

Korg
Trinity Options
Guidebook

PBS-TRI / HDR-TRI / DI-TRI

Written by Howard Massey

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Chapter One:

The PBS-TRI Flash ROM Option

The Korg PBS-TRI Flash ROM option adds a wealth of new features to your Trinity. Beyond expanding the Trinity's memory (and doubling the number of programs, combinations, and drum kits), it allows you to load sample data from floppy disk (or from CD-ROM or hard disk, if you also have the SCSI-TRI SCSI option or HDR-TRI hard disk recorder option installed). This effectively opens your Trinity to a whole new world of sounds—fly in your own original samples created in an external sampler or your computer, or load any of the literally millions of sounds from commercially available sound libraries. You can then tweak the samples to your heart's content, using them as building blocks for your own custom Trinity programs, combis, or drum kits.

What the PBS-TRI Option Adds

Your Trinity will look exactly the same after the PBS-TRI option is installed, but make no mistake about it—there's lots of extra horsepower under the hood! We suggest you start your exploration of the new features by going into Program mode (press the PROG button) and then press the BANK button a few times. In addition to the Banks A and B you previously had, there are now two new Banks—C and D. The four banks now allow you to store a total of 512 programs! If you had a Solo synthesizer installed in your Trinity previously, you'll find that Bank "S" (the Solo synthesizer bank) has been expanded, too, from 64 programs to 128.

Next, check out Combi mode. Press the COMBI button, followed by the BANK button. Here, too, you'll find an additional two banks (C and D), making for a total of 512 Combis. Finally, press the GLOBAL button and go to Page 5 (press the P5 button). Touch the DrumKit parameter and you'll find a total of 24 Drum Kit locations instead of the 12 that were there previously.

In addition to all this, the PBS-TRI option has added 8 whopping megabytes of memory for sample storage, and the best news of all is that, since this is Flash ROM and not standard RAM memory, the sample data stays in your Trinity even after you power it down! If you've ever worked with a sampler, you know what a pain it is to have to wait around while data is loaded in, even if you've got the fastest hard drive in the world. But a Trinity with the PBS-TRI option keeps all of its custom sample data in instantly accessible memory (just like the factory samples in ROM)—and the data stays there permanently, until or unless you consciously decide to erase it.

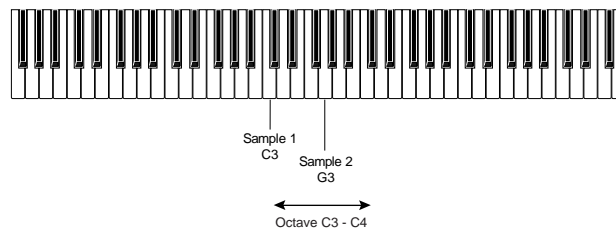
We've even added an extra page so you can see all the new memory and keep track of how it is being used. From GLOBAL mode, go to Page 6 (press the P6 button). Here's what you'll see:

GLOBAL P6		Multi/DrumSample	
Free Number			
MultiSample	DrumSample	Sample	Sample in MS
100/100	200/200	500/500	500/500
Free Memory			
Bank1	Bank2	Bank3	Bank4
2.031.608Byte	2.097.144Byte	2.097.144Byte	2.097.144Byte
Edit: <input type="checkbox"/> MultiSample No: <input type="checkbox"/> 375 <input type="checkbox"/> A.Piano			
Sample: 000			
Tune: -17 Level: -01 TopKey: C1 OriginalKey: C1			

As shown on the second line of the display, the total Flash ROM memory is divided into four banks of just over 2 megabytes each. The top line goes into greater detail, showing the number and type of samples stored in those four banks. To understand it, however, we need to explain two important terms: *drum samples* and *multisamples*.

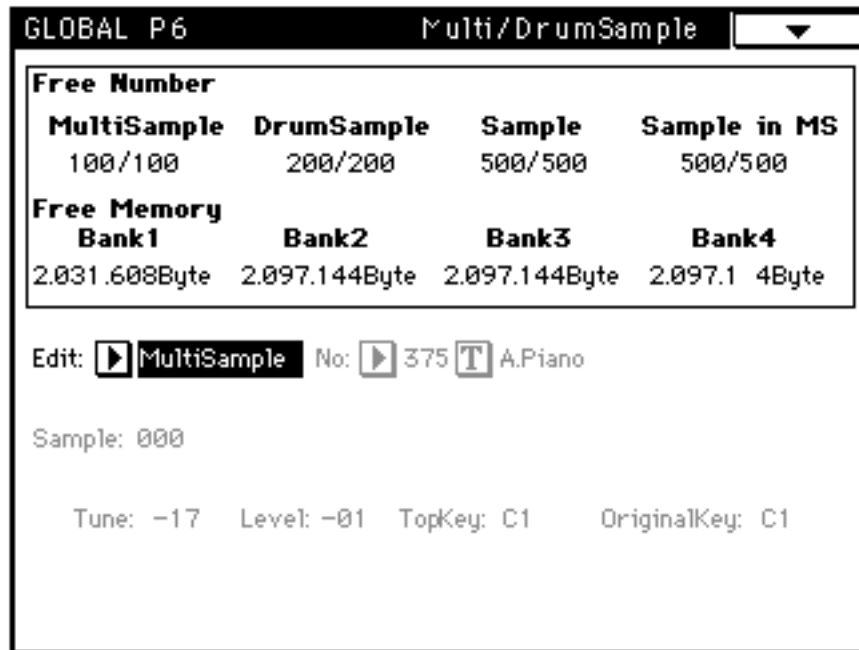
Samples, Drum Samples and Multisamples

Most modern electronic musical instruments make extensive use of “samples,” which are simply digital recordings of sounds. However, the Trinity uses the term a little bit differently. Here, a “sample” means the raw PCM (Pulse Code Modulation) data which represents one sound at one particular pitch. But many instruments, like pianos and guitars, play a wide range of pitches, so you need to take more than one sample to reproduce their sound accurately. In most cases, however, you don’t actually need to take a different sample for each note. As shown in the illustration below, you can represent an instrument quite well (and with much more efficient use of memory) if you sample the sound just once or twice an octave and then assign it to a small range of notes. It’s then simply a matter of altering the pitch of that sample when you want to play the in-between notes.



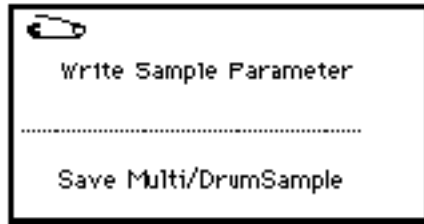
Taken together, a collection of samples organized this way is known as a *multisample*. Either or both of the oscillators in any Trinity program can access and play any multisample from ROM (either permanent ROM or flash ROM). But there may be times when you don’t need a whole range of samples—for example, when you want to play drum or percussion sounds, which usually play at just a single pitch. And there may be other times (for example, when memory is running low) when you only want to access one or two samples within a multisample. The good news is that the Trinity allows you to assign individual samples—in many cases, even those that are part of a multisample—to any note within any drum kit. For this reason, individual samples in the Trinity’s memory are known as *drum samples*.

The Trinity allows you to create your own custom multisamples from individual drum samples and it also allows you to directly load in complete, pre-made multisamples (in either Korg or Akai S3000/S1000 format) from disk. Be sure to check out pages 6 and 8 in this Guidebook for detailed instructions on how to do so. But for now, let's return to the Page 6 display in Global mode:



The meaning of the top line of the display should now be clear. The PBS-TRI option allows you to store up to 100 multisamples, and up to 200 individual drum samples, memory permitting. (Bear in mind that no one drum sample can occupy more than one bank, so the maximum size of any one sample is just over 2 megabytes—but that's a *long* sample!) Up to 500 samples in total can be stored (that includes both drum samples which can be individually accessed and those samples inside multisamples which cannot be accessed)—again, memory permitting. The last item in the display ("Sample in MS") simply shows the number of samples which are used inside loaded multisamples.

The remaining items on the bottom of the screen allow you to perform basic editing operations on stored drum samples and multisamples; we'll discuss these in detail on page 35 in this Guidebook. In addition, Global Page 6 has two Page Menu items (shown on the following page): Write Sample Parameter, which enables you to store your edits; and Delete All Multi/DrumSample, which enables you to completely clear all the expanded memory (due to the nature of Flash ROM memory, there is no means for selectively erasing specific samples).



Loading Samples from Disk

You've probably already used the floppy disk drive in your Trinity lots of times to load and save programs, combis, drum kits, and songs—or even MIDI data such as standard MIDI (sequence) files and system exclusive files. But now that you've got the PBS-TRI option installed, you can also load sample data from disk, in a variety of file types:



Korg KSF files



Korg KMP files



Korg KSC files



Stereo* and mono AIFF files (8 or 16 bit)



Stereo* and mono WAV files (8 or 16 bit)



Akai S1000 and S3000 Sample files



Akai S1000 and S3000 Program files

** Trinity operating software version 2.2 or higher is required for loading of stereo files. Contact your local Korg dealer for information on software upgrades.*

Korg File Formats

The three Korg file formats are designed to make it easy for you to load in individual multisamples and drum samples, as well as groups of multisamples and drum samples.

“KSF” stands for Korg Sample File; each KSF file contains a single drum sample. KSF data can be played individually, combined in a drum kit, or converted into multisamples.

“KMP” stands for Korg Multisample Parameter; each KMP file contains the parameters for one multisample, along with a list of the KSF files that are used by the multisample. Note that, when you load a KMP file, the individual samples within it are *not* loaded as drum samples. If you want to access those samples individually, you have to load each KSF file used by the KMP file separately. (Hint: Watch the display as the KMP file is being loaded—the names of all the individual KSF files will be shown, one by one, as they are being loaded.)

Finally, “KSC” stands for Korg SScript; each KSC file contains a set of instructions for loading in a group of KMP and KSF files. For example, commercially available sound sets (such as Korg’s TFD-Series Trinity PCM / Performance Data Library) will often contain a single KSC file which automatically loads *all* KMP and KSF files; this is certainly a lot easier (and faster!) than loading each individual KMP and KSF file, one at a time. Incidentally, a KSC file is created automatically whenever you save groups of multisamples or drum samples—see pages 43 and 44 in this Guidebook for more information.

All three Korg file formats are also important because they are used by your Trinity when saving sample data to disk—see page 39 in this Guidebook for more information.

To load a Korg file:

1. Insert a floppy disk containing Korg KSF, KMP, or KSC files into the Trinity disk drive.
2. Press the DISK button to go to Disk mode.
3. Touch Tab 1 (Load) at the bottom of the screen.
4. Select the KSF, KMP, or KSC file you want to load.
5. Open the Page Menu and choose the “Load selected” command.
6. If the data is contained on more than one disk (or if related KSF or KMP files are not contained in the same directory as the current one), a dialog will appear which asks you, “Where is ...?” Remove the disk from the

drive and insert the correct disk, selecting the appropriate directory if necessary. Once you have located the file in question, press the Select button to continue loading. If you can't locate the file in question, either press the Cancel button to stop loading altogether or press the Skip button to skip just this file and go to the next file in the list. Either way, the data you have already loaded will still be in memory.

7. When loading is complete, press the GLOBAL button, followed by P6. This will allow you to confirm the loading procedure. The top two lines on this page show you how much Flash ROM memory was used by the file(s) loaded and how much is now remaining. Next, touch the Edit parameter in the center of the screen and choose either MultiSample or DrumSample. A menu will drop down, allowing you to choose either multisamples or drum samples. Choose the data type you want to view, and then touch the No: (number) parameter in the center of the screen. The first loaded drum sample is assigned number 259 (numbers below 259 are used by the drum samples in permanent ROM and cannot be viewed here*), with all succeeding drum samples assigned numbers 260, 261, and so on. Similarly, the first loaded multisample is assigned number 375 (numbers below 375 are used by the multisamples in permanent ROM and cannot be viewed here**), with all succeeding multisamples assigned numbers 376, 377, and so on.

** They can, however, be viewed from GLOBAL P5; see page 14 in this Guidebook for more information.*

*** They can, however, be viewed from PROGRAM EDIT P1, Tab 2; see page 16 in this Guidebook for more information.*

Akai File Formats

The Akai S1000 and S3000 are two of the most popular samplers ever sold; as a result, there is a huge library of third-party sample data available for both instruments. The PBS-TRI option enables your Trinity to access this data and load it as drum samples or multisamples. Specifically, it can load Akai Sample files and Program files. Sample files contain raw PCM data and are loaded into the Trinity as individual drum samples. Program files are roughly equivalent to Korg KMP files; they contain multiple samples, each assigned to a different range of pitches in what Akai calls “Key Groups.” As with Korg KMP files, when you load an Akai Program file, the individual samples within it are *not* loaded as drum samples. If you want to access those samples individually, you have to load them in separately. (Hint: Watch the display as the Akai Program file is being loaded—the names of all the individual sample files will be shown, one by one, as they are loaded.)

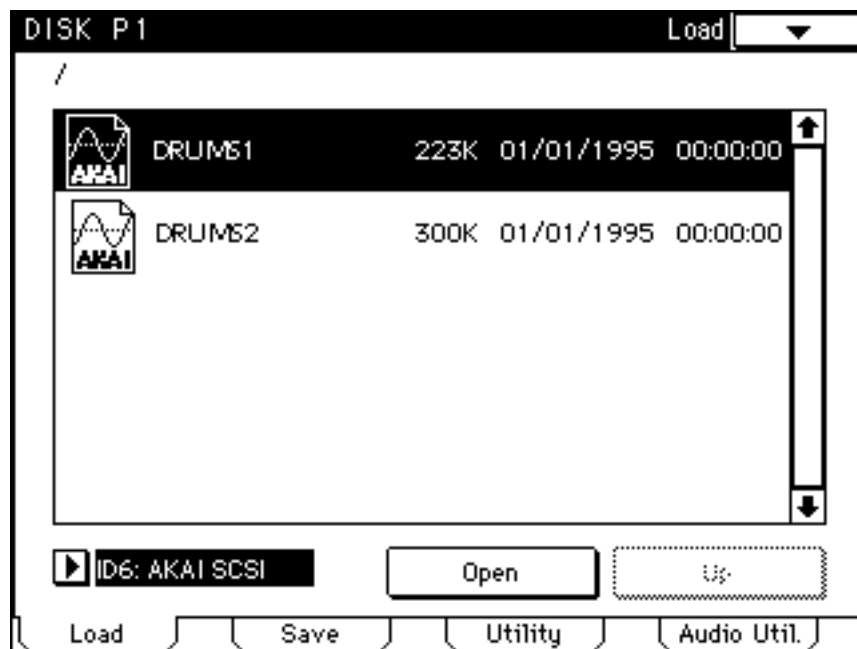
Because the operating system of the Trinity is significantly different to that of the Akai S1000 and S3000, there will be some differences when an Akai Program file is loaded. Akai instruments can assign up to four samples to a single “key zone” (that is, a single range of keys), while the Trinity assigns only one sample to each key zone. If you therefore load an Akai Program file that contains two, three, or four samples in a key zone, the Trinity will convert the data to two, three, or four multisamples (each with the same name, but with a number appended). For example, suppose an Akai Program file called “Stack” assigned four different samples to the same key zone. After you loaded this Program file into the Trinity, you’d find four multisamples named “Stack 1,” “Stack 2,” “Stack 3,” and “Stack 4.” These can then be recombined back together by assigning them to oscillators within Trinity programs (and, if necessary, you can even layer up to eight programs in a combi!).

Loading either Akai file type is a simple procedure:

1. Insert a floppy disk containing Akai Sample or Program files into the Trinity disk drive.
2. Press the DISK button to go to Disk mode.
3. Touch Tab 1 (Load) at the bottom of the screen.
4. Select the Sample or Program file you want to load.
5. Open the Page Menu and choose the “Load selected” command.
6. As described above, you can then go to GLOBAL P6 to check memory usage and to scroll through the list of drum samples and/or multisamples that were loaded.

If you have the SCSI-TRI SCSI option or HDR-TRI hard disk recorder option installed in your Trinity, you can also directly load data from any commercially available Akai S1000/S3000 CD-ROM. To do so, simply connect a CD-ROM drive to the Trinity's SCSI port (make sure both devices are powered down first!) and set it to SCSI ID #6 (see page 55 in this Guidebook for more information about SCSI connections and ID numbers). Then turn on the CD-ROM drive and insert the CD-ROM. Wait a few seconds, and then turn on the Trinity. Finally:

1. Press the DISK button to go to Disk mode.
2. Touch Tab 1 (Load) at the bottom of the screen.
3. Touch the Drive Select menu in the bottom left-hand corner. It will drop down, with your floppy drive listed at the top and the words "AKAI SCSI" at the bottom. Touch "AKAI SCSI" to select the CD-ROM drive.



4. Many Akai CD-ROMs are partitioned into multiple folders. To open a folder and access the Sample and Program files contained inside, simply select the folder and touch the Open button to go down a level (conversely, you can use the Up button to go up a level).
5. Select the Sample or Program file you want to load.
6. Open the Page Menu and choose the "Load selected" command.
7. As before, you can confirm that the data has been loaded successfully by going to GLOBAL P6 to check memory usage and to scroll through the list of drum samples and/or multisamples that are in Flash ROM.

AIFF and WAV files

AIFF (Audio Interchange File Format) and WAV files are commonly used by computers to store audio data, and the PBS-TRI option allows your Trinity to load this data as well.* For the Trinity to recognize these files, they must be named with no more than 8 characters and must be given a suffix of .AIF or .WAV, respectively (for example, "PIANO1.AIF" or "TUBA_F2.WAV"). AIFF and WAV files can contain either 8-bit or 16-bit data, and either kind can be loaded in. Because the Trinity only supports 16-bit data, it will automatically convert 8-bit AIFF or WAV files to 16-bit format. Since only zeroes are assigned to the 8 new bits, this won't improve the sound quality, but it will double the size of 8-bit files, which may not make it possible to resave them onto floppy disk after they have been loaded into the Trinity.

AIFF and WAV files can also be either monophonic or stereo. If your Trinity is running version 2.2 software or later (see your Korg dealer for details on software upgrades), you can load in either kind (earlier Trinity software versions support only monophonic files). All AIFF and WAV files are loaded as drum samples; stereo files are imported as two drum samples, with an "L" added to the left channel data and an "R" added to the right channel data. For example, if you were to load a stereo AIFF or WAV file named "Drums," it would appear in the Trinity's drum sample list as two separate samples named "Drums L" and "Drums R." For instructions on how to recombine stereo samples, see page 33 in this Guidebook.

** Trinity operating software version 2.0 or higher is required for support of WAV files. Contact your local Korg dealer for information on software upgrades.*

Loading AIFF or WAV files is a simple procedure:

1. Insert a floppy disk containing AIFF or WAV files into the Trinity disk drive.
2. Press the DISK button to go to Disk mode.
3. Touch Tab 1 (Load) at the bottom of the screen.
4. Select the AIFF or WAV file you want to load. (Note that if the file doesn't appear with the correct AIFF or WAV icon, it will not load. The most likely explanation is that it was not given the correct .AIF or .WAV suffix; to correct it, simply touch the UTILITY tab at the bottom of the screen and select the file, then choose the Page Menu Rename option and type in the correct suffix.)
5. Open the Page Menu and choose the "Load selected" command.
6. To confirm, go to GLOBAL P6 to check memory usage and to scroll through the list of drum samples that were loaded.

Note that neither the SCSI-TRI SCSI option nor the HDR-TRI hard disk recorder option supports the computer-based ISO-9660 CD-ROM format. For this reason, you cannot load AIFF or WAV files directly from CD-ROM; instead, they must be copied to a DOS-formatted floppy disk first (this can easily be accomplished in your personal computer). If you are working in a computer audio editor and have the option to save your file in either AIFF or WAV format, we recommend using the AIFF format, since its loop function is supported by the Trinity, while WAV loops are not. See page 35 in this Guidebook for more information.

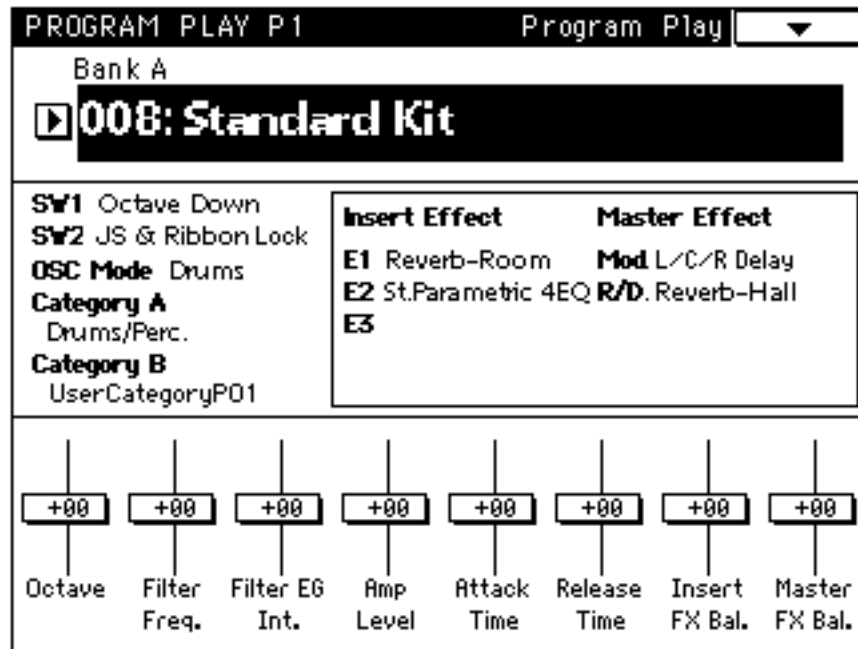
Listening to Drum Samples and Multisamples

Now that we've got some drum samples and/or multisamples loaded into the Trinity, it's time to listen to them. If you've loaded in one of Korg's complete TFD soundsets, you can hear all the new data simply by calling up the new programs and combis which were placed into Bank C when the accompanying PCG file is loaded. But if you've loaded individual drum samples or multisamples from other sources, you need to either import them into existing programs or drum kits or you need to create an initialized program for auditioning purposes.

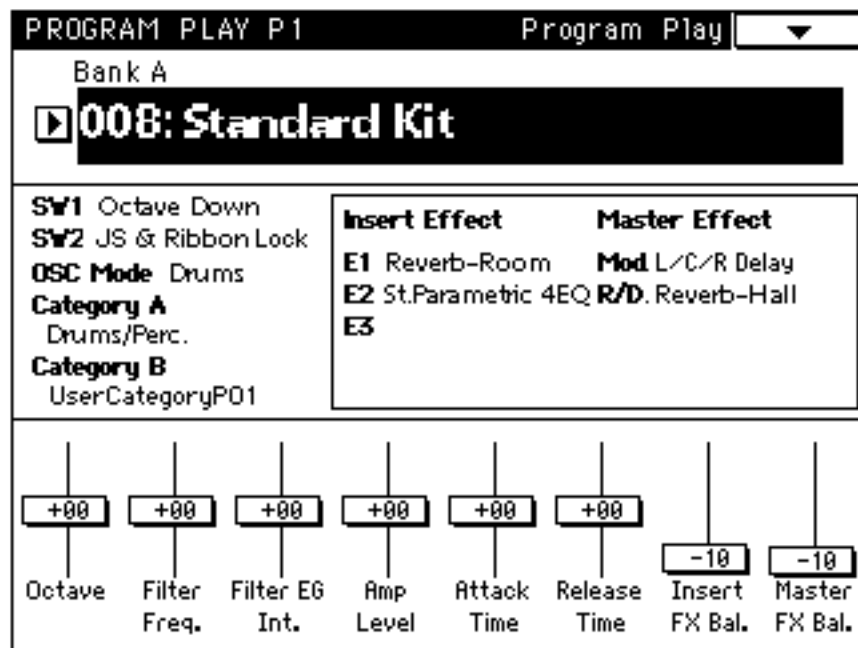
A Fast and Dirty Method for Auditioning Drum Samples

The “fast and dirty” method of auditioning individual drum samples is to simply import them into an existing drum kit:

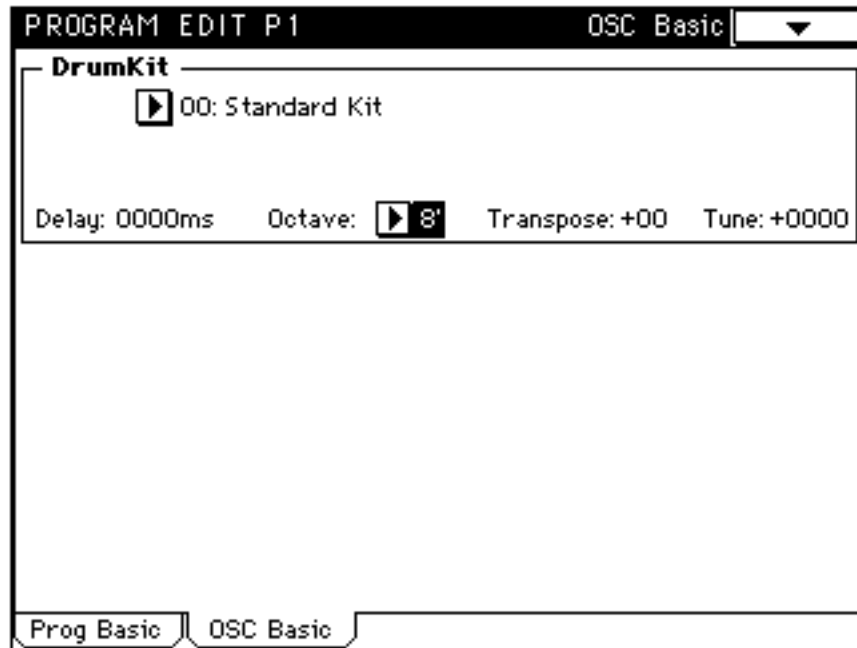
1. Press the PROG button to put your Trinity into Program mode and call up any drum or percussion program (that is, any program that has the word “Drums” next to OSC Mode on the main Program Play screen).



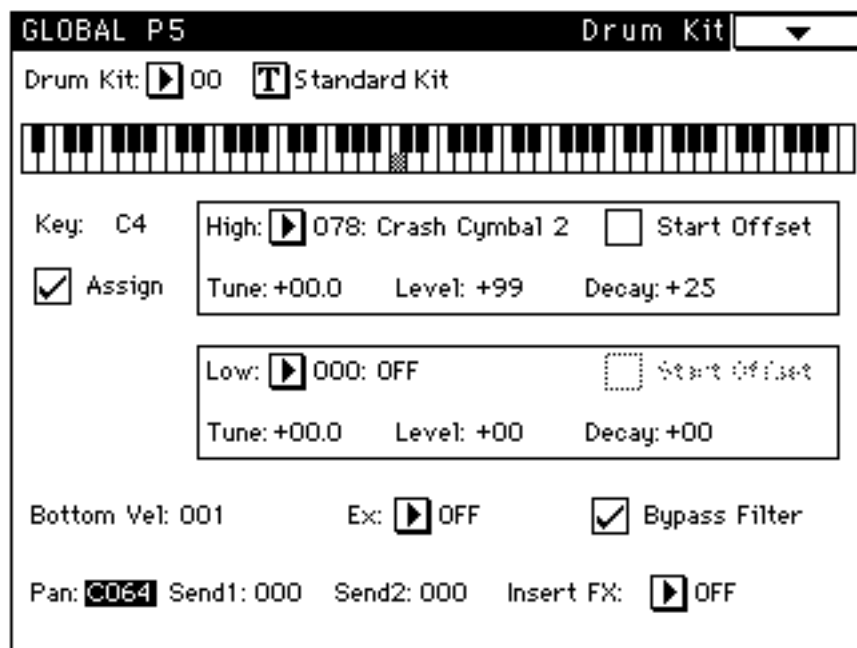
2. It's generally best to audition samples without effects, so, from the Program Play screen, touch the Insert FX Balance slider and set it to -10 (fully off). Do the same with the Master FX Balance slider.



3. Press the EDIT button, followed by P1. Touch Tab 2 (OSC Basic) and set the Octave parameter (in the center of the screen) to 8' if it is not already set that way.



4. Press the GLOBAL button, followed by P5. Touch the Bottom Vel. parameter and set it to 001 (minimum). This will ensure that you will only hear the High drum sample. Touch the Key parameter and set it to C4 (middle C)—a good shortcut for doing this is to hold down the ENTER button with your right hand, then play the note you want to enter (in this case, C4) with your left hand. Then place a checkmark in the Assign box if one is not already there. Finally, place a checkmark in the Bypass Filter box if one is not already there, and set the following High drum sample parameters: Tune +00.0; Level +99; and Decay +25. Then set Pan to center (C064).



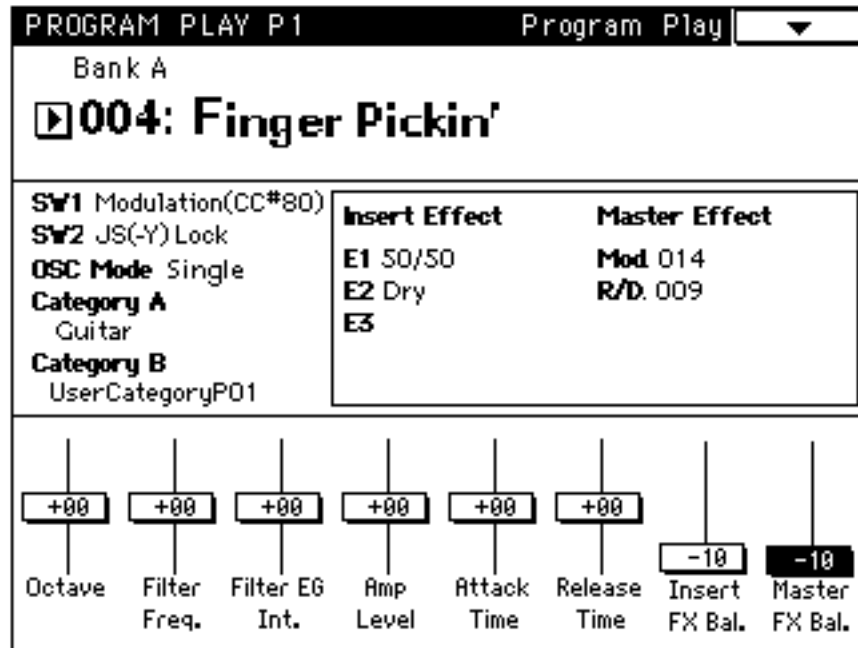
5. Touch the High drum sample parameter. A dialog box listing all drum samples in memory (both permanent ROM and Flash ROM) will drop down. Drum samples in permanent ROM are numbered 000 - 258, while those in Flash ROM (the ones you loaded from disk) are numbered 259 and up. Select the drum sample you want to audition and play middle C on the Trinity keyboard. Voila! If the selected drum sample has a loop, the Start Offset button will appear (if there is no loop, it will be grayed out). When the box is unchecked, the selected drum sample begins playing from its start point; when it is checked, the selected drum sample begins playing from its loop start point.

A Fast and Dirty Method for Auditioning Multisamples

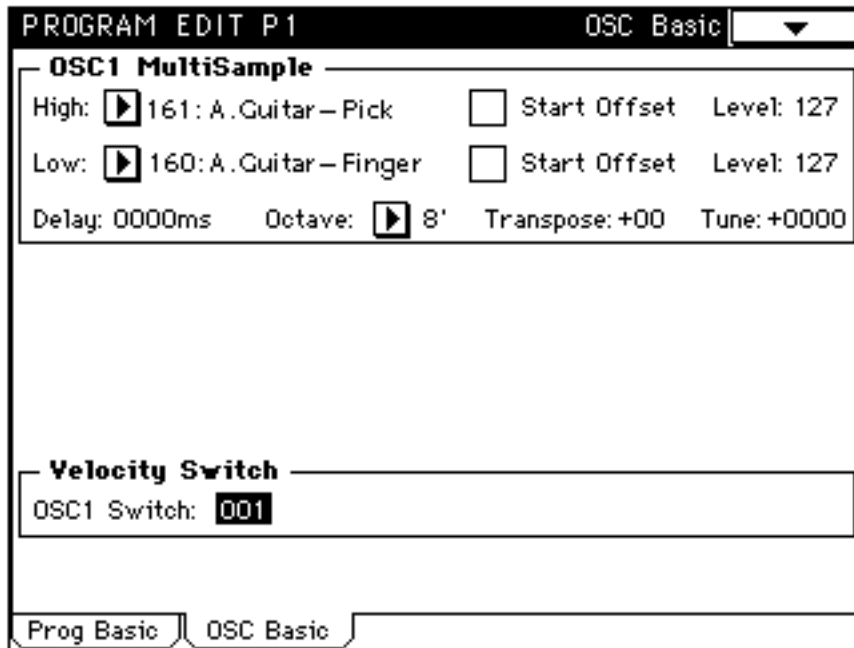
There's also a "fast and dirty" means of auditioning multisamples, by importing them into an existing program:

1. Press the PROG button to put your Trinity into Program mode and call up a program that is similar in character to the multisample you want to audition. For example, if you want to audition a guitar multisample, pick a guitar program. The Trinity's "Select By Category" function (in the Page Menu of the Program Play screen) can be a great aid here. (Hint: After selecting the category or categories you want to search, lock the dialog box that lists the programs in that category; this will enable you to rapidly audition a lot of sounds from just a single screen.)

- It's generally best to audition samples without effects, so, from the Program Play screen, set both the Insert FX Balance and Master FX Balance to -10 (fully off).



- Press the EDIT button, followed by P1. Touch Tab 1 (Prog Basic) and set the Oscillator Mode to "single" if it is not already set that way.
- Touch Tab 2 (OSC Basic) and set the Octave parameter (in the center of the screen) to 8' if it is not already set that way.
- Next, set the following High multisample parameters: Level 127; Delay 0000ms; Transpose +00; and Tune +0000.
- Set the Velocity Switch parameter (bottom left-hand corner of the screen) to 001 (minimum). This will ensure that you will only hear the High multisample.



7. Touch the High multisample parameter. A dialog box listing all multisamples in memory (both permanent ROM and Flash ROM) will drop down. Multisamples in permanent ROM are numbered 000 - 374, while those in Flash ROM (the ones you loaded from disk) are numbered 375 and up. Select the multisample you want to audition and play a note on the Trinity keyboard. Voila! If the selected multisample has a loop, the Start Offset button will appear (if there is no loop, it will be grayed out). When the box is unchecked, the selected multisample begins playing from its start point; when it is checked, the selected multisample begins playing from its loop start point.

The Better Way

But there's a better way to audition both drum samples and multisamples. It requires a little bit of programming work to create an initialized template (of both a program and a drum kit), but the good news is that once the template is made, it can be used over and over again.

Creating an Initialized Program

Let's start by creating an initialized program:

1. Begin by pressing the PROG button and, using the TouchView display, value dial, or numeric keypad, locate a Trinity program that you're willing to lose in order to store the initialized template. You can choose any program that you're not too crazy about, but it's best to select one that is not used by any Combis, either (Appendix A in this Guidebook contains a listing of all Trinity factory programs that are not used by any factory combis). If you find that you are absolutely in love with all 512 programs in memory, go to Disk mode and Save All (or Save Combi/Prog) to a floppy disk; this way, you have a permanent backup, at which point you can store the initialized template in *any* memory location.
2. From Program mode, press the EDIT button, followed by the P1 button. Touch Tab 1 (Prog Basic) and use the text dialog to change the Program Name (we suggest using the name "Sample Test Prog"). Then enter in the following parameter values:

Oscillator Mode = double

Assign/Hold:

Mono = box unchecked

(Note: Parameters which are not listed here [those that are grayed out in the illustration below] don't matter and can be assigned any value.)

The screenshot shows the 'PROGRAM EDIT P1' screen with the following settings:

- Program Name: **T** Sample Test Prog
- Category: A: Motion Synth, B: UserCategoryP01
- Oscillator Mode: single, double, drums
- Assign/Hold: Mono, Legato, Priority: Last, Single Trig, Hold
- Scale: Type: Equal Temperament, Key: C, Random: 0
- Panel Switch Assign: SW1: Modulation(CC#80), SW2: JS(X) Lock

At the bottom, there are two tabs: 'Prog Basic' (selected) and 'OSC Basic'.

3. Touch Tab 2 (OSC Basic) and enter in the following parameter values:

OSC1 MultiSample:

High = 374: Birds 2

Start Offset = box unchecked

Level = 127

Delay = 0000ms

Transpose = +00

Tune = +0000

OSC2 MultiSample:

High = 374: Birds 2

Start Offset = box unchecked

Level = 127

Delay = 0000ms

Transpose = +00

Tune = +0000

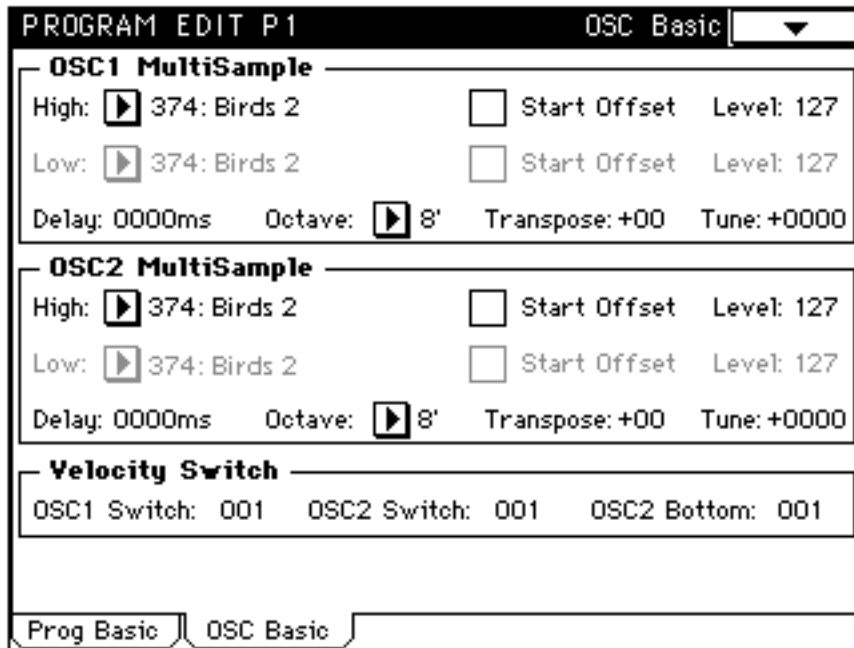
Velocity Switch:

OSC1 Switch = 001

OSC2 Switch = 001

OSC2 Bottom = 001

(Note: Parameters which are not listed here [those that are grayed out in the illustration on the following page] don't matter and can be assigned any value.)



4. Press the P2 button, then touch Tab 1 (OSC1 P.Mod) and enter in the following parameter values:

Pitch Slope = +1.0

AMS = OFF (all three boxes)

Oscillator EG:

Intensity = +00.00

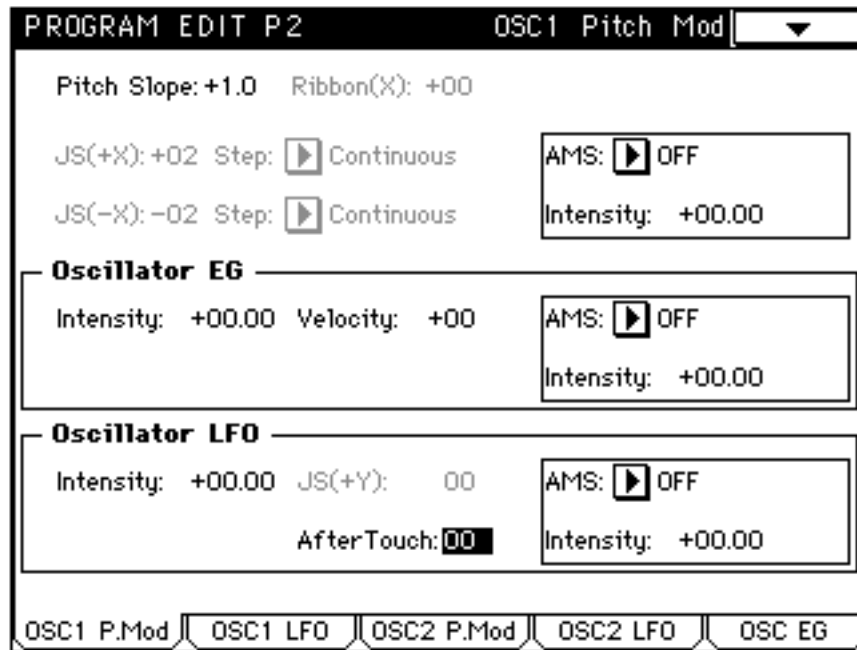
Velocity = +00

Oscillator LFO:

Intensity = +00.00

AfterTouch = 00

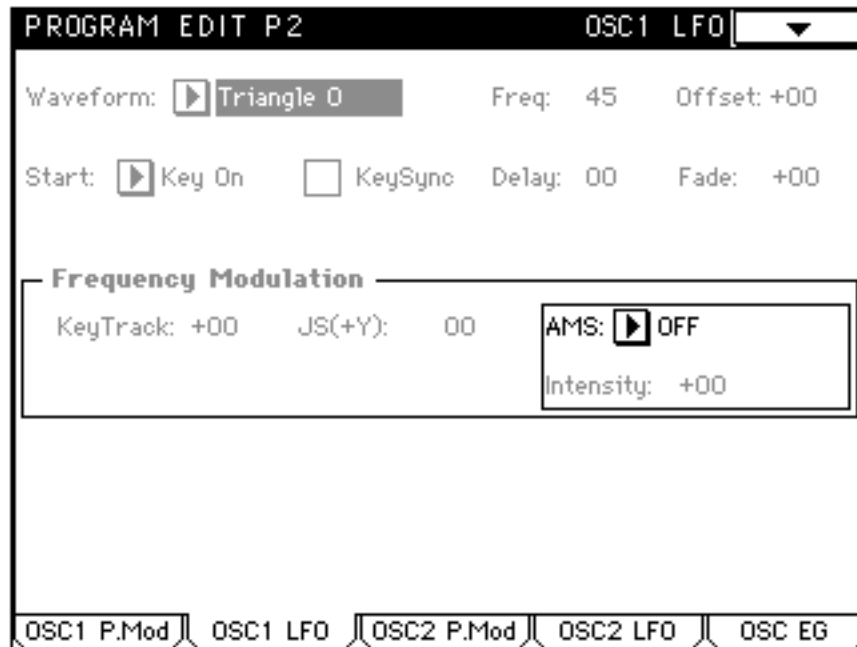
(Note: Parameters which are not listed here [those that are grayed out in the illustration on the following page] don't matter and can be assigned any value.)



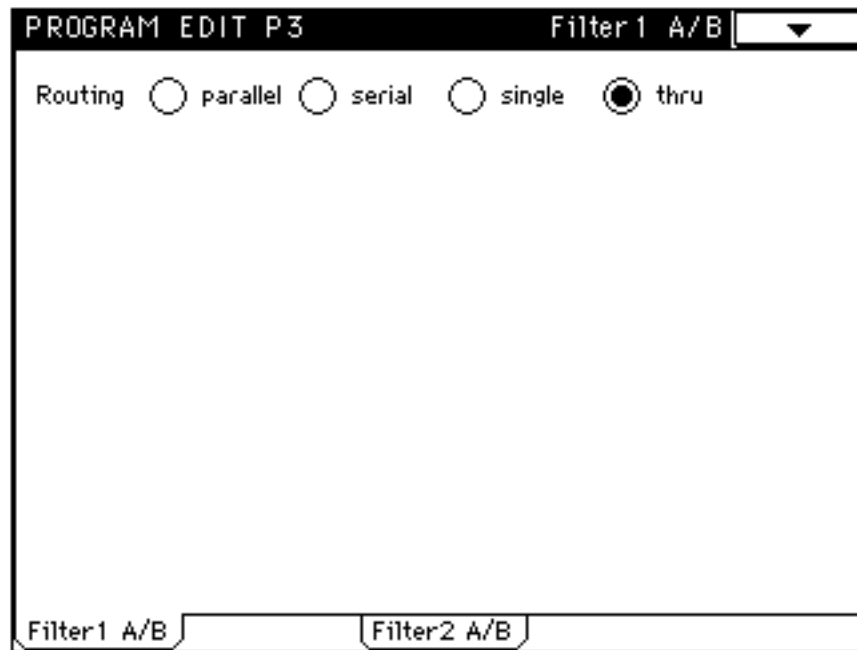
5. Touch Tab 3 (OSC2 P.Mod) and enter in the same exact parameter values you just did for OSC1.
6. Touch Tab 2 (OSC1 LFO) and enter in the following parameter value:

AMS = OFF

(Note: Parameters which are not listed here [those that are grayed out in the illustration below] don't matter and can be assigned any value.)



7. Touch Tab 4 (OSC2 LFO) and set AMS to OFF here also.
8. Press the P3 button, then touch Tab 1 (Filter1 A/B). Set the routing (at the top of the screen) to Thru. All other parameters will then gray out in the screen display.



9. Touch Tab 3 (Filter2 A/B). Set the routing (at the top of the screen) to Thru. As with Filter 1, all other parameters will then gray out in the screen display.

10. Press the P5 button (since both Filters have been set to Thru, you don't need to alter any P4 parameters), then touch Tab 1 (Amp1 Mod) and enter in the following parameter values:

Amp Level = 064

Amp Modulation:

RampLow = +00

High = +00

Velocity = +50

AfterTouch = +00

AMS = OFF

Send/Pan:

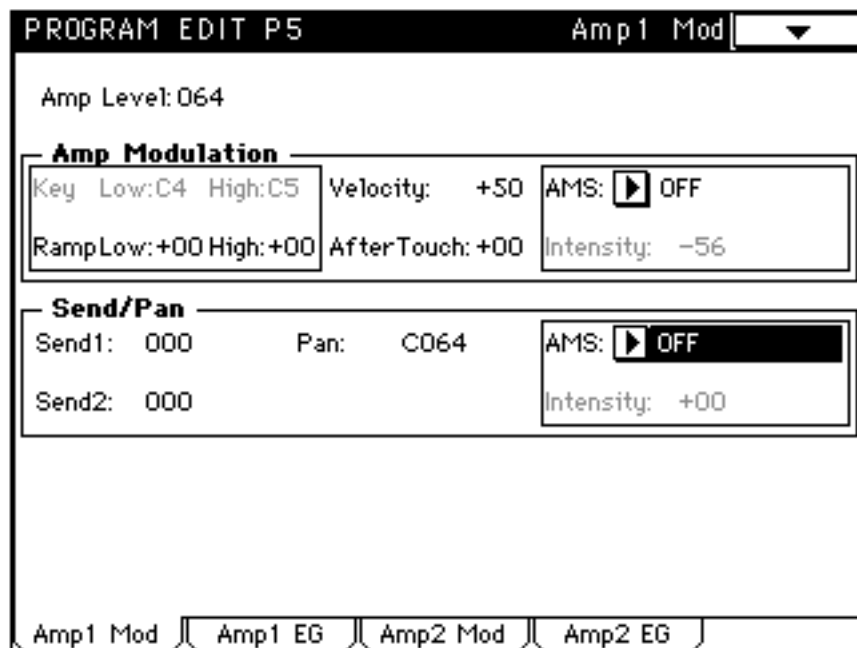
Send1 = 000

Send2 = 000

Pan = C064

AMS = OFF

(Note: Parameters which are not listed here [those that are grayed out in the illustration below] don't matter and can be assigned any value.)



11. Touch Tab 3 (Amp2 Mod) and enter in the same exact parameter values you just did for Amp1.
12. Touch Tab 2 (Amp1 EG) and select the "Sync Both EGs" option from the Page Menu. Then enter in the following parameter values:

Level

Start = 99

Attack = 99

Break = 00

Sustain = 00

Time

Attack = 00

Decay = 80

Slope = 00

Release = 40

Time Modulation

Keytrack

At = +00

Dc = +00

Sl = +00

Rl = +00

Velocity

At = +00

Dc = +00

Sl = +00

Rl = +00

AMS = OFF

Level Modulation

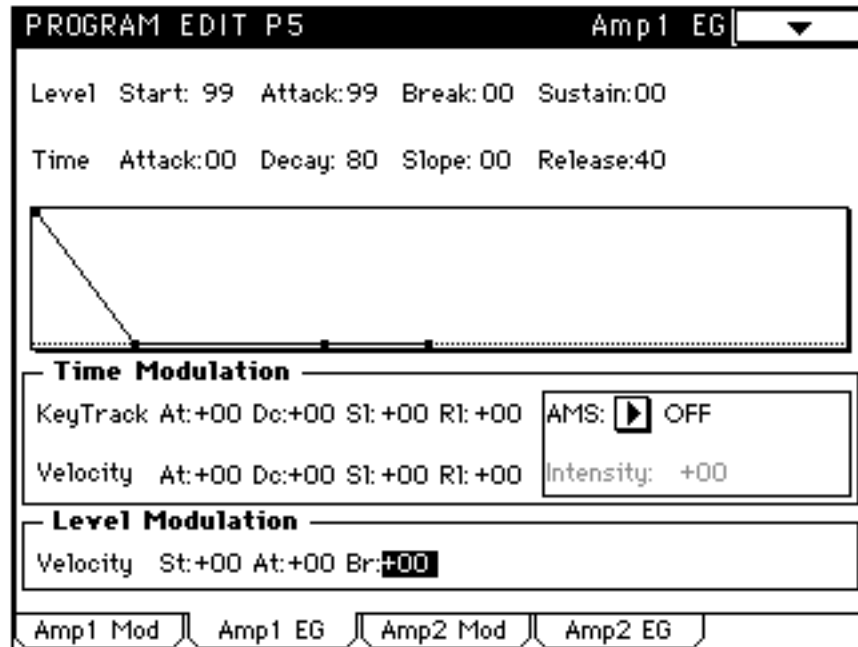
Velocity

St = +00

At = +00

Br = +00

(Note: Parameters which are not listed here [those that are grayed out in the illustration below] don't matter and can be assigned any value.)



13. Touch Tab 4 (Amp2 EG) and, in the Time Modulation and Level Modulation parameters, enter in the same exact values you just did for Amp1.

14. Press the P7 button, then touch Tab 1 (Insert FX) and enter in the following parameter values:

E1 size = 0 / OFF

E2 size = 0 / OFF

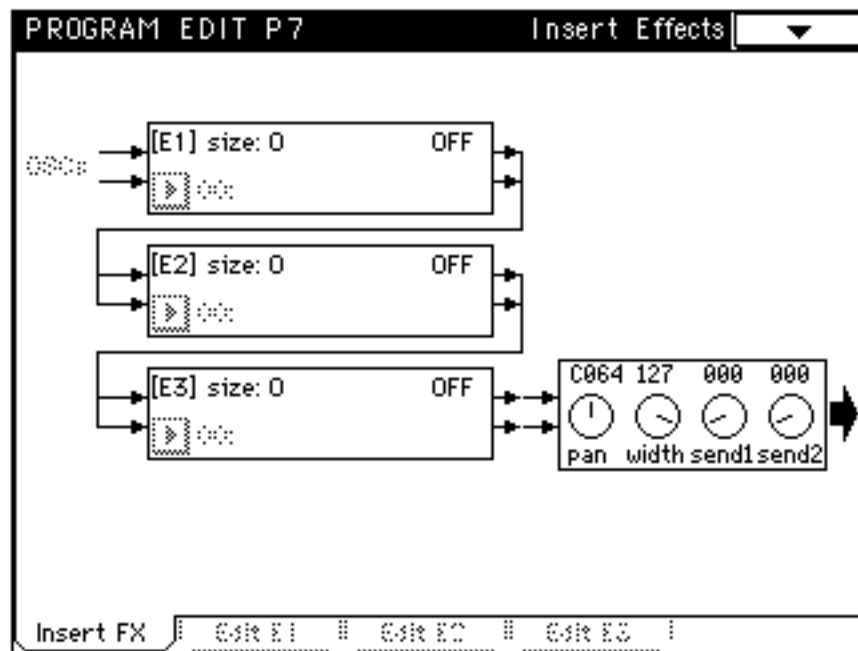
E3 size = 0 / OFF

Pan = C064

Width = 127

Send1 = 000

Send2 = 000



15. Press the P8 button, then touch Tab 1 (Master FX) and enter in the following parameter values:

[Modulation] effect = OFF

[Reverb/Delay] effect = OFF

Pan1 = OFF

Pan2 = OFF

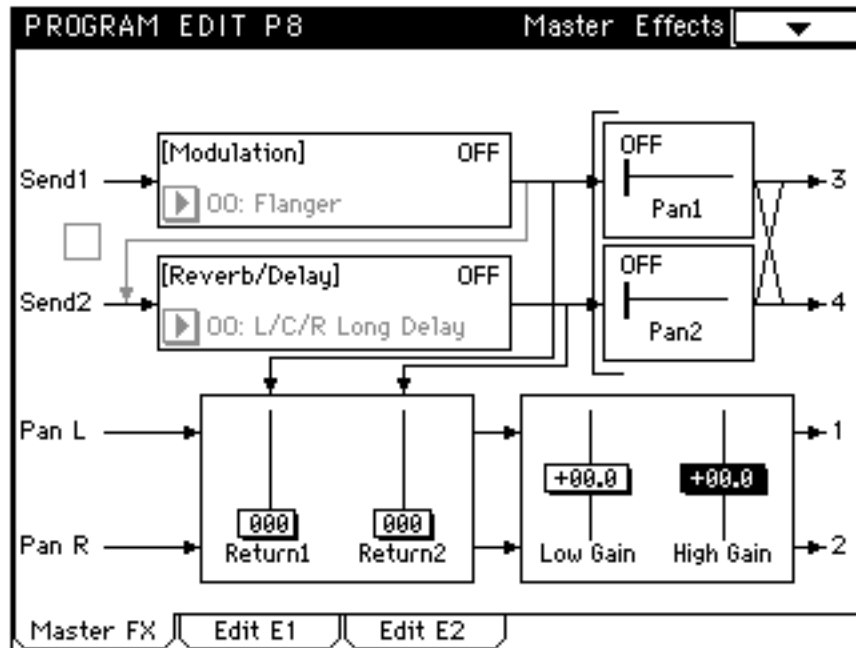
Return1 = 000

Return2 = 000

Low Gain = +00.0

High Gain = +00.0

(Note: Parameters which are not listed here [those that are grayed out in the illustration below] don't matter and can be assigned any value.)



16. Press the P1 button again and touch Tab 1 (Prog Basic). Change the Oscillator Mode from “double” to “single.”
17. Finally, press the REC/WRITE button (or execute the Page Menu “Write Program” option) to write the edited program to memory. In order to make a permanent copy of it, go to Disk mode and Save All (or Save Combi/Prog) to a floppy disk (to conserve time and disk space, you can simply write the contents of the Bank in which you stored “Sample Test Prog”—see page 40 in this Guidebook for more information).

Creating an Initialized Drum Kit

Next, let's create an initialized drum kit:

1. Begin by calling up the "Sample Test Prog" program you just created (this is important!), then press the GLOBAL button, followed by P5. The first step is to locate a Trinity drum kit that you consider expendable; this is the area of memory you'll use to store the initialized template in. Accordingly, touch the DrumKit parameter in the top left-hand corner of the screen; a dialog box will drop down listing the 24 drum kits currently in memory. If any of them are named "User Kit," followed by a number, you've located an empty kit—call it up and you're ready to proceed. If none of them are named "User Kit," you'll need to audition each kit in turn by calling it up and playing the keyboard. If you find that you are absolutely in love with all 24 drum kits in memory, go to Disk mode and Save All (or Save Combi/Prog) to a floppy disk; this way, you have a permanent backup, at which point you can store the initialized template in *any* memory location.
2. If you are starting from an empty "User Kit," jump to the next step in these instructions. If you are starting out with a drum kit that already has data in it, touch the onscreen Key parameter and use the data entry dial to scroll through the entire range of Trinity notes, from A0 to C8, making sure that the Assign box is unchecked for every note.
3. Touch the onscreen Key parameter and use the data entry dial to scroll to C4, then check the Assign box for that note only.

4. Enter in the following parameter values on the rest of the screen:

High:

(Drumsample select) = 258: Amp Noise

Start Offset = box unchecked

Tune = +00.0

Level = +00

Decay = +00

Low:

(Drumsample select) = 000: OFF

Bottom Vel = 001

Ex = OFF

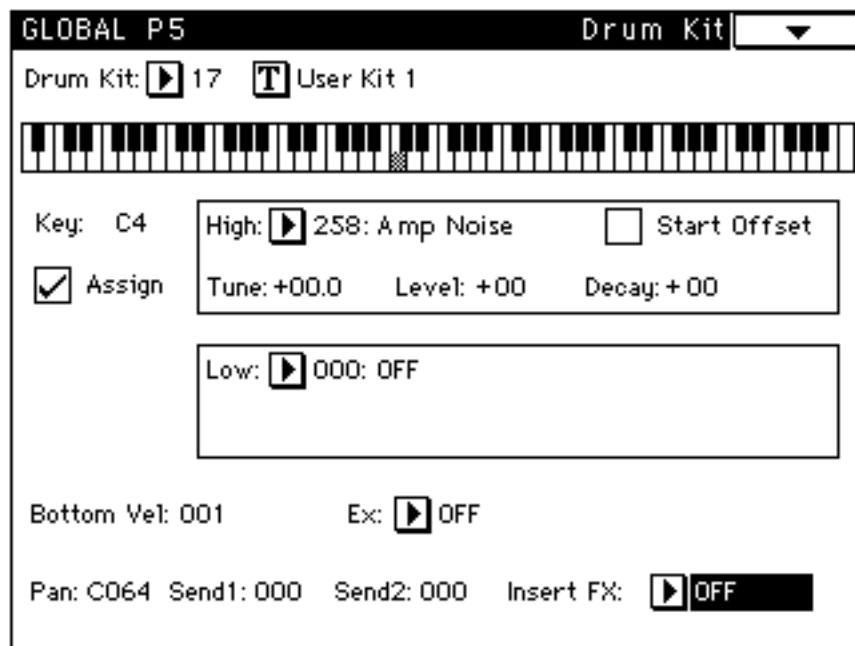
Pan = C064

Send1 = 000

Send2 = 000

Insert Fx = OFF

(Note: Parameters which are not listed here [those that are grayed out in the illustration below] don't matter and can be assigned any value.)



5. Finally, rename the drum kit (we suggest the name “Sample Test Kit”) and you’re done! (Unlike programs, drum kits do not have to be written into memory—they are automatically saved as you edit them.)

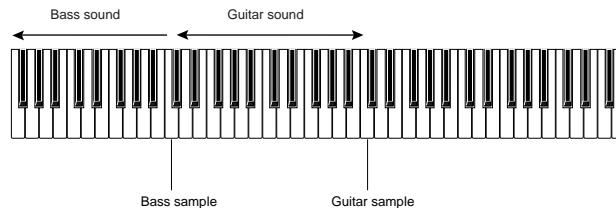
Now it’s time to use our initialized drum kit and program to audition drum samples and multisamples.

Auditioning Drum Samples

To audition a single drum sample:

1. Begin by calling up the “Sample Test Prog” program you just created (this is important!), then press the GLOBAL button, followed by P5.
2. Touch the DrumKit parameter in the top left-hand corner of the screen and select the “Sample Test Kit” you just created.
3. Touch the High parameter. A dialog box listing all drum samples in memory will drop down. Drum samples in permanent ROM are numbered 000 - 258, while those in Flash ROM (the ones you loaded from disk) are numbered 259 and up. Select the drum sample you want to audition and play middle C on the Trinity keyboard. Voila! If the selected drum sample has a loop, the Start Offset button will appear (if there is no loop, it will be grayed out). When the box is unchecked, the selected drum sample begins playing from its start point; when it is checked, the selected drum sample begins playing from its loop start point.
4. Because no other notes have been assigned (remember, you unchecked the Assign box for all notes other than C4 when you created “Sample Test Kit”), the pitch of the drum sample you are listening to will change as you play notes below middle C (drum samples can only be pitch-shifted downwards, not upwards). If you want to hear the drum sample without any pitch shifting, press the PROG button, followed by the EDIT button. Then press P2 and touch Tab 1 (OSC1 P.Mod). Touch the Pitch Slope parameter (top left-hand corner of the screen) and set a new value of +0.0, then press the GLOBAL button to return to GLOBAL P5 (since this is only a temporary edit, you don’t have to re-save “Sample Test Prog” before exiting to Global mode).

To audition multiple drum samples, simply touch the Key parameter and scroll to the next note you want to assign a drum sample to, then touch the High parameter and select a different drum sample. The Trinity automatically extends the key range of assigned drum samples downward until the next assigned key. For example, if you assign a drum sample called “Guitar” to C4, and then assign a second drum sample called “Bass” to C2, you’ll hear the “Guitar” sound when you play notes C#2 to C4, and the “Bass” sound when you play notes C2 and below.



You can continue assigning drum samples to any notes in the full A0 - C8 key range—even all 88 of them if you really want to go nuts! You can also velocity-switch between drum samples, simply by assigning one to High and the other to Low, and then setting the Bottom Vel parameter as desired. You can also independently adjust the Level, Pan position and tuning (Tune) of each individual drum sample (the Decay, Send1, Send2, and Insert Fx parameters are best set after the drum kit is imported into a Program and are ignored when converting a drum kit into a multisample—see page 31 in this Guidebook for more information).

Once you’ve got a grouping of individual drum samples just the way you want them, you have two options: you can either use your new custom drum kit in a Program, or you can convert the kit into a multisample.

Using a Drum Kit In a Program

This one’s easy!

1. Press the PROG button and, using the TouchView display, value dial, or numeric keypad, call up the “Sample Test Prog” you created earlier.
2. Press the EDIT button, followed by P1. Touch Tab 1 (Prog Basic) and change the Oscillator Mode to “drums.”
3. Touch Tab 2 (OSC Basic) and select the “Sample Test Kit” you just created. You now have access to the full range of Trinity editing parameters (consult your Trinity owner’s manuals for details) and effects. In addition, by jumping back to GLOBAL P5, you can also adjust the Level, Decay, and Effects Sends for each individual drum sample within the kit.

4. Don't forget to rename and store your newly edited program before switching to another program or powering down. (We suggest you store it to a different memory location so that you still have "Sample Test Prog" available for more auditioning.)

Converting a Drum Kit into a Multisample

This one's also easy!

1. While still in GLOBAL P5, touch the DrumKit parameter and call up a drum kit you consider expendable (any empty User Kit or any kit that you have already Saved to disk).
2. Open the Page Menu and select the Copy Drumkit option to copy "Sample Test Kit" into this kit.
3. Touch the Text dialog at the top of the screen and rename "Sample Test Kit"—this is important, since the multisample you'll be creating will use this name. We recommend using a name that describes the drumsamples that are being used by the kit (i.e. "Funky Guitar" or "Twisted Tubas").
4. Open the Page Menu again and select the Convert To Multisample option (a new menu item added by the PBS-TRI option). A dialog box will appear which will ask you if you want to convert the High DrumSamples or the Low DrumSamples (velocity switching is not supported when converting from a drum kit to a multisample).



- Since we only assigned High drum samples, select the High option. Then touch "OK" when the Are You Sure? dialog box appears, and you're done.
5. To view your new multisample and confirm that it has been successfully created, press the GLOBAL button, followed by P6. Then touch the Edit parameter in the center of the screen and select Multisample. Touch the No: (Number) parameter and a menu will drop down, allowing you to

scroll through all multisamples in memory. The Trinity automatically assigns each newly created (or loaded) multisample the next higher available number above 374 (numbers 0 - 374 are used by the multisamples in permanent ROM), so if there were no multisamples in memory before, your new one will be assigned number 375. To audition your newly created multisample, see below.

Auditioning Multisamples

To audition a single multisample:

1. Call up the “Sample Test Prog” program and press the EDIT button, followed by P1.
2. Touch Tab 2 (OSC Basic) and then touch the High multisample parameter. A dialog box listing all multisamples in memory will drop down. Multisamples in permanent ROM are numbered 000 - 374, while those in Flash ROM (the ones you load from disk or the ones you create when converting drum kits into a multisamples) are numbered 375 and up. Select the multisample you want to audition and play a note on the Trinity keyboard. Voila! (again!) If the selected multisample has a loop, the Start Offset button will appear (if there is no loop, it will be grayed out). When the box is unchecked, the selected multisample begins playing from its start point; when it is checked, the selected multisample begins playing from its loop start point.
3. As noted on page 29 of this Guidebook, drum samples can only be pitch-shifted downwards, not upwards. However, multisamples can be shifted both ways. To extend the range of a single multisample so that it can be pitch-shifted upwards, press the GLOBAL button, followed by P6. Touch the Edit parameter and select Multisample, then touch the No: (Number) parameter and select the multisample you are currently auditioning. Then touch and adjust the TopKey parameter (bottom line of the display). Setting this to the highest key (G9) will allow the multisample to be pitch-shifted a full two octaves higher. For more information on editing multisamples, see page 37 in this Guidebook.

Want to layer two multisamples and hear them together? No problem—just touch Tab 1 (Prog Basic) and change the Oscillator Mode to double. Now press Tab 2 (OSC Basic) and you can assign any other multisample to OSC2. For a doubling effect, layer the same multisample and use alter the Tuning of one slightly or use the Delay parameter to shift its start it by a few milliseconds. For echo effects, keep the tuning the same but delay one multisample by 100 ms or more.

Want to velocity-switch between two multisamples? That's easy, too—just assign one to “High” and another to “Low,” then set the Velocity switch as desired. This procedure also allows you to reconstruct any velocity-switching you used when creating a custom drum kit—use the Convert To Multisample option twice, converting the High drum samples to one multisample and the Low drum samples to another.

Finally, bear in mind that programs that use custom multisamples can, like all other programs, be grouped together in combis, thus greatly increasing the layering and editing capabilities all around. If raw programming power is what you're after, the Trinity is the answer!

Reconstructing Stereo Samples

As discussed on page 10 of this Guidebook, when you load a stereo AIFF or WAV file, the Trinity places it into memory as two drum samples, with an “L” added to the left channel data and an “R” added to the right channel data. Using your initialized drum kit and program, you can easily recombine the two into a single stereo program. Here's how:

1. From Program mode, call up the “Sample Test Prog” program (this is important!), then press the GLOBAL button, followed by P5.
2. Touch the DrumKit parameter and find two drum kits you consider expendable (any two empty User Kits or any two kits that you have already Saved to disk).
3. Select one of the kits and then open the Page Menu. Use the Copy Drumkit option to copy “Sample Test Kit” into this kit, then do the same for the other kit. You should now have three initialized drum kits, all named “Sample Test Kit.”
4. Touch the Text dialog at the top of the screen and rename one of the kits “InstrumentName L,” substituting the kind of sound for “InstrumentName” (for example, if you loaded a stereo piano AIFF or WAV file, name the kit “Piano L”). Then touch the DrumKit parameter and call up one of the remaining two initialized drum kits. Touch the Text dialog at the top of the screen and give the kit the same name, adding an “R” at the end (for example, “Piano R”).
5. Touch the Key parameter and scroll to C4 (Middle C), then make sure the Assign box is checked. Touch the High parameter and from the resulting menu select the “R” (right channel) drum sample.

6. Open the Page Menu and select the Convert To Multisample option. In the resultant dialog box, select the High option, and then touch "OK" when the Are You Sure? dialog box appears. You've now converted the right channel drum sample into a multisample named "InstrumentName R."
7. Touch the DrumKit parameter and select the drum kit you named "InstrumentName L."
8. Touch the High parameter and from the resulting menu select the "L" (left channel) drum sample.
9. Once again, open the page menu and select the Convert To Multisample option. In the resultant dialog box, select the High option, and then touch "OK" when the Are You Sure? dialog box appears. You've now converted the left channel drum sample into a multisample named "InstrumentName L."
10. To confirm the process, press the P6 button, then touch the Edit parameter in the center of the screen and select Multisample. Touch the No: (Number) parameter to view the two new multisamples.
11. All we have to do now is to load both multisamples into the initialized "Sample Test Prog" program. Accordingly, press the PROG button, followed by the EDIT button. Touch Tab 1 (Prog Basic) and change the Oscillator Mode to double. Then touch Tab 2 (OSC Basic) and assign the left "L" multisample to OSC1 and the right "R" multisample to OSC2. If you now play middle C on the Trinity keyboard, you'll hear both samples, in perfect sync with one another, but in mono.
12. In order to reconstruct the stereo image, we need to pan OSC1 hard left and OSC2 hard right. To do so, press the P5 button and touch Tab 1 (Amp1 Mod), then touch the Pan parameter and enter in a value of L000. Then touch Tab 3 (Amp2 Mod), touch its Pan parameter and enter in a value of R127. Play middle C on the Trinity keyboard and you'll hear the original AIFF or WAV file successfully reconstructed in glorious stereo!
13. As noted on page 29 of this Guidebook, drum samples can only be pitch-shifted downwards, not upwards. However, multisamples can be shifted both ways. To extend the range of a multisample so that it can be pitch-shifted upwards, press the GLOBAL button, followed by P6. Touch the Edit parameter and select Multisample, then touch the No: (Number) parameter and select the left "L" multisample. Then touch and adjust the TopKey parameter (bottom line of the display). Setting this to the highest key (G9) will allow the multisample to be pitch-shifted a full two octaves

higher. Repeat the process for the “R” multisample. For more information on editing multisamples, see page 37 in this Guidebook.

A Word About Sample Loops

Sample looping is a popular technique that helps conserve memory. The Trinity supports a single loop and is capable of playing both looped and non-looped samples. If a drum sample contains a loop, the Start Offset box in GLOBAL P6 will be accessible; if not, it will be grayed out. If a multisample contains a loop, the Start Offset box in PROG EDIT P1 Tab 2 (OSC Basic) will be accessible; if not, it will be grayed out. In either case, if the box is unchecked, the sample will start playback from the beginning and then repeat from the loop start point to the loop end point throughout the duration of the current Program’s Amp EG. If the box is checked, the sample will start playback from the loop start point until the loop end point and then repeat throughout the duration of the current Program’s Amp EG.

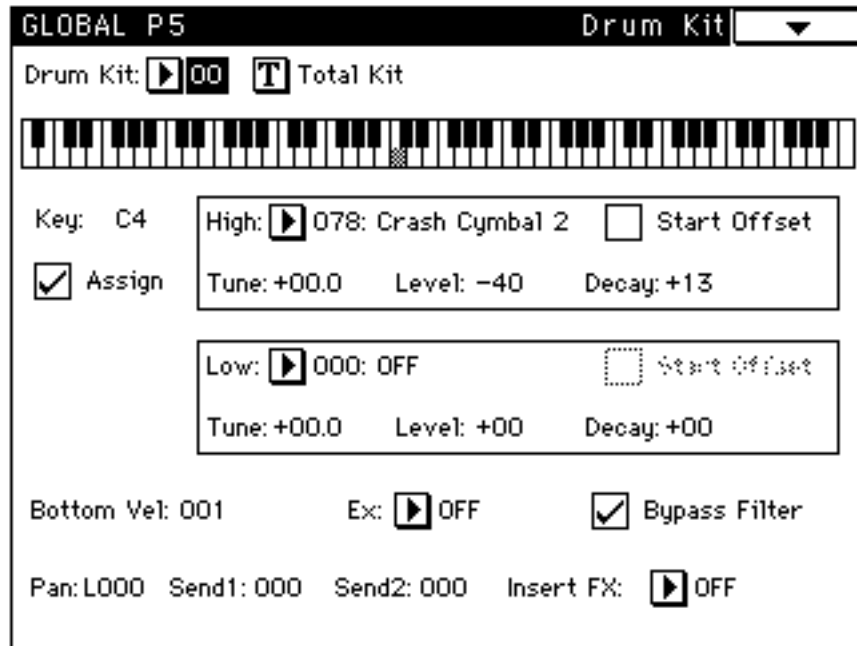
All sample file formats recognized by the Trinity (Korg KSF, Korg KMP, Akai Sample, Akai Program, AIFF, and WAV) can contain looped or unlooped samples. However, Akai Sample and Program files can contain up to 8 loops per sample. If such a file contains one or more loops, only the first HOLD loop will be recognized and played by the Trinity. AIFF files can contain “chunks” that identify releaseLoops (loops played only during an envelope generator’s release phase) and ForwardBackward Looping (where the loop is repeatedly played from start to finish, then from finish to start). Both of these chunks are ignored by the Trinity, and ForwardBackward loops are played as simple forward loops. WAV files can also contain a single loop; however, the current operating software (2.2) of the Trinity ignores these markers, so imported WAV files will not play with loops at all. For this reason, as noted on page 11 of this Guidebook, it is preferable to save computer audio files in AIFF (rather than WAV) format wherever possible.

Editing Drum Samples and Multisamples

The PBS-TRI option enables you to perform basic editing operations on drum samples and multisamples stored in Flash ROM. Both drum samples and multisamples can also be renamed in GLOBAL P6; simply touch the Edit parameter and select the sample type, then touch the No: parameter. Select the drum sample or multisample you want to rename, and then use the text dialog as usual. Up to 16 characters may be entered. To save the new name, be sure to write the revised sample to memory (using the GLOBAL P6 page menu Write Sample Parameter option) before turning the Trinity power off.

Drum Sample Editing Operations

All drum sample editing functions are found in GLOBAL P5. Once a drum sample is assigned to a key, you can edit its tuning, volume, and decay time. If the drum sample has a loop, you can also opt to check the Start Offset box, in which case it will begin playback from the loop start point instead of from the beginning.



The *Tune* parameter is adjustable in increments of half a semitone, over a range of -60.0 semitones (5 octaves down) to +24.0 semitones (two octaves up). When you raise the pitch of sample, you are simply increasing its playback speed, so its overall duration is shortened. Conversely, when you lower the pitch of a sample, you are simply lowering its playback speed, so its overall duration is lengthened. This audio phenomenon is sometimes called *munchkinization* (follow the yellow brick road...).

The *Level* parameter sets the relative volume of the selected drum sample and is adjustable over a range of -99 to +99, with a value of +00 indicating no increase or decrease. This parameter is tied to the Amp level (EDIT P5 Tab 1) of the program currently in memory. Consequently, if the Amp level is at maximum (127), increases in the drum sample Level above +00 will not be heard.

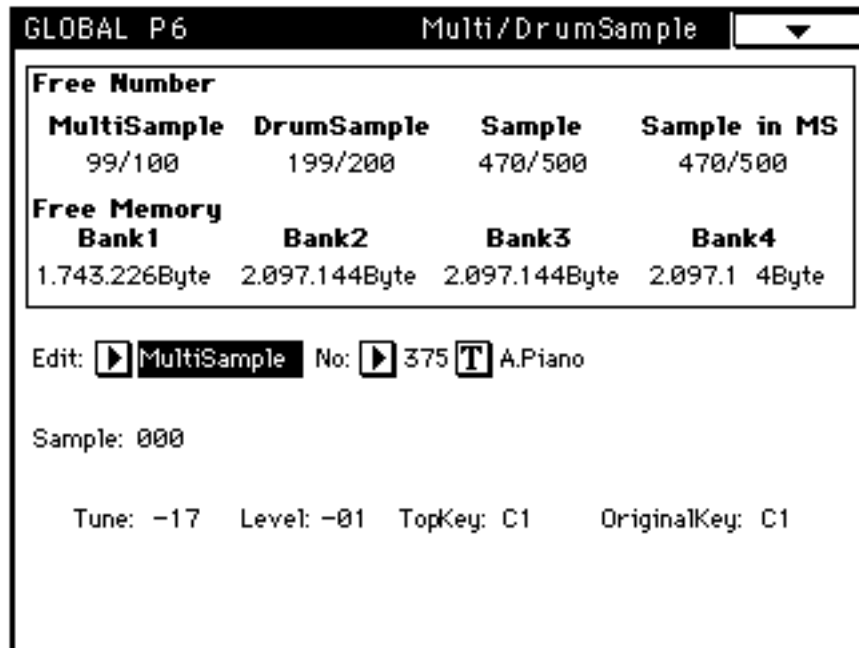
The *Decay* parameter is also adjustable over a range of -99 to +99, with a value of +00 indicating no increase or decrease. Higher (positive) values mean longer Decay times and lower (negative) values mean shorter Decay times. This parameter is tied to the Amp EG Decay setting (EDIT P5 Tab 2) of the program currently in memory. Consequently, if the Decay time is at maximum

(99), increases in the drum sample Decay above +00 will not be heard. Hint: use negative Decay values to “clip” a drum sample so that only its initial attack portion is heard; this is also a good way to cut off a drum sample before its loop portion begins.

Changes to all drum sample edit parameters in GLOBAL P5 are automatically retained in memory by the Trinity even after it is powered down. The Start Offset, Tune and Level parameters of each drum sample are retained when a drum kit is converted into a multisample; however, the Decay parameter is ignored.

Multisample Editing Operations

All multisample editing functions are found in GLOBAL P6. These allow you to edit each of the individual samples contained within the multisample selected with the No: (Number) parameter. When you touch the Edit parameter in this screen and select Multisample, the following edit parameters appear: Sample, Tune, Level, TopKey, and OriginalKey.

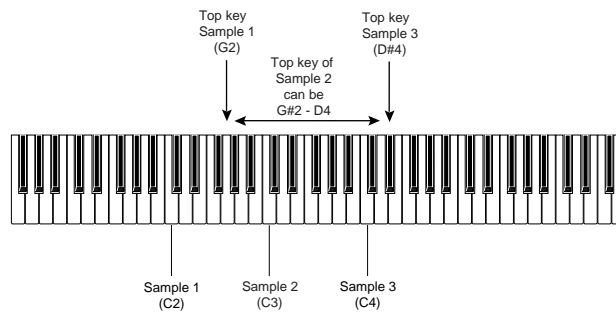


The *Sample* parameter simply allows you to select which of the individual samples contained within the multisample is to be edited. Unlike drum samples, these samples appear by number only and have no name. The sample assigned to the lowest key range is numbered 000, the sample assigned to the next higher key range is numbered 001, and so on. In order to hear the results of your editing operations, you must assign the multisample to the program currently in memory (see “Auditioning Multisamples” on page 32 of this Guidebook)—another good reason for keeping your initialized “Sample Test Prog” handy!

The *Tune* parameter is adjustable in increments of one cent (one-hundredth of a semitone), over a range of -99 cents (a semitone down) to +99 cents (one semitone up). Its main function is to fine-tune a section of a multisample, emulating acoustic phenomena such as piano stretch tuning.

The *Level* parameter sets the relative volume of the selected sample and is adjustable over a range of -99 to +99, with a value of +00 indicating no increase or decrease. This parameter will always raise or lower the volume of the selected sample, regardless of the Amp level (EDIT P5 Tab 1) of the program currently in memory.

The *TopKey* parameter sets the highest key that the selected sample is assigned to. If you load an Akai Program file, this value will automatically be loaded in. As shown in the illustration below, it can be no higher than the TopKey of the sample immediately to its right and no lower than the TopKey of the sample immediately to its left.



The *OriginalKey* is the key which plays the selected sample at its original pitch (that is, the pitch it was at when originally recorded). If you load an Akai Program file or an AIFF file, this value will be automatically loaded in. As you play a key on the keyboard and raise the OriginalKey parameter, the pitch of the note will shift downward. As you play a key on the keyboard and lower the OriginalKey parameter, the pitch of the note will shift upward. Because the Trinity can only pitch-shift samples up by a maximum of two octaves, if you play notes on the keyboard that are more than two octaves higher than the OriginalKey, you will hear no pitch change. Hint to all you budding sound designers out there: radical shifts in pitch can often give a sound a completely different character!

Changes to multisample edit parameters in GLOBAL P6 are *not* retained in memory by the Trinity after it is powered down, so be sure to write the revised sample to memory (using the GLOBAL P6 page menu Write Sample Parameter option) before turning the Trinity power off.

Deleting Drum Samples and Multisamples

As mentioned way back on page 4 of this Guidebook, there is no means for selectively erasing specific drum samples or multisamples from the expanded memory of your Trinity (this is due to the nature of Flash ROM memory). So the story here is, it's all or none. If you're sure you want to erase *all* drum samples and multisamples in expanded memory, use the GLOBAL P6 page menu Delete All Multi/Drum Sample command. This will not have any effect whatsoever on the samples, drum samples, and multisamples in your Trinity's permanent ROM memory, so all factory presets will be completely unaffected.

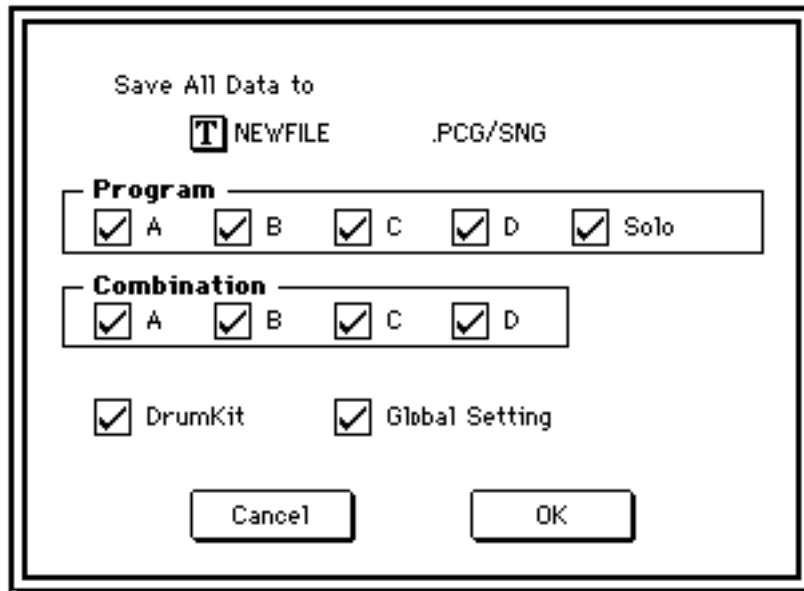
However, before you start erasing and deleting, it's a good idea to save your work to disk—you'd be surprised how often you might find yourself needing a sample that you thought you'd never need again! So read on...

Saving Drum Samples and Multisamples

Although the PBS-TRI option allows your Trinity to read in Akai, AIFF, and WAV files, it always saves drum samples and multisamples in Korg file formats (as described on page 6 in this Guidebook). You can choose to Save One drum sample or multisample or to Save All drum samples and/or multisamples. Drum samples are always saved as KSF (Korg Sample File) files, while multisamples are always saved as KMP (Korg Multisample Parameter) files, along with all associated KSF files. In addition, when you invoke any of the Save All commands, a KSC (Korg SScript) file is automatically created and saved. This allows you to quickly load back in all the files saved, in one go.

The Save procedures are fairly straightforward, but it is important to note that the names of the drum samples and multisamples displayed by your Trinity are generally not the same as the names of the resultant files when the data gets saved to disk (see the individual procedures sections below for more information). If you are saving to floppy disks only, the Trinity operating system makes it possible for you to save individual files or collections of files larger than 1.4 megabytes to multiple disks—a dialog box will simply inform you that the currently inserted disk is full and you will be prompted to insert another one.

The PBS-TRI option also allows you to save specific banks of programs or combis when executing the Save All or Save Combi/Prog command from the DISK P2 page menu—simply put a checkmark into the box alongside each Bank you want to save.



This is handy when you only want to save a few selected Programs and/or Combis. It also allows you to create smaller PCG files, which take less time to create and take up less disk space.

Save One Drum Sample

Here's the procedure for saving a single drum sample:

1. Before saving any kind of data, it's a good idea to set the Trinity clock. Time- and date-stamping is a good way of identifying data, especially when you have lots of files on disk. Setting the clock, however, has to be done manually, because the date and time setting is not held in memory when the instrument is powered down. Accordingly, press DISK and touch Tab 3 (Utility). From the page menu, select the Set Date/Time option and enter in the correct information in the dialog box that appears (bear in mind that the clock is a 24-hour one, so that, for example, 3 PM would be entered as "15" hours).
2. If you have the SCSI-TRI SCSI option or HDR-TRI hard disk recorder option installed in your Trinity and you have connected external hard drives or removable media, touch the Drive Select menu in the bottom left-hand corner. It will drop down, with your floppy drive listed at the top and any connected (and properly formatted) SCSI drives listed underneath, in order of ID. (See page 59 in this Guidebook for

information about formatting SCSI drives.) Select the drive you wish to save to and the menu will close.

3. Touch Tab 2 (SAVE). Open the page menu and select Save Multi/DrumSample (this item is added by the PBS-TRI option). The following dialog box will appear.



4. Touch the text edit button at the top of the dialog box and enter a name for the KSF file to be saved (up to 8 characters can be used).
5. Choose the Save One DrumSample option, and then use the drop-down menu to select the drum sample you want to save. Touch OK and you're done!

Save One Multisample

Here's the procedure for saving a single multisample:

1. Start by setting the Trinity clock, as described above. Again, if you have the SCSI-TRI SCSI option or HDR-TRI hard disk recorder option installed in your Trinity and multiple drives connected, use the Drive Select menu to specify which drive you want to use.
2. Remember, when you save a multisample, a KMP file is created, as well as all associated KSF files. For this reason, *it is strongly recommended that you always create a directory first before saving multisamples.* If you don't do this, you'll soon find your disk filled with dozens or hundreds of files, making data management a difficult if not impossible task. Accordingly, touch Tab 3 (Utility) and, from the page menu, select the Create Dir option. In the resulting dialog box, use the text edit button to give your directory a name and touch OK when asked Are You Sure?

3. Touch Tab 2 (Save). Select the directory you just created and touch Open.
4. Open the page menu and select Save Multi/DrumSample.
5. Touch the text edit button at the top of the dialog box and enter a name for the KMP file to be saved (up to 8 characters can be used).
6. Choose the Save One MultiSample option, and then use the drop-down menu to select the multisample you want to save, then touch OK when asked Are You Sure?

The Trinity uses a complex autonumbering scheme when saving the individual drum samples (KSF files) used by a multisample (KMP file). Each KSF file will be named "MSaaabbb.KSF," where MS stands for "MultiSample," aaa is a three-digit number representing the number of the multisample, and bbb is a three-digit number representing the number of the sample within the multisample (sample 000 is the one assigned to the lowest key zone, sample 001 is the one assigned to the next higher key zone, and so on). Because multisamples 000 - 374 are in permanent ROM (and therefore cannot be saved to disk), the first multisample in Flash ROM is numbered 375 in the Trinity display but is numbered 000 when saved to disk. To illustrate:

- The drum sample assigned to the lowest key zone in multisample 375 will be assigned the name "MS000000.KSF".
- The drum sample assigned to the next higher key zone in multisample 375 will be assigned the name "MS000001.KSF".
- The drum sample assigned to the lowest key zone in multisample 376 will be assigned the name "MS001000.KSF".
- The drum sample assigned to the next higher key zone in multisample 376 will be assigned the name "MS001001.KSF".

This may seem somewhat confusing, but if you think about it, it does make a certain computer-like sense. KMP files can be renamed if you like (using the Disk Utility [Tab 3] page menu Rename function), but KSF files should not be renamed once they have been saved as part of a multisample. (Hint: If you absolutely want to rename KSF files that are part of a multisample, use the Disk Utility [Tab 3] page menu Copy function to copy them to another directory on your disk first, leaving the original "MSaaabbb.KSF" files intact in their original directory—then rename the copies.)

Save All Drum Samples

The procedure for saving all drum samples is as follows:

1. Start by setting the Trinity clock, as described above. Again, if you have the SCSI-TRI SCSI option or HDR-TRI hard disk recorder option installed in your Trinity and multiple drives connected, use the Drive Select menu to specify which drive you want to use.
2. When you save all drum samples, numerous KSF files will be created, as well as a KSC file that allows them all to be loaded into memory at once. For this reason, *it is strongly recommended that you always create a directory first before saving all drum samples.* If you don't do this, you'll soon find your disk filled with dozens or hundreds of files, making data management a difficult if not impossible task. Accordingly, touch Tab 3 (Utility) and, from the page menu, select the Create Dir option. In the resulting dialog box, use the text edit button to give your directory a name and touch OK when asked Are You Sure?
3. Touch Tab 2 (Save). Select the directory you just created and touch Open.
4. Open the page menu and select Save Multi/DrumSample.
5. Touch the text edit button at the top of the dialog box and enter a name for the KSC file to be saved (up to 8 characters can be used).
6. Choose the Save All DrumSample option, then touch OK when asked Are You Sure?

The Trinity uses a complex autonumbering scheme when saving all drum samples (KSF files). Each KSF file will be named "DS_ _ _aaa.KSF," where DS stands for "Drum Sample," and aaa is a three-digit number representing the number of the drum sample. Because drum samples 000 - 258 are in permanent ROM (and therefore cannot be saved to disk), the first drum sample in Flash ROM is numbered 259 in the Trinity display but is numbered 000 when saved to disk. To illustrate:

- Drum sample 259 will be assigned the name "DS_ _ _000.KSF".
- Drum sample 260 will be assigned the name "DS_ _ _001.KSF".

KSC files can be renamed if you like (using the Disk Utility [Tab 3] page menu Rename function), but KSF files should not be renamed once they have been saved using the Save All DrumSample option. (Hint: If you absolutely want to rename KSF files that were saved using the Save All DrumSample option, use the Disk Utility [Tab 3] page menu Copy function to copy them to another

directory on your disk first, leaving the original “DS___aaa.KSF” files intact in their original directory—then rename the copies.)

Save All Multisamples

The procedure for saving all multisamples is as follows:

1. Start by setting the Trinity clock, as described above. Again, if you have the SCSI-TRI SCSI option or HDR-TRI hard disk recorder option installed in your Trinity and multiple drives connected, use the Drive Select menu to specify which drive you want to use.
2. When you save all multisamples, numerous KMP and KSF files will be created, as well as a KSC file that allows them all to be loaded into memory at once. For this reason, *it is strongly recommended that you always create a directory first before saving all drum samples.* If you don't do this, you'll soon find your disk filled with dozens or hundreds of files, making data management a difficult if not impossible task. Accordingly, touch Tab 3 (Utility) and, from the page menu, select the Create Dir option. In the resulting dialog box, use the text edit button to give your directory a name and touch OK when asked Are You Sure?
3. Touch Tab 2 (Save). Select the directory you just created and touch Open.
4. Open the page menu and select Save Multi/DrumSample.
5. Touch the text edit button at the top of the dialog box and enter a name for the KSC file to be saved (up to 8 characters can be used).
6. Choose the Save All MultiSample option, then touch OK when asked Are You Sure?

The Trinity uses a complex autonumbering scheme when saving all multisamples. Each multisample (KMP) file will be named “AAAAAbbb.KMP,” where AAAAA is, in all-capital letters, the first five characters of the multisample name as displayed by the Trinity (if the name had less than five characters, the underline (“_”) character will be substituted), and bbb is a three-digit number representing the number of the multisample. Because multisamples 000 - 374 are in permanent ROM (and therefore cannot be saved to disk), the first multisample in Flash ROM is numbered 375 in the Trinity display but is numbered 000 when saved to disk. To illustrate:

- A multisample named “GUITAR” stored in slot 375 will be assigned the name “GUITA000.KMP”.
- A multisample named “BASS” stored in slot 376 will be assigned the name “BASS_001.KMP”.

Each drum sample (KSF file) used by a multisample (KMP file) will be named “MSaaabbb.KSF,” where MS stands for “MultiSample,” aaa is a three-digit number representing the number of the multisample, and bbb is a three-digit number representing the number of the sample within the multisample (sample 000 is the one assigned to the lowest key zone, sample 001 is the one assigned to the next higher key zone, and so on). Because multisamples 000 - 374 are in permanent ROM (and therefore cannot be saved to disk), the first multisample in Flash ROM is numbered 375 in the Trinity display but is numbered 000 when saved to disk. To illustrate:

- The drum sample assigned to the lowest key zone in multisample 375 will be assigned the name “MS000000.KSF”.
- The drum sample assigned to the next higher key zone in multisample 375 will be assigned the name “MS000001.KSF”.
- The drum sample assigned to the lowest key zone in multisample 376 will be assigned the name “MS001000.KSF”.
- The drum sample assigned to the next higher key zone in multisample 376 will be assigned the name “MS001001.KSF”.

KSC files can be renamed if you like (using the Disk Utility [Tab 3] page menu Rename function), but KMP and KSF files should not be renamed once they have been saved using the Save All MultiSample option. (Hint: If you absolutely want to rename KMP or KSF files that were saved using the Save All MultiSample option, use the Disk Utility [Tab 3] page menu Copy function to copy them to another directory on your disk first, leaving the original “AAAAAbbb.KMP” and “MSaaabbb.KSF” files intact in their original directory—then rename the copies.)

Save All

The Save All procedure is essentially identical to Save All Multisamples (see above). However, in addition to saving all multisamples (in the format “AAAAAbbb.KMP”) and all drum samples used in multisamples (in the format “MSaaabbb.KSF”), all individual drum samples—even those not used in multisamples—are also saved (in the format “DS_ _ _aaa.KSF”). See the preceding sections for more information.

Creating Custom Sets

Here’s the procedure for combining your favorite samples and programs together into a custom set:

1. Start by creating a list of your favorite Programs from a given TFD-“S” PCM collection. For each Program, write down the Bank, Program number, and the multisample names and numbers which are assigned to OSC 1 & 2-[Press PROG, EDIT, P1, and Tab 2 (OSC Basic) to see the multisample name and number].

Hint: Do this whenever you audition a new collection of sounds. Write down any information about Programs that you may want to “merge” at some later date.

Note: multisamples 000-374 are from the internal Trinity PCM ROM. Samples or multisamples loaded into the Flash ROM area are assigned a number starting at 375.

2. After documenting the Programs and multisamples you want to load from a given TFD-“S” PCM collection, continue by loading the next set that you wish to get data from. After loading the samples and PCG file, document your favorite multisamples and Programs.

Note: Before loading the next collection, you must first delete all the multisamples currently in the Flash ROM. To do this, press GLOBAL, then P6, then open the page menu, selecting “Delete All Multi/DrumSamples”.

3. After documenting Program and multisample numbers, erase the Flash ROM again so you’re ready to load in the specific multisamples you want from each collection.
4. To load individual multisamples, use the documentation that comes with each TFD-“S” PCM collection to locate specific samples and the disk(s) that they are on. Insert the required disk and select and highlight the multisample/KMP file, (do *not* load ALL_INST.KSC).

5. Touch the LOAD Tab (if it is not already highlighted) and then open the page menu and select "Load Selected." The selected multisample/KMP file will be appended to the internal multisample list and will start at multisample #375. Do not load the KSF files found inside each Folder in Disk1 thru Disk6. They are only used when ALL_INST.KSC (script files) are loaded. Note: If you do not have the documentation that accompanies each TFD-"S" PCM disk set, contact Korg product support at 516-333-8737 and a copy can be faxed or mailed to you.
6. Repeat this process for each of the multisamples you wish to load.
7. Now load the Program data. Insert disk 7 from the needed TFD set, select the PCG file and touch Open. The PCG folder will open and show the Bank C and Bank D folders.
8. Select the C bank and touch Open. The folder will open to show all 128 Programs contained in that bank.
9. Scroll to the Program you want and select it by touching/highlighting it. Open the page menu and touch "Load selected." On the next screen, pick a Bank and Program location number you wish to load into and touch OK. The Program will be loaded into this location.

Note: Loading Programs into new Program locations can cause Combinations to play incorrectly. This can occur because Combinations point to specific Program locations, and if you change what is in that Program location, the Combination will still point there. When you're done you may want to edit some of your Combinations to make sure that they play correctly—don't worry about it for now.

10. Repeat this process for each of the Programs you wish to use, going from collection to collection as needed.
11. To assign the correct multisample to each Program, select a Program and press EDIT.
12. Touch Tab 2 (OSC Basic). Next to OSC1 and OSC2 select the proper multisample for that Program, which you should have written down on your list.

Note: the multisample number will most likely change, but the multisample name will be the same. If an oscillator is pointing to a multisample between 000 and 374, don't change it! Not all of the new Programs will only use new multisamples from the Flash ROM—many Programs mix Flash ROM data with internal Trinity multisamples.

13. To write the Program into memory, press the REC/WRITE button (by the sequencer transport controls) and then touch OK.

Cool trick, huh? The REC/WRITE button can be used as a shortcut to write edits to Programs or Combis into the same location. To write Programs into other locations, open the page menu from any Edit screen and select the Write Program function. Repeat this for each Program you've loaded, and then you're finished!

Here's an example to walk you through the process. We'll load Program C002 (16' Stereo Piano) from TFD-1S (MegaPianos), and Program C004 (Orch Xylophone) from TFD-2S (Orchestral Elements). Both of these collections came with your PBS-TRI option.

To speed things up, we'll assume that you've already documented these collections, and you know that the 16' Stereo Piano Program has OSC 1 pointing to multisample L1Stereo, and OSC 2 pointing to R1Stereo. The Orch Xylophone is a single oscillator Program, with OSC 1 pointing to multisample ORCH_XPN.

Before loading, make sure to delete any existing multisamples in the Flash ROM area. Press GLOBAL, then P6, then open the page menu and select Delete all Multi/Drum Sample.

Now load the multisamples for Program C002 (16' Stereo Piano) from the TFD-1S disk set. Using the documentation that is supplied with the TFD sets, you will see that multisample L1STEREO.KMP is on disk number 1, and multisample R1STEREO.KMP is on disk number 2.

1. Insert disk number 1 and locate the L1STEREO.KMP file.
2. Highlight it, touch on the tab next to load in the upper right-hand corner, and touch Load Selected.
3. Multisample R1STEREO.KMP is on disk number 2. Insert it into the drive and locate R1 STEREO.KMP.
4. Highlight it, open the Page Menu, and touch Load Selected.

Now you'll need to load the Xylophone multisample. From the documentation, you'll see that ORCH_XPN.KMP is located on disk number 6.

1. Insert disk number 6, and locate the multisample.
2. Highlight it, open the Page Menu, and touch Load Selected.

Now the multisamples that are required for the two Programs are loaded in the Flash ROM, and it's time to load the Program data. Program data for each TFD set is contained on disk number 7.

1. To load 16' Stereo Piano, take disk number 7 from TFD-1S Mega Pianos and insert it into the drive. Select the TFD-1S.PCG file and touch open.
2. Highlight the Programs file and touch Open.
3. Select the bank C file and touch Open.
4. Locate 16' Stereo Piano and highlight it.
5. Open the Page Menu and touch Load Selected. A window comes up that allows you to choose a destination for this Program. You can put this Program in any location that you'd like, banks A through D. For this example, select bank C, Program 000 and touch OK.
6. Repeat the same steps for TFD-2S Program Orchestral Xylophone.

Now that the Program data has been loaded, there is just one final step—editing the Program to point to the correct multisamples.

1. Call up Stereo 16' Piano and press EDIT.
2. Touch Tab 2 (OSC Basic) and make sure that OSC 1 is pointing to multisample L1STEREO.KMP and that OSC 2 is pointing to multisample R1STEREO.KMP. (Remember: New multisamples start at number 375).
3. Once the correct multisamples are assigned, the final step is to save the Program. To do this, open the Page Menu and select Write Program, and touch OK. Follow the same step for the Orchestral Xylophone Program.

Chapter Two: **The HDR-TRI Hard Disk Recorder Option**

Q. When is a synthesizer not just a synthesizer?

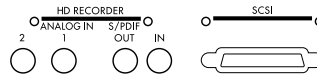
A. When it's a Korg Trinity equipped with the HDR-TRI Hard Disk Recorder option.

This remarkable option changes your meek, mild-mannered Trinity (OK, so maybe it's not so meek) into a kind of SuperSynth. Faster than a speeding bullet, it greatly expands the capability of the Trinity's onboard sixteen-track MIDI sequencer by adding four professional-quality digital audio tracks. Its addition of numerous physical connectors—two analog inputs, a stereo digital input/output (for direct importation of sounds from digital recorders as well as backup to DAT), and a SCSI port that allows up to seven hard drives (including removable cartridges) to be directly connected—makes the Trinity more powerful than a locomotive. And, while all this may not exactly give you the ability to leap tall buildings at a single bound, it does allow you to add vocals and acoustic instruments to your MIDI sequences—complete with effects and automated control over level, pan, and EQ—thus turning the Trinity into a complete, self-contained digital recording studio.

In this chapter, we'll take a close look at all the new functions and features added by the HDR-TRI option and provide a number of previously undocumented tips and techniques for getting the most out of your expanded Trinity.

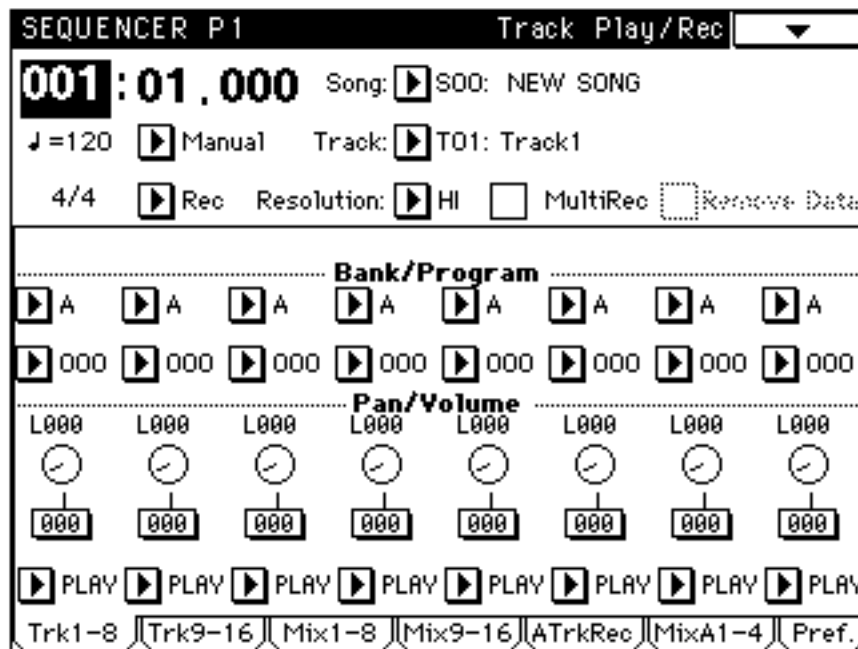
What the HDR-TRI Option Adds

All the physical changes that the HDR-TRI option adds to your Trinity are found on the rear panel, under the heading “HD Recorder”:



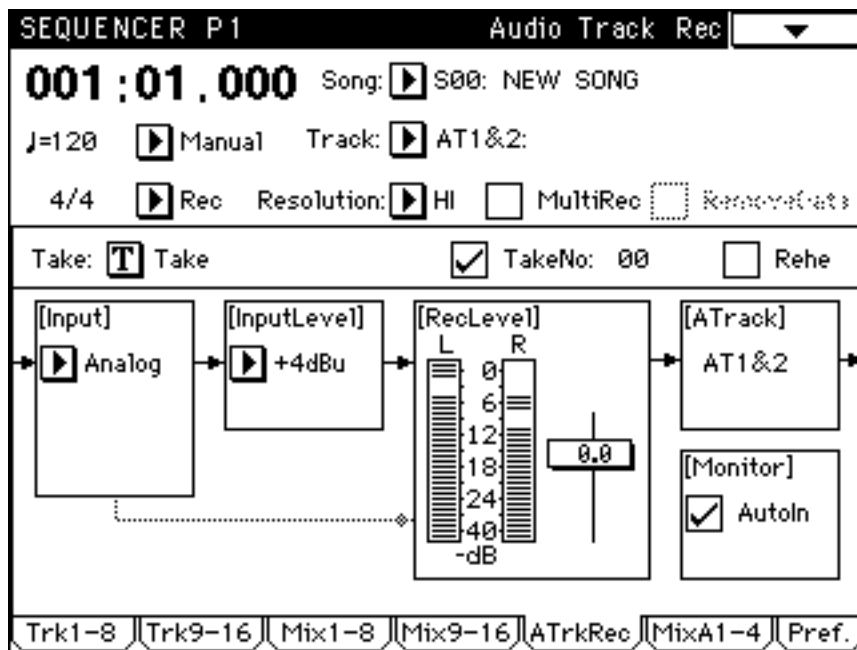
From left to right, you'll find two unbalanced 1/4" Analog In jacks, two RCA-type jacks for routing digital S/P DIF signal in and out of the Trinity*, and a D-Sub 25-pin SCSI connector, used for the connection of one or more hard drives.

But the HDR-TRI option also adds a lot to the Trinity's operating software. For example, press the SEQ button in order to enter sequence mode. As shown in the illustration below, you'll find two new Tabs at the bottom of the Page 1 screen, labeled “ATrkRec” and “MixA1-4.”

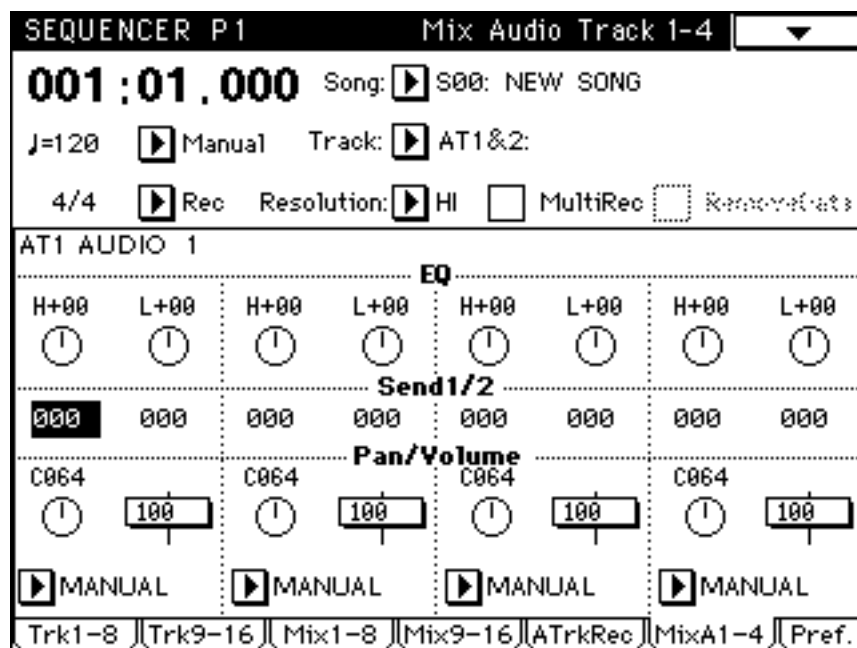


* “S/P DIF” stands for “Sony/Philips Digital Interface.” It is a standard two-channel digital audio format used by many professional and virtually all consumer digital products.

The “ATrkRec” screen (shown below) is used for the recording of audio data into your Trinity. It provides numerous setup options as well as a realtime meter that allows you to continuously view the input level of incoming signal.



The “MixA1-4” screen (shown below) provides a mixer for your four audio tracks. It allows you to set relative levels, pan position, and send levels to the onboard master effects. It also provides two-band digital equalization for each of your audio tracks. All of the controls on this screen can be completely automated.



In addition, there are new screens provided for delaying, editing and naming audio tracks (Sequence P2 Tab 5 and P5 Tabs 3 and 4), as well as a number of new sequencer Page Menu commands. Several new options are also added to

Disk mode. We'll be looking at all of these in detail later in this chapter; however, before we get into specifics, let's take a step back and go through the basics of hard disk recording.

Hard Disk Recording Basics

Up until the early 1980s, virtually all audio recording was done with “analog” technology, where sound is picked up by a microphone and converted into an electrical signal, which is then converted by the record head of a tape recorder into an equivalent magnetic signal and stored on tape. For mass distribution, the recording was transferred to other tape media (such as the standard cassette) or vinyl records. There are, however, inherent limitations to analog recording. For one thing, the surface of magnetic tape adds hiss to the signal—and, if you listen back from a vinyl record, clicks, pops, and other surface noise are also put into the stew. What's more, every circuit in an analog mixer or signal processor (such as mic preamps, equalizers, compressors, and voltage-controlled amplifiers) adds a certain amount of thermal noise and also tends to distort and degrade the signal.

Digital recording provides an elegant solution to most of these problems. Here, sound is again picked up by a microphone and converted into an electrical signal, but instead of being stored on tape, the resultant signal is then routed to an electronic component called an *analog-to-digital converter* (“A/D” for short). This chip performs the remarkable function of converting the continuously fluctuating incoming electrical signal into an equivalent stream of numbers (“digits”). The frequency with which this conversion is performed is called the *sampling rate*. The Trinity HDR-TRI option supports a sampling rate of 48 kHz (that is, 48,000 samples per second); this is the highest rate in common use today. The higher the sampling rate, the more accurate the digital reproduction of the original sound.

Because there is no tape hiss or surface noise added to digital recordings, they are significantly quieter and cleaner than analog recordings. What's more, you can alter the sound of digital recordings internally (as opposed to routing the signal through external circuitry that adds noise and distortion), during recording and/or during playback. This is accomplished through extremely precise mathematical computations called Digital Signal Processing (“DSP” for short). The Trinity HDR-TRI option provides extensive DSP, not only enabling audio data to be digitally equalized, but also providing a pathway by which it can be routed to either or both Master Effects.

Digital recording systems use media such as hard disk, multitrack digital tape, DAT, or CD for the storage of data, which can then be read back out again at any time for playback. The Trinity HDR-TRI option uses a hard disk for storage

purposes. There are several advantages to using a hard disk-based system over a tape-based “MDM” (Modular Digital Multitrack) system:

- Hard disk systems provide random access, making it possible to piece together a complete recording from various specified regions (“audio events”) within a single sound file. This enables you to easily create composite “best-of” tracks from multiple takes.
- Hard disk systems are more expandable than finite tape-based systems. To add more storage capacity to a Trinity HDR-TRI system, all you have to do is substitute a larger hard drive, or add another one to the SCSI chain.
- Hard disk systems are considerably faster than tape-based ones. You can locate to any point in a song virtually instantaneously, instead of having to wait for a tape to rewind and physically engage.

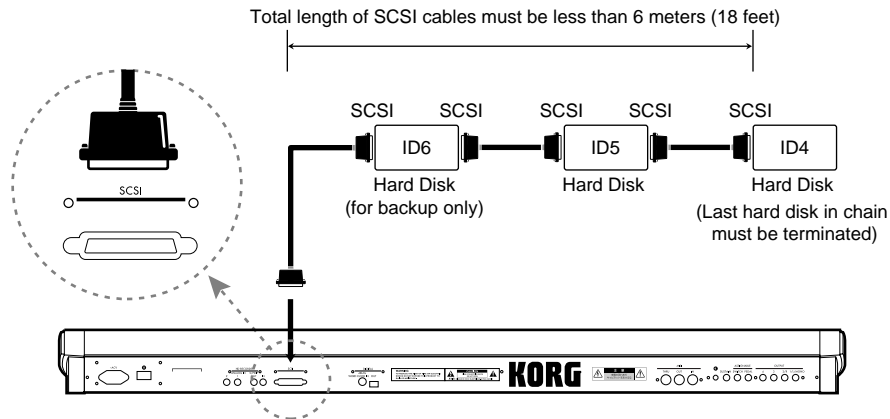
The Importance Of Integrating MIDI And Digital Audio

Up until a few short years ago, one of the most difficult problems encountered in the project and professional studio was that of synchronizing MIDI and digital audio tracks. For example, many musicians would create backing tracks with a MIDI sequencer and then overdub vocals and acoustic instruments such as guitar, sax, etc. to analog multitrack tape. Locking together analog tape and a MIDI sequencer is usually accomplished with a combination of SMPTE time code (striped on tape) and some kind of SMPTE-to-MIDI converter box. Digital recording systems made synchronization even more problematic since all devices have to be resolved to a single, extremely stable clock source.

One huge advantage of the Trinity HDR-TRI system is that it allows both MIDI and digital audio data to be under the control of a single operating system. The problem of synchronization between the two data types is therefore effectively eliminated. What’s more, the processes of recording, playback and editing are greatly simplified and speeded up. For example, both MIDI tracks and corresponding audio tracks (such as overdubbed vocals) can be cut, copied, and pasted—even bounced together digitally! Similarly, audio events (such as snare drum hits or sound effects) can be easily lined up with corresponding MIDI events.

About SCSI

Data is transferred between the Trinity and hard disk via a standard SCSI (Small Computer Systems Interface) connection. SCSI is a high-speed parallel interface (as opposed to the relatively slow serial MIDI interface), which makes it ideal for the transfer of large amounts of data. The SCSI interface supports up to seven devices. Many SCSI devices provide two physical SCSI connectors, so that multiple devices can be connected together in a “daisy-chain” fashion, as shown in the illustration below.



One major key to effective SCSI performance is the use of quality cables—we recommend the thick, double-shielded type with heavy-duty molded connectors. The very best kind of cables to use are those rated as being SCSI-2 compliant. These kind of cables are designed to reliably handle extremely high data transfer rates with less likelihood of error. Avoid putting kinks in SCSI cables and always use the shortest SCSI cables you need for your setup. The total length of a complete SCSI chain should never exceed 18 feet. Always use the provided connector clips in order to ensure a good, solid connection; if you’re having SCSI problems, the first things to check are the connections themselves.

In order to differentiate between SCSI devices, each one must be assigned a unique ID number, from 0 to 7. The ID number of SCSI devices can usually be set with a hardware push-button or dip switch on its rear or front panel. The Trinity (which is acting as SCSI “host”) is permanently assigned SCSI ID #7, and SCSI ID #6 is used for copy functions only (see page 63 in this Guidebook for more information) and so is the best choice for a connected CD-ROM drive; connected hard drives should therefore be assigned SCSI IDs from 0 to 5. Higher-numbered devices are given addressing preference over lower-numbered devices. For this reason, if you are attaching multiple hard drives to your Trinity, the one which will be used most often for recording or playback should be assigned SCSI ID #5, with the second most-used one assigned SCSI ID #4, and so on.* When multiple hard drives are connected, the “Rec HD Select” option in the Sequencer P1 Page Menu allows you to specify which drive is to be used for the recording of audio data for each new song you record (again, drives assigned SCSI ID #6 cannot be used for the recording of audio data).

In theory, the physical order of devices in a SCSI daisy-chain shouldn’t matter. In practice, however, SCSI can be very quirky this way. If you encounter any problems in getting your Trinity HDR-TRI system to work correctly, try changing the physical order of the connected hard drives.

In order for the Trinity to know where the SCSI chain begins and ends, a physical device called a *terminator* must be used. In general, two terminators must be used in any SCSI chain. The Trinity HDR-TRI is internally terminated, so a single terminator should be added to the last device in the chain.**

** There is a possible exception to this rule if one or more removable media hard drives (such as the Iomega JAZ) are connected to the Trinity. See the “Using Removable Media” section on page 61 of this Guidebook for more information.*

*** You may not need a terminator if you are using poor quality SCSI cabling or if there is a significantly long total cable length in your SCSI chain since poor cabling or long cable lengths can actually function like terminators and make the presence of one redundant.*

Always power up all connected hard drives that you intend to use before turning on the Trinity. Due to the vagaries of SCSI, you may find that some hard drives must always be turned on (even if you're not using them) while others can successfully be left off when unneeded. You may need to experiment somewhat to find out how the various hard drives in your particular system operate in this regard.

Last, but by no means least: Never switch off or physically disconnect a hard drive once the system has been switched on—doing so can cause data loss or even damage to the hard disk and/or Trinity. Turn off all connected SCSI devices only after the Trinity itself has been powered down.

About Hard Disks

Some digital audio systems are very demanding in terms of the kind of hard disk they can operate with; often, they require the very fast access times only provided by the most expensive units. In contrast, the Trinity HDR-TRI is not particularly fussy. It can work with any hard disk that has an access time of 11.5 milliseconds (ms) or less; most hard disks manufactured in the past five years or so meet this criteria.

The Trinity HDR-TRI can address up to 4 gigabytes of data on each connected drive. All audio for any given song must be stored on the same physical drive, along with the song data itself. As you might expect, the larger the hard disk, the more recording time you have available. One minute of one track of digital audio recorded at the Trinity's 48 kHz sampling rate requires nearly 3 megabytes of storage capacity. Thus, a 4-gigabyte drive provides approximately 2 hours worth of four-track recording time.

This may seem like a lot, but no matter how big a hard disk you use, it will fill up sooner or later. True, you can go out and buy another one, but there's really no need to resort such a drastic (and expensive) solution. Instead, you should get in the habit of constantly *archiving* (that is, backing up) your data. Unlike many other kinds of data (such as sequence or program data), floppy disks won't do the trick here, simply because digital audio files can be so huge (in fact, the Trinity HDR-TRI doesn't even allow audio data to be stored to floppy disk, so a hard disk is mandatory). Instead, you can either copy your audio files to removable media (the fast method) or you can use the Trinity's built-in DAT backup/restore routine (which is considerably slower, since it uses the S/P DIF digital inputs and outputs) to offload your audio data to a DAT recorder in the digital domain. This means that your backup copies will send every bit as good (pun intended) as the original master—there will be no audible degradation of signal.*

When data is recorded onto a hard disk, any and every available space is used, even if this means placing a single file into several different (“non-contiguous”) physical areas (when this occurs, the hard disk is said to be *fragmented*). This can cause difficulties when you're using a time-critical function such as digital audio playback. For this reason, try to get in the habit of doing what professional facilities do: archive your data *immediately* after a session and then take the time to completely *format* or *wipe* the hard disk right afterward (see below), so you always have a totally empty hard disk waiting for the next session. This ensures that all blank space is contiguous—that is, one big block—so that the digital audio you record is always placed in one area, rather than being split up into multiple regions. If you can't do this, at least use the Delete Unused Sound function (Disk mode Tab 4 [Audio Utility] Page Menu) to regularly erase superfluous sound files (those that are not used by any songs on the hard disk). See page 76 in this Guidebook for more information about this command.

* *Of course, digital errors can occur, due to physical medium flaws or other gremlins, but the error correction schemes used in most digital audio devices (including DAT) are good enough to ensure that there probably won't be any audible artifacts.*

Format / Wipe Operations

The Trinity's hard disk format and wipe commands are both found in the Disk Utility mode (Disk Tab 3) Page Menu.



These operations are similar in that both completely and permanently erase all audio, sequence, program, and (if your Trinity is equipped with the PBS-TRI option) sample data from the specified hard drive, *so be 100% certain there is no data you want to keep before formatting or wiping!* The difference between the two is that formatting writes low-level information to the hard disk that allows it to be used by the Trinity, while wiping retains the formatting information (but erases all other data) so that the disk can continue to be used. There are three circumstances that dictate formatting a hard disk instead of wiping it:

1. When a hard disk is first used with the Trinity (that is, when using a brand new hard disk or when using one that has previously been used by a computer or a different hard disk recording system).
2. When a connected hard drive appears with the name "Unformatted" in the Disk mode drive select field.
3. When a "Disk Not Formatted" error message is displayed by the Trinity during a wipe operation.

Both formatting and wiping require that you specify a "filer" partition, which can range from 0 to 540 megabytes in size. When a hard disk is partitioned, it is essentially divided into two sections, with different data stored in each. The Trinity requires that at least one of its connected hard drives contain a "filer" partition; this area of the disk is used to store song (.SNG) and program (.PCG) files (as well as sample data, if your Trinity is equipped with the PBS-TRI

option). The remaining space on the disk is used for the storage of audio data (called the “sound” partition). Because all song files that contain audio data must be stored on the same hard disk as the data itself, we recommend that you create a filer partition on *all* connected hard disks. If your Trinity is equipped with the PBS-TRI option, you may want to create a substantial filer partition, since sample files can be sizable. If not, a filer partition size of 10 or 20 megabytes should suffice for most applications, since song and program files are generally quite small.

Here’s the procedure for formatting or wiping a hard disk: *(Again, do not do this unless you are completely sure there is no data on the hard disk you wish to save first!)*

1. With all devices powered off, connect a hard drive to the Trinity with a high quality SCSI cable. Set the SCSI ID of the drive to 0, 1, 2, 3, 4, 5, or 6 (assign SCSI ID #6 only to drives that will be used for backup purposes and not for recording audio). Use SCSI ID #5 if it is the only hard drive you’ll be using; if there are other hard drives connected to your Trinity, be sure that each has a unique SCSI ID number.
2. Power up the hard drive(s) first, then power up your Trinity.
3. Press the DISK button to go to Disk mode. Touch Tab 3 (Utility) and, from the drive select field in the lower left-hand corner, touch the hard drive you wish to format or wipe. (All connected drives will be displayed in SCSI ID number order, with the internal floppy drive at the head of the list).
4. Touch the Page menu and select either the Format or Wipe command.
5. In the ensuing dialog, assign a volume label (that is, a name for the hard disk) of up to 11 characters and specify a filer partition size of 10 megabytes or greater (use larger filer partition sizes if your Trinity is equipped with the PBS-TRI option and you wish to use the hard disk for the storage of sample files).
6. Touch the OK button to execute formatting or wiping. It will take several minutes for this operation to complete, depending upon the size of the hard disk (it takes approximately 10 minutes to format or wipe a one-gigabyte drive).

Using Removable Media

The Trinity HDR-TRI option allows you to use removable media (such as an Iomega JAZ cartridge) to back up the data stored on a fixed hard disk. In fact, you can even record audio directly to and play it back from removable media, as long as your Trinity is running version 2.1 software or later. (Contact your local Korg dealer for details on software upgrades.)

Formatting Removable Media

As with fixed hard disks, removable media must be formatted directly from the Trinity using the Format option in the Disk Utility (Tab 3) Page Menu. Once formatted, the media can only be read by the Trinity or by an Apple Macintosh computer running system 7.5.3 or later—do not attempt to read it from a Windows computer system or other device, or permanent loss of data (and damage to the media) will likely occur.

Assigning SCSI IDs to Removable Media

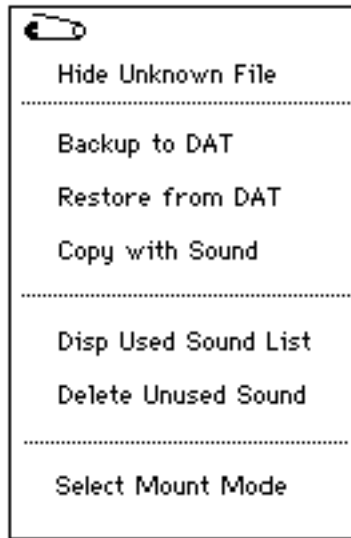
Also, as with fixed hard disks, be sure to assign your removable media drive a unique SCSI ID prior to powering it up—and always power it up (with media inserted) prior to turning on the Trinity. If you are planning on simply reading data from or copying data to the removable media, you can assign the drive any SCSI ID number from 0 to 6. However, if you are planning on using the removable media for real-time recording or playing back of audio, it must be assigned a SCSI ID number from 0 to 5.

Ejecting and Swapping Removable Media

Whenever the Trinity is powered up, removable media can only be ejected and swapped when you are in Disk mode and the removable drive is selected in the Drive Select menu. The Trinity will not allow media to be ejected from any other page. Alternatively, you can eject media when the Trinity is powered down. If you have created any songs that use audio tracks, be sure to save them (as .SNG files) to the same cartridge as the audio before ejecting.

Using Select Mount Mode

The Select Mount Mode command (Disk mode P1 Tab 4 [“Audio Utility”] Page Menu) allows you to select either fixed hard drives or removable media drives connected to your Trinity.



When the Trinity is first powered on, this defaults to “HD Only,” meaning that only fixed hard drives with SCSI ID numbers 0 - 6 (plus a single removable media drive set to SCSI ID 6) will be detected. In this mode, only fixed hard drives set to SCSI ID numbers 0 - 5 can be used for audio recording or playback.

If you are planning to use removable media for audio recording/playback, you will need to change Select Mount Mode to “Removable Only.” In this mode, removable media drives with SCSI ID numbers 0 - 6 (plus a single fixed hard drive set to SCSI ID 6) will be detected. In this mode, only those removable media drives set to SCSI ID numbers 0 - 5 can be used for audio recording or playback.

Recording and Playback from Removable Media

To avoid possible ID conflicts, we recommend the use of only a single removable media drive at any given time. Here’s how to use a removable media drive for real-time recording and playback of audio data:

1. Connect the removable media drive to the Trinity the same way as you would a hard disk—with all devices powered off, and with a high quality SCSI cable. Set the SCSI ID of the removable media drive to 0, 1, 2, 3, 4,

- or 5, and be sure that the number you select is not the same as that of any other hard drives connected to your Trinity.
2. Power up the removable media drive first, then insert the media. After a few seconds, you'll hear it spin up to speed. Once the whirring has leveled off, power up your Trinity.
 3. Go to Disk mode P1 Tab 4 (Audio Utility) and, from the Page Menu, choose Select Mount Mode. In the ensuing dialog, change it to "Removable Only," as described in the previous section.
 4. In the Drive Select menu, choose the removable media drive. If the word "unformatted" appears, it means the media is not yet formatted in Trinity mode—go to the Disk mode P1 Tab 3 Page Menu and execute the Format command (see page 59 in this Guidebook for more details).
 5. Go to Sequencer mode P1 Tab 5 (ATrkRec) and choose the "Rec HD Select" command from the Page Menu. This allows you to specify the drive you want to use for recording or playback—in this case, choose the removable media drive.
 6. Record and playback as usual (see pages 7 - 20 in the HDR-TRI User's Guide for details). If you do some recording you want to save, note that the .SNG file must be saved onto the same removable media that already holds your audio data.

Backing Up Data from a Fixed Hard Drive to Removable Media

1. With the Trinity and all connected devices powered off, set the SCSI ID of the fixed hard drive to 0 - 5 and set the SCSI ID of the removable media drive to 6.
2. Power up the removable media drive first, then insert the media. After a few seconds, you'll hear it spin up to speed. Once the whirring has leveled off, power up the fixed hard drive, and, finally, your Trinity.
3. Go to Disk mode P1 Tab 4 (Audio Utility) and select the fixed hard drive in the Drive Select menu, then select the .SNG file you wish to copy. From the Page Menu, select "Copy With Sound." This command enables you to copy a .SNG file—along with its accompanying sound data and a .PCG file with the same name, if one exists—from the selected drive to any other connected drive.
4. In the Copy With Sound dialog, select the removable media drive (and, optionally, the directory) you wish to copy the data to, then touch the Copy button to execute (or the Cancel button to abort).

5. To verify that all has gone well, power down the Trinity and all connected drives, then change the SCSI ID of the removable media drive to a unique number from 0 - 5. Then power up the devices in the usual order (removable media first, fixed hard drives next, Trinity last), go to Disk mode P1 Tab 4 (Audio Utility) and change Select Mount Mode to "Removable Only," as described previously. Load the song you just copied (Disk mode P1 Tab 1), go to Sequence mode, and let 'er rip!

The procedure for backing up data from removable media to fixed hard drive is essentially identical, except you would begin by setting the SCSI ID of the removable media drive to 0 - 5 and that of the fixed hard drive to 6. (You'd also have to change Select Mount Mode to "Removable Only" in order to use the removable media as the source drive.)

You can also back up Trinity data stored on removable media to an Apple Macintosh computer running system 7.5.3 or later—with the power to all components off, simply disconnect the removable media drive from your Trinity and connect it to your Macintosh's SCSI port. From there, it can be copied to any other connected hard drive or removable media such as tape or CD-R.

Warning: Do not attempt to do this with a Windows computer system or the media will likely be permanently damaged and your data permanently lost.

Audio Connections

Once you've got your hard drive(s) connected to the Trinity and correctly formatted, you've only got one more task to complete before starting recording: making the audio connections to and from your Trinity. Naturally, you'll want to connect its stereo analog outputs (and, if required, the "3" and "4" auxiliary outputs) to a mixer, amplifier, or self-powered loudspeaker system—this will ensure that you can actually hear what you're about to record.

To get signal *into* the Trinity, you'll need to use either or both of the analog inputs and/or the S/P DIF digital input. Use standard two-conductor shielded audio cabling with 1/4" connectors for the analog inputs and high-quality video cable with gold-plated RCA connectors for the digital input.

Note that the S/P DIF format is designed to carry stereo (two-channel) signals over a single cable. Signal assigned (or panned) to the left S/P DIF channel can be recorded on audio track 1 or 3 of the Trinity; signal assigned (or panned) to the right S/P DIF channel can be recorded on audio track 2 or 4 of the Trinity. Similarly, signal arriving at the ANALOG 1 input jack can be recorded on audio track 1 or 3 of the Trinity, while signal arriving at the ANALOG 2 input jack can be recorded on audio track 2 or 4 of the Trinity.

The Trinity has a very wide input range, so pretty much any kind of “line-level” signal source (such as from a CD player, DAT recorder, electronic keyboard, or electric guitar/bass with active electronics) can be connected directly to its analog inputs. However, because microphones and electric guitars and basses with passive electronics output very low-level signal, they must first be routed through a preamplifier of some kind (for example, through a mixer or effects processor) before being connected to the Trinity.

A detailed tutorial explaining the basics of recording, playing, and editing audio tracks is presented on pages 7 - 20 of the HDR-TRI User’s Guide. Remember that the Trinity’s MIDI Clock (Global P1) *must* be set to “Internal” in order to record and playback audio data.

The Importance of Saving Songs To Hard Disk

If you’ve had experience creating MIDI songs in the Trinity’s sequencer, you already know that song data is only held in temporary memory while the Trinity is powered on, and that, unless saved to disk first, it is lost forever when the Trinity is powered off. Saving your data to disk is even more important when creating songs that contain audio tracks. If you watch the activity LED on your hard disk, you might surmise that sound data is automatically written to disk as it is being recorded, and, technically, you’d be correct. But—and this is a big “but”—the sound data can only be read back from the hard disk when a song containing audio events pointing to that data is loaded in the Trinity. This means that, if you don’t save your song to hard disk before powering down, you’ll never be able to access that sound data again, so we strongly urge you to get in the habit of doing frequent saves as you are creating songs in the Trinity’s sequencer! (And remember, songs containing audio tracks can only be saved to the *same* hard disk that contains their sound data—they cannot be saved to floppy disk like MIDI-only songs.) Remember also that only hard drives assigned SCSI ID #s 0 - 5 can be used for the recording or saving of audio data.

It’s also a good idea to use the Copy From Song option in the Sequencer P1 Page Menu to frequently copy your work to a new song slot—the Trinity provides 20 of them, numbered 00 to 19. This enables you to keep a chronological record of your work in progress as you overdub new tracks and edit existing data. When you execute a Save Song command (Disk mode Tab 2 Page Menu), the Trinity will automatically save *all* songs (not just the one currently in memory) to disk.

How do you know when a song contains audio tracks? Simple—look closely at its icon in Disk mode. Songs that contain purely MIDI data have an icon that looks like this:



while songs that contain audio tracks have an icon that looks like this:



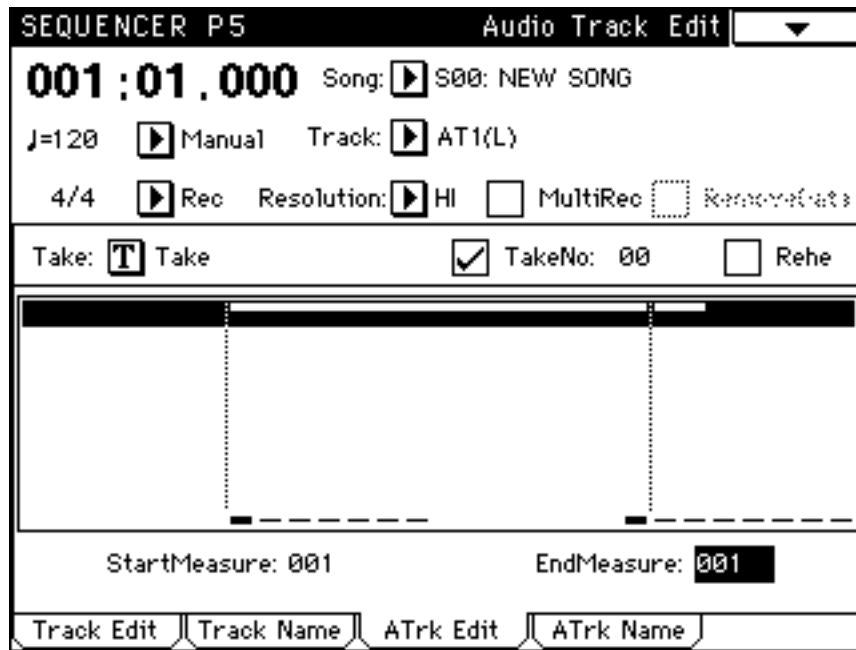
The Difference Between Sound Data and Audio Events

The key to understanding how the Trinity HDR-TRI deals with digital audio is to understand the difference between *sound data* and *audio events*. When you record signal into an audio track (either via the analog or digital inputs), it is stored into the non-filer partition (the “sound partition”) of the designated hard disk as raw sound data. At the same time, the Trinity creates an *audio event* in your song that points to that data. Audio events are essentially “pointers” to areas of the hard disk that contain sound data.

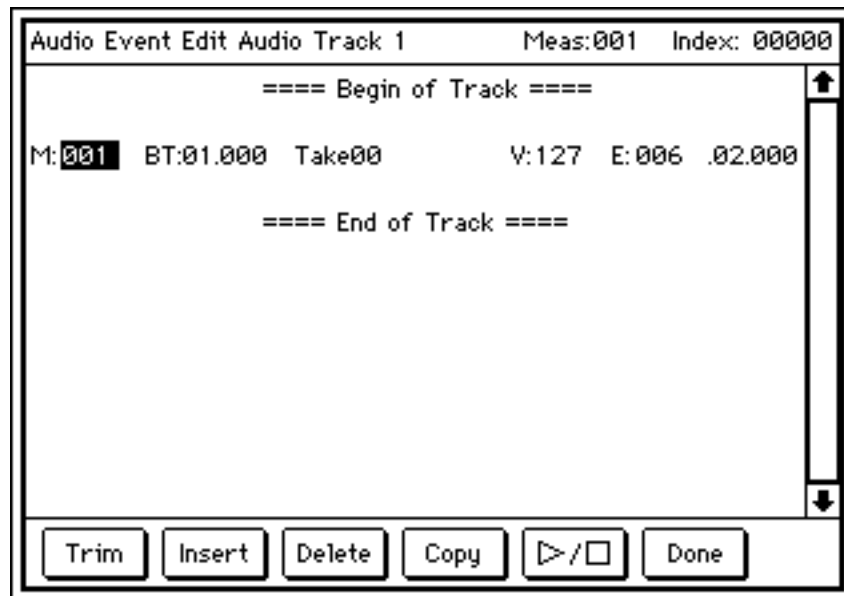
When you first record an audio track, a single audio event is created that points to the beginning and end of the sound data, so that the Trinity will play back the sound from start to finish (as we’ll see in the next section of this Guidebook, this can be altered if desired). To see how this works, do the following:

1. Press the SEQ button in order to enter Sequencer mode. Press P1 and, in the Song field, select an empty song.
2. Record a short monophonic audio track into your Trinity HDR-TRI, using either the analog or digital inputs. If you’re using the analog input, remember that signal arriving at ANALOG 1 can be recorded only on audio track 1 or 3, while signal arriving at ANALOG 2 can be recorded only on audio track 2 or 4. If you’re using the digital input, remember that signal arriving via the left S/P DIF channel can be recorded only on audio track 1 or 3, while signal arriving via the right S/P DIF channel can be recorded only on audio track 2 or 4 (if using the digital input, also remember to set the Trinity’s System Clock [Global P1] to “S/P DIF”).
3. Play back the song to ensure that the audio track was recorded successfully.

4. With the sequencer stopped, press P5 and touch Tab 3 (ATrk Edit).



5. In the “Track” field, select the audio track you just recorded.
6. In the Page Menu, select “Audio Event Edit.” You’ll be taken to the Audio Track Edit screen, as shown below. What you are viewing here is the audio event—a pointer to the newly recorded sound data—that was automatically created by the Trinity.

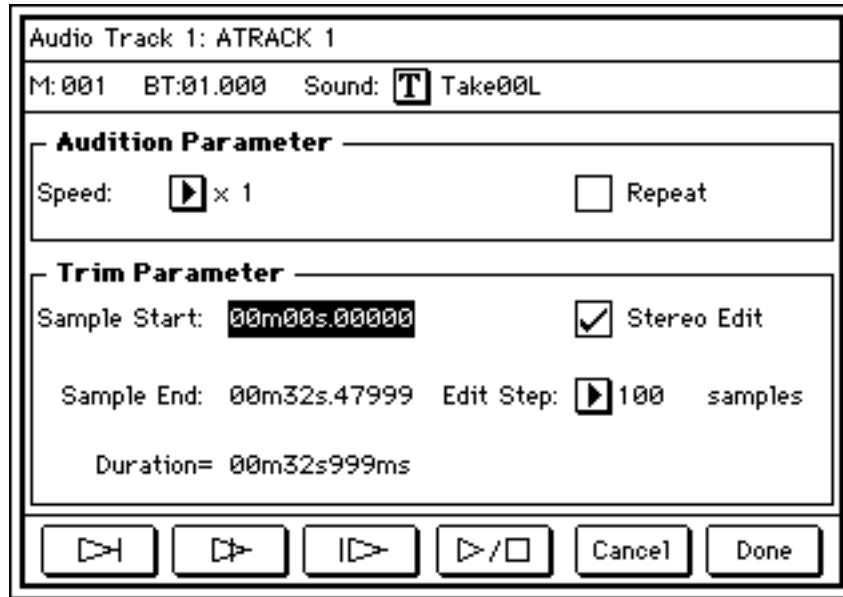


Creating Different Audio Events From A Single Sound

The Trim function in the Audio Track Edit screen is one of the most powerful tools provided by the Trinity HDR-TRI option. It allows you to alter the start and/or end time of the audio event “pointer.” This enables you to create different audio events from a single recording of sound data. For example, you might record sixteen bars of a rhythm guitar part and then decide you just want to loop the four bars you played best (you’ll find a description of how to loop audio events below), or you might want to fly the first chorus of a backing vocal into the fadeout of your song. Here’s a simple demonstration to show how this works:

1. Press the SEQ button in order to enter Sequencer mode. Press P1 and, in the Song field, select an empty song.
2. Connect a microphone to a mixer or preamp and then connect its output to your Trinity’s ANALOG 1 input.
3. Record an audio track that consists of you speaking the words “Guidebooks are cool; they don’t suck.”
4. When you’re done, press the START/STOP button to stop recording. Then press it once again to play back the song in order to ensure that the sound data was recorded successfully.
5. With the sequencer stopped, press P5 and touch Tab 3 (ATrk Edit).
6. In the “Track” field, select the audio track you just recorded.
7. In the Page Menu, select “Audio Event Edit.” Again, you’ll be taken to the Audio Track Edit screen. Select the audio event (since you started with an empty song, it will be the only event shown).
8. Touch the Copy button at the bottom of the screen in order to copy the audio event into memory.
9. Touch the Insert button at the bottom of the screen. An exact duplicate of the audio event will be inserted at the end time of the original audio event (indicated in the “E:” column). To verify this, select it and touch the Play/Stop button at the bottom of the screen.

10. Once again, select the original audio event and then touch the Trim button at the bottom of the screen. You'll be taken to the Trim screen.



11. Touch the Sample End parameter and turn the Trinity's Value dial counterclockwise in order to reduce the end time, thus trimming the length of the audio event to make it shorter. Use the various audition buttons at the bottom of the screen to keep checking your progress (a description of the function of each can be found on page 40 of the HDR-TRI User's Guide.) Keep trimming the end point until you remove all words after the first word ("Guidebooks"). Adjust the Edit Step parameter as necessary in order to assign coarser or finer control to the Value dial. When you're done, touch the Done button at the bottom of the screen; you'll be returned to the Audio Track edit screen.
12. Select the second, inserted audio event and again touch the Trim button.
13. This time, we're going to push back the start time, so that playback of the audio data *begins* at the last word ("suck"). Accordingly, in the Trim screen, touch the Sample Start parameter and turn the Value dial clockwise, checking your work periodically with the audition buttons. When you've reduced this audio event down to the single word "suck," touch the Done button; again, you'll be returned to the Audio Track edit screen.
14. We've now created two distinct audio events ("Guidebooks" and "suck") from the original sound data ("Guidebooks are cool; they don't suck"). Each can be copied independently and placed anywhere within the audio track, repeatedly if required. And, although we don't agree with the sentiment, if you're in a Watergate kind of mood, you can even place the second audio event immediately after the first, completely changing the meaning of the original statement. Most significantly, the original sound

data remains completely unchanged and unaltered; you've only been editing audio events which point to that data. To restore the sound data back to its pristine form, simply go back to the Trim screen and change the Sample End parameter of the first audio event (or the Sample Start parameter of the second, inserted audio event) back to its original value.

Don't forget also that the Trinity provides 20 song slots to work with. This allows you to freely copy songs from one slot to another and experiment all you want with tweaking audio events, secure in the knowledge that your original sound data remains unchanged.

Creating Drum Loops

The Trinity isn't exactly a sampler, but you *can* use the HDR-TRI option to record drum loops galore. Here's how:

1. Find or create the loop you want from one of your favorite records or CDs, a vintage drum machine, or even the Trinity's sequencer.
2. Figure out the tempo that the loop is at and set the Trinity sequencer to that tempo.
3. Enable an audio track and record the sound; you'll probably only need to record a few bars. If you don't get the start or end quite right, don't worry—just use the Trim function (described above) to alter the Sample Start or Sample End of the audio event as needed. Once you've got it set correctly, you'll have a short sequence with the audio playing once and then stopping.*
4. Now we're going to copy this audio event so that it plays a second time. Press P5 and select Tab 3 (ATrk Edit). You have to select the destination point for the copy first, so set the StartMeasure and EndMeasure parameters accordingly (for example, if the drum loop is four bars long, set StartMeasure to 005 and EndMeasure to 008).

5. Open the Page Menu and choose Copy Measure. The following dialog will appear:



- Select the appropriate number of measures (for example, measures 1-4 for a four-bar loop) for the appropriate audio track(s) and touch OK to copy them to the destination measure you specified in the step above. Now your sound will play twice before stopping.
6. Simply keep copying the audio event as many times as needed to create the loop your song was crying out for!

** You can, of course, also create stereo loops; simply enable two audio tracks ("AT1&2" or "AT3&4") and record the sound in stereo. When adjusting the Sample Start and Sample End points for one of the tracks, be sure to check the Stereo Edit box in the Trim screen so that the corresponding track is trimmed the same way.*

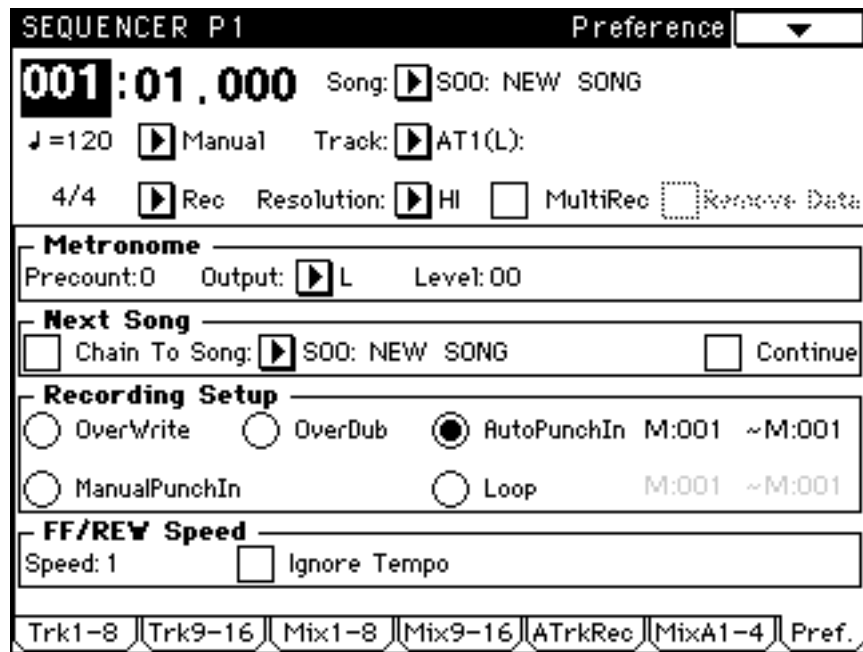
Creating A “Library” Song

If you have lots of sound effects or loops that you use frequently, it can be very helpful to have them all in one place so that you can import them into new Trinity songs that you are creating. A good way of doing this is to first build a “Library” song; audio events in that song can then be freely copied into any other song with the “Copy Measure” command (Sequence mode P5 Page Menu).

Here’s the procedure for creating a “library” song:

1. It’s best to work with a completely clean slate before creating a “library” song, so start by muting your monitor speakers and powering the Trinity down (leave all connected hard drives powered on). Wait a moment, then power the Trinity up again and unmute your monitor speakers.
2. Select Song 19 from the Song field (since it is currently empty, the Trinity will ask you if you’re sure that you want to create a new song in this slot—just touch OK to continue).
3. Press P2 and, in the Song Name text field, assign a new name to Song 19 (we suggest using a descriptive name, such as “Library,” “Sound FX” or “Loops”).
4. Press P5 and, in the Take Name text field, assign a name that describes the first sound effect or loop you’ll be recording. (This is very important, since it will be the only way of differentiating this sound from all others!)
5. Press P1 and touch Tab 5 (“ATrkRec”) to enter the Audio Track Record screen. Set all parameters as required and then enable one or two audio tracks for recording (use two tracks if your source material is in stereo).
6. Record the first sound effect or loop. Note the bar in which this sound ends.
7. When you’re done, press the START/STOP button to stop recording. Then press it once again to play back the song in order to ensure that the sound data was recorded successfully.
8. With the sequencer stopped, touch the Take name text field and assign a new name—one that describes the next sound effect or loop you’ll be recording. (Again, this step is very important!)

9. Touch Tab 7 (“Pref”) to enter the Preference screen.



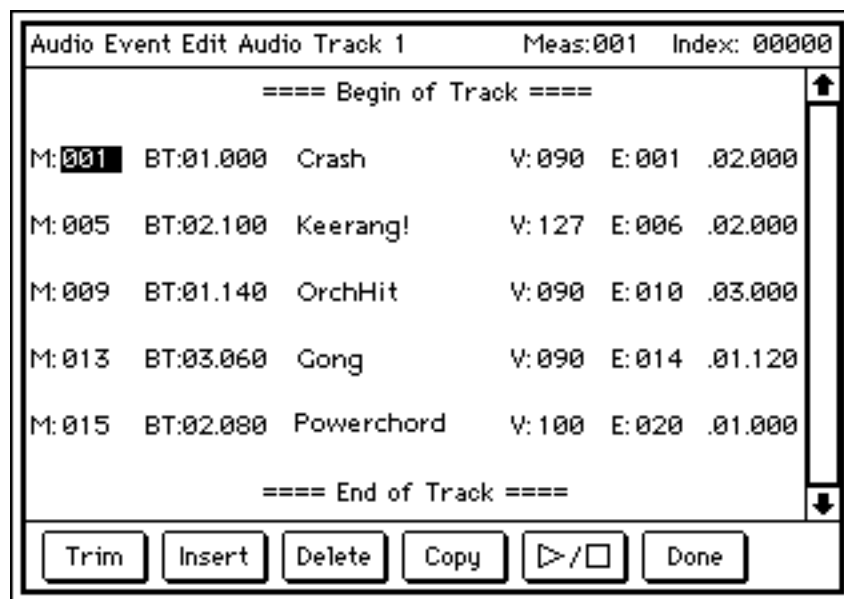
- Change the Recording Setup from Overwrite (the default) to AutoPunchIn. Set the “In” measure to two measures *later* than the point at which the first audio event ended. For example, if your first recording ended in measure 6, beat 2.035, set the AutoPunchIn “In” point to measure 8. Set the “Out” measure to 999; as long as this value is sufficiently high, it won’t actually matter, since you will stop recording manually anyway.
10. Touch the measure field in the upper left-hand corner of the screen. Use the Value dial or numeric keypad to enter the same measure number as the AutoPunchIn “In” point. For example, if the “In” point is measure 8, set the measure field to measure 8.
 11. Press the REC/WRITE button, followed by the START/STOP button to initiate recording. Record your next sound effect or loop and remember to press the START/STOP button to stop recording manually (otherwise, the Trinity will continue to record silence all the way until bar 999 or until memory runs out!).
 12. Continue the process for every sound effect or loop you wish to record, each time setting the AutoPunchIn “In” point and measure field to two measures later than the point at which the previous audio event ended. Be sure also to keep renaming the Take before each recording, so that you have a way of identifying each unique audio event. If the song starts getting unusually long, you can record-enable another audio track (or pair of audio tracks, if you’re working in stereo) and simply mute previously recorded audio tracks so you don’t have to listen to them as

you add new sounds. If you wish, you can also freely Trim the Sample Start and/or Sample End points of any or all of the audio events you record.

13. Be certain to save your work to hard disk frequently as you work!

And here's the procedure for using any or all of these "library" sounds in a new song:

1. Load in your "library" song from hard disk *before* starting work on a new song; this will still leave you with 19 slots (songs 00 - 18) to create your new work in.
2. When you're ready to import a library sound, select Song 19 (the "library" song) in the P1 or P5 Song field.
3. Press P5 and touch Tab 3 ("ATrk Edit"). In the Track field, select the audio track(s) that your library of sound effects and loops are recorded on. From the Page Menu, select Audio Event Edit.
4. The resulting screen will show you a list of all the audio events recorded on the selected track, each neatly named with a description of the sound they call up (you *did* heed our warning to rename each new Take before recording a new effect or loop, right?).



You can hear each audio event in the list by selecting it and then touching the Audition button at the bottom of the screen. When you find the sound you want to import into your new song, write down its start and end measure on a piece of paper, then touch the Done button at the bottom of the screen to exit back to the Audio Track Edit screen.

5. In the P5 Song field, once again select the song you were working on. Then, in the Track field, select the audio track(s) you wish to import the data to.*
6. From the P5 Page Menu, select “Copy Measure.” In the resulting dialog, set Song 19 as the source (“Copy from:”) and enter the Start and End measure you wrote down in the previous step. Touch OK to complete the operation, and you’re done! If you wish, you can then freely Trim or move the imported audio event to any new start point.

About Takes

The “Takes” field on the Audio Track Record page (P1 Tab 5) and Audio Track Edit page (P5 Tab 3) is really only useful for naming (and, if the TakeNo. box is checked, for numbering) an audio event. The Trinity won’t allow you to directly record multiple takes of a performance onto a single audio track, since any new audio event will cover up a previously recorded one, making it unavailable for selection. You can, of course, always record new takes onto other audio tracks that are free (that is, those that are not playing audio events of their own at that particular time). However, even if you have filled up all four audio tracks, there is a simple—if not immediately obvious—procedure for recording multiple passes of audio (“takes,” in engineering jargon) in the same region. This will allow you to keep plugging away until you get that lead vocal or instrumental solo spot on!

Here’s how to do it:

1. First, record your basic sequence of MIDI tracks.
2. Overdub audio tracks as usual, being sure to first select the Take field and assign a descriptive text name before each recording. For example, a vocal in the first chorus should be named “Vox 1C,” a solo in the bridge should be named “Solo Br,” etc. Then check the “TakeNo.” box so that the Trinity will automatically assign a new number to each new Take. If you are going to be recording multiple sections in a single track (for example, a rhythm guitar in the verses and a lead solo in the bridge), be sure to stop after each section and then resume recording or punching in as needed. This will ensure that each section is “viewed” by the Trinity as a separate audio event.

** You can, if you wish, import one channel of a stereo “library” sound into a single monophonic audio track in your new song.*

3. Once you get to the point where you'd like to lay down another take of a particular section, stop recording and press P1. In the Song field, select an unused song, and, from the Page Menu, select the Copy From Song function in order to copy your original song to the new location. The new song will then automatically be selected in the Song field.
4. Press P5, touch Tab 3 ("ATrk Edit") and, in the Track field, select the audio track that contains the audio event you want to redo. From the Page Menu, select Audio Event Edit.
5. As usual, the Trinity will display a list of audio events that are on that track, and their names will clue you in as to which is which (that's why you named each Take before recording). Select the audio event you wish to rerecord and then touch the Delete button on the bottom of the screen to erase it from the track. Don't worry—this doesn't erase the sound data from your hard disk, it just "un-assigns" it from the track.
6. Now you can record a new take in that same location. Repeat this process as many times as necessary, using up to the 20-song limit of your Trinity. To audition the different takes, simply select different songs until you decide which one is the "keeper." Better yet, you can cut and paste measures from different songs to make a composite song that is a "best-of" performance!

One unfortunate byproduct of recording multiple takes is that you will quickly accumulate large amounts of superfluous sound data on your hard disk—data that is not being accessed by any audio events and therefore cannot be heard under any circumstance. To avoid this clutter (which, besides taking up valuable space, can cause significant fragmentation problems), you should get in the habit of regularly using two new commands added by the HDR-TRI option to the Disk mode Tab 4 (Audio Utility) Page Menu. The Disp Used Sound List command gives an onscreen listing of those sound files used by the selected .SNG file (the files are assigned their Take names), while the Delete Unused Sound command deletes all sound data which is unused by all .SNG files stored on all connected hard disks. If you don't have the time to archive and wipe (or reformat) your hard disk before starting a new project, the Delete Unused Sound command is the next best thing (just make sure that *all* hard drives are connected and powered up before executing this command!).

Using The Rehearse Function

The Trinity's Rehearse function allows you to practice your audio overdubs (and, if necessary, to practice manual punch-ins and punch-outs) without actually recording new sound data or altering audio events. The Monitor AutoIn box (Sequence mode P1 Tab 3 ["ATrkRec"]) should be checked when rehearsing so that you can hear the original data before and after the punch points and the new input signal in-between punch points.

Note that, even though new data is not written (or overwritten) during Rehearsal, additional measures will be added to the song if you let the sequencer run past its end point during a Rehearsal. Thus, if a song were 16 bars long prior to a Rehearsal that lasted for 24 bars, it would automatically be lengthened to 24 bars after being stopped. If this creates a problem, simply use the Erase Measure command (Sequence mode P5 Page Menu) to remove the newly added measures.

Moving Events Forward In Time

You may already be familiar with the Delay function provided by the Trinity sequencer (P2). In all Trinity models, this allows individual MIDI tracks to be delayed by up to 5000 milliseconds (half a second) in order to create echo effects and/or to compensate for differing attack times. The HDR-TRI option adds a new tab to this page (Tab 5 ["ATrk 1-4"]), which allows you to delay audio tracks by up to 5 milliseconds (255 samples). These slight shifts in timing can be useful in getting a rhythmically challenged overdub to sit in the "pocket."

The screenshot shows the 'SEQUENCER P2 Audio Track Parameter' screen. At the top, it displays 'Song Name: T NEW SONG'. Below that, the 'Scale' section includes 'Type: Equal Temperament', 'Key: C', and 'Random: 0'. The main section is titled 'AT1 AUDIO 1' and contains a table with four columns labeled 1, 2, 3, and 4. Each column has a 'Delay [samples/ms]' field with a value of '0000' and a corresponding '0ms' label below it. At the bottom of the screen, there are navigation tabs: 'Trk 1-8', 'Trk 9-16', 'Pitch 1-8', 'Pitch 9-16', and 'ATrk1-4'.

1	2	3	4
0000	0000	0000	0000
0ms	0ms	0ms	0ms

What may not be so obvious is that the delay function can be used to move events *forward* in time, as well as backward. To do so, simply delay all tracks *except* the one(s) you want to bring forward by the same amount. For example, if you wanted audio track 4 to appear 2 ms earlier, you would delay all MIDI tracks and audio tracks 1-3 by 2 ms, and leave audio track 4 as it is.

Bouncing Tracks

A particularly novel use of the audio recording capabilities of the HDR-TRI Trinity is to expand your polyphony—and, in the process, to potentially double the number of onboard effects. (Yes, you read that right!) Intrigued? Here's how:

1. Create a song in your Trinity that uses up to sixteen MIDI tracks, along with, optionally, audio tracks 1 and/or 2 (don't use audio tracks 3 and 4).
2. Mix the song to your liking, using whatever insert and master effects you like (insert effects can only be applied to MIDI tracks), as well as all automated mix functions.
3. Once you're satisfied with your mix, take a short, high-quality video cable with RCA connectors on both ends and connect the Trinity's S/P DIF output to its S/P DIF input. This will allow you to do a digital bouncedown of your entire song—MIDI tracks and audio—onto audio tracks 3 and 4, which should currently be empty.
4. Press the GLOBAL button, followed by P1. In the System Clock field, select "S/P DIF."
5. In Sequence mode, press P1 and touch Tab 5 ("ATrkRec"). In the Track field, select audio tracks 3&4. In the Input field, select Digital. Finally, check the Monitor AudioIn box.
6. Touch Tab 6 ("MixA1-4") and set the levels of audio tracks 3 and 4 to 000 (make sure to leave their Mix Audio Track Modes at MANUAL). If you didn't record anything on audio tracks 1 or 2, mute either or both of them; if you did, just leave them at their current settings (and leave their Mix Audio Track Modes at READ so they will respond to any automation events you recorded when mixing).
7. Touch Tab 5 ("ATrkRec") and press the START/STOP button in order to begin song playback. Slowly raise the RecLevel fader—if all is connected and set up correctly, you should start hearing your mixed song and the level meters should start to move. Raise the RecLevel fader until you achieve an optimum level (as high as possible without audible

distortion or “Over” indications), then press the START/STOP button to stop the playback.

8. Press the REC/WRITE button, followed by the START/STOP button. The Trinity will now record the entire song into audio tracks 3 & 4. Once recording is completed, disconnect the cable connecting the S/P DIF output and input in order to avoid a feedback loop. Then press the GLOBAL button, followed by P1 and, in the System Clock field, select “Internal.”
9. Press the SEQUENCE button, followed by P1, and press Tab 6 (“MixA1-4”). Set the level of audio tracks 3 and 4 to 100. Then set the Pan of audio track 3 to L000 and the Pan of audio track 4 to R127.
10. Mute all other tracks (MIDI tracks 1-16 and audio tracks 1 and 2) and press the START/STOP button in order to verify that the sequence has been successfully recorded onto audio tracks 3 and 4. Once you’re certain all is well, save the song to hard disk.
11. Now you can go ahead and erase all sixteen MIDI tracks as well as audio tracks 1 and 2—and then record sixteen new MIDI tracks along with another two audio tracks, choosing a completely different set of effects in the process, if you so desire. The end result is not only a 64-voice Trinity, but one with four master effects and up to sixteen insert effects! If you’re really into dense layers, feel free to repeat this process as often as you like—because this is a digital transfer, there is no signal degradation, so you’ll easily be able create a 96-voice masterpiece, or one with 128 voices, or 160 voices, or...

And that’s the beauty of owning a Trinity: the sky’s the limit!

Chapter Three: **The DI-TRI Digital Interface Option**

The DI-TRI Digital Interface is the last of the triumvirate of Trinity options we'll be covering in this Guidebook. It allows your Trinity to integrate into any digital recording system and to interface with a wide variety of Modular Digital Multitrack recorders ("MDMs"), digital mixers, audio editors, and computer sound cards.

Physically, the DI-TRI option adds two new connectors to the rear panel of your Trinity: a word clock input (on a BNC connector) and an ADAT-compatible optical output (on an RCA-type connector). In this chapter, we'll take a closer look at each of these formats and then describe the interconnections between the Trinity and external digital devices.

About Word Clock

Whenever data is transferred between two or more digital audio devices (for example, when signal is being sent from one digital audio recorder to another one via a digital mixer), it is vital that the internal data processing circuits of all devices be locked to one another. The signal utilized for this ultra-precise synchronization is called *word clock*, and the Trinity DI-TRI word clock input allows it to successfully slave to any other digital device offering a word clock output.

Despite being used for digital synchronization, the word clock signal itself is an analog 75 ohm square wave with a frequency of 48 kHz—not coincidentally, the same sample rate supported by the Trinity HDR-TRI option. Like SCSI, word clock signal is often distributed in a daisy-chain fashion, with the output of one device routed to the input of the next device, and so on down the line.

Use high-quality 75-ohm coaxial cable with BNC connectors (readily available at any video or electronics store) to interconnect the Trinity's word clock input with the word clock output of other digital devices such as the Korg 168RC digital recording console or Korg 1212I/O computer audio interface card.

When using the Trinity word clock input, always be sure to set the System Clock (Global mode P1) to “Digital I/F.” If set this way and valid signal is not received at the word clock input, an asterisk will appear to the left of the Page Menu, as shown in the illustration below, and the entire Trinity display may flicker. Most importantly, audio playback will be distorted when valid word clock signal is not received.



To restore correct operation, check all connections and make certain that the device connected to the Trinity word clock input is in fact outputting valid 48 kHz signal.

About the ADAT Optical Format

Although the ADAT optical format has some internal synchronization functions, it is most commonly used for the direct transfer of digital audio between devices. Originally developed by the Alesis corporation for use in their line of digital products and licensed to Korg (and many other manufacturers), the ADAT optical format is in such widespread use today that it has become a de facto industry standard.

Unlike the two-channel S/P DIF digital interface added by the HDR-TRI option, the ADAT format allows up to eight channels of audio to be carried on a single fiber optic cable. However, since the HDR-TRI option provides four tracks of hard disk recording, the Trinity utilizes only four of those.

Always high-quality optical cable to connect the Trinity's ADAT output to other devices. Avoid putting kinks in these cables and always use the shortest length possible. ADAT-compatible optical cables are readily available at your local music or pro audio dealer. Although the ADAT format uses the same kind of connectors as S/P DIF optical (found on many high-end DAT and home theater products), be aware that they are two distinct formats and that data can only be transferred from the Trinity to devices that specifically utilize the ADAT format.

Transferring Song Data from the Trinity to Other Digital Devices

The Trinity's ADAT output allows a song played by the onboard sequencer—not just audio tracks, but MIDI tracks as well—to be transferred to another device such as a tape-based digital recorder or computer-based audio editor. What's more, because this transfer occurs entirely in the digital domain, there is no degradation of signal whatsoever—no “second generation” hiss or noise added, no matter how many times the data is transferred. In essence, this allows your Trinity to interface with the outside world. For example, you can use the onboard sequencer as a kind of musical “scratch pad” and then transfer your tracks to a computer (via a device such as the Korg 1212I/O computer audio interface card) for further processing or more extensive editing. If you have an MDM or dedicated hard disk recorder, you can transfer Trinity tracks to it for additional overdubs. Or, if you have a digital mixer such as the Korg 168RC digital recording console, you can monitor your Trinity tracks and then mix them to DAT without ever leaving the digital domain.

Sending audio from the Trinity to another device is simplicity itself. All you have to do is connect an optical cable between the Trinity ADAT out and the ADAT in of the other device (if the other device has a word clock output, it should be connected to the Trinity's word clock input as well) and then press the START/STOP button. The currently loaded song will play back, and all signal routed to outputs 1/L and 2/R will be automatically sent to channels 1 and 2 of the receiving device, while all signal routed to outputs 3 and 4 will be automatically sent to channels 3 and 4 of the receiving device.

“Aha!,” you may be thinking. (Funny, isn't it, how we Guidebook authors can read your mind?) “How *do* you route sequence tracks to outputs 3 and 4, anyway?” The procedure is actually much the same as routing a program (or a program within a combi) to those elusive secondary outputs, but in case you've forgotten, here's how to do it:

1. Press Sequencer P8 to enter the Master Effects screen. In order to route dry signal to outputs 3 and 4, you won't be able to apply any Master Effects to your sequence tracks, but this isn't a total loss, since you can always assign one or more insert effects to MIDI tracks. Set the parameters on this screen as follows and as shown in the illustration below:

Serial Routing box = unchecked

Modulation effect = OFF

Reverb/Delay effect = OFF

Pan1 = L

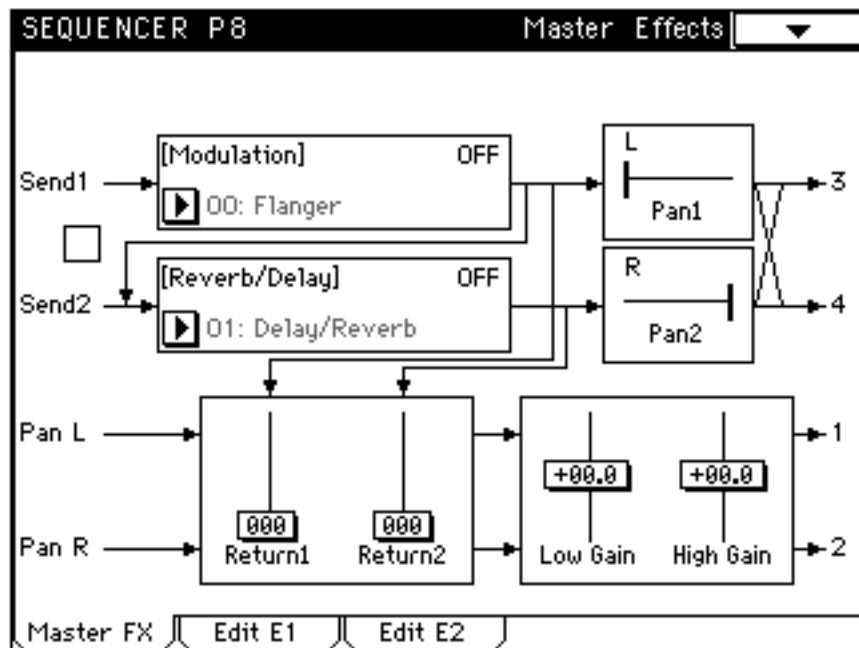
Pan2 = R

Return 1 = 000

Return 2 = 000

Low Gain = +00.0

High Gain = +00.0



2. These settings ensure that any signal routed to Send 1 will be passed on, unaffected, to output 3, and that any signal routed to Send 2 will be passed on, unaffected, to output 4. So, touch Tab 1 (“Trk1-8”), Tab 2 (“Trk9-16”) or Tab 6 (“MixA1-4”), depending upon whether you want to route a MIDI track or an audio track to output 3 or 4.
3. Set the Pan “OFF” (move the value dial completely counterclockwise) for the track you want to route to output 3 or 4. This removes that track from the main 1/L and 2/R outputs.
4. Use the Send1 and Send2 controls for that track (P1 Tab 3 or Tab 4 for MIDI tracks; P1 Tab 6 for audio tracks) to route it to output 3 and/or 4. If you set the same value for Send1 and Send2, the track will be routed in equal strength to outputs 3 *and* 4. For stereo audio tracks (1&2 or 3&4), raise only the Send1 level for the left channel and raise only the Send2 level for the right channel.
5. Remember that both Pan position and Send Levels can be adjusted dynamically and recorded as mix events. If you want to get *really* creative, you can actually do totally automated quad panning of various tracks—all in the digital domain!