, 1. Setup) off in the zone.

Problem:

Controllers (wheels, pedal, pressure) do not work at all.

Cause:

Controllers are not assigned in the preset.

Solution:

Assign the controllers to the desired destinations (Preset Definition, 0. Realtime Controls).

Problem:

Controllers (wheels, pedal, pressure) do not work at all and are assigned correctly.

Cause:

Controllers are disabled in Realtime Control Enable section.

Solution:

Enable realtime controllers for the selected zone (Dynamic Processing, 8. Realtime Control Enable).

Problem:

The footpedal or LFO has little or no effect when assigned to VCA.

Cause:

The initial VCA level is set at 100%.

Solution:

Lower the initial VCA setting as desired.

MIDI Problems

Since MIDI setups can be quite complex, make sure that you have all the MIDI parameters (on the Emulator III and external MIDI devices) set correctly before you become daunted. Remember that the MIDI Global commands override individual preset MIDI settings. On the Emulator III, MIDI parameters are located in the Preset Definition module, (6. MIDI Setup) and in the Master/Globals module, (9. MIDI, 2. MIDI Globals).

MIDI Problems (cont)

Problem:

The EIIIIX does not respond to the MIDI parameters as programmed.

Cause:

MIDI Globals are turned ON.

Solution:

Turn OFF MIDI Globals (Master/Globals, 9. MIDI, 2. MIDI Globals).

Problem:

The EIIIIX does not respond to the modulation wheels or pressure from an external MIDI controller.

Cause:

MIDI controllers are not assigned in the MIDI submodule or Real-time Control module.

Solution:

Assign proper controller channel numbers to Left Wheel, Right Wheel, Pedal, Pressure, MIDI A and B, then assign MIDI A and B to desired destinations (See Preset Definition, 6. MIDI Setup). Check Realtime Control routings (Preset Definition, 0. Realtime Controls).

Hard Disk Problems

Problem:

The EIIIIX display reads "Disk Not Formatted".

Cause:

The internal hard disk or an external SCSI device may have crashed.

Solution:

First, disconnect any external SCSI devices and reboot. If this fails, try reformatting the internal hard disk. If reformatting fails, consult your dealer or authorized E-mu service center.

Problem:

The EIIIIX display reads "Disk Not Formatted" and an external SCSI device is connected.

Cause:

The hard disk may have crashed, the SCSI cable may be too long or two devices may have the same SCSI ID number.

Solution:

Try using a shorter SCSI cable (maximum cable length is about 12 feet) and check that no two devices have the same ID number.

Hard Disk Problems (cont)

Problem:

The EIII display reads "SCSI Error!". There is an external device connected to SCSI.

Cause:

Two SCSI devices may have the same ID number or an external SCSI device does not have power.

Solution:

Make sure all external SCSI devices have power. Change one of the SCSI ID numbers. If this fails, try another SCSI cable or another SCSI device if possible. If all else fails, consult your dealer or authorized E-mu service center.

Problem:

The EIII does not recognize an external hard disk or other SCSI device.

Cause:

The external hard disk or SCSI device was powered-up *after* the EIII.

Solution:

Mount the drives using the Mount Drive function located under Disk Utilities in the Master/Globals module.

Problem:

Data from an external SCSI device is being scrambled or lost.

Cause:

The SCSI cable may be too long, or the device may not be terminated correctly.

Solution:

Try using a shorter SCSI cable (maximum cable length is about 12 feet) or check that the last device in the SCSI chain has termination resistors installed. See the section "Using SCSI" in this manual.

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