

**O A S Y S PCI**  
**Open Architecture Synthesis, Effects, and Audio I/O**

## **Users Guide**

*This is a hypertext-enabled document. All references to page numbers are live links. Just click on the page number, and the document will go there automatically!*

**KORG** SoundLink**DRS**

### The FCC Caution

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

### The FCC Regulation Warning

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

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Unauthorized changes or modification to this system can void the user's authority to operate this equipment.

### Canada

This Class B digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.

### CE mark for European Harmonized Standards

CE mark which is attached to our company's products of AC mains operated apparatus until December 31, 1996 means it conforms to EMC Directive (89/336/EEC) and CE mark Directive (93/68/EEC).

And, CE mark which is attached after January 1, 1997 means it conforms to EMC Directive (89/336/EEC), CE mark Directive (93/68/EEC), and Low Voltage Directive (73/23/EEC).

Also, CE mark which is attached to our company's products of battery operated apparatus means it conforms to EMC Directive (89/336/EEC) and CE mark Directive (93/68/EEC).

### Trademarks

ADAT, ADAT XT, and BRC are registered trademarks of Alesis, Inc.; RD-8 and CX-8 are registered trademarks of the Fostex, Inc.; MDA-1 is a registered trademark of Panasonic, Inc; Apple and MacOS are registered trademarks of Apple Computer, Inc.; Windows 95 and Windows 98 are registered trademarks of Microsoft Corp. All other company names, brand names, product names, and names of formats etc. are the trademarks or registered trademarks of their respective owners.

### Licenser Indications

Certain synthesis algorithms in this product were developed under license of physical modeling patents (listed in <http://www.sondius-XG.com>) owned by Stanford University, USA, and by Yamaha Corporation. Sondius-XG Technology rights provided under license from Staccato Systems, Inc. ([www.Staccatosys.com](http://www.Staccatosys.com)).

### Third-Party Products

Mention of third-party products is for informational purposes only and constitutes neither an endorsement nor a recommendation. Korg assumes no responsibility with regard to the performance or use of these products.

Manual Version: 7/23/01

Copyright 1999-2001 Korg Inc. All rights reserved.

Onscreen graphics by GAS Brand Design.



SONDIUS-XG

KORG INC.

OASYS PCI



Tested to comply  
with FCC Standards

FOR HOME OR OFFICE USE

# Contents

<b>Introduction.....</b>	<b>1</b>
OASYS PCI .....	2
About This Manual .....	4
<b>Using the OASYS PCI .....</b>	<b>5</b>
Instant Gratification .....	6
What are...? .....	8
User Interface & Shortcuts .....	11
Using Multis .....	13
Using Programs & Patches .....	19
Using Effects .....	23
Using Modulation .....	30
Using Samples & Multisamples .....	35
Using Audio Programs .....	42
Working With Files .....	48
Managing Resources .....	53
<b>Reference .....</b>	<b>59</b>
Mixer .....	60
Send Busses .....	68
Output Busses .....	72
Channel Parameters .....	77
Program Edit .....	80
Control Panel .....	86
Modulation Palette .....	91
Multisample Edit .....	93
Resource Monitor .....	99
Catalog .....	102
File Menu .....	105
Edit Menu .....	107
Windows Menu .....	108
Preferences .....	109
ASIO Control Panel/Audio Settings .....	117
Wave Device Settings (Windows) .....	123
Scales .....	131
MIDI System Exclusive Format .....	133
<b>Index.....</b>	<b>135</b>



# Introduction

# OASYS PCI

## Thank you!

Thank you for purchasing the Korg Soundlink DRS OASYS PCI.

The OASYS PCI integrates high-quality synthesis, effects processing, and computer audio input and output into a single, professional PCI audio card—the perfect complement to any MIDI sequencer or software-based digital audio workstation.

## State of the art DSP synthesis

The OASYS PCI's synthesizers represent a continual evolution from Korg's pioneering efforts in DSP synthesis, with many improvements and additions.

Synthesis algorithms are plug-ins loaded from disk, allowing easy upgrades and expansion. Korg and third-party sound developers can easily introduce new algorithms, or even entirely new types of synthesis.

## Incredible effects processing

The OASYS PCI starts with all of the effects of the award-winning Korg Trinity workstation, and builds from that foundation. Effects can be used to process the onboard synthesizer, tracks from digital audio programs, and live audio inputs, and can be used on channel inserts, as sends, and on output busses. As with synthesis algorithms, all effects are plug-ins loaded from disk, allowing for easy expansion in the future.

## Professional, multi-format analog and digital I/O

The OASYS PCI features a total of 12 inputs and outputs - stereo analog, stereo S/PDIF, and eight-channel ADAT optical. All inputs and outputs are 24-bit, and all can be used simultaneously with compatible multitrack audio software. Word clock and ADAT timecode I/O allow easy integration with other digital audio equipment.

## Seamless integration with MIDI and digital audio software

The OASYS PCI supports all major audio and MIDI standards, for compatibility with virtually every audio and MIDI program.

The output of the synthesizers and effects can be recorded directly into digital audio software, without any external connections. The OASYS PCI Editor software allows configuration of all mixing, effects, and synthesis parameters, so that no special support is necessary from any digital audio program.

**Designed to collaborate with your CPU**

You can use your favorite PowerPC or Pentium-based effects plug-ins, such as VST, MAS, and DirectX plug-ins, simultaneously with OASYS PCI effects and synthesizers.

**Complete automation via MIDI**

Every parameter in the OASYS PCI can be modulated via standard MIDI controllers, allowing easy automation of mixing, synthesis, and effects from any MIDI sequencer.

# About This Manual

This Users Guide explains the basic functionality of the OASYS PCI, and is divided into two main sections.

## Using the OASYS PCI

This section offers step-by-step instructions for performing specific tasks and achieving specific goals with the OASYS PCI.

Look to the Using the OASYS PCI System section to answer the question, “how do I do this?”

## Reference

This section describes every window, parameter, and menu command in the OASYS PCI, with the exception of algorithm-specific Patch and Effect Control Panel parameters.

Use the Reference section to answer the question, “what does this do?”

## Other OASYS PCI Manuals

### Installation Guide

The Installation Guide provides a brief overview of the product, software and hardware installation instructions, and problem-solving resources. It is provided in both hard-copy and Adobe Acrobat (.pdf) format.

### Patches and Effects Guide

The Patches and Effects Guide includes complete descriptions of the Control Panel parameters for each Patch and Effect. It is provided in Adobe Acrobat (.pdf) format, which you may read online or print out, as you wish.

### OASYS PCI FAQ

FAQ stands for “Frequently Asked Questions.” The OASYS PCI FAQ, which is automatically installed with the OASYS PCI software, contains a complete website devoted to troubleshooting, setup and compatibility with third-party software and hardware, and usage tips.

The FAQ is in HTML format, so that it can be read by any standard web browser, such as Netscape Navigator or Internet Explorer. To search through the FAQ, start by opening the document named “OASYS PCI\_faq\_index.htm.”

In addition to the FAQ installed with the OASYS PCI software, the latest version can always be found at the Korg website, at <http://www.korg.com>.



# Using the OASYS PCI

# Instant Gratification

## Loading and playing Multis

Now that you've installed the OASYS PCI hardware and software, let's play some sounds!

- 1. Make sure that the analog outputs of the OASYS PCI are connected to your mixer or sound system, and that your MIDI controller (keyboard, guitar, etc.) is connected to your computer, and is set to transmit on MIDI channel 1.**

The Korg preset Multis respond to MIDI channel 1, and play from the card's analog outputs.

If you are using OASYS PCI with Windows, skip to step 3.

If you are using OASYS PCI with MacOS, follow step 2:

- 2. If you have set up the OASYS PCI to use OMS, follow the instructions under "Using the OASYS PCI Editor as a stand-alone OMS program" in the Installation Guide. After this, go on to step 3.**  
**or**  
**If you have set up the OASYS PCI to use FreeMIDI, follow the instructions under "Using the OASYS PCI Editor as a stand-alone FreeMIDI program" in the Installation Guide. After this, go on to step 3.**  
**or**  
**If you have set up the OASYS PCI to use the standard serial MIDI interface, go on to step 3.**

The installer program will have opened two folders on the desktop. One of these is named "OASYS PCI Demo Multis." This folder contains a number of demo sounds, which show off different aspects of the OASYS PCI.

In Windows, the Demo Multis folder is also installed in the Start menu, for easy access.

- 3. Open one of the demo Multis, by double-clicking its icon on the desktop.**

The OASYS PCI Editor will open, and the selected Multi will appear. Multis are complete setups for the OASYS PCI, including all of the settings for the onboard digital mixer, along with all settings for synthesizer sounds and effects.

- 4. Play on your MIDI controller.**

Enjoy!

When you'd like to hear another sound:

- 5. If you've opened any other windows, make sure that the main Mixer window is in the foreground.**
- 6. Select Close from the File menu.**

The window will close. Since you closed the main Mixer window, the Multi will close as well. If you've changed anything, a message will appear asking if you'd like to save your changes; press the Don't Save button (MacOS) or the No button (Windows).

**7. In the desktop, double-click on the icon of another Multi.**

*or*

**Select Open... from the File Menu, and select a new Multi.**

As the shampoo bottles say, "repeat as desired."

After you're done listening to a few sounds, make sure to read at least the chapter "Using the OASYS PCI." There's a lot to the OASYS PCI, and we wouldn't want to you miss anything!

Specifically, for more information on loading sounds, see the "Using Multis" section. For information on loading effects, see "Using Effects."

# What are...?

## File Types

The OASYS PCI use a number of different file types to organize and store sounds. Each of these types is briefly described below.

### **Multis**

A Multi is a single, complete setup for the OASYS PCI. It includes all of the settings for the Mixer windows, and for the Programs, Patches, Effects, and Multisamples being used. The Multi also includes settings for all Program Edit and Multisample Edit windows, and all Control Panel parameters for the Patches and Effects.

To put it another way, Multis store all of the settings in the Mixer, Send Busses, Output Busses, Channel Parameters, Program Edit, Control Panel, and Multisample Edit windows—everything except for the Preferences and ASIO Control Panel windows.

For more information, please see “Using Multis” on page 13.

### **Programs**

Programs are the basic sounds of the OASYS PCI, and must be placed on a Mixer Channel to be played. They play one or two Patches, which can be layered or split by key and velocity ranges. They also have up to four Insert Effects, which appear in the Mixer Channel. Programs store all Control Panel settings for their Patches and Effects.

For more information, please see “Using Programs & Patches” on page 19.

### **Effects-Only Programs**

Effects-Only Programs store all of the Insert Effects for a Mixer Channel, including all Effects Control Panel parameters. You can use them to load chains of Effects into a Mixer Channel, or to store such chains for use elsewhere.

Effects-Only Programs are just normal Programs without any Patches loaded into the Patch slots. Unlike normal Programs, Effects-Only Programs can be used on any type of input, including Audio Inputs, Streams, or even other Programs.

In the Korg factory voicing, they will be placed in the Programs section of the folder named “Korg FX Programs.”

For more information, please see “Using Effects” on page 23.

### **Patches**

Patches are the basic units of sound creation on the OASYS PCI. They must be placed in a Program in order to be played. Each Patch contains its own synthesis algorithm, which may be quite different from one Patch to another. The Patch

Control Panel allows you to edit the parameters of a Patch; those parameters may be very different, depending on the Patch's synthesis algorithm.

For more information, see "Using Programs & Patches" on page 19.

## Effects

Effects are used to modify the sound of Patches, Audio Inputs, or Streams. They can be used as insert effects in the Mixer Channels and Output Busses, or as send effects via the Send Busses.

Each Effect contains its own audio processing algorithm, which may be quite different from one Effect to another. The Patch Control Panel allows you to edit the parameters of an Effect; those parameters may be very different, depending on the Effect's synthesis algorithm.

For more information, see "Using Effects" on page 23.

## Samples

A Sample is an audio file, which can be placed in a Multisample (see below) and then played back by sample-based OASYS PCI Patches. OASYS PCI recognizes 16-bit and 24-bit samples in a number of different formats, including AIFF, WAV, Sound Designer II (on MacOS only), and Korg's proprietary .kes format.

For more information, see "Using Samples & Multisamples" on page 35.

## Multisamples

Multisamples are collections of one or more Samples assigned to ranges across the keyboard. Each key range has offsets for common parameters, such as volume, pan, filter cutoff, decay, and so on, which can be used to adjust Patch parameters individually for each Sample.

For more information, see "Using Samples & Multisamples" on page 35.

## OASYS PCI Editor

The OASYS PCI Editor program allows you to control all of the sound production and audio processing aspects of the OASYS PCI, including all mixer settings, loading of Programs and Effects, and all Program, Patch, and Effects parameters.

If you are using the OASYS PCI in conjunction with a digital audio program, you should leave the OASYS PCI Editor running in the background, so that you can switch to it for editing Programs and Effects.

## OASYS PCI Engine

The OASYS PCI Engine controls the low-level functions of the OASYS PCI system, such as sending and receiving MIDI, playing sounds, and so on. It will automatically start up whenever the OASYS PCI is being used, and will automatically quit again when it is not. On MacOS systems, it's located in the System Extensions folder; on Windows systems, it's located in the windows/system directory.

You don't interact directly with the OASYS PCI Engine itself; instead, you control it via the OASYS PCI Editor and any audio and/or MIDI software being used.

# User Interface & Shortcuts

Wherever possible, the OASYS PCI supports standard user interface concepts. There are buttons to push, sliders to drag, numerical fields to type in, and so on. There are a few items and concepts which bear mentioning, as discussed below.

## Volume faders

Double-clicking on a volume fader in a Mixer Channel, Send Bus, or Output Bus will set the fader to 0dB (unity gain), a value of 111.

## Knobs

Knobs are used in the Mixer windows and the Control Panel. You can move knobs by dragging the mouse either up and down, or left and right, as if you were moving a slider. They are *not* designed to be “turned” in a circular motion; doing so will produce undesired results!

For fine control, you can increment and decrement the knob’s value using the up and down arrows on the keyboard. You can also type directly into the value box.

Double-clicking on a knob will set it to its 12 o’clock position. For example, double-clicking on the Mixer’s Pan knobs sets them to 64 (center).

Send knobs are the one exception to this. As with volume faders, double-clicking a send knob sets it to 0dB (unity gain), a value of 111.

## Value boxes

A value box displays a numerical value, such as a volume level or a filter cutoff. You can edit value boxes in several different ways, as described below:

**Typing.** You can type directly into the selected value box. Typed edits take effect when you press return, tab, or enter; when you click on another value box, or on another window; or when you move another knob, slider, button, or menu.

**Arrow keys.** You can increment and decrement the selected value box by pressing the up and down arrow keys on the computer keyboard.

**Mouse dragging.** You can edit a value box by simply clicking in the box and then dragging the mouse up or down, as you were moving a slider. Dragging up increments the value, and dragging down decrements the value.

## MIDI editing

You can edit some parameters by playing on your MIDI controller. These parameters include:

- Key and velocity zones in the Program Edit and Channel Parameters windows.
- MIDI controller selections A-H in the Preferences window.

- High, low, and base keys in the Multisample Edit window.

To edit these parameters from MIDI, first select the parameter. Once the parameter is selected, hold down the Shift key, and then play on your MIDI controller. As long as the Shift key is held down, the parameter will continue to accept MIDI input.

The Multisample Edit window also has shortcuts to select the High, Low, and Base keys; for details, see “Multisample Edit,” beginning on page 93.

## Drag-and-drop

To load Programs, Patches, Effects, Multisamples, or Samples, just drag them from the Catalog window into the desired slot.

(MacOS only: Alternatively, you can select a slot, and then double-click on the name of the item in the Catalog window.)

You can also use drag-and-drop to copy items between slots. Just click on the name of the Program, Patch, Effect, Multisample, or Sample that you’d like to copy, and drag it to the new location.

## Delete key

Pressing the Delete key will remove the currently selected Program, Patch, Effect, Multisample, or Sample from the Multi, Program, Patch, or Multisample.

## Bypassing Effects

To bypass a single Effect, click on the slot number to the left of the Effect name.

To bypass all Effects in a Channel, Send, or Output Bus, option-click (MacOS) or CTRL-click (Windows) on any of the Effects slot numbers.

## Clearing clip indicators

To clear a meter’s clip indicators, click on them. To clear *all* clip indicators on the Mixer, option-click (MacOS) or CTRL-click (Windows) on any clip indicator.



# Using Multis

## Opening a Multi

1. **Select Open... from the File menu.**

The standard file open dialog will appear.

2. **Select the Multi that you want to open, and press OK.**

The selected Multi file will be opened.

You can also open a Multi by double-clicking on a Multi file in the Finder.

## Creating a new Multi

To create a new Multi:

1. **Select New from the File menu.**

This will create a new, empty Multi, and open the Multi's Mixer window. You can then add Programs and Effects to the new Multi, and assign Mixer Channels to Audio Inputs or Streams.

## Loading a Program into a Multi

To load a Program into a Multi:

1. **Open the Catalog, by selecting it from the Windows menu.**
2. **In the Catalog, select the Program tab.**
3. **Drag a Program from the Catalog onto the Input slot.**

(MacOS Only: Alternatively, you can select the Input slot and then double-click the name of the Program in the Catalog.)

The Program appears in the Input slot. If Auto-Load FX is turned on for the Mixer Channel, then the Program's Effects will be loaded into the Insert Effect slots. See "Auto-Load FX controls how Effects are loaded" below for more details.

4. **Set the MIDI Channel and Output as desired.**
5. **Double-click on the Program name, in either the Mixer Channel input slot or the Channel Parameters window.**

This opens the Program Edit window, as described on page 80.

The OASYS PCI uses "fixed voice allocation," which means that if you want to play six-note chords on an electric piano sound, you must tell the system to reserve six voices for the Patches within that Program. Conversely, the fewer voices you reserve for one Program, the more that will be available for other Programs (or for Effects).

6. **In the Program Edit window, set each Patch's number of voices as desired.**

## Connect and Disconnect commands

When adding several Programs in a row, you can speed things up by using the Connect and Disconnect commands, as described on page 17.

## What if I get an error message?

If you try to add a Program, but get an error message stating that there is not enough processing power to play the Multi, you may need to reduce the number of voices of the Program (or of other Programs), reduce the number of Effects being used, or otherwise free up system resources.

For more information, please see “Managing Resources,” on page 53.

## Auto-Load FX controls how Effects are loaded

Programs store their own Insert Effects. You can use the Mixer Channel’s Auto-Load FX parameter to control whether or not these Effects will be added to the Mixer when the Program is loaded.

If Auto-Load FX is turned on, then the Program’s Effects will be loaded into the Insert Effects slots. If there were already Insert Effects on the channel, they will be deleted.

If Auto-Load FX is turned off, then the Program’s Effects will not be loaded, and any previously loaded Insert Effects will stay as they were. This is useful if you have created a complex Effects setup, and wish to audition different Programs using the same Effects.

## Loading an Effects-Only Program into a Multi

Effects-Only Programs store all of the Insert Effects for a Mixer Channel, including all Effects Control Panel parameters. You can use them to load chains of Effects into a Mixer Channel, or to store such chains for use in other Multis.

Effects-Only Programs are just normal Programs without any Patches loaded into the Patch slots. Unlike normal Programs, Effects-Only Programs can be used on any type of input, including Audio Inputs, Streams, or even other Programs.

In the Korg factory voicing, they will be placed in the Programs section of the folder named “Korg Effects.”

To load an Effects-Only Program:

1. **Make sure that FX Auto-Load is enabled on the desired Channel.**

FX Auto-Load must be enabled in order to load an Effects-Only Program.

1. **Open the Catalog, by selecting it from the Windows menu.**
2. **In the Catalog, select the Program tab.**
3. **Drag an Effects-Only Program from the Catalog onto the Input slot.**

(MacOS only: Alternatively, you can select the slot and then double-click the name of the Effects-Only Program in the Catalog.)

The Effects-Only Program will replace any previously loaded Insert Effects.

Note that unlike normal Programs, loading an Effects-Only Program will not change the input to the Channel. If the Channel already contained a Program, the original Program's Patches will play through the new Effects. If the Channel's input was an Audio Input or a Stream, the Input Type will not change, and the audio will play through the new Effects.

### **Effects-Only Programs can only be used on Mixer Channels**

Effects-Only Programs can only be used on Mixer Channels; they cannot be loaded directly into Send Busses or Output Busses.

As a workaround, you can load an Effects-Only Program onto a Mixer Channel, and then copy the individual Effects onto the desired Send Bus or Output Bus.

## **Using Insert, Send, and Output Bus Effects**

The Multi's Effects routing capabilities are very powerful—so powerful that they have their own section in this manual! See the section titled "Using Effects," beginning on page 23, for more details.

## **Removing a Program or Effect from a Multi**

To remove a Program or Effect from a Multi:

1. **Select the Program clicking on its name in the Mixer or Channel Parameters window. Or, select the Effect by clicking on its name in the Mixer, Send Busses, or Output Busses window.**
2. **Press the Delete key.**

The Program or Effect will be removed from the Multi.

When deleting several Programs or Effects in a row, you may wish to use the Connect and Disconnect commands, as described on page 17.

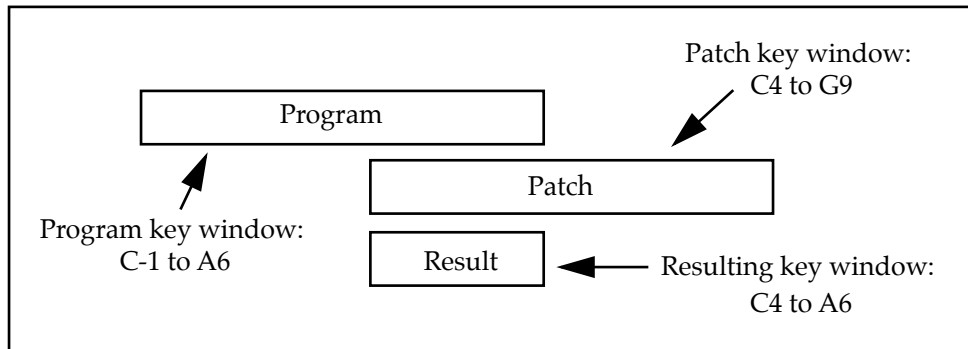
## **Copying Programs or Effects**

You can copy any Program or Effect, including all Control Panel settings, from one Channel to another, or from one Multi to another. Simply use drag-and-drop, or use the Copy and Paste commands in the Edit menu. To copy from one Multi to another, open both Multis and drag-and-drop between them.

When copying several Programs or Effects in a row, you may wish to use the Connect and Disconnect commands, as described on page 17.

## **Creating splits and layers of two or more Programs**

You can use Multis to create complex keyboard and velocity splits and layers between two or more Programs. Note that Patches can also be split and layered within a single Program, which interacts with the Multi as shown below.

*Cumulative Program and Patch high/low key windows***Creating layers**

To layer Programs in a Multi:

1. In the Mixer window, set the Mixer Channels containing the Programs to use the same MIDI channel.

That's it!

**Creating keyboard splits**

To create a keyboard split between two or more Programs:

1. In the Mixer window, set the Mixer Channels containing the Programs to use the same MIDI channel.
2. In the Channel Parameters window, set the Low Velocity for each of the Programs to the minimum (0), and the High Velocity to the maximum (127).

This will make sure that the Programs all respond to the full velocity range.

3. Set the High/Low Key parameters so that each Program is active for only a specific keyboard range.

For instance, setting the Low Key to C4 and the High Key to C8 will make the Program play only in the upper part of the keyboard.

When the High/Low Key and Velocity parameters are selected, you can press and hold the Shift key to edit the values by playing notes on your MIDI controller.

You can create splits using as many different Programs as you like.

**Velocity splits**

To create a velocity split between two or more Programs:

1. In the Mixer window, set the Mixer Channels containing the Programs to use the same MIDI channel.
2. In the Channel Parameters window, set the Low Key for each Program to the minimum (C-1), and the High Key to the maximum (G9).

This will make sure that the Programs all respond to the full keyboard range.

3. **Set the High/Low Velocity parameters so that each Program is active for only a specific velocity range.**

For instance, setting the Low Velocity to 100 and the High Velocity to 128 will make the Program play only when the velocity is fairly high.

When the High/Low Key and Velocity parameters are selected, you can press and hold the Shift key to edit the values by playing notes on your MIDI controller.

You can create velocity splits using as many different Programs as you like.

## **Auditioning Multis through a specific Output Bus**

All of Korg's factory preset Multis are set to use the Analog output as the Master Output Bus. If you'd like to audition these Multis through another output, such as S/PDIF or ADAT 1-2, you can do so by setting up the Preferences as described below.

1. **Select Preferences from the Edit menu.**

The Preferences window will appear.

2. **Select the General tab.**

3. **Under Multi Defaults, set the Master Output Bus to the desired output.**

4. **Check the "Reset Master Output Bus When Opening Multis" option.**

This will automatically set the Master Output Bus to the default when a Multi is opened. Note that this will also edit any custom Multis that you've made yourself.

### **Reset Master Output Bus can change DSP requirements**

If a Multi uses multiple Output Buses, changing the Master Output Bus may sometimes require the Programs and Effects to be re-arranged within the DSPs. This may either increase or decrease the effective amount of DSP processing power available.

In extreme cases, if the Multi was already using up almost all of the available DSP processing power, it is possible that changing the Master bus may put things over the edge, making the Multi too big to be played. If this happens, disable the "Reset Master Output Bus" option, or take one of the other measures described under "Managing Resources" on page 53.

## **Using the Connect and Disconnect commands**

Whenever you add or remove a Program or Effect, copy a Program or Effect between channels, add or remove a Patch from a Program, add a new Multisample or Sample, or change the Input Type of a Channel, the DSP code running in the OASYS PCI is changed. Normally, the OASYS PCI will compute these changes, and automatically download the new code and/or Sample data to the DSPs. This process may take a few seconds.

If you are making many edits of this sort, such as adding several new Effects or Multisamples at once, the Connect and Disconnect commands can speed things up.

They allow you to temporarily pause the OASYS PCI, make your edits, and then download all of the changes at once. To do this:

1. **Select Disconnect from the File menu (command-k).**

The OASYS PCI will pause; all Effects and Programs will become silent. If you look at the File menu again, you'll notice that the "Disconnect" command has changed to "Connect."

2. **Make the desired changes, such as adding or deleting Effects and Programs.**

3. **Select Connect from the File menu.**

The OASYS PCI will start up again, and all of your new changes will be downloaded to the DSPs at once.

## Saving Multis

Multis store the settings for the entire OASYS PCI, including all mixer settings, all Programs and Effects assignments, and all Control Panel settings.

For instance, let's say that you've created a complex Multi. Several channels have Programs, several more are assigned to Streams (for processing tracks from a digital audio program), and several others are assigned to Audio Inputs (for adding effects to other, external synthesizers). In the course of creating the Multi, you've edited a few Programs, and edited the Control Panels for a handful of Patches and Effects.

All of this, from the Mixer Channel assignments down to the Control Panel edits, is stored in the Multi. This means that, in general, the Multi is all that you'll need to save to disk.

To save a Multi:

1. **Make sure that the Mixer, Send Busses, Output Busses, or Channel Parameters window is in the foreground.**
2. **Select the "Save Multi As..." command from the File menu.**
3. **Name the Multi, and select a location on the disk.**

Unlike all other OASYS PCI file types, you can save Multis almost anywhere on disk (except in the Korg folders); they do not need to go into a special folder.

For more information on saving files, see "Working With Files" on page 48.

### **Don't save into the Korg and Korg FX Programs folders**

The Korg and Korg FX Programs folders are reserved for Korg's own use, so don't save your own sounds in these folders. If you do, the sounds may be deleted when you update or re-install the OASYS PCI software.

# Using Programs & Patches

## Creating a new Program

To create a new program:

1. **In the desired Mixer Channel, set the Input Type to Program.**

A new Program, named Untitled, will appear in the Input Slot. All of its parameters will be set to default values, and both Patch slots will be empty.

## Editing a Program

To edit a Program:

1. **Double-click on the Program name, in either the Mixer Channel input slot or the Channel Parameters window.**

This opens the Program Edit window, as described on page 80.

In the Program Edit window, you can select one or two Patches for the Program, along with their key and velocity ranges, relative volume levels, scale, voice assignment modes, and so on.

Synthesis parameters, such as envelopes, lfos, modulation routings, and so on, are edited in the Patch Control Panel, as explained under “Editing a Patch,” below.

## Adding a Patch to a Program

To add a Patch to a Program:

1. **Open the Catalog, by selecting it from the Windows menu.**
2. **In the Catalog, select the Patch tab.**
3. **Drag a Patch from the Catalog onto a Patch slot in the Program Edit window.**

(MacOs only: Alternatively, you can select the Patch slot and then double-click the name of the Patch in the Catalog.)

The Patch will appear in the slot.

## Editing a Program Name

You can edit the name of a Program from within a Multi, without needing to save the Program to the disk. To edit a Program name:

1. **Double-click on the Program name in the Mixer or Channel Parameters window.**

The Program Edit window will appear.

2. **Click in the Program Name parameter, and edit as desired.**

The new name will take affect immediately.

## Program edits are stored within the Multi

All edits to a Program, including all parameters in the Program Edit and Patch and Effect Control Panel windows, are stored within the Multi. If you are editing a Program to use in a specific Multi, there's no need to save the Program as a separate file to disk; just save the Multi, and you're done.

This also means that you don't have to worry about keeping track of which Multis use which Programs. Once you add a Program to a Multi, its parameters are copied into the Multi, and are separated from the Program file on the disk. Any changes to the Program file on disk will not affect existing Multis.

If you like, you can still store the edited Program as a separate file to disk. For details, see "Saving Programs," on page 22.

## Editing a Patch

To edit a Patch:

1. **Double-click on the Patch name, in the Program Edit window.**  
*or*  
**Command-double-click on the Program name in the Mixer or Channel Parameters windows.**

The Patch's Control Panel window will appear.

If you command-double-click on the Program name of a Program with two Patches, both Control Panels will appear.

The Control Panel contains all of the parameters for the Patch, such as envelopes, lfos, oscillators, filters, drawbars, and so on. The parameters will be different, depending on which Patch is being used.

For a complete description of the Control Panel parameters of a particular Patch, please see the separate OASYS PCI Patches and Effects manual, provided in Adobe Acrobat (.pdf) format.

## Patch edits are stored within the Multi and the Program

All edits to a Patch's Control Panel are stored within the Program, which is in turn stored within the Multi. If you are editing a Patch to use in a specific Multi, there's no need to save the Program as a separate file to disk; just save the Multi, and you're done.

This also means that you don't have to worry about keeping track of which Programs use which Patches. Once you add a Patch to a Program, its parameters are copied into the Program, and are separated from the Patch file on the disk.

## Copying Patches between Programs

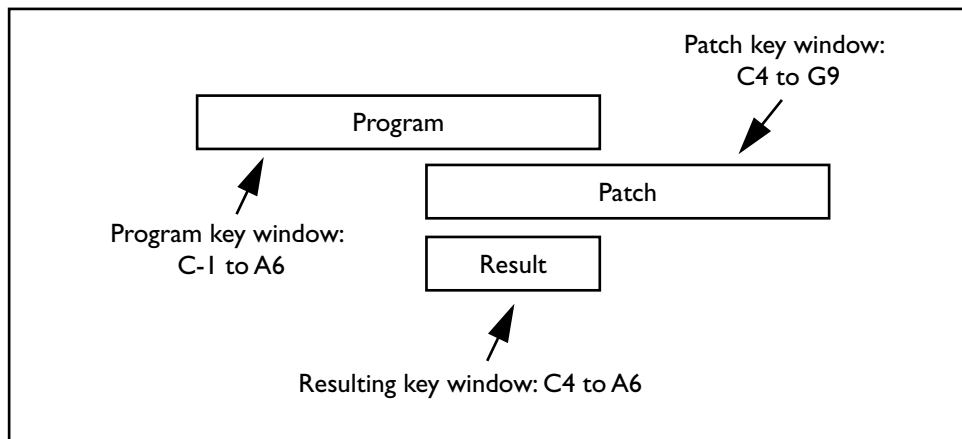
You can copy a Patch, including its Control Panel settings, from one Program to another. Simply use drag-and-drop, or use the Copy and Paste commands in the Edit menu.



## Creating splits and layers of Patches within a Program

The two Patches in a Program can be layered together, or split by key and/or velocity ranges. Note that Programs can also be split and layered within a Multi, which interacts with the Patch key and velocity ranges as shown below.

*Cumulative Program and Patch high/low key windows*



### Layers

To layer Patches in a Program:

1. **In the Program Edit window, set the High/Low Key and Velocity parameters so that each Patch is active over the entire keyboard and velocity range.**

That's it!

### Keyboard splits

To create a keyboard split between two Patches:

1. **In the Program Edit window, set the Low Velocity for each Patch to the minimum (1), and the High Velocity to the maximum (127).**

This will make sure that the Patches both respond to the full velocity range.

2. **Set the High/Low Key parameters for each Patch so that each is active for only a specific keyboard range.**

For instance, setting the Low Key to C4 and the High Key to C8 will make the Patch play only in the upper part of the keyboard.

When the High/Low Key and Velocity parameters are selected, you can press and hold the Shift key to edit the values by playing notes on your MIDI controller.

### Velocity splits

To create a velocity split between two Patches:

1. **In the Program Edit window, set the Low Key for each Patch to the minimum (0, or C-1), and the High Key to the maximum (127, or G9).**

This will make sure that the Patches both respond to the full keyboard range.

2. **In the Program Edit window, set the High/Low Velocity parameters for each Patch so that each is active for only a specific velocity range.**

For instance, setting the Low Velocity to 100 and the High Velocity to 128 will make the Patch play only when the velocity is fairly high.

When the High/ Low Key and Velocity parameters are selected, you can press and hold the Shift key to edit the values by playing notes on your MIDI controller.

## Saving Programs

If you have created a Program that you'd like to use in other Multis, you can save the Program as a separate file on disk. Program files store all of the information in the Program Edit window, along with any Insert Effects used in the Program's Mixer Channel, and all Control Panel settings for the Program's Patches and Effects.

To save a Program and its Insert Effects:

1. **Make sure that the Program Edit window is in the foreground.**
2. **Select the "Save Program and Insert Effects As..." command from the File menu.**
3. **Name the Program.**
4. **Select a location to save the Program.**

The OASYS PCI installer creates a folder named "User Files," with sub-directories for Programs and Multis. You can save your own Programs into the Programs folder inside this directory (User Files:Programs). You can also create other main folders inside the OASYS PCI folder, at the same level as "User Files."

It's important to store Programs inside a sub-directory named "Programs." If a Program is not stored in a Program folder inside the OASYS PCI folder, it will not appear in the Program Catalog.

For more information on saving files, see "Working With Files" on page 48.

### **Don't save into the Korg and Korg FX Programs folders**

The Korg and Korg FX Programs folders are reserved for Korg's own use, so don't save your own sounds in these folders. If you do, the sounds may be deleted when you update or re-install the OASYS PCI software.

# Using Effects

## Adding Effects to Mixer Channels, Send Busses, and Output Busses

The same set of Effects are available for Mixer Channels, Send Busses, and Output Busses. To add an Effect:

1. **Open the Catalog, by selecting it from the Windows menu.**
2. **In the Catalog, select the Effect tab.**
3. **Drag an Effect from the Catalog onto an Effects slot in the Mixer, Send Busses, or Output Busses window.**

(MacOs only: Alternatively, you can select the Effect slot and then double-click the name of the Effect in the Catalog.)

The Effect will appear in the slot.

When adding several Effects in a row, you may wish to use the Connect and Disconnect commands, as described on page 17.

## Loading Effects-Only Programs

Effects-Only Programs store all of the Insert Effects for a Mixer Channel, including all Effects Control Panel parameters. You can use them to load chains of Effects into a Mixer Channel, or to store such chains for use elsewhere.

Effects-Only Programs are just normal Programs without any Patches loaded into the Patch slots. Unlike normal Programs, Effects-Only Programs can be used on any type of input, including Audio Inputs, Streams, or even other Programs.

In the Korg factory voicing, they will be placed in the Programs section of the folder named “Korg Effects.”

To load an Effects-Only Program:

1. **Make sure that FX Auto-Load is enabled on the desired Mixer Channel.**  
FX Auto-Load must be enabled in order to load an Effects-Only Program.
2. **Open the Program Catalog, by selecting it from the Windows menu.**
3. **Drag an Effects-Only Program from the Catalog onto the Input slot.**

(MacOS only: Alternatively, you can select the slot and then double-click the name of the Effects-Only Program in the Catalog.)

The Effects-Only Program will replace any previously loaded Insert Effects.

Note that unlike normal Programs, loading an Effects-Only Program will not change the input to the Mixer Channel. If the Channel already contained a Program, the original Program’s Patches will play through the new Effects. If the Channel’s input was an Audio Input or a Stream, the Input Type will not change, and the audio will play through the new Effects.

## Effects-Only Programs can only be used on Mixer Channels

Effects-Only Programs can only be used on Mixer Channels; they cannot be loaded directly into Send Busses or Output Busses.

As a workaround, you can load an Effects-Only Program onto a Mixer Channel, and then copy the individual Effects onto the desired Send Bus or Output Bus.

### What if I get an error message?

If you try to add an Effect or an Effects-Only Program, but get an error message stating that there is not enough processing power to play the Multi, you may need to reduce the number of voices of one or more Programs, reduce the number of Effects being used, or otherwise free up system resources. For more information, please see “Managing Resources,” on page 53.

## Using Channel Insert Effects

Channel Insert Effects provide “inline” processing for specific Programs, Audio Inputs, or Streams. You can use the inserts for effects such as EQ, distortion, compression, in which only the processed signal is heard, or use the Effect’s wet/dry parameter for effects such as reverb, for creating a blend of both the processed and the original sounds.

### FX Auto-Load

Programs can include a set of insert Effects, and the FX Auto-Load button determines whether or not these Effects will be loaded into the Mixer. For more information, please see “Auto-Load FX controls how Effects are loaded,” on page 14

## Using Send Effects

Using Effects on a Send Bus enables you to share the Effects between two or more Mixer Channels, including any combination of Programs, Audio Inputs, and Streams. You can also send a Stream directly to a Send Bus.

### Using Mixer Channel Sends

To route a Mixer Channel to a Send Bus:

1. **Add one or more Effects to a Send Bus.**
2. **Select the desired Send Bus from the Send Menu for Send A and/or B.**

Each Mixer Channel has two independent mono Sends.

3. **Set the Mixer Channel’s Send Level(s) as desired.**
4. **If necessary, scale the overall input level to the Send using the Send Bus’s Send Master Vol parameter.**
5. **Set the output for the Send Bus as desired.**

That’s it!

## **Sending a Stream to a Send Bus**

To send a Stream to a Send Bus:

1. **In your digital audio software, assign one or more audio tracks to a Stream output.**

Some digital audio software includes a mixer with send busses, and allows the send busses to be assigned directly to an output. In this case, you can assign a send in the digital audio software to feed directly into an OASYS PCI Stream.

1. **In the OASYS PCI Editor, open the Send Busses window, by selecting it from the Windows menu.**
2. **Set the Send Bus's Stream In parameter to the desired Stream.**

The Stream will now be routed to the Send Bus.

Note that while Mixer Channels can only send mono signals to a Send Bus, Stream inputs can be either mono or stereo. Using a stereo Stream input takes up an additional physical bus on the DSPs, so you should do this only when you actually need a stereo send.

## **Using Send Busses to conserve DSP resources**

If several Channels are using a similar Insert Effect, such as a hall reverb, it may make sense for the Channels to share a common reverb via a Send Bus instead. This will free up DSP resources, which can then be used in other ways. To set up several Channels to share a reverb:

1. **Choose the Insert Effect reverb you like best, and use the Edit menu Cut command to remove it from the channel.**
2. **Remove the other Insert Effect reverbs using the Delete key.**

This will leave the favorite reverb on the clipboard, ready to paste into the Send Bus.

3. **Paste the favorite reverb into a Send Bus.**
4. **Use the Mixer Sends to route the Channels to the Send Bus. Adjust the Send levels as desired.**

## **Using Output Bus Effects**

### **Sharing Insert Effects between two or more Channels**

You can use Output Busses to process two or more Mixer Channels through the same set of Insert Effects. For instance, you might wish to run several drum Programs through the same compressor, or apply an overall EQ. To do this:

1. **Use the Output parameter to assign the Mixer Channels to the same Output Bus.**

Unless you want to apply the same Effects to *all* Mixer Channels, use an Output Bus other than the Master Output.

2. **Add the desired Effects to the Output Bus.**
3. **If you want to hear all of the OASYS PCI sounds through a single stereo pair, press the To Master button for the Output Bus.**

This will route the Output Bus to the Master output.

### **Creating chains of more than four Effects**

Output Bus Effects come after the Effects in the Mixer Channels and Send Buses. This means that you can use an Output Bus to create a chain of more than four Insert or Send Effects. To do this:

1. **Create the chain of Effects in the Mixer Channel or Send Bus, as normal.**
2. **Set the Output of the Mixer Channel or Send Bus to an unused Output Bus.**
3. **Add more Effects to the Output Bus, as desired.**
4. **If you want to hear all the OASYS PCI sounds through a single stereo pair, press the To Master button for the Output Bus.**

This will route the Output Bus to the Master output.

## **Using OASYS PCI effects to process other synthesizers or live inputs**

You can process other synthesizers, or in fact any other audio source (guitars, vocals, etc.), through OASYS PCI effects. In fact, you can process up to 12 live inputs simultaneously. To do this:

1. **Connect the synthesizer or other audio source to any input(s) on OASYS PCI.**

You can use any combination of inputs, ADAT, S/PDIF, or analog.

2. **Set an OASYS PCI mixer channel to Audio Input, and select the input to which you've connected the synthesizer or other audio source.**

Repeat for all the audio inputs that you'll be using.

Once the audio inputs are coming up on the OASYS PCI mixer:

3. **Use Insert, Send, and Output Bus effects on the channels, as desired, just as you would for internal OASYS PCI synths or audio streams.**

For more information on using Insert, Send, and Output Bus effects, see the appropriate sections of this chapter, above.

## **Using OASYS PCI effects to process audio from an audio program**

You can route up to 8 channels of audio from a digital audio program to the OASYS PCI's mixer channels, for processing through effects. For more information, see "Processing audio through OASYS PCI effects," on page 44.

## **Using OASYS PCI effects along with CPU effects (VST, MAS, etc.)**

You can use your favorite PowerPC-based effects plug-ins, such as VST or MAS, simultaneously with OASYS PCI effects and synthesizers. In general, we

recommend that the use of effects should follow the signal flow, with signals originating in the CPU, being processed by host-based effects, and then being processed through OASYS PCI effects.

For instance, consider using host-based effects for individual EQ and compression on large numbers of recorded audio tracks, and then using the OASYS PCI for send effects and special-purpose processing of individual tracks.

## Bypassing Effects

You can bypass individual Effects, or bypass all Effects in a channel at once.

To bypass a single Effect:

1. **Click on the slot number to the left of the Effect name.**

When bypassed, the Effect name will be grayed out. To re-enable the Effect, just click the slot number again.

You can also bypass Effects by using the Bypass button in the Effect Control Panel.

To bypass all Effects in a Channel, Send, or Output Bus:

1. **Option-click (MacOS) or CTRL-click (Windows) on any of the Effects slot numbers in the Channel, Send, or Output Bus.**

## Editing Effects

To edit an Effect:

1. **Double-click on the Effect name, in the Mixer, Send Busses, or Output Busses window.**

The Effect's Control Panel window will appear.

The Control Panel contains all of the parameters for the Effect, such as delay times, wet/dry mix, and so on. The parameters will be different, depending on which Effect is being used.

For a complete description of the Control Panel parameters of a particular Effect, please see the separate OASYS PCI Patches and Effects manual, provided in Adobe Acrobat (.pdf) format.

### **Effect edits are stored within the Multi and the Program**

All edits to Effects in the Send Busses and Output Busses, and in Mixer Channels with Audio Inputs or Streams as inputs, are stored in the Multi. Edits to a Program's Insert Effects are stored within the Program, which is in turn stored within the Multi. As with Programs and Patches, after editing effects, you can simply save the Multi, and you're done.

This also means that you don't have to worry about keeping track of which Multis and Programs use which Effects. Once you add an Effect to a Multi or Program, its parameters are copied into the Multi or Program, and are separated from the Effect file on the disk.

## Copying Effects

You can copy Effects, including their Control Panel settings, between Mixer Channels, Send Busses, and Output Busses.

On MacOS, use drag-and-drop to copy the Effect.

On Windows, use drag-and-drop to move an Effect from one slot to another (deleting the original instance), or Control-drag to copy the Effect.

On both platforms, you can also use the Copy and Paste commands in the Edit menu.

## Removing an Effect

To remove an Effect from a Multi:

1. **Select the Effect by clicking on its name in the Mixer, Send Busses, or Output Busses window.**
2. **Press the Delete key.**

The Effect will be removed from the Multi.

When deleting several Effects in a row, you may wish to use the Connect and Disconnect commands, as described on page 17.

## No restrictions on connecting stereo and mono Effects

All effects in OASYS PCI are designed so that they can be connected to one another. You can connect stereo and mono effects together as you wish, without restrictions. (You may still wish to be aware of which effects are stereo and which are mono, however, if you wish to maintain a stereo image through a chain of effects.)

Also, with a few exceptions (such as EQs and dynamics processors), most mono input-mono output effects still pass the true stereo signal in the “dry” side of the wet/dry mix.

## Gain and mono input Effects

Mono input effects offer a choice between Left + Right input, or Left input only. If L+R is selected, and input gain is not attenuated by at least 6dB, clipping can occur (since the left and right signals are added together).

## Saving Effects-Only Programs

To save an Effects-Only Program:

1. **If the Channel’s Input Type is set to Audio Input or Stream, temporarily change the Input Type to Program.**
2. **Double-click on the Program name in the Input Slot, to open the Program Edit window.**



3. **Make sure that there are no Patches in the Program. If there are, delete them.**
4. **Select the “Save Program and Insert Effects As...” command from the File menu.**
5. **Name the Effects-Only Program.**
6. **Select a location to save the Effects-Only Program.**

The OASYS PCI installer creates a folder named “User Files,” with sub-directories for Programs and Multis. You can save your own Programs into the Programs folder inside this directory (User Files:Programs). You can also create other main folders inside the OASYS PCI folder, at the same level as “User Files.” You may wish to distinguish Effects-Only Programs by storing them in a separate main folder, separate from standard Programs.

It’s important to store Programs inside a sub-directory named “Programs.” If a Program is not stored in a Program folder inside the OASYS PCI folder, it will not appear in the Program Catalog.

For more information on saving files, see “Working With Files” on page 48.

7. **If you changed the Channel’s Input Type in step 1, change it back again.**

### **Don’t save into the Korg and Korg FX Programs folders**

The Korg and Korg FX Programs folders are reserved for Korg’s own use, so don’t save your own sounds in these folders. If you do, the sounds may be deleted when you update or re-install the OASYS PCI software.

# Using Modulation

## Built-in modulation routings

### Fixed Modulation Paths

Many Patches and Effects offer built-in modulation paths for certain parameters. Sometimes, these modulation paths will be “hard wired,” meaning that the amount of modulation can be altered, but the source of the modulation is fixed. For instance, a filter envelope might be hard-wired to control the filter cutoff.

### Assignable Modulation Paths

Patches and Effects may also offer assignable modulation paths, so that you can choose the source of the modulation. Assignable modulation paths include an extensive menu of MIDI modulation sources, as detailed under “Modulation Sources,” on page 88.

## Creating a modulation routing

One of the special features of the OASYS PCI is that *all* Control Panel parameters are modulatable—even if they don’t have built-in modulation routings.

To create a new modulation routing:

1. **Click on the name of the Control Panel parameter you’d like to modulate. For on/off buttons, option-click (MacOS) or CTRL-click (Windows) on the name.**

The Modulation Palette will appear. Initially, it will contain two empty modulation paths, each with a source and an amount.

2. **Select a modulation source from the menu.**

For descriptions of the available modulation sources, see “Modulation Sources,” on page 88.

3. **Set the modulation amount as desired.**

The amount is a percentage of the total range of the parameter. When the Amount is set to +100, a MIDI modulation value of 127 will take the parameter all the way to the maximum value, even if the Control Panel knob or slider is at its very lowest setting.

Conversely, when the Amount is set to -100, a MIDI modulation value of 127 will take the parameter all the way to the minimum value, even if the Control Panel knob or slider is at its very highest setting.

After you’ve assigned a modulation routing, the name of the Control Panel parameter will be underlined and colored red, to show that it is now being modulated.

You don't need to do anything to save the new modulation routing; the edits take affect immediately.

### **Modulating on/off parameters**

You can control on/off parameters, such as buttons, from any MIDI controller. A value of 0 will turn the button off; any value of 1 or greater will turn the button on.

### **Why don't the knobs move?**

When you modulate parameters using MIDI controllers, you'll hear the changes, but you won't see the knobs moving. This is normal. If the knob moves, the Patch or Effect becomes edited - and you wouldn't want to edit your sound every time you moved the mod wheel.

SysEx Parameter Changes do edit parameters, and the knobs will move correspondingly (though you can disable this if you wish). For more information, see "SysEx Parameter Change Messages," below.

### **Editing an existing modulation routing**

To edit an existing modulation routing:

1. **Click on the name of the Control Panel parameter. For on/off buttons, option-click (MacOS) or CTRL-click (Windows) on the name.**

The Modulation Palette will appear, showing the current modulation settings.

2. **Edit the modulation sources and/or amounts as desired.**

For descriptions of the available modulation sources, see "Modulation Sources," on page 88. You don't need to do anything to save the edited modulation routing; the changes will take affect immediately.

### **Deleting a modulation routing**

To delete a modulation routing:

1. **Click on the name of the Control Panel parameter from which you'd like to delete the modulation routing. For on/off buttons, option-click (MacOS) or CTRL-click (Windows) on the name.**

The Modulation Palette will appear.

2. **Set the Amount to zero, or set the Source to "None."**

The modulation routing will be deleted.

If both modulation routings are deleted, the underline will disappear from the name of the Control Panel parameter, and the color will return to normal.

### **SysEx Parameter Change Messages**

All objects on the Control Panel—knobs, sliders, and so on—can send and receive MIDI System Exclusive parameters, for automation with MIDI sequencer programs.

## Enabling SysEx

To enable sending and receiving of System Exclusive parameter messages:

1. **Select Preferences from the Edit menu.**

The OASYS PCI Preferences window will appear.

2. **Press the MIDI/Global tab.**

The MIDI/Global parameters will appear.

3. **Make sure that the Send MIDI Parameter Change Messages and Receive MIDI Parameter Change Messages checkboxes are enabled.**

This will enable sending and receiving of the messages.

You can also choose whether or not the Control Panel objects (sliders, knobs, etc.) will move in response to received Parameter Change messages. This can be convenient for seeing the results of SysEx automation visually, but will add some processing overhead.

SysEx automation will work regardless of whether this parameter is enabled or disabled; this controls only the visual display of the automation. Note also that only SysEx will cause knobs to move; knobs will not move in response to modulation via the Modulation Palette.

4. **Set the Update Control Panel from MIDI checkbox as desired.**
5. **Press the Save button to store the edited preferences.**
6. **In your MIDI sequencing program, do whatever is necessary to enable recording and playback of System Exclusive data.**

The OASYS PCI FAQ contains information for some sequencing programs; see the program's manual for more details.

## Automating parameters via SysEx

Once SysEx parameter send & receive is enabled, you can now record control panel changes (knob movements, menu changes, etc.) into your MIDI sequencer, and play them back into the OASYS PCI. To do so:

1. **MacOS only: If you are using OMS or FreeMIDI, make sure that the OASYS PCI is enabled as a MIDI controller source.**

For more information, see the OMS or FreeMIDI documentation.

If you are using Windows, just skip to step 2.

2. **Record-enable a track in the MIDI sequencer.**
3. **If your program requires you to specify a MIDI source for recording onto a track, select the OASYS PCI.**
4. **Begin recording in the sequencer.**
5. **Switch to the OASYS PCI Editor.**
6. **Make the Control Panel changes as the sequence plays.**

The Control Panel changes will be recorded as SysEx messages in the record-enabled track.

7. **When you are finished, switch back to the sequencer and stop recording.**

8. **Play back the sequence to hear the recorded automation.**

If you have enabled “Update Control Panel from MIDI,” as described above, then you will see the Control Panel change as the automation plays.

### **SysEx Messages are tied to Channel and slot**

The System Exclusive messages are tied to the particular Mixer Channel/Send Bus/Output Bus and Slot, so that messages from Effect 2 on Channel 3 are separate from those of Effect 4 on Channel 7. If you move a Program, Patch, or Effect to a new slot or Channel, Send Bus, or Output Bus, previously recorded System Exclusive messages will no longer work properly.

Changing the MIDI Channel used by the Mixer Channel, Send Bus, or Output Bus will not affect the System Exclusive messages; they will continue to work as they did before.

### **SysEx format**

For low-level details on the OASYS PCI System Exclusive format, please see “MIDI System Exclusive Format” on page 133.

## **Mixer parameters have preset modulation routings**

All parameters in the Mixer, Send Bus, and Output Busses windows have built-in MIDI modulation routings, as shown in the chart below.

<b>Mixer parameter</b>	<b>MIDI Controller #</b>	<b>Notes</b>
Volume	7	Sets the maximum volume of the channel. This is modified by Expression, as described below.
Width	8	
Pan	10	64 is absolute center; 0 is hard left; 127 is hard right

<b>Mixer parameter</b>	<b>MIDI Controller #</b>	<b>Notes</b>
Expression	11	Scales channel volume. When Expression is set to 127, channel volume is set by the Volume controller (#7). When Expression is below 127, channel volume is reduced.
Mute	89	0 is off (not muted); 1-127 is on (muted)
Solo	90	0 is off (not soloed); 1-127 is on (soloed)
Send Level A	12	
Send Level B	13	
Send Mute A	91	0 is off (not muted); 1-127 is on (muted)
Send Mute B	93	0 is off (not muted); 1-127 is on (muted)
Send Pre/Post A	92	0 is Post; 1-127 is Pre
Send Pre/Post B	94	0 is Post; 1-127 is Pre

# Using Samples & Multisamples

## Assigning a Multisample to PCM Patch

To change the Multisample assigned to a PCM Patch:

1. **Open the Control Panel for the PCM Patch.**
2. **Drag a Multisample from the Catalog onto the Multisample slot in the Control Panel.**

That's it! The new Multisample will be assigned to the PCM Patch.

**NOTE:** Only Patches designed to play PCM can use Multisamples. This includes all of the Patches in the Korg/Patches/PCM folder, for instance.

## Editing a Multisample

To edit a Multisample:

1. **Open the Control Panel for the PCM Patch containing the Multisample.**
2. **Double-click on the name of any Multisample on the Control Panel.**

The Multisample Edit window will open, allowing you to edit the selected Multisample.

Within the Multisample Edit window, you can change sample key ranges, add and delete samples, and change Patch offset values, such as tuning, decay, volume, pan, and filter cutoff.

### **Multisample edits are stored within the Multi**

All edits to a Multisample are stored within the Multi. If you are editing a Multisample to use in a specific Multi, there's no need to save the Multisample as a separate file to disk; just save the Multi, and you're done.

This also means that you don't have to worry about keeping track of which Multis use which Multisamples. Once you add a Multisample to a Multi, its parameters are copied into the Multi, and are separated from the Multisample file on the disk. Any changes to the Multisample file on disk will not affect existing Multis.

If you like, you can still store the edited Multisample as a separate file to disk. For details, see "Using the Zoom In and Zoom Out buttons," on page 40.

## Selecting a Key Range

To select a Key Range in the Multisample Edit window, you can do one of three things:

1. **Click in the Key Range's box above the keyboard graphic.**  
*or*  
**Click on a note on the keyboard graphic.**

*or*

**Play a note on a MIDI controller.**

When selected, the parameters of the selected Key Range's are shown at the top of the window. The Key Range's box and the range on the keyboard are both highlighted in light blue, and the base key is shown in red.

**NOTE:** For more information on MIDI input in the Multisample Edit window, see "MIDI must be on the correct channel, within all key and velocity windows" on page 37.

## Deleting a Key Range

To delete a Key Range in the Multisample Edit window:

1. **Select the Key Range that you'd like to delete.**
2. **Press the Delete key.**

*or*

**Select the Cut command.**

*or*

**Select the Clear command.**

When a Key Range is deleted, the next highest Key Range is adjusted downwards to fill the gap.

## Changing the High, Low, and Base keys

You can change a Key Range's High, Low, and Base keys in three ways: edit the numeric fields at the top of the window, drag the edges of the box above the keyboard graphic, or use your MIDI controller.

### Numeric editing

To change the High, Low, or Base Key numerically, simply edit the desired parameter at the top of the Multisample Edit window.

When selected, the High, Low, and Base Key parameters also respond to MIDI input.

### Graphic editing

To change the High and Low Keys graphically:

1. **Move the cursor over the edge of a Key Range.**
2. **When the cursor changes to a double-arrow shape, click and drag the edges of the Key Range as desired.**

To change the Base Key graphically:

1. **Click on the Base Key (shown in red) on the graphic keyboard.**
2. **While holding down the mouse button, drag the key to a new location on the keyboard.**
3. **Release the mouse button to assign the new Base Key.**



## **MIDI editing**

To edit the High Key via MIDI:

1. **Hold down the command key (MacOS) or shift-left-bracket “[” (Windows) on your computer keyboard.**

Notice that the High Key parameter becomes selected.

2. **While holding the key(s) on your computer keyboard, play a note on your MIDI controller.**

To edit the Low Key via MIDI:

1. **Hold down the option key (MacOS) or shift-right-bracket “]” (Windows) on your computer keyboard.**

Notice that the Low Key parameter becomes selected.

2. **While holding the key(s) on your computer keyboard, play a note on your MIDI controller.**

To edit the Base Key via MIDI:

1. **Hold down both the option and command keys (MacOS) or shift-backslash “\” (Windows) on your computer keyboard.**

Notice that the Base Key parameter becomes selected.

2. **While holding the keys on your computer keyboard, play a note on your MIDI controller.**

## **MIDI must be on the correct channel, within all key and velocity windows**

When the Multisample Edit window is in the foreground, incoming MIDI selects the current Key Range, and can also edit various parameters, as described below.

The Mixer channel’s MIDI channel assignment, and all Multi and Program key and velocity windows, all apply to MIDI received in this window. If incoming MIDI data is on the wrong channel, or is outside of the key and velocity windows, then it will have no effect.

As a rule of thumb: if incoming MIDI will play the Patch containing the Multisample, then it will also be received for selection and editing in the Edit Multisample window.

## **Edit Multisample window must have focus (Windows only)**

On Windows computers, the Edit Multisample window must have the focus in order to respond to MIDI input. To set the focus to the window, simply click on it.

## **Assigning a Sample to a new Key Range**

To add a Sample and create a new Key Range containing the Sample:

1. **Drag the Sample from the Catalog onto the keyboard graphic.**

Keys highlight as you drag over them;

2. **Once the Sample is over the desired key, release the mouse button.**

The Sample will be assigned to the selected key.

### **Dragging a Sample to the middle of an existing Key Range**

Dragging to the middle of an existing range splits the Key Range at the insertion point, with the new sample assigned to the top part.

For instance, let's say that range A spans C2 to C4. The user Cmd-Drags a sample over G2 to G3. The result: range A now spans C2 to F#2; the new user-created range B spans G2 to G3; and a second new range C, using the same parameters as the original range A, spans G#3 to C4.

### **Changing the Sample assigned to a Key Range**

To change the Sample assigned to a Key Range:

1. **Select the Key range.**
2. **Drag a new Sample from the Catalog into the Sample parameter at the top of the window.**

(MacOS Only: Alternatively, you can select the Sample slot and then double-click the name of the Sample in the Catalog.)

For more information on using the Catalog, please see the section titled "Catalog" on page 102.

The new Sample will now be assigned to the Key Range. All other parameters in the Key Range will remain unchanged.

### **Importing AIFF, WAV, and Sound Designer II Samples**

OASYS PCI can use 16-bit and 24-bit samples in a number of different formats, including AIFF, WAV, and Korg's proprietary .kes format. Additionally, Sound Designer II format samples are supported on MacOS only.

To use your own AIFF, WAV, or Sound Designer II samples with OASYS PCI:

1. **In the OASYS PCI Folder, create the directory structure that you'd like to use.**

For instance, create a Samples folder within the User Files folder. Then, within the Samples folder, create folders to organize your samples, such as Drums, Synths, Effects, etc.

This is important, since once you start creating Multisamples from the Samples, they must remain in the same folder, or the Multisamples won't be able to find them.

2. **Copy the samples into the folders you've just created.**
3. **In the OASYS PCI Editor, close and re-open the Catalog window.**

The new Samples will appear in the Catalog under the Samples tab. You can now use them in Multisamples just as you would the Korg factory samples.

### **Stereo Samples**

OASYS PCI supports both split and interleaved stereo samples. Split stereo samples must have file names ending in -l (left) and -r (right), before the 3-character file extension. For instance, a split stereo WAV-format bass sample would be named "bass-r.wav" and "bass-l.wav."

Split stereo files appear in the Catalog as a single stereo sample.

### **Editing Samples in an external editor**

You can use the Open Sample in Editor button to edit any WAV, AIFF, or Sound Designer II Sample in your preferred external sample editing program, such as Peak, WaveLab, SoundForge, Spark, Alchemy, etc.

#### **Selecting a sample editing program**

First, you need to select a sample editing program:

1. **Select Preferences from the File menu.**
2. **Select the PCM Playback tab.**
3. **Under Sample Editor, press the Choose button.**

A standard file-select dialog will appear.

4. **Select your preferred sample editing program.**

When the file-select dialog is closed, the sample editor's name will now appear in the Preferences window.

#### **Editing a Sample**

To edit a Sample in the selected sample editing program:

1. **In the Multisample Edit window, select the Sample to edit.**
2. **Press the Open Sample in Editor button.**

The Sample will be opened in the sample editing program.

3. **Edit the Sample as desired.**
4. **Save your edits in the sample editing program.**
5. **Switch back to the OASYS PCI Editor.**
6. **In the Multisample Edit window, make sure that the same Sample is still selected, and then press the Re-Load Sample button.**

The edited Sample will be loaded into OASYS PCI.

## **Korg factory “.kes” samples cannot be edited**

Note that Korg’s proprietary .kes sample files are encrypted, and so they cannot be opened in external editors.

## **Editing using the Show Parameter menu and on-screen sliders**

You can choose one parameter, such as volume or pan, to be displayed for all of the ranges simultaneously. The value is shown as a slider within each Key Range box, allowing you to see the settings for all Key Ranges at once.

To select the parameter being displayed, use the Show Parameter menu. The selections include most of the numeric edit fields at the top of the window: Volume, Pan, Cutoff, Tune, Decay, and Exclusive Group. A final setting, None, makes the sliders disappear, for easier viewing of the sample names.

To edit the parameter for a specific range, just move the on-screen slider. The value is shown within the slider handle. To edit the value numerically (using keypad, inc/dec etc.), use the normal edit fields at the top of the window.

Sliders are drawn on top of sample names. If you need to have an unobstructed view of all of the names, choose “None” from the Show Parameter menu to temporarily hide the sliders.

## **Multisample parameters are offsets to Patch values**

All of the parameters are offsets from a default value in the Patch, with a range of +/- 100. The default of “+00” is shown as a thin, lightly colored line across the center of the graphic.

Note that the Multisample does not actually contain filtering, panning, and so on; these offsets depend on the Patch to support these functions. Some Patches may not support all of the parameters seen here.

## **Exclusive Groups**

Exclusive Groups allow you to group Key Ranges so that one Sample will cut off any other Sample in the group. For instance, you can use this so that a closed hi-hat Sample cuts off the sound of an open hi-hat.

There are 63 Exclusive Groups, plus two special settings, Off and Silent. The Off setting means that the Key Range is unaffected by the other Exclusive Groups. The Silent setting allows you to set a Key Range so that it makes no sound, and uses no voices of polyphony. For more information, see “Exclusive Group” on page 96.

## **Using the Zoom In and Zoom Out buttons**

The zoom buttons allow you to change the size of the keyboard graphic.

Use the small keyboard to show a large keyboard range at one time, to get an overview of the entire Multisample.

Use the large keyboard when editing Multisamples with small keyboard ranges, such as drum kits.

## Saving Multisamples

If you have created a Multisample that you'd like to use in other Multis, you can save the Multisample as a separate file on disk. Multisample files store all of the information in the Multisample Edit window, including links to the Samples used by the Multisample (but not the Samples themselves).

To save a Multisample:

1. **Make sure that the Multisample Edit window is in the foreground.**
2. **Select the "Save Multisample As..." command from the File menu.**
3. **Name the Multisample.**
4. **Select a location to save the Multisample.**

The OASYS PCI installer creates a folder named "User Files," with sub-directories for Programs, Multis, and Multisamples. You can save your own Multisamples into the Multisamples folder inside this directory (User Files:Multisamples). You can also create other main folders inside the OASYS PCI folder, at the same level as "User Files."

It's important to store Multisamples inside a sub-directory named "Multisamples." If a Multisample is not stored in a Multisample folder inside the OASYS PCI folder, it will not appear in the Multisample Catalog.

For more information on saving files, see "Working With Files" on page 48.

### **Don't save into the Korg and Korg FX Programs folders**

The Korg and Korg FX Programs folders are reserved for Korg's own use, so don't save your own sounds in these folders. If you do, the sounds may be deleted when you update or re-install the OASYS PCI software.

## OASYS PCI and Sample RAM

Each of the four effects/synths DSP chips has 6 MB of DRAM, used for samples and long delays. The samples for a single Patch must fit within the 6MB of DRAM belonging to a single DSP chip. Multiple Patches may use the DRAM on a single DSP, but samples for a single Patch cannot span across the RAM of multiple DSPs.

So, you can use four Patches, each with its own 6 MB of samples– but you can't use a single Patch with 24 MB of samples.

OASYS PCI supports 24-bit samples, allowing very high fidelity. This also means that the RAM hardware is designed for 24-bit sample words, as opposed to the 16-bit words common on most samplers. So, a sample which would take up 4 MB on a 16-bit sampler will take up 6 MB on the 24-bit OASYS PCI.

# Using Audio Programs

The OASYS PCI is designed for seamless use with all MacOS and Windows ASIO- or MME-compatible digital audio programs, such as Acid, Cakewalk Pro Audio and Cakewalk Metro, Cool Edit Pro, Cubase VST, Digital Performer, Logic Audio, Peak, SAW, Sound Forge, Spark, Studio Vision Pro, and Vision DSP. OASYS PCI also supports two-channel audio I/O via the Apple Sound Manager.

## **For details on specific programs, see the OASYS PCI FAQ**

Please see the OASYS PCI FAQ for details on setting up and using OASYS PCI with specific audio programs. These instructions include important information, so if you have not already read them, please do so before proceeding!

## **Basic concepts**

OASYS PCI works with audio and MIDI programs in three ways: as audio I/O hardware, as a synthesizer, and as an effects processor.

As an audio I/O card, OASYS PCI provides audio software with 12 hardware inputs and outputs, plus eight additional “stream” outputs to OASYS PCI effects. Within audio software, “stream” outputs act just like regular outputs.

As a synthesizer, OASYS PCI appears to MIDI programs like an external, rack-mount synth with 32 MIDI inputs (two 16-channel MIDI devices) and a dedicated MIDI interface. So, instead of needing to send MIDI data to a port on an external interface, you just assign it to OASYS PCI A or B. Due to its integration with audio I/O hardware, you can also record OASYS PCI directly via ASIO or MME, without any external connections.

As an effects processor, OASYS PCI appears to audio/MIDI programs as a rack of external effects, hooked up to physical audio inputs and outputs. It interacts with the audio/MIDI program just as those external effects would, using audio inputs, audio outputs, sends, and busses. As with OASYS PCI synths, the integration with audio I/O hardware means that all connections to the effects can be made directly via ASIO or MME, without need for any external connections.

## **Setting the sample rate and word clock source**

### **Set the sample rate within the audio program**

Some audio programs may allow you to freely switch between different sample rates; others may require you to choose a sample rate when creating a file, after which the rate is fixed.

Whenever an audio program is running, be sure to set the sample rate from within the audio program, as opposed to using the OASYS PCI Editor preferences settings. Otherwise, the audio program may not know that the sample rate has changed.

The OASYS PCI Editor's settings will reflect the sample rate settings made within the digital audio program.

### **Word clock source and ASIO programs**

When using ASIO-compatible audio programs, set the word clock source from within the audio program. When using an external clock source, make sure that the sample rate of the source matches the rate set in the digital audio program.

### **Word clock source and Windows MME audio programs**

When using Windows MME programs, you must set the word clock source using the OASYS PCI Wave Device Settings program (as described on page 123). When using an external clock source, make sure that the sample rate of the source matches the rate set in the digital audio program.

## **Synchronization settings (Windows)**

Each of the OASYS PCI's stereo pairs of inputs and outputs appear to Windows MME audio programs as an independent wave device. When the Auto Sync button is turned on in the OASYS PCI Wave Device Settings program, all of the wave devices will be grouped together so that they operate as a single, synchronized multichannel I/O device.

Auto Sync is an easy-to-use, fool-proof mode optimized for working with multichannel audio programs. However, you can also use multiple audio programs at once, each connected to different sets of stereo I/O pairs. In this case, you should use the Custom Synchronization settings instead. For more information, see "Custom Synchronization" on page 128.

## **Output selection**

With any ASIO- or MME-compatible multichannel audio program, you can process up to 8 channels of audio through the OASYS PCI's mixer channels and effects send busses, and route an additional 12 channels directly to the OASYS PCI's outputs.

From this perspective, you can think of the OASYS PCI as a combination of a 12-channel I/O card and an 8-input multieffect processor.

When the OASYS PCI is used as an audio device, you will see the following selections in the audio program's output menu: Analog L-R, S/PDIF L-R, ADAT 1-2, ADAT 3-4, ADAT 5-6, ADAT 7-8, and Streams 1-8.

### **Analog L-R, S/PDIF L-R, ADAT 1-2, ADAT 3-4, ADAT 5-6, and ADAT 7-8**

These selections allow you to route audio directly to the OASYS PCI outputs, without passing through the mixer. For more information, see "Routing audio directly to the OASYS PCI outputs," below.

## Streams 1-8

Streams 1-8 allow you to route the signal into an OASYS PCI mixer channel or send bus. For more information, see “Processing audio through OASYS PCI effects” and “Routing audio to an OASYS PCI Send Bus,” below.

### Processing audio through OASYS PCI effects

You can route up to 8 channels of audio from the digital audio program to the OASYS PCI’s mixer channels, for processing through effects. To do this:

1. **In the audio program, assign the audio channel’s output to a Stream (1-8).**

The OASYS PCI’s mixer channels will accept either stereo or mono signals. If the digital audio program offers only stereo outputs, use hard-panning to send discrete, mono signals to separate OASYS PCI mixer channels.

2. **In the OASYS PCI Editor, set the mixer channel’s Input Type to Stream.**

3. **Set the mixer channel’s input to the Stream you selected in Step 1.**

The audio will now be routed to the OASYS PCI mixer channel.

4. **Use Insert, Send, and Output Bus effects on the channels, as desired, just as you would for internal OASYS PCI synths or audio inputs.**

You can also send audio directly to an OASYS PCI Send Bus, as described below.

Finally, you can record the processed audio back into your audio program, as described in “Recording OASYS PCI synthesizers and effects,” below.

### Routing audio to an OASYS PCI Send Bus

You can route up to 4 channels of audio from the digital audio program to the OASYS PCI’s Send Busses. The audio will be merged into the Send Bus along with any audio sent from OASYS PCI Mixer Channels. Using this feature, OASYS PCI Mixer Channels can share send effects with the audio program.

To do this:

1. **In the audio program, assign the audio channel or send bus’s output to a Stream (1-8).**

Many programs allow audio channels to “send” directly to an output. In this case, just set the channel to send to the desired Stream.

2. **In the OASYS PCI Editor’s Send Busses window, set the Send Bus’s input to the Stream you selected in Step 1.**

The audio channel will now be routed to the OASYS PCI Send Bus.

### Routing audio directly to the OASYS PCI outputs

You can route up to 12 channels of audio from the digital audio program directly to the OASYS PCI’s outputs, without passing through the OASYS PCI mixer. To do this:



1. **In the audio program, assign the audio channel's output to an output: Analog L-R, S/PDIF L-R, ADAT 1-2, ADAT 3-4, ADAT 5-6, and ADAT 7-8.**

That's it!

If the digital audio program offers only stereo outputs, you can still use hard-panning to send discrete, mono signals.

## Different routing options

Since OASYS PCI and most digital audio programs all offer a large degree of flexibility in signal routing, you can use channel effects either as in-line inserts, or as sends from a digital audio program or external mixer.

For instance, you can route a hard-disk track directly to an OASYS PCI mixer channel, for individual insert processing.

Or, you can create an output bus in the digital audio program, and route several tracks at once through an OASYS PCI mixer channel, for group insert processing (like an output bus).

Finally, you can create a send bus in the digital audio program, and route that send bus to an OASYS PCI mixer channel, or to an OASYS PCI send bus. In either case, the dry signal from the digital audio can then be routed completely separately from the OASYS PCI effects processing.

## Recording directly from the OASYS PCI inputs

The OASYS PCI feature a total of 12 audio inputs - stereo analog, stereo S/PDIF, and 8-channel ADAT optical. With compatible multitrack audio software, you can record from all of the inputs simultaneously.

To record from the audio inputs:

1. **From the digital audio program, open the OASYS PCI ASIO control panel/Audio Settings window.**

For information on how to open the ASIO control panel, please see "ASIO Control Panel/ Audio Settings," on page 117.

2. **Under Record Source, select Audio Inputs.**
3. **Press OK to close the window.**

The audio inputs will now be routed to the audio program's inputs.

4. **In the digital audio program, select the desired inputs and record as usual.**

## Recording OASYS PCI synthesizers and effects

In addition to recording from the audio inputs, you can also record the *output* of the OASYS PCI mixer directly into the digital audio program. This means that, without making any external connections, you can:

- Record OASYS PCI synthesizers
- Record live audio inputs, processed through OASYS PCI effects

- Send audio from your audio/MIDI program (using Streams), process the audio through OASYS PCI effects, and record the processed audio back into your audio program

The OASYS PCI mixer outputs are routed to the corresponding audio inputs, so that mixer output ADAT 3-4 is heard at audio input ADAT 3-4, and so on.

You can even simultaneously record dry audio inputs along with processed audio and synthesizers, simply by assigning the desired audio inputs to OASYS PCI mixer channels.

To record the output of the OASYS PCI mixer into a digital audio program:

1. **From the digital audio program, open the OASYS PCI ASIO control panel/Audio Settings window.**

For information on how to open the ASIO control panel, please see “ASIO Control Panel/ Audio Settings,” on page 117.

2. **Under Record Source, select Mixer Outputs.**
3. **Press OK to close the window.**

The mixer outputs will now be routed to the audio program’s inputs.

4. **In the digital audio program, select the desired inputs and record as usual.**

## Zero-latency record monitoring

The OASYS PCI include a built-in, zero-latency monitor mixer, so that you can listen to inputs during recording without any audio delay. You can adjust the volume level for each input, and route each input to any output.

These output routing and volume settings affect only the monitor mixer; they do not have any affect on audio recorded into or played back from the digital audio program.

The monitor mixer is always active. When you don’t need to monitor inputs, you can mute individual channels, or mute the entire mixer at once.

Programs which support ASIO 2.0 can automatically control the monitor mixer’s levels and output routings, matching the volume and output settings of record-enabled tracks. For more information on how this works with a specific ASIO 2.0-compliant audio program, please see the OASYS PCI FAQ.

Note that you can also use the main mixer to set up effects for monitoring, such as reverb on a vocal. For more information, see “Record monitoring with effects,” below.

To access the monitor mixer settings:

1. **From the digital audio program, open the OASYS PCI ASIO control panel/Audio Settings window.**

For information on how to open the ASIO control panel, please see “ASIO Control Panel/ Audio Settings,” on page 117.

The monitor mixer controls are on the left side of the control panel.

2. **Set the volume level and output assignment for each input, as desired.**

Multiple inputs can be routed to the same output, if desired.

3. **To mute a channel, turn its volume all the way down (-144dB).**
4. **To mute all inputs at once, press the Mute All button.**
5. **When you're finished, press OK to close the window.**

The settings will automatically be saved to the OASYS PCI Preferences file, so they are maintained until you change them again. The settings are shared between all audio programs.

6. **In the digital audio program, disable software-based record monitoring.**

Most digital audio programs also have software-based record monitoring. If you are using the OASYS PCI's monitor mixer, you should disable the program's software-based monitoring. Consult the program's manual for details.

## **Record monitoring with effects**

Using the OASYS PCI's main mixer, you can record from the audio inputs and monitor through effects, all with zero latency. For instance, you can record vocals, and send the vocals to a reverb to enhance the singer's headphone mix—but record only the dry vocal sound.

To do this:

1. **In the OASYS PCI ASIO control panel/Audio Settings window, press the Mute All button to mute the monitor mixer.**
2. **Also in the ASIO control panel/Audio Settings window, under Record Source, select Audio Inputs.**
3. **When you're finished, press OK to close the window.**

Now, you'll set up the monitor path using the OASYS PCI mixer.

4. **Assign the input to a channel in the OASYS PCI mixer.**
5. **Set up any desired insert or send effects.**

Since the audio program is recording directly from the audio inputs, these effects will only be heard in the monitor path. If you prefer, of course, you can also record the effects, as described under "Recording OASYS PCI synthesizers and effects," on page 45.

# Working With Files

## File Types

OASYS PCI uses seven different types of files: Multis, Programs, Patches, Effects, Samples, Multisamples, and Scales.

**Multis** contain an entire setup for the OASYS PCI, including all Mixer, Send Bus, and Output Bus settings, links to all selected Programs and Effects, and all Patch and Effects Control Panel settings. (Control Panel settings can also be stored in Programs, if desired.) Multis have the file suffix “oam.”

**Programs** are the basic sounds of the OASYS PCI, and must be placed on a Multi Channel to be played. They play one or two Patches, which can be layered or split by key and velocity ranges. They also have up to four Insert Effects, which appear in the Mixer Channel. Programs store all Control Panel settings for their Patches and Effects. Programs have the file suffix “oap.”

**Patches** are the basic units of sound creation on the OASYS PCI. They must be placed in a Program in order to be played. Each Patch contains its own synthesis algorithm, which may be quite different from one Patch to another. Patches have the file suffix “oas.”

**Effects** are used to modify the sound of Patches, Audio Inputs, or Streams. They can be used as insert effects in the Mixer Channels and Output Busses, or as send effects via the Send Busses. Each Effect contains its own audio processing algorithm, which may be quite different from one Effect to another. Effects have the file suffix “oae.”

**Samples** are audio files, which can be placed in a Multisample (see below) and then played back by sample-based OASYS PCI Patches. OASYS PCI recognizes mono and stereo 16-bit and 24-bit samples in a number of different formats, including AIFF, WAV, and Korg’s proprietary .kes (mono) and .k2s (stereo) formats. Additionally, Sound Designer II samples are supported on MacOS only.

**Multisamples** are collections of one or more Samples assigned to ranges across the keyboard. Each key range has offsets for common parameters, such as volume, pan, filter cutoff, decay, and so on, which can be used to adjust Patch parameters individually for each Sample. Mono Multisamples have the file suffix “kem,” and stereo Multisamples have the suffix “k2m.”

**Scales** control how MIDI note numbers affect the pitch of a sound. Any MIDI note number can be set to create the pitch of any other note, with both coarse and fine tuning. Each Patch in a Program can be set to use a different Scale, if desired. Scales are simply text files, so they’re easy to create and edit. See “Scales,” on page 131 for more information.

## Adding a new set of Korg or third-party sounds

The directory structure makes it really simple to add a new set of sounds and effects from Korg or third-party sound developers. Each set of sounds contains its own sub-folders for Multis, Programs, Patches, Effects, Multisamples, and Samples, so all items appear automatically in the Catalog window.

To add a new set of sounds:

1. **Drag the main folder into the OASYS PCI folder.**
2. **If you are running the OASYS PCI Editor, close and re-open the Catalog window.**

That's it! All the new sounds and effects will now be available.

## Saving your own sounds

### To begin, save into the User Files folder

The OASYS PCI installer creates a folder named "User Files," with sub-directories for Programs and Multis. Save your own sounds into this directory, with Programs in the Programs folder, Multis in the Multis folder, and Multisamples in the Multisamples folder.

**IMPORTANT:** If you plan to distribute your sounds, you might want to change the name of the User Files folder to something more specific, such as "Sarah's Sounds." This will save you a little work later on.

### Use folders and sub-directories to organize your sounds

You can create sub-directories within the Programs and Multis folders, to further organize your sounds; just keep to one level of directories underneath the main Programs or Multis folders.

You can also create any number of additional main folders of your own, at the same level as the User Files folder, with their own Programs and Multis folders.

### Don't save into the Korg and Korg FX Programs folders

The Korg and Korg FX Programs folders are reserved for Korg's own use, so don't save your own sounds in these folders. If you do, the sounds may be deleted when you update or re-install the OASYS PCI software.

## Distributing sounds

If you plan to distribute your sounds to other OASYS PCI users, you should use one or more folders with custom names, such as "John Smith Analog Collection," instead of User Files. This will allow OASYS PCI users to install your sounds by simply dragging your main folder into the OASYS PCI Folder.

Make sure to create the standard Multis, Programs, and Multisamples folders within the main folder. These folders are necessary for the sounds to show up in the Catalog. Also, when you distribute the sounds, this means that other OASYS PCI

users can add the sounds simply by dragging the main folder (e.g. “John Smith Analog Collection”) into the OASYS PCI folder.

### **Cross-platform considerations**

All OASYS PCI files can be used on both MacOS and Windows computers, as long as you are careful to observe the following:

**Naming conventions.** Make sure that your file names don’t exceed 27 characters, do include three-character extensions, and don’t include forbidden characters. For more information, see “File Names,” below.

**File type and creator.** If OASYS PCI files created using Windows are transferred to a MacOS computer, you won’t immediately be able to use them with OASYS PCI. This is because the MacOS marks files with a “type” and “creator,” which determines which programs can open the file. Files created on Windows do not have this information, so the MacOS doesn’t know what programs can use the files.

To fix this, just drag the files or (folders of files) onto the OASYS Windows-MacOS Autotyper program. This program will automatically set the type and creator for Programs, Multis, and Multisamples, based on the three-character file extension (.oap, .oam, and .kem or .k2m, respectively).

File type and creator are transparent to Windows, which uses three-letter name extensions instead. If you are distributing sounds created on Windows, you might consider using a MacOS computer to run the files through the autotyper program; this will ensure that the files can be opened by both MacOS and Windows users, without any additional work on their part.

**Sound Designer II format is MacOS only.** The Sound Designer II sample format includes a MacOS-specific file characteristic called a “resource fork,” which makes the files incompatible with Windows. If you have samples in this format which you’d like to distribute within OASYS PCI Multisamples, convert them to AIFF or WAV format first.

## **File Names**

To ensure compatibility with OASYS PCI users on all computing platforms, you need to observe a few file name conventions.

### **Restricted characters**

Be careful not to use the following characters in any file names:

`\/:*?"<>`.

These characters will work fine on MacOS computers, but will not work on Windows systems.

### **File name length**

Be careful to keep file names under 27 characters, for a total of 31 characters including the “dot” and 3-letter file extension. Longer file names will work fine on Windows computers, but not on MacOS.

### **File extensions**

All OASYS PCI files have special three-letter file extensions—`.oam` for Multis, `.oap` for Programs, `.kem` for Multisamples, and so on. These are not critical for use on MacOS, which has its own ways of determining file type, but they are very important for Windows.

If you want the Multis, Programs, and Multisamples you create to work on all platforms, make sure that the names include the appropriate file extension.

### **File and folder organization**

All OASYS PCI files, except for Multis, must be stored inside the OASYS PCI folder. (Multis may be stored anywhere on disk, including the OASYS PCI folder if desired.) Within the main OASYS PCI folder are folders for sound libraries, such as the Korg factory sounds and optional sound packages from Korg and third parties, or user projects, such as “TV Series Third Season Cues.”

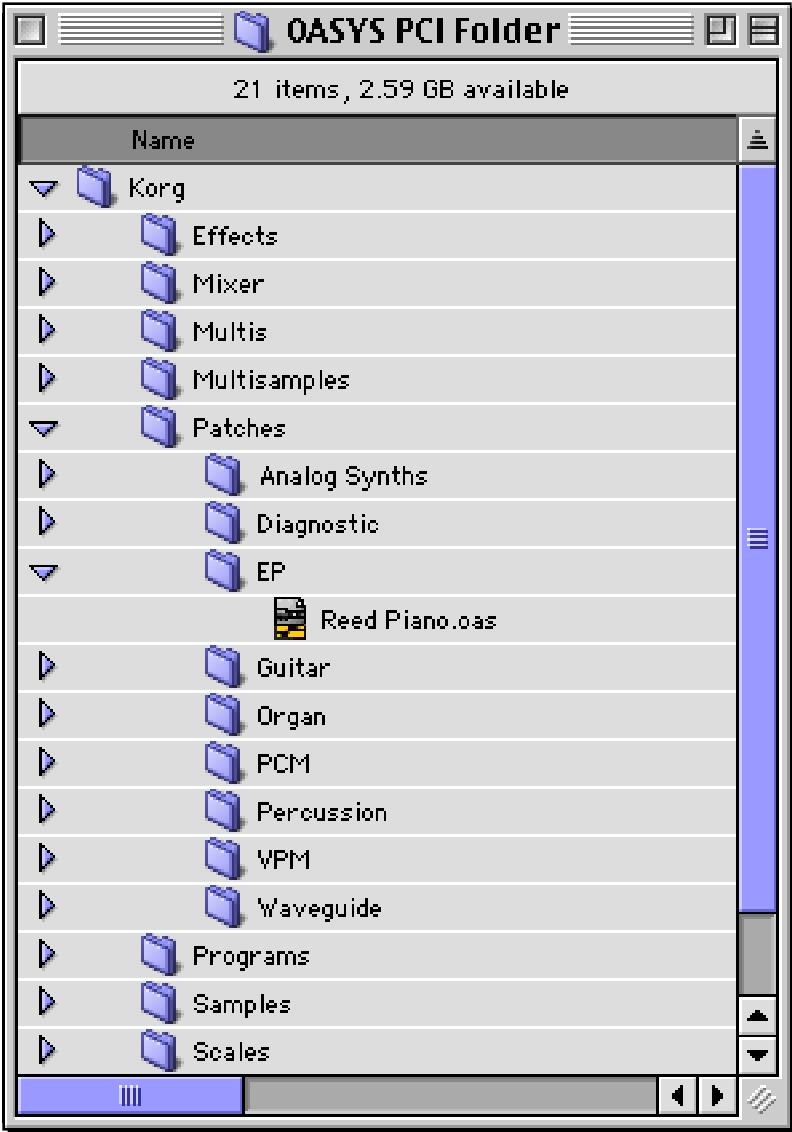
Within each of these project or library folders are five sub-folders, one each for Programs, Patches, Effects, Samples, and Multisamples. There should always be these five folders at this level. You can also store Multis here, if you like.

As shown below, the Korg folder also contains two special folders, Mixer and Scales. These are only used within the Korg folder.

It is very important that Patches be stored within the Patches folder, Effects within the Effects folder, and so on. Files must be stored in the appropriate folders in order for them to appear in the Catalog window.

Within each of these sub-folders can be one additional layer of folders. These additional folders can be used to create sound categories, such as bass, piano, pad, reverb, delay, and so on.

*File and folder organization*





# Managing Resources

The OASYS PCI provides a large amount of DSP processing power. However, as with all things in the world, that power is finite. Here are some hints to help you to optimize the system's resources.

## Sample rate affects processing power

The sample rate affects the processing power available to the OASYS PCI. You'll get about 8% more processing power for synthesizers and /or effects at 44.1kHz than at 48kHz.

## Number of Voices

The OASYS PCI uses fixed voice allocation, which means that if you want to play six-note chords on an electric piano sound, you must tell the system to reserve six voices for that Program. This is done through the Patch's Number of Voices parameter, in the Edit Program window.

You should try to set the number of voices just as high as necessary, and no higher. The fewer voices you reserve for one Patch, the more that will be available for other Patches, or for Effects.

## Use Send and Output Busses to share Effects

Each Mixer Channel can have its own Insert Effects, which allows for very powerful and flexible sound-shaping. However, if several Channels each use a number of resource-hungry Effects, this can eat up DSP resources pretty quickly.

If several Channels are using similar Insert Effects, it may make sense for them to share the effects through a Send Bus or Output Bus instead. This will free up DSP resources, which can then be used in other ways.

For more information, see "Using Send Busses to conserve DSP resources," on page 25, and "Sharing Insert Effects between two or more Channels," on page 25.

## Optimizing physical bus usage

The OASYS PCI has a certain number of physical busses, used to communicate between the DSP chips on the card. These physical busses are used to create the Mixer Channels, Send Busses, and Output Busses.

The Detailed view of the Resource monitor (see page 100) shows how many of the physical busses are in use. You can turn off Mixer Channels and Send Busses to optimize the use of these physical busses.

### Turn off unused Mixer Channels

If a Mixer Channel's Input Type is set to "Off," or if the Output *and* Sends are all set to "Off," the Channel will be turned off, and will not use a physical bus.

### Turn off unused Send Busses

If the Send Bus Output is set to “Off,” or if no Mixer Channels are assigned to a Send Bus *and* the Send Bus’s Stream Input is set to “None,” the Send Bus will be turned off, and will not use a physical bus.

### Output Bus “To Master” can change DSP processing requirements

Activating an Output Bus’s To Master function may sometimes require the Programs and Effects to be re-arranged within the DSPs. This may either increase or decrease the effective amount of DSP processing power available. In extreme cases, if a Multi was already using up almost all of the available DSP processing power, this may put the processing requirements over the edge, so that the Multi is too big to be played.

If this happen, you can reduce the number of Output Busses routed to the Master output, or use other methods described in this section to reduce the DSP processing load.

### MIDI Parameter Changes and Control Panel objects

On-screen Control Panel objects (sliders, knobs, etc.) can be configured to move in response to received MIDI System Exclusive Parameter Change messages. This is a convenient feature, but whenever a knob moves, it adds a small amount of processing overhead to the host CPU.

If you wish to optimize host CPU processor usage, you can disable this feature. To do so:

1. **Select Preferences from the Edit menu.**  
The OASYS PCI Preferences window will appear.
2. **Press the MIDI/Global tab.**  
The MIDI/Global parameters will appear.
3. **Turn off the Update Control Panel from MIDI checkbox.**
4. **Press the Save button to store the edited preferences.**

### Disable System Exclusive messages, if not in use

Sending and receiving MIDI System Exclusive Parameter Change messages takes a small amount of CPU processing power. If you don’t need this feature, you can disable these messages completely. To do so:

1. **Select Preferences from the Edit menu.**  
The OASYS PCI Preferences window will appear.
2. **Press the MIDI/Global tab.**  
The MIDI/Global parameters will appear.
3. **Turn off the Send MIDI Parameter Change Messages and Receive MIDI Parameter Change Messages checkboxes.**

4. Press the **Save** button to store the edited preferences.

## Close unnecessary windows

Mixer window meter updates, graphic display of fader and knob automation, and graphic display of Control Panel automation all take up a certain amount of CPU processing power—but only when the window showing the meter or automation is open.

Closing any unnecessary windows will reduce the CPU processing load.

## Disable meters

If things are running very tight with CPU processing power, you can disable meters entirely. To do this:

1. Select **Disable Meters from the File menu.**

If you pull down the File menu again, you'll notice that the item's name has changed to **Enable meters**. To re-enable the meters:

1. Select **Enable Meters from the File menu.**

## Turn off File Sharing

File Sharing can greatly increase the time that it takes to load Multis, or to add Effects and Programs to a Multi. It also reduces the amount of CPU processing power available to both the OASYS PCI and digital audio programs. For best results, we recommend that you make sure that it is turned off. To do this:

1. Open the File Sharing control panel, which will show whether File Sharing is turned on or off. If it is turned on, press the **Stop** button to turn it off.

*or*

In the Control Strip, open the menu for the File Sharing module, and select "Turn File Sharing Off."

## Turn off AppleTalk

AppleTalk adds to the CPU processing load. For best results, we recommend that you turn it off. Most digital audio and MIDI programs recommend this, as well. To turn off AppleTalk:

1. In the Chooser, set AppleTalk to **Inactive**.

*or*

In the Control Strip, open the menu for the AppleTalk module, and set it to **Inactive**.

## Delete unnecessary Modulation Palette routings

Each Modulation Palette routing uses a small amount of CPU processing power. If you aren't using a particular routing, you can delete it to reduce the CPU processing load. For more information, see "Deleting a modulation routing," on page 31.

## Delay effects, Samples, and resource usage

The OASYS PCI system has two types of delay effects: “short” and “long.” Short delays use a different type of memory than long delays, and each type of memory has its own advantages and disadvantages.

Long delays use a special area of memory, which is shared with Samples but not with other Effects. Long delays take more DSP processing power than short delays.

Short delays use the same memory as other effects (and can use it up very quickly), but they use less DSP processing power than long delays.

Because of this:

Use long delays in the general case, and to maximize the amount of memory available to other effects (such as choruses, flangers, and so on).

Use short delays if you need to maximize DSP processing power *and* don't need many other delay-based effects, such as choruses, flangers, etc.

For more details, read on below.

### Short delays

Delay Effects with a maximum time of 680ms or less use long circular memory, as shown in the Resource Monitor's detailed view (for more details, see page 99).

This memory is shared with other delay-based Effects, such as choruses and flangers. This means that if you use several short delays, you may not be able to add any more choruses or flangers.

Short delays have an advantage over long delays, in that they use somewhat less DSP processing power. If you have plenty of long circular memory available, but are short on code cycles, then a short delay may fit when a long delay would not.

### Long delays

Delay effects with a maximum time of over 680ms use DRAM circular memory, as shown in the Resource Monitor's detailed view (for more details, see page 99).

They can be quite long—up to over 40 seconds of mono delay per Effect (20 seconds stereo), the maximum amount of DRAM memory per chip. By using several of these together, you can get over 160 seconds of delay time!

The DRAM circular memory is shared between long delay Effects and Samples. If you've already loaded lots of Samples, there will be less room for long delays; conversely, if you've already loaded effects which use long delays, there will be less room for Samples.

Note that the whether a delay is considered “long” or “short” depends upon the particular effects algorithm being used, and not on the parameter settings. If you are using an Effect which allows delay times over 680ms, the delay will always use the DRAM memory, even if you set the delay time parameter to a single millisecond.

One disadvantage of long delays is that they use somewhat more DSP processing power than short delays (even for the same amount of delay time). So, if you're short on processing power, it may sometimes help to use a short delay instead.

### **Samples**

As mentioned above, OASYS PCI's DRAM is shared between delays and Samples. Each of the four effects/synths DSP chips has 6 MB of DRAM. The Samples for a single Patch must fit within the 6MB of DRAM belonging to a single DSP chip. Multiple Patches may use the DRAM on a single DSP, but Samples for a single Patch cannot span across the RAM of multiple DSPs.

So, you can use four Patches, each with its own 6 MB of Samples– but you can't use a single Patch with 24 MB of Samples.

OASYS PCI supports 24-bit Samples, allowing very high fidelity. This also means that the RAM hardware is designed for 24-bit sample words, as opposed to the 16-bit words common on most samplers. So, a Sample which would take up 4 MB on a 16-bit sampler will take up 6 MB on the 24-bit OASYS PCI.



# Reference

# Mixer

The Mixer is the heart of the OASYS PCI. It's made up of 12 channels, each of which can process a Program, an Audio Input, or a Stream (from a digital audio program).

Each channel includes volume, pan/balance, MIDI channel assignment, output bus assignment, four insert effects, and access to any two of the four effects sends. For a diagram of the overall signal flow, see "Overall audio block diagram" on page 67.

For step-by-step instructions on accomplishing common Mixer-related tasks, please see "Using Multis," beginning on page 13.

## Input Slot

**Program: Any Program File.**

**Audio Input: Analog L, R (mono) and L-R; ADAT 1-8 (mono) and 1-2, 3-4, 5-6, 7-8 (stereo); S/PDIF L, R (mono) and L-R (stereo).**

**Stream: 1-8 (mono) and 1-2, 3-4, 5-6, 7-8 (stereo).**

At the bottom of each channel is the Input Slot, which may contain either a Program, an Audio Input, or a Stream, as selected by the Input Type parameter (described on page 62).

To select an Audio Input or Stream:

1. **Set the Input Type parameter as desired (Audio Input or Stream).**

There is a small menu button to the right of the Input Slot. When the Input Type is set to Audio Input or Stream, the button becomes active.

2. **Click on the menu button.**

The menu contains a list of either Audio Inputs or Streams, depending on the selected Input Type. Each are shown as both individual mono channels and stereo pairs.

3. **Select the desired Audio Input or Stream from the menu.**

For information on using Streams from digital audio programs, please see "Processing audio through OASYS PCI effects," on page 44.

To select a Program:

1. **Drag a Program from the Catalog onto the Input slot.**
2. *or*  
**Select the Input slot and then double-click the name of the Program in the Catalog.**

For more information on using the Catalog, please see the section titled "Catalog" on page 102.



## Mixer



Double-clicking on the Program name brings up the Program Edit page, as described on page 80. Command-double-clicking on the Program Name brings up the Control Panels for the Program's Patches, as described on page 86.

You can copy Programs from one channel to another using drag-and-drop, or by using the Edit menu cut, copy, and paste commands.

You can delete a Program from a channel by using the Edit menu cut command, or by pressing the Delete key.

## In Type (Input Type)

**Program, Audio In, Stream, Off.** This selects whether the channel's input will be a Program, an Audio Input, or a Stream. The Input Type controls the available settings for the Input Slot, as described above.

Off means that the channel is unused.

## Mono/Stereo Indicator

The input to a channel can be either mono or stereo. For instance, Programs can have stereo or mono outputs, depending upon the Patches which they use; the user can also select mono or stereo audio inputs.

Stereo inputs use two input busses, while mono inputs use only one. The mono/stereo display is intended to help the user to manage bus resources by making the mono/stereo state explicit.

## MIDI (MIDI Channel)

**A1-A16, B1-B16, Off.** This is the MIDI channel used to control the mixer channel, including the mixer parameters (volume, pan, sends), the Program, and the Insert Effects. There are two sets of MIDI inputs, labeled A and B, with 16 channels each.

When using OMS or FreeMIDI, these correspond to the OASYS PCI A and OASYS PCI B devices, respectively. When using the built-in serial drivers, only the 16 "A" channels are used.

If you like, you can also disable MIDI control for the mixer channel by selecting "Off."

You can layer Programs by setting two or more mixer channels to the same MIDI channel.

## Level Meter

The meter shows the stereo output volume of the channel, post-effects.

To monitor the input to the channel, double-click the Volume fader to set it to 111 (0dB), and bypass all of the Effects by clicking on the numbers to the left of the Effects slots. (For more information, see "Bypassing Effects" on page 27.)

## Clip Indicators

The topmost, red lights are clip indicators for the left and right channel outputs. To clear a channel's clip indicators, click on them. To clear *all* clip indicators on the Mixer, option-click (MacOS) or CTRL-click (Windows) on any clip indicator.

## Vol (Volume)

**0-127.** Volume adjusts the volume of the mixer channel, after the insert effects. 111 is the default, and is equal to 0dB (unity gain). Double-clicking the fader will set it to 111.

Volume responds to controller #7 on the selected MIDI channel.

## Pan

**0-127.** Pan moves the signal between the left and right channels of the selected output bus. To create a mono output, use hard panning, left or right.

Pan responds to controller #10 on the selected MIDI channel. A value of 64 is absolute center; 0 is hard left, and 127 is hard right. Double-clicking the pan knob will set it to 64.

## Width

**0-127.** Width applies only to stereo channels. It controls the stereo width of the channel output, and interacts with Pan to determine overall stereo placement.

With width at minimum, the channel output is a mono signal heard at the exact position set by Pan. With width at maximum, the channel output is wide stereo, centered around the Pan position.

Width responds to controller #8 on the selected MIDI channel. When this is set to 0, the channel is mono; when it is set to 127, the channel has the maximum stereo image.

## Mute

**On, Off.** Mute silences the output of the Mixer Channel, along with its Effects Sends.

Mute responds to controller #89 on the selected MIDI channel. 0 is off (not muted), and any value between 1 and 127 is on (muted).

## Solo

**On, Off.** Solo isolates one or more Mixer Channels or Send Busses by temporarily muting all other non-soloed Mixer Channels and Send Busses. You can solo any combination of Channels and Send Busses at the same time.

Note that Solo affects only the mixer, and does not affect audio sent directly to the audio outputs from a digital audio program.

Solo responds to controller #90 on the selected MIDI channel. 0 is off (not soloed), and any value between 1 and 127 is on (soloed).

## Output

**Master, Analog L-R, S/PDIF L-R, ADAT 1-2, ADAT 3-4, ADAT 5-6, ADAT 7-8.**  
This selects the Output Bus to which the mixer channel will be routed.

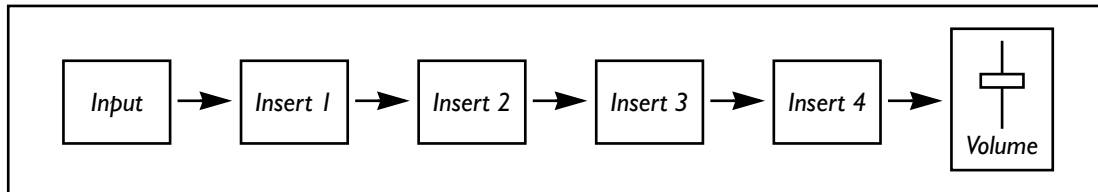
If Master is selected, the Mixer Channel will go to the Output Bus designated as the Master Output; if the Master Output selection is changed, the Mixer Channel will automatically be re-routed to the new Master.

For more information, see “Output Busses,” on page 72.

## Insert Effects

Each mixer channel has four slots for insert effects. The effects are applied before the channel volume (pre-fader), and are in series from top to bottom; effect 1 is first, and effect 4 is last.

### Insert Effects Routing



To select an Effect:

1. **Drag an Effect from the Catalog onto the desired insert slot.**  
*or*  
**Select an Effect slot and then double-click the name of the Effect in the Catalog.**

For more information on using the Catalog, please see the section titled “Catalog” on page 102.

If no Effect is selected for an insert slot, the signal will pass through unaltered, and the slot will simply show “(none).”

You can copy Effects from one slot to another by using drag-and-drop, or by using the Edit menu’s cut, copy, and paste commands.

To delete an Effect, use the Edit menu’s cut command, or press the Delete key.

## Editing Effects

To edit the Effect’s parameters, double-click on the Effect name. This will bring up the Effect’s Control Panel, as described on page 86.

## Bypassing Effects

To bypass a single Effect, click on the slot number to the left of the Effect name. When bypassed, the Effect name will be grayed out. To re-enable the Effect, just click the slot number again. You can also bypass the Effect by using the Bypass button in the Effect Control Panel.

To bypass *all* of the Effects in the Channel, option-click (MacOS) or CTRL-click (Windows) on any of the Effects slot numbers.

## FX Auto-Load

**On, Off.** Programs and Effects-Only Programs contain Insert Effects. If the FX Auto-Load parameter is checked (turned on), these Effects will be loaded automatically when the Program or Effects-Only Program is loaded. Any Effects which had previously been on the Channel will be discarded.

If you want to audition Programs, set FX Auto-Load to On (checked). With this setting, each Program's effects will automatically be loaded into the channel inserts.

If you have set up a specific set of Insert Effects, and want to audition Programs while keeping the Effects the same, set FX Auto-Load to Off (un-checked). With this setting, selecting a new Program will not change the current Insert Effects.

## Sends A & B

The OASYS PCI has four Send Busses, and each mixer channel can access up to two of these simultaneously. Sends are post-insert, and can be either pre- or post-fader.

## Send Bus Select A & B

**Send Bus 1-4.** This selects the Send Bus used by the send. Each Send Bus can use up to four effects, just like the insert effects on the mixer channel. Effects are assigned to Send Busses in the in the Send Busses window, described on page 68.

## Send Level knobs A & B

**0-127.** This controls the volume level of the send.

Send levels A and B respond to MIDI controllers #12 and #13, respectively.

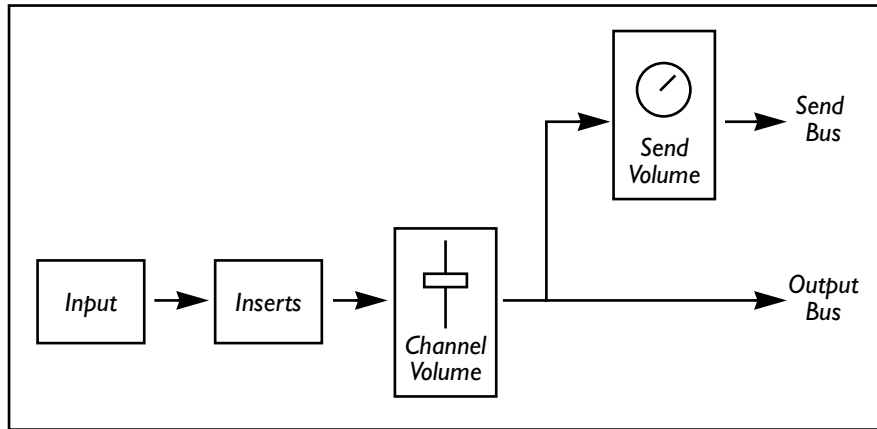
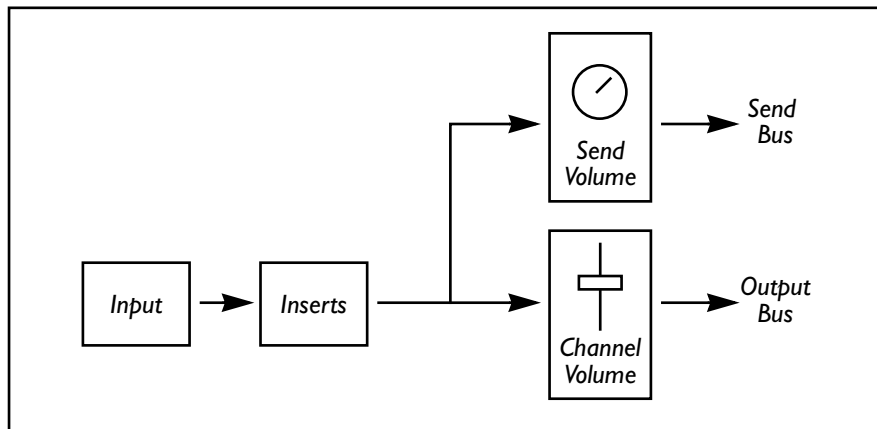
## Send Pre/Post buttons A & B

**Pre, Post.** This button controls whether the send is post-insert, pre-fader, or post-insert, post-fader.

Post is the default. With this setting, changes in the channel volume fader will affect the send level, so that the relative levels remain the same.

When this is set to Pre, changes in the channel volume fader do not affect the send level. You can even turn the channel fader all the way to zero, and the send can remain at maximum level. This can be used to create a sound with more "wet" than "dry," to fade the dry sound in and out while the level of the wet sound remains constant, and so on.

Pre/Post buttons A and B respond to MIDI controllers #92 and #94, respectively. 0 is Post, and any value between 1 and 127 is Pre.

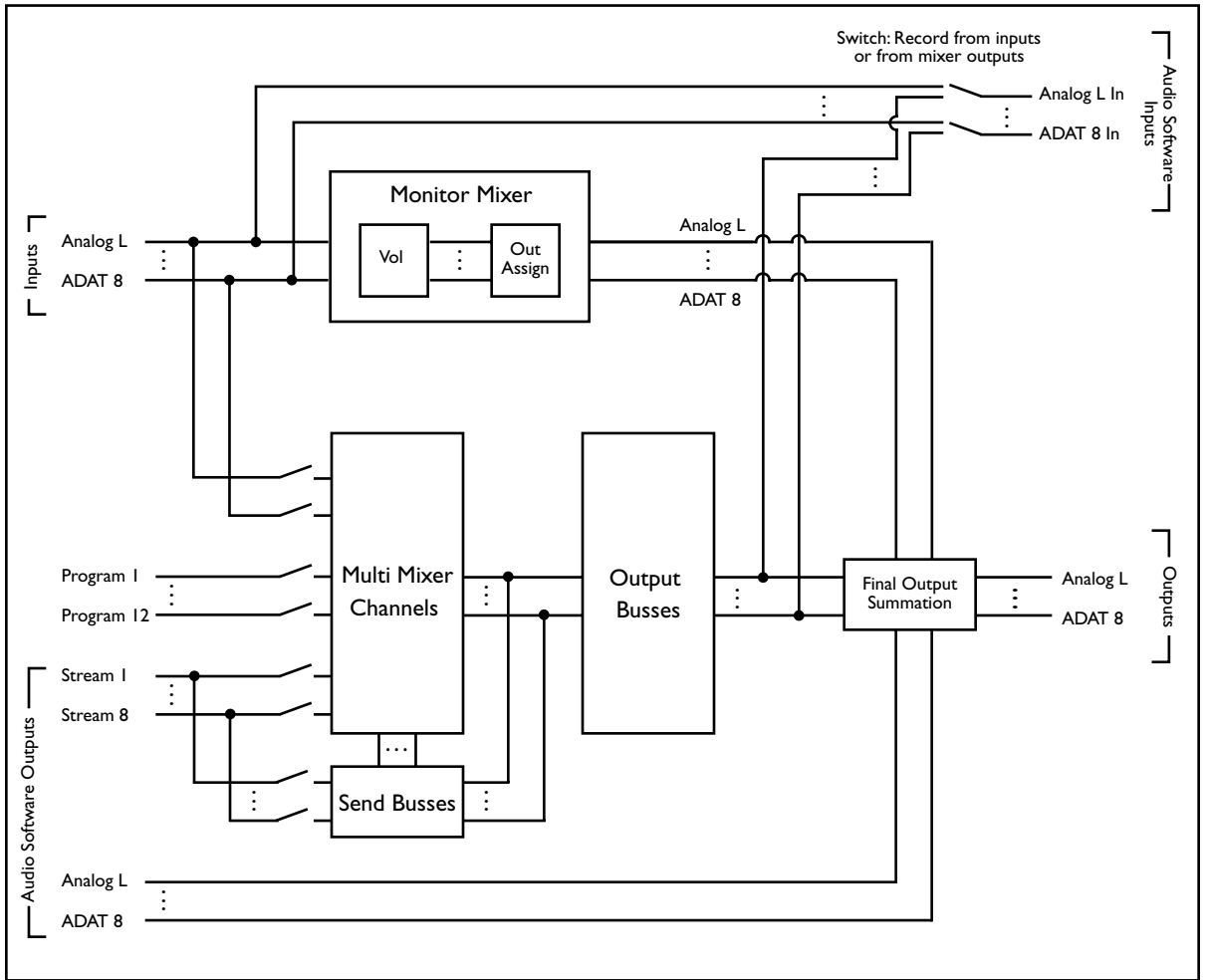
*Post-fader send**Pre-fader send*

## Send Mute buttons A & B

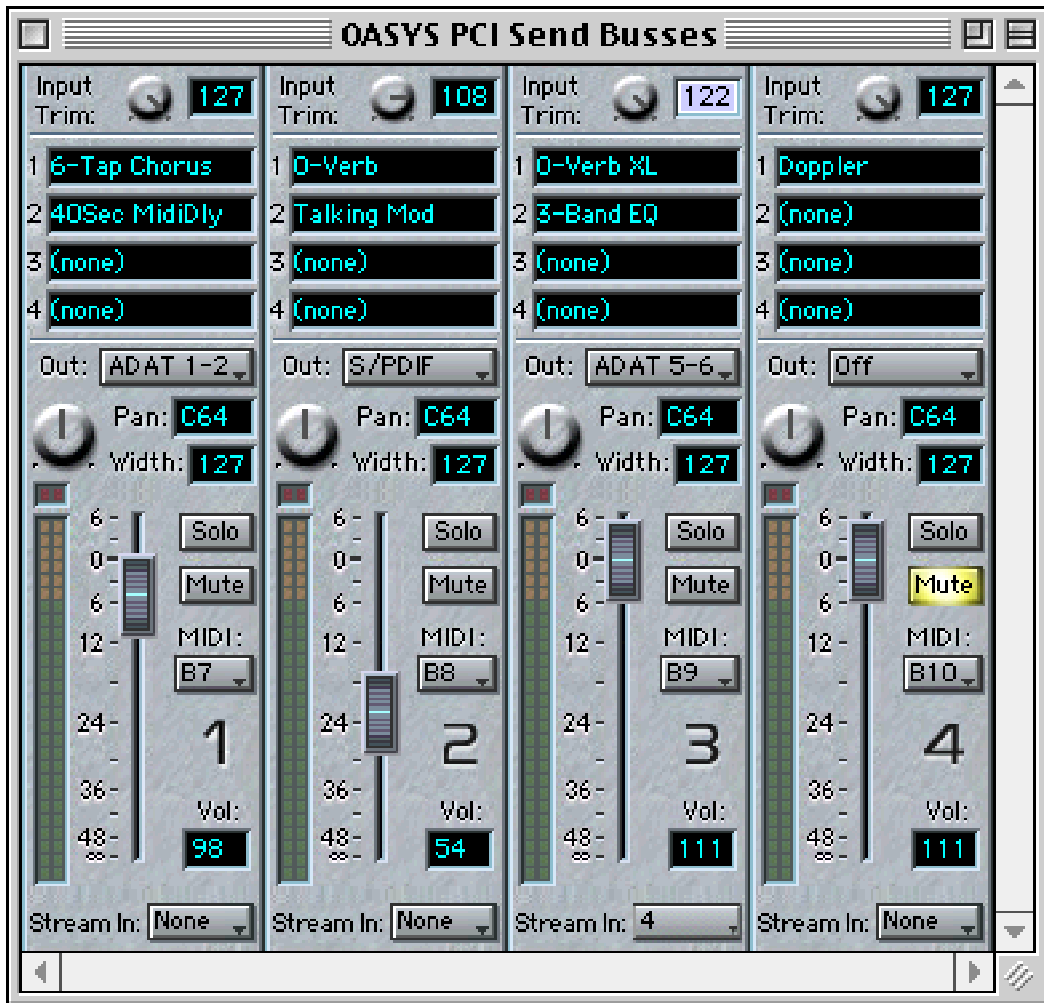
**On, Off.** The Mute button temporarily silences the output of the send, setting the volume level to zero.

Send Mute buttons A and B respond to MIDI controllers #91 and #93, respectively. 0 is off (not muted), and any value between 1 and 127 is on (muted).

Overall audio block diagram



# Send Busses



The four Send Busses are useful for effects which are heard along with the original signal, such as reverbs, delays, and so on. (This is as opposed to inline effects, such as compressors, eqs, distortion, etc., which are more appropriate for use as Mixer Channel insert effects.)

The Send Busses also allow multiple Mixer Channels to share the same effects, which helps to optimize the DSP resources of the system.

Each Mixer Channel can send to up to two of the Send Busses. Additionally, Streams can be summed directly into Send Busses, bypassing the Mixer Channels.



## Input Trim

**0-127.** The Input Trim allows you to adjust the gain into the Send Bus without altering each channel send individually. For instance, let's say that the Send Bus has a reverb which is overloading on input, and 5 channels are routed to the Send Bus. You could scale back each of the 5 channels individually, one by one—or, instead, just reduce the overall send amount.

For those interested in the technical side of things, this parameter works by scaling the send levels on each channel, and does not add another gain stage.

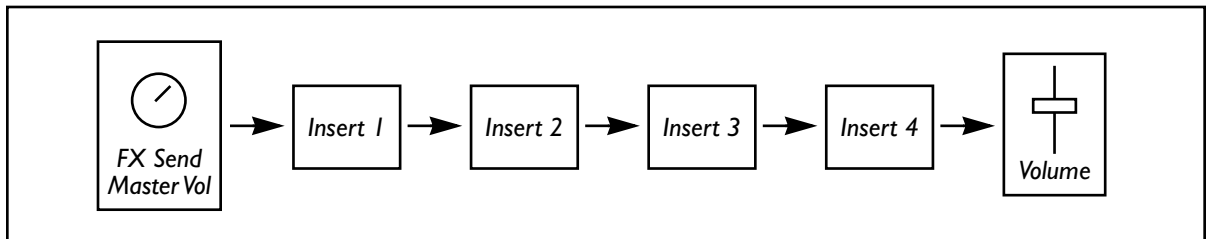
Input Trim responds to MIDI controller #12 on the selected MIDI channel.

**Note:** this parameter only controls the send levels on the OASYS PCI mixer. It has no effect on Streams directly summed into the Send Bus.

## Effects 1-4

Each Send Bus can have up to four effects. The effects are in series from top to bottom; effect 1 is first, and effect 4 is last.

### Send Effects Routing



To select an Effect:

1. **Drag an Effect from the Catalog onto the desired insert slot.**  
*or*  
**Select an Effect slot and then double-click the name of the Effect in the Catalog.**

For more information on using the Catalog, please see the section titled "Catalog" on page 102.

If no Effect is selected for a slot, the signal will pass through unaltered, and the slot will simply show "(none)."

You can copy Effects from one slot to another by using drag-and-drop, or by using the Edit menu's cut, copy, and paste commands.

To delete an Effect, use the Edit menu's cut command, or press the Delete key.

## Editing Effects

To edit the Effect's parameters, double-click on the Effect name. This will bring up the Effect's Control Panel, as described on page 86.

## Bypassing Effects

To bypass an Effect, click on the slot number to the left of the Effect name. When bypassed, the Effect name will be grayed out. To re-enable the Effect, just click the slot number again. You can also bypass the Effect by using the Bypass button in the Effect Control Panel.

To bypass *all* of the Effects in the Send Bus, option-click (MacOS) or CTRL-click (Windows) on any of the Effects slot numbers.

## MIDI (MIDI Channel)

**A1-A16, B1-B16, Off.** This is the MIDI channel used to control the mixer channel, including the mixer parameters (volume, pan, sends), the Program, and the Insert Effects. There are two sets of MIDI inputs, labeled A and B, with 16 channels each.

When using OMS or FreeMIDI, these correspond to the OASYS PCI A and OASYS PCI B devices, respectively. When using the built-in serial drivers, only the 16 “A” channels are used.

If you like, you can also disable MIDI control for the Send Bus by selecting “Off.”

## Level Meter

The meter shows the stereo output volume of the bus, post-effects.

To monitor the input to the bus, set the Volume fader to 127, and bypass all of the effects.

## Clip Indicators

The topmost, red lights are clip indicators for the left and right Send Bus outputs. To clear a Send Bus’s clip indicators, click on them. To clear *all* clip indicators on the Mixer, option-click (MacOS) or CTRL-click (Windows) on any clip indicator.

## Vol (Volume)

**0-127.** Volume adjusts the volume of the effect return. 111 is the default, and is equal to 0dB (unity gain). Double-clicking the fader will set it to 111.

Volume responds to controller #7 on the selected MIDI channel.

## Pan

**0-127.** Pan moves the signal between the left and right channels of the selected Output Bus. To create a mono output, use hard panning, left or right.

Pan responds to controller #10 on the selected MIDI channel. A value of 64 is absolute center; 0 is hard left, and 127 is hard right. Double-clicking the pan knob will set it to 64.

## Width

**0-127.** Width controls the stereo width of the Send Bus output, and interacts with Pan to determine overall stereo placement.

With width at minimum, the Send Bus output is a mono signal heard at the exact position set by Pan. With width at maximum, the output is wide stereo, centered around the Pan position.

Width responds to controller #8 on the selected MIDI channel. When this is set to 0, the channel is mono; when it is set to 127, the channel has the maximum stereo image.

## Mute

**On, Off.** Mute silences the output of the Send Bus.

Mute responds to controller #89 on the selected MIDI channel. 0 is off (not muted), and any value between 1 and 127 is on (muted).

## Solo

**On, Off.** Solo isolates one or more Mixer Channels or Send Busses by temporarily muting all other non-soloed Mixer Channels and Send Busses. You can solo any combination of Channels and Send Busses at the same time.

Note that Solo affects only the mixer, and does not affect audio sent directly to the audio outputs from a digital audio program.

Solo responds to controller #90 on the selected MIDI channel. 0 is off (not soloed), and any value between 1 and 127 is on (soloed).

## Output

**Master, Analog L-R, S/PDIF L-R, ADAT 1-2, ADAT 3-4, ADAT 5-6, ADAT 7-8.** This selects the Output Bus to which the Send Bus will be routed.

If Master is selected, the Send Bus will go to the Output Bus designated as the Master Output; if the Master Output selection is changed, the Send Bus will automatically be re-routed to the new Master.

For more information on output busses, see “Output Busses,” on page 72.

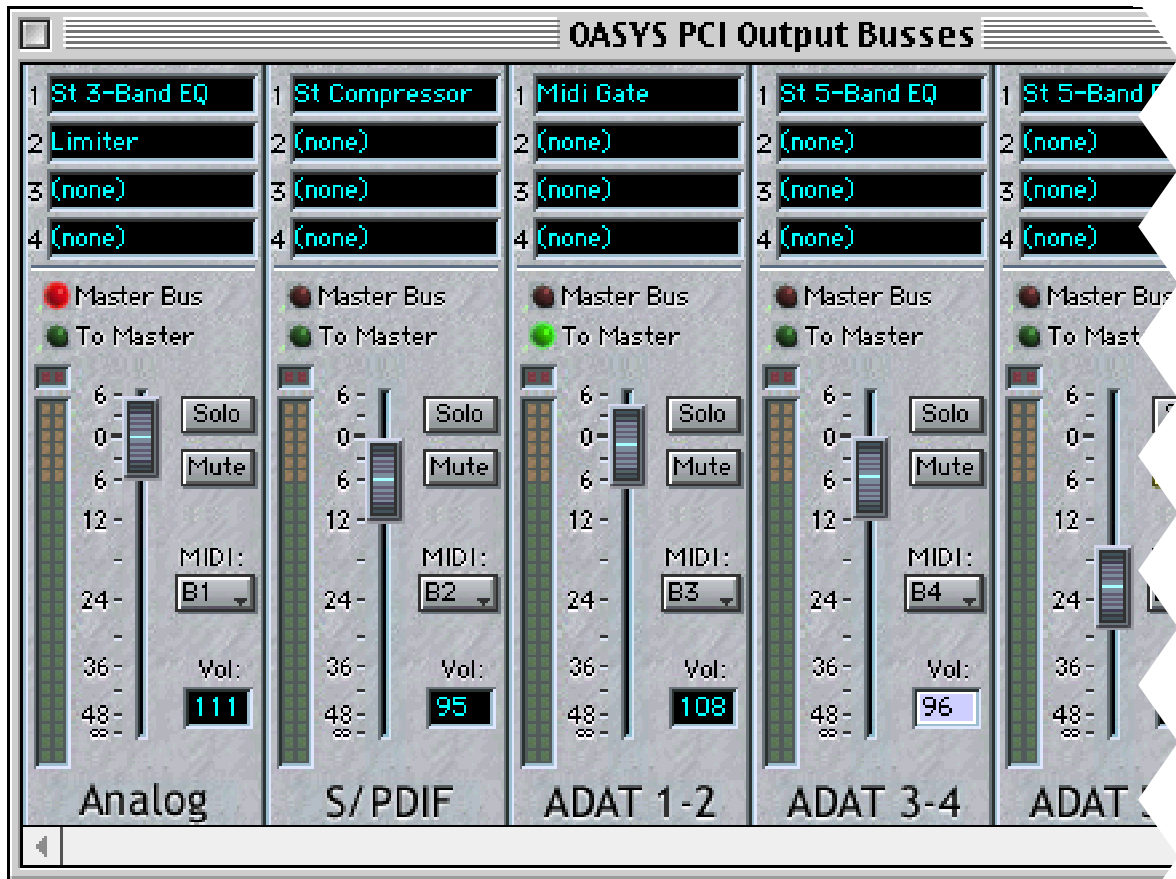
## Stream Input

**None, Stream 1-8 (mono), Stream 1-2, 3-4, 5-6, 7-8 (stereo).** This selects the Stream which will be summed into the Send Bus.

The Stream Input allows Send Busses to be shared by the OASYS PCI mixer and a digital audio program. For instance, you can have a reverb send which is used by both OASYS PCI synths and pre-recorded audio tracks. For more information, please see “Routing audio to an OASYS PCI Send Bus,” on page 44.

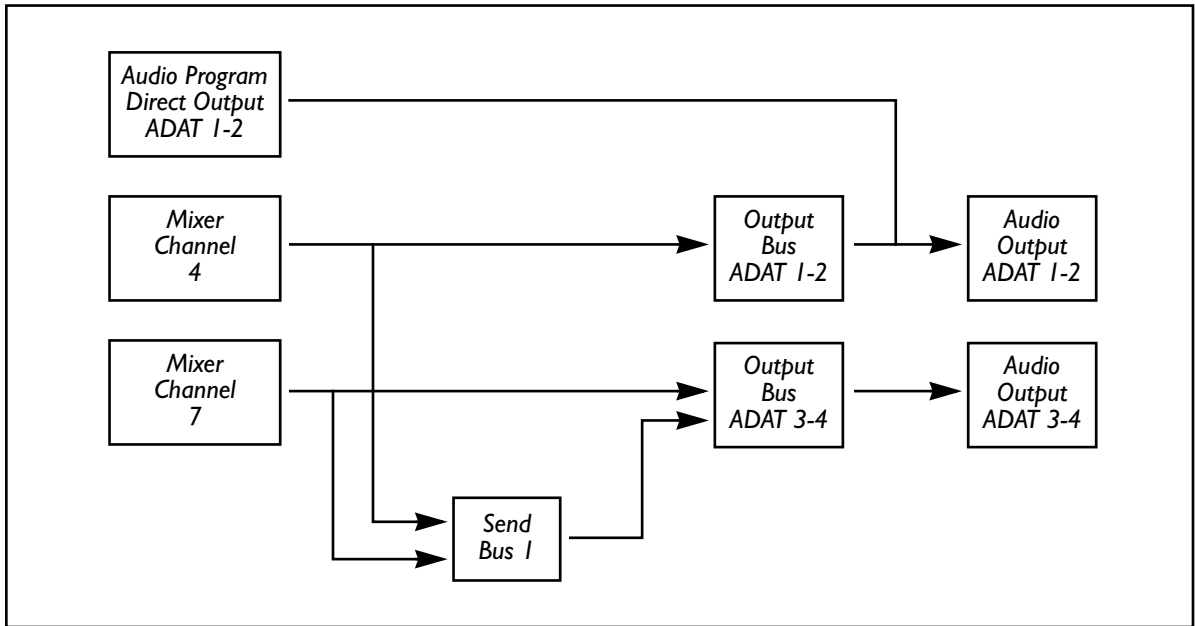
If None is selected, no stream will be summed into the send.

# Output Buses

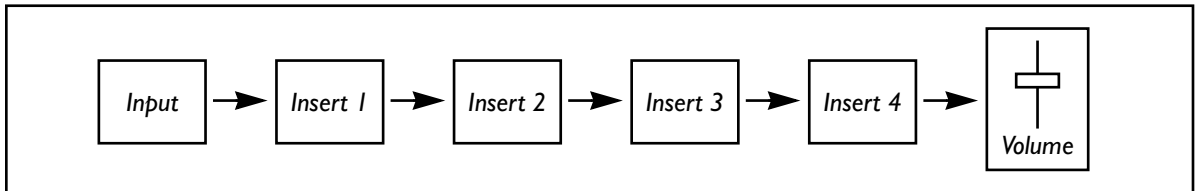


Each pair of audio outputs has a corresponding Output Bus, and all audio going from the Mixer to an audio output pair goes through an Output Bus first. Output Buses include insert effects, a volume fader, and mute and solo controls.

Mixer Channels and Send Buses are routed to Output Buses. Direct outputs from digital audio programs bypass the Output Buses, and instead go directly to the physical outputs.

*Output Busses example***Effects 1-4**

Output Bus insert effects let you apply EQ, compression, and other overall effects to groups of tracks. As with mixer channels, each Output Bus can have up to four effects. The effects are in series from top to bottom; effect 1 is first, and effect 4 is last.

*Output Bus Effects Routing*

To select an Effect:

1. **Drag an Effect from the Catalog onto the desired insert slot.**  
*or*  
**Select an Effect slot and then double-click the name of the Effect in the Catalog.**

For more information on using the Catalog, please see the section titled "Catalog" on page 102.

If no Effect is selected for a slot, the signal will pass through unaltered, and the slot will simply show “(none).”

You can copy Effects from one slot to another by using drag-and-drop, or by using the Edit menu’s cut, copy, and paste commands.

To delete an Effect, use the Edit menu’s cut command, or press the Delete key.

### Editing Effects

To edit the Effect’s parameters, double-click on the Effect name. This will bring up the Effect’s Control Panel, as described on page 86.

### Bypassing Effects

To bypass a single Effect, click on the slot number to the left of the Effect name. When bypassed, the Effect name will be grayed out. To re-enable the Effect, just click the slot number again. You can also bypass the Effect by using the Bypass button in the Effect Control Panel.

To bypass *all* of the Effects in the Output Bus, option-click (MacOS) or CTRL-click (Windows) on any of the Effects slot numbers.

## MIDI (MIDI Channel)

**A1-A16, B1-B16, Off.** This is the MIDI channel used to control the Output Bus, including the mixer parameters (volume, pan, mute, and solo) and the Effects. There are two sets of MIDI inputs, labeled A and B, with 16 channels each.

When using OMS or FreeMIDI, these correspond to the OASYS PCI A and OASYS PCI B devices, respectively. When using the built-in serial drivers, only the 16 “A” channels are used.

If you like, you can also disable MIDI control for the Output Bus by selecting “Off.”

## Level Meter

The meter shows the stereo output volume of the bus, post-effects.

To monitor the input to the bus, set the Volume fader to 127, and bypass all of the effects.

### Clip Indicators

The topmost, red lights are clip indicators for the left and right channels of the Output Bus. To clear an Output Bus’s clip indicators, click on them. To clear *all* clip indicators on the Mixer, option-click (MacOS) or CTRL-click (Windows) on any clip indicator.

## Vol (Volume)

**0-127.** Volume adjusts the volume of the Output Bus. 111 is the default, and is equal to 0dB (unity gain). Double-clicking the fader will set it to 111.

Volume responds to controller #7 on the selected MIDI channel.

## Mute

**On, Off.** Mute silences the Output Bus.

Mute responds to controller #89 on the selected MIDI channel. 0 is off (not muted), and any value between 1 and 127 is on (muted).

## Solo

**On, Off.** Solo isolates the Output Bus, temporarily muting all other non-soloed Output Busses.

Solo responds to controller #90 on the selected MIDI channel. 0 is off (not soloed), and any value between 1 and 127 is on (soloed).

## To Master

**On, Off.** This button sends the Output Bus through the Master Output Bus, in addition to the normal output. This can be used for various purposes, including:

- Isolating a sound for recording, while still monitoring it through the Master Output.
- Submixing sounds through bus effects, and then sending the submix to the Master Output (and through any additional effects on the Master Output Bus).

### To Master can increase DSP processing requirements

Activating an Output Bus's To Master function may sometimes require the Programs and Effects to be re-arranged within the DSPs. This may decrease the effective amount of DSP processing power available. In some cases, this may mean that there may not be enough DSP processing power to play a Multi which previously played successfully.

If this happens, you can reduce the number of Output Busses routed to the Master output, or use other methods to reduce the DSP processing load, as described under "Managing Resources," beginning on page 53.

## Master Bus radio button

**On, Off.** This selects the Master Output Bus.

Mixer Channels and Send Busses assigned to the Master Output will automatically follow the Master Bus selection; if you change the Master Bus, their outputs will change as well.

For instance, you might set all Mixer Channels to go to the Master Output, with the analog outputs selected as the Master Bus for easy monitoring. You could then send all of the Mixer Channels to the S/PDIF outputs, for recording, simply by switching the Master Bus to S/PDIF—instead of changing each Mixer Channel individually.

Also, other Output Busses can be summed into the Master Bus, using the To Master button, as described above.

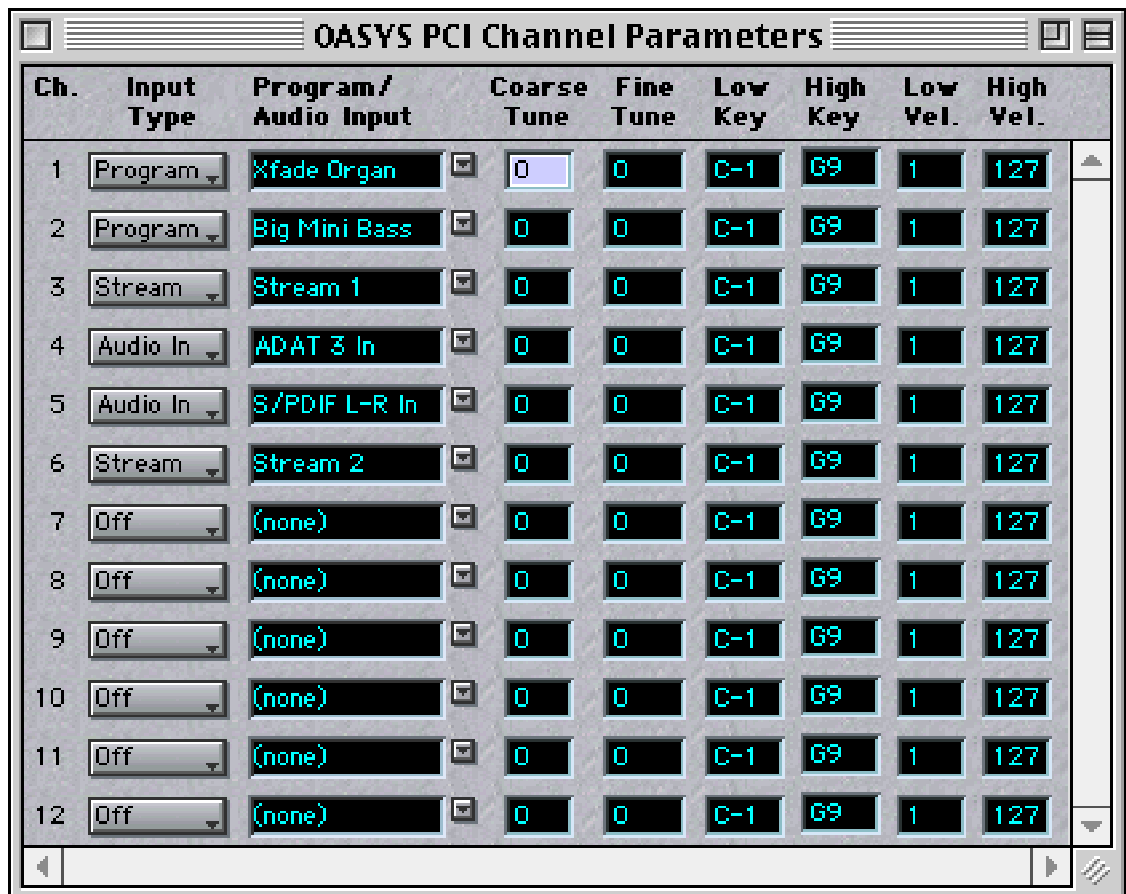
### **Default Master Output Bus preferences**

The Preferences window “Master Output Bus” parameter allows you to set a default Master Bus, which is used whenever you create a new Multi.

You can also use the Preferences window “Reset Master Output Bus When Opening Multis” parameter to automatically set all Multis to use the default Master Bus. Use this feature if you always want to audition sounds through a specific Output Bus.



# Channel Parameters



The Channel Parameters page allows you to set various parameters for the Programs used in the Multi. Aside from the Input Type and Program / Audio Input parameters, all of the settings on this page apply to Programs only.

## Ch (Channel Number)

This column shows the Mixer Channel number for reference, and is not user-editable.

## Input Type

**Program, Audio In, Stream, Off.** This selects whether the channel's input will be a Program, an Audio Input, or a Stream. The Input Type controls the available settings for the Input Select parameter.

Off means that the channel is unused, allowing the OASYS PCI Engine to optimize the Mixer (for more information, see “Managing Resources” on page 53).

Note that all of the parameters on this page, except for the Program/ Audio Input select, apply only to Programs.

## Program/Audio Input

**Program: Any Program File.**

**Audio Input: Analog L, R (mono) and L-R; ADAT 1-8 (mono) and 1-2, 3-4, 5-6, 7-8 (stereo); S/PDIF L, R (mono) and L-R (stereo).**

**Stream: 1-8 (mono) and 1-2, 3-4, 5-6, 7-8 (stereo).**

This is the same as the input select for the Mixer Channel.

The input may be either a Program, an Audio Input, or a Stream (from a digital audio program), as selected by the Input Type parameter.

To select an Audio Input or Stream:

1. **Set the Input Type parameter as desired (Audio Input or Stream).**
2. **Select the desired Audio Input or Stream from the menu.**

Clicking on the menu shows a list of either Audio Inputs or Streams, depending on the selected Input Type. Audio Inputs and Streams are shown as both mono and paired stereo.

To select a Program:

1. **Drag a Program from the Catalog onto the Input Select parameter.**  
*or*  
**Select the Input slot and then double-click the name of the Program in the Catalog.**

For more information on selecting Programs, please see “Editing a Patch” on page 20.

Double-clicking on the Program name brings up the Program Edit page, as described on page 80.

You can copy Programs from one channel to another using drag-and-drop, or by using the Edit menu cut, copy, and paste commands.

You can delete a Program from a channel by using the Edit menu cut command, or by pressing the Delete key.

## Coarse Tune

**-48 to +48.** This is the coarse tuning, in semitones, for the Program.

## Fine Tune

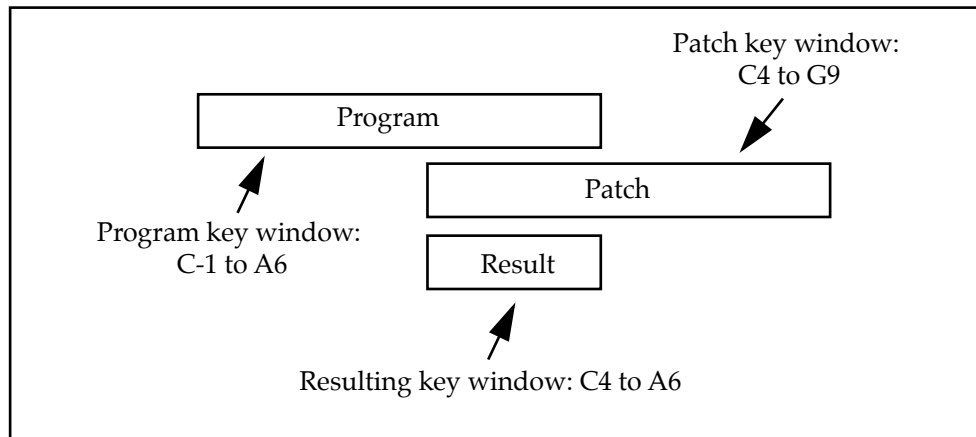
**-100 to +100.** This is the fine tuning, in cents (1/100 of a semitone), for the Program.

## Low Key/High Key

**C-1 to G9.** These are the high and low MIDI notes to which the Program will respond. When selected, you can set them by playing notes on your MIDI controller.

The Low Key and High Key parameters act in addition to any key windows assigned to Patches in the Program. The union of the two windows produces the final result. See the diagram, below, for an example.

*Cumulative Program and Patch high/low key windows*

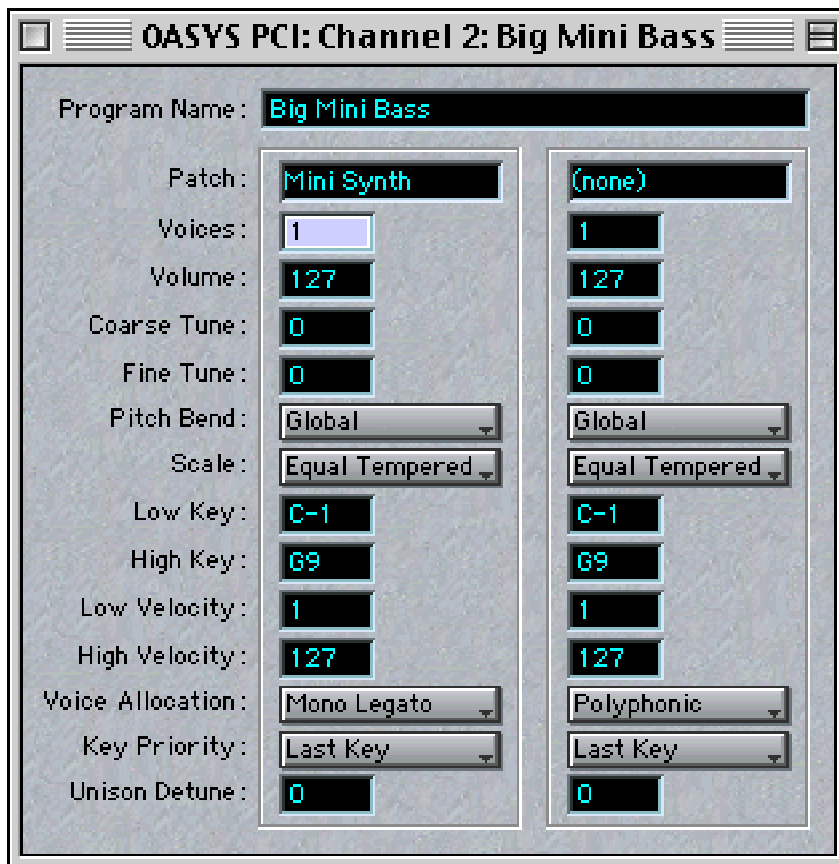


## Low Vel/High Vel

**1 to 127.** These are the high and low MIDI velocities to which the Program will respond. When selected, you can set them by playing on your MIDI controller.

As with Low/High Key, above, these act in addition to any velocity windows assigned to Patches in the Program.

# Program Edit



Programs are the basic sounds of the OASYS PCI, and must be placed on a Mixer Channel to be played. They play one or two Patches, which can be layered or split by key and velocity ranges. They also have up to four Insert Effects, which appear in the Mixer Channel. Programs store all Control Panel settings for their Patches and Effects.

For step-by-step instructions on accomplishing common Program-related tasks, please see “Using Programs & Patches,” beginning on page 19.

## Program Name

This is the name of the Program.

## Patch

One or two Patches may be used in a Program.

To add a Patch to a Program:

**1. Drag a Patch from the Catalog onto the desired Patch slot.**

(MacOS Only: Alternatively, you can select the Patch slot and then double-click the name of the Patch in the Catalog.)

For more information on using the Catalog, please see the section titled “Catalog” on page 102.

You can also leave a Patch slot empty, in which case it will simply show “(none).”

Double-clicking on the Patch name brings up the Patch’s Control Panel, as described on page 86.

You can copy Patches from one slot or Program to another using drag-and-drop, or by using the Edit menu’s cut, copy, and paste commands.

You can delete a Patch from a Program by using the Edit menu’s cut command.

## Voices

**1 to n.** This is the number of voices allocated to the Patch. You can allocate different numbers of voices to each Patch within the Program, if desired.

## Volume

**0-127.** This sets the relative volume levels of the Patches in the Program.

The overall level of the Program is controlled by the Mixer Channel’s Volume parameter.

## Coarse Tune

**-48 to +48.** This is the coarse tuning, in semitones, for the selected Patch.

## Fine Tune

**-100 to +100.** This is the fine tuning, in cents (1 / 100 of a semitone), for the selected Patch.

## Pitch Bend

**Off, Global, Half Step, Whole Step, Min. 3rd, Maj. 3rd, Perfect 4th, Dim. 5th, Perfect 5th, Min. 6th, Maj. 6th, Min. 7th, Maj. 7th, Octave.** This parameter determines how the Patch will respond to pitch bend.

**Global.** This is the default; the Patch uses the global pitch bend range, as set in the Preferences window (as described on page 111).

**Half Step through Octave.** This sets the Patch to a specific pitch bend range, which is not dependent on the Global setting.

## Scale

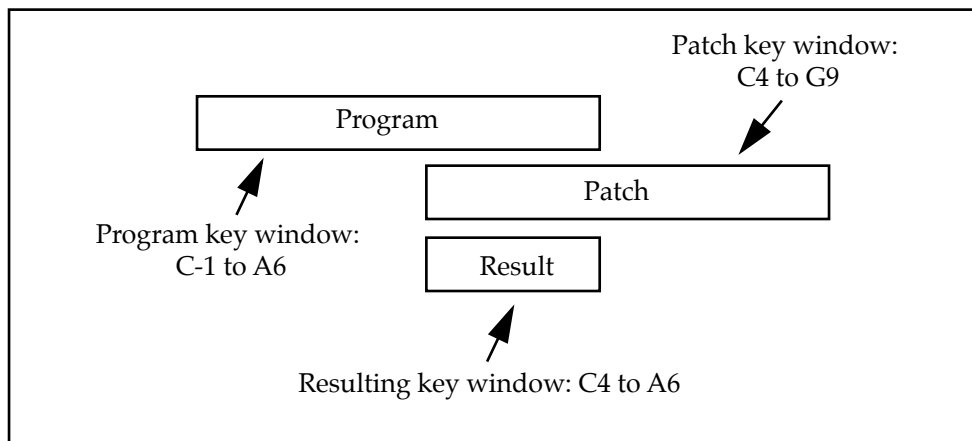
This selects the scale used by the Patch. Scales allow each individual MIDI note to be tuned as desired.

For more information, see “Scales,” on page 131.

## Low/High Key and Velocity

All of the key and velocity windowing parameters, including Low Key, High Key, Low Velocity, and High Velocity, act in addition to the windows assigned to the Program in a Multi. The union of the two windows produces the final result, as shown in the diagram below:

*Cumulative Program and Patch high/low key windows*



## Low Key

**C-1 to G9.** This is the lowest MIDI note to which the Patch will respond. All notes below the Low Key will be ignored. When this parameter is selected, you can set it by playing a note on your MIDI controller.

## High Key

**C-1 to G9.** This is the highest MIDI note to which the Patch will respond. All notes above the High Key will be ignored. When this parameter is selected, you can set it by playing a note on your MIDI controller.

## Low Velocity

**1 to 127.** This is the lowest MIDI velocity to which the Patch will respond. All notes with velocities below the Low Velocity will be ignored. When this parameter is selected, you can set it by playing on your MIDI controller.

## High Velocity

**1 to 127.** This is the highest MIDI velocity to which the Patch will respond. All notes with velocities above the High Velocity will be ignored. When this parameter is selected, you can set it by playing on your MIDI controller.

## Voice Allocation

**Polyphonic, Poly Physical, Poly Retrigger, Poly Reuse, Mono Legato, Mono Retrigger, Unison.** The Voice Allocation parameter determines how the Patch responds to new notes, and how voices are stolen when the maximum number of voices is exceeded.

Note that the Patch's algorithm design affects the way that the Patch responds to the different Voice Allocation settings. Some Patches may not work properly with certain settings.

**Polyphonic.** This is the default setting; you can play as many voices as the algorithm allows, up to the number set in the Voices parameter. When new notes are played, or when voice-stealing is necessary, the oldest voices will be discarded.

If a single note is played repeatedly, each key-press starts a new voice. For example, if you are repeatedly hitting a crash cymbal, the crashes will overlap, each going through its full decay and release.

**Poly Physical.** This is the same as Polyphonic, except for one important detail: when re-striking a note which is being held with the sustain pedal, the current voice will be re-used. For some specifically-designed physical modelling Patches, this will make the re-struck note sound different from the previous note.

For instance, in the real world, when you strike a cymbal twice in a row, the second strike makes a different sound than the first; it adds energy to the previous crash, and the sound becomes more intense.

Patches must be specifically designed to take advantage of this allocation setting.

**Poly Retrigger.** This is similar to Polyphonic, above, except that when a new note is played, the *most recently played* available voices will be chosen. This is intended to be used in conjunction with analog-style polyphonic portamento, allowing one chord to slide into another. You can even play a lead line while holding down a chord, and the lead line will have proper note-to-note portamento.

(This option does not turn on portamento by itself; that must be done in the Patch, and the Patch itself must also support portamento.)

**Poly Reuse.** This mode models the voice allocation of a classic "prophetic" analog synth. When a note is played, if there is any voice that was last triggered by that note, then that voice will be used. The envelopes of re-used notes will reflect the previous state, instead of re-starting from scratch. Unlike Poly Physical, it doesn't matter if the voice is being sustained, or still making sound of any kind.

**Mono Legato.** Only one voice will play at a time. When notes are played with legato phrasing—so that the next note is started before the previous one is released—

notes are not re-triggered; the envelopes will continue to evolve as if the original note was still held down. This is good for imitating the phrasings of wind instruments, or analog lead synthesizers, and is generally the preferred mode for MIDI wind controllers. Mono Legato mode must be specifically supported in the Patch.

**Mono Retrigger.** Only one note will play at a time. Unlike Mono Legato, each key-press starts a new note and re-triggers envelopes.

**Unison.** Unison mode plays only one note at a time, but uses two or more stacked, detuned voices to create a thick sound. Use the Unison Voices and Unison Detune parameters to set the number of voices and amount of detuning.

## Key Priority

**Last Key, Highest Key, Lowest Key.** When a Patch's Voice Allocation parameter is set to Mono Legato, Mono Retrigger, or Unison, the Patch will play only one note at a time. The Key Priority parameter determines what happens when more than one note is being held down.

When Polyphonic, Poly Physical, or Poly Retrigger modes are selected, this parameter does not apply.

**Last Key.** The most recently played note will sound. This is the default.

**Highest Key.** The highest note will sound.

**Lowest Key.** The lowest note will sound. Many vintage, monophonic analog synths work this way.

## Unison Detune

**0 to 100.** This parameter only applies when Voice Allocation is set to Unison. It sets the tuning spread, in cents (1/100 of a semitone), for the Unison voices. The Patch's voices are distributed evenly across the detune amount, centered around the basic pitch.

For instance, let's say that the Patch's Voices parameter is set to 3, and Unison Detune is set to 24:

Voice	Detune
1	-12
2	0
3	+12

Voice one will be detuned down by 12 cents, voice two will not be detuned, and voice three will be detuned up by 12 cents.



As another example, let's say that the Unison Detune is still set to 24, but Voices is set to 4:

<b>Voice</b>	<b>Detune</b>
1	-12
2	-4
3	+4
4	+12

Voice one will still be detuned down by 12 cents, voice two will be detuned down by 4 cents, voice three will be detuned up by 4 cents, and voice 4 will be detuned up by 12 cents.

## Effects

Programs store settings for the Mixer Channel Insert Effects. If the channel's Auto-Load FX parameter is enabled, then these Effects will be loaded automatically.

To select, edit, or delete Insert Effects for a Program, use the mixer channel. After the Insert Effects have been edited, they can be saved with the Program using the File Menu's "Save Program and Effects As..." command. This command is only shown when the Program Edit window is in the foreground.

# Control Panel



## General

The Control Panel allows you to edit the parameters of Patches and Effects. Each Patch and Effect has its own Control Panel, specifically designed for the Patch or Effect's particular features. This means that the Control Panel may contain completely different parameters, depending on which Patch or Effect is being edited.

The mixer channel number, Program name (if a Patch), and Patch or Effect name are shown in the Control Panel window's title bar.

## Control Panel Objects

**Knobs.** Move knobs by dragging the mouse either vertically, up and down, or horizontally, left and right, just like you would move a slider. They are *not* designed to be "turned" in a circular motion; doing so will produce undesired results!

For fine control, you can increment and decrement the knob's value using the up and down arrows on the keyboard. You can also type directly into the numeric field.

**Sliders.** For fine control of slider values, you can increment and decrement by using the up and down arrows on the keyboard. You can also type directly into the numeric field.

**Menus.** Menus allow you to select between different options by name.

**Radio Buttons.** Radio buttons are used for selecting between a small number of choices.

**Check Boxes.** Check boxes turn a parameter on and off.

**Meters.** Meters are used to display audio levels, gain reduction, and other levels.

**Multisamples.** Sample-based Patches include slots for one or more Multisamples. To select a new Multisample, just drag it from the Catalog into the Multisample slot in the Control Panel.

## Modulating Parameters

### Fixed Modulation Paths

Many Patches and Effects offer built-in modulation paths for certain parameters. Sometimes, these modulation paths will be "hard wired," meaning that the amount of modulation can be altered, but the source of the modulation is fixed. For instance, a filter envelope might be hard-wired to control the filter cutoff.

Also, most parameters on the Mixer screens have preset MIDI modulation routings; for more information, see "Mixer parameters have preset modulation routings," on page 33.

### Assignable Modulation Paths

Patches and Effects may also offer assignable modulation paths, so that you can choose the source of the modulation. Assignable modulation paths include an extensive menu of MIDI modulation sources, as detailed under "Modulation Sources," below.

### User-Created Modulation Routings

One of the special features of the OASYS PCI is that *all* Control Panel parameters are modulatable—even if they don't have built-in modulation routings. This is done through the Modulation Palette.

Just click on the name of a Control Panel parameter to bring up the Modulation Palette (or to assign the Palette to the current parameter, if the Palette is already open). For on/off buttons, option-click (MacOS) or CTRL-click (Windows) on the name.

Once the Modulation Palette is open, select one or two mod sources, enter the desired mod amounts, and you're ready to go.

When a modulation routing is assigned, the name of the modulated Control Panel parameter will be underlined and colored red.

For more information, see “Modulation Palette,” on page 91.

## Modulation Sources

**None.** No modulation will be applied.

**Velocity.** MIDI note-on velocity. When modulating Effects, the most recent velocity will be used.

**Exp. Velocity.** MIDI note-on velocity, through an exponential curve. This creates more variation at high velocities, and less variation at lower velocities. When modulating Effects, the most recent velocity will be used.

**Note.** MIDI note number. When modulating Effects, the most recent note number will be used.

**Note+Pitchbend.** This selection adds the Pitch Bend amount to the MIDI note number, for more precise pitch-related modulation. When modulating Effects, the most recent note number will be used.

**Exp. Note.** MIDI note number, through an exponential curve. This creates more variation from note to note at the high end of the keyboard, and less variation at the low end. At C2, the value is very small; at C7, it is about 90% of maximum. When modulating Effects, the most recent note number will be used.

**Exp. Note+Pitchbend.** This selection adds the Pitch Bend amount to the exponential MIDI note number, for more precise pitch-related modulation. When modulating Effects, the most recent note number will be used.

**Note Gate.** This is an on/off mod source. When the key is held down, the modulation is at maximum; when the key is released, the modulation goes to zero. Note Gate is intended for use in Patches, and does not work for modulation of Effects parameters.

**Note Gate+Sustain.** This adds the Sustain pedal to Note gate. When the key or the Sustain pedal is held down, the modulation is at maximum; when the key or the Sustain pedal is released, the modulation goes to zero. Note Gate+Sustain is intended for use in Patches, and does not work for modulation of Effects parameters.

**Any Note Gate.** This is a version of Note Gate which will work with both Patches and Effects. As long as any key is held down, the modulation is at maximum; when all keys are released, the modulation goes to zero.

**Any Note Gate+Sustain.** This adds the sustain pedal to Any Note Gate, and will work with both Patches and Effects. As long as any key or the sustain pedal is held down, the modulation is at maximum; when all keys are released, and the sustain pedal is lifted, the modulation goes to zero.

**Mod Wheel.** MIDI Modulation Wheel (controller #1).

**Aftertouch.** MIDI Aftertouch.

**Mod Wheel+AT.** This is the sum of Mod Wheel and Aftertouch.

**Mod Wheel+AT/2.** This is similar to Mod Wheel+AT, but the affect of Aftertouch is cut in half.

**Pitchbend.** This is MIDI Pitchbend, exactly as received, prior to scaling.

**Pitchbend Scaled.** This is MIDI Pitchbend, as scaled by the Global or Program Pitch Bend parameters.

**Sustain.** MIDI Sustain Pedal (controller #64).

**MIDI A-H.** These are the eight assignable MIDI controllers, as set in the MIDI Preferences (described under “Factory Settings,” on page 116).

**MIDI Tempo.** This receives MIDI Clock, for synching delays, LFOs, and other tempo-based effects. In general, the Patch or Effect must be specifically designed for MIDI Tempo in order to obtain meaningful results.

**MIDI Start/Stop.** This receives MIDI Start/Stop, for controlling analog-style sequencers or other components which can start and stop with an external MIDI sequencer. In general, the Patch or Effect must be specifically designed for MIDI Start/Stop in order to obtain meaningful results.

**Keytrack Linear.** Linear keyboard tracking, centered on C4. See the graphs below.

**Keytrack Exp.** Exponential keyboard tracking, centered on C4, for more variation at the extremes of the keyboard. See the graphs below.

**Keytrack Log.** Logarithmic keyboard tracking, centered on C4, for more variation in the middle of the keyboard. See the graphs below.

**Keytrack Left Lin.** Linear keyboard tracking below C4, with no modulation above C4. See the graphs below.

**Keytrack Left Exp.** Exponential keyboard tracking below C4, with no modulation above C4. See the graphs below.

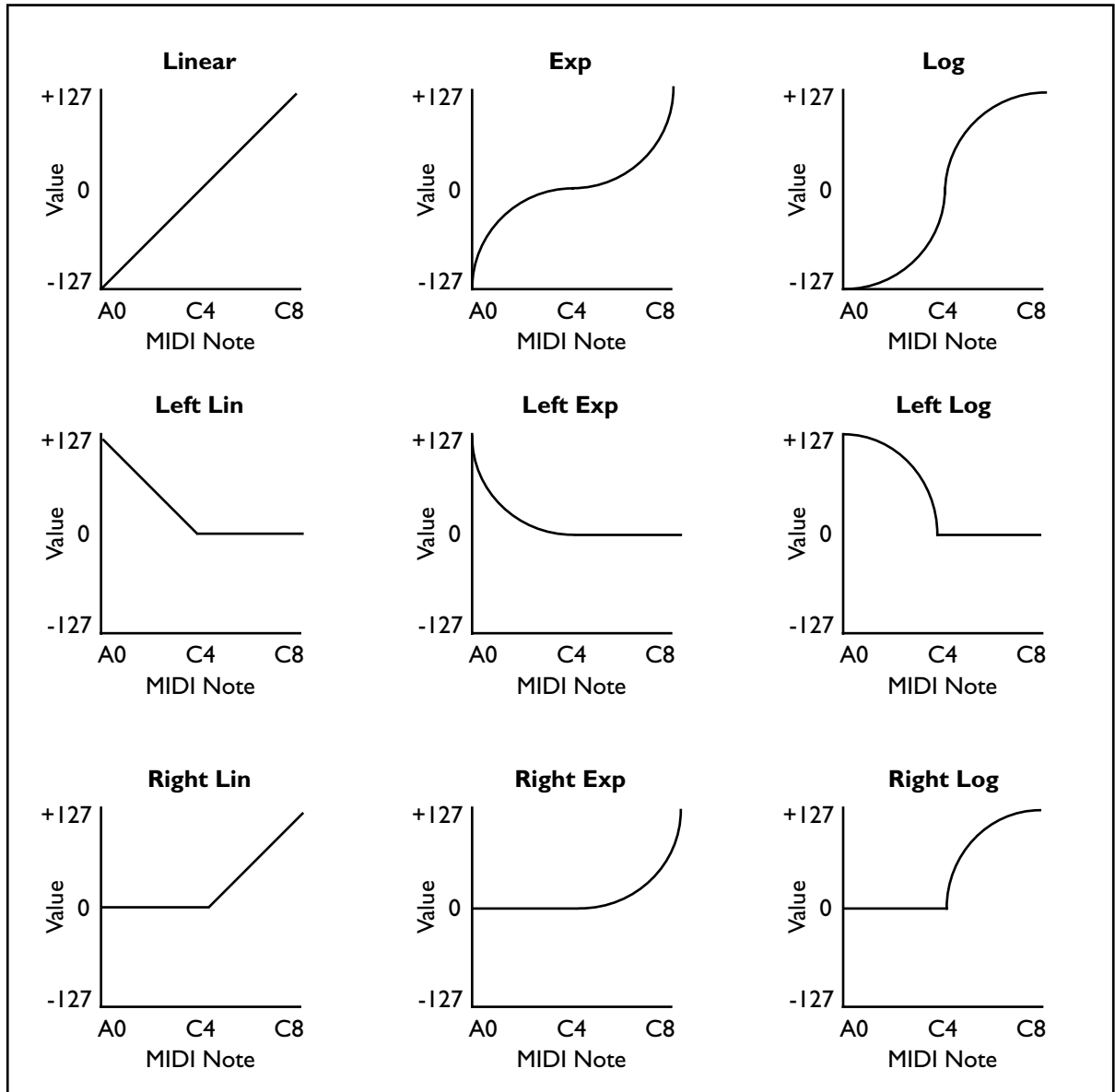
**Keytrack Left Log.** Logarithmic keyboard tracking below C4, with no modulation above C4. See the graphs below.

**Keytrack Right Lin.** Linear keyboard tracking above C4, with no modulation below C4. See the graphs below.

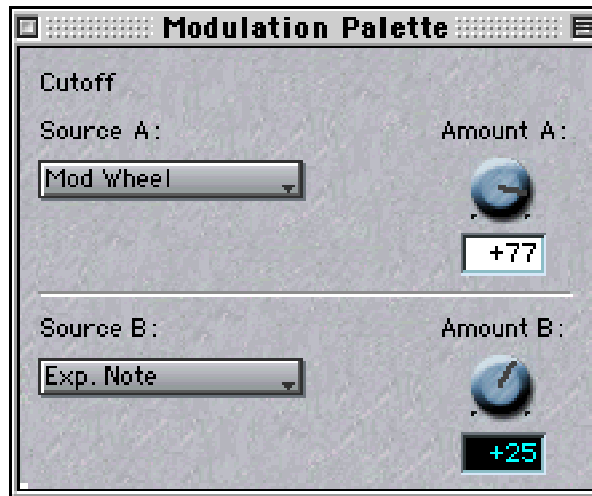
**Keytrack Right Exp.** Exponential keyboard tracking above C4, with no modulation below C4. See the graphs below.

**Keytrack Right Log.** Logarithmic keyboard tracking above C4, with no modulation below C4. See the graphs below.

Keyboard Tracking



# Modulation Palette



The Modulation Palette allows you to create up to two modulation paths for each Patch or Effect Control Panel parameter.

You can open the Modulation Palette by clicking on the name of a Control Panel parameter. For on/off buttons, option-click (MacOS) or CTRL-click (Windows) on the name.

If the Modulation Palette is already open, clicking on a Control Panel parameter will change the Modulation Palette to show the settings for that parameter.

When a modulation routing is assigned, the name of the modulated Control Panel parameter will be underlined and colored red.

For step-by-step instructions on accomplishing common modulation-related tasks, please see "Using Modulation," beginning on page 30.

## Source A and B

An extensive set of MIDI modulation sources is available. For a complete list, see "Modulation Sources," on page 88.

## Amount A and B

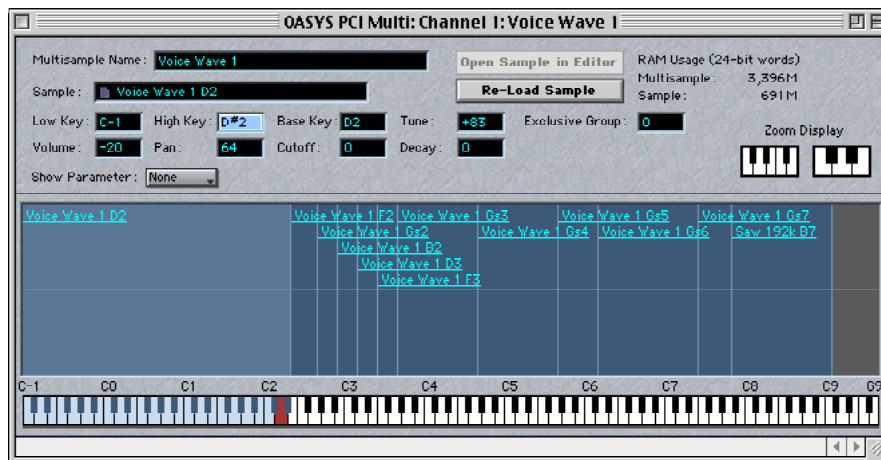
**-100 to +100.** This sets the amount by which the modulation source affects the Control Panel parameter.

The amount is a percentage of the total range of the parameter. When the Amount is set to +100, a MIDI modulation value of 127 will take the parameter all the way to the maximum value, even if the Control Panel knob or slider is at its very lowest setting.

Conversely, when the Amount is set to -100, a MIDI modulation value of 127 will take the parameter all the way to the minimum value, even if the Control Panel knob or slider is at its very highest setting.



# Multisample Edit



**NOTE:** To view the window at full resolution, zoom in to 200%.

For step-by-step instructions on accomplishing common tasks with Samples and Multisamples, please see “Using Samples & Multisamples,” beginning on page 35.

## General Information

Multisamples group together one or more Samples, assign the samples to ranges on the keyboard, and allow you to adjust a handful of common parameters (such as volume and filter cutoff) for each Sample.

You can open the Multisample editor by double-clicking on a Multisample in a Patch Control Panel.

OASYS PCI can use 16-bit and 24-bit samples in a number of different formats, including AIFF, WAV, and Korg’s proprietary .kes format. Additionally, Sound Designer II format samples are supported on MacOS only.

## Key Ranges

A Multisample divides the keyboard into one or more Key Ranges, as shown by the boxes drawn above the keyboard. Each Key Range contains a Sample and various parameters which control the way that the Sample is played. You can assign the same Sample to multiple Key Ranges.

You can select a Key Range by playing a note on your MIDI controller, or by clicking on the onscreen keyboard. You can also click in the boxes shown above the keyboard, which show the name of the Sample assigned to the Key Range.

The parameters for the selected Key Range are shown at the top of the window, including an assigned Sample, high key, low key, and base key, Exclusive Group assignment, and offsets for volume, pan, tuning, cutoff, and decay.

You can assign Key Ranges across all 128 MIDI notes. Use the scroll bar at the bottom of the window to show the desired part of the keyboard. If you have a large monitor, you can also expand the window horizontally to show more of the keyboard at a time.

### **A note on MIDI editing**

When the Multisample Edit window is open, incoming MIDI selects the current Key Range. In conjunction with command keys on the computer keyboard, you can also use MIDI to edit the High Key, Low Key, and Base Key of the selected Key Range.

The Mixer channel's MIDI channel assignment, and all Multi and Program key and velocity windows, all apply to MIDI received in this window. If MIDI is on the wrong channel, or is outside of the key and velocity ranges, then it will have no effect.

### **Multisample Name**

This is the name of the Multisample. Clicking on the name will change the cursor into a standard text editing bar; you can then edit the name just as you would any other text.

Remember that this only changes the name of the Multisample within the Multi. To save the new name to disk, use the "Save Multisample As..." command in the File menu.

### **Sample**

This is the Sample assigned to the selected Key Range.

To change the Sample assigned to a Key Range, just drag a new Sample from the Catalog into the Sample slot. All other parameters remain unchanged.

(MacOS Only: Alternatively, you can select the Sample slot and then double-click the name of the Sample in the Catalog.)

For more information on using the Catalog, please see the section titled "Catalog" on page 102.

You can also leave a Sample slot empty, in which case it will simply show "(none)." Playing a note in the Key Range will then play a special "silent" Sample, which takes up one voice of polyphony. (See the Exclusive Group's Silent setting, below, for a way to create a silent zone on the keyboard which will not affect polyphony.)

You can cut, copy, and paste Samples between different Key Ranges. To do so, first select the Sample parameter, and then use the desired Edit menu command.

## Low Key

**C-1 to G9.** This is the lowest MIDI note of the Key Range. When this parameter is selected, you can set it by playing a note on your MIDI controller.

Holding down the option key (MacOS) or shift-left-bracket “[” (Windows) on your computer keyboard will also select this parameter, after which you can set it by playing a note on your MIDI controller. This allows you to quickly select and edit Key Ranges without needing to use the mouse.

You can also set the Low Key graphically. To do so, just move the cursor over the edge of a Key Range box (above the onscreen keyboard graphic). When the cursor changes to a double-arrow shape, click and drag the edges of the Key Range as desired.

## High Key

**C-1 to G9.** This is the highest MIDI note of the Key Range. When this parameter is selected, you can set it by playing a note on your MIDI controller.

Holding down the command key (MacOS) or shift-right-bracket “]” (Windows) on your computer keyboard will also select this parameter, after which you can set it by playing a note on your MIDI controller. This allows you to quickly select and edit Key Ranges without needing to use the mouse.

You can also set the High Key graphically. To do so, just move the cursor over the edge of a Key Range box (above the onscreen keyboard graphic). When the cursor changes to a double-arrow shape, click and drag the edges of the Key Range as desired.

## Base Key

**C-1 to G9.** This is the MIDI note at which the Key Range’s Sample is untransposed - the pitch at which it was sampled. The Base Key may be beyond the High and Low keys of the Key Range.

When this parameter is selected, you can set it by playing a note on your MIDI controller.

Holding down the option and command keys (MacOS) or shift-backslash “\” (Windows) on your computer keyboard will also select this parameter, after which you can set it by playing a note on your MIDI controller. This allows you to quickly select and edit Key Ranges without needing to use the mouse.

You can also set the Base Key graphically. To do so, just click on the Key Range’s Base Key on the graphic keyboard (shown in red) and drag it to a new location.

## Tune

**-100 to +100.** This is the fine tuning offset, in cents (1/100 of a semitone), for the selected Key Range.

This parameter serves as an offset to any tuning set in the Patch containing the Multisample. Some Patches may not support this offset.

## Volume

**-100 to +100.** This is the volume offset for the selected Key Range.

This parameter serves as an offset to any volume set in the Patch containing the Multisample. Some Patches may not support this offset.

## Pan

**0 to 127.** This is the pan offset for the selected Key Range.

This parameter serves as an offset to any pan set in the Patch containing the Multisample. Some Patches may not support this offset.

## Cutoff

**-100 to +100.** This is the filter cutoff offset for the selected Key Range.

This parameter serves as an offset to any filter cutoff set in the Patch containing the Multisample. Some Patches may not support this offset (for instance, if they do not have a filter).

## Decay

**-100 to +100.** This is the envelope decay time offset for the selected Key Range.

This parameter serves as an offset to the envelope decay time set in the Patch containing the Multisample. Some Patches may not support this offset.

## Exclusive Group

Exclusive Groups allow you to create a monophonic set of keys, so that only one note in the Exclusive Group will sound at a time. If another key within the group is played, the previously played note will be cut off. For instance, you can use this so that a closed hi-hat Sample cuts off the sound of an open hi-hat.

Multiple Key Ranges may be assigned to the same Exclusive Group.

**Off.** The Key Range will act normally.

**1-63.** The Key Range will be assigned to the selected Exclusive Group.

**Silent.** The Key Range will be silent. When you play a key within the range, no voices will be allocated.

**NOTE:** This is different from deleting a Sample so that it appears as (none). If the Sample is set to (none), the Patch will play a special “silent” Sample, which takes up one voice of polyphony.

### **Exclusive Group settings are controlled by the top Multisample**

Many PCM Patches have more than one Multisample. For instance, many have High and Low Multisamples, for creating velocity splits. In this case, the Exclusive

Group settings for all Multisamples are controlled by the top Multisample. The Exclusive Group parameters for all other Multisamples will be grayed out.

### **Exclusive Group settings not available in some Patches**

Some Patches may not support Exclusive Group functionality. If a Multisample is placed in such a Patch, all Exclusive Group parameters will be grayed out.

## **Show Parameter**

This menu allows you to choose one parameter, such as Volume or Pan, to be displayed for all of the Key Ranges simultaneously. The value is shown as a slider within the Key Range boxes above the onscreen keyboard, allowing you to see the settings for all Key Ranges at once.

For complete explanations of the individual parameters, see their descriptions above.

**None.** This makes the sliders disappear, for easier viewing of the Sample names.

**Volume.** This shows the sliders for the Volume offset.

**Pan.** This shows the sliders for the Pan offset.

**Cutoff.** This shows the sliders for the Cutoff offset.

**Tune.** This shows the sliders for the Tune offset.

**Decay.** This shows the sliders for the Decay offset.

**Exclusive Group.** This shows the sliders for the Exclusive Group assignments.

To select the parameter being displayed, use the Show Parameter menu. The selections include most of the numeric edit fields at the top of the window: Volume, Pan, Cutoff, Tune, Decay, and Exclusive Group. A final setting, None, makes the sliders disappear, for easier viewing of the sample names.

To edit the parameter for a specific range, just move the on-screen slider. The value is shown within the slider handle. To edit the value numerically (using keypad, inc/dec etc.), use the normal edit fields at the top of the window.

Sliders are drawn on top of sample names. If you need to have an unobstructed view of all of the names, choose "None" from the Show Parameter menu to temporarily hide the sliders.

Note that the Multisample does not actually contain filtering, panning, and so on; these offsets depend on the Patch to support these functions. Some Patches may not support all of the parameters seen here.

## **Assigning a Sample to a new Key Range**

To add a Sample and create a new Key Range containing the Sample, drag the Sample from the Catalog onto the keyboard graphic. Keys highlight as you drag over them; the assignment is made when you release the mouse button.

Dragging to the middle of an existing range splits the range at the insertion point, with the new sample assigned to the top part.

## Open Sample in Editor

The Open Sample in Editor button opens the selected Sample in your preferred external sample editing program, such as Peak, WaveLab, SoundForge, Spark, Alchemy, etc. Use the Preferences window's Sample Editor parameter (in the Samples page) to select your preferred editor.

### **Korg's factory samples cannot be edited**

Note that Korg's proprietary .kes sample files are encrypted, and so they cannot be opened in external editors. When a .kes sample is selected, the Open Sample in Editor button will be grayed out.

## Re-Load Sample

The Re-Load Sample button re-loads the selected Sample from disk. Use this command after editing and saving a Sample using an external sample editor.

## Zoom In and Zoom Out

The zoom buttons allow you to change the size of the keyboard graphic.

Use the small keyboard to show a large keyboard range at one time, to get an overview of the entire Multisample.

Use the large keyboard when editing Multisamples with small keyboard ranges, such as drum kits.

# Resource Monitor

To process and synthesize audio, the OASYS PCI uses DSP and host (PowerPC) processing power, DSP and host memory, and DSP busses. This page can give you an idea of how much of these resources are being used.

The Resource Monitor can display either a summary or a detailed report, as set in the Preferences window (described on page 108).

## Host Processing

**Average Load.** This shows the average load on the host CPU.

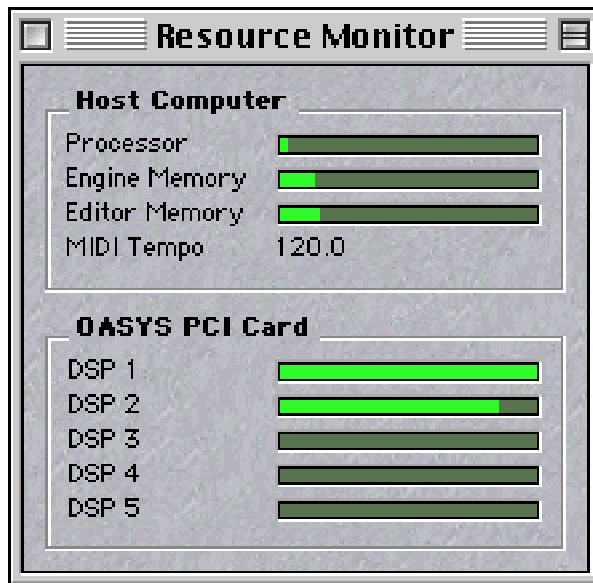
**Peak Load.** This shows the maximum load on the host CPU.

**Engine Memory.** This shows the amount of RAM used by the OASYS PCI Engine.

**Editor Memory.** This shows the amount of RAM used by the OASYS PCI Editor program.

## DSP 1-5

### Summary view

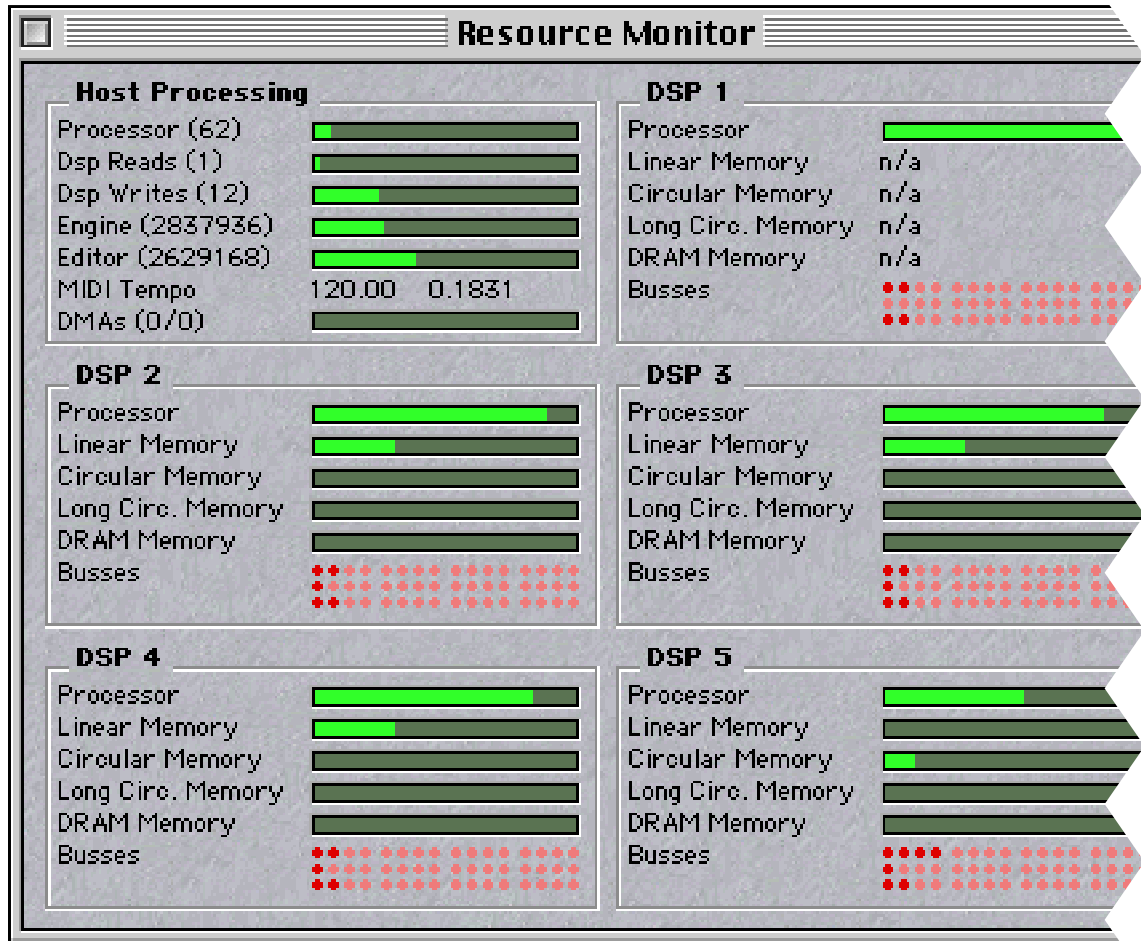


If the Preferences window Resource Monitor parameter is set to Summary, this section of the window will simply display one meter for each DSP. The meter gives a basic estimate of the amount of resources used on the DSP, combining all the measurements described under Detailed, below.

Summary is the default view for the Resource Monitor.

### Detailed view

The Detailed view shows a large amount of specific resource usage information, and is intended primarily for developers interested in the low-level workings of the system.





If the Preferences window Resource Monitor parameter is set to Detailed, this section of the window will display the following meters for each DSP.

**Processor.** This shows the amount of cycles used on the DSP, and is the main indication of the amount of DSP processing power being used.

**Linear Memory.** This shows the amount of external linear memory being used. Linear memory is used for tables.

**Circular Memory.** This shows the amount of external circular memory being used. This memory is used for effects, physical models, and so on.

**Long Circ. Memory.** This shows the amount of external long circular memory being used. This memory is primarily used for delay-based effects, including short delays, choruses, flangers, and so on.

**DRAM Memory.** This shows the amount of external DRAM memory being used. Each chip has 6 megabytes of DRAM, used primarily for samples and long delays.

**Busses.** There are three rows of lights, with each row representing one of the three internal bus types: Local, Left-Flowing, and Right-Flowing.

Local Busses, shown in the top row, are the number of busses used within the DSP. These busses are separate from the inter-chip busses.

Left-Flowing Busses, shown in the middle row, are the inter-chip busses which flow from the slave DSPs to the master DSP. The left-flowing busses carry mixer channels and audio outputs.

Right-Flowing Busses, shown in the bottom row, are the inter-chip busses which flow from the master DSP to the slave DSPs. The right-flowing busses carry any audio or stream inputs.

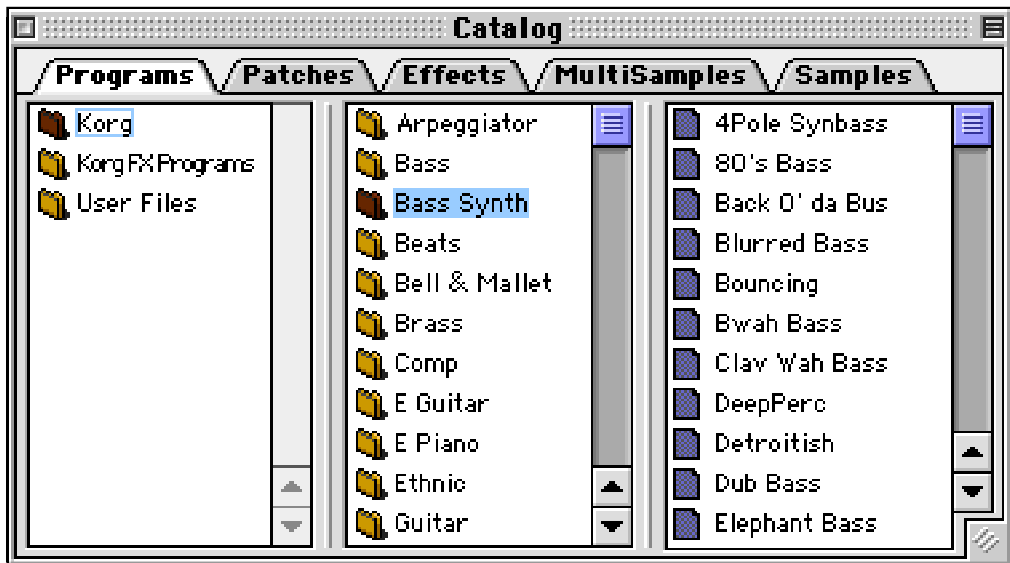
# Catalog

The Catalog shows the OASYS PCI's Program, Patch, and Effects files. The Catalog can be displayed either as a browser window, or as an outline view, as set in the Preferences window (as described under "Catalog Window," on page 109).

## Browser view

In the Browser view, there are five tabs, for Programs, Patches, Effects, Multisamples, and Samples; there are also three panels, showing three levels of the file system hierarchy.

*Catalog (Browser view)*



## Programs, Patches, Effects, Multisample, and Sample tabs

The tabs select which file type the Catalog will show.

## Panels

### Left panel

All OASYS PCI Programs, Patches, Effects, Multisamples, and Samples are stored inside the OASYS PCI folder. Within the main OASYS PCI folder are folders for sound libraries, such as the Korg factory sounds and optional sound packages from Korg and third parties, or user projects, such as "TV Series Third Season Cues."

The left-most panel shows these library and project folders.

## Center panel

When a folder is selected in the left-most panel, the folders within its Programs, Patches, Effects, Multisamples, or Samples folder (depending on which tab is selected) will be shown in the middle panel.

These folders will generally be sound categories, such as pianos, basses, synth pads, reverbs, delays, and so on.

## Right panel

When a folder is selected in the middle panel, the right-most panel shows the files within that folder.

If there are any files in the main or middle levels, they will also be shown.

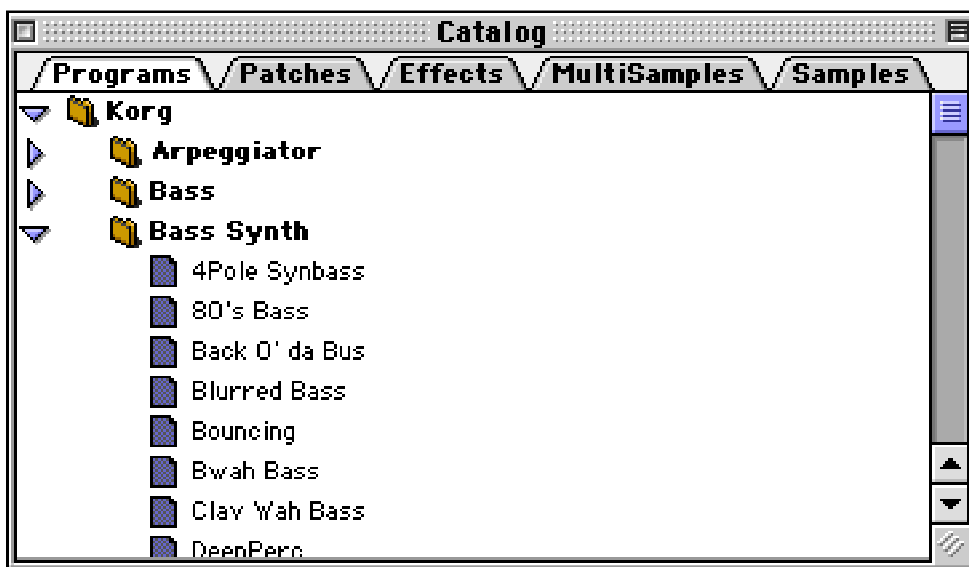
## Adjusting the size of the panels

You can adjust the size of each panel by dragging on the separator bars between the panels.

## Outline view

In the Outline view, there are five tabs, for Programs, Patches, Effects, Multisamples, and Samples, and a Finder-style expandable view of files and folders.

*Catalog (Outline view)*



## **Programs, Patches, Effects, Multisamples, and Samples tabs**

The tabs select which file type the Catalog will show.

### **List of files and folders**

The outline view works just like the Finder's "View by Name" option.

Folders appear with a folder icon, with an arrow to the left of the icon. When the arrow is pointing to the right, the folder is closed, and its contents are hidden. When the arrow is pointing down, the folder is open, and its contents are shown.

To open or close a folder, simply click on its arrow.

### **Selecting Files (Browser or Outline view)**

#### **Selecting Programs**

To select a Program, drag a Program file from the Catalog into a Mixer Channel Input slot, or into the Channel Parameters window. Alternately, select the slot and then double-click the name of the Program in the Catalog.

For more information, see "Loading a Program into a Multi," on page 13.

#### **Selecting Patches**

To select a Patch, drag a Patch file from the Catalog into a Patch slot in a Program Edit window. Alternately, select the slot and then double-click the name of the Patch in the Catalog.

For more information, see "Adding a Patch to a Program," on page 19.

#### **Selecting Effects**

To select an Effect, drag an Effect file from the Catalog into an Effects slot in a Mixer, Send Busses, or Output Busses window. Alternately, select the slot and then double-click the name of the Effect in the Catalog.

For more information, see "Adding Effects to Mixer Channels, Send Busses, and Output Busses," on page 23.

#### **Selecting Multisamples**

To select a Multisample, drag an Multisample file from the Catalog into a Multisample slot in a Patch Control Panel. (Only sample-based Patches will have Multisample slots.) Alternately, select the slot and then double-click the name of the Multisample in the Catalog.

#### **Selecting Samples**

To select a Sample, drag an Multisample file from the Catalog into a Multisample Edit window. To create a new Key Range in the Multisample, drag the Sample onto the desired part of the keyboard; to replace the current Sample in a Key Range, drag the Sample into the Sample slot. Alternately, select the slot and then double-click the name of the Sample in the Catalog.

# File Menu

## New

New creates a new Multi, and opens the new Multi's Mixer window.

## New Program

New Program creates a new Program, and opens its Program Edit window. When created in this way, the new Program will not be assigned to a Mixer Channel, so to play it, you need to save it to disk and then load it into the Mixer in the normal way.

## Open...

Open brings up the standard Open File dialog, allowing you to open a Multi file.

## Close

This command closes the window in the foreground.

If a Mixer window is in the foreground, closing the Mixer window will also close the Multi to which the Mixer belongs. If the Multi has been edited, you will be prompted to save the Multi.

## Save Multi

This command saves the current Multi. It will only appear when a Multi window is in the foreground (including the Mixer, Send Busses, and Output Busses windows).

## Save Multi As...

Save Multi As... allows you to save the current Multi using a new name, or to a different location on disk.

It will only appear when a Multi window is in the foreground (including the Mixer, Send Busses, and Output Busses windows).

## Save Program and Effects As...

This command allows you to save the current Program and its Insert Effects to a file on disk. The saved Program includes all Control Panel settings for all Patches and Insert Effects.

The command will only be shown when a Program Edit window is in the foreground.

## Revert Multi

Revert Multi allows you to revert to the saved version of the current Multi.

## Connect/Disconnect

This command controls the connection between the OASYS PCI Editor and the OASYS PCI Engine. It switches between Connect and Disconnect, depending on the current state of the connection.

**Connect** causes the OASYS PCI Editor to hook up to the OASYS PCI Engine. If the OASYS PCI Engine is not already running, it will start up.

**Disconnect** causes the OASYS PCI Editor to un-hook from the OASYS PCI Engine. If the OASYS PCI Editor is the only program using the OASYS PCI Engine, then the Engine will quit, freeing system memory for other applications.

## Play

This command starts the active Multi, if it has previously been stopped.

## Stop

This command stops the active Multi. It can be used as a “Panic” or all-notes-off command.

## Disable Meters/Enable Meters

This command controls all meters in the system, including those in Mixer windows, in control panels, and in the Resource Monitor. It switches between Disable and Enable.

**Disable Meters** causes all meters to go blank. This can be used to free up host CPU processing resources, if things are getting really tight—though this should rarely be necessary.

**Enable Meters** returns all meters to normal functioning.

## Quit

This command quits the OASYS PCI Editor. If there are unsaved Multis, you will be prompted to save them.

# Edit Menu

## Undo

This command undoes the last edit action. When possible, the command will show the action to be undone, such as “Undo Cut.”

## Cut

The cut command deletes the selected Program, Patch, Effect, or numeric value, and places it on the clipboard.

## Copy

This command copies the selected Program, Patch, Effect, or numeric value, and places it on the clipboard.

To copy a Program, Patch, or Effect to another slot, you can also use drag-and-drop. Just select the item and drag it onto the new slot.

## Paste

This command pastes the contents of the clipboard into the current selection. Note that you can only paste data which matches the selection; for instance, a Program can only be pasted into a Program slot.

## Clear

The clear command deletes the selected Program, Patch, Effect, or numeric value. To clear a Program, Patch, or Effect, you can also just select the item and press the Delete key.

## Select All

This selects all items.

## Preferences...

This brings up the Preferences window, as described on page 109.

## Audio Settings...

This brings up the Audio Settings window, which duplicates the ASIO control panel, as described on page 117.

# Windows Menu

## Catalog

This opens the Catalog palette, as described on page 102.

## Modulation Palette

This opens the Modulation Palette window, as described on page 91.

## Resource Monitor

This opens the Resource Monitor window, as described on page 99. If the window is already open, it is brought to the foreground.

## Mixer

This brings the Mixer window, as described on page 60, to the foreground.

## Send Busses

This opens the Send Busses window, as described on page 68. If the window is already open, it is brought to the foreground.

On Windows computers, you can also use the command ALT-W-S.

## Output Busses

This opens the Output Busses window, as described on page 72. If the window is already open, it is brought to the foreground.

On Windows computers, you can also use the command ALT-W-O.

## Channel Parameters

This opens the Channel Parameters window, as described on page 77. If the window is already open, it is brought to the foreground.

On Windows computers, you can also use the command ALT-W-P.

## List of Open Windows

A list of all open windows is shown at the bottom of the menu.



# Preferences

The Preferences window can be opened by selecting “Preferences...” from the Edit menu (as described on page 107).

When you make a change in the Preferences window, it does not take effect immediately. After you have set the preferences as desired, press the window’s “Save” button to apply the changes.

There is no need to close the Preferences window; if you wish, you can leave it open all the time.

## General tab

The General tab contains parameters for controlling what the OASYS PCI Editor does at start-up, the appearances of the Catalog and Resource Monitor windows, the location of the OASYS PCI folder, the way that Multis are downloaded to the DSPs, and the Host Processing rates. All of these parameters are described in detail below.

### On Start Up

**Don’t Open or Create a Multi.** When the OASYS PCI Editor starts up, no Multi will be opened; you will need to create a new one or open one manually.

**Create New Multi.** This automatically creates a new Multi when the OASYS PCI Editor is opened.

**Open a Multi.** When the OASYS PCI Editor starts up, an Open dialog will appear, allowing you to select a Multi to open.

### Connect to Engine

**On, Off.** This automatically connects the OASYS PCI Editor to the OASYS PCI Engine. The two must be connected in order to play and process sounds in the OASYS PCI Editor. The default is On.

### Catalog Window

#### Style (MacOS)

**Outline.** This shows the files in the style of the MacOS Finder window. Folders are shown with arrows to the left of their name; click on the arrows to open and close the folders.

**Browser.** This shows the files in a three-panel file browser, so that you can easily navigate through sub-folders.

#### Open on Start Up

**Always.** With this setting, the Catalog will always appear when the OASYS PCI Editor is opened.

**Never.** With this setting, the Catalog will not be opened at startup.

**Remember.** With this setting, the Catalog will be opened at startup if it was open the last time the OASYS PCI Editor was closed.

## Host Processing

Synthesis and Effects algorithms predominantly use the onboard DSPs, but also sometimes use the main CPU, the “host,” for some non-audio functions, such as non-audio-rate LFOs. The algorithms prioritize different host functions, so that they are updated at one of four rates, and therefore use only the necessary amount of CPU processing power. These four parameters set those update rates.

To change the amount of CPU processing power used, you can adjust these rates. Doing so may affect the sounds of some algorithms, however.

**Host Rate 1.** This is the update rate, in milliseconds, for Host Rate 1. The default value is 4. This is generally used for non-audio-rate LFOs.

**Host Rate 2.** This is the update rate, in milliseconds, for Host Rate 2. The default value is 8.

**Host Rate 3.** This is the update rate, in milliseconds, for Host Rate 3. This also sets the update rate for all audio meters. The default value is 30.

**Host Rate 4.** This is the update rate, in milliseconds, for Host Rate 4. The default value is 100.

## OASYS PCI Folder Location

This parameter tells the OASYS PCI Editor the location of the OASYS PCI folder, which contains all of the Programs, Patches, Effects, and Scales for the OASYS PCI. Pressing the Choose button brings up a standard file dialog, allowing you to select the location of the folder.

If you need to move the OASYS PCI folder, or if the OASYS PCI Editor cannot find the folder, use the Choose button to select the correct folder.

## Resource Monitor

This controls whether the Resource Monitor window (described on page 99) shows a summary or a detailed report.

**Summary.** With this setting, the Resource Monitor will show a concise summary of system resource usage. This is the default setting.

**Detailed.** With this setting, the Resource Monitor will show a detailed report of system resource usage.

## Multi Defaults

### Master Output Bus

This sets the default Master Output Bus for new Multis. You can select any of the six Output Busses: Analog L-R, S/PDIF L-R, ADAT 1-2, ADAT 3-4, ADAT 5-6, or ADAT 7-8.

### **Reset Master Output Bus When Opening Multis**

**On/Off.** When this is enabled, a newly opened Multi's Master Output Bus will be changed to the default, as set above, regardless of the setting saved in the Multi. Use this feature if you always want to audition sounds through a specific Output Bus.

**NOTE:** If a Multi uses multiple Output Buses, changing the Master Output Bus may sometimes require the Programs and Effects to be re-arranged within the DSPs. This may either increase or decrease the effective amount of DSP processing power available.

In extreme cases, if the Multi was already using up almost all of the available DSP processing power, it is possible that changing the Master bus may put things over the edge, making the Multi too big to be played. If this happens, disable the "Reset Master Output Bus" option, or take one of the other measures described under "Managing Resources" on page 53.

### **FX Auto-Load**

**On/Off.** This sets the default for the Mixer Channel's FX Auto-Load parameter.

## **Miscellaneous**

### **Voice Scaling**

**0 to -30dB.** This parameter sets the amount of gain scaling for Program voices, to provide headroom in the mixer. -12dB is the default, and in most cases should provide reasonably high output level without clipping. At the minimum voice scaling of 0dB, voices will not be scaled at all, and two or more voices sent to the same channel or output bus may cause clipping.

Increasing the headroom (by dragging the slider towards -30dB) will further reduce the possibility of clipping, but will also lower the output level for all Programs.

Decreasing the headroom (by dragging the slider towards 0dB) will raise the output level for all Programs, but will also increase the possibility of clipping.

### **Control Panel Knob Throw**

This sets the mouse dragging distance, in pixels, required to move a knob all the way from its minimum to its maximum.

## **MIDI/Global tab**

This page contains basic setup parameters for the OASYS PCI.

### **MIDI Settings**

These settings control the MIDI functions of the OASYS PCI.

#### **MIDI System (MacOS)**

This parameter selects the system by which the OASYS PCI will send and receive MIDI. The parameter appears only on MacOS systems; on Windows, OASYS PCI always uses standard Windows MIDI.

The OASYS PCI can appear as a MIDI device to OMS- and FreeMIDI-compatible programs, or can be used directly via the Macintosh serial ports.

**OMS.** The OASYS PCI will use the Open Music System. Select this option for use with Vision, Studio Vision Pro, Logic Audio, Cubase VST, Cakewalk Metro, and other OMS-compatible applications.

**FreeMIDI.** The OASYS PCI will use FreeMIDI. Select this option for use with Performer, Digital Performer, and other FreeMIDI-compatible applications.

**Serial.** The OASYS PCI will connect directly to one of the Macintosh serial ports. Use the MIDI Port parameter, below, to select either the Modem port or the Printer port, and use the Port Speed parameter to set the speed of the MIDI interface.

#### **Editor Responds to OMS/FreeMIDI Controllers (MacOS)**

**On/Off.** This parameter only applies when the MIDI System parameter, above, is set to either OMS or FreeMIDI. It is similar in function to the “Local On/Off” setting on many synthesizers.

If the box is checked, the OASYS PCI Editor will directly respond to MIDI controllers (keyboards, MIDI guitars, wind controllers etc.). If an OMS or FreeMIDI program is patching through MIDI input from the controller as well, this will cause the OASYS PCI to play two notes for every one that you play—one received directly, and the other received from the sequencer. This can cause various strange results, including phasing, hung notes, and notes cutting off prematurely.

If the box is not checked, the OASYS PCI Editor will not directly respond to OMS or FreeMIDI controllers. Instead, it will only receive MIDI data patched through from the sequencer or other MIDI program.

#### **Editor Responds to MIDI from MIDI Input Device (Windows)**

**On/Off.** This is similar in function to the “Local On/Off” setting on many synthesizers.

If the box is checked, the OASYS PCI Editor will directly respond to MIDI controllers (keyboards, MIDI guitars, wind controllers etc.). If a MIDI program is patching through MIDI input from the controller as well, this will cause the OASYS PCI to play two notes for every one that you play—one received directly, and the other received from the sequencer. This can cause various strange results, including phasing, hung notes, and notes cutting off prematurely.

If the box is not checked, the OASYS PCI Editor will not directly respond to MIDI controllers. Instead, it will only receive MIDI data patched through from the sequencer or other MIDI program.

#### **Serial Ports (MacOS)**

This parameter only applies when the MIDI System parameter, above, is set to Serial.

**Modem.** The OASYS PCI will send and receive MIDI from the Modem port.

**Printer.** The OASYS PCI will send and receive MIDI from the Printer port.

### **Interface Speed (MacOS)**

This parameter only applies when the MIDI System parameter, above, is set to Serial.

**1x.** This is the normal MIDI interface speed.

**Fast.** Use this setting with multi-port interfaces (MIDI TimePiece, Studio 4/5/128, etc.) set to “fast” mode.

### **Global pitch bend range**

**Half Step, Whole Step, Min. 3rd, Maj. 3rd, Perfect 4th, Dim. 5th, Perfect 5th, Min. 6th, Maj. 6th, Min. 7th, Maj. 7th, Octave.** This range is used for all Patches in which the Pitch Bend range is set to Global.

### **Tempo Delay Threshold**

This controls the hysteresis for MIDI tempo delays. To compensate for uneven MIDI clock messages (which are quite common), the OASYS PCI suppresses small tempo changes for controlling delay times. Once a tempo is established, OASYS PCI will not change the delay tempo until it receives a certain number of clocks at a new tempo. This parameter sets the number of consecutive MIDI clock commands which must be received before changing the tempo.

### **Send MIDI Parameter Change Messages**

**On/Off.** When this parameter is enabled, editing any parameter in the Effect and Patch Control Panels will send out a corresponding System Exclusive Parameter Change message.

You can automate parameter changes by recording these messages into a MIDI sequencer, and then playing them back into the OASYS PCI. To receive the messages, the Receive MIDI Parameter Change Messages parameter, described below, must also be enabled.

For more information, please see “MIDI System Exclusive Format” on page 133.

### **Receive MIDI Parameter Change Messages**

**On/Off.** When this parameter is enabled, System Exclusive Parameter Change messages can be used to control all Patch and Effect Control Panel parameters. For more information, see “Send MIDI Parameter Change Messages,” above.

### **Update Control Panel From MIDI**

This only applies when Receive MIDI Parameter Change Messages, described above, is enabled.

**On.** When MIDI Parameter Changes Update Control Panel is enabled, incoming System Exclusive Parameter Change messages will move the knobs, sliders, etc. on the Control Panel, as well as updating the parameter values.

**Off.** When MIDI Parameter Changes Update Control Panel is disabled, incoming System Exclusive Parameter Change messages will update parameter values, but will not move the knobs, sliders, etc. on the Control Panel.

### **Update Mixer Windows From MIDI**

**On.** Incoming MIDI controller messages will move the knobs, sliders, and buttons on the Mixer, as well as updating the parameter values.

**Off.** Incoming MIDI controller messages will affect the mixer settings, but these changes will not be shown on the knobs, sliders, and buttons.

## **Assignable Controllers A-H**

### **Controller A-H.**

These are the 8 assignable MIDI controllers, which are available in all Modulation Source menus. Each can be assigned to any MIDI continuous controller.

Commonly used controllers are available in the menu. You can also enter any controller between 1 and 97 simply by typing its number in the value box.

### **Bipolar**

The bipolar feature allows you to use MIDI controllers to modulate up and down around a center point. It can be enabled separately for each of the assignable controllers.

**On.** When Bipolar is turned on for a given controller, MIDI values from 0-63 will produce negative modulation, a value of 64 will produce no modulation, and values from 65-127 will produce positive modulation. Negative “mod amount” settings will invert the effect. Use this for controllers with a default center position, such as ribbons or X-Y pads.

**Off.** MIDI values from 0-127 will produce positive modulation. Negative “mod amount” settings can be used to create negative modulation. This is the default for most controllers.

## **Global Settings**

### **Sample rate**

This parameter has two functions. First, it sets the clock rate when the Clock Source parameter, described above, is set to Internal. Second, it sets the sample rate information embedded in the S/PDIF output data, which in turn sets the sample rate of any connected S/PDIF devices.

When transferring audio from the ADAT inputs to S/PDIF output, it is important to set this parameter so that it matches the sample rate of the ADAT. Since original ADATs used their pitch controls to choose between 48kHz and 44.1kHz, the OASYS PCI cannot be sure of the sample rate of ADAT input. Setting the Sample Rate parameter lets the S/PDIF device know what rate to expect. If this parameter is set incorrectly, the connected S/PDIF device may not function properly.

**VERY IMPORTANT:** The sample rate affects the processing power available to the OASYS PCI. You'll get about 8% more processing power for synthesizers and/or effects at 44.1kHz than at 48kHz.

**44.1 kHz.** The internal sample rate will be set to 44.1kHz. Also, the S/PDIF sample rate information will be set to 44.1kHz.

**48 kHz.** The internal sample rate will be set to 48kHz. Also, the S/PDIF sample rate information will be set to 48kHz.

### **Clock source**

When connecting multiple digital audio devices—such as the OASYS PCI, an ADAT system, and a S/PDIF device—it is important that the word clocks of the devices be locked together. If the clocks are not locked, the audio may be marred by pops and clicks. The OASYS PCI can lock to incoming clocks from any of its digital inputs, or it can generate its own clock. For more information, see “A few words on word clock,” at the end of the System Configurations section of the Installation Guide.

You may need to select different clock sources from time to time, depending on what you are currently doing with the OASYS PCI; see the “System Configurations” section of the Installation Guide for details.

**ADAT.** The ADAT optical input will provide the master word clock.

**S/PDIF.** The S/PDIF input will provide the master word clock.

**Word Clock.** The BNC word clock input will provide the master word clock.

**Internal.** The OASYS PCI's internal clock will be the master. With this setting, the Sample Rate parameter, described above, controls the clock.

### **Master Fine Tune**

**+/- 100 cents.** This allows you to make small adjustments to the global pitch of the OASYS PCI, in cents. A cent is 1/100 of a semitone.

## **Sample Tab**

This page contains sample-related preferences.

### **Default Multisample File**

This parameter selects the Multisample which will appear in a new, blank PCM Patch.

#### **Choose... button**

To select any Multisample file on disk, press the Choose button; a standard file dialog will appear, allowing you to select the file to use.

#### **Set to (none) button**

If you would prefer not to load any Multisample when opening a new, blank PCM Patch, press this button. The Default Multisample will be set to (none).

## Sample Editor

On the Multisample Edit page, there is a button named Open Sample In Editor. When this button is pressed, the current Sample will be opened in a sample editing program, such as Spark, Peak, Wavelab, etc. This preference selects which program to use.

### Choose... button

To select the sample editing program, press the Choose button. A standard file dialog will appear, from which you can select the desired program.

## Factory Settings

Pressing this button restores the factory default preferences. After recalling the factory defaults, you will still need to press the Save button in order for them to take affect.

## Revert

Pressing this button reverts all preferences to the last saved settings.

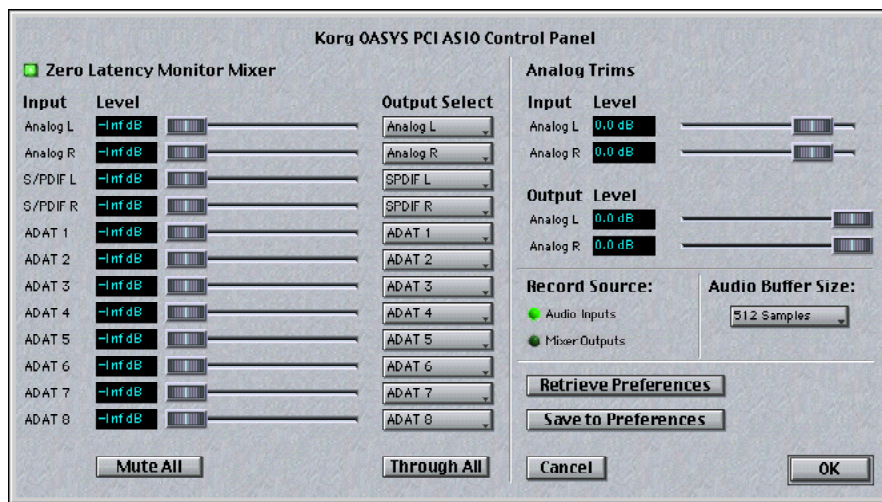
## Save

Pressing this button applies any changes that you have made, and saves them to the OASYS PCI Editor Preferences file.



# ASIO Control Panel/ Audio Settings

*MacOS control panel*

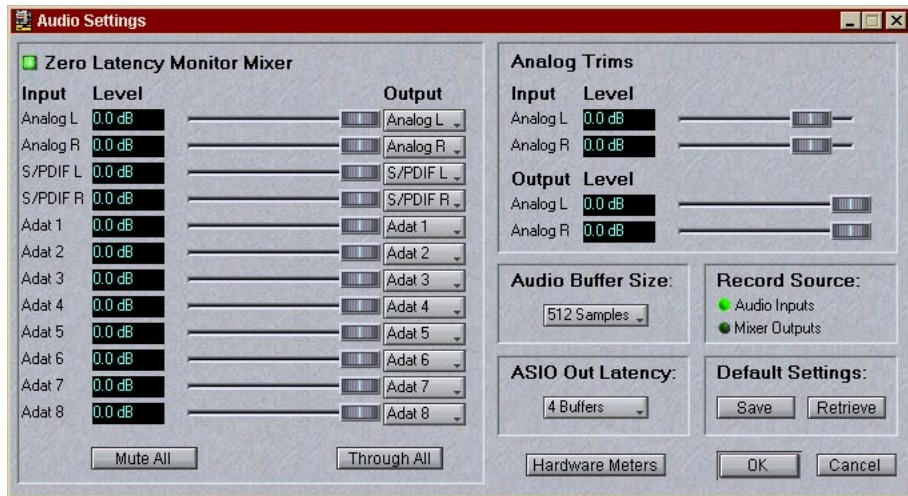


**NOTE:** To view the window at full resolution, zoom in to 200%.

This window can be accessed via the OASYS PCI Editor's Edit menu Audio Settings... command, via the Windows Wave Device Settings window's Audio Settings... button, or via ASIO-compatible software.

On MacOS systems, it will be named Audio Settings when reached from the Audio Settings command, and ASIO Control Panel when reached from an ASIO program. On Windows, it will always be named Audio Settings.

To open the ASIO Control Panel from within an ASIO program, you will generally press a button in the window used to configure the program's audio hardware. The location and name of this configuration window will vary depending on the program being used; please consult your program's manual for details.

*Windows 95/98/ME control panel*

**NOTE:** To view the window at full resolution, zoom in to 200%.

## General

### ASIO

ASIO stands for “Audio Stream Input/Output,” and is a method for communicating audio between software and I/O hardware. The OASYS PCI offers multichannel audio support for all ASIO-compatible digital audio software, including Cakewalk Metro, Cool Edit Pro, Cubase VST, Digital Performer, Logic Audio, Vision DSP and Studio Vision Pro, and more.

Before using the OASYS PCI with ASIO software, the OASYS PCI ASIO driver must be installed, and the OASYS PCI must be selected as the software’s ASIO device. For more information, please see the “Configuring ASIO Software” section in the Installation Guide, and the manual for your digital audio software.

### Windows audio programs

Before using the OASYS PCI with Windows audio programs, various settings should be made in Windows. For more information, please see the “Configuring MME (Windows)” section in the Installation Guide, and the manual for your digital audio software.

### Zero-Latency Monitor Mixer

The OASYS PCI includes a built-in, zero-latency monitor mixer, so that you can listen to inputs during recording without any audio delay. You can adjust the volume level for each input, and route each input to any output.

These output routing and volume settings affect only the monitor mixer; they do not have any affect on audio recorded into or played back from the digital audio program.

Programs which support ASIO 2.0 can automatically control the monitor mixer's levels and output routings, matching the volume and output settings of record-enabled tracks.

Note that you can also use the main mixer to set up effects for monitoring, such as reverb on a vocal. For more information, see "Record monitoring with effects," on page 47.

### **On/Off Button**

This allows you to turn the entire monitor mixer on and off.

### **Volume**

**-Inf, -139dB to 0dB.** This sets the monitor volume for the selected input. At the maximum value of 0dB, the volume of the input signal will be unchanged. At lower values, the volume will be reduced. At the minimum value of -Inf dB (infinite gain reduction), the input signal will be completely muted.

### **Output**

**Analog L & R, ADAT 1-8, S/PDIF L & R.** This selects the output channel to which the input will be routed. Any of the twelve inputs—Analog left and right, S/PDIF left and right, and ADAT 1 through 8—may be routed to any of the twelve outputs.

Multiple inputs may be sent to the same output. This section is not designed as a full-fledged mixer, however, and so there is an important limitation: no additional headroom is provided when mixing multiple inputs to a single output. To avoid clipping, you'll need to reduce the volumes of the input channels.

## **Analog Trims**

You can use the analog input and output trims to adjust for variations in analog signal levels. Note that these apply only to the analog I/O, and do not affect the ADAT or S/PDIF levels.

Unlike the volume controls in the monitor mixer, the analog trims affect all analog signals to and from the OASYS PCI, including recording and playback to and from digital audio software.

### **Input Level**

**-72dB to +18dB.** This allows you to control the input sensitivity of the analog inputs, prior to the A/D conversion. At the default value of 0dB, the volume of the input signal will be unchanged. At higher values, the volume will be increased; at lower values, the volume will be reduced.

In general, it's best to leave the Input Level set to 0dB, and attenuate only when necessary to avoid digital clipping. If you're using an external mixer, you may find it more convenient to reduce the output level of the mixer.

### Output Level

**MUTE, -72.1 dB to 0dB.** This controls the gain of the analog outputs. At the default value of 0dB, the volume will be unchanged. At lower values, the volume will be reduced.

## Record Source

The OASYS PCI allows you to record from either the audio inputs, or the output of the OASYS PCI mixer.

### Audio Inputs

When this option is selected, the digital audio program will record from the audio inputs of the OASYS PCI. This allows you to record audio from any external source connected to the analog, S/PDIF, or ADAT inputs.

### Mixer Outputs

When this option is selected, the digital audio program will record from the *outputs* of the OASYS PCI mixer. This allows you to record OASYS PCI synthesizers, and audio processed through OASYS PCI effects, without making any external audio connections.

The mixer outputs are routed to the corresponding inputs in the digital audio program, so that mixer output ADAT 3-4 is heard at input ADAT 3-4, and so on.

You can even simultaneously record audio inputs along with processed audio and synthesizers, simply by assigning OASYS PCI mixer channels to the desired audio inputs.

## Audio Buffer Size

**64, 128, 256, and 512 samples.** This sets the size of the buffers used when sending audio data between the OASYS PCI and digital audio programs.

Smaller settings allow you to decrease CPU input-to-output latency, at the expense of slightly higher CPU loading.

Larger settings allow you to maximize CPU efficiency, at the expense of higher CPU input-to-output latency.

Depending on the speed of the CPU, the amount of CPU-based plug-ins you are running, the speed of the audio disk, and other factors, some computers may require higher Audio Buffer Size settings than others. Settings which are too small may cause clicks or other audio artifacts. You may need to experiment to find the best setting for your system.

After changing this setting, you'll need to reboot before using the OASYS PCI.

**NOTE:** The Audio Buffer Size affects only the CPU input-to-output latency—the amount of time that it takes to route audio from the OASYS PCI inputs, through a CPU-based digital audio program (and that program's CPU-based real-time effects), back to the OASYS PCI outputs.

DSP input-to-output latency—the amount of time that it takes to trigger notes when playing OASYS PCI synths, or to route live audio inputs through OASYS PCI effects—is unaffected by the Audio Buffer Size.

### **Do you need to minimize latency?**

There are two situations in which minimum CPU latency is desirable:

- Playing CPU-based synths, such as VST instruments, from a MIDI controller
- Using CPU-based effects, such as VST or DirectX, to process realtime audio inputs (such as playing a guitar through VST effects)

If you are doing either of these two things, then you may wish to adjust the Audio Buffer Size and ASIO Out Latency (Windows only) parameters to the lowest settings which work with your computer system.

If you are not doing either of these two things, then you should leave the Audio Buffer Size and ASIO Out Latency (Windows only) parameters set to their default, maximum values.

## **ASIO Out Latency (Windows)**

**2, 3, and 4 buffers.** This sets the number of audio buffers (see “Audio Buffer Size,” above) used for ASIO output. This affects ASIO output only; it does not affect ASIO input, or MME input and output. 4 buffers is the default setting.

The total output latency is equal to the buffer size multiplied by the number of buffers. For instance, with an Audio Buffer Size of 128 samples and ASIO Out Latency set to 2 buffers, the total ASIO output latency is 256 samples, or about 5 milliseconds at 48 kHz.

Depending on the speed of the CPU, the amount of host-based plug-ins you are running, the speed of the audio disk, and other factors, some computers may require higher settings than others. Settings which are too small may cause clicks or other audio artifacts. You may need to experiment to find the best setting for your system.

After changing this setting, you'll need to reboot before the new settings take effect.

## **Mute All**

Pressing this button mutes all the inputs, so that all inputs receive only the purest, cleanest, most eminently silent digital black. Pressing the button again restores the previous settings of the window.

## **Through All**

Pressing this button sends all inputs to their corresponding outputs, so that ADAT 1 in goes to ADAT 1 out, ADAT 2 in to ADAT 2 out, and so on. All volumes are set to full, and all phases are set to normal. Pressing the button again restores the previous settings of the window.

## **Retrieve Preferences**

Pressing this button re-loads the saved settings for the window.

## **Save to Preferences**

Pressing this button saves the current settings to the OASYS PCI Driver Preferences file. The saved settings will be automatically loaded on startup.

# Wave Device Settings (Windows)



**NOTE:** To view the window at full resolution, zoom in to 200%.

## General

Through the OASYS PCI's standard wave device driver, the card can be used by any standard Windows digital audio program. The OASYS PCI appears as six full-duplex stereo cards, one for each input/output pair, as well as four stereo output-only devices for the eight Streams.

Programs which support multichannel I/O have simultaneous access to all 12 inputs and 20 outputs, up to the limits of the program itself.

The OASYS PCI Wave Device Settings program controls the card's sample rate, word clock source, and play/record synchronization. Optionally, it also lets you set volume and balance for each output device. From this program, you can also call up the Audio Settings, Hardware Meters, and Diagnostics windows.

**NOTE:** This window only affects audio I/O with standard Windows audio drivers. It does not affect use with ASIO programs. Additionally, the volume and balance controls apply only to audio program outputs; they do not control the output levels of OASYS PCI synths and effects.

## Clock

### Clock source

When connecting multiple digital audio devices—such as the OASYS PCI, an ADAT system, and a S/PDIF device—it is important that the word clocks of the devices be locked together. If the clocks are not locked, the audio may be marred by pops and clicks. The OASYS PCI can lock to incoming clocks from any of its digital inputs, or it can generate its own clock internally. For more information, see “A few words on word clock,” at the end of the System Configurations section of the Installation Guide.

You may need to select different clock sources from time to time, depending on what you are currently doing with the OASYS PCI; see the “System Configurations” section of the Installation Guide for details.

**ADAT.** The ADAT optical input will provide the master word clock.

**S/PDIF.** The S/PDIF input will provide the master word clock.

**Word Clock.** The BNC word clock input will provide the master word clock.

**Internal Clock.** The OASYS PCI’s internal clock will be the master. With this setting, the Sample Rate parameter, described above, controls the clock.

### Sample rate

This parameter has two functions. First, it sets the clock rate when the Clock Source parameter, described above, is set to Internal. Second, it sets the sample rate information embedded in the S/PDIF output data, which in turn sets the sample rate of any connected S/PDIF devices.

When transferring audio from the ADAT inputs to S/PDIF output, it is important to set this parameter so that it matches the sample rate of the ADAT. Since original ADATs used their pitch controls to choose between 48kHz and 44.1kHz, the OASYS PCI cannot be sure of the sample rate of ADAT input. Setting the Sample Rate parameter lets the S/PDIF device know what rate to expect. If this parameter is set incorrectly, the connected S/PDIF device may not function properly.

**VERY IMPORTANT:** The sample rate affects the processing power available to the OASYS PCI. You’ll get about 8% more processing power for synthesizers and/or effects at 44.1kHz than at 48kHz.

**44.1 kHz.** The internal sample rate will be set to 44.1kHz. Also, the S/PDIF sample rate information will be set to 44.1kHz.

**48 kHz.** The internal sample rate will be set to 48kHz. Also, the S/PDIF sample rate information will be set to 48kHz.

## Synchronization

Through the standard Windows driver, each of the OASYS PCI’s stereo input and output pairs appears to the system as an independent wave device. The digital



audio program must start recording or playback on each of them, one at a time. If left uncorrected, this would cause small offsets between the stereo pairs.

The Synchronization settings solve this by creating a group of synchronized input and output pairs. The OASYS PCI will not start either recording or playback until all of the devices in the group have received the start command from the digital audio program.

### **Auto Sync**

When Auto Sync is enabled, synchronization happens automatically. Whenever you select or de-select a OASYS PCI input or output pair in your digital audio program, Auto Sync will add or delete the pair from the synchronization group.

This should work well for most applications; however, you can also disable Auto Sync, and make settings manually using the Custom Synchronization window (under the Custom button).

### **Custom...**

Pressing this button brings up the Custom Synchronization window, which allows you to manually control the OASYS PCI's wave device synchronization. For more information, see "Custom Synchronization," on page 128.

When Auto Sync is checked, the Custom button is disabled, and any settings previously made in the Custom Synchronization window will be ignored.

## **Volume/Balance Control**

Each stereo I/O pair has a Control Enable button, which allows you to enable and disable volume and balance control for that stereo pair. These buttons allow you to enable or disable all of these buttons at once.

For more info on the Control Enable buttons, see "Control Enable" on page 126, below.

Unless you have a specific need for volume and balance control in this window, we recommend that you disable all Control Enable buttons. This will save CPU processing power; for more information, see "When to use volume/balance control" on page 126.

### **Enable All**

Pressing this button turns on all of the Control Enable buttons at once.

### **Disable All**

Pressing this button turns off all of the Control Enable buttons at once.

## **Volume slider**

Each stereo output pair has a volume slider, which controls the overall output level for the wave device. To adjust the left and right channels independently, use the balance slider in conjunction with the volume slider.

Moving the slider to the top of its range provides the maximum output level; moving it to the bottom of its range will mute the output.

The volume control is only active when the device's Control Enable button is on. If your digital audio application provides its own volume controls, then the volume control provided here may be unnecessary, and you can save some CPU processing power by disabling it. For more information, please see "Control Enable" on page 126.

Please note that wave device volume and balance adjustment apply only to output (playback). You can adjust the input sensitivity of the analog inputs using the OASYS PCI Audio Settings control panel; for adjusting audio input level from ADAT or S/PDIF sources, we recommend that you use an external mixer.

Also, note that the volume and balance controls apply only to audio program outputs; they do not control the output levels of OASYS PCI synths and effects.

## Balance knob

Each stereo output pair has a balance knob, which controls the relative output levels of the left and right channels.

The balance control is active only when the device's Vol/Bal On box is checked. For more information, please see "Control Enable," below.

## Control Enable

**NOTE:** This parameter only affects the volume and balance controls in the Wave Device Settings window. It has no affect on volume, balance, or pan controls in audio/MIDI software.

The Control Enable buttons allow you to enable or disable volume/balance control for each wave device, as desired. To enable volume/balance control for a particular device, turn on the Control Enable button below the device's volume slider; to disable volume/balance control, turn the button off.

You can turn all of the buttons on or off at once by using the Enable All and Disable All buttons at the left side of the window.

Volume and balance controls consume CPU resources, and so we recommend that volume/balance control remain disabled except when needed. For more information, see below.

### When to use volume/balance control

The volume and balance controls are provided for use when playing back system sounds, or for use with simple wave applications without a volume control (such as the Windows Media Player). In these cases, the volume and balance controls will be helpful.

However, they do consume some of the real-time resources of the CPU. When volume/balance control is enabled for a wave device, every sample passed to the device gets scaled by the current volume and balance settings.

If you are using the OASYS PCI with an application that already provides volume control, or if you have an external means of adjusting the playback volume, then you can get better performance from your PC by disabling the wave device volume/balance controls.

## Device Status

Each stereo pair includes status lights, showing you whether they are currently playing, recording, or both (note that the Streams are outputs only, so they do not have record status lights).

## Audio Settings...

Pressing this button brings up the Audio Settings window, as described on page 117. This window includes controls for the monitor mixer, analog input trims, a toggle to switch between recording from inputs and recording from the OASYS PCI mixer outputs, and more.

## Hardware Meters...

Pressing this button brings up the Hardware Meters window, as described on page 130. This window includes meters showing the audio levels at the physical outputs, including signals from both the audio DMAs (the outputs of audio programs) and the OASYS PCI mixer.

## Diagnostics...

Pressing this button brings up the Diagnostics window. This window contains low-level information about the OASYS PCI software and hardware, and is intended for use by repair centers and technical support personnel.

## Save As Defaults

Pressing the Save As Defaults button saves the current settings into the Windows System Registry. Once saved to the registry, these become the default settings, and will be loaded whenever the system boots.

## Retrieve Defaults

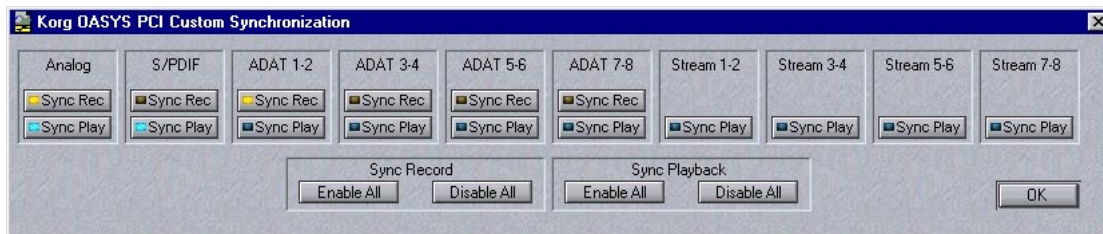
Pressing the Retrieve Settings button restores the default settings from the Windows System Registry. The default settings are stored by the Save As Defaults button, described above.

## Help

Pressing the Help button brings up the Microsoft Windows Help file for the OASYS PCI, with lots of helpful, hypertext-linked information.

**OK**

Pressing the OK button saves all changes, and quits the Korg OASYS PCI Wave Device Settings program.

**Custom Synchronization**

**NOTE:** To view the window at full resolution, zoom in to 200%.

As discussed under “Synchronization,” on page 124, each of the OASYS PCI’s stereo pairs of inputs and outputs appear as an independent wave device. When the Auto Sync button is turned on, all of the wave devices will be grouped together so that they operate as a single, synchronized multichannel I/O device.

Auto Sync is an easy-to-use, fool-proof mode optimized for working with multichannel audio programs. However, you can also use multiple audio programs at once, each connected to different sets of stereo I/O pairs. In this case, you should use the Custom Synchronization settings instead.

The Custom Synchronization settings allow you to manually create one group of stereo pairs which start to play back and/or record at the same time (for use with a multichannel audio program), while all of the other inputs and outputs operate independently.

Note that if you use multiple “independent” wave devices with a single multichannel audio program, you may sometimes notice delays between the different stereo pairs.

**NOTE:** When Auto Sync is enabled in the Wave Device Settings window, any settings in the Custom Synchronization window will be ignored.

**Sync Rec**

Each of the input pairs has its own Sync Rec button. If one or more of these is turned on, the OASYS PCI will not start recording or playback until all of the devices set to Sync Rec have received the “start record” command from the digital audio program.

When recording from multiple input pairs simultaneously, make sure that each active input’s Sync Rec button is turned on, and that all of the inactive inputs’ Sync Rec buttons are turned off.

When you are not recording, make sure that none of the Sync Rec buttons are turned on. If any of them are turned on, then playback will not be able to start.

### **Sync Play**

Similarly, each of the output pairs has its own Sync Play button. If one or more of these is turned on, the OASYS PCI will not start playing or recording until all of the devices set to Sync Play have received the “start play” command from the digital audio program.

When playing from multiple output pairs simultaneously, make sure that each active output’s Sync Play button is turned on, and that all of the inactive outputs’ Sync Play buttons are turned off.

When you are not playing back any audio—for instance, if you are recording into a new file—make sure that none of the Sync Play buttons are turned on. If one or more of them are turned on, but no audio is actually being played back, then recording will not be able to start.

### **What happens to un-synced input or output pairs?**

When one or more stereo pairs are set to Sync Rec or Sync Play, the other stereo pairs cannot play or record until all of the synced pairs have been started.

For instance, let’s assume that there are two audio programs running at the same time. Program A is using ADAT 1-2 and S/PDIF, and Program B is using ADAT 5-6. The Sync Rec boxes are checked for ADAT 1-2 and S/PDIF, and are un-checked for all other pairs, including ADAT 5-6.

If you press “record” in Program B, but Program A is idle, the card will not start. As long as Program A’s inputs are set to Sync Rec, you must start recording in Program A before you can record in Program B.

On the other hand, if you turn off the Sync Rec buttons for ADAT 1-2 and S/PDIF, then both programs can record freely, without waiting for one another.

### **Sync Record**

#### **Enable All**

Pressing this button sets all of the “Sync Rec” check-boxes at once.

#### **Disable All**

Pressing this button clears all of the “Sync Rec” check-boxes at once.

### **Sync Playback**

#### **Enable All**

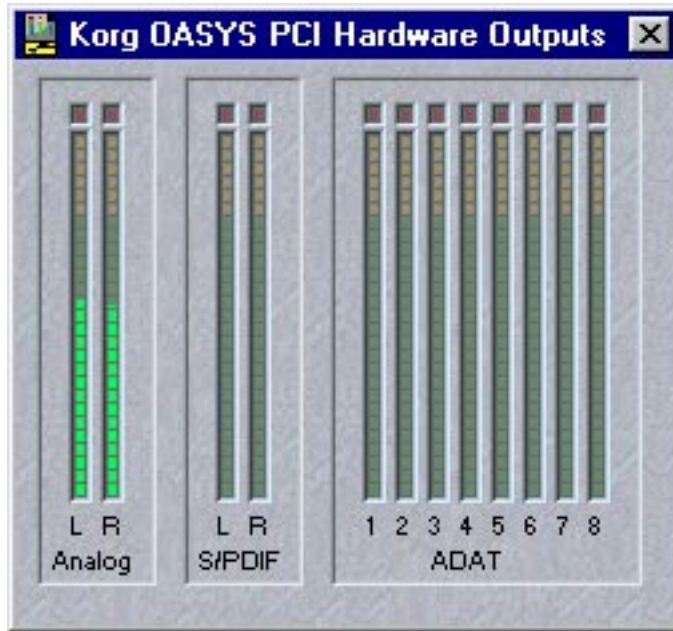
Pressing this button sets all of the “Sync Play” check-boxes at once.

#### **Disable All**

Pressing this button clears all of the “Sync Play” check-boxes at once.

**OK**

Pressing the OK button returns you to the main Korg OASYS PCI Wave Device Settings window.

**Hardware Outputs**

This window shows the levels at the hardware outputs of the OASYS PCI, after the OASYS PCI Output Busses have been summed with the direct outputs from any audio programs.

For a complete signal flow diagram of the OASYS PCI, please see the graphic titled "Overall audio block diagram" on page 67.

# Scales

The OASYS PCI's Scales allow any incoming MIDI note to create any pitch, with a resolution of a single cent (1/100 of a semitone). Using Scales, you can create stretch tunings, historic European tunings, scales with greater or fewer than 12 tones per octave, and more.

Each Patch in a Program may have its own Scale, as assigned on the Program Edit page (see page 80).

Each Scale is stored as an individual file in the "Scales" folder, within the Korg section of the OASYS PCI folder.

## Editing Scales

Scales are text files, and can be edited using any standard text editing program, such as SimpleText. Each file contains a single Scale.

### Syntax

Tuning can be specified separately for each of the 128 MIDI notes. Each note must be on a separate line; blank lines are OK.

Each re-tuned note needs to have at least three entries: the incoming MIDI note, the resulting pitch (a note name), and fine tuning (+/- 100 cents). Entries must be separated by either spaces or tabs. Anything after the fine tuning is ignored, so you can put comments at the ends of the lines.

For instance, below is a valid entry, including a comment, which causes a MIDI note of D2 to be remapped to F3 (E3 plus 100 cents, a full half-step):

```
d2      E3      +100      D2 becomes F3.
```

There doesn't need to be a line for every MIDI input note. If no re-tuning is specified, that note will simply be sent straight through to its normal pitch, A1 to A1, C#3 to C#3, etc. If you want to have an entry for every note, you can also just map input straight to output, as shown below:

```
F4      F4      0      Also could simply not use an "F4" entry.
```

### Symbols

Notes must always include both letter and octave number.

Note letters can be lower or upper-case, so both "d2" and "D2" have the same result.

The # sign is used for sharp. Flat notes should be expressed as sharp notes; for instance, use A# instead of Bb.

### Note and tuning range

The valid range of notes is C-1 to G9.

Cent values for fine tuning must be integers in the range of -100 to +100. For positive values, the + sign is optional.

C-1 cannot be fine-tuned down. G9 can be tuned up, however.



# MIDI System Exclusive Format

All objects on the Control Panel—knobs, sliders, and so on—can send and receive MIDI System Exclusive parameters, for automation with MIDI sequencer programs. For information on enabling System Exclusive send and receive, please see “Using Modulation” on page 30.

## SysEx Messages are tied to Channel and slot

The System Exclusive messages are tied to the particular Mixer Channel/Send Bus/Output Bus and Slot, so that messages from Effect 2 on Channel 3 are separate from those of Effect 4 on Channel 7. If you move a Program, Patch, or Effect to a new slot or Channel, Send Bus, or Output Bus, previously recorded System Exclusive messages will no longer work properly.

Changing the MIDI Channel used by the Mixer Channel, Send Bus, or Output Bus will not affect the System Exclusive messages to and from the Patches and Effects; they will continue to work as they did before. So, for instance, SysEx recorded for mixer channel 1 will always affect mixer channel 1, regardless of its MIDI channel.

## SysEx Format

Due to the plug-in nature of OASYS PCI synths and effects, there is no fixed System Exclusive format. Instead, SysEx is generated separately by each individual plug-in. If you want to control a particular parameter via SysEx, the easiest method is to simply enable System Exclusive send and receive in OASYS PCI, and then just record knob/slider/button movements into your sequencer. This way, you don't need to be concerned at all about the specifics of the SysEx format.

If you do wish to work directly with OASYS PCI SysEx, then read on.

OASYS PCI SysEx data encodes the mixer channel or bus, the Effect or Patch slot, and the Control Panel item ID (each knob, button, menu, etc. has a unique ID). The MIDI channel is ignored, and the handling of the sysex messages relies on the mixer channel or bus number encoded in the message.

Each SysEx message has 13 bytes, as described below:

- 0: 0xf0 (SysEx header)
- 1: 0x42 (Korg manufacturer ID)
- 2: 0x3n (n = MIDI channel MOD 16 - no difference between A and B ports)
- 3: 0x55 (OASYS PCI Model ID)
- 4: 0x42 (Parameter change message ID)
- 5: a (Channel/Bus/Patch ID info)
- 6: b (Mixer Channel or Send/Output Bus number)
- 7: c (Parameter ID LSB)

- 8: d (Parameter ID MSB)
- 9: e (Parameter value byte 0 (LSB)) - bits 0...6 of parameter value
- 10: f (Parameter value byte 1) - bits 7...13 of parameter value
- 11: g (Parameter value byte 2) - bits 14...20 of parameter value
- 12: h (Parameter value byte 3 (MSB)) - bits 21...23 of parameter value
- 13: 0xf7 (EOX end of SysEx message)

### **Determining the Parameter ID and value range for a specific parameter**

To determine the parameter ID and value range for a particular Control Panel knob, fader, button, or menu:

1. **Enable SysEx transmission in OASYS PCI.**
2. **Start recording in your sequencer.**
3. **Move the Control Panel parameter.**

This will generate SysEx data, which will be recorded by the sequencer.

4. **Examine the data recorded into the sequencer.**

### **Maximum SysEx value**

The maximum SysEx value for OASYS PCI is 8388607.

# Index

## A

Analog Trims 119  
AppleTalk, turning off 55  
ASIO  
    ASIO Control Panel 117  
    Monitor Mixer 118  
    Specific ASIO programs - see the HTML FAQ  
    Using ASIO Audio Programs 42  
Audio Buffer Size 120  
Audio Settings 117  
Auto Sync 125  
Automation - see Modulation and System Exclusive

## B

Busses, physical, optimizing usage of 53  
Bypassing Effects 27

## C

Cakewalk - see the HTML FAQ  
Catalog 102  
Channel 60  
Channel Parameters window 77  
Clip indicators 62  
Clock source 115, 124  
Clock source (Wave Device Settings) 124  
Coarse Tune  
    Multi 78  
    Multisample Base Key 95  
    Program 81  
    see also-Fine Tune  
Control Panel window 86  
Controllers  
    Assignable Controllers A-H 114  
    List of Modulation Sources 88  
Cubase VST - see the HTML FAQ  
Custom Synchronization window 128

## D

Delay  
    Tempo Delay threshold 113  
Delay effects and resource usage 56  
Digital Performer - see the HTML FAQ

DSP processing power, managing resources 53

## E

Edit Menu 107  
Effects 9  
    Bypassing Effects 27  
    Control Panel 86  
    Copying Effects 28  
    Editing Effects 27  
    FX Auto-Load 65  
    Insert Effects 64  
    Pre/Post Effects Sends 65  
    Removing an Effect 28  
    Send Busses 68  
    Sharing Insert Effects via Output Busses 25  
    Using Effects 23  
Effects-Only Programs 8  
    Loading 14, 23  
    Saving 28

## F

File and folder organization 50  
File extensions 51  
File Menu 105  
File Sharing 55  
Fine Tune  
    Master tune parameter 115  
    Multi 78  
    Multisample 95  
    Program 81  
    see also-Coarse Tune  
FreeMIDI  
    MIDI System preference 112  
    see also the HTML FAQ  
FX Auto-Load 65  
FX-Only Programs 8

## H

Hardware Outputs window 130  
Headroom-Voice Scaling parameter 111  
High/Low Key and Velocity  
    In Multis 79  
    In Programs 82

## I

- Input Level (Analog) 119
- Input Type parameter 77
- Instant gratification 6

## K

- Keyboard splits and layers
  - In Multis 79
  - In Multisamples 36
  - In Programs 82

## L

- Latency—see Audio Buffer Size 120
- Layers
  - In Multis 79
  - In Programs 82
- Level meters 62
  - Clip indicators 62
  - Enable/Disable 106
- Logic Audio - see the HTML FAQ

## M

- Master Output Bus 75
- MIDI
  - Assignable Controllers A-H 114
  - FreeMIDI 112
    - see also the HTML FAQ
  - List of Modulation Sources 88
  - MIDI Channel 74
  - Mixer modulation routings 33
  - OMS 112
    - see also the HTML FAQ
  - Pitch bend
    - Patch Pitch Bend parameter 81
    - Pitch bend range (global) 113
  - Summary of modulation possibilities 87
  - System Exclusive
    - Automation 31
    - Disabling Control Panel movement 54
    - SysEx Format 133
  - Tempo Delay threshold 113
- Mixer Channel 60
- Modulation
  - Assignable Controllers A-H 114
  - Creating a modulation routing 30
  - List of Modulation Sources 88

- Mixer modulation routings 33
- Modulation Palette 91, 93
- Summary of modulation possibilities 87

Monitor Mixer 118

Mono Legato voice allocation 83

Mono Retrigger voice allocation 84

Multis 8

- Naming Multis 18
- New command 105
- Revert Multi command 105
- Save Multi command 105

Multisamples

- Assigning a Sample to a new Key Range 37
- Changing High, Low, and Base keys 36
- Changing the Sample assigned to a Key Range 38
- Deleting a Key Range 36
- Exclusive Groups 96
- Importing Samples 38
- MIDI editing 37
- Multisample Edit window 93
- Saving Multisamples 41
- Selecting a Key Range 35
- Show Parameter menu 40
- Using external Sample editors 39
- Using the on-screen sliders 40
- Zoom buttons 40

Mute

- Mixer Channel 63
- Output Bus 75
- Send Bus 71

## N

Names

- Editing Multi names 18
- Editing Program names 19

## O

- OASYS PCI Editor 9
- OASYS PCI Engine 9
- OASYS PCI Folder Location preference 110
- OMS
  - MIDI System preference 112
  - see also the HTML FAQ
- Output Bus
  - Auditioning Multis through a specific bus 17

- Default Master Output Bus preference 110
- Master Output Bus 75
- Output Busses window 72
  - To Master function 75
- Output Level (Analog) 119
- Output parameter
  - Monitor Mixer 119

## **P**

- Pan
  - Mixer Channel 63
  - Multisample 96
  - Send Bus 70
- Patches 8
  - Control Panel 86
  - Copying Patches between Programs 20
  - Editing a Patch 20
- Peak meters-see Level meters
- Physical busses, optimizing usage of 53
- Pitch bend
  - Patch Pitch Bend parameter 81
  - Pitch bend range (global) 113
- Poly Physical voice allocation 83
- Poly Retrig voice allocation 83
- Poly Reuse voice allocation 83
- Polyphonic voice allocation 83
- Pre/Post Effects Sends 65
- Programs 8
  - Adding a Patch to a Program 19
  - Creating a new Program 19
  - Creating splits and layers of Patches within a Program 21
  - Editing a Program 19
  - Naming Programs 19
  - New Program command 105
  - Program Edit window 79
  - Saving Programs 22, 40
  - Using Programs 19

## **R**

- Recording
  - OASYS PCI Synths & Effects 45, 120
  - Record Source parameter 120
  - Recording from audio inputs 45
- Resource Monitor
  - Managing resources 53

- Preferences 110

## **S**

- Sample rate 114, 124
  - Effect on processing power 53
  - Wave Device Settings 124
- Samples-See Multisamples
- Scales
  - Editing Scales 131
  - Program Edit window Scale menu 82
- Send Busses
  - Mixer Channel Pre/Post buttons 65
  - Send Busses window 68
- Shortcuts 11
- Solo
  - Mixer Channel 63
  - Output Bus 75
  - Send Bus 71
- Splits
  - In Multis 79
  - In Multisamples 36
  - In Programs 82
- Stereo width - see Width
- Sync source - see Word clock source 115, 124
- System Exclusive
  - Automation 31
  - Disabling Control Panel movement 54
  - SysEx Format 133

## **T**

- Tempo Delay threshold 113
- To Master 75
  - Affect on DSP processing power 54, 75

## **U**

- Unison voice allocation 84
  - Unison Detune 84
- User interface conventions & shortcuts 11

## **V**

- Velocity splits and layers
  - In Multis 79
  - In Programs 82
- Vision - see the HTML FAQ
- Voice Allocation 83
  - Key Priority 84
  - Voices parameter (number of voices) 81

- Affect on DSP processing power 53
- Voice Scaling parameter 111
- Volume
  - Analog Trims 119
  - Mixer Channel 63
  - Monitor Mixer 119
  - Multisample 96
  - Output Bus 74
  - Send Bus 70
- VU meters-see Level meters

## **W**

- Wave Device Settings 123
- Width
  - Mixer Channel 63
  - Send Bus 70
- Windows menu 108
- Word clock source 115, 124