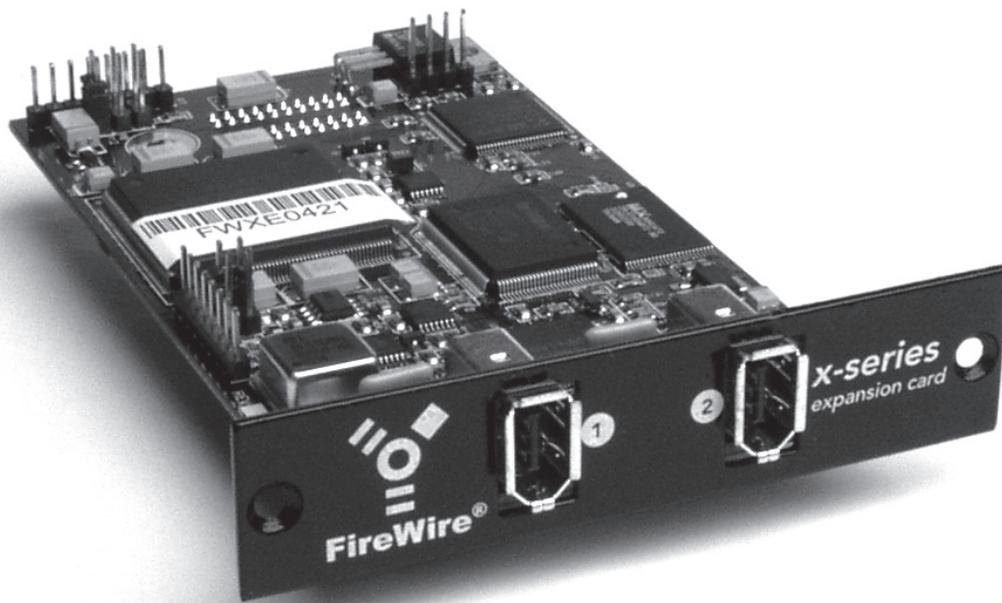


X-Series

Expansion Cards



X-FireWire Card

User's Guide
v1.3 - May 2005



Warnings

FCC warning

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to take whatever measures necessary to correct the interference at his own expense.

Copyright Notice

The Apogee X-FireWire card is a computer-based device, and as such contains and uses software in ROMs. This software, and all related documentation, including this User's Guide contain proprietary information which is protected by copyright laws. All rights are reserved. No part of the software and its related documentation may be copied, transferred, or modified. You may not modify, adapt, translate, lease, distribute, resell for profit or create derivative works based on the software and its related documentation or any part thereof without prior written consent from Apogee Electronics Corporation, U.S.A.

Declarations of Conformity

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
- (2) This device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits of 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. 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:

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

NOTE: The use of non-shielded cable with this equipment is prohibited.

CAUTION: Changes or modifications not expressly approved by the manufacturer responsible for compliance could void the user's authority to operate the equipment.

Apogee Electronics Corporation, 3145 Donald Douglas Loop South, Santa Monica, CA 90405.
Betty Bennett, CEO.

Industry Canada Notice

This Class B digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations. Cet appareil numérique de la classe B respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

Declaration of Conformity – CE

Apogee Electronics Corporation hereby declares that the product, the X-FireWire card, to which this declaration relates, is in material conformity with the following standards or other normative documents:

- EN50081-1/EN55022; 1995
 - EN50082-1/IEC 801-2, 3, 4; 1992
- following the provisions of:
- 73/23/EEC – Low Voltage Directive
 - 89/336/EEC – EMC Directive

Declaration of Conformity – Japan

Apogee Electronics Corporation hereby declares that the X-FireWire card, to which this declaration relates, is in material conformity with the VCCI Class A standard.

Declaration of Conformity – Australia

Apogee Electronics Corporation hereby declares that the X-FireWire card is in material conformity with AN/NZS standard requirements.

Registration and Warranty Information

Be sure to register your X-FireWire card, either by filling in the enclosed Registration Card or by completing the on-line registration form at our Web site: <http://www.apogeedigital.com/support/>. If you do so, Apogee can contact you with any update information. As enhancements and upgrades are developed, you will be contacted at the registration address. Firmware updates are free for the first year of ownership unless otherwise stated. Please address any inquiries to your dealer or directly to Apogee at:

**APOGEE ELECTRONICS CORPORATION,
1715 Berkeley St, Santa Monica, CA 90404, USA.
TEL: (310) 584-9394, FAX: (310) 584-9385
Web: <http://www.apogeedigital.com/>**

APOGEE ELECTRONICS CORPORATION warrants this product to be free of defects in material and manufacture under normal use for a period of 12 months. The term of this warranty begins on the date of sale to the purchaser. Units returned for warranty repair to Apogee or an authorized Apogee warranty repair facility will be repaired or replaced at the manufacturer's option, free of charge.

ALL UNITS RETURNED TO APOGEE OR AN AUTHORIZED APOGEE REPAIR FACILITY MUST BE PREPAID, INSURED AND PROPERLY PACKAGED, PREFERABLY IN THEIR ORIGINAL BOX. Apogee reserves the right to change or improve design at any time without prior notification. Design changes are not implemented retroactively, and the incorporation of design changes into future units does not imply the availability of an upgrade to existing units.

This warranty is void if Apogee determines, in its sole business judgment, the defect to be the result of abuse, neglect, alteration or attempted repair by unauthorized personnel.

The warranties set forth above are in lieu of all other warranties, expressed or implied, and Apogee specifically disclaims any and all implied warranty of merchantability or of fitness for a particular purpose. The buyer acknowledges and agrees that in no event shall the company be held liable for any special, indirect, incidental or consequential damages, or for injury, loss or damage sustained by any person or property, that may result from this product failing to operate correctly at any time.

USA: Some states do not allow for the exclusion or limitation of implied warranties or liability for incidental or consequential damage, so the above exclusion may not apply to you. This warranty gives you specific legal rights, and you may have other rights which vary from state to state.

Service Information

The X-FireWire card contains no user-serviceable components: refer to qualified service personnel for repair or upgrade. Your warranty will be voided if you tamper with the internal components. If you have any questions with regard to the above, please contact Apogee.

In the event your X-FireWire card needs to be upgraded or repaired, it is necessary to contact Apogee prior to shipping, and a Return Materials Authorization (RMA) number will be assigned. This number will serve as a reference for you and helps facilitate and expedite the return process. Apogee requires that shipments be pre-paid and insured — unless otherwise authorized in advance.

IMPORTANT: ANY SHIPMENT THAT IS NOT PRE-PAID OR IS SENT WITHOUT AN RMA NUMBER WILL NOT BE ACCEPTED.

OWNER’S RECORD

The serial number is located on the top of the unit. We suggest you record the serial number in the space provided below. Refer to it whenever you call an authorized Apogee Electronics repair facility or the manufacturer. Please be sure to return your completed warranty card immediately!

X-FireWire card Serial No. _____

Purchase Date _____

Dealer _____

Phone _____

Address _____

CAUTION:

Any changes or modifications not expressly approved by APOGEE ELECTRONICS CORPORATION could void your authority to operate this equipment under the FCC rules.

Please register this unit by filling in the included registration card, or registering online at <http://www.apogeedigital.com/support/register.php> Please read this manual – if you call for technical support, we’ll assume that you have. There will be a quiz.

X-FireWire Card

User's Guide

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Please Note

Two versions of the X-Firewire card have been released: the earlier version is equipped with 2 FW800 ports and one FW400 port, while the later version is equipped with 2 FW400 ports only. There are no differences in performance between the two versions, including the speed of the Firewire interface which runs at 400 Mbps. All references to FW800 functionality in this manual apply to the earlier version of the card.

Requirements

Windows XP

OS :	Windows XP SP1 or SP 2 (Windows 2000 or earlier not supported) Microsoft "hotfix" http://support.microsoft.com/kb/885222 (if your computer and X-Firewire card are equipped with FW 800 connections).
Hardware :	1.5 gig or greater processor At least 512 megs RAM FW 400 or FW 800 FireWire ports using a Texas Instruments or Lucent chipset

OS X

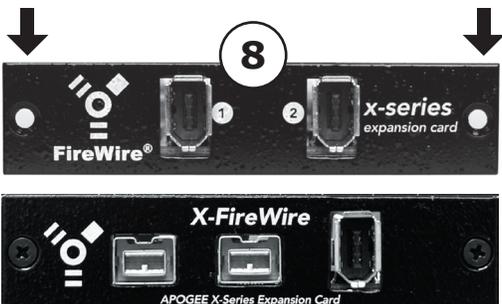
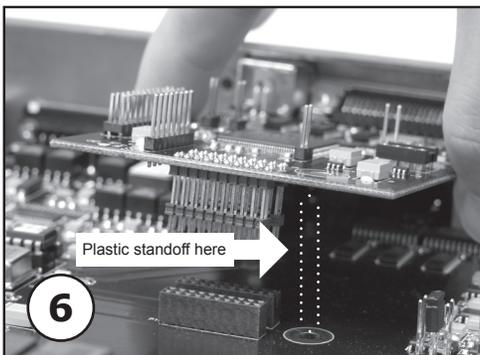
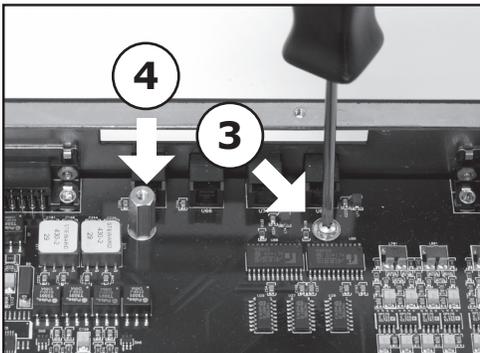
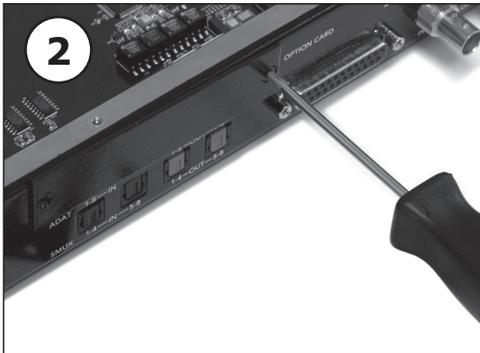
OS :	OS X 10.3.9 only
Hardware :	867 mHz or greater At least 512 megs RAM Third party Firewire PCI cards are not supported at this time

Overview

The following steps must be completed to begin using your new X-FireWire card; detailed descriptions of each step may be found further in this manual.

- 1 Install the X-FireWire card in an Apogee host interface, such as the AD or DA16X, Rosetta 800 or 200, or a Big Ben.
- 2 If using a Windows XP computer, download the XP driver (from www.apogeedigital.com/downloads) and install it.
Disconnect the X-Firewire card from the computer before commencing driver installation.
If using a Macintosh OS X computer, no computer drivers are necessary.
- 3 Connect the X-FireWire to your computer.
If the computer you're using has FW800 ports, a FW 800 port on the computer must be connected to one of the two FW800 ports on the X-Firewire card.
- 4 Ensure that X-FireWire firmware matches the host interface; download and install the appropriate firmware and Updater utility app if necessary (from www.apogeedigital.com/downloads). For example, when installing the X-FireWire card in an AD16X, it's necessary to load two firmware files onto the X-FireWire card.
- 5 Configure your DAW application for use with Apogee hardware.

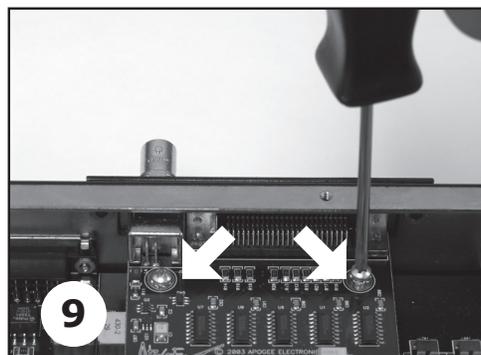
Installing the X-FireWire card



Your X-FireWire card should include the following:

- 1 X-FireWire circuit board
- 1 X-FireWire Coverplate
- 2 aluminium standoffs
- 1 plastic standoff
- 1 manual

- 1 Remove the top cover of the host interface.
- 2 Remove the Option Card coverplate, and set aside the screws for later use.
- 3 Remove the two interface circuit board screws indicated at left, and set them aside for later use
- 4 Install the two aluminium standoffs in the threaded holes vacated by the screws.
- 5 On the X-FireWire card, install the plastic standoff in the hole adjacent to the multi-pin motherboard connector.
- 6 Install the X-FireWire Coverplate, and secure it to the host interface using two screws from Step 2.
- 7 Insert the Port connector end of the X-FireWire card through the appropriate cutouts in the coverplate, and carefully place the multi-pin motherboard connector in the mating connector found on the host interface motherboard.
- 8 After verifying the alignment of the multi-pin and the mating connectors, firmly press down on the X-FireWire card, over the connector, until the pins are completely seated in the mating connector.
- 9 Re-install the circuit board screws from Step 3 in the locations indicated below.
- 10 Replace the top cover of the host interface.



Installing X-FireWire Firmware/Windows XP & Mac OS X

Regardless of the computer platform used, it's necessary to match the X-FireWire's firmware with the Apogee host unit (i.e. your AD16X, DA16X, Rosetta 800 or Rosetta 200) into which the card is installed. Unless otherwise specified, the X-FireWire card is supplied for operation in a Rosetta 800 ; to use the X-FireWire card with the Rosetta 200, AD and DA16X, corresponding firmware may be downloaded from Apogee's web site and loaded into the X-FireWire card using the ApogeeFireWireUpdater utility application.

Windows XP

- 1 Install the X-FireWire card into the host unit, as specified above. Rest assured that it's possible to modify X-FireWire firmware even if the firmware is mismatched with the host unit.
- 2 Download the appropriate X-FireWire firmware and X-FireWire Updater from here: <http://www.apogeedigital.com/downloads/> You'll need to get the Windows XP X-FireWire Driver, the X-FireWire firmware that corresponds to the your host interface and your version of X-FireWire card, and the Windows XP X-FireWire Updater. Please see the downloads page to determine the version of your FireWire card.
- 3 Unzip the downloaded files to the desktop of your computer.
- 4 Unmount and **disconnect** all other FireWire devices sharing the same FireWire buss as the X-FireWire card.
- 5 **Disconnect the X-FireWire card from the computer** and launch the Windows XP Driver by double clicking on the setup.exe file. Connect the X-FireWire card to the computer and power on the host interface **only when instructed to do so by the driver installation app**. For more detailed driver instructions, please see pages 6-9 of this manual.
- 6 Open the X-FireWire Updater application.
- 7 Click **Open**, navigate to the downloaded firmware file with a .bin extension, select it, and click **Open**.
- 8 Click **Update** to download the .bin file to the X-FireWire card.
- 9 When the FireWireUpdater displays the message "**Programming FPGA done. Restart unit**", power cycle the host interface and quit and restart the X-FireWire Updater.
- 10 Once the host interface is recognized in the X-FireWire Updater, click **Open** again, navigate to the .bcd file, select it and click **Open**.
- 11 Click **Update** to download the .bcd file to the X-FireWire card.
- 12 When the X-FireWire Updater displays the message "**Your hardware settings have changed. You must restart your computer for these changes to take affect. Do you want to restart your computer now?**", click "Yes" to restart the computer. Turn off the host interface.
- 13 **Do not first turn on the host interface**. Re-install the XP driver, and turn on the host interface only when instructed to do so by the driver installation app.
- 14 Open the X-FireWire Updater and verify that "Firmware," "Host," and "FPGA" versions correspond to the intended versions. If "00" is displayed as a version number, it is necessary to carefully repeat steps 9-13 a second time. If "00" is displayed, reload the .bcd file without re-starting the computer or the X-FireWire Updater (as described in step 9).

Apple OS X

- 1 Install the X-FireWire card into the host unit, as specified above. Rest assured that it's possible to modify X-FireWire firmware even if the firmware is mismatched with the host unit.
- 2 Download the appropriate X-FireWire firmware and X-FireWire Updater from here: <http://www.apogeedigital.com/downloads/> You'll need to get the X-FireWire firmware that corresponds to the your host interface and your version of X-FireWire card, and the OS X X-FireWire Updater. Please see the downloads page to determine the version of your FireWire card.
- 3 Unzip the downloaded files to the desktop of your computer.
- 4 Unmount and **disconnect** all other FireWire devices sharing the same FireWire buss as the X-FireWire card.
- 5 Open the X-FireWire Updater application.
- 6 Click **Open**, navigate to the downloaded firmware file with a .bin extension, select it, and click **Open**.
- 7 Click **Update** to download the .bin file to the X-FireWire card.
- 8 When the FireWireUpdater displays the message "**Finished programming FPGA done. Unit must be power cycled**", power cycle the host interface and quit and restart the X-FireWire Updater.
- 9 Once the host interface is recognized in the X-FireWire Updater, click **Open** again, navigate to the .bcd file, select it and click **Open**.
- 10 Click **Update** to download the .bcd file to the X-FireWire card.
- 11 When the X-FireWire Updater displays the message "**Firmware Update finished**", restart the computer and power cycle the host interface.
- 12 Open the X-FireWire Updater and verify that "Firmware," "Host," and "FPGA" versions correspond to the intended versions. If "00" is displayed as a version number, it is necessary to carefully repeat steps 9-12 a second time.

The Apogee FireWireUpdater, the utility used to update firmware on the X-FireWire card, does not allow the simultaneous update of multiple units. Thus, when using Windows XP, it's necessary to install and update each card one at a time, including re-installation of the driver. Once all units have been updated, re-install the driver for a final time, connecting up ALL units when prompted by the driver.

Working with Windows XP

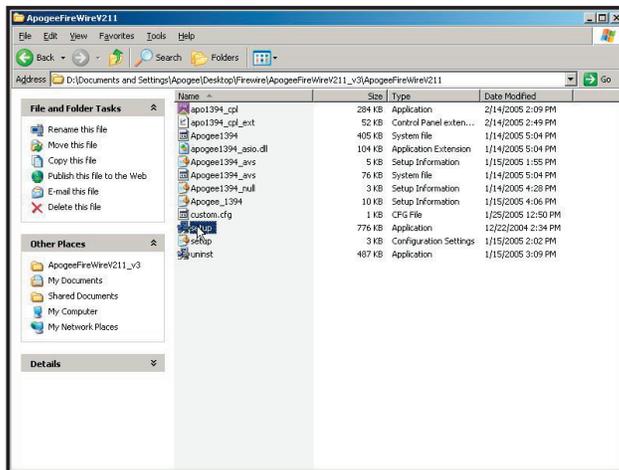
Installing the Windows Driver

If your computer and X-Firewire card are equipped with FW800 connections and you’re using SP 2, it’s necessary to run a Microsoft “hotfix” which may be found on the Microsoft website here: <http://support.microsoft.com/kb/885222>

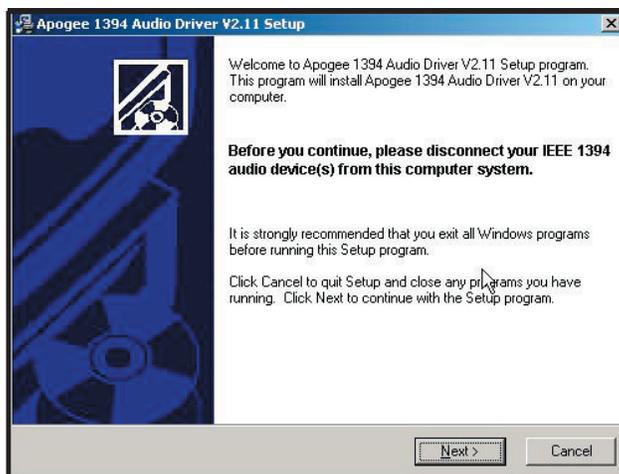
Without this hotfix the driver will not install correctly.

Before starting the setup.exe driver installation program, disconnect the X-Firewire card from the computer. You will be instructed at which point during the driver installation process to connect the X-FireWire card. If you have multiple units, be sure to connect them all when instructed to do so.

Download the Windows XP driver from our web site here: <http://www.apogeedigital.com/downloads/>; unzip the downloaded file.

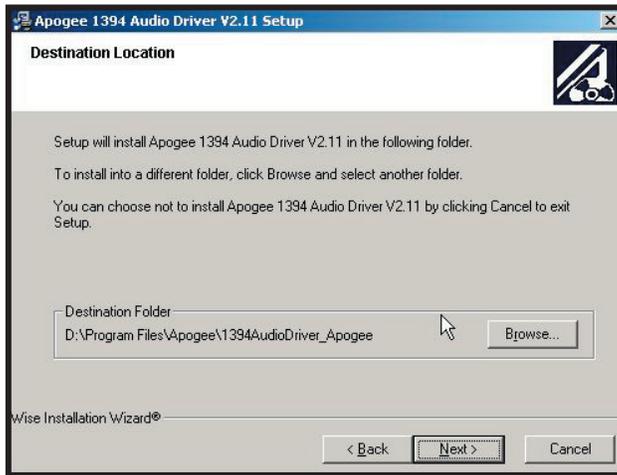


1 Double click on the **setup.exe**.

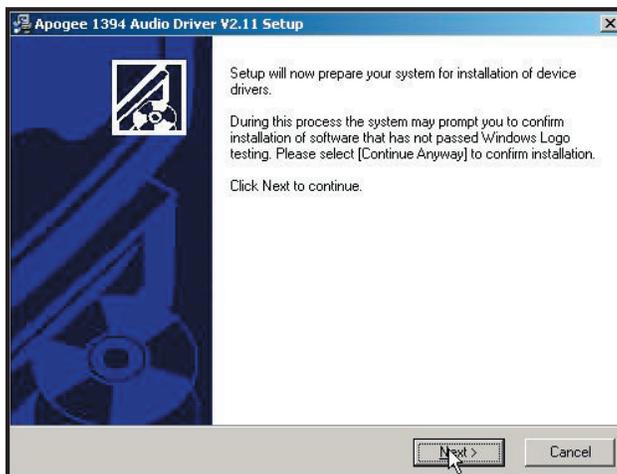


2 As noted onscreen, **disconnect** the X-FW-equipped interface, then click on **Next**. If a previous version of the driver was installed, this window will be preceded by an uninstallation procedure.

Working with Windows XP (continued)



3 Determine the Destination for the installer, and click **Next**. We recommend that you install the driver in the default location.

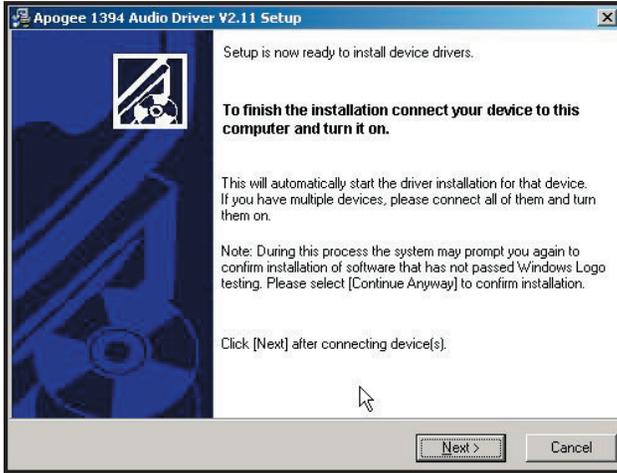


4 Click **Next**.



2 Click **Continue Anyway**. Disregard this message from Microsoft.

Working with Windows XP (continued)



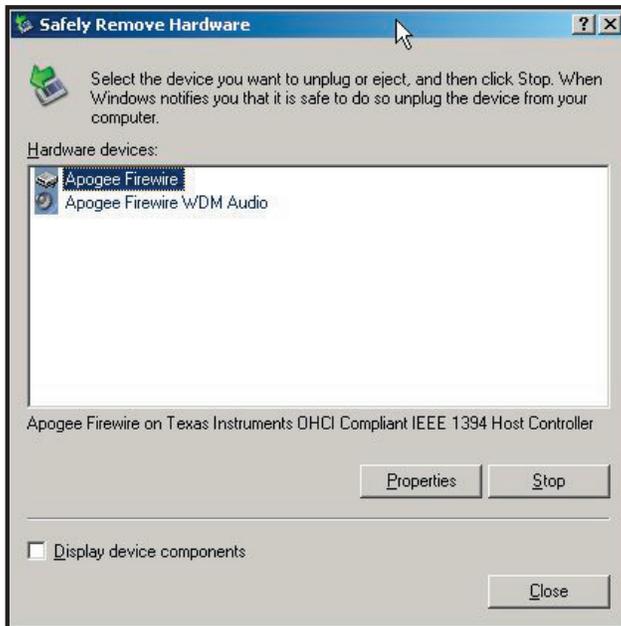
3 Now connect the X-FW-equipped interface, and click **Next**. It may be necessary to wait for the **New Hardware Found** notification pop-up to appear before clicking **Next**.



4 Click **Continue Anyway**.

5 During the installation process, you should see these three Found New Hardware Notification pop-ups: **Apogee FireWire**, **Apogee FireWire WDM Audio**, and **Your new hardware is installed and ready to use**.

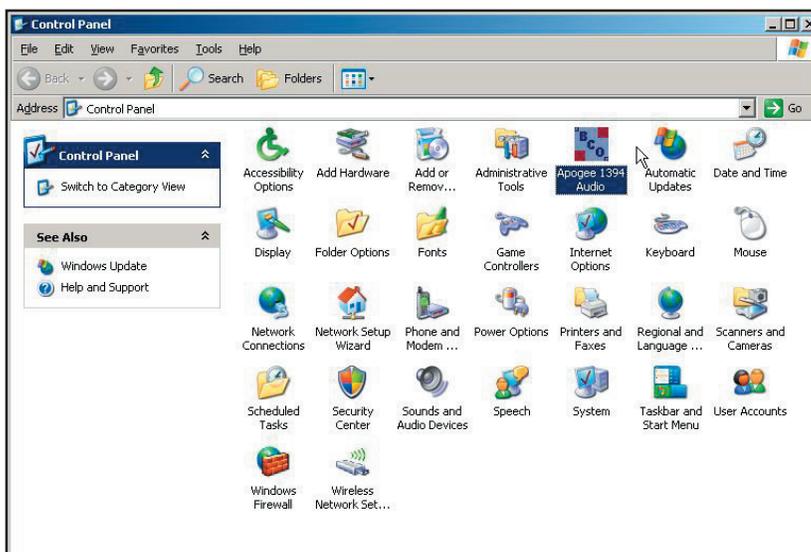
Working with Windows XP (continued)



6 To verify that the driver is correctly installed, double click on the **Safely Remove Hardware** icon in the Notification area (usually in the lower right hand corner of your computer screen). If both **Apogee FireWire** and **Apogee FireWire WDM Audio** devices are not displayed, the installation has failed. Go to **Add or Remove Programs** in the control panel, uninstall the driver, power cycle the computer and Apogee host interface, and re-install the driver.

Apogee 1394 Audio Control Panel

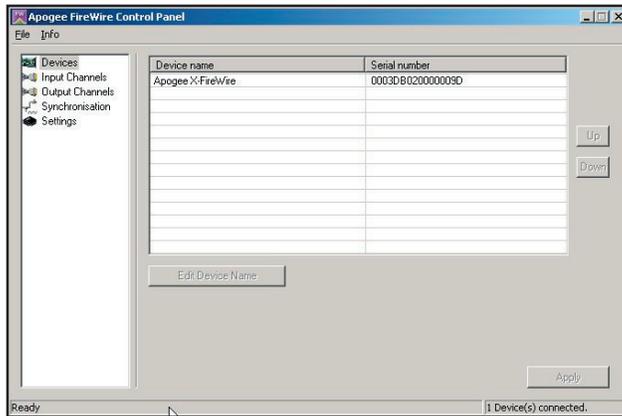
Once correct driver installation has been verified, open the Apogee 1394 Audio control panel by double clicking on the **Apogee 1394 Audio** icon found in the Windows XP control panel. While discovering the functionality of the control panel as described below, try a few control panel operations, such as switching sample rates, to verify proper communication between the control panel and the Apogee host interface.



Working with Windows XP (continued)

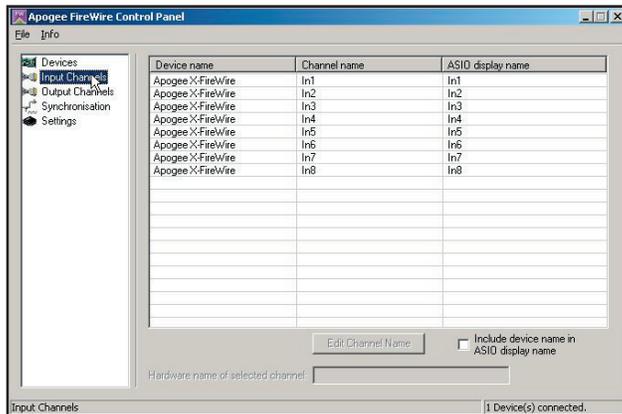
The Apogee 1394 Audio control panel consists of the following 5 windows accessed by clicking on their names in the left hand column of the control panel : **Devices**, **Input Channels**, **Output Channels**, **Synchronisation** and **Settings**.

Devices Window



In the **Devices** window, **Apogee X-FireWire** should be displayed under **Device name**, and a unique serial number is displayed under **Serial number**. If multiple host interfaces have been installed, they should all appear simultaneously. Press **Edit Device Name** to edit the Device name.

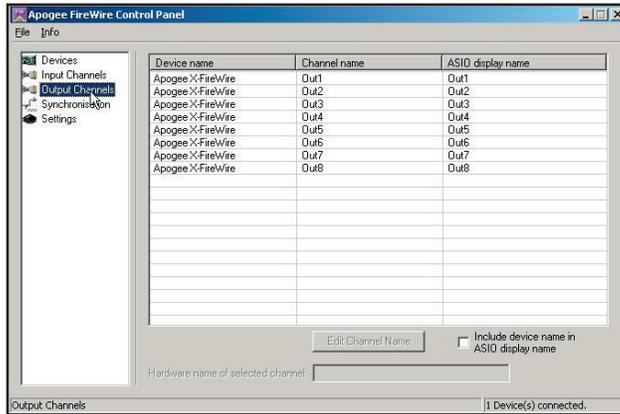
Input Channels Window



In the **Input Channels** window, it’s possible to edit the input Channel names for the devices connected.

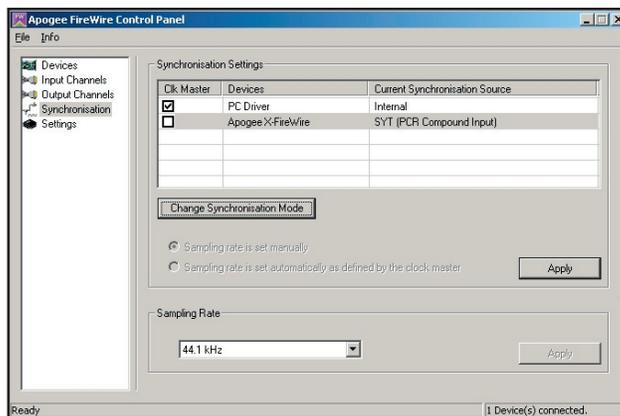
Working with Windows XP (continued)

Output Channels Window



In the **Output Channels** window, it's possible to edit the output Channel names for the devices connected.

Synchronization Window



In the **Synchronization** window, synchronization parameters for each device may be set as described below.

Sampling Rate

The sample rate for the selected master device is set with this drop-down menu. Ensure that the sample rate of the audio application matches the setting made here.

Working with Windows XP (continued)

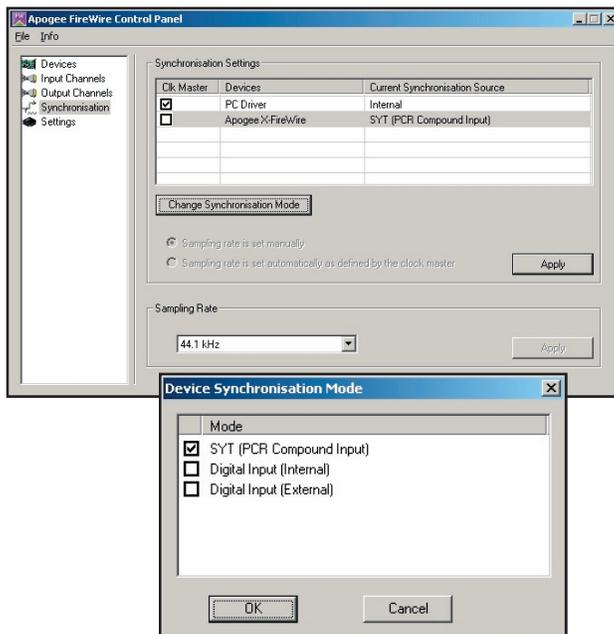
To set the clock source for each device connected, it’s necessary to first specify whether the computer or the X-FireWire device is clock master by checking the appropriate box in the **Ck Master** column. Next, it’s necessary to set the clock source of each X-FireWire device connected by selecting the interface and clicking the **Change Synchronization Mode** button. With these controls, it’s possible to set up the following three clock configurations:

- 1 **Computer is master, X-FireWire device is slave, locked to the X-FireWire card.**
- 2 **Computer is slave, X-FireWire device is master, locked to it’s internal clock.**
- 3 **Computer is slave, X-FireWire device is master, locked to another external source such as word clock.**

Following are the precise steps to achieve each of these three clock configurations:

1 Computer is master, X-FireWire device is slave, locked to the X-FireWire card.

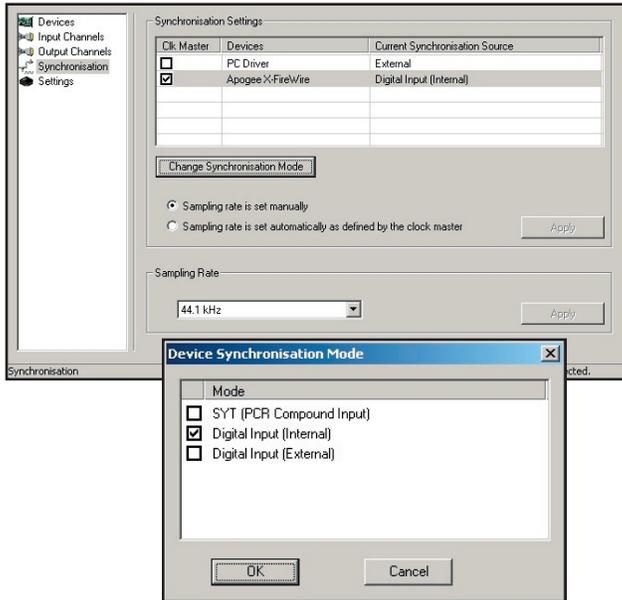
- 1 Under **Ck Master**, check **PC Driver**.
- 2 Select the **Apogee X-FireWire** device and click **Change Synchronization Mode**.
- 3 Check **SYT (PCR Compound Input)**, and click **OK**.
- 4 Click **Apply**.
- 5 On the Apogee host interface front panel, set the clock source to **Option** (on a Rosetta 200 or 800, set **Sample Rate** to **EXT** and **Sync** to **Option**).



Note that this is not possible with an AD-16X, which cannot lock to an installed X-FireWire Card. Also, note that Apogee does not recommend this configuration.

Working with Windows XP (continued)

2 Computer is slave, X-FireWire device is master, locked to it's internal clock



1 Under **Ck Master**, check **Apogee X-FireWire**.

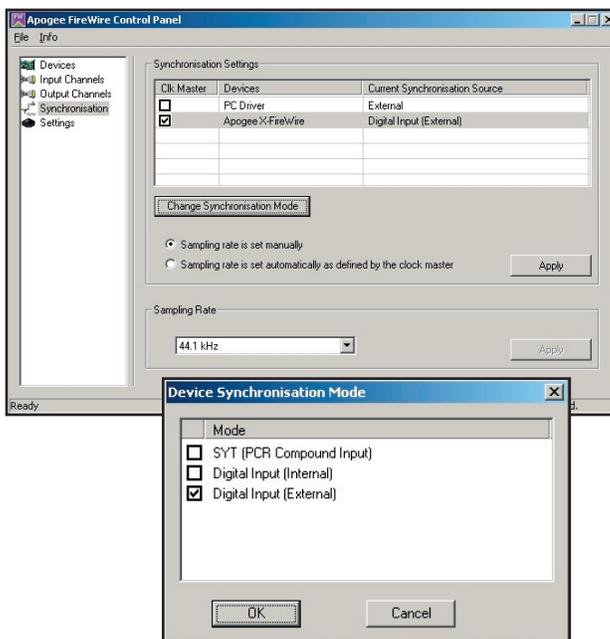
2 Select the **Apogee X-FireWire** device and click **Change Synchronization Mode**.

3 Check **Digital Input (Internal)** and click **OK**.

4 Click **Apply**.

5 On the Apogee host interface front panel, verify that the clock source is set to **INT**.

3 Computer is slave, X-FireWire device is master, locked to another external source such as word clock.



1 Under **Ck Master**, check **Apogee X-FireWire**.

2 Select the **Apogee X-FireWire** device and click **Change Synchronization Mode**.

3 Check **Digital Input (External)** and click **OK**.

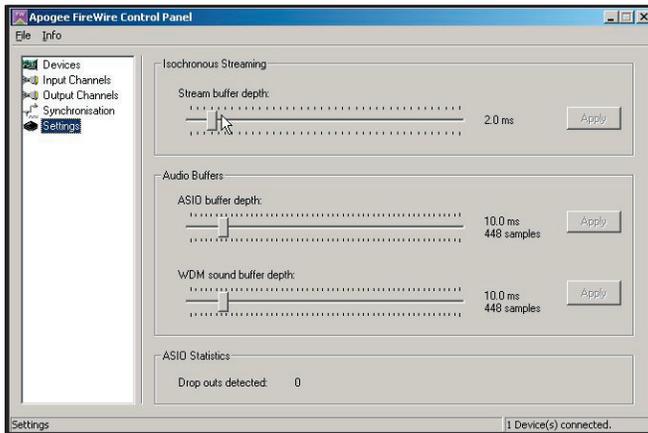
4 Click **Apply**.

5 On the Apogee host interface front panel, set the clock source to the desired clock source (such as word clock) (on a Rosetta 200 or 800, set **Sample Rate** to **EXT** and **Sync** to the desired clock source).

Working with Windows XP (continued)

When multiple Apogee X-FireWire cards are connected, we recommend that one interface be designated as the clock master and configured as in example 2, that the remaining units be configured as clock slaves as in example 3, and that word clock be distributed from the clock master to the clock slaves.

Settings Window



Three buffer settings are provided in this window, **Stream buffer depth**, **ASIO buffer depth**, and **WDM sound buffer depth**. Found below are a few general guidelines for setting buffer depths - please note that the right setting depends on the speed of your computer’s processor and the amount of processing needed for a particular session in your audio application (as determined by the number of I/O, the number of DSP plug-ins, soft synths, etc.).

- Lower buffer depths result in lower latency from input to output, but can result in buffer overruns which cause clicks and pops. Buffer overruns occur when the computer’s CPU runs out of processing power and cannot provide data quickly enough to the driver. If clicks and pops do occur, either the buffer depth must be increased to give the CPU more time, or the CPU’s load must be reduced by removing plug-ins, tracks or other DSP.
- Higher buffer settings result in higher latency but allow the use of more DSP (plug-ins, soft synths) without clicks and pops.
- During the recording phase of a session, it’s best to compromise DSP usage in order to minimize latency, so the performers being recorded are not disturbed by latency. To eliminate latency in performer’s cue mix, use Apogee’s Firemix Software Mixer.
- During the mixing phase of a session, latency is in most cases not an issue, thus it’s possible to increase buffer depths so more DSP may be used without clicks and pops.

Stream buffer depth

This is an **expert** setting, and should be left at 2.0 ms in most cases. If your processor is exceptionally fast, you may try lowering the buffer depth for lower latency. If the Apogee host interface is locking intermittently to FireWire, Stream buffer depth should be increased..

ASIO buffer depth

This setting controls buffer depth when using the X-FireWire card with ASIO-compatible applications (Steinberg Nuendo-Cubase, Sonar 4 (not 3), Samplitude, and others).

WDM sound buffer depth

This setting controls buffer depth when using the X-FireWire card with applications which employ WDM.

Working with Windows XP (continued)

General Notes

If you change the Apogee X-FireWire hardware connected to your computer in any way (i.e. you add interfaces or change X-FireWire cards), it's necessary to uninstall and re-install the Windows XP driver.

Troubleshooting

Symptom – When the driver instructs me “To finish the installation connect your device to this computer and turn it on”, I connect the device but nothing happens; the Apogee hardware is not recognized.

Solution – This indicates some sort of hardware problem:

- If you're computer and X-Firewire care are equipped with FW800 connections, be sure you're connecting the X-FireWire card to the computer with a FW800 cable.
- Test the host interface on another computer if possible
- Verify the chipset of the computer FireWire connections. We have had the most reliable operation with Texas Instruments or Lucent chipsets.

Symptom – The driver installation seems to have gone well, but the interface(s) don't appear correctly in the “Safely Remove Hardware” window. Also, I don't see I/O in the **Input Connections** and **Output Connections** windows of the Apogee 1394 Audio control panel.

Solution - If you're using SP2 and using FW800, run the Microsoft hotfix found here: <http://support.microsoft.com/kb/885222>. After that, go to **Add or Remove Programs** in the Windows control panel, uninstall the driver, power cycle the computer and Apogee host interface, and re-install the driver.

Symptom – I'm getting clicks and pops in my audio software.

Solution – Go to the Apogee 1394 Audio control panel's **Settings** window and increase the buffer setting sizes.

Symptom – My AD16X, DA16X or Big Ben won't lock to the Firewire connection.

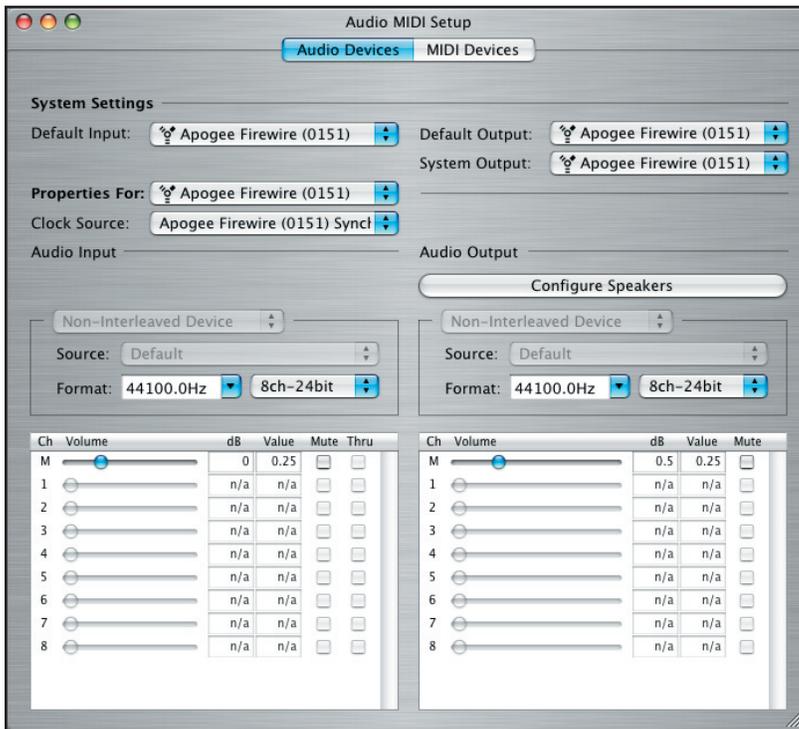
Solution – Increase the **Stream buffer depth** in the Apogee 1394 Audio control panel.

Symptom - I can't change the sample rate in the control panel or in my ASIO application.

Solution - This occurs when the X-Firewire WDM driver is in use either by an application or Windows. Release the X-Firewire WDM driver by quitting the application or deselecting the X-Firewire card in the Windows Sounds and Audio Devices control panel.

Working with OS X

- 1 Thanks to the integration of CoreAudio in Apple’s OS X, no drivers are needed.
- 2 After installing the X-FireWire card and connecting the host interface to the Mac, open the ApogeeFireWireUpdater and update the X-FireWire firmware to match the host interface, as explained above in “Installing X-FireWire Firmware”.
- 3 Open the Audio Midi Setup utility, found on an OS X Macintosh here: Applications > Utilities > Audio MIDI Setup.
- 4 Set **Default Input**, **Default Output**, and **System Output** to **Apogee FireWire (xxxx)** The X-FireWire serial number is displayed in parentheses.
- 5 In Audio Midi Setup, set **Properties For** to **Apogee FireWire (xxxx)** and **Format** to **44100.0Hz**. The channel number and bit resolution depth is determined by the host interface.



- 6 If Audio Midi Setup parameters are set as depicted above, audio played from Apple’s OS X music player iTunes will output via the host interface. Verify the proper operation of iTunes.

Working with OS X (continued)

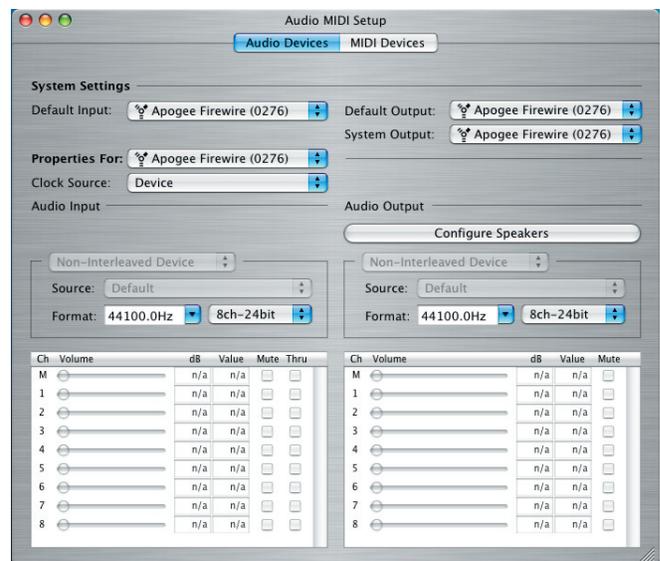
Setting Clock Source on the Host Interface

Two host interface clock settings are possible when using the X-FireWire card with OS X:

- 1 Computer is slave, X-FireWire device is master, locked to it's internal clock.
- 2 Computer is slave, X-FireWire device is master, locked to another external source such as word clock.

Following are the precise steps to achieve each clock configuration:

- 1 Computer is slave, X-FireWire device is master, locked to its internal clock.



- 1 In the Apogee Firemix software, uncheck the **External Sync** box.
- 2 In OS X's Audio Midi Setup, set **Properties For** to **Apogee FireWire (xxxx)** and set **Format** to the desired sample rate.

Working with OS X (continued)

3 Computer is slave, X-FireWire device is master, locked to another external source such as word clock.



- 1 In the Apogee Firemix software, check the **External Sync** box..
- 2 On the Apogee host interface front panel, set the clock source to the desired clock source (such as word clock); (on a Rosetta 200 or 800, set **Sample Rate** to **EXT** and **Sync** to the desired clock source).
- 3 In OS X's Audio Midi Setup, set **Properties For** to **Apogee FireWire (xxxx)** and verify that **Format** is set to the same sample rate as the Apogee host interface.

General Notes

- Please note that the **Clock Source** setting in Audio Midi Setup does not affect operation of a connected Apogee host interface.
- When power cycling an Apogee host interface connected to a computer via X-FireWire, it is essential to allow the operating system sufficient time to first “de-mount” the host interface and subsequently “re-mount” it. With the Audio MIDI Setup window open:
 - 1 Power down the host interface.
 - 2 Wait until the “Apogee FireWire” option is no longer preset under **Default Input** and **Default Output**.
 - 3 Power up the unit; upon power up, “Apogee FireWire” should become once again available under Default Input and Default Output.

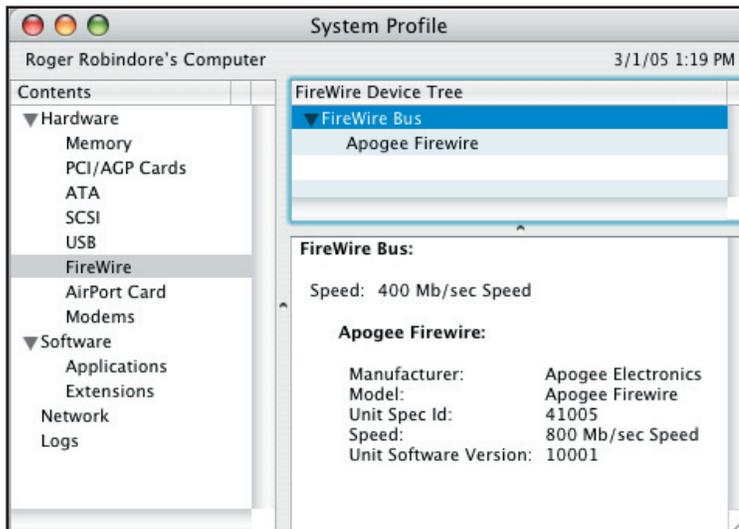
Working with OS X (continued)

Troubleshooting

Symptom – The X-FireWire card is not appearing in Audio Midi Setup

Solution - If your computer is equipped with FW800 connections, be sure you're connecting the X-FireWire card to the computer with a FW800 cable.

Open **System Profiler** (Applications>Utilities), and click on **FireWire** (under **Hardware**). You should see the following display.



Symptom – The card is recognized correctly in Audio Midi Setup, but audio is not passing to or from my audio application.

Solution – In order to assure lock of the FireWire buss, toggle the Format sample rate in Audio Midi Setup.

Symptom - The X-Firewire card is not recognized when I connect it to my Firewire PCI card.

Solution - Firewire PCI cards are not supported at this time. Connect the X-Firewire card to a computer chassis Firewire port.

Symptom - My X-Firewire card won't update, or isn't recognized by the Firewire Updater.

Solution - Unmount and remove all other Firewire devices attached to same Firewire buss as the X-Firewire card.

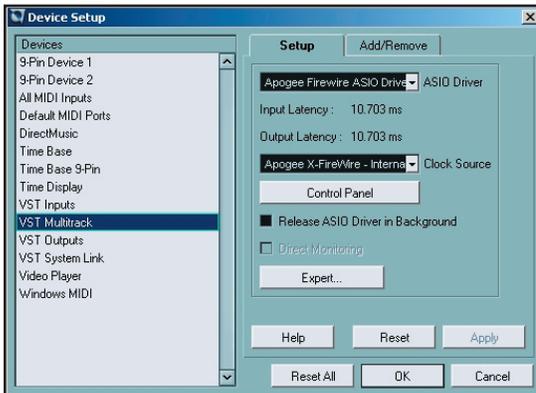
Configuring Audio Applications for use with X-Firewire Equipped Apogee Interfaces

In general, configuring the “major” audio applications (such as Apple Logic, Steinberg Nuendo or Cubase, MOTU Digital Performer or Cakewalk Sonar 4) consists of identifying a Device Setup window in the app and selecting the Apogee host interface as the hardware device providing I/O. On the other hand, configuring “utility” audio applications such as Windows Media Player (on Windows XP) or iTunes (on OS X) consists of selecting the Apogee host interface in an operating system control panel. The following four configuration examples are given below:

- Configuring Steinberg Nuendo on Windows XP**
- Configuring Windows Media Player on Windows XP**
- Configuring Apple Logic on OS X**
- Configuring iTunes on OS X.**

From these examples it should be possible to deduce configuration details for the specific audio application you’re using. Please consult operating instructions for the audio application.

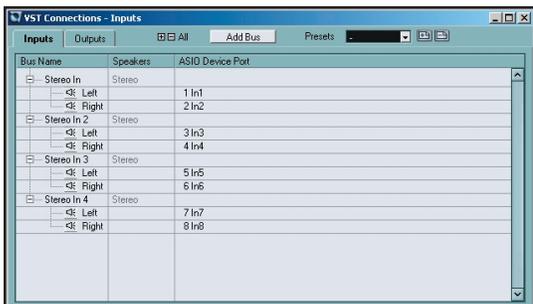
Configuring Steinberg Nuendo on Windows XP



After verifying proper operation of the X-Firewire card with the Apogee 1394 Audio control panel, open Nuendo.

Under Nuendo’s **Devices** drop-down menu, select **Device Setup** then **VST Multitrack**. Set **ASIO Driver** to **Apogee Firewire ASIO Driver**.

It’s possible to access the Apogee 1394 Audio control panel by clicking on the **Control Panel** button.

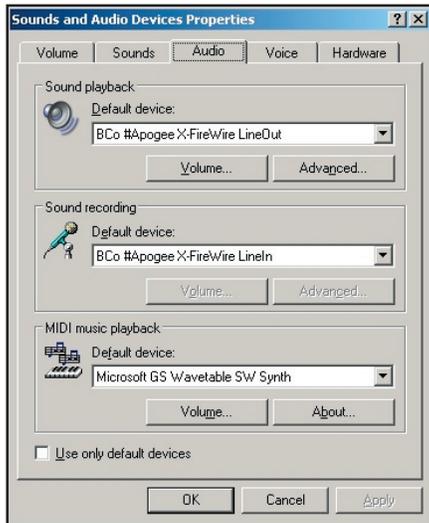


Under Nuendo’s **Devices** drop-down menu, select **VST Connections**.

Create Input and Output busses as needed and assign **ASIO Device Ports** to the newly created busses.

Configuring Audio Applications for use with X-Firewire Equipped Apogee Interfaces *(continued)*

Configuring Windows Media Player on Windows XP



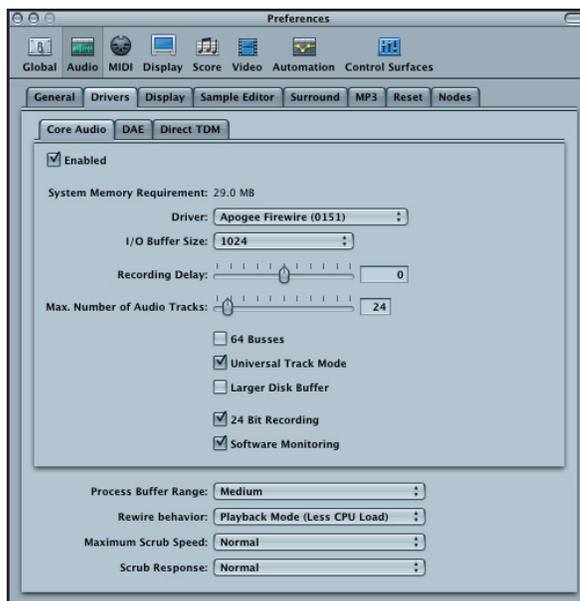
From the Windows XP control panel, open the **Sounds and Audio Devices** control panel.

Select the **Audio** tab.

Set **Sound playback** and **Sound recording Default devices** to **Bco#Apogee X-Firewire LineOut** and **LineIn**, as depicted below.

Open Windows Media Player and....play!

Configuring Apple Logic on OS X



1 Connect the Apogee interface and open Apple Logic.

2 In Logic, select **Audio > Audio Hardware & Drivers** to open the Core Audio driver page.

3 First click on the **Drivers** tab, then the **Core Audio** tab.

4 Check the **Enabled** checkbox (click **OK** when the “Reboot Logic” message is displayed”).

5 Select **Apogee Firewire (xxxx)** in the **Driver** field (click **Try (Re)Launch** when the “Reboot Logic” message is displayed”).

6 Set **I/O Buffer Size** to **512**; once the proper operation of the Apogee hardware is verified, this value may be reduced to lower latency.

7 Though it’s not specific to Apogee hardware, you’ll probably want to check the **24 Bit Recording** as well as **Software Monitoring** check boxes.

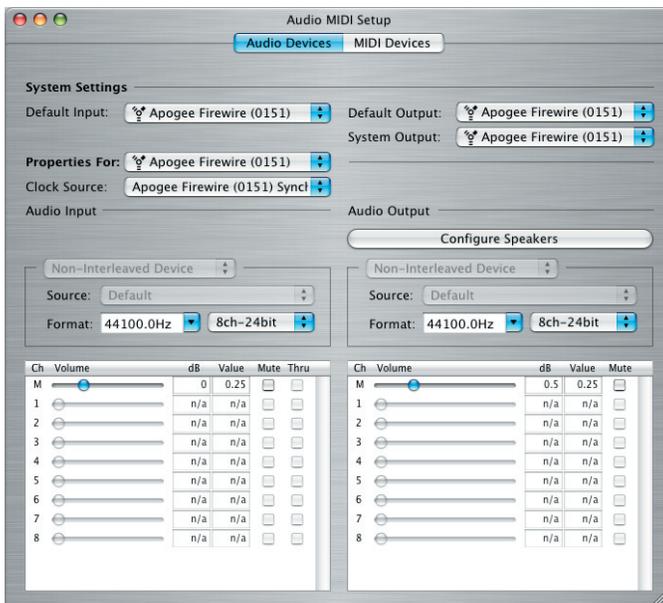
Configuring Audio Applications for use with X-Firewire equipped Apogee Interfaces *(continued)*

Configuring Apple Logic on OS X *(continued)*



8 In Logic’s **Track Mixer**, set the inputs and outputs of **Audio** objects to the desired hardware I/O channels, as shown below.

Configuring iTunes on OS X.



- 1 Open the Audio Midi Setup utility, found on an OS X Macintosh here: Applications > Utilities > Audio MIDI Setup.
- 2 Set **Default Input**, **Default Output**, and **System Output** to **Apogee Firewire (xxxx)** The X-Firewire serial number is displayed in parentheses.
- 3 In Audio Midi Setup, set **Properties For** to **Apogee Firewire (xxxx)**, set **Clock Source** to **Apogee Firewire (xxxx) Syncl** and **Format** to **44100.0Hz**.
- 4 Open iTunes, and play!

X-FireWire Functionality Specifics with Each Apogee Host Interface

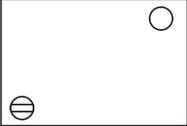
The functionality of the X-FireWire card is slightly different depending on the Apogee host interface into which it has been installed. These differences are summarized below.

X-FireWire Bandwidth Capability

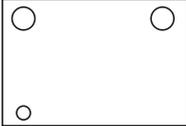
The following chart specifies the capabilities of the X-FireWire card based on the Apogee host interface, the computer platform and the sample rate. Under each host interface, the possible number of units that may be connected is indicated, followed by the resulting number of inputs and outputs in parenthesis.

OS X 10.3.9 X-Firewire Firmware 3.3 FPGA 3.0 or greater						
Sample Rate	Host Interface					
	Rosetta 200	Rosetta 800	AD16X	DA16X	DD16X	Big Ben
44.1-48kHz	1 (2x2)	1 (8x8)	1 (16x2) ¹	1 (0x16)	1 (16x16) ³	1 (8x8) ⁴
882.-96kHz	1 (2x2)	1 (8x8)	1 (16x2) ¹	1 (0x16)	0	1 (8x8) ⁴
176.4-192kHz	1 (2x2)	0	0	0	0	0
Windows XP X-Firewire Firmware 3.3 FPGA 3.0 or greater						
Sample Rate	Host Interface					
	Rosetta 200	Rosetta 800	AD16X	DA16X	DD16X	Big Ben
44.1-48kHz	4 (8x8)	4 (32x32)	2 (32x4) ¹	2 (4x23) ²	2 (32x32) ³	4 (8x8)
882.-96kHz	4 (8x8)	4 (32x32)	2 (32x4) ¹	2 (4x32) ²	0	4 (8x8)
176.4-192kHz	4 (8x8)	0	0	0	0	0

1 The AD-16X must be in Advanced routing mode to access the digital outputs.
2 The DA-16X must be in Advanced routing mode to access the 4 digital inputs.
3 Either AD or DA-16Xs may be used, but must be in Advanced routing mode.
4 As lock to the Firewire port under 10.3.9 is not possible, format conversion is only possible TO Firewire.
 Please note - To use multiple units with Windows XP your X-FireWire card must have a “bridge co” DM1000E chip.
 How to determine which chip your X-FireWire card:
 -- on the center of the X-FireWire card is a rectangular chip with pins on all sides labeled “bridge co” the two different chips have distinct circles on top of them:



DM1000-E
allows multiple units



DM1000
does not allow multiple units

Multiple units are not support by OS X 10.3.9.

X-FireWire Functionality Specifics with Each Apogee Host Interface *(continued)*

AD-16X

One AD16X offers 16 channels of input to your audio application, within the limitations noted above. If the AD16X has been set to Advanced routing mode (version 2.0 or higher), 2 channels of digital output from your audio application are available.

Because the AD16X cannot lock to its digital input (i.e. Option), it’s not possible to lock the AD16X to the FireWire connection.

DA-16X

One DA16X offers 16 channels of output to your audio application, within the limitations noted above. If the DA16X has been set to Advanced routing mode (version 2.0 or higher), 2 channels of digital input to your audio application are available.

DD-16X

The AD and DA16X offer expanded routing options in conjunction with an installed X-Option card, when each unit’s firmware has been updated to version 2.0 or higher. The DD16X is a version of X-FireWire firmware which allows the use of this Advanced routing mode with the X-FireWire card. Thus, with an AD16X in Advanced routing mode and DD16X firmware installed in the X-FireWire card, 16 analog inputs to your audio app and 16 digital outputs from your audio app are available. With a DA16X in Advanced routing mode and DD16X firmware installed in the X-FireWire card, 16 digital inputs to your audio app and 16 analog outputs from your audio app are available. Due to bandwidth limitations,

BIG BEN

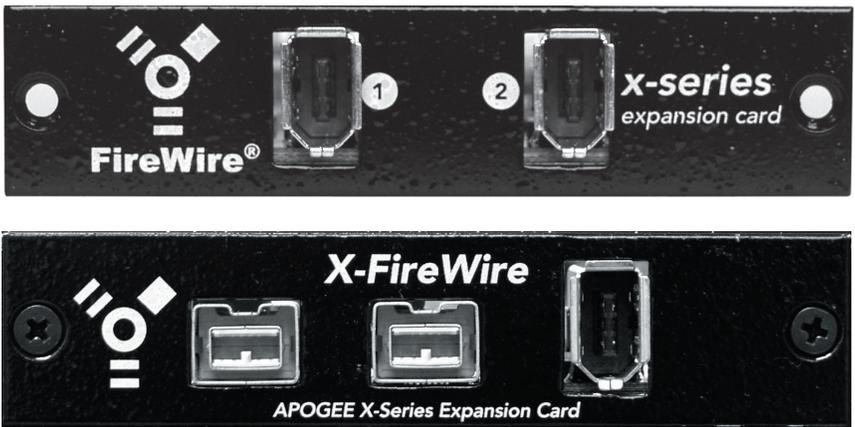
One Big Ben offers up to 8 channels of input to your audio application within the limitations noted above. The number of channels available is based on the digital I/O used in conjunction with the FireWire card. For example, if Big Ben is configured to accept 8 channels of ADAT input, it will transmit all 8 channels to the FireWire output to your audio app. If S/PDIF coax is chosen as the input format, only 2 channels are transmitted.

Rosetta 200

One Rosetta 200 offers 2 channels of input to your audio application and 2 channels of output from your audio application, within the limitations noted above. Additionally, the X-FireWire card allows the use of the Rosetta 200’s MIDI I/O with your MIDI application.

Rosetta 800

One Rosetta 800 offers 8 channels of input to your audio application and 8 channels of output from your audio application, within the limitations noted above.



X-FireWire card USER'S GUIDE - v1.3 - May 2005

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