Configuration Guide

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SonicStudio High Density User Guide - Sonic Part Number 800127A (4/99)

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SonicStudio HD Configuration Guide

This configuration guide is designed to give you detailed information on CPU configurations, SCSI peripherals, fibre channel networking and High-Density Audio™ operation for SonicStudio HD™ HDSP-based systems.

This document supersedes any previous information you may have received on these topics. Sonic recommends that all HDSP upgrade customers spend time reviewing this information prior to installing HDSP upgrades. This can help save time during the installation and may eliminate problems that might otherwise arise.

If you have any questions about configurations or a customer installation, please contact Sonic Studio Customer Support at +1 763-577-1535, or on the Web at info@sonicstudio.com

Supported Devices

CPU Platforms

SonicStudio HD is designed for use with PCI-bus CPUs. Owners of 9500/9600/G3 models are urged to upgrade to a G4.

SonicStudio HD supports these Power Macintosh models:

- G3 266/300/333 (beige)
- G3 350/400/450 (blue and white)
- G4 400/450/500/533/633/733/867/933 (graphite)
- Dual-processor 500Mhz G4

MAC OS AND CPU RAM REQUIREMENTS

Use Mac OS 9.04 US (minimum) for all SonicStudio HD installations. SonicStudio HD requires a minimum of 128MB of internal CPU memory with 256 MB or more preferred.

SonicStudio HD now supports Apples latest G4 733Mhz, 867MHz and 933MHz CPUs. These CPUs ship with OS 9.2, which is qualified.

NOTE: OS 9.2 is not recommended for CPUs that are not also set up to run OS X.

SCSI Drives

SonicStudio HD supports a wide variety of SCSI peripherals. Previously-qualified hard disks used with SonicStudio USP/SSP systems, that maintain a data-rate of 3.75 MB or higher, should work with SonicStudio HD. Drives with lower data-rates may also be operable with SonicStudio HD, however the data bandwidth may significantly reduce the number of disc channels available.

Sonic recommends that the HDSP Workstation be configured with Seagate Cheetah drives (ST118202LW – request LVD cables and terminators if using Adaptec 2940U2W and no DLT/Exabyte/CD-R/ or DVD-R).

Sonic also recommends:

- **Rorke Galaxy i™:** High Speed IDE to LVD Disk Arrays

  Contact:
  Rorke Data, Incorporated 9700 W. 76th Street
  Eden Prairie, MN 55344
  Tool Free: (800).328.8147
  Tel:(952.)829.0300
  Fax: (952) 829.0988

- **Medea AudioRack LP** High-capacity Storage Systems:

The AudioRack LP packs up to 480 GB of high-performance, low-cost, audio storage in only 1U (1.75") of rack space.

Contact:
End User Sales
Tel: (888.)296.3332
Fax: (818).880.6906
email: sales@medea.com

SCSI Adapters

Sonic Studio has qualified the following SCSI adapter cards:

- Adaptec 2930CU
- Adaptec 2940UW
- Adaptec 2940U2B
- Adaptec 2940U2W
- Adaptec 3940UW
- Adaptec 39160
- Adaptec 29160N
- ATTO ExpressPCI UL3D
- ATTO ExpressPCI DC

NOTE: If you are using the Adaptec 39160 SCSI accelerator, be certain that it is using the latest firmware version. SonicStudio HD was qualified using firmware version 1.02. See http://www.adaptec.com for further information.

NOTE: Dumps to Exabyte DDP are not currenlty supported with the ATTO UL3D/DC SCSI cards. This issue will be resolved in a future release.

Peripheral Devices

SonicStudio HD supports the following peripheral devices:

CD-RS

- Plextor PX-R412C with firmware version 1.07
- Plextor PX-R820T with firmware version 1.07
- Plextor PX-RW4220T with firmware version 1.04
- Plextor PX-RW8220T with firmware version 1.04
- Plextor PX-W124TS with firmware version 1.07 [2x speed only]
- Plextor PX-W1210S with firmware version 1.01 [1x speed only]
- Sony CD900e with firmware version 1.16
- Microboards PlexMaster with firmware version 2.04

The PlexMaster represents "State of The Art" in CDR recorders. The handmade mechanism is housed in a Dust Proof enclosure and offers special features like, Reading/Writing of the Pre Mastered [PMCD] area, EFM Input for recording, Read capability of Lead in area, Read capability of lead- out area, C2 error reporting, 8X CD-DA data.

NOTE: The PMCD information is only written to the disc when the Close Session After Write option is selected for the dump.

Please contact a Sonic reseller for details on availability or contact Microboards Technology at:

Microboards Technology
Phone: 952-556-1600
Toll Free: 800-646-8881
Fax: 952-556-1620
email: jordya@microboards.com

website: www.microboards.com http://www.microboards.com

EXABYTE TAPE DRIVES

- Exabyte 8500 c
- Exabyte 8505
- Exabyte Eliant 820

PCI EXPANSION CHASSIS

HD-2100 and HD-2200 Workstations include 3 PCI cards and require a PCI expansion chassis, since current Apple models have 2 slots free after the graphics card and a SCSI accelerator are installed. Supported PCI expansion chassis are listed below:

Bit3 Operations

- SBS SS32 from Bit3 Operations. Seven slot ATX rackmount PCI Expansion Chassis with integrated backplane.

SBS Technologies, Inc., Connectivity Products
1284 Corporate Center Drive
St. Paul, MN 55121-1245
Phone: (651) 905-4700
Fax: (651) 905-4701
http://www.bit3.com/

MAGMA

- MAGMA Four and Seven slot PCI Expansion Chassis. Both CardBus and Desktop applications are supported.

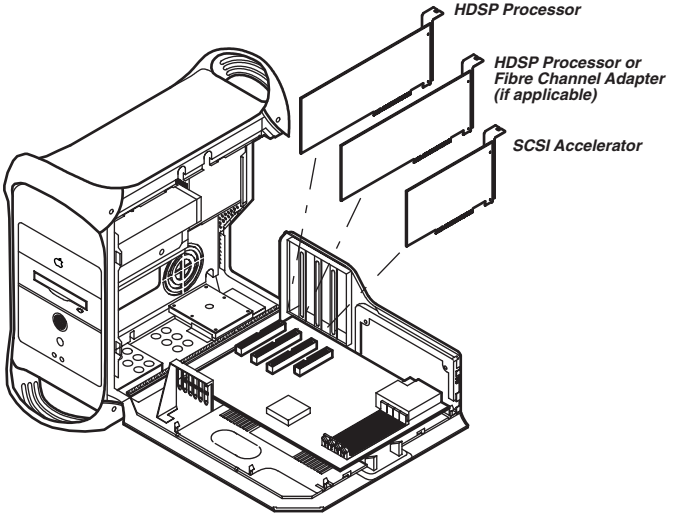
MAGMA
9918 Via Pasar
San Diego, CA 92126

Phone: (858) 530-2511
Fax: (858) 530-273
http://www.magma.com/

NOTE: The CardBus solution for Magma Chassis do not currently support CD-R or DDP functions.

G3/G4 System Configurations

HD-1000 AND HD-2000 WORKSTATIONS



NOTE: For clarity, the Macintosh video accelerator card (always installed in slot 1) is not shown

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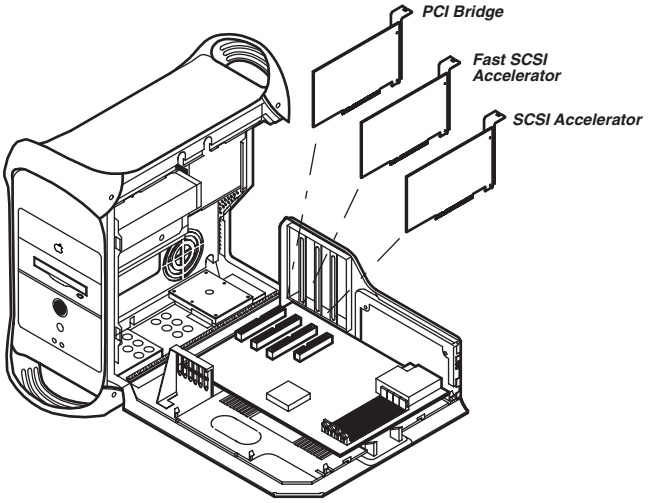
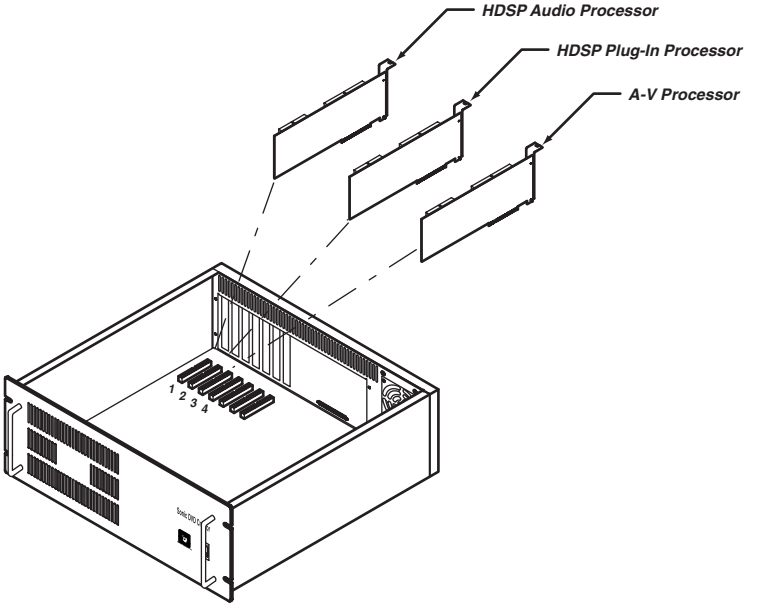
Slot	Card
1	Macintosh Video Accelerator
2	SCSI Accelerator
3	HDSP Processor or Fibre Channel Adapter
4	HDSP Processor

HD-2100 AND HD-2200 WORKSTATIONS.



Mac Slot	Card
1	Macintosh Video Accelerator
2	SCSI Accelerator
3	Fast SCSI Accelerator or Fibre Channel Adapter
4	PCI Bridge Card



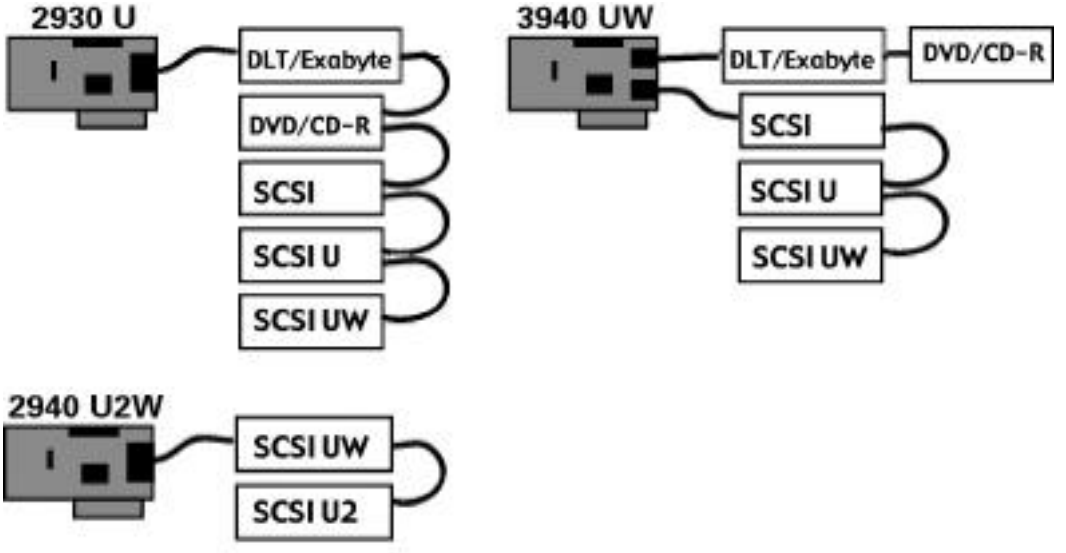
Expander Slot	Card
1	HDSP Processor
2	HDSP Processor
3	AV Processor

NOTE: A non-integrated PCI Expansion chassis is not recommended for use with high bandwidth audio for any model of G3 (B&W) or G4.

NOTE: 9500/9600/Beige G3 users should connect CDR and Exabyte devices to the Mac SCSI bus and connect hard drives to the Adaptec card.

SCSI Configurations

Since the new Macintosh G3 and G4 systems do not have on-board SCSI, a SCSI adapter is required for all SonicStudio HD systems. Each SCSI adapter listed here has a specific configuration that must be followed, with slowest SCSI peripherals closest to the card (DLT, DVD-R) and faster ones on the end (SCSI Wide and Ultra Wide drives).



ADAPTEC POWER DOMAIN 3940 UW

This is the most versatile SCSI card for Sonic applications and our most highly recommended. With two SCSI buses, one bus can be used for the DVD-R and DLT while the other is used for the fast SCSI drives.

ADAPTEC POWER DOMAIN 2930 U

The Adaptec 2930U card provides only one SCSI bus but it will work with all SCSI peripherals: CD-R, DVD-R, Exabyte, DLT 2000, DLT 4000, DLT 7000, SCSI narrow and wide.

ADAPTEC POWER DOMAIN 2940 U2W AND 2940 U2B

These cards are identical. The 2940 U2B is the Apple bundled version of the 2940 U2W. While these are the fastest SCSI cards for the G3, they do not support narrow SCSI devices such as the CD-R, DLT 2000, DLT 4000, or Pioneer DVD-R. In order to use these devices, a second SCSI controller must be used.

NOTE: The 3940 UW, 2940 U2W, and 2940 U2B SCSI controllers described above require the latest device drivers from Adaptec. They will not work on the new G3 systems without this driver. Please download this software from the Adaptec web site: www.adaptec.com/support/files/drivers.html#mac

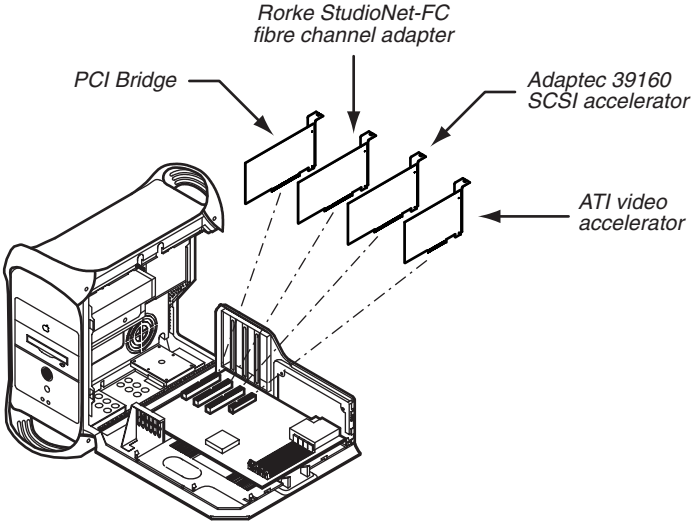
NOTE: The Adaptec 2940U2B is not compatible with drivers from FWB Hard Disk Toolkit.

Fibre Channel Support

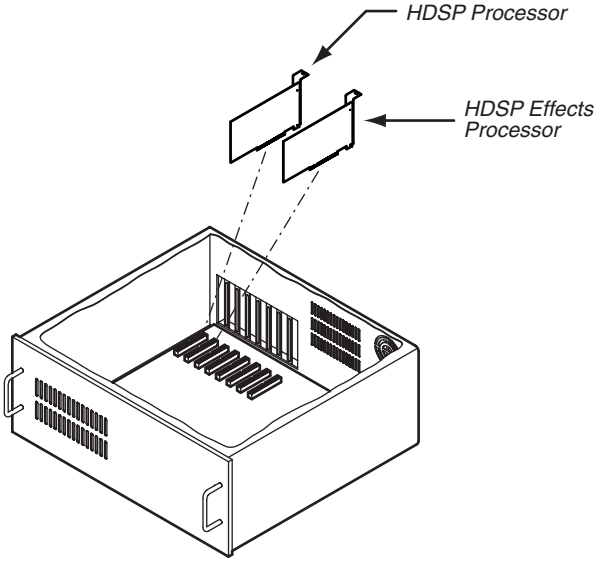
SonicStudio HD offers initial support for fibre channel networking. The only software/hardware configuration that has been tested is described here. In collaboration with Rorke Data, Sonic will continue to test SonicStudio HD with Rorke's StudioNet-FC product. Please contact Rorke Data for specific hardware and software configuration information when setting up a StudioNet-FC system for use with SonicStudio HD.

Item	Detail
CPU	Power PC G4/450 with Mac OS 9.0 and 512 MB of RAM

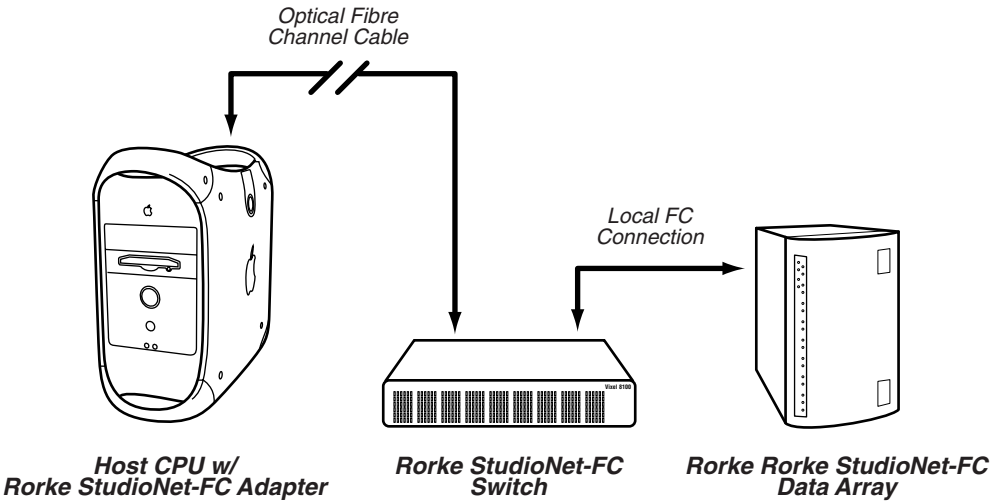
Item	Detail
CPU Board Order	1 — ATI Video accelerator 2 — Adaptec 39160 SCSI accelerator 3 — Rorke StudioNet-FC fibre channel adapter 4 — Sonic PCI Bridge
Expansion Chassis Board Order	1 — HDSP Processor 2 — HDSP Effects Processor
Hardware/Software Versions	Rorke StudioNet-FC configuration



Installation of Cards in PowerPC G4 CPU



Installation of Cards in Expansion Chassis



Typical Fibre Channel Connections

FIBRE CHANNEL NOTES & KNOWN ISSUES

1 Do **not** use the **Format** option to initialize fibre channel volumes; this leaves the volume damaged beyond the possibility of repair in the field. Use the **Initialize** option only.

2 Set the FibreShare Preference **Interval to update locked volumes in seconds:** to **Never.**

3 Use the **Exclusive Read/Write** option. Quoting from the FibreShare manual:

"FibreShare performs all of its network access control as a back-ground task of the computer. If a user needs to have no interruptions happen to their storage or they are working on mission critical data such as capturing Video or digitizing Audio, make sure these users or groups have exclusive write access. This will ensure the storage will be accessed only on a limited basis by the FibreShare system."

Access privileges are set by the Administrator from within the FibreShare application. Refer to the FibreShare documentation for complete instructions.

4 SonicStudio HD is not compatible with DAVE for SANergy 1.3 and earlier.

5 The following have **not** been tested:

- Multiple fibre channel workstations accessing the same disks as a SonicStudio HD workstation
- fibre channel fabrics with more than one switch or hub
- fibre channel arbitrated loops (in lieu of using a switch)
- Hardware RAIDs

High-Density Audio“ Operation

SonicStudio HD supports 24-bit audio at 88.2, 96, 176.4 and 192 kHz sample rates using the High-Density Audio™ I/O, I/O8, Lucid 8824, Sonic Audio I/O, and I/O4.

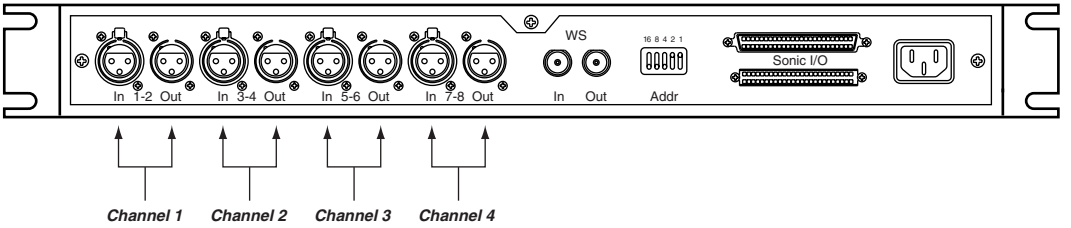
Connections

SINGLE-WIRE AES CONNECTIONS

The HD I/O supports up to eight input and output channels at 88.2/96 kHz (2x speed). The I/O8, Lucid 8824, Sonic Audio I/O, and I/O4 do not support single-wire mode.

DUAL-WIRE AES CONNECTIONS

The HD I/O, I/O8, Lucid 8824 and Sonic Audio I/O support up to four input and output channels at 88.2/96 kHz (1x speed) in dual-wire AES mode.



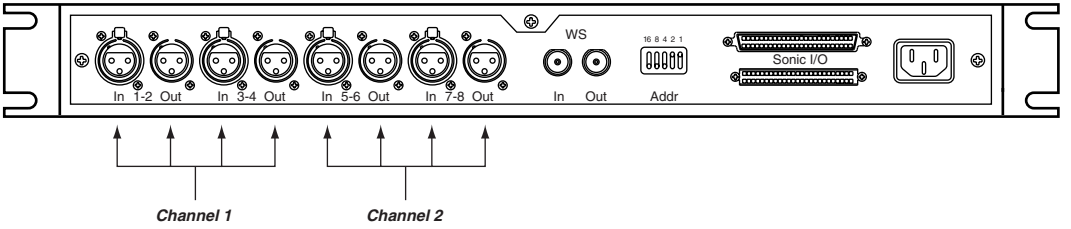
The I/O4 supports two channels at 88.2/96 kHz (1x speed) in this mode.

You can work with up to eight dual-wire channels of audio at 88.2/96 kHz (1x speed) by connecting a second HD I/O, I/O8, Lucid 8824 or Sonic Audio I/O and assigning it to Port B in the Audio I/O Preferences.

The HD I/O also supports four input and output channels at 176.4/192 kHz (2x speed) sample rates in dual-wire AES mode.

QUAD-WIRE AES CONNECTIONS

The HD I/O, I/O8, Lucid 8824, and Sonic Audio I/O support two input and output channels at 176.4/192 kHz sample rates in quad-wire (1x speed) AES mode.



The I/O4 supports a single channel in this mode.

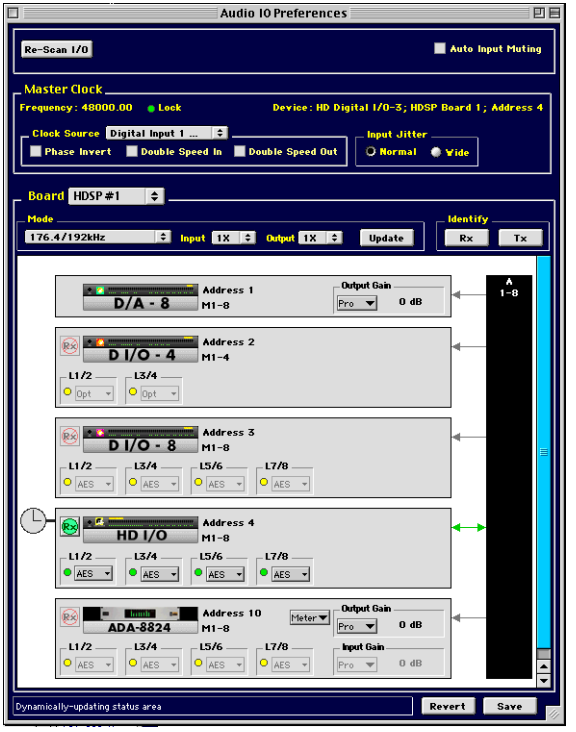
You can work with up to four quad-wire channels of audio by connecting a second HD I/O, I/O8, Lucid 8824, or Sonic Audio I/O and assigning it to Port B in the Audio I/O Preferences.

Setting the Audio I/O Preferences

You must configure SonicStudio HD's Audio I/O Preferences to accommodate high sample rate digital audio signals.

To set the Audio I/O Preferences:

1. Be certain that your input/output connections are made in either the single speed or double speed configuration, depending on your peripheral equipment's requirements.
2. Launch SonicStudio HD. SonicStudio HD displays a new Project window.
3. Choose **Window > Audio I/O Prefs** or press OPTION+**A**. SonicStudio HD displays the Audio I/O Preferences window.



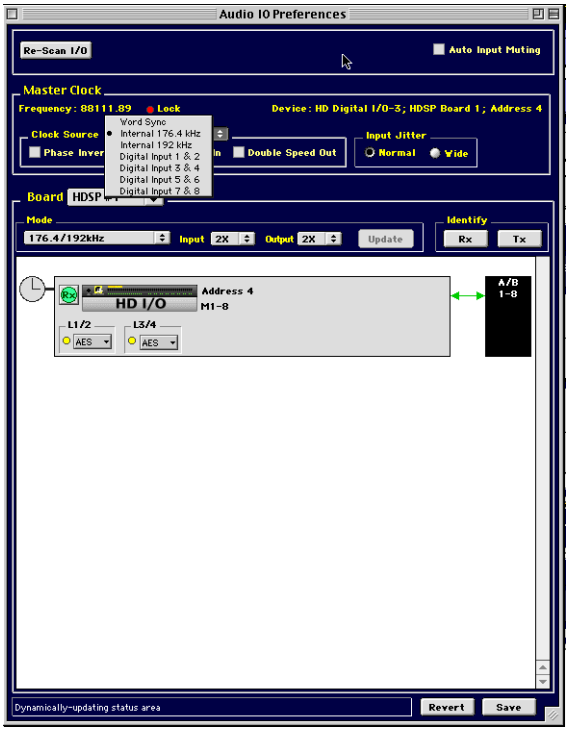
4 Choose a clock source from the **Clock Source** pop-up menu.

5 In the Mode panel, choose **88.2/96 kHz** or **176.4/192 kHz** from the pop-up menu.

6 Select input and output speeds:

- If you are using single-wire connections at 88.2/96 kHz, choose **2x**.
- If you are using dual-wire connections at 88.2/96 kHz, choose **1x**.
- If you are using dual-wire connections at 176.4/192 kHz, choose **2x**.
- If you are using quad-wire connections at 176.4/192 kHz, choose **1x**.

7 Click **Update**. SonicStudio HD loads the microcode for your chosen configuration. All I/O boxes connected to your system that support these rates will display.



8 Close the Audio I/O Preferences window.

A Note About Sample Order

Dual-wire and quad-wire AES connections achieve higher data rates than the standard single-wire AES/EBU interface by transmitting blocks of successive samples in the high-speed stream simultaneously on different wires.

For example, in dual-wire AES, the interface clocks at double speed (88.2 or 96 kHz), and on any given clock cycle the first sample in a block of two transmits on the A channel wire while the second sample transmits on the B channel wire.

Quad-wire AES expands on this method by clocking the interface at single speed (44.1 or 48 kHz) but transmitting a block of four successive samples simultaneously on channels A and B of two AES/EBU dual-wire cables.

Logically, there are two possible ways to assign samples to wires in this configuration, as illustrated in this table:

Sample 1	Sample 2	Sample 3	Sample 4
Wire 1 Channel A	Wire 1 Channel B	Wire 2 Channel A	Wire 2 Channel B
Wire 1 Channel A	Wire 2 Channel A	Wire 1 Channel B	Wire 2 Channel B

No standard exists for which method should be used.

To accommodate the widest range of converters, SonicStudio HD employs the second method (1A 2A 1B 2B). Before attempting to work in High-Density Audio™, confirm that your converter conforms to this method of quad-wire transmission.