M-Audio FireWire Audiophile - Users Manual

1 Introduction

Thank you for choosing the M-Audio FireWire Audiophile. The FireWire Audiophile has been designed to give you a professional, portable audio and MIDI interface for your laptop or desktop computer. Using the convenience and dependability of the IEEE-1394 (FireWire™) bus, the FireWire Audiophile provides your computer with a high-performance, high-resolution multi-channel interface, as well as sixteen channels of MIDI in and out--all in a rugged, lightweight, and highly portable design.

The FireWire Audiophile was created with the laptop-based DJ or live performer in mind, while still being the perfect audio upgrade for recording and playing back audio in any portable or home studio configuration. Its front-panel headphone output boasts a high efficiency, low distortion amplifier that delivers the power and volume you need on stage, multiple headphone sources with selectable muting of the line outputs for quick cueing, and a dedicated level control to help you stay on top of your mix, no matter what's going on around you.

Even if you're an experienced sound record-ist, please take some time to read through this owner's manual and familiarize yourself with the FireWire Audiophile's features and operation. You may also want to refer to your audio software's documentation to better understand how the FireWire Audiophile's features are integrated with the program. Your experience and enjoyment of your FireWire Audiophile will be greatly enhanced by a good working knowledge of your audio software.

2 What's in the Box

Your FireWire Audiophile package contains the following:

- FireWire Audiophile Mobile Recording Interface
- CD-ROM containing driver software and user manual in PDF form
- Printed Quick Start Guide
- CD-ROM containing Reason Adapted™ software
- CD-ROM containing Delta Live 2.0™ software
- Pro-Sessions Sampler CD-ROM
- 1 meter 6-pin to 6-pin IEEE 1394 (FireWire) cable
- 1 meter 4-pin to 6-pin IEEE 1394 (FireWire) cable
- 12VDC 1A Power Supply
- Warranty Card

3 About the FireWire Audiophile

The FireWire Audiophile functions as a four-input, six-output recording and playback interface. A single IEEE 1394 cable connects the FireWire Audiophile to your computer's FireWire port. If your PC is not equipped with a native FireWire port, you may purchase a FireWire PCI card at any computer electronics retailer (The FireWire Audiophile should only be used with native FireWire ports on Macs).

IMPORTANT: The FireWire Audiophile comes with a high quality six-pin to six-pin FireWire cable. We strongly suggest you use this cable, or one of equal quality, for optimum audio performance. If your computer is equipped with a four-pin interface, you will need to obtain a four-pin to six-pin FireWire cable, available at most computer electronics retailers. Also note that the FireWire Audiophile requires a six-pin FireWire connection in order to receive bus power; if you have a four-pin connection you will need to use the supplied power adapter.

(**Note:** Some computer manufacturers may use a different nomenclature to refer to their
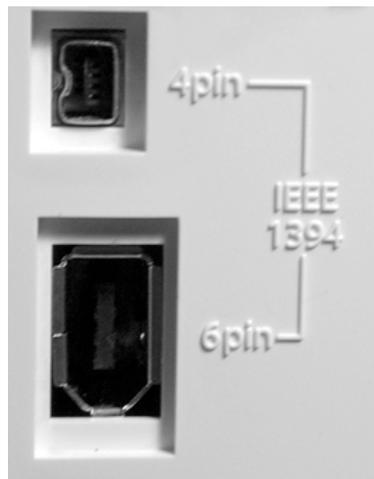
FireWire connections, such as Sony's "iLink," or simply "1394" — when in doubt, consult your owner's manual.)

IMPORTANT:

It has come to our attention that problems have been reported with several types of IEEE1394 ("FireWire") devices, including M-Audio FireWire devices. These problems occur when using a 6-pin **bus-powered connection** when plugging and unplugging external FireWire devices, **when both the computer and external device are powered on.** This is commonly referred to as "hotplugging". In some cases the FireWire port on the host computer system is rendered permanently inoperable. In other cases the external FireWire device is rendered permanently inoperable. M-Audio does not want users of M-Audio FireWire products to experience such costly problems. **Therefore, M-Audio must require that users of M-Audio FireWire devices refrain from hotplugging any M-Audio FireWire device.** You must make your FireWire connection while both computer and FireWire device are powered off; then power on.In case your

M-Audio FireWire device was not detected by your computer on startup, try the following troubleshooting options instead of hotplugging it:

1. Turn your M-Audio FireWire device off, wait 30 seconds then power it on.
2. Put your computer into hibernation mode, wait 30 seconds then reactivate it.
3. Restart the computer (don't turn it off) while the M-Audio FireWire device remains connected and powered on.

The FireWire Audiophile is equipped with two analog inputs and four analog outputs on unbalanced RCA connectors. Two more channels of S/PDIF digital input and output are provided on coaxial connectors. That makes the FireWire Audiophile a four-input, six-output audio interface capable of high-quality analog and digital I/O in full 24-bit resolution, at sampling rates up to 96kHz for recording and playback. Its S/PDIF digital output supports pass-through of AC-3 and DTS encoded multi-channel digital audio, (Windows and Mac OS X only), and it also gives you sixteen channels of MIDI I/O.

The FireWire Audiophile's easy-to-use software control panel provides you with powerful routing and mixing control, creating a virtual six-channel output matrix for your audio software. You can route any combination of inputs to any outputs, and each mixer channel supports a virtual aux send for unprecedented flexibility. You can take advantage of ultra-low latency software monitoring with built-in ASIO drivers, and near zero-latency direct hardware monitoring.

The front panel headphone Source selector is designed to give you immediate access to selectable stereo monitor sources, with a dedicated rotary level control. The main front panel rotary encoder can be assigned via the control panel to control any addressable software or hardware levels, and the FireWire Audiophile can be powered via the FireWire bus for total portability.*

Six-pin FireWire connection only. Use the DC power adapter for four-pin FireWire operation.

4 Features and Technical Features

- 2 x 4 unbalanced analog operation on RCA jacks
- Coaxial S/PDIF I/O
- Rotary encoder is assignable to control any software-addressable level, e.g., output DACs, software returns, or hardware input monitor levels
- Headphone output with rotary encoder level control
- Front panel headphone source switching; can be assigned as a Direct Monitoring on/off switch
- Status indicator LEDs show Headphone Source or ASIO Direct Monitoring state, as selected in the control panel
- Versatile mixer/router control panel provides near zero-latency hardware direct monitoring
- Extremely low-latency hardware/drivers
- MIDI I/O
- S/PDIF activity indicator LEDs for input and output.
- Two 6-pin FireWire ports.
- Power on/off switch with indicator LED
- Bus-powered or powered via included power supply
- Frequency response: 20-40KHz +/- 1dB
- SNR and dynamic range (A-weighted): 102dB ADC, 106dB DAC
- THD + N: 0.00281% @0dBFS (= -91dB)
- Sampling rates – 32k to 96kHz for analog in and out
- Sampling rates – 44.1k, 48k, 88.2k, and 96kHz for S/PDIF in and out

5 Minimum System Requirements

IMPORTANT: The FireWire Audiophile is supported under Windows XP and Windows 2000 — it is not supported under Windows 98 or Windows ME. Also, when running under Windows 2000, you must be running Service Pack 3 (SP3) or later. For Windows XP, you must be running Service Pack 1 (SP1) or later. Visit the Windows update web pages to make certain you have the most current updates and fixes supplied by Microsoft.

On the Mac, the FireWire Audiophile is supported under Mac OS 9.2.2 or later, and Mac OSX version 10.1.5; 10.2.6 or later. Earlier versions of Mac operating systems are not supported.

Windows

Pentium 3 – 500 MHz or higher
128 MB RAM
DirectX 8.1 or higher
Windows XP (SP1) or Windows 2000 (SP3) — (Windows 98 or Windows ME not supported)

Mac OS

Macintosh G3* 500 MHz or higher w/ OS 9.2.2 or greater
G4* 500 MHz w/ OS X 10.1.5; 10.2.6 or greater
(higher requirements for Laptops)
128 MB RAM (OS 9), 256 MB RAM (OSX)
OS 9.2.2 or later, or OS 10.1.5 or later

- G3/G4 accelerator cards not supported; native FireWire ports required

6 Controls and Connectors

Front Panel Diagram
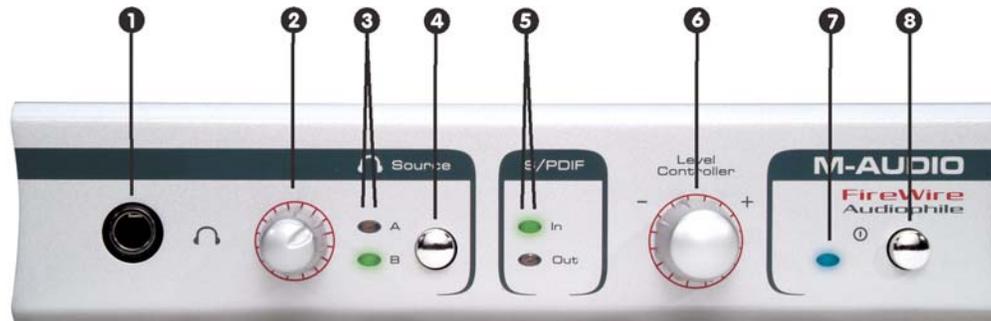
Front Panel Descriptions

1 **Headphone Output** – Accepts a standard 1/4" stereo TRS headphone connector.

2 **Headphone Output Level** – Controls the output of the headphone level. This control is independent of the line and S/PDIF output levels.

3 **HP Source Monitor Status** –These LED indicators display the currently selected mode of the headphone source switch, either A or B.

4 **Headphone Source Selector** – This momentary switch selects the monitor source sent to the headphone outputs, in conjunction with the HP Source settings on the Hardware page of the Control Panel. The default setting is Out 1/2 = A, Out 3/4 = B. This switch can also be programmed to turn Direct Monitoring on and off.

5 **S/PDIF Input and Output Indicators** – The green S/PDIF In LED will glow steadily to indicate the presence of a valid S/PDIF signal at the S/PDIF input. The green S/PDIF Out LED will glow steadily to indicate the presence of a valid S/PDIF signal at the S/PDIF output.

6 **Level Controller** – The Level Controller is a rotary encoder that is set by default to control the output monitor level of the FireWire Audiophile's analog outputs. It can be assigned to any group of Mixer or Output faders in the FireWire Audiophile's software control panel. The available selections are:

• **SW return** – The levels of the three virtual stereo pairs returning from your computer's audio workstation software to the FireWire Audiophile's software mixer
• **Output** – The levels of the FireWire Audiophile's four analog and one stereo digital output
• **Input** – The levels of the FireWire Audiophile's 1&2 analog and L/R digital inputs
• **Aux Send** – The levels of the **L** and **R** virtual **Aux Send** buses.

7 **Power LED** – The Blue Power LED blinks when power is applied to the FireWire Audiophile, and glows steadily to indicate a valid connection to the host computer.

8   **Power Switch** – Push-on, push-off power switch turns the FireWire Audiophile on and off.

Rear Panel Diagram
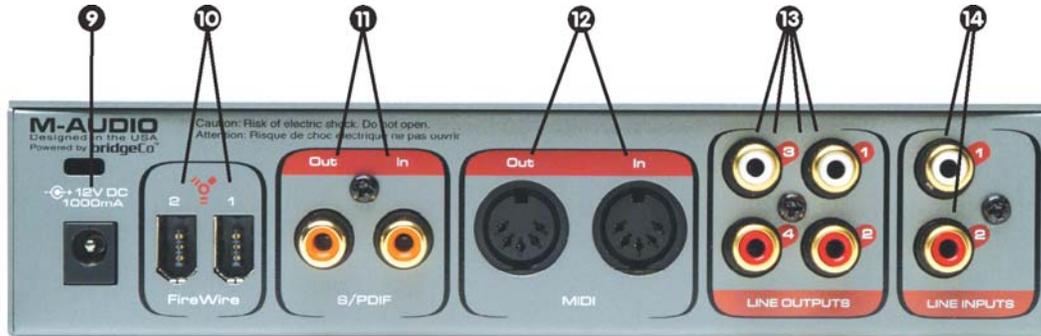
Rear Panel Descriptions

9   **Power Supply Connector** – Connect the 12VDC 1A power supply here when using the FireWire Audiophile with a four-pin FireWire connection. Use only the power supply provided with the unit or a power supply of an equivalent value.

10   **FireWire Connectors** – Dual FireWire (IEEE-1394) ports allow you to connect one to your computer and one to an external device. We recommend connecting only self-powered devices to these inputs. Bus-powered devices may affect your audio performance.

NOTE: The FireWire Audiophile provides two 6-pin FireWire ports for your convenience. One port is used for connection to the host computer. The second port allows other peripheral devices to connect to the host through the FireWire Audiophile. The FireWire Audiophile can pass FireWire bus power through this secondary port, however it will not source power to other devices attached to this port.

11   **S/PDIF Coaxial In and Out Connectors** – S/PDIF digital input and output on coaxial RCA connectors.

12   **MIDI In and MIDI Out Connectors** – MIDI input and output on standard 5-pin DIN connectors.

13   **Line Outputs 1–4** – These are unbalanced analog outputs on standard RCA connectors at –10dBV line level. When monitoring two-channel stereo audio, outputs 1 and 2 are the default outputs; any or all output pairs may be selected in the FireWire Audiophile's control panel. You may also use the four outputs to send individual or grouped channels to a mixing console.

14   **Line Inputs 1 and 2** – These are unbalanced analog inputs on standard RCA connectors at –10dBV line level.

7 Hardware Installation

Driver Installation

Windows XP

NOTE: Do NOT connect the FireWire 1814 to your computer before you have run the installer application and shut down your computer. If you are going to use bus power, we recommend that you connect the FireWire cable before turning on the power button.

For the FireWire Audiophile to function properly you need to have Service Pack 1 installed. To install Service Pack 1, please consult http://www.microsoft.com for instructions.

During the course of installation, messages about the Microsoft Digital Signature for the driver will appear. Microsoft tests drivers to ensure they work properly with their operating systems. While driver signing makes installation and operation more streamlined, it is not a necessity for a device to function properly with the operating system. Currently, M-Audio's FireWire drivers are not digitally signed. However, M-Audio is committed to providing the best possible drivers for our products and we constantly evaluate and test our drivers to ensure that they work properly. As a result, there is no need to worry about the driver not being signed.

1   Insert the Driver CD-ROM into your computer's CD-ROM drive. From the Start menu, select "Run…" then click the Browse button. Browse to the CD drive, locate the "FireWire AP" folder, then select the FireWire Audiophile installer from within that folder. Double click on the installer icon to begin the installation.

2   Verify that you have no other programs running, and then click "Next" to begin the installation. The installer will copy the necessary files to your computer's hard drive.

3 During the installation, you will be prompted with a message warning that the driver software has not passed Windows Logo testing. Select "Continue Anyway" and proceed with the installation.

4 The installer will prompt you to enable DVD/CD performance enhancement settings. In most cases, you should leave these in their default (selected) settings. While Windows is most likely already configured in this way, these

settings will ensure that you will be able to hear your DVD/CD player's playback through the FireWire Audiophile. Click "Next."

5 Once the installation is complete. Click "Next" to proceed.
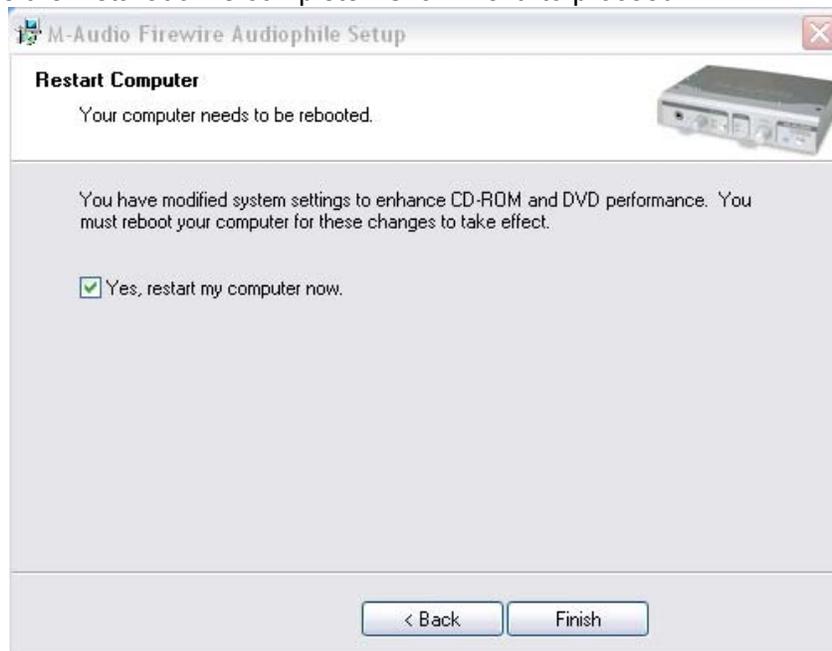
6 Once the installer has finished copying the files, you will see the Installation Complete screen. You will then be prompted to shut down your computer. Click "Finish" to proceed.

Found New Hardware Wizard

Welcome to the Found New Hardware Wizard

This wizard helps you install software for:

M-Audio FW Bootloader

If your hardware came with an installation CD or floppy disk, insert it now.

What do you want the wizard to do?

○ Install the software automatically (Recommended)
○ Install from a list or specific location (Advanced)

Click Next to continue.

< Back   Next >   Cancel

7   After the computer has powered off, connect the FireWire Audiophile to your computer's FireWire port and power it on. Once the FireWire Audiophile is connected, turn on your computer. After the operating system loads, the Found New Hardware Wizard will open. Choose the default selection, "Install the software automatically." Click "Next." Windows will locate and install the FireWire Audiophile Bootloader files.

Hardware Installation

The software you are installing for this hardware:

M-Audio FW Bootloader

has not passed Windows Logo testing to verify its compatibility with Windows XP. (Tell me why this testing is important.)

Continuing your installation of this software may impair or destabilize the correct operation of your system either immediately or in the future. Microsoft strongly recommends that you stop this installation now and contact the hardware vendor for software that has passed Windows Logo testing.

Continue Anyway   STOP Installation

8   During the installation, you will be prompted with a message warning that the driver software has not passed Windows Logo testing. Select "Continue Anyway" and proceed with the installation.

9   Once the Bootloader installation is complete, click "Finish" to proceed. Windows will locate the FireWire Audiophile driver files.

10 The New Hardware Wizard will run a second time to install the FireWire Audiophile driver software. Choose the default selection, "Install the software automatically." Click "Next."

11 You will again be prompted by the "Windows Logo testing" notice. Again, click "Continue Anyway" and proceed with the installation.

12 When you see the M-Audio FireWire Audiophile Installed Successfully screen, click "Finish" to complete the installation. Your FireWire Audiophile is now ready to use.
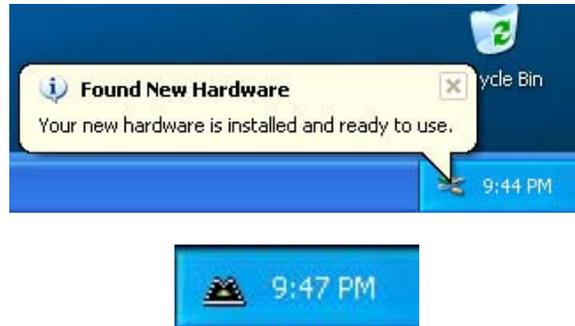
13 You will see the M-Audio FireWire Audiophile control panel icon in your system tray (lower right corner of your desktop). Click on the icon to open the control panel.

Windows 2000

NOTE: Do NOT connect the FireWire Audiophile to your computer before you have run the installer application and shut down your computer. If you are going to use bus power, we recommend that you connect the FireWire cable before turning on the power button.

For the FireWire Audiophile to function properly, you need to have Service Pack 4 installed as well as Direct X 8.1 or higher. To install Service Pack 4, please consult http://www.microsoft.com for instructions. The FireWire Audiophile driver installer will detect if you have the proper version of Direct X installed or not. If you need to upgrade, you will be prompted to do so. For further information, please consult Microsoft's website.
During the course of installation, messages about the Microsoft Digital Signature for the driver will appear. Microsoft tests drivers to ensure they work properly with their operating systems. While driver signing makes installation and operation more streamlined, it is not a necessity for a device to function properly with the operating system. Currently, M-Audio's FireWire drivers are not digitally signed. However, M-Audio is committed to providing the best possible drivers for our products and we constantly evaluate and test our drivers to ensure that they work properly. As a result, there is no need to worry about the driver not being signed.

1 Insert the Driver CD-ROM into your computer's CD-ROM drive. From the Start menu, select "Run…", then click the Browse button. Browse to the CD-ROM drive, locate the "FireWire AP" folder, Then double click the FireWire Audiophile installer from within that folder.

2   Verify you have no other programs running and then click "Next" to begin the installation.

3   The installer will copy the necessary files to your computer's hard drive. During the installation, you will be prompted with a message warning that the driver software has not passed Windows' Digital Signature. Select "Yes," and proceed with the installation.
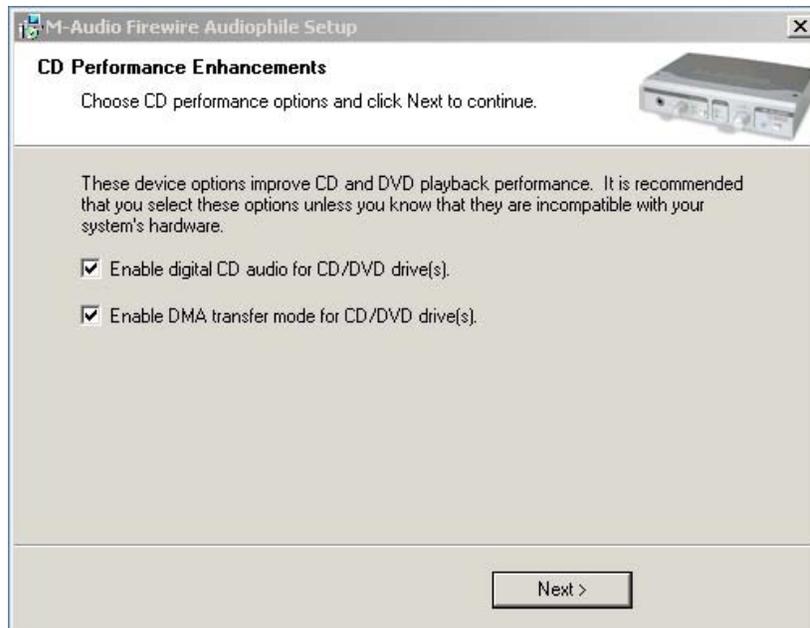
4 The installer will prompt you to enable DVD/CD performance enhancement settings. In most cases you should leave these in their default (selected) settings. While Windows is most likely already configured in this way, these settings will ensure that you will be able to hear your DVD/CD player through the FireWire Audiophile once the installation is complete. Click "Next."

5 Once the installer has finished copying the files, you will see the Setup Complete screen. Click "Next" to complete installation wizard.
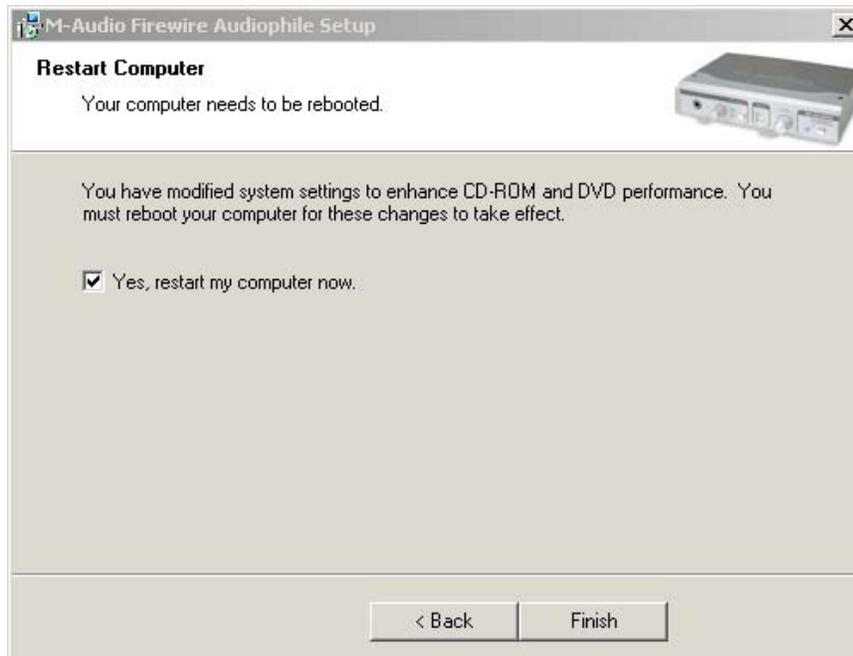
6 Next, you will be prompted to shut down your computer. Click "Finish" to shut down. After the computer has powered off, connect the FireWire Audiophile to your computer's FireWire port and power it on. Once the FireWIre Audiophile is connected, turn on your computer. After the operating system finishes loading, the Found New Hardware Wizard will open.
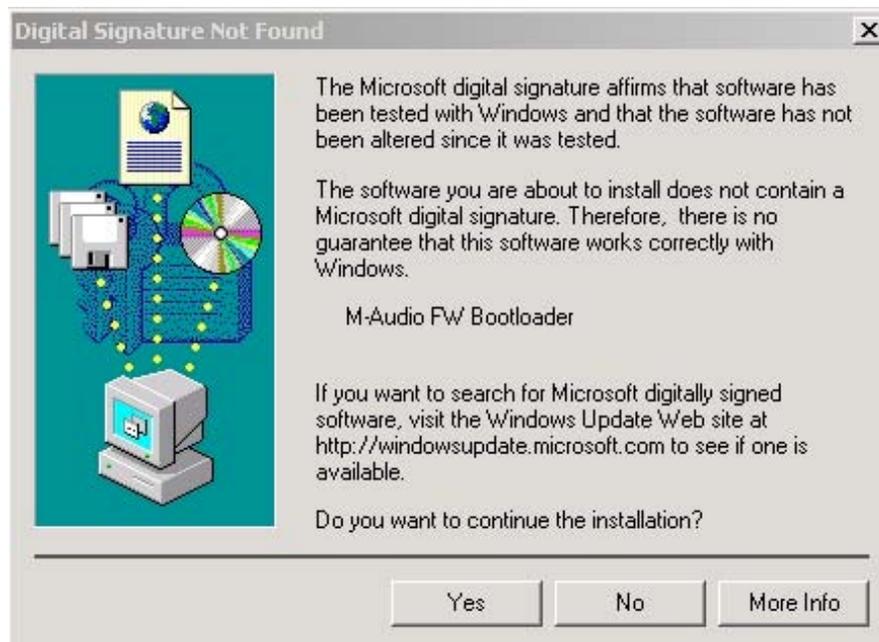
7 Windows will locate and install the FireWire Audiophile Bootloader files. You will be prompted by the Windows Digital Signature warning screen. Once again, select "Yes," and proceed with the installation.
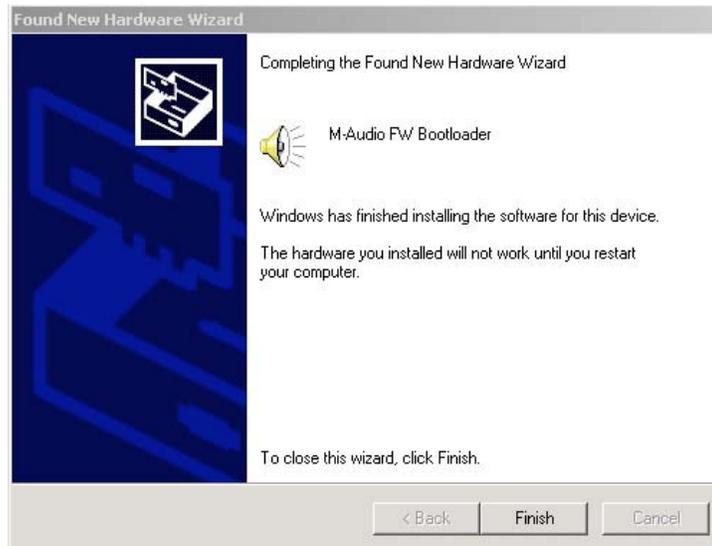
8   When the files are done being loaded, a window will appear showing that windows has finished installing the Bootloader files. Click "Finish."
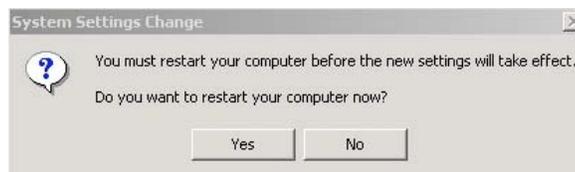
9   Next windows will prompt you to reboot your computer. Click "Yes" to reboot. After the computer has rebooted, Windows will locate the FireWire Audiophile driver files.

10 Windows will locate and install the FireWire Audiophile files. The Windows Digital Signature warning screen will appear. Once again, select "Yes," and proceed with the installation.
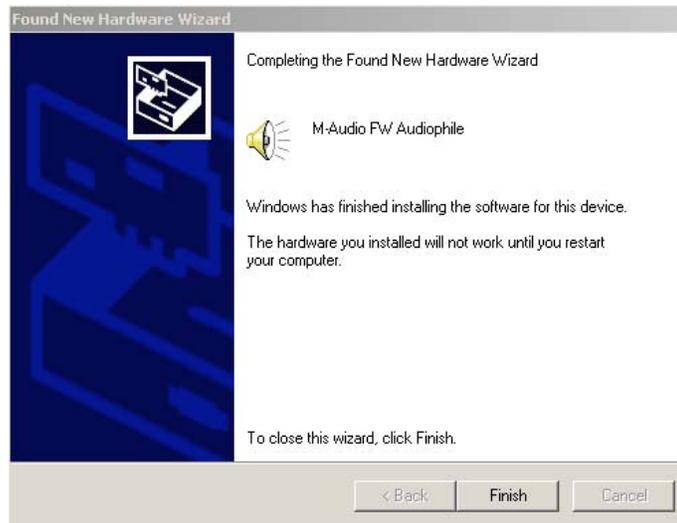
11 When you see the Completing New Hardware Wizard screen, click "Finish" to complete the installation.

12 You will be prompted to reboot your computer one last time. Click "Yes" to reboot.

13 Your FireWire Audiophile is now ready to use. You will see the M-Audio FireWire Audiophile control panel icon in your system tray (lower right corner of your desktop). Double-click on the icon to open the control panel.

Mac OSX

NOTE: Never connect or disconnect the FireWire Audiophile while the computer is on. Also, if you're going to use bus power, we recommend that you connect the FireWire cable before turning on the FireWire Audiophile's power button.

IMPORTANT: There are differences in administrator authorization between OS 10.1.5, 10.2.X, and OS 10.3.X. For 10.1.5, you must click on the lock icon of the installer to authorize the installation. You will be prompted for your username and password after

clicking the lock icon. For 10.2.6 or higher, you will be prompted for the password at the beginning of the installation. For 10.3 or higher, you will be prompted for the password just before the installation begins.

1   Insert the Driver CD-ROM into your CD-ROM drive and browse to the CD-ROM to view its contents. Locate and open the "FireWire AP" folder, then open the folder for OS X.

2   Double click the M-Audio FireWire Audiophile Installer.dmg file. An icon labeled "FireWire Audiophile" will appear on your desktop.
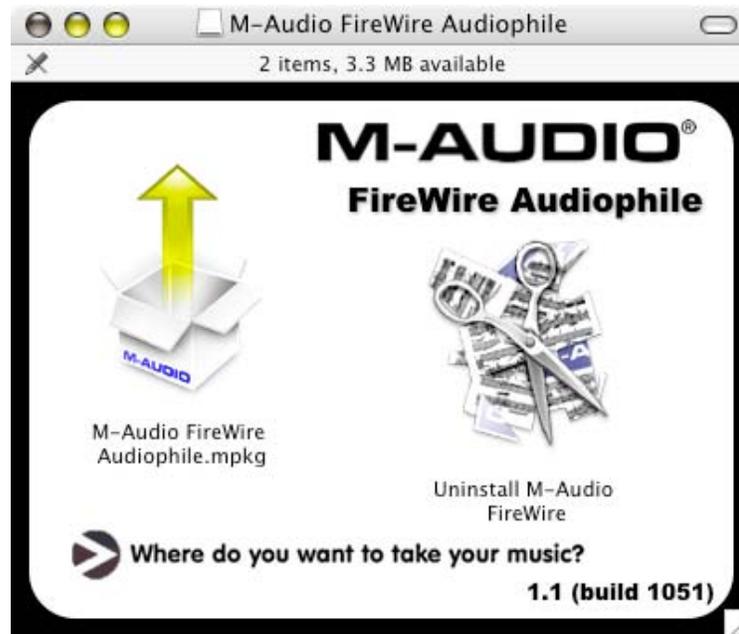
3   Double click on the FireWire Audiophile icon. The file M-Audio FireWire Audiophile Installer.mpkg will appear. Double click on the installer file.

4   The introduction screen will now appear. Click "Continue" to proceed.

5   The next screen is the release notes. There are buttons to print or save at this point.   When you are done reading them, click "Continue" to proceed.

6   The next screen displays the software license agreement. There are buttons to print or save this agreement. When you are done reading the agreement, click "Continue" to proceed. Once you click Continue, a notice will appear asking you to agree or Disagree. If you agree, then installation will proceed. If you choose to disagree, the installation will not proceed.

7   Select your OS X hard drive. Click "Continue."
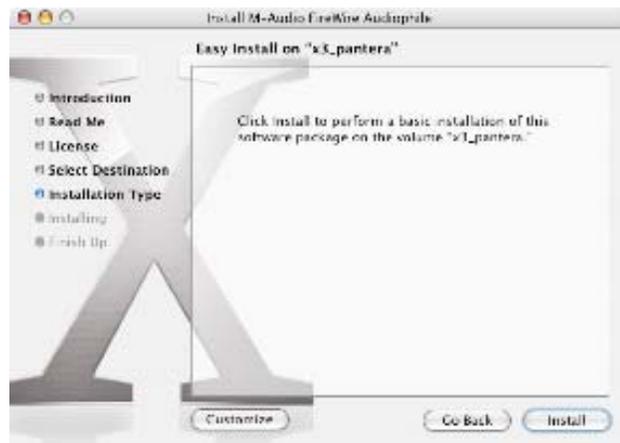
8   The next screen provides you with options for installing the Firewire Audiophile driver. It is recommended to use the easy installation. To do so click "Install." If you wish to customize your installation, click on the "Customize" button.

9   Enter your administrator name and password, and click "OK" to continue.

10 A notice will appear advising that the computer will need to be restarted. Click "Continue Installation" to proceed.

11 When the installation is complete, click "Shut Down" to complete the wizard.

    After the computer has powered off, plug the FireWire Audiophile into your computer's FireWire Port and power it on. Once the FireWire Audiophile is connected, turn on your computer.

12 Once the operating system loads, go to "System Preferences" in the Apple Menu. Select the "Sound" preference panel, and click the "Output" tab. Select "M-Audio FireWire Audiophile" to choose the FireWire Audiophile as your default output device.

Mac OS9

NOTE: Never connect or disconnect the FireWire Audiophile while the computer is on. Also, if you're going to use bus power, we recommend that you connect the FireWire cable before turning on the FireWire Audiophile's power button.

To use MIDI on the FireWire Audiophile, you must first install Opcode's OMS before installing the FireWire Audiophile driver software. OMS can be installed from the Driver CD by opening the OMS 2.3.8 folder, and then double clicking the OMS installation icon. After you have installed OMS, follow these instructions to install the FireWire Audiophile driver software.

1 Insert the Driver CD-ROM into your CD-ROM drive and open the CD-ROM to view its contents. Locate and open the "FireWire AP" folder, then open the folder for OS 9.

2   Double click on the M-Audio FireWire Audiophile Installer icon.

3   Click "Continue" in the Firewire Audiophile splash screen.

4   The next screen displays the release notes. There are buttons to print or save at this point.   When you are done reading them, click "Continue" to proceed.

IMPORTANT-----READ CAREFULLY
BEFORE INSTALLING THIS SOFTWARE

BY INSTALLING OR USING THIS SOFTWARE, YOU ACKNOWLEDGE THAT
YOU HAVE READ THIS LICENSE AGREEMENT, THAT YOU UNDERSTAND
IT, AND THAT YOU AGREE TO BE BOUND BY ITS TERMS. IF YOU DO NOT
AGREE TO THE TERMS AND CONDITIONS OF THIS LICENSE AGREEMENT,
PROMPTLY EXIT THIS PAGE WITHOUT INSTALLING THE SOFTWARE.

1. Grant of License (WHAT YOU MAY DO):
Midiman, Inc. and M-Audio ("Licensor") hereby grants to you a non-exclusive
license to use the program and/or program update with which this license is
distributed (the "Software"), including any documentation files accompanying

English

Save...   Print...   Disagree   Agree

5   The next screen displays the software license agreement. There are buttons to print or save this agreement. Read the agreement and select "Agree" if you wish to continue with the installation.

Choose a Folder

Desktop

Name	Date Modified
+musicapps_shortcuts alias	10/31/03
Cubase VST/32 5.1	10/25/01
free	Yesterday
OS 9.2.2	Today
OS X.2.6	Yesterday
OS X.2.8	Yesterday

Install software into folder:

New   Open   Cancel   Choose
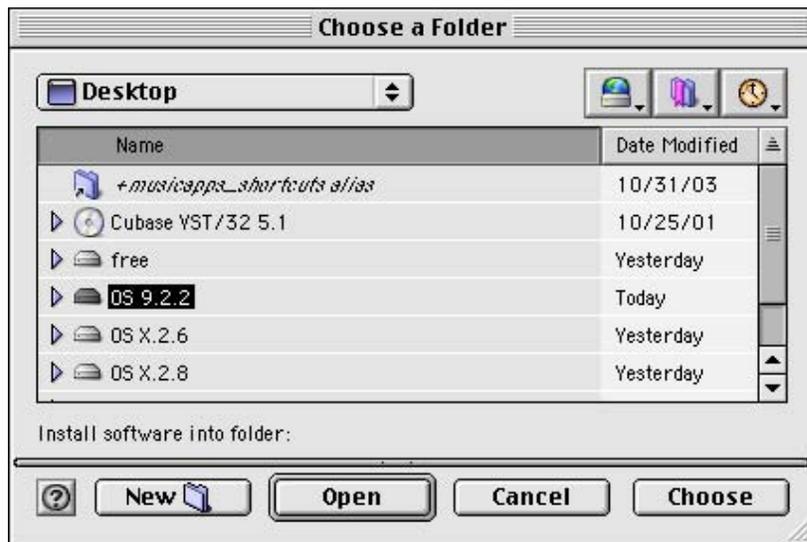
6   Select your install location, or just choose the default, OS 9 boot drive. Click "Choose."

7   A notice will appear advising that the computer will need to be restarted. Click "Yes" to proceed.
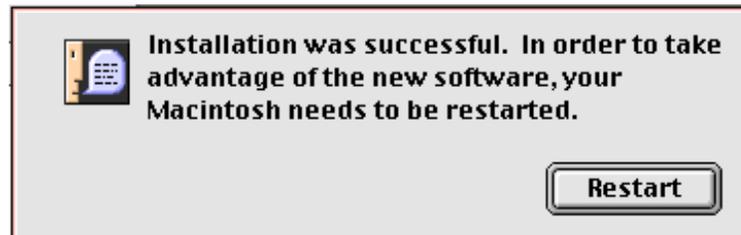
8   You will be prompted to shut down your computer. Click "Shut Down."

9   When your computer has powered off, connect the FireWire Audiophile to your computer's FireWire port and turn it on. Once the FireWire Audiophile is connected, turn on your computer.

10   After the operating system loads, enter the Control Panels under Apple Menu, and select "Sound." Then select the "Output" tab. Click on M-Audio FireWire Audiophile to select FireWire Audiophile as your default audio device.

First Time OMS Configuration Instructions:

Go to the Control Panel or Chooser under the Apple Menu, and make sure AppleTalk is turned off (this is recommended, although OMS will sense that it is on and prompt you to turn it off). If you are installing your FireWire Audiophile driver and configuring OMS for the first time, follow these instructions to configure OMS.

1   In the Opcode folder that you will find on your hard drive, locate the OMS Applications folder, then OMS Setup. Double click on OMS Setup. (OMS setup can sometimes be done from within your music application.)
2   OMS will inform you that it has not yet been configured. Click "OK."
3   The Create A New Studio Setup dialog box now appears. Click "OK."
4   The "OMS Driver Search" box asks you to choose the port on which you've attached the FireWire Audiophile (either Modem or Printer). DO NOT choose a port. Just click "Search." OMS begins searching. IMPORTANT: If the FireWire cable is not correctly connected to the FireWire Audiophile, setup will fail.

5   "OMS Driver Setup" shows the FireWire Audiophile in a list when OMS successfully finds the driver. Click "OK." OMS will now define (shows "Identifying") the FireWire Audiophile output port.

6   The "OMS MIDI Device Setup" dialog box will appear showing the FireWire Audiophile's available output port with an open check box to the left of the port. You will now have to check this open box to enable the port. Click "OK."

7   Next, the "My Studio Setup" appears with a file save dialog box over it. You will now need to name and save your new Studio Setup (or use the default name) before you can assign an instrument to the FireWire Audiophile's MIDI port. If you choose to do so, assign your instrument, and you are done.

8   Your FireWire Audiophile is ready for use.

You can run the OMS Test Studio utility by going to the "Studio" menu and releasing the mouse on "Test Studio." Playing a note on your keyboard will give you an audible message from your computer, "MIDI received," while the arrow pointing to the keyboard icon flashes. Clicking on a keyboard icon with the mouse pointer will send a tone cluster to the corresponding FireWire Audiophile output port. The LED will light, and your sound module should play the chord.

You may now exit OMS Setup by quitting the application. The rest is up to configuration within your music software. Generally, this means selecting "OMS Compatibility," or "Open Music System" for your MIDI system setup.

8 Hardware Connections

ATTENTION: You must shut down your computer any time you wish to connect or disconnect the FireWire 1814 from the system. Failure to do so may cause damage to your computer's or FireWire 1814's FireWire ports.

Audio

Connect the FireWire Audiophile's Line Outputs 1 and 2 to your amplifier, powered monitors or mixer. For two-channel stereo operation, the default outputs are channels 1 and 2. (You may change this in the FireWire Audiophile control panel if you desire.) You can also connect the FireWire Audiophile's four line outputs to a stand-alone mixer.

Connect your headphones to the FireWire Audiophile's headphone outputs.

Connect your CD deck, turntable preamp or other line level analog source to the FireWire Audiophile's analog line inputs 1 and 2.

Connect your S/PDIF digital devices to the FireWire Audiophile's coaxial digital I/O.
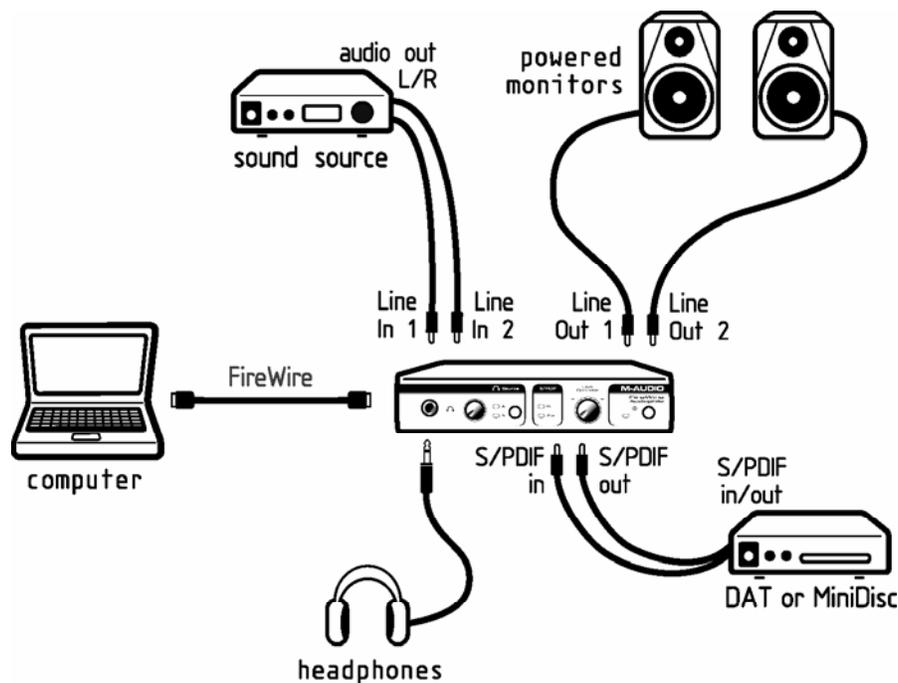
MIDI

Connect your MIDI device's MIDI Input to the FireWire Audiophile's MIDI Output. Connect your MIDI device's MIDI Output to the FireWire Audiophile's MIDI Input.

Shown in the illustration below is a MIDI controller keyboard plugged into the FireWire Audiophile's MIDI input. A MIDI sound module is connected to the FireWire Audiophile's MIDI output.
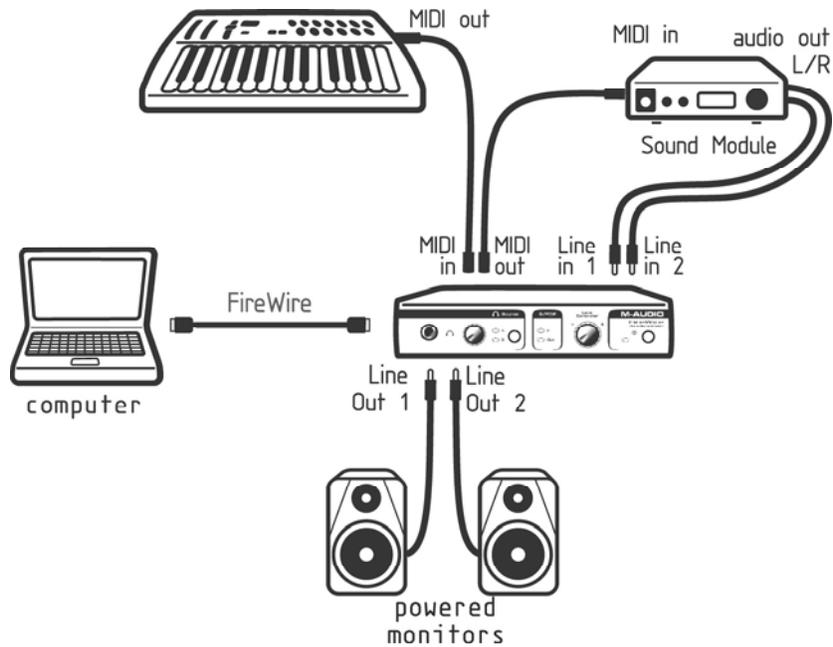
9 The Software Control Panel

The FireWire Audiophile's driver software installation includes a mixer/control panel—a simple yet powerful interface with your computer and Digital Audio Workstation software. The control panel gives you a multi-channel software mixer with six virtual outputs (in three stereo pairs) from your audio software. Each output pair may be routed to any of the FireWire Audiophile's four analog or stereo digital outputs. In addition, two software auxiliary sends are available per stereo pair.

The FireWire Audiophile control panel is installed in your system after you have completed the driver installation procedure. To open the control panel:

In Windows – A tiny "M," which is the M-Audio logo, will by placed in the system tray, generally located at the bottom of your Windows desktop. Double click this icon to open the control panel.

On the Mac – The FireWire Audiophile control panel can be found under the Apple menu.

NOTE: The FireWire Audiophile control panel can also be opened from an ASIO compliant music program's audio setup page.

While the FireWire Audiophile control panel gives you a great deal of control, you may find that the default settings work just fine for your needs. Depending on how you record, you may never have to make an adjustment to these settings. Just to be safe, though, we'll go through the control panel in great detail and explain all of the user controls.

Global Menus

The following control panel features are available on all pages of the control panel:

Mixer Settings – The **reset** button returns the control panel settings to their default values. These default values can be found in this manual's section on product specifications.

The **load, save** and **delete** buttons will open a Windows or Mac file dialog box. To save a set of control panel settings, click the **save** button. Then, from the "Save" dialog box, name the setting and click OK. After you've saved a set of control panel settings, clicking the **load** button will allow you to select and load your saved settings. To delete saved settings, click the **delete** button and select the setting that you wish to delete.

Level Controller Assignment – This section allows you to choose which group of **mixer** or **output** faders the front-panel **Level Controller** rotary encoder is addressing. The Level Controller in the FireWire Audiophile Control Panel is a software representation of the hardware Level Controller on the front panel, and will follow the controller assignment made here. The encoder can offer tactile control for the following:

- **SW Return** – The levels of the three virtual stereo pairs returning from your computer's audio workstation software

- **Output** – The levels of the FireWire Audiophile's four analog and stereo digital outputs. This is the default selection, and is the best choice when you simply want to control the monitor levels going to your speakers or sound system.
- **Input** – The levels of the FireWire Audiophile's two analog and stereo digital inputs
- **Aux Send** – The levels of the **L** and **R** virtual **aux send** buses.

When you first click on one of the group assignments listed above, the **ctrl** buttons for that entire group assignment will activate. For example, if you select **spdif** the **ctrl** button will appear over the **spdif** faders in the output channel.

This group assignment can be modified by clicking on an active **ctrl** button, which will deselect the associated channel faders. Changes to the **Level Controller** position will then affect only the selected channel faders. The control panel will remember these modified assignments when you click to another **Level Controller** assignment group, then click back to the group with modified assignments.

Note that the headphones output is not selectable here, since the FireWire Audiophile has its own dedicated headphone level control on the front panel.

Main Output – These two buttons provide immediate access to **mute** or **dim** the overall monitor output levels. Pressing the **mute** button (the button turns red) will cease audio output to all of the FireWire Audiophile's line outputs and the S/PDIF out. This is useful when you want to switch back and forth between monitoring with headphones and monitoring with your speakers. Pressing the **dim** button (the button turns green) will lower the listening level of the hardware outputs by 20dB. This is useful if, for example, you want to have a quick conversation without losing the groove, then return to your previous listening level.

Multiple Units – The control panel also shows a "Unit 1" designation. Future updates of the FireWire Audiophile software drivers will allow you to chain multiple units together for increased I/O. Clicking on a unit icon will activate the control panel for that particular unit, displaying its control panel settings.

Presently only a single FireWire Audiophile is supported. We suggest you check the M-Audio website for information on FireWire Audiophile driver updates.

Mixer Page

The **mixer** page provides output routing and control of the FireWire Audiophile's analog and digital inputs, as well as the six virtual channels returning from your Digital Audio Workstation software.
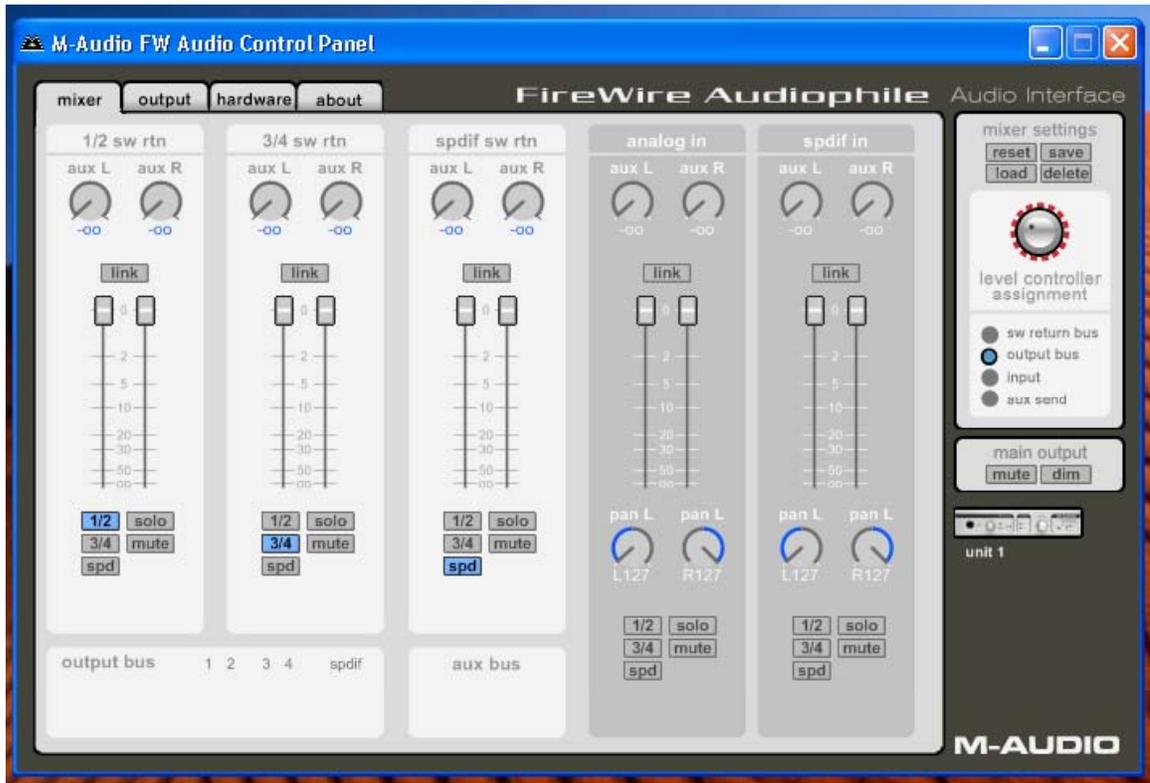
Software Returns – The **mixer** page provides access to six virtual audio "returns" from your audio application. These returns are available in stereo pairs, and are labeled **1/2 sw rtn**; **3/4 sw rtn**; and **spdif sw rtn**. These returns will appear in the program's output mixer settings as available audio outputs.

Most likely, you will control the output monitor levels from your audio program's mixer, and will want to keep these faders at their maximum level. However, you may find it convenient to adjust them here, if you are, for example, setting up a balance between input levels and **sw rtn** levels.

Hardware Inputs – The **mixer** page also provides software level control for direct monitoring of the FireWire Audiophile's analog and S/PDIF digital inputs. These pairs are labeled **analog in** and **spdif in**.

It may be important to note that the input channel default settings have NO Output Routings selected (see the next section for more information). Monitoring these inputs may be set up from within your music program, or you may make an Output Routing

selection and then set the slider level for monitoring. See the section on Monitoring Your Inputs for Recording, below, for more information.

Output Routing – Each stereo pair may be assigned to any of the FireWire Audiophile's analog or digital outputs by clicking on the output button of the desired output pair. These are labeled **1/2; 3/4;** and **spd** (which represents "S/PDIF"). Any or all output pairs may be selected (the buttons turns blue when active) for each Mixer input channel pair. These channels' output signals appear on the selected outputs in the control panel **output** page. If multiple Mixer channels are assigned to the same output pair, the signals will be summed at the assigned output. Note that clipping of summed signals is possible, so keep an eye on your output level meters when summing mixer channels.

Aux Send – Each of these stereo pairs also provides two virtual **aux send** controls. Using these **aux sends** you can create a separate sub-mix, which can be useful as a headphone mix or effects send. To use the Aux Sends, click on a send knob and drag upward or downward. These Aux Send levels feed the Aux Send Master channel on the Output page. The **aux send** mix can be routed to any pair of the FireWire Audiophile's outputs via the **output** page by clicking the **main** button on that channel, thereby switching the output channel from the main bus to the **aux** bus.

Stereo Linking - Input levels from each virtual software return are controlled by software faders; pairs can be linked for stereo operation by clicking the channels' **link** button. The buttons turn blue when active. Once the channels are linked, grabbing and moving one fader will move both faders in unison.

Mute button - Selecting the **mute** button (the button turns red) will cause that channel pair to cease audio output. Deselecting the **mute** button will resume audio output on that channel pair.

Solo button – Selecting the **solo** button (the button turns yellow) will cause all other channels to cease audio output; deselecting the **solo** button will resume audio output on all channels. Multiple solo selections are possible.

Panning - The analog and digital input channel pairs also offer virtual **pan** pots. As with any typical mixer, the **Pan** works in conjunction with the output assign buttons to enable you to route the signal as you wish.

Metering - At the bottom of the **mixer** page, software level meters are provided for each of the FireWire Audiophile's three output buses, as well as the **aux** bus. This is provided as a quick reference to what's going on in the Output page.

The **output** page provides you with control over each of the FireWire Audiophile's analog and digital outputs, as well as that of the **aux bus** and **headphones** bus.
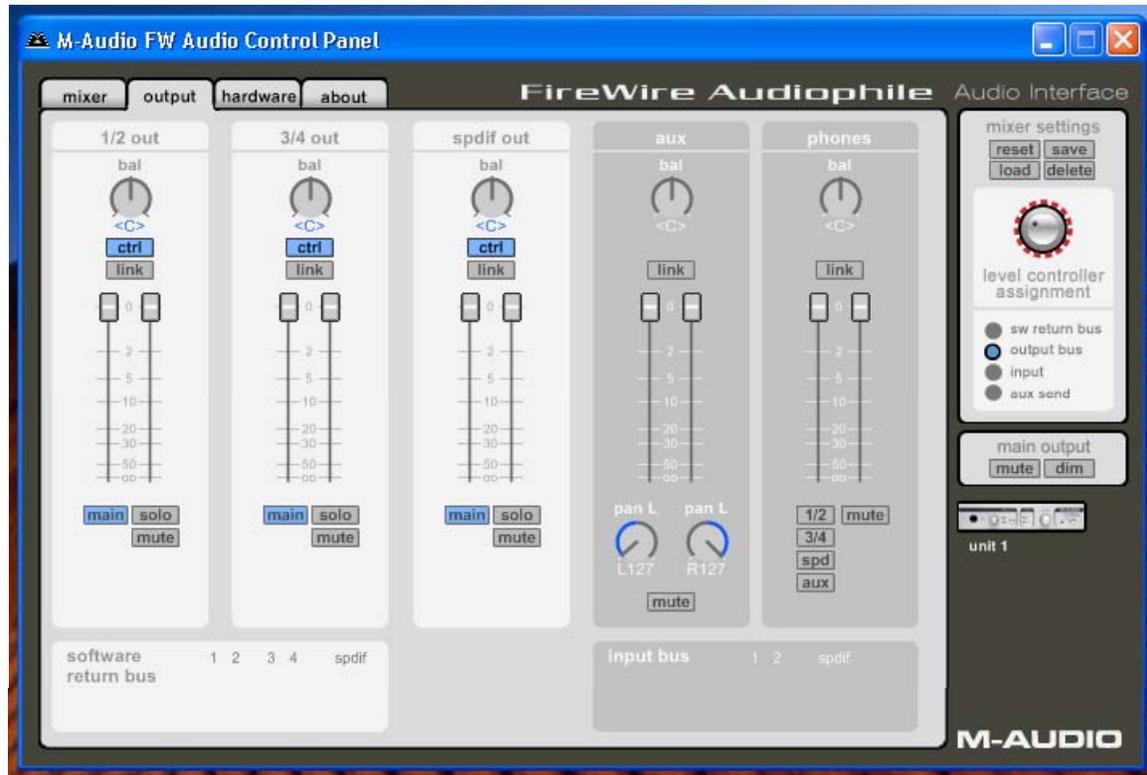
Output Channels – Virtual faders control the individual channel output levels. The output faders correspond to their respective analog and digital hardware outputs. When the **main/aux** button is set to **main**, the Output Channel gets its signal from the bus assignments selected on the **mixer** page. (See "Main/Aux Button," below.)

Balance Controls – The **bal** control allows you to adjust the balance of the associated pair's stereo output.

Linking - Stereo pairs can be linked together with the link button above each channel pair. Once the channel is linked (the button turns blue), grabbing and moving one fader will move both faders in unison.

Main/Aux Button – When the **main/aux** button is in the **main** position (the button turns blue), the associated analog or digital outputs carry their respective bus signals, as determined by the routing selected on the **mixer** page:

• outputs **1/2 out** carries signals routed to bus **1/2**
• outputs **3/4 out** carries signals routed to bus **3/4**
• outputs **spdif out** carries signals routed to bus **spd**

When the main/aux button is in the aux position (the button turns green), the associated analog or digital output pair carries the signal routed to the aux L and aux R buses.

Mute button - Selecting the **mute** button (the button turns red) will cause that channel pair to cease audio output. Deselecting the **mute** button will resume audio output on that channel pair.

Solo button – Selecting the **solo** button (the button turns yellow) will cause all other channels to cease audio output; deselecting the **solo** button will resume audio output on all channels. Multiple solo selections are possible.

Aux Output Master Channel – This Aux Send Master channel controls the output functions of signals routed to the **aux L** and **aux R** buses. Both channel faders can be linked together with the **link** button, and the **pan** control allows you to pan the signals to the assigned output. The **bal** control allows you to adjust the left/right balance of the stereo signal.

When using the Aux Sends in conjunction with the Aux Output Channel, you must select an output to be the **aux** output by setting the **main/aux** switch on that channel to the **aux** position. See section 11, "Adding Effects While Direct Monitoring" and "Using the Aux Send As a Separate Monitor Mix," later in this manual.

Ctrl button – The **ctrl** button will appear and be active over the output channels selected under the right panel's Level Controller Assignment. (Example: If the **aux output** is selected under the Level Controller Assignment, the **ctrl** button will appear over the Aux Output Channel faders.) For more information, see "Level Controller Assignment**"** in the "Global Menus" section, above.

Note that there is no **ctrl** button available on the **phones** channel, since the headphones output has its own dedicated level controller.

Aux Channel Panning – The individual **aux** sends can be panned within the stereo output pair they are assigned to. Note that if you wish to use the send as a mono send, you should pan these controls to the <C> position, which is "center panned."

Aux Channel Mute - Selecting the Aux **mute** button (the button turns red) will cause the Aux Channel to cease audio output. Deselecting the **mute** button will resume audio output.

Headphone Output Channel – This channel controls the functions of the FireWire Audiophile's headphone bus. Both channel faders can be linked together with the **link** button, and the **bal** control allows you to adjust the stereo balance of the headphone output.

Headphone Monitor Assigns – You can monitor any of the FireWire Audiophile's output buses via the Headphones bus. Using the Monitor Assigns you can select any or all of the three output buses or the Aux bus to route to the headphones.

Headphone Mute button - Selecting the **mute** button (the button turns red) will cause the headphone channels to cease audio output. Deselecting the **mute** button will resume audio output on the headphone channels.

Metering – At the bottom of the **output** page, software level meters are provided for the FireWire Audiophile's analog and digital inputs, as well as for the six virtual software return channel inputs. This is provided as a quick reference to what's going on in the Mixer page.

Hardware Page

The **hardware** page gives you access to important information and functions of the FireWire Audiophile.

The **hardware** page design and function will vary somewhat, depending on your platform and operating system. Shown below is the **hardware** page from a Windows installation.
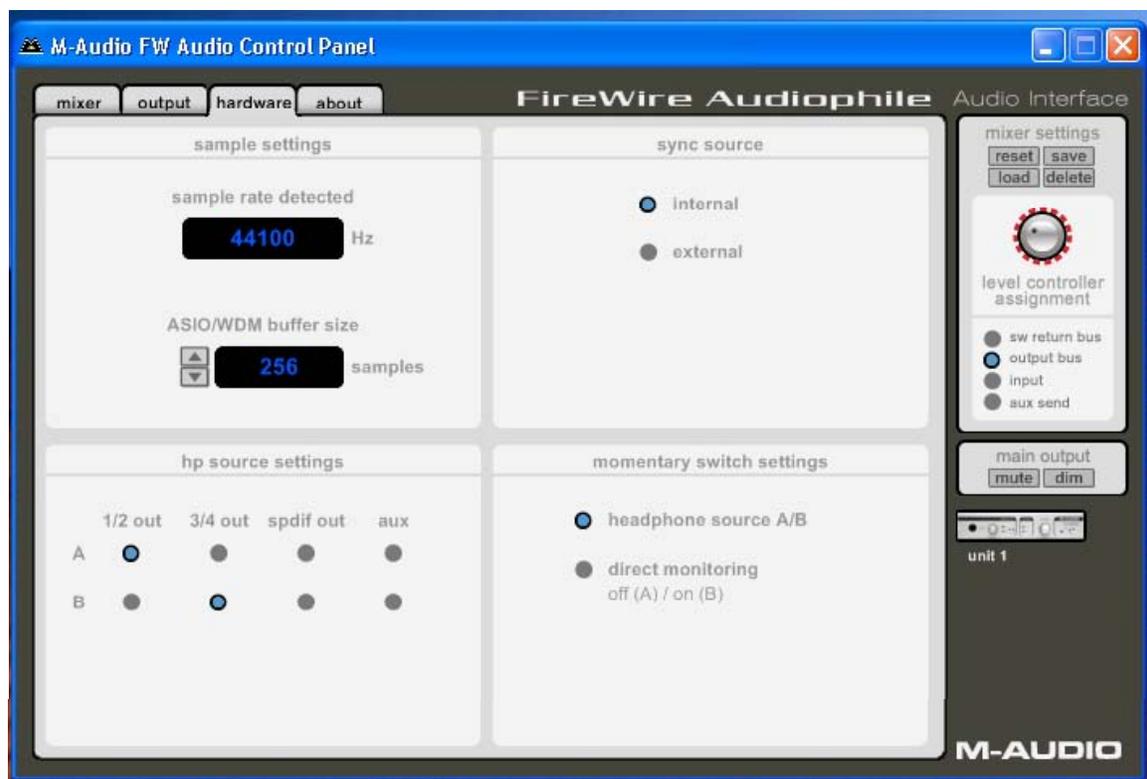
Sample Rate Detected – This field displays the currently detected sample rate from the currently selected sync source.

ASIO/WDM Buffer Size – In this field you can select the buffer size you wish to work with. Smaller buffer sizes result in lower latency (the time it takes for your input signal to pass through your audio software and appear at the outputs), but may not function well with slower systems. The default buffer size setting is 256. This setting may adequately serve your purposes, but if you wish to, you can experiment with lower settings. If you experience stuttering or crackling in your audio playback, try using a larger buffer size.

NOTE: This section does not apply to Mac OS X, and will not appear if you are running that operating system. Mac OS X does not support ASIO (or WDM).

Bit Depth – This field will only appear in Mac OS 9 installations. The selections from this drop-down list will be 16-bit, 24-bit, or auto. Some music programs in OS 9 will not work properly with 24-bit audio, in which case your bit depth setting will either a) switch automatically to 16-bit, or b) require that you manually set the bit depth setting in your FireWire Audiophile Hardware page to 16-bit. Otherwise, leave your bit depth set to "auto," which is the default setting. It is also possible that slower CPUs may benefit from a lower bit depth setting, so if your machine seems to be having a hard time handling the audio processing, try the 16-bit setting.

Sync Source – This field allows you to choose between the FireWire Audiophile's **internal** clock and an **external** clock source. **Internal** selects the incoming clock from the FireWire bus as set by your audio software. Use **external** when you wish to record from the S/PDIF inputs, or otherwise lock to the sample rate from an external S/PDIF source.

HP (Headphone) Source Settings – This field allows you to choose the operational mode of the front panel HP Source switch. You can choose between the four radio buttons in the "A" column, and between the four radio buttons in the "B" column. The HP Source will reflect the selections made here in the Control Panel, and the front panel HP Source LED will indicate the current source selection, A or B.

Momentary Switch Settings – This field allows you to change the assignment of the front panel HP Source Settings momentary switch, toggling between the above "Headphone Source Settings" or "Direct Monitoring On/Off" setting. When Direct Monitoring is selected, the front panel HP Source switch will enable and disable Direct Monitoring. (See the section, Using Your FireWire Audiophile for more information.)

About Page

This page contains information on your hardware and current driver software versions. This information may be helpful if you ever have the occasion to call for technical support. Clicking the M-AUDIO logo in the lower left hand corner will link you directly to our website if you are currently online.

Firmware Info – This field displays the current firmware version of your FireWire Audiophile.

Update – By clicking this box, you will be connected with the M-Audio website to check for driver and firmware updates.

10 Using the FireWire Audiophile

The following sections address a number of real-life situations that you may encounter while using your FireWire Audiophile. These brief tutorials should help guide you. Also check the M-Audio website from time to time for additional tutorials or FAQs.
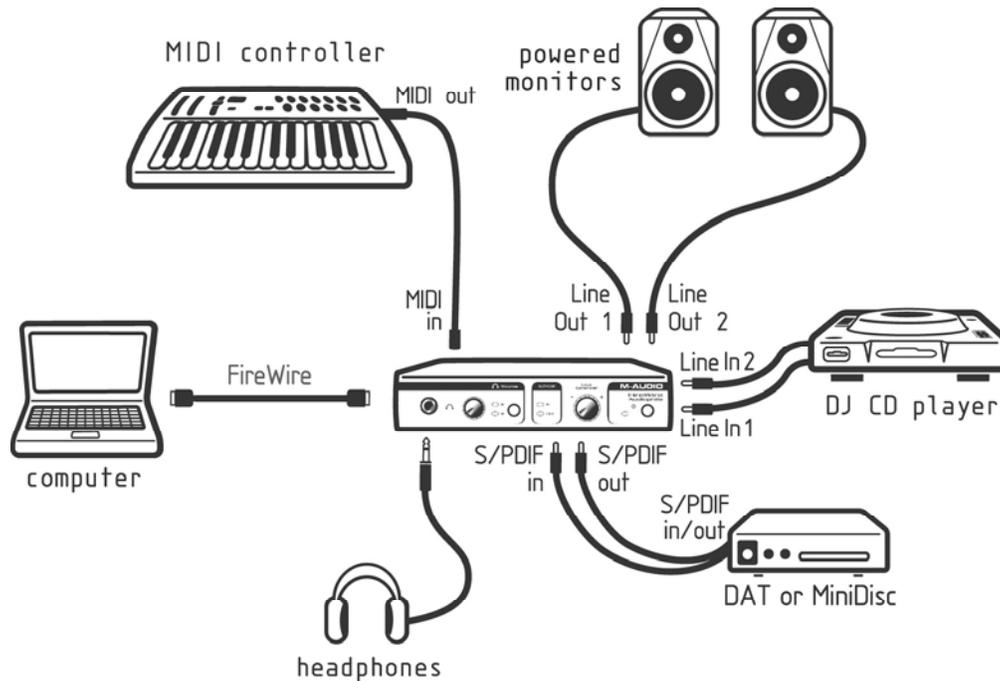
Monitoring Live Playback

The FireWire Audiophile is a perfect companion for laptop-based DJ and live performance. The selective headphone source allows you to monitor multiple sources, keeping them muted from the line outputs while you cue them for playback.

For example, you can connect a turntable preamp's outputs to Line Inputs 1 and 2, or a CD player's S/PDIF output to the S/PDIF input, and route them to different FireWire Audiophile outputs via your audio software. By selecting the appropriate settings in the Control Panel, you can use the front panel HP Source selector to monitor either input in the headphones while playing back audio from your computer. See the section below, "Using the Headphone Source Selector."

Using the Headphone Source Selector

The front panel Headphone Source Selector switch allows you to monitor multiple sources, keeping them muted from the line outputs while you cue them for playback. This makes the FireWire Audiophile a perfect companion for laptop-based DJ and live performance.

The Headphone Source Selector can be assigned to an alternate function from your control panel's Hardware page. Clicking the "Direct Monitoring" radio button will change the momentary switch from a Headphone Source Selector to a Direct Monitoring on/off switch.

Different scenarios for using the Headphone Source Selector for monitoring multiple sources and for turning Direct Monitoring on and off are described in the sections that follow.

Monitoring From Your DJ Program – A DJ program will allow you to send one audio stream to your main outputs 1/2 that are connected to your sound system, and cue another audio stream directed to outputs 3/4. You may use the Headphone Source Selector switch to conveniently toggle between those two audio sources (1/2 and 3/4), allowing you to discreetly cue the program material on 3/4 while the main outputs 1/2 continue to play audio to your sound system.

The default control panel settings, i.e., your control panel setup at the time that you first install the driver software or the settings when you hit the **reset** button, are already set up to do this. Just to be clear, we'll describe those settings here.

1   In the Mixer page, sw rtn 1/2 is routed to output 1/2. This means that the tracks in your DJ program that are set to the "FireWire Audiophile Analog Outs 1/2" will be heard from Line Outputs 1/2. Your main speakers are connected to Line Outputs 1/2.

2   With the Headphone Source switch set to A, you will also be monitoring the tracks in your DJ program that are set to the "FireWire Audiophile Analog Outs 1/2."

    NOTE: If you look at your control panel's hardware page, you'll see that the "headphone source selector" is set up as out 1/2 for the A selection, and out 3/4 for the B selection.

3   When you want to cue up other material from your DJ program, set those tracks to play out of "FireWire Audiophile Analog Outs 3/4."

4   Press the Headphone Source Selector momentary switch to set the source to "B." The LED indicator will light for the B selection. You will now be able to hear the tracks that you are cueing only from the headphones—not the main outputs. When you are done cueing, you may set the Headphone Source Selector back to the "A" selection by pressing the momentary switch again.

Monitoring With An Advanced DJ Setup -- Your setup would be considered "advanced" if you were using Line Outputs 1/2 for your main speakers (playing to a room of people dancing), and wanted to use Line Outputs 3/4 for a booth monitor system. You could still use the Headphone Source Selector to cue up program material that you did not want to be heard from either the main speakers or the booth monitors.

1   In the Mixer page, route **sw rtn 1/2** to output 1/2 by clicking the **1/2** button for that channel. Connect Line Outputs 1/2 to your main speakers or sound system.

2   Route **sw rtn 1/2** to output 3/4 also, by clicking the **3/4** button for the **sw rtn 1/2** channel. That way, your main outputs will also play out of your booth monitors connected to Line Outputs 3/4.

3   Also in the Mixer page, route **sw rtn 3/4** to output S/PDIF by clicking the **spd** button for the **sw rtn 3/4** channel. We assume here that you're not using the S/PDIF output for any other purpose.

4   When you want to cue up other material from your DJ program, set those tracks to play out of "FireWire Audiophile Analog Outs 3/4." Those tracks will show up in the FireWire Audiophile's **mixer** page under **sw rtn 3/4** (which, as you know, is now routed to "spd").

5   In your control panel's **hardware** page, you'll see that the "headphone source selector" is set up as "out 1/2" for the A selection, and "**out 3/4**" for the B selection. Change the B selection to **spdif**.

6   With the Headphone Source switch set to "A," you will be monitoring the tracks set to "FireWire Audiophile Analog Outs 1/2", in your DJ program. When you switch to the B selection, you will be monitoring the tracks set to the "FireWire Audiophile Analog Outs 3/4." This is because:

a) The tracks you are cueing in your DJ program are set to "FireWire Audiophile Analog Outs 3/4." These show up in the FireWire Audiophile's Mixer as **sw rtn 3/4**,
b) In the FireWire Audiophile's Mixer, **sw rtn 3/4** is routed to **spd** (which is short for S/PDIF) and
c) The Headphone Source Select "B" selection is set to **spdif**.

Monitoring Live Playback -- You can, for example, connect a turntable preamp's outputs to Line Inputs 1 and 2, or a CD player's S/PDIF output to the S/PDIF input, and route them to different outputs via your audio software. By selecting the appropriate settings in the Control Panel, you can use the front panel HP Source Selector to monitor either input in the headphones while playing back audio from your computer. The following instructions will guide you through this setup.

1   If you look at your control panel's **hardware** page, you'll see that the "headphone source selector" is set up as "out 1/2" for the A selection, and "out 3/4" for the B selection. If they're not, then set them for this configuration.

2   In the **mixer** page, route **analog in** 1/2 to Output 1/2 by clicking the **1/2** button for the **analog in** 1/2 channel.

3   Also in the **mixer** page, route the **spdif in** to Output 3/4 by clicking the **3/4** button for the **spdif in** channel.

4   Connect headphones to the FireWire Audiophile's Headphone Out. With the Headphone Source switch set to "A," you will be monitoring Line Input 1/2. When you switch to the B selection, you will be monitoring the **spdif input**.

5   You most likely will want to connect Line Output 1/2 and Line Output 3/4 of the FireWire Audiophile to a DJ battle mixer. This would allow you to toggle between the turntable and the CD player, and alternately play tracks from your computer that are set to play out of the FireWire Audiophile's Line Output 1/2 and Line Output 3/4.

Direct Monitoring On/Off – To change the function of the momentary switch to "Direct Monitoring On/Off," open your FireWire Audiophile Control Panel and click the Hardware tab. Clicking the "Direct Monitoring" radio button will change the momentary switch from a Headphone Source Selector to a Direct Monitoring on/off switch.

Now, the momentary switch will mute or unmute your FireWire Audiophile's input channels. This is useful when you want to manually control the monitoring of your hardware inputs. For this to work, you must have your inputs set up for direct monitoring (see section, Monitoring Your Inputs For Recording), either manually or through ASIO Direct Monitoring. Once you have done this, your Headphone Source A/B switch will then turn Direct Monitoring "off" when it is in the A position (all input channels will be muted), and turn Direct Monitoring "on" when it is in the B position (all input channels will be unmuted).

If you have ASIO Direct Monitoring switched on (your music program must be capable of ASIO Direct Monitoring), you can still use the A/B selector for manually turning Direct Monitoring on and off. ASIO Direct Monitoring, however, will take control of muting or unmuting your FireWire Audiophile inputs when you set up a track for recording, and use the music program's transport controls to stop, play, and punch-in or record. The A/B switch and corresponding LEDs, in this case, becomes a handy indicator of your record/monitor mode.

When ASIO Direct Monitoring is in use, you will be able to hear your FireWire Audiophile inputs when the program's "transport" is in stop mode (the "B" LED will light, and your inputs will be unmuted). When the program is in play mode, you will hear the recorded tracks but *not* the FireWire Audiophile inputs (the "A" LED will light, and your inputs will be muted), and when the program is punched in to record mode, you will again hear the FireWire Audiophile inputs (the "B" LED will light, and your inputs will be unmuted).

This is a highly accepted way of recording, and perhaps the most desirable. The FireWire Audiophile's Direct Monitoring On/Off switching makes it very convenient to use this method of recording, and to turn it on or off it when it is convenient to do so.

Setting Up Your Record Levels

Using the Line Inputs – Connect the line level output of your external audio device to the FireWire Audiophile's rear panel Line Inputs.

The signal level that you receive at the Line Inputs will be the signal level that you record. Any adjustments to that signal level must be made at the source. If you have an output level control on the device that you've connected to the FireWire Audiophile's line inputs, adjust that output level control to change the recording level. Most recording software will allow you to add gain to a recording that is made at a level that is initially too low, but be careful that the recording level is not reaching digital clipping (going into the red) while recording.

You will then want to route the input signal to your DAW's inputs. Refer to the section below on monitoring your inputs, and your software's documentation for more information.

Using the S/PDIF Input – Connect the S/PDIF digital output of your external audio device to the FireWire Audiophile's rear panel digital input.

Make sure that **external** is selected as the sync source in the FireWire Audiophile control panel's **hardware** page.

The signal level that you receive at the S/PDIF input will be the signal level that you record. In most cases, this level cannot be modified at the source.

Monitoring Your Inputs For Recording

The FireWire Audiophile supports ASIO direct monitoring, ASIO tape-type monitoring and WDM/MME input monitoring. The FireWire Audiophile also supports direct monitoring independent of the software's monitoring capability.

ASIO Direct Monitoring – Many applications that support ASIO 2.0 also support ASIO Direct Monitoring. In ASIO direct monitoring mode, your audio application sends the input signal directly back to the FireWire Audiophile's outputs, without passing through the application itself. The advantage is that there is no latency from passing through your audio software. However, since the audio is bypassing the software, you cannot add software effects or EQ plugins to the signal being monitored.

ASIO direct monitoring, when enabled, will allow you to control the monitor levels of the FireWire Audiophile's inputs directly from the program. Once you have assigned an input channel in the music software's mixer to a FireWire Audiophile input, the music software's mixer will take control of the FireWire Audiophile control panel mixer's input channels.

As mentioned, while the advantages to this type of monitoring are obvious (no latency), the inability to add effects can be seen as a drawback. That's why we created the **aux sends** in the FireWire Audiophile control panel's Mixer. These **aux sends** will allow you to add effects while direct monitoring. See the section on Adding Effects While Direct Monitoring, below, for more information.

If your audio application supports ASIO direct monitoring, you can enable it in your DAW's ASIO or audio control panel. Make sure that ASIO Direct Monitoring is enabled from within your audio software by going into the program's audio setup page and enabling it. Please refer to your audio software's documentation for additional information. Also see the section above, "Direct Monitoring On/Off," for information on using the A/B momentary switch in conjunction with ASIO Direct Monitoring.

ASIO Software Monitoring – Your ASIO program may only support simple software monitoring, and not ASIO Direct Monitoring. In this case, the input signals are monitored through your audio software's mixer. Although you can now monitor your inputs with effects and EQ plug-ins, a small amount of latency is introduced by monitoring through your software. The FireWire Audiophile supports the ultra-low latency ASIO 2.0 standard, however your actual latency is influenced by a number of factors including your computer hardware, processor speed and selected buffer size both in your FireWire Audiophile control panel and your music software.

If your audio application supports ASIO throughput monitoring, you can enable it in your Audio Software's ASIO or audio control panel simply by selecting the FireWire Audiophile's ASIO driver. Please refer to your audio software's documentation for additional information on setting up your tracks for recording.

WDM Input Monitoring – If you are running a WDM-compliant application, the FireWire Audiophile supports input monitoring through your audio software. In most cases WDM offers extremely low latency monitoring, even when using plug-in effects and EQ, very similar to ASIO tape-type monitoring.

If your application supports WDM and direct monitoring, you may enable it in your audio software's audio control panel. Please refer to your audio software's documentation for additional information.

Other Direct Monitoring — If you are running a program that is not ASIO compliant or does not have WDM input monitoring (such as Sound Forge, or some earlier programs), you can still take advantage of the FireWire Audiophile's ability to directly monitor the analog and S/PDIF inputs using the FireWire Audiophile control panel **mixer**. Even if your program does have ASIO tape-type or WDM input low-latency monitoring, you may choose to direct monitor the FireWire Audiophile's inputs in this fashion, and enjoy near zero-latency monitoring.

With ASIO direct monitoring, the audio software will take control over the FireWire Audiophile **mixe**r's input channels. With this form of direct monitoring, you must control the FireWire Audiophile Mixer's input channels manually. Here's how:

1   Open your audio software and the FireWire Audiophile control panel.

2   In the FireWire Audiophile control panel, click the **mixer** tab. (Let's assume that we're recording with the analog inputs, and that we're monitoring from the line outputs 1/2 in stereo.) Assign the **analog in** channels to **1/2**, and bring up the channel's faders until you begin to hear the source that's connected to the line inputs. See the previous section, "Adjusting the Input Levels," for more information.

NOTE: When recording with microphones, it is best to keep the mic at some distance from the main speakers, or use headphones to monitor. Feedback may occur when microphones are too close to speakers.

3   In your audio software, enable tracks to record from the FireWire Audiophile's analog Line Inputs. Either lower the program's monitor faders for those channels to full attenuation, or mute those channels so that you don't hear the tracks from the program while recording. (Remember, we're direct monitoring the inputs of the FireWire Audiophile.)

4   If you have tracks already recorded in your audio software that you wish to overdub along to, play those tracks and get a monitor balance between the tracks you are recording and the tracks already recorded by adjusting the **analog in** faders in the FireWire Audiophile control panel **mixer** page.

If you find that you need to fine-tune this monitor balance by going back and forth between your audio software and the FireWire Audiophile control panel, you might want

to assign the **level controller** to control the **analog in** faders in the FireWire Audiophile control panel, at least while you're setting up for recording. For more information, see the section, Using the **level controller assignments**.

As mentioned, while the advantages to this type of monitoring are obvious (no latency), the inability to add effects can be seen as a drawback. That's why we created the **aux sends** in the FireWire Audiophile control panel's **mixer**. These **aux sends** will allow you to add effects while direct monitoring. See the section, "Adding Effects While Direct Monitoring," for more information.

General Recording Instructions

The FireWire Audiophile's analog and digital inputs will appear as inputs in your audio software. Depending on your chosen application, these may be labeled as ASIO inputs, WDM inputs or CoreAudio inputs. Typically, for example, in an ASIO-based application (e.g., Cubase, Nuendo, Digital Performer 3) the FireWire Audiophile's inputs will appear as:

FireWire Audiophile Analog input 1
FireWire Audiophile Analog input 2
FireWire Audiophile S/PDIF input L
FireWire Audiophile S/PDIF input R

If you're using **analog in 1** or **2**, activate the input labeled as "Analog Inputs" in your audio software's input mixer. If you're using the **s/pdif inputs**, you must choose the correct S/PDIF input in the control panel's **hardware** page. Then choose an available track in your audio software and route the input signal to it. Refer to your audio software's documentation for further information.

Setting the Sample Rate

In most cases, you will want to set the sample rate from within your audio software. When the **sync source** in the **hardware** page of the FireWire Audiophile's control panel is set to **internal**, it will receive the sample rate from your audio application. However, if you are recording a digital source via the S/PDIF inputs, you will want to set the **sync source** to External. This will allow the incoming digital source to control the sample rate.

Adding Effects While Direct Monitoring

This is an important feature of the FireWire Audiophile, and something that sets it apart from many other audio interfaces. Direct monitoring is a way of avoiding the latency inherent in through-the-program type monitoring, especially when building up a large number of tracks (where buffer size and latency increase). The **aux sends** in the FireWire Audiophile control panel allow you to add effects to the direct monitored signal.

You must have an outboard effects unit with a S/PDIF digital input and output (fairly common on the market today), an effects unit with S/PDIF digital out only, or an A/D converter that would allow you to plug the output of the effects unit into the FireWire

Audiophile's S/PDIF input. The following step-by-step instructions give you a basic setup, and continue on to an advanced setup for adding and monitoring effects.

NOTE: In this example, we would leave the sync source selection in the control panel's **hardware** page set to **internal**. The outboard effects unit will get its clock from the FireWire Audiophile's S/PDIF Out, and therefore will lock to the internal clock. When the effect unit returns to the S/PDIF Input, the S/PDIF Input should be in sync with the internal clock.

1   Connect the FireWire Audiophile's S/PDIF Out to the S/PDIF Input of your outboard effects unit. In the FireWire Audiophile's **output** page, click on the **spdif out** channel's **main/aux** switch so that it displays **aux.**

2   Since we're going to be monitoring the effect from the S/PDIF input, we must assign the **spdif in** channel in the FireWire Audiophile **mixer** page to a destination. Select **1/2** as the destination, so that the effect is mixed in with other signals being monitored.

3   Set up your FireWire Audiophile to record with the analog inputs using the instructions under the "Setting Up Your Record Levels" section, and either the ASIO Direct Monitoring or Other Direct Monitoring sections.

4   Let's assume that you are only using analog **line in 1** for recording (maybe a bass synth on channel 1). After you have set up a reasonable monitor level using the level fader on the Mixer's **analog in** and panned the channel (most likely center), add some level to the **aux L** control. That signal is being sent to the **aux output master** channel, and then to the **spdif out**. Since we're adding an effect to a mono instrument, set the **aux output master** channel's **pan** knobs to <C>, or center panned.

As you play the synth, you should start to see level appear on the **aux output master** channel as you add level to **aux L** control on the **analog in**. You should also start to see level appearing at the input of your effects unit, and hear the effect level at the FireWire Audiophile's **spdif in**. You can make adjustments to the monitor level using the **spdif in** channel's level faders.

Now for the advanced setup. We've added an effect to the instrument that we're recording and direct monitoring. That's fine for recording, but we might want to hear that same effect when we are playing back—at least while the recording process is going on. Once you're done recording, you might want to disconnect the outboard effects unit, reset your FireWire Audiophile Mixer, and then use the software plug-in effects from within your audio software.

Here's a suggestion for how to hear the same effect on the synth you are recording as you hear when playing back the track and evaluating the performance.

1   Whichever track you are recording to, set that track's output to Line Output 3 and 4.

2   In the FireWire Audiophile **mixer**, set the destination on **sw rtn 3/4** to **1/2**. Then, match the level and the pan setting on **sw rtn 3** to the **analog in** channel 1. Also, match the level of the **aux L** controls for both of those channels.

This way, when you play back a track that you've just recorded, you'll hear it in exactly the same way as you did while recording. This is very useful for both the artist and the producer, and is generally better for judging the performance than having to shift your perception to listening to the track without an effect or with a different effect (such as one provided by a software plug-in).

NOTE: If your effects unit does not have a S/PDIF input (yet does have a S/PDIF output), you may substitute the FireWire Audiophile line out 3/4 for the S/PDIF output in this example. In that case, you will have to set the sync source selection in the control panel's **hardware** page set to **external**. The FireWire Audiophile will have to slave to the clock signal that the effects unit is sending, while that effect unit may be limited in the number of possible sampling rates.

Using the Aux Send as a Separate Monitor Mix

The **aux send** can also be used to create an alternate monitor mix that is sent to a headphone amplifier. Sometimes the artist wants to hear a different mix than the recording engineer, perhaps one with louder rhythm tracks or a quieter piano track—whatever they need to inspire their performance.

1 In the FireWire Audiophile's **output** page, choose either the **3/4 out** or the **spdif out** for your send to the headphone amp. Click that channel's **main/aux switch** so that it displays **aux**. Connect that output to your headphone amp, and plug in headphones to monitor with.

2 In the FireWire Audiophile Mixer, add level to the **aux L** and **aux R** controls to create the headphone mix. Whichever channels are playing back into the Mixer, whether they're **sw rtns, analog in** or **spdif in**, assign an appropriate aux send level to this alternate mix.

You can make changes to the fader levels for a control room mix, and at the same time adjust the **aux send** levels to meet the artist's desires. Both the engineer and the artist are happy, and a great recording is created.

Using the Level Controller Assignments

The Level Controller on the FireWire Audiophile's front panel is a software rotary encoder, and its function is completely assignable from the FireWire Audiophile control panel. When the control panel is first installed, the default setting for the Level Controller is to control the Outputs—perfect for most of your monitoring needs. So perfect, in fact, that you may never need to change this setting.

However, if you are an advanced user, you may find an advantage in modifying the Level Controller assignment or making custom settings. A likely scenario for an alternate Level Controller assignment would be to use it to control the input monitor levels when you are direct monitoring the FireWire Audiophile inputs (see section entitled "Other Direct Monitoring"). We'll explore that use here, which might give you some ideas for other ways that you can use the Level Controller assignments.

1   In the right panel of the FireWire Audiophile control panel, click **input** as your Level Controller assignment.

2   Click the **mixer** tab. On the **mixer** page, you should see the **ctlr** buttons on the **analog in** and **spdif in** channels. You're most likely just recording with the analog inputs, so click the **ctrl** button on the **spdif in** channel to deselect those faders from the Level Controller assignments. Then, the Level Controller will ONLY control the analog in channels.

Now, you can keep your audio software open while recording, and avoid having to switch back and forth between your audio software and the FireWire Audiophile control panel to tweak your monitor levels for the inputs that you are recording.

NOTE: Whenever you click on a "new" Level Controller assignment group, all of the possible ctrl buttons will become active. You can make changes by clicking an individual ctrl button to deselect that channel and disassociate it from the Level Controller assignment group. The control panel will then remember these modifications if you click to another assignment group and then click back to the previously modified group.

11 Troubleshooting

The FireWire Audiophile has been designed to give you high performance and professional quality audio. It has been tested under a wide range of systems and operating conditions. In the real world, however, there is a nearly infinite number of possible operating scenarios, any of which could affect your system's performance. Much like owning an automobile, "your mileage may vary." This section cannot begin to cover all possible issues you may encounter . However, we want to give you some suggestions on common problems you may experience.

One thing to avoid is connecting too many devices. The FireWire bus is a dependable, high-speed, high-bandwidth protocol that is ideally suited for digital audio. Nevertheless, it's important to remember that audio and multimedia streaming places considerable demands on your processor and the FireWire bus. Although it is theoretically possible to chain many multiple FireWire devices in series, doing so may potentially degrade your audio performance.

Generally, FireWire devices do not suffer from the IRQ conflicts sometimes encountered with PCI cards. If you are having trouble getting audio into or out of your FireWire Audiophile, please check the following.

If you have no sound:
• Check to see if the FireWire Audiophile drivers are properly installed. In Windows XP, go to the Control Panel and double-click the System icon (under Performance and Maintenance if you're in Category view). Select the Hardware tab and click the Device Manager button. Click the plus sign ("+") next to Sound, Video and Game Controllers, and locate the FireWire Audiophile listing. If you see a question mark or exclamation point next to it, or if you don't see it listed, you may need to reinstall the driver software.
• Make sure your audio software has been set up to use the FireWire Audiophile. Open your application's audio settings page and check to see if the FireWire Audiophile's ASIO or WDM drivers have been selected.
• If you're certain the FireWire Audiophile is correctly installed and configured for your audio software, check your signal path. Make sure your inputs are routed correctly by verifying that your application is receiving audio signal. Make sure your outputs are routed correctly so that your signal is sent to your headphones, amp and/or monitors.
• Check your audio connections to make sure everything is plugged in correctly.

If you are trying to record a digital input to the FireWire Audiophile and have no sound:
• Make sure your audio software is configured to receive digital input, and that the input source is set as clock master.

If you are experiencing clicks and pops in your recordings:
• Make sure your input levels are not too hot, as this can cause distortion and clipping. Check the input level meters in your audio application.
• If you are recording a digital input source, make sure the FireWire Audiophile's sync source, as well as the sync source in your audio software, are set to **external**.
• You might want to try using a larger buffer size. Larger buffer sizes can increase input latency time, but if you're mixing, for example, this is not an issue. Increasing the buffer size can be helpful, particularly in the case of older or lower-powered systems.

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13 Product Specs

A to D & Line In 1/2

Max Input (output)	+2dBV	
SNR	102dB A-weighted	
Dynamic Range	101dB A-weighted	
THD+N	0.0015% (-94dB)	
Frequency response, 48kHz sample rate		+0.10/-0.20dB, 20-20kHz
Frequency response, 96kHz sample rate		+0.10/-0.25dB, 20-40kHz
Input/output Impedance	11k-ohms	

D to A & Line Out 1/2

Max Input (output)	+2dBV	
SNR	106dB A-weighted	
Dynamic Range	108dB A-weighted	
THD+N	0.0020% (-96.5dB)	
Frequency response, 48kHz sample rate		+0.0/-0.16dB, 20-20kHz
Frequency response, 96kHz sample rate		+0.25/-0.55dB, 20-40kHz
Input/output Impedance	100 ohms	

Line Out 3/4

Max Input (output)	+2dBV
SNR	104dB A-weighted
Dynamic Range	108dB A-weighted
THD+N	0.0015% (-96.5dB)

Headphone Out (@ maximum gain)

Max Input (output)	+9dBV
SNR	103dB A-weighted
Dynamic Range	105dB A-weighted
THD+N	0.0050% (-86dB)

Default Mixer Settings:

• Mixer faders – set to 0 dBfs
• Output faders – set to 6 dB attenuation
• Output channels - assigned to "main"
• Headphone source - set to "1/2"
• Software Return channels – routed as follows: sw rtn 1/2 to output "1/2",
        sw rtn 3/4 to output "3/4", sw rtn spdif to output "spd"
• "Aux Send" knobs - set to full attenuation
• "Analog in" and "spdif in" – no routing assigned
• "Pan" knobs - set to hard left and right
• "Balance" knobs - set to center <C> position
• Channels - set to: mute=off, solo=off & link=off
• Level Controller – assigned to "output" fader group (all channels in group will be selected)

14 Warranty

M-AUDIO warrants this product, under normal use, to be free of defects in materials and workmanship for a period of One (1) Year from date of purchase, so long as: the product is owned by the original purchaser, with proof of purchase from an authorized M-AUDIO dealer and, the product has been registered to the original purchaser, the purchaser having returned to M-AUDIO the completed product warranty card. This warranty explicitly excludes power supplies and included cables which may become defective as a result of normal wear and tear.

In the event that M-AUDIO receives, from an original purchaser and within the warranty coverage period, written notice of defects in materials or workmanship, M-AUDIO will either replace the product, repair the product, or refund the purchase price at its option. In the event repair is required, shipment to and from M-AUDIO and possible nominal handling charges shall be borne by the purchaser. In the event that repair is required, a Return Authorization number must be obtained from M-AUDIO. After this number is obtained, the unit should be shipped back to M-AUDIO in a protective package with a description of the problem and the Return Authorization clearly written on the package.

In the event that M-AUDIO determines that the product requires repair because of user misuse or regular wear, it will assess a fair repair or replacement fee. The customer will have the option to pay this fee and have the unit repaired and returned, or not pay this fee and have the unit returned un-repaired.

The remedy for breach of this limited warranty shall not include any other damages. M-AUDIO will not be liable for consequential, special, indirect, or similar damages or claims including loss of profit or any other commercial damage, even if its agents have been advised of the possibility of such damages, and in no event will M-AUDIO's liability for any damages to the purchaser or any other person exceed the price paid for the product, regardless of any form of the claim. M-AUDIO specifically disclaims all other warranties, expressed or implied. Specifically, M-AUDIO makes no warranty that the product is fit for any particular purpose.

This warranty shall be construed, interpreted, and governed by the laws of the state of California. If any provision of this warranty is found void, invalid or unenforceable, it will not affect the validity of the balance of the warranty, which shall remain valid and enforceable according to its terms. In the event any remedy hereunder is determined to have failed of its essential purpose, all limitations of liability and exclusion of damages set forth herein shall remain in full force and effect.

IMPORTANT:

It has come to our attention that problems have been reported with several types of IEEE1394 ("FireWire") devices, including M-Audio FireWire devices. These problems occur when using a 6-pin **bus-powered connection** when plugging and unplugging external FireWire devices, **when both the computer and external device are powered on.** This is commonly referred to as "hotplugging". In some cases the FireWire port on the host computer system is rendered permanently inoperable. In other cases the external FireWire device is rendered permanently inoperable. M-Audio does not want

users of M-Audio FireWire products to experience such costly problems. **Therefore, M-Audio must require that users of M-Audio FireWire devices refrain from hotplugging any M-Audio FireWire device.** You must make your FireWire connection while both computer and FireWire device are powered off; then power on.

In case your M-Audio FireWire device was not detected by your computer on startup, try the following troubleshooting options instead of hotplugging it:

4. Turn your M-Audio FireWire device off, wait 30 seconds then power it on.
5. Put your computer into hibernation mode, wait 30 seconds then reactivate it.
6. Restart the computer (don't turn it off) while the M-Audio FireWire device remains connected and powered on.