SONIC SOLUTIONS

SonicStudio version 5.2

Installation and Maintenance

Contents

1 Introduction

SonicStudio™ is the most powerful digital audio workstation available. Each SonicStudio 16•24 card provides 16 channels of audio input and output, with capability of playing 24 channels from a single sound disk. As many as six boards can be installed in a system, for 96 I/O channels and 144 playback channels.

How to Use this Document

This document describes installation and operations that are specific to the SonicStudio 16•24, and SonicStudio 4•12 systems.

Chapter 2 covers setting up the system hardware.

Chapter 3 covers installing and starting SonicStudio.

Chapter 4 covers configuring the software.

Chapter 5 covers attaching and working with external MIDI controllers.

Chapter 6 covers routine maintenance procedures, such as maintaining sound disks.

Compatibility between SonicStudio 4•12 and SonicStudio 16•24

SonicStudio 4•12 and SonicStudio 16•24 hardware platforms cannot be installed in the same computer, but the two hardware platforms are completely file and network compatible with one another. This makes it feasible to upgrade directly from SonicStudio 4•12 to SonicStudio 16•24, and to combine both types of systems in a MediaNet network.

File Compatibility

SonicStudio 16•24 hardware is fully compatible with all sound files and EDLs created on SonicStudio 4•12 systems and vice versa. The only consideration will be to ensure that the target system has sufficient channel capacity for the work being transferred.

Network Compatibility

Both SonicStudio systems can communicate freely using the MediaNet® network. It is quite reasonable to configure a large network with a variety of system configurations. As with exchanging files, attention need only be given to the number of channels needed for a given application.

System Requirements and Options

In addition to the components included in the system package, you need the following to operate the SonicStudio System:

- A Quadra or Power Macintosh computer
- One or more sound disk drives for audio storage
- Suitable external audio equipment, either analog or digital

The Macintosh host computer must have:

- One or more available expansion slots
- Internal or external hard disk having 100 MB or more capacity
- A minimum of 32 megabytes of DRAM installed in the computer

- Expanded systems require more Macintosh RAM. Add 4 megabytes of RAM for each additional expansion board

- Operating system 7.5.1 or higher

- An Apple Extended Keyboard or its equivalent

- A color video monitor with a 16-inch or larger screen

Sound-storage drives are available in a variety of sizes from Sonic.

CAUTION Only use disk drives that have been identified as being compatible with SonicStudio.

System Options

The SonicStudio System is highly modular, and may be equipped with a variety of options in both hardware and software. This chapter describes in detail the installation of a basic system, with additional information on installing various hardware options. The rest of this section describes the hardware expansion options available.

You may use these expansion options in a variety of combinations. The next section describes installation of a basic single-board system with additional information on the various options.

Multi-Channel Expansion

A single SonicStudio card provides up to 16 channels of digital audio input and output, and 24 channels of internally mixed, real-time playback. By adding additional SonicStudio cards and sound-storage drives, you can expand the SonicStudio System in increments of 16 input/output channels and 24 internally-mixed playback tracks. As many as six SonicStudio cards may be installed.

MediaNet® High-Speed Digital Media Network

MediaNet is a wide bandwidth superhighway for digital audio information. You can use it to tie multiple SonicStudio Systems into an integrated production network, or as a SCSI bus master to increase the speed of SCSI communication in a multi-SonicStudio card system. The MediaNet board is installed in its own slot along with the SonicStudio. A single MediaNet board can support two SonicStudio cards.

Background and Real-time Signal Processing

You can equip your SonicStudio System with one or two dedicated DSP coprocessing boards. Use these to process digital audio files in the background while editing, recording, or playback continues in the foreground. Some processing options, such as Reverberation, operate in real-time. Use the Broadband Denoising option in either mode.

Video

With the video option, you can equip your SonicStudio System to integrate video directly into the audio processing system. You will synchronize your digital video clips with audio for efficient editing of dialog, music, and sound effects. The video hardware consists of a single plug-in video capture board installed in a Macintosh NuBus slot.

SCSI Peripherals

Besides the sound storage disks used for recording and editing, you can equip your SonicStudio System with any of several optional devices that connect to the external SCSI bus. These may include 8-mm tape drives for backup and mastering, CD-R recorders, removable optical disks, and high-speed CD-ROM readers.

Expansion Chassis

Larger system configurations may exceed the number of slots available in the Macintosh. Expansion Chassis provide additional slots to configure systems of any size.

Audio I/O Options

The SonicStudio card provides up to 16 channels of digital or analog input and output per board. The I/O configuration is completely modular. Rack-mount digital interface adapter units are available in either configurations of 4- or 8-channels per unit. Analog A/D and D/A converters for the SonicStudio are available in 8-channel configurations. You may install any combination of these to provide the desired complement of audio channels.

2 Installing Hardware

Introduction

A SonicStudio System consists of one or more SonicStudio cards installed in an Apple Macintosh or Power Macintosh computer. The SonicStudio software is installed on the computer's internal or external hard disk. The SonicStudio card's SCSI (Small Computer Systems Interface) port connects to one or more hard disk drives for audio storage.

The SonicStudio card transmits and receives digital audio data via a 50-pin connector connected to one or more external rack-mount interface adapter.s. The adapters provide analog input and output, and coaxial, optical, and XLR digital audio connections.

SonicStudio reads and generates longitudinal time code (LTC) in SMPTE and EBU formats. Equipped with the Machine Control option (SS-516), SonicStudio can control external audio and video recorders that use 9-pin, RS-422 serial protocol.

System Components

SonicStudio is delivered with all necessary connectors and cables. In most cases, Sonic Solutions does not provide the computer. Sound-storage drives are purchased separately. Audio interface adapters may be included in pre-packaged system configurations or purchased separately.

Before you begin installing the system hardware, take a moment to identify the principle components.

The basic components include:

- SonicStudio 16•24 card or SonicStudio 4•12 card

- One or more interface boxes to connect the SonicStudio card to external audio equipment

- A set of floppy diskettes containing SonicStudio software

- All necessary cables and connectors

Setting Up the Macintosh

Before installing the SonicStudioSystem hardware, set up the Macintosh system following the instructions supplied by Apple Computer and confirm that the Macintosh operates properly.

Handling and Installing the SonicStudio Cards

Precautions Against Static Electricity

The SonicStudio card, as well as the Macintosh circuit board, can be damaged easily by static discharge. You should take the following precautions to avoid static discharge during installation and every time you handle network or system boards.

- Make sure the power is turned off.

  Connect the Macintosh power cord to a grounded 3-prong AC outlet and connect the cord to the Mac. Do not boot the Mac. It must remain off during installation.

- Discharge static electricity.

  Always touch the metal case of the Macintosh power supply before handling a card and before installing it to the PCI or NuBus expansion connector.

- Do not handle the SonicStudio card unnecessarily.

  Never hand the SonicStudio to another person without touching your other hand to that individual first. This action will discharge any dangerous static electricity.

- Do not walk around carrying the SonicStudio card unless it is in its anti-static bag.

  Switch off power to the computer before installing hardware. Both the Macintosh main circuit board and the SonicStudio card may be damaged if they are connected while Macintosh power is switched on.

Unpacking the SonicStudio Cards

In general, when unpacking a SonicStudio card:

1. Carefully open the antistatic bag containing the SonicStudio card and remove the board.
   If you need to put the SonicStudio card down at any time, place it on top of the flattened antistatic bag for additional protection against static discharge.

2. Check to see that the flat board-to-board ribbon cable is properly installed on the SonicStudio card.
   The cable should join the two connectors along the top edge of the card. Drape the cable over the rear of the board so it won't interfere with installation.

Installing the SonicStudio 4•12 NuBus Cards

To install the 4•12 NuBus Cards:

1. Place the Macintosh chassis on a flat, uncluttered surface.
   Most Macintosh II CPUs lie flat and open up from the top. However, if you have a Quadra CPU that stands vertically, you should lay it on its side for installation.

2. Remove the cover of the computer to expose the expansion slots.
   Refer to the Macintosh documentation for directions.

3. Select a pair of adjacent NuBus board slots for the SSP-3 and I/O Connector boards.
   For a basic single 4•12 system, it is not important which board you install in which slot. When options for signal processing, network, or multi-track expansion are added, the arrangement of boards becomes more critical.

4. Remove the rear-panel cover plates and metal brackets for the NuBus slots you have chosen.

5. Touch the metal case of the Macintosh power supply to discharge static.

6. Carefully open the antistatic bag containing the board and remove the board.
   If you need to put the board down at any time, place it on top of the flattened antistatic bag for additional protection against static discharge.

7. Check to see that the flat board-to-board ribbon cable is properly installed on the board.
   The cable should join the two connectors next to the large SCSI connector along the top edge of the board. The cable itself may be draped over the rear of the board so it won't interfere with installation.
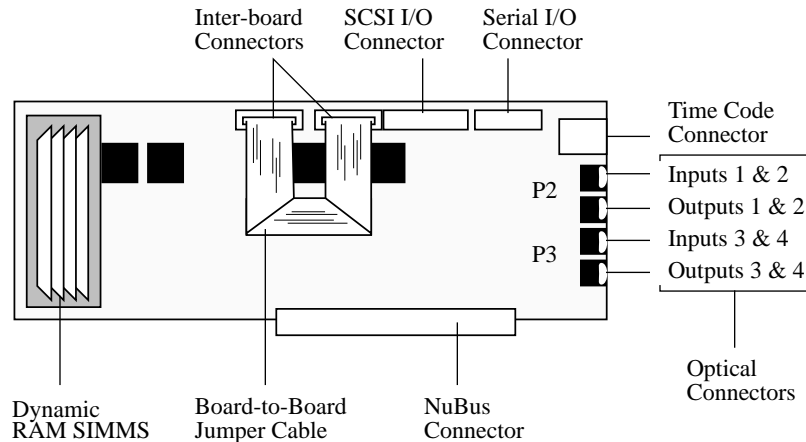
⚠ CAUTION – SonicStudio will not work if this cable is not installed.

8. Connect the wide SCSI I/O and narrow serial I/O ribbon cables to the connectors on the board.

9. Seat the board onto the NuBus connector you have chosen for it.

10. Align the board and push it into its slot so that it seats firmly, with the bracket at the rear of the board flat against the back plate. On some Macintosh models, there is a small vertical alignment pin that fits into the top of the board's mounting bracket to hold it steady. Other models have a springy plastic clip that snaps into place when the board is properly seated.

SCSI I/O
Connector

Serial I/O
Connector

Serial
Connector

SCSI
Connector

NuBus
Connector
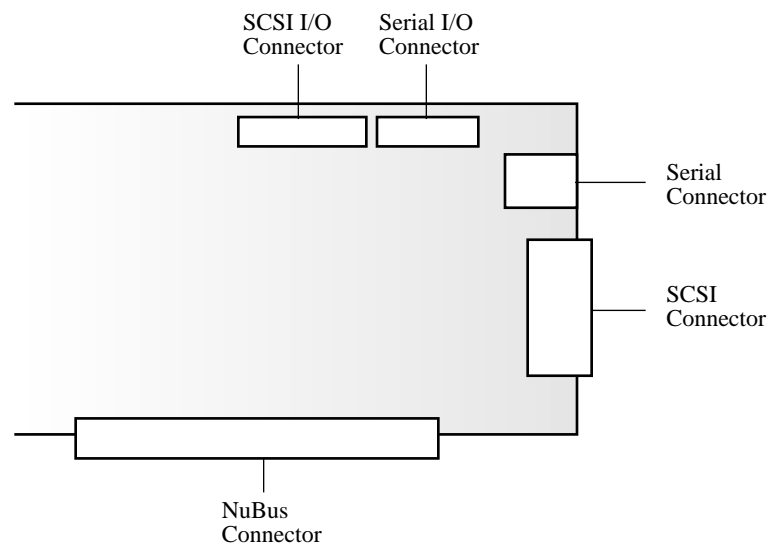
11. Install the I/O Connector board in the slot next to the board. As discussed previously, the I/O Connector board is a small board that provides passive connection for signals to and from the board. If you need to, first lift the SCSI and serial I/O cables attached to the board so that the I/O Connector board can be installed

12. Carefully connect the SCSI and Serial I/O ribbon cables from the board to the corresponding connectors on the smaller board.

SSP-3 Board   I/O Connector Board

Macintosh rear panel —

Serial I/O

SCSI I/O

Inter-board Connectors

NuBus slots   a   b   c
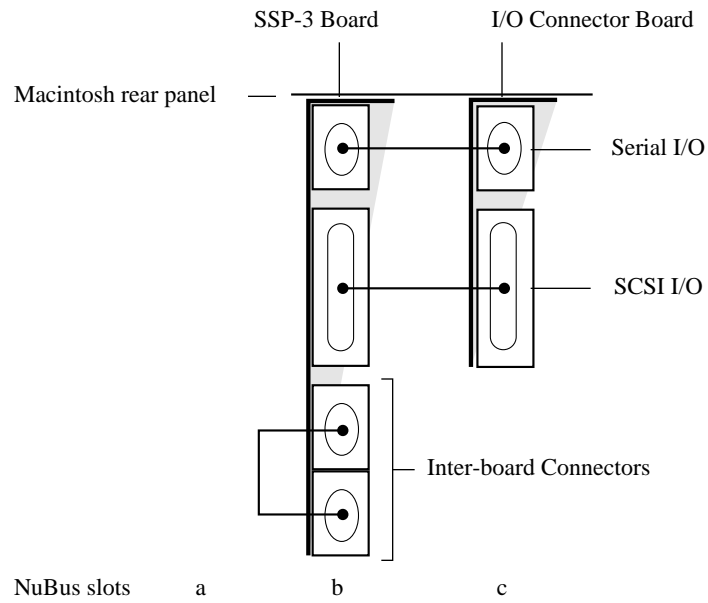
13. Take a moment to inspect the installed boards.
    Make certain that the ribbon cables between boards, as well the
    board-to-board ribbon cable on the board, are installed correctly and
    properly seated to the connectors on each board.

14. Replace the cover on the computer.

Note – On some Macintosh Quadra models, tabs on the underside of the
top cover may collide with the SSP-3 board. If this occurs, simply break
the interfering tabs off with pliers.

Preparing and Installing the SonicStudio 4•12 PCI Card

Preparing the SonicStudio 4•12 PCI Card

The SonicStudio 4•12 PCI card has the following connections.

Serial I/O
Connector

SCSI
Termination
Jumper

Inter-board
Connectors

SCSI I/O
Connector

Cable Path

Optical
Connectors

Dynamic
RAM

Front

PCI Connectors

Board-to-Board
Jumper Cable

Side
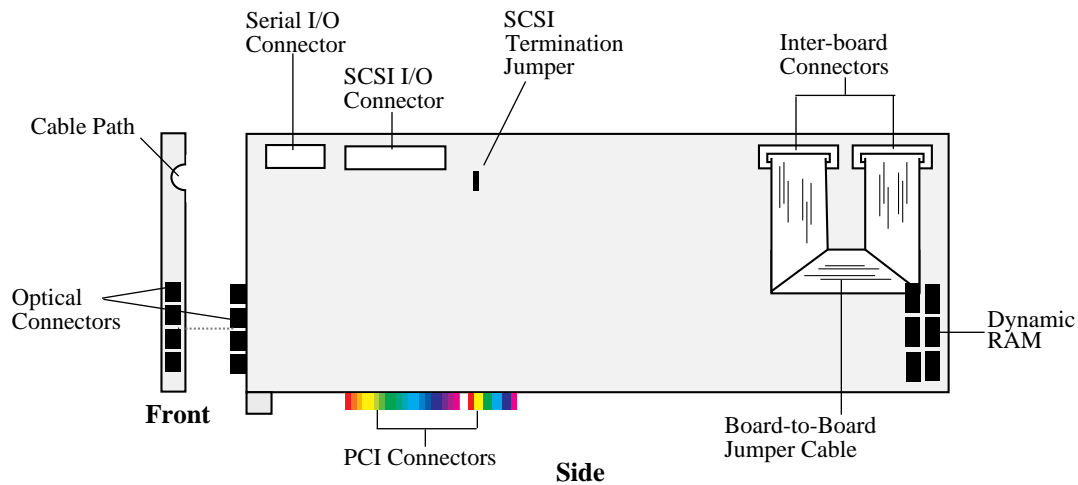
To prepare the 4•12 PCI card for installation:

1. From the cable set supplied with the system, select the SonicStudio SCSI/Serial cable.
   This cable is packaged in a separate plastic bag along with a pair of small mounting screws.

   One end of the cable has a group of rectangular plastic multi-pin headers. The other end has two heavy-duty multi-pin connectors, labeled SCSI and Serial. A metal fitting is around the middle of the cable. Depending on which system options you purchased, there will be from one to three of the larger plastic multi-pin headers on the same line.

2. Lay the SonicStudio card on a flat work surface.

3. Use a small Phillips-head screwdriver to remove the metal plate and reveal the notch in the front of the card where the cable breaks through.

4. Connect the plastic connector headers from the cable to the appropriate connectors on the SonicStudio card.
Connect the larger connector to the SCSI header on the SonicStudio. Connect the smaller header to the Serial I/O header closer to the rear mounting bracket.

   If there is more than one of the large headers, connect the one that is closest to the metal mounting flange in the middle of the cable.

5. Lay the cable into the notch in the front of the card.

6. Use a small Phillips-head screwdriver to reattach the metal plate to the card and hold the cable in.

Installing the SonicStudio 4•12 PCI Card

To install the SonicStudio 4•12 PCI card:

1. Place the Macintosh chassis on a flat, uncluttered surface.

2. Remove the cover of the computer to expose the expansion slots. Refer to the Macintosh documentation for directions.

3. Select a PCI board slot for the SonicStudio 4•12 PCI card.
For a basic single SonicStudio 4•12 system, it is not important which board you install in which slot. When options for signal processing, network, or multi-track expansion are added, the arrangement of boards becomes more critical.

4. Remove the rear-panel cover plates or metal brackets for the PCI slots you have chosen.

5. Touch the metal case of the Macintosh power supply to discharge static.

6. Carefully open the antistatic bag containing the board and remove the board.
   If you need to put the board down at any time, place it on top of the flattened antistatic bag for additional protection against static discharge.

7. Check to see that the flat board-to-board ribbon cable is properly installed on the board.
   The cable should join the two connectors next to the large SCSI connector along the top edge of the board. The cable itself may be draped over the rear of the board so it won't interfere with installation.

CAUTION – SonicStudio will not work if this cable is not installed.

8. Thread the SCSI and serial ribbon cable through the back of the Macintosh.

9. Seat the board onto the PCI connector.

10. Align the board and push it into its slot so that it seats firmly, with the bracket at the rear of the board flat against the back plate.
    On some Macintosh models, there is a small vertical alignment pin that fits into the top of the board's mounting bracket to hold it steady. Other models have a springy plastic clip that snaps into place when the board is properly seated.

Preparing and Installing the SonicStudio 16•24 NuBus Card

Preparing the SonicStudio 16•24 NuBus Card

The SonicStudio 16•24 NuBus card has two multi-conductor cables that extend out the back panel slot of your computer chassis. The figure that follows shows how cables extend from a NuBus card.

SCSI header   Serial I/O header
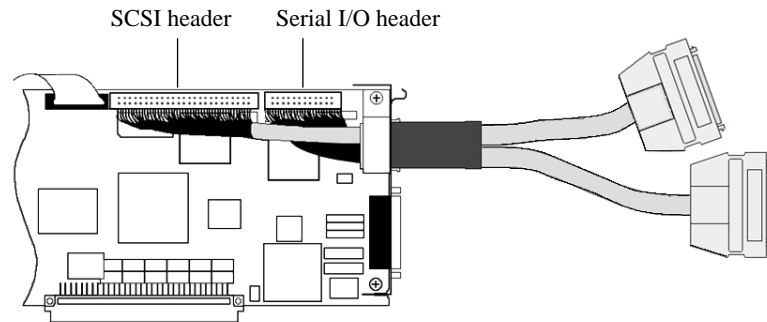
To prepare the 16•24 NuBus card for installation:

1. From the cable set supplied with the system, select the SonicStudio SCSI/Serial cable.
   This cable is packaged in a separate plastic bag along with a pair of small mounting screws.

   One end of the cable has a group of rectangular plastic multi-pin headers. The other end has two heavy-duty multi-pin connectors, labeled SCSI and Serial. A metal fitting is around the middle of the cable. Depending on which system options you purchased, there will be from one to three of the larger plastic multi-pin headers on the same line.

2. Lay the SonicStudio card on a flat work surface.

3. Connect the plastic connector headers from the cable to the appropriate connectors on the SonicStudio card.
   Connect the larger connector to the SCSI header on the SonicStudio. Connect the smaller header to the Serial I/O header closer to the rear mounting bracket.

   If there is more than one of the large headers, connect the one that is closest to the metal mounting flange in the middle of the cable.

4. Slide the mounting flange in the middle of the cable into the U-shaped opening at the top of the SonicStudio's mounting bracket. The wide flange will be on the board side of the bracket, while the tubular portion extends out the rear panel

5. If desired, use the two small mounting screws to fasten the flange semi-permanently to the bracket.
   This is optional and does not affect integrity or operation.

Installing the 16•24 NuBus Card

The 16•24 NuBus card has the following connections.

Inter-board Connectors   SCSI I/O Connector   Serial I/O Connector

Multi-pin Audio Connector

Dynamic RAM SIMMS   Board-to-Board Jumper Cable   NuBus Connector

To install the SonicStudio 16•24 NuBus card:

1. Feed the SCSI/Serial connectors now attached to the SonicStudio card out the computer's back panel as you align the board over the computer's NuBus connector.
   Some NuBus Macintosh computers have a shorter housing depth than others (such as the Centris) and you will have to unscrew the back panel at the top, and pull it back slightly in order to fit the long SonicStudio card over the NuBus slot. Once the NuBus card is installed, reconnect the computer's back panel.

2. Carefully seat the SonicStudio card onto the connector you have chosen.
   As you push the card into its slot, make sure that it seats firmly with the bracket at the rear of the board flat against the back plate. Your Mac manual has details on how to lock the card in place. On some

Macintosh models, there is a small vertical alignment pin that fits into the top of the SonicStudio mounting bracket to hold it steady. Other models have a springy plastic clip that snaps into place when the board is properly seated.

Connecting the External Cables

There are three types of external connections you make with the SonicStudio. The figure that follows shows the external connections for a 16•24 NuBus card.
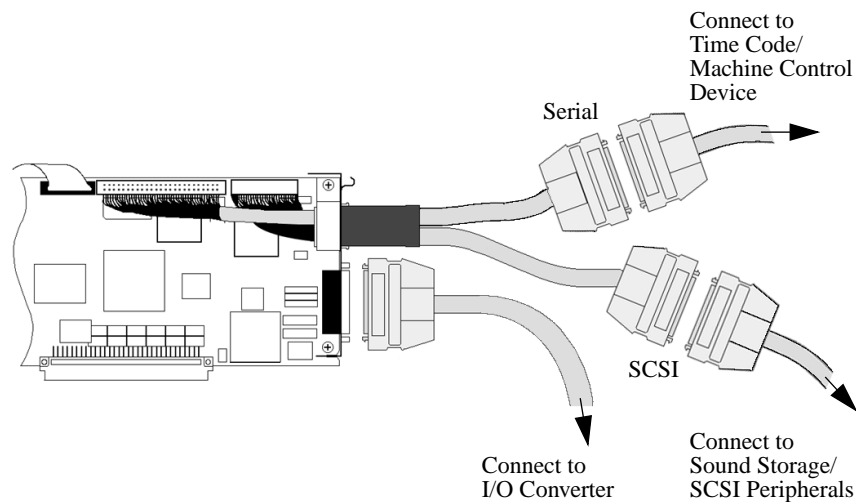
To connect the external cable:

1. The serial connector is mated to a cable that terminates in a male/female pair of XLR connectors for time code read/write, and (optionally) in three male DB-9 connectors labeled Port A, Port B, and Aux. These connect to 9-pin serial control ports on external video or audio transports.

2. The SCSI connector you just attached to the SonicStudio card connects to Sonic hard disk sound drives where all your sound files are stored.

3. The 50-pin cable that connects directly to the rear panel on the board attaches to your external digital or analog I/O boxes.

Preparing and Installing the SonicStudio 16•24 PCI Card

Preparing the SonicStudio 16•24 PCI Card

The SonicStudio 16•24 card has the following connections.
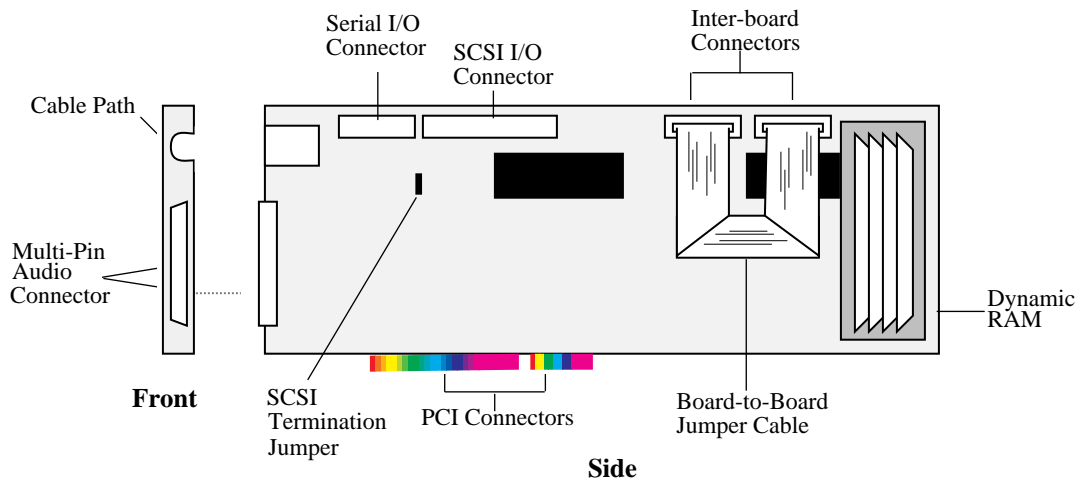
To prepare the 16•24 PCI card for installation:

1. From the cable set supplied with the system, select the SonicStudio SCSI/Serial cable.
   This cable is packaged in a separate plastic bag.

   One end of the cable has a group of rectangular plastic multi-pin headers. The other end has two heavy-duty multi-pin connectors, labeled SCSI and Serial. A metal fitting is around the middle of the cable. Depending on which system options you purchased, there will be from one to three of the larger plastic multi-pin headers on the same line.

2. Lay the SonicStudio card on a flat work surface.

3. Use a small Phillips-head screwdriver to remove the metal plate and reveal the notch in the front of the card where the cable breaks through.

4. Connect the plastic connector headers from the cable to the appropriate connectors on the SonicStudio card.
   Connect the larger connector to the SCSI header on the SonicStudio. Connect the smaller header to the Serial I/O header closer to the rear mounting bracket.
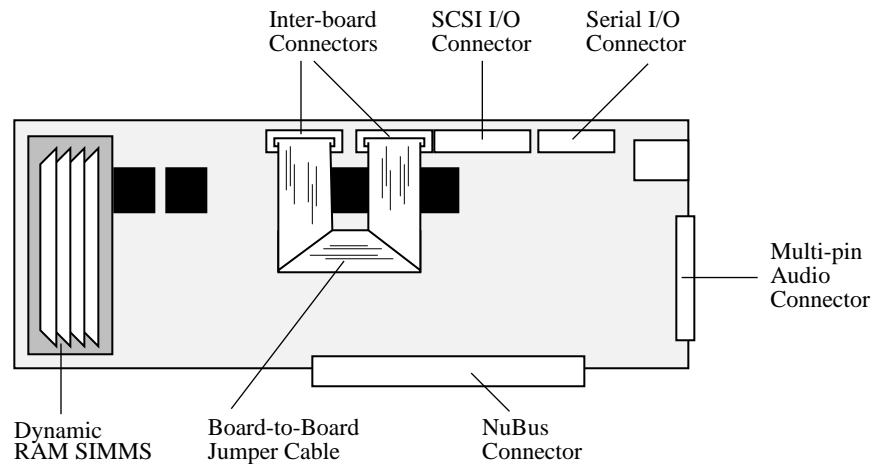
   If there is more than one of the large headers, connect the one that is closest to the metal mounting flange in the middle of the cable.

5. Lay the cable into the notch in the front of the card.

6. Use a small Phillips-head screwdriver to reattach the metal plate to the card and hold the cable in.

Installing the SonicStudio 16•24 PCI Card

To install the SonicStudio 16•24 PCI card:

1. Place the Macintosh chassis on a flat, uncluttered surface.

2. Remove the cover of the computer to expose the expansion slots. Refer to the Macintosh documentation for directions.

3. Select a PCI board slot for the SonicStudio 16•24 PCI card. For a basic single SonicStudio 16•24 system, it is not important which board you install in which slot. When options for signal processing, network, or multi-track expansion are added, the arrangement of boards becomes more critical.

4. Remove the rear-panel cover plates or metal brackets for the PCI slots you have chosen.

5. Touch the metal case of the Macintosh power supply to discharge static.

6. Carefully open the antistatic bag containing the board and remove the board. If you need to put the board down at any time, place it on top of the flattened antistatic bag for additional protection against static discharge.

7. Check to see that the flat board-to-board ribbon cable is properly installed on the board. The cable should join the two connectors next to the large SCSI connector along the top edge of the board. The cable itself may be draped over the rear of the board so it won't interfere with installation.

CAUTION – SonicStudio will not work if this cable is not installed.

8. Thread the SCSI and serial ribbon cable through the back of the Macintosh.

9. Seat the board onto the PCI connector.

10. Align the board and push it into its slot so that it seats firmly, with the bracket at the rear of the board flat against the back plate. On some Macintosh models, there is a small vertical alignment pin that fits into the top of the board's mounting bracket to hold it steady. Other models have a springy plastic clip that snaps into place when the board is properly seated.

Connecting the External Cables

To connect the external cable:

1. The serial connector is mated to a cable that terminates in a male/female pair of XLR connectors for time code read/write, and (optionally) in three male DB-9 connectors labeled Port A, Port B, and Aux. These connect to 9-pin serial control ports on external video or audio transports.

2. The SCSI connector you just attached to the SonicStudio card connects to Sonic hard disk sound drives where all your sound files are stored.

3. The 50-pin cable that connects directly to the rear panel on the board attaches to your external digital or analog I/O boxes.

Connecting Audio Interfaces to SonicStudio 4•12
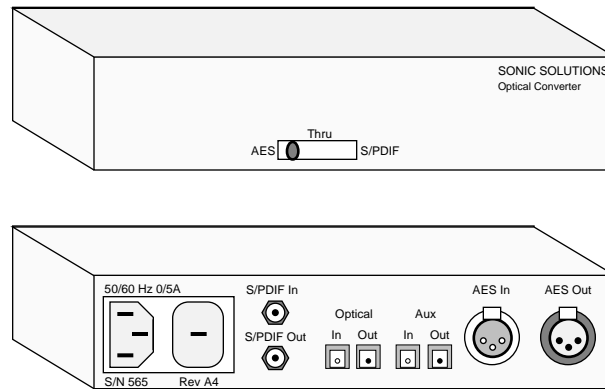
The SS-611 Optical Converter

The SS-611 Optical Converters are simple, effective devices that connect the optical digital audio format used by the SSP-3 to coaxial AES and S/PDIF formats. Housed in a 1/2-rack sized metal chassis. The optical converters may be mounted in a 19-inch EIA rack using the SS-616 Dual Converter Rackmount Frame.

The SS-611's input and output sides operate independently. In use, each of the SSP-3 board's optical outputs is connected to the "Optical In" of an SS-611. The signal is then distributed to three outputs: S/PDIF using RCA connectors, AES using 3 pin XLR connectors, and Aux using F05 connectors:

The output of the SS-611 connects to one of the SSP-3 board's optical inputs. The front-panel switch is used to select which of three digital audio sources is routed to the SSP-3 input.
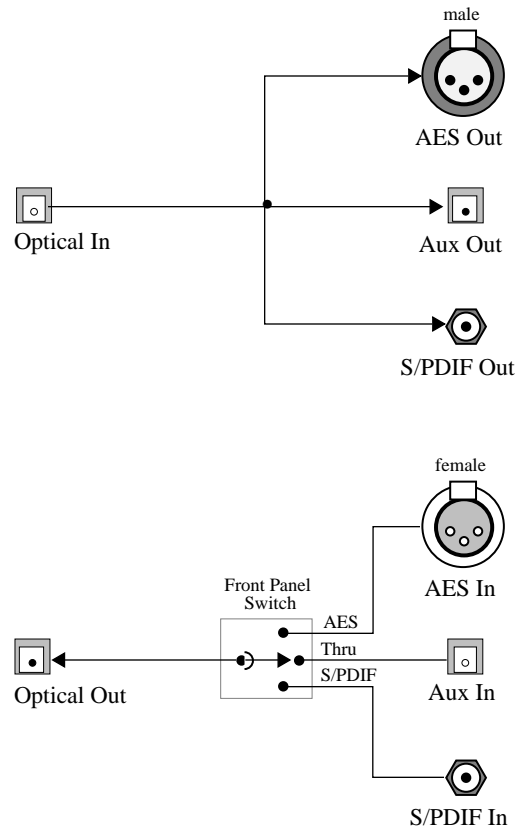
The SS-611 thus provides a versatile interface between digital audio equipment and SonicStudio.

Other Interface Hardware

Sonic Solutions manufactures a series of converter boxes to connect to various digital and analog formats.

SS-613 A/D-D/A Converter

Connects to analog tape machines and amplifiers. The SS-613 provides analog-to-digital (A/D) conversion for two channels of input, simultaneously converting two channels of digital audio to analog (D/A) for monitoring or recording onto analog media. The SS-613 also has an auxiliary output for routing audio to a recorder or other device while monitoring from the analog outputs.

SS-612 SDIF Converter

Used with the Sony PCM-1630 and other devices that use SDIF-2 (Sony Digital Interface Format) on BNC connectors. Each cable carries one channel of digital audio, while a separate cable carries the Word Clock.

SS-613 and SS-612

Are similar in physical configuration to the SS-611 Optical Converter. Each box provides a split of the SSP-3's optical output, as well as switch selection of optical or other input.

This combination of fan-out and switched input selection provides great flexibility in connecting to multiple audio I/O devices. All outputs operate simultaneously, while inputs to the system are switch selected.

A Sample Configuration

SonicStudio is compatible with a wide range of audio equipment, and there are many ways in which it can be connected. External devices play three roles in operation of the system:

A Load device

Transfers audio to SonicStudio's hard disks for editing and processing. This may be a DAT recorder, Sony PCM-1630/DMR system, CD player, multi-track analog with A/D converter or digital tape, and so on.

A Monitor system

Converts digital audio to analog for monitoring or listening. The Monitor device may be a dedicated D/A converter, the output section of a device such as DAT, or a pre-amplifier or amplifier that accepts digital input directly.

A Dump device

Transfers SonicStudio's output to a form to be delivered to a client or final consumer. This may be any standard audio recording device, analog or digital, or it may be a CD-R recorder or 8mm Exabyte drive attached to the SSP SCSI chain.

In its fullest and most versatile configuration, SonicStudio includes separates devices for loading, dumping and monitoring:

Analog
In   Out   Digital
                                   In   Out

DUMP device
(DAT or other recorder)

S/PDIF In
S/PDIF Out   Optical   Aux   AES In AES Out
              In Out   In Out

SS-611 Optical-Coaxial
Converter (if required)

To Monitors

Optical   Aux
In Out   In Out

Monitor device
SS-613 0r other D/A Converter

SSP-3
rear panel

S/PDIF In
S/PDIF Out   Optical   Aux   AES In AES Out
              In Out   In Out

SS-611 Optical-Coaxial
Converter (if required)

Analog
In   Out   Digital
                                   In   Out

LOAD device
(DAT or other digital
audio source)

If DATs or other digital recorders are used, then either device shown
may be switched to serve for loading or dumping, as required. Loading
or dumping may be performed in the background, while editing and
playback are being performed in the foreground.

Connecting Audio Interfaces to SonicStudio 16•24

You can connect up to 16 channels of digital or analog input and output to the Sonic Studio card. Rack-mount digital interface adapter units are available in 2-, 4-, or 8-channel configurations.

The High Density 96kHz digital I/O has 2 channels currently available. To covert analog to digital signals, you will need a separate A/D converter that has the double-speed AES format.

Analog A/D and D/A converters have 8 channels. You can combine digital or analog input and output as needed to get the number of audio channels you need.The I/O converter units are single-space 19-inch rack mount units. (Rack mount ears are optional.) The front panel of each unit carries the power switch and status indicators appropriate to the particular model. The rear panel carries all of that model's input and output connectors.

Four-Channel Digital I/O Converter

The Sonic Solutions Four-Channel Digital I/O Converter (SS-652) provides connections to standard 2-channel digital audio transmission formats on XLR, RCA (phono), and 2-channel optical formats. It provides 4 channels of AES Type I and Type II in and out, 4 channels of TOSLink optical I/O, and BNC word sync input and output. The Digital I/O-4 features an ultra-low-jitter clock recovery circuit for audiophile performance in all applications.

Connect your Digital I/O-4 to the device of your choice such as a DAT machine, D/A converter box (such as the Sonic D/A-8), or the digital audio inputs of a digital video deck, and so on.

Front Panel Switches and Indicators

Power Switch	Applies AC power to unit.
Sonic I/O Port	Indicates SonicStudio port (A or B available).
Clock Source	Indicates internal (44.1 or 48 kHz) or external clock source. WS indicates external word sync. DS indicates the clock from another peripheral adapter. DIA and DIB indicate digital inputs A (1/2) and B (3/4).
Jitter Attenuation	(JA Lock) Incoming digital audio signals are re-clocked to reduce jitter to less than 1 nanosecond. A green light means locked. A red light means not locked.
WS Lock	Lock to word clock level. A green light means locked. A red light means not locked. Off means no input.
Channel RX	A green light means receiving data. A red light means clipping.
Channel TX	A green light means transmitting data.

Rear Panel Connectors

The rear panel of the 4-channel digital I/O box includes all digital audio, address, clock, power and SonicStudio connections.
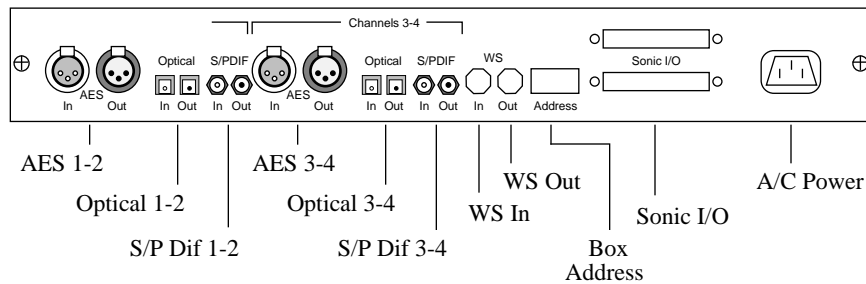
AES I/O	Balanced XLR connection (AES/EBU).
Optical I/O	TOSLink fiber-optic I/O
S/PDIF	AES Type-II RCA connector
WS In	Word Sync input. One word sync input is used for the system
WS Out	Output of the SonicStudio's system clock. This may be sent to another non-Sonic device
Box Address	Assigns a unique address from 1 to 15 (Address 0 is reserved for the SonicStudio card.)
Sonic I/O	A 68-pin Sonic I/O connects to the SonicStudio card. The second connector must be terminated or connected to additional peripheral adapter units.
AC Power	Standard IEC removable plug connection for 110 or 220 power.

Eight-Channel Digital-to-Analog Converter

The Sonic Solutions Eight-Channel D/A Converter provides eight XLR balanced-line analog audio outputs. Connect your D/A-8 to the sound device of your choice, such as a tape deck, audio input of a VCR, etc.

Front Panel Controls and Indicators
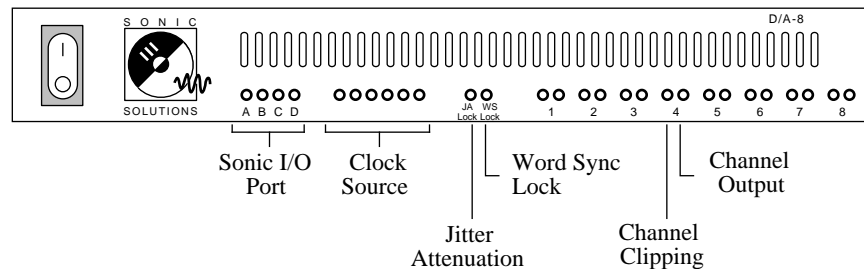
Sonic I/O Port	Indicates SonicStudio port (A or B available).
Clock Source	Internal (44.1 or 48kHz) or external word sync (WS) or system clock (DS).
JA Lock	(Jitter Attenuation) Incoming digital audio signals are re-clocked to reduce jitter to less than 1 nanosecond. A green light means locked. A red light means not locked.
WS Lock	A green light means locked. A red light means not locked.
Channel Enable	A green light means enabled.
Channel Output	A green light means a signal is present. The brightness indicates level.
Channel Clipping	Red means digital clipping.

Rear Panel Connectors

The rear panel of the 8-channel digital-to-analog converter includes:

- 8 channels of analog audio output

- Word sync in and out

- A set of DIP switches for setting the device's address on the bus

- Multi-pin connectors that mate the device to the SonicStudio's rear panel connector as well as to additional converter units
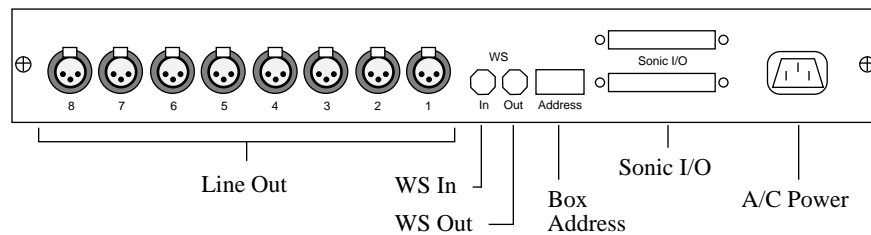
Line Out	Balanced XLR outputs. Peak level is software controllable from +24 dBu to -24 dBu.
WS In	Word Sync input from an external sync generator.
WS Out	Output of the SonicStudio's system clock. This may be sent to another device. (Do not daisy chain to other boxes).
Box Address	Each converter box connected to a SonicStudio has a unique address from 1 to 15. Address 0 is reserved for the SonicStudio card
Sonic I/O	The 68-pin Sonic I/O is used to connect the box to the SonicStudio card or other boxes. (Terminate the last box.)
AC Power	Standard IEC removable plug connection for 110 or 220 power.

Eight-Channel Analog-to-Digital Converter

The Sonic Solutions Eight-Channel A/D Converter provides 18-bit conversion of eight XLR balanced-line analog audio inputs with -100 dB THD+N performance.

Front Panel Controls and Indicators
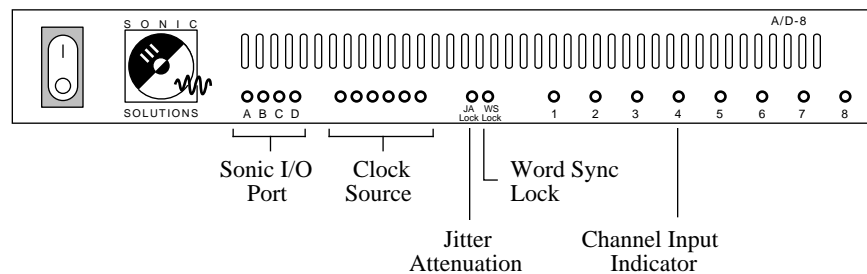
Sonic I/O Port	Indicates SonicStudio port (A or B available).
Clock Source	Internal (44.1 or 48kHz), external word sync (WS) or system clock (DS).
JA Lock	(Jitter Attenuation) External digital clock signals are re-clocked to reduce jitter to less than 1 nanosecond. A green light means locked. A red light means not locked.
WS Lock	A green light means locked. A red light means not locked.
Channel Enable	A green light means enabled.
Channel Output	A green light means a signal is present. Brightness indicates level.
Channel Clipping	Red means digital clipping.

Rear Panel Connectors

The rear panel of the 8-channel analog-to-digital converter includes:

- 8 channels of analog audio input; word sync in and out

- A set of DIP switches for setting the device's address on the bus

- Multi-pin connectors that mate the device to the SonicStudio's rear panel connector as well as to additional converter units
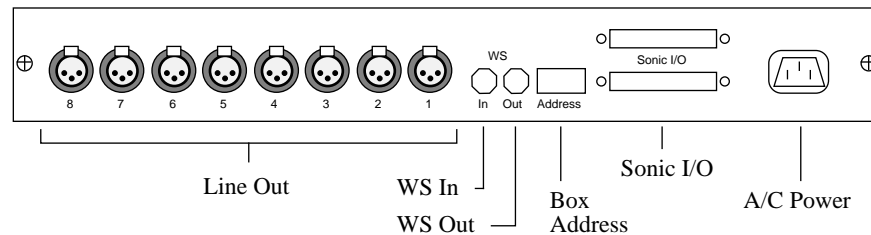
Line Out	Balanced XLR inputs, peak level is software controllable from +24dB to -24dB.
WS In	Word Sync input from an external sync generator.
WS Out	The output of the SonicStudio's system clock. This may be sent to another device. (Do not daisy chain to other boxes).
Box Address	Each converter box connected to a SonicStudio has a unique address from 1 to 15. Address 0 is reserved for the SonicStudio card
Sonic I/O	The 68-pin Sonic I/O is used to connect the box to the SonicStudio card or other boxes. (Terminate the last box.)
AC Power	Standard IEC removable plug connection for 110 or 220 power.

High Density I/O

Front Panel Switches and Indicators
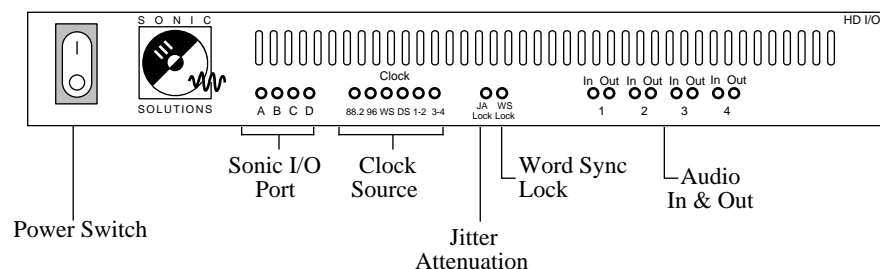
Power Switch	Applies AC power to unit.
Sonic I/O Port	By default, indicates SonicStudio port A for line inputs 1 and 2. B, C, and D are not available at this time. Green: Available Red: Disabled or unavailable
Clock Source	Indicates the source of the clock master. By default, the clock source is 96 kHz for the HD I/O.
JA Lock	Indicates if the jitter attenuation circuit is locked to the clock source, enabling audio to pass in and out. Green: Locked. Red: Not locked
WS Lock	Indicates if Word Sync is present or locked to the Word Sync or digital inputs. Green: Locked Red: Not locked Off: Signal not present.

Audio In, Out   Each Audio channel has a pair of LEDs that indicate the status of the input and output signal. The LEDs blink to indicate the level of the signal. The louder the audio, the brighter the light.
Green: Input or output enabled.
Red: Signal clipping

Rear Panel Connectors
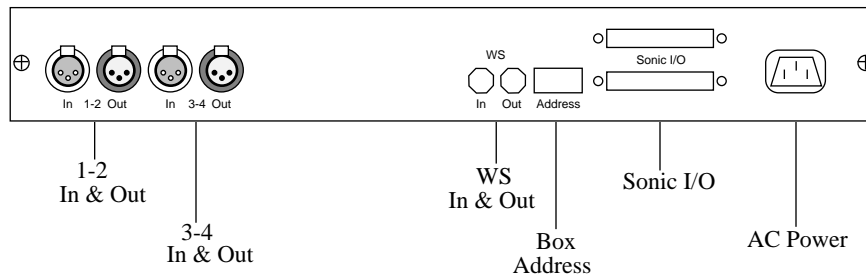
1-2, 3-4   Connects audio input and output.

WS In & Out   The input connects Word Sync input from an external sync generator. The output connects the Word Sync output of SonicStudio's system clock if sent to another device.

Box Address   Assigns a unique address from 1 to 15 to each converter box connected to SonicStudio. (Address 0 is reserved for the SonicStudio card.)

Sonic I/O   Connects the HD I/O to the SonicStudio card or to another adaptor unit. If both connectors are used, the second connector must be terminated or connected to an additional peripheral adaptor unit.

AC Power   Connects to a standard 100 or 220 volt removable plug.

Connecting Audio to the SonicStudio System
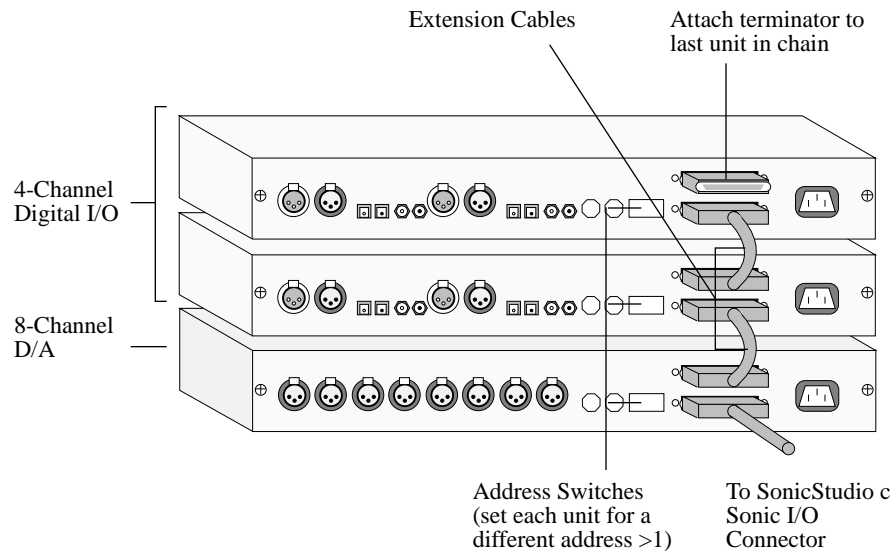
To connect audio:

1. Turn off power to all units.

2. Using the DIP switches, assign Address numbers starting with 1, to each I/O box in ascending order. ID 0 is reserved for the SonicStudio card.

3. Connect the 50-to-68 multi-pin cable from the rear of the SonicStudio card (50-pin connector) to the digital I/O boxes (68-pin connector).

4. For additional I/O boxes, attach the extension cable (Part 720339) from the remaining connector on the first cabinet to one of the connectors on the next cabinet.

5. Repeat steps 2 to 4 for each I/O box.

6. Attach the 68-Pin terminator to the unused connector on the last unit in the chain.

Understanding SCSI Peripheral Connections

Sound disks are large capacity, high-performance SCSI hard disks used to store and retrieve digital audio for the SonicStudio System. A SonicStudio System must include at least one Sound Disk.

The SonicStudio connects to the sound disks and other storage devices via the 50-pin SCSI cable attached to the back of the SonicStudio card. Additional SCSI hard drives can be connected in a "chain" to provide expanded sound storage.

Other I/O peripherals that connect to the external SCSI bus include:

- SS-425 removable optical drive to supplement the magnetic sound disks

- SS-423 or 424 8mm Exabyte-compatible drive to archive sound files and edit lists, and to produce CD masters in the DDP format

- CD-200 CD Printer for producing audio, CD-ROM, and mixed-mode masters directly on Compact Disk

- SS-422 High-speed CD-ROM reader for direct duplication of CD-ROM and audio CDs

There are three important points to understand about configuring a functional SCSI chain:

- Bus Length: The total length of the bus must not exceed 6 meters (about 19 feet), including the internal cabling within each disk enclosure.

- Termination: The devices at each end of the SCSI bus must be equipped with SCSI terminators. Terminators prevent impedance mismatches and signal reflections that can corrupt data.

Note – The SonicStudio card utilizes on-board, active termination. The Sound Disks, however, do <u>not</u> have built-in termination. Terminate the Sound Disk SCSI chain by attaching the included in-line terminator to the unused connector at the end of the chain. The terminator is a small solid unit with 50-pin Centronics-style cinch connectors that mate to the attachments on the disk drive.

- SCSI IDs: Each SonicStudio card and Sound Disk must be assigned a unique SCSI identification number (SCSI ID).

  ID numbers, as defined by the SCSI specification, range from 0 to 7. However, in the SonicStudio system SCSI ID numbers 6 and 7 are reserved exclusively for the SonicStudio (ID 7) and optional processing board (ID 6). Use only SCSI IDs 0 through 5 for Sound Disks and other SCSI peripherals.

  We recommend you assign ID numbers to disk drives in ascending order, starting from 0.

Connecting a Sound Disk or SCSI Device

You will connect your SCSI Sound Disk to the SCSI cable from the SonicStudio.

SCSI Terminator

SCSI Disk Drive

To Spacer Board
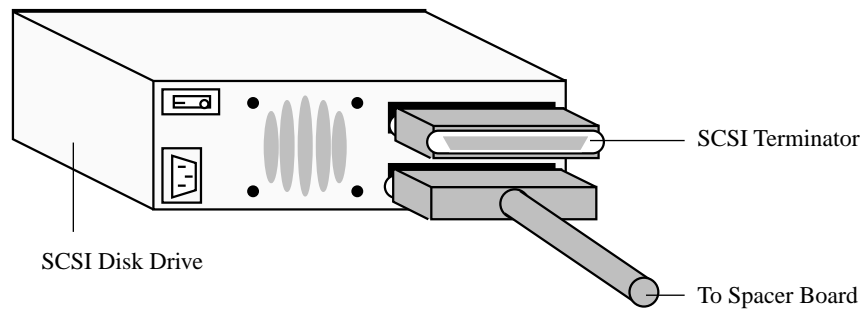
To connect a single sound disk to your SonicStudio card:

1. Assign SCSI ID number 0 to your Sound Drive.
    There's usually a numbered button or selector switch on the bottom or the back of the cabinet that accomplishes this.

    If you change the SCSI ID number, you must power-cycle the drive by switching it off then on again before the new ID number will take effect

2. Connect the SCSI cable from the SonicStudio card to one of the SCSI connectors on the disk drive.
    Each drive cabinet has two identical SCSI connectors. It does not matter which connector is the "input" and which is the "output," since they are wired in parallel.

3. Attach the SCSI terminator to the remaining SCSI connector on the last cabinet in the chain.

Connecting Multiple SCSI Devices

You can connect several Sound Disks to your SonicStudio System.

Sound Disk 3
SCSI ID "2"

Sound Disk 2
SCSI ID "1"

Sound Disk 1
SCSI ID "0"

Place Terminator
on the last drive
in the chain

SCSI Extension
Cables

To Spacer Board
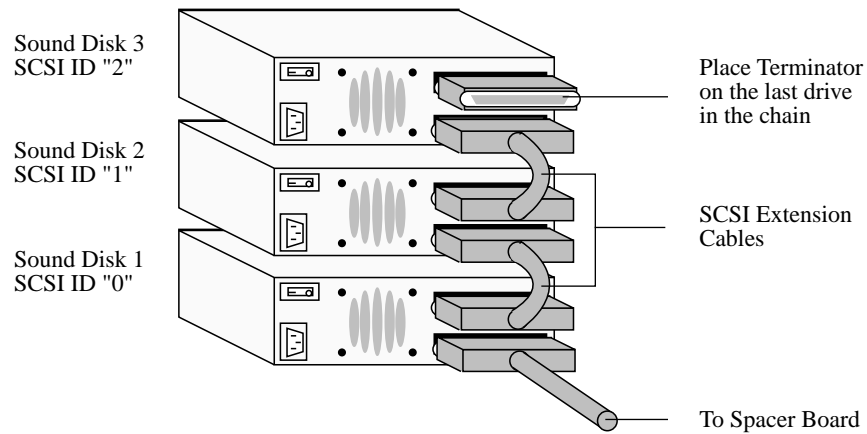
To connect a multiple Sound Disks to your SonicStudio card:

1. Turn off power to the Macintosh and all disk drives.

2. Starting with 0, assign SCSI ID numbers to each drive in ascending order.
   There is usually a numbered button or selector switch on the bottom or back of the cabinet that accomplishes this.

Note – Make sure that every drive in the chain has a different ID number between 0 and 5.

3. Connect the SCSI cable from the SonicStudio card to one of the SCSI connectors on the disk drive.
   Each drive cabinet has two identical SCSI connectors. It does not matter which connector is the input and which is the output, since both are the same.

4. If there is more than one drive cabinet to connect, attach a short SCSI extension cable from the remaining connector on the first cabinet to one of the connectors on the next cabinet. Keep SCSI cabling short. Remember that the maximum length of the <u>entire</u> chain, including internal cabling, must be no more than 6 meters (19 feet).

5. Repeat step 4 above for all Sound Disk drives in the system.

Connecting Time Code and Serial Machine Control

The SonicStudio system includes an octopus cable with XLR connectors and three male 9-pin D-sub mini connectors. The XLR connectors connect the SonicStudio to devices that read and generate longitudinal time code in SMPTE and EBU standard formats. The D-sub mini connectors are used with the Machine Control option (SS-516).
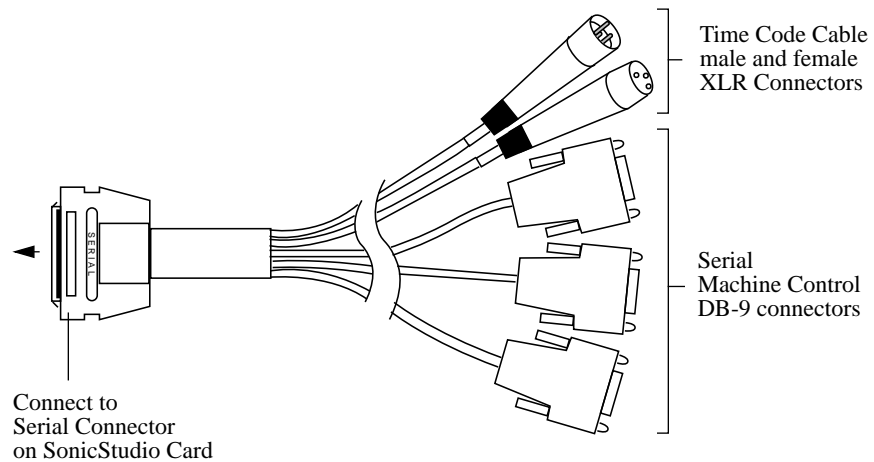
Time Code Cable male and female XLR Connectors

Serial Machine Control DB-9 connectors

SERIAL

Connect to Serial Connector on SonicStudio Card

This cable connects to the Serial connector of the SCSI/Serial cable assembly (attached to the SonicStudio card) on one end. The XLR connectors then attach to the time code input and output of your external device.

Note – If the system is equipped with the PQ Code Editing option for CD Mastering, the Time Code cable also reads and generates PQ Bursts used in CD mastering.

The SonicStudio and Time Code cable are configured for balanced output, with pin 3 as the *high* side of the signal. You can make adapters for 1/4-inch, RCA phono, or other unbalanced connectors by employing a transformer-coupled balanced to unbalanced adapter.

This cable connects to the Serial connector of the SCSI/Serial cable assembly attached to the SonicStudio card. The 9-pin connectors then attach to the remote control input of a suitably equipped and compatible audio or video transport. Then the SonicStudio System can control all operations of the target transport.

Note – In order for machine control to operate, the smaller of the flat ribbon cables between the SonicStudio and the I/O Connector cable must be installed, as mentioned before. Otherwise, there is no connection for signals between the target transport and the SonicStudio, where the actual control port is located.

Installing Hardware Options

SonicStudio is modular and can be extended by adding hardware and software options. Some of the options for SonicStudio require installation of additional boards. This section presents an overview of SonicStudio card configurations for certain options. For more detailed instructions, please see the manuals for these options.

Installing Expansion Options

Due to the great variety of possible system configurations, it is not feasible to describe step-by-step procedures for each. However, it is fairly easy to install systems with any number of boards by using the procedure described above for the basic system.

To install expansion options:

1. Install the boards one at a time, starting at the left as seen from the front of the computer and working towards the right.

2. Before installing each board, identify and install all internal cables that connect to this board.

3. Once a board is installed into its designated NuBus slot, attach all cables that are to connect to that board from any previously installed boards.

If you work in this fashion, from left to right and connecting the cables as you go, you will avoid any situations of impaired clearance, and you will find it easy and direct to configure your expanded SonicStudio system.

Multi-channel Expansion

Each additional SonicStudio card added to the system provides an additional 16 audio input and output channels. The additional cards are installed alongside of the main SonicStudio card. Each card is connected to a separate chain of Sound Disks, to provide additional channels of audio I/O and storage. As many as five additional SonicStudio cards can be installed along with the main SonicStudio card, for 96 audio input and output channels with full digital mixing.

The expansion SonicStudio is installed in a slot alongside the main board. (If you are combining multi-channel expansion with MediaNet, see the next section.

To individual SCSI
and audio I/O chains

Macintosh rear panel

Main SonicStudio

Expansion SonicStudio

"Board-to-Board"
cables in "criss cross"
pattern
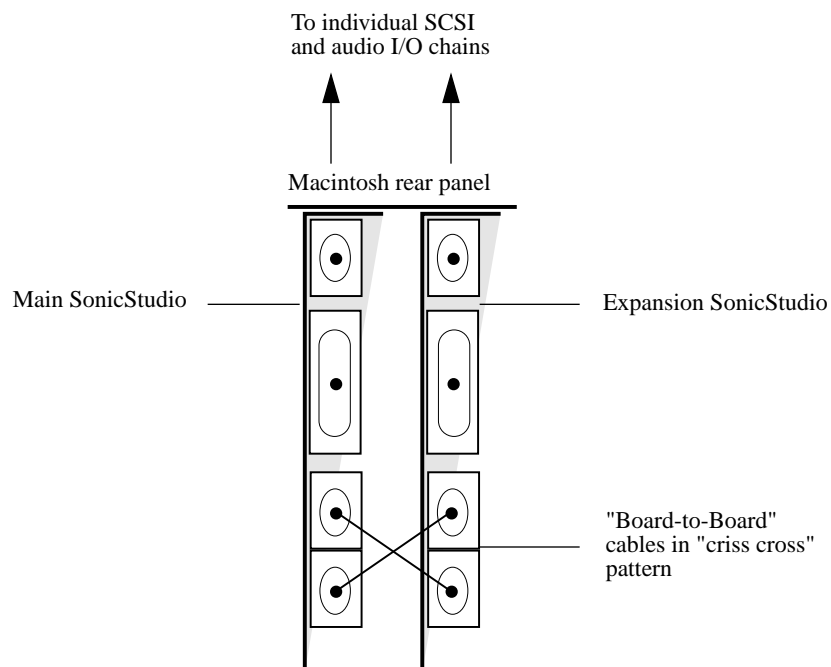
The board-to-board cables on each SonicStudio card are connected between boards in an "X" pattern, so that the rear most connector of one board connects to the more-forward connector on the other. The board-to-board cables are installed with restraining clips for security.

To detach and reconnect the board-to-board cables:

1. With the SonicStudio cards installed in the computer, on the rear most of the two board-to-board connectors on either SonicStudio card, use a small pointed too to depress the metal clips and remove the connectors.

2. Repeat for the other board, so that both boards have one connector free.

3. Connect the loose cable from each board to the other board's header, forming the criss-cross, X pattern.

Installing Multiple Expansion SonicStudio Cards

To install additional expansion boards, proceed in the same way. Install all of the boards in adjacent card slots. For more than two boards, the board-to-board cables are installed to form a ring

As shown below, connector "A" of each board connects to connector "B" of the next board. When the last board is reached, its connector "A" is joined to connector "B" of the first board, forming a complete communication "loop" between all boards. Following this scheme, several boards can be connected to form a large system.
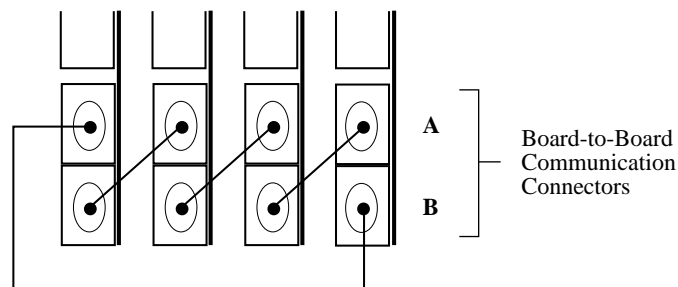
Each 16-channel expansion board is connected to its own chain of SCSI Sound Disks and audio I/O peripheral adapters.

MediaNet Digital Media Network

The MediaNet Digital Media Network provides ultra-high-speed communications between separate SonicStudio systems <u>or</u> between boards in a multi-channel system. For a multi-channel system, this provides greater freedom in combining audio "cross-bus," so that audio from any drive may be edited in the same panel with sound from drives on the SCSI buses of other SonicStudio cards.

MediaNet hardware consists of a specially designed board that includes two separate SCSI controllers with connector headers to match those on the SonicStudio. In use with SonicStudio, the MediaNet board is attached to the SonicStudio's SCSI bus. A single MediaNet board can support two SonicStudio cards in the same computer chassis.

In a multi-channel system, the MediaNet board is installed between two SonicStudio cards.

The MediaNet board connects to a SonicStudio card with a two-headed SCSI/Serial cable, as shown below.

Connect to MediaNet Board

2-headed SCSI/Serial Cable

SonicStudio card

Computer Chassis

back of the computer

Connect the MediaNet Board
using the 2-headed SCSI/
Serial cable

SonicStudio card
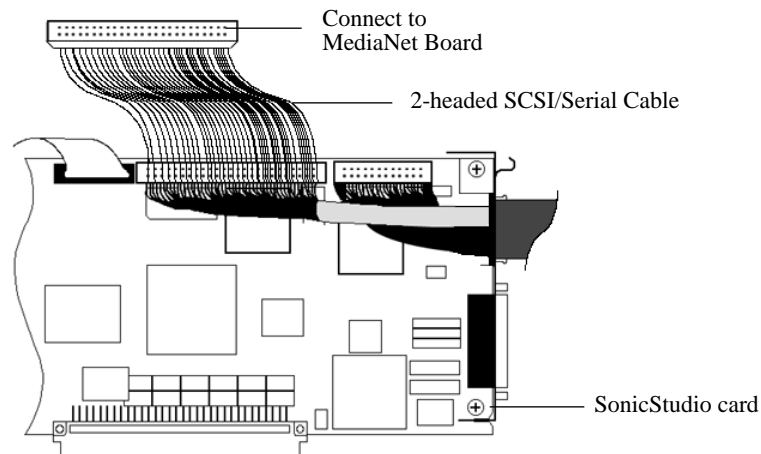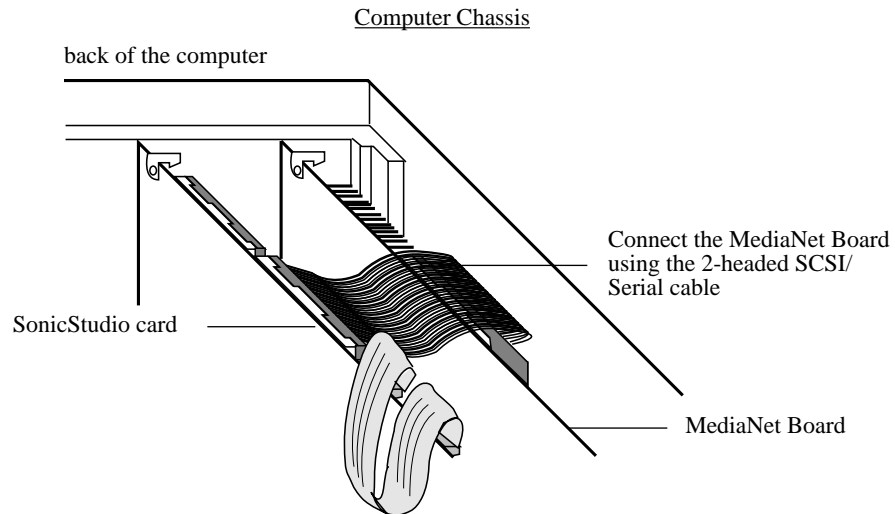
MediaNet Board

SCSI Termination

When more than one board is attached to the same SCSI bus, as when
configuring a system with MediaNet option, then it is important to pay
attention to SCSI termination. The principles are the same as when
connecting sound disks and other SCSI peripherals.

Terminator
header

SonicStudio
Board

SCSI A
header

SCSI A
Connector

SCSI B
header

SCSI B
Connector

MediaNet
Board
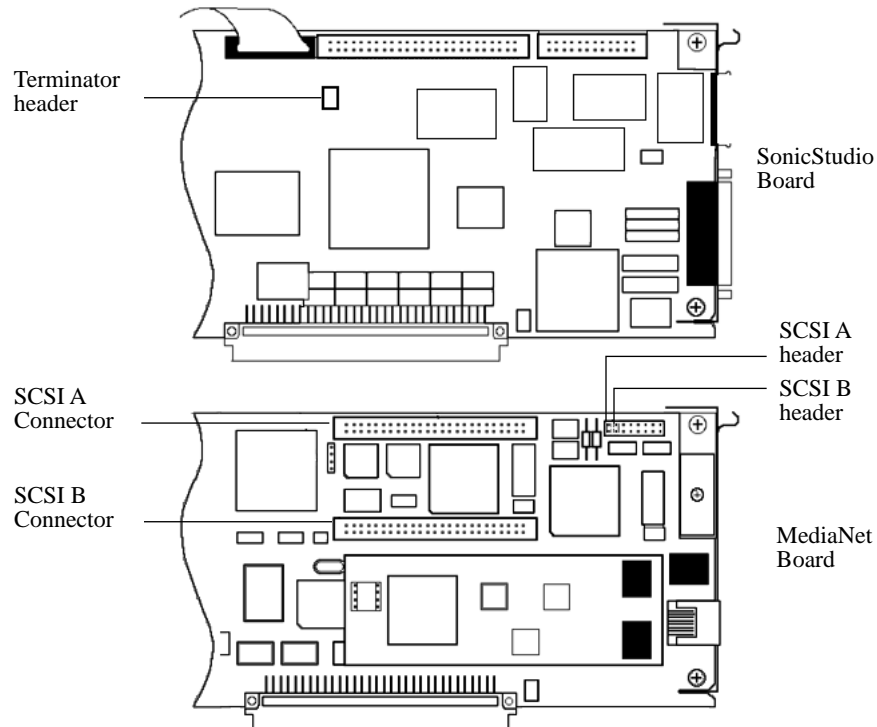
- Each end of the full SCSI chain must have a terminator at the very end of the chain.

- There must be one and only one terminator at each end.

If these two principles are violated in either direction; i.e., one end or the other of the bus is left without a terminator or has two terminators installed the results are the same, a serious reduction in the performance of the SCSI system, manifesting as reduced track capacity.

Both the SonicStudio card and the MediaNet card come with SCSI terminators installed on the board in the form of small connector blocks. To unterminate a board, you must remove the corresponding terminator block from the board.

When connecting the two boards together, you need to <u>remove</u> the terminator header from the board that is <u>next</u> to last in the chain, and <u>leave</u> the terminator in place on the very last board.

Multi-channel Expansion and MediaNet

For all systems that use one or more SonicStudio expansion boards, it is highly recommended to install MediaNet as well. The MediaNet card provides high-speed communication between all card in the system, and allows you to edit across the boards freely.

To individual SCSI
and audio I/O chains

Macintosh rear panel

A

Main SonicStudio — B — Expansion SonicStudio

"Board-to-Board" cables in "criss cross" pattern
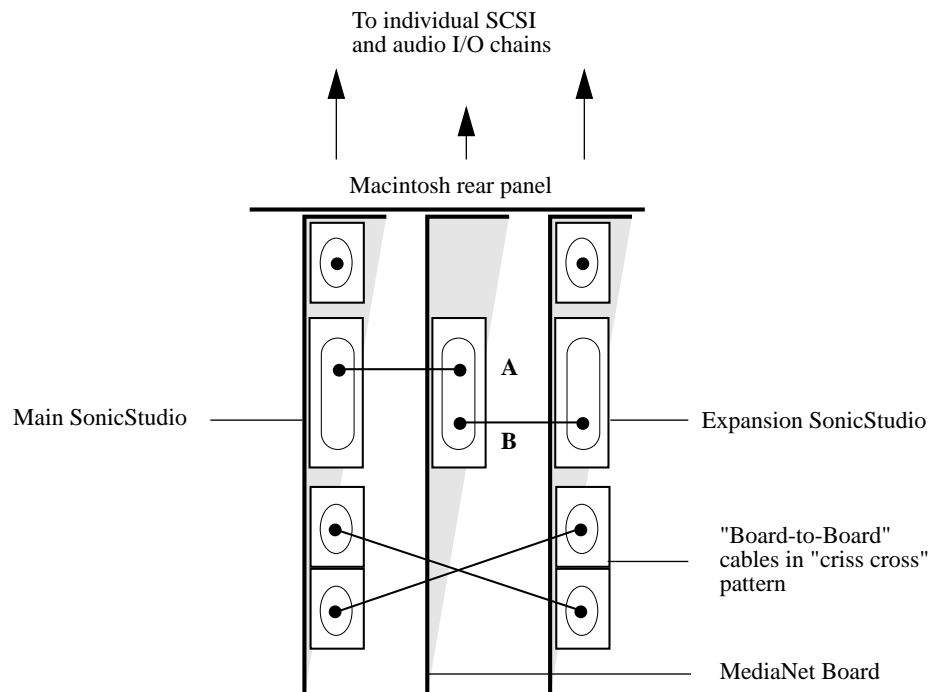
MediaNet Board

As when connecting expansion boards without MediaNet, the board-to-board cables are connected in an X pattern.

Each MediaNet board has two individual SCSI controllers. When installed with a SonicStudio expansion board, the single MediaNet card is placed in between the main SonicStudio card and the expansion board. Each card connects to one of the two SCSI connectors on the MediaNet board.

It is important to correctly terminate the SCSI bus from each card by removing the terminator header from the next-to-the last board and leaving the header in place on the board at the very end of the chain.

In the diagram shown, the external SCSI connections may be routed out through the MediaNet card or through to two SonicStudio cards. Whichever card(s) has the cables extending from it, should have it's terminators removed. That is, if the SCSI cables extend from the MediaNet card, then remove both the A and B terminator headers from the MediaNet board, and leave the terminators in place on both SonicStudio cards. If the cabling is routed from the two SonicStudio cards (so that the far end of each bus is at the MediaNet card, remove the terminator headers from the SonicStudio cards and leave both terminators in place on the MediaNet board.

Several sets of SonicStudio card and MediaNet cards may be installed in a system, with each MediaNet card supporting a pair of audio boards. When two MediaNet boards are used, the two boards are connected by a network (fiber-optic or copper depending on the version of MediaNet board purchased). If any more than two MediaNets are used, the boards are connected through a hub as described in the MediaNet documentation.

SonicStudio FX

The SonicStudio FX processor provides additional signal processing capability, including NoNOISE. To install, you will connect the SCSI bus between the main board to the FX board, just as for MediaNet, while the board-to-board cables are connected in the X pattern described for multi-channel expansion.

Computer Chassis

Back of the computer

Connect SonicStudio FX
Processor Board using
the 2-headed SCSI/Serial
cable

Connect "board-
to-board cables"
in "X" pattern

Main SonicStudio card
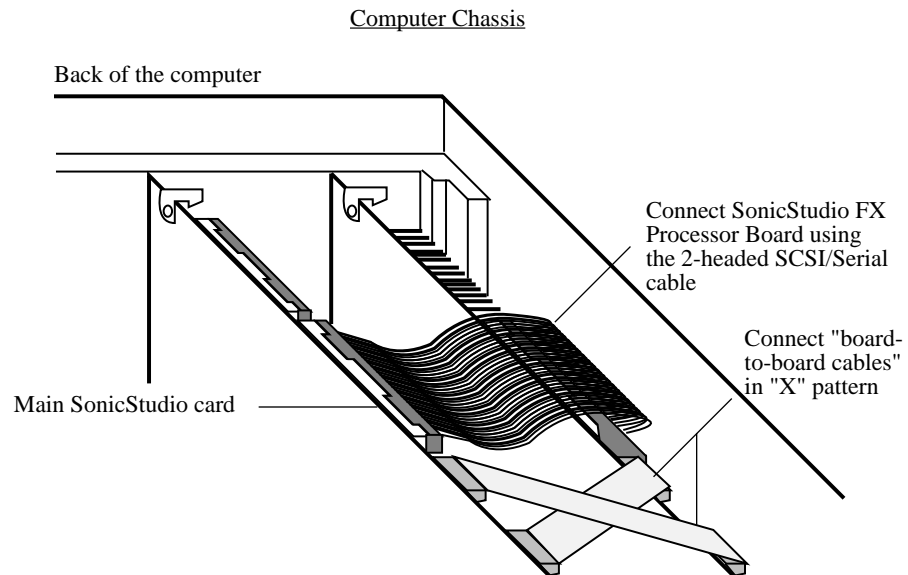
For this configuration, there is no SCSI/Serial cable or Sonic I/O cable
attached to the SonicStudio FX processor. The same considerations for
SCSI termination apply as for MediaNet installation.

Combining Options

Multi-channel expansion, MediaNet, and SonicStudio FX processors may
be combined as desired. The installation principles remain the same.

To combine options:

1. Be careful to observe proper SCSI termination for every SCSI bus.

2. Be sure to connect the board-to-board cables between all
   SonicStudio cards in an X (two boards) or ring configuration.

If you follow the directions for installing the individual options, and
observe these considerations for configuring larger systems with
multiple options, you will find that you can create SonicStudio-based
SonicStudio systems to fit almost any audio need.

3. Enter the number 48 in the Buffer Size field and click OK to close the Options dialog.
   This ensures that sufficient memory is available to hold the large key set used by SonicStudio.

4. Restart your Macintosh.

3 Installing and Starting Sonic Studio

Installing the Software

The SonicStudio System software is delivered on multiple floppy diskettes whose contents must be installed on the Macintosh hard disk. Disk 1 of the SonicStudio System software set includes a special application called *Installer* that automates this process. Before beginning installation, make sure there are <u>at least</u> 5 megabytes of free space on the Macintosh hard disk.

Installing the Key File

The Key File is a special document required to run the SonicStudio System software. This is not placed automatically, but must be installed by hand by the user. Place the Key File in a folder called Sonic Preferences, inside the Preferences folder in the Macintosh System folder.

Once the Key File is installed, it need not be reinstalled unless the Macintosh disk is reformatted or replaced. A new Key File is provided when the user purchases additional hardware or software options.

CAUTION If the correct Key File is not present when the SonicStudio application is started, the system will not operate.

Installing the SonicStudio System Application

To install the SonicStudio System software:

1. Insert Disk 1 into the Macintosh floppy drive. Double-click the disk's icon to show its contents.

2. Double-click the Installer icon.
   After a moment, a dialog will appear.

3. Insert each disk as the Installer prompts for it.

When installation is complete, the SonicStudio application will be installed on the Macintosh hard disk. The original disks should be stored in a safe place in case you have to re-install the software.

After installation, you will find a new folder entitled "Sonic" on the Macintosh hard disk. This folder contains the SonicStudio application and other files that will help you use the system.

A set of release notes for the current software revision is included as a simple text file. Read this document before starting SonicStudio to learn the latest changes and new features.

Installing QuicKeys®

QuicKeys from CE Software is a software utility that can assign a command or sequence of commands to a single key or key combination. Assigning menu commands to the keyboard speeds operation, and a set of preassigned key equivalents is provided with the system. For speed and ease of operation, we recommend the use of QuicKeys with the preassigned set. QuicKeys can be purchased from Macintosh software dealers or directly from CE Software, Inc. (telephone 515-224-1995).

To use the preassigned key equivalents, you must install the QuicKeys program, adjust its user preferences to accommodate the requirements of the Sonic key set, and install the key set itself in the running program.

To install the QuicKeys application, follow the steps outlined below:

1. Install the QuicKeys application, following the instructions in the QuicKeys manual.

2. Under the   menu, choose Control Panels, and select QuicKeys™ in the dialog box or window that appears.

3. In the resulting QuicKeys dialog, click the Configure button.

4. In the QuicKeys Options dialog that appears, click the Custom radio button.

Installing the Sonic System Key Set

Follow the steps outlined below.

1. Locate the QuicKeys Folder inside the Preferences folder in the System Folder on the Macintosh boot volume.

2. Inside the QuicKeys Folder, locate the Keysets folder.

3. Move the file called SonicStudio™.keys from the Sonic folder to the Keysets folder.
   This file may appear in a variant name and may be divided into separate files for Sequences and individual strokes. The file and folder names describe the locations into which each file is to be placed within the QuicKeys folder within the Preferences folder in the Macintosh System folder.

4. Rename the SonicStudio™.keys file to match exactly the name of the SonicStudio application as it is installed on the Macintosh.
   Unless the user changes it, this will normally appear as SonicSystem™.

5. Close the System Folder.

If the name of the SonicStudio application is changed, the name of the key set file must be changed to match because QuicKeys locates the key set to be used by name.

Software Updates

Before installing updates to the SonicStudio software, which use the same procedure as the initial installation, you must first clear out the Sonic folder or change its name. If you don't, the Installer program may create duplicate files with similar names creating potential confusion.

To retain the previous software version, rename the existing folder to Sonic.*version number.* The older Sonic application will remain on your Macintosh disk.

Starting SonicStudio

Once the SonicStudio hardware and software have been installed and connected with the sound disks and external equipment, you should verify that the entire system is operating properly.

1. Turn on AC power to all sound disk and external audio equipment, then start the Macintosh computer.

2. Open the Sonic folder and double click on the SonicSystem application icon.

During start-up, SonicStudio displays a graphic start-up screen and a scrolling Status Window that displays a succession of messages as the system initializes and tests hardware.

Once the application finishes launching, the dual windows of the SonicStudio mixing desk appear on the screen.
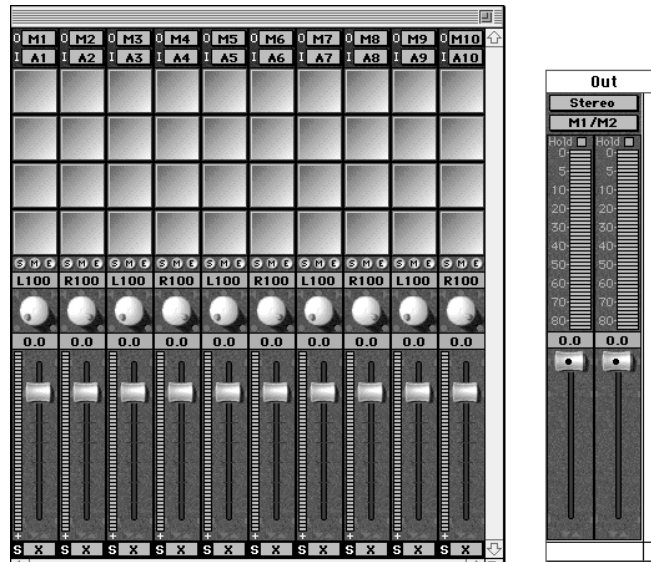
The mixing desk consists of two separate windows. One shows the faders and controls for individual mixer input channels. The other shows a pair of master faders.

The number of channel faders that appear depends on the number of SonicStudio cards installed, with a single-board system providing 16 channels on the desk. Each board installed adds an additional 16 channels.

SonicStudio boards that are configured for denoise and effects processing do not add channels to the desk

Using the Menus

While SonicStudio is running, the bar across the top of the Macintosh screen lists the principle menus. These are the command center of SonicStudio.

1. With the mouse, move the arrow cursor on the screen to point to the File menu.

2. Press the button on the mouse and hold it down.

The File menu will pull-down from the title in the menu bar, so that you can read the list of commands it provides.

```
┌─────────────────────┐
│ File                │
├─────────────────────┤
│ New              ▶  │
│ Open             ▶  │
├─────────────────────┤
│ Close           ⌘W  │
│ Save            ⌘S  │
│ Save As...          │
├─────────────────────┤
│ Record Sound File...│
│ Restore Archive...  │
├─────────────────────┤
│ Transport Panel     │
├─────────────────────┤
│ Preferences      ▶  │
│ Managers         ▶  │
│ Status Monitors  ▶  │
│ Utilities        ▶  │
├─────────────────────┤
│ Page Setup...       │
│ Print One           │
│ Print...            │
├─────────────────────┤
│ Import...           │
│ Export...           │
│ Template         ▶  │
├─────────────────────┤
│ Quit            ⌘Q  │
└─────────────────────┘
```

This menu controls the documents, soundfiles, Edit Lists, Projects, and Sessions, used in recording, editing, and off-loading audio. It also includes commands for setting user preferences and managing the system, and a number of utility functions.

4 Configuring the Software

Once the system software has been installed and its operation verified, the next step is to configure the software following the procedures in this chapter.

Audio Checkout for SonicStudio 4•12

Once SonicStudio is running, the next step is to configure SonicStudio audio ports, and pass a signal through the system.

The Audio I/O Preferences dialog controls the operation of the SSP-3's digital audio ports.

Audio I/O Preferences

The SonicStudio 4•12 card's audio inputs must be configured to work with the devices connected.

1. Select one device to serve as primary source for testing.

2. Make sure the device is powered up and providing a digital audio output.

3. Identify which of the two inputs (P2 or P3) on the rear of the SSP-3 is connected to the source device output.

4. Select a device with D/A capability for monitoring, and identify which of the outputs (P2 or P3) it is connected to.

As marked on the SSP-3 and shown in chapter 1, the optical connector closest to the round serial connector is the P2 input. The next jack below it is the P2 output. The third connector is the P3 input, and the last connector is P3 output.

The Audio I/O Preferences dialog is used to set the configuration of SonicStudio's digital audio inputs and outputs. Among other capabilities, this screen allows any audio input to be switched on or off, and allows for reading of the Channel Status bits that accompany a digital audio signal.

5. From the File menu, select Preferences.

6. From the Preferences menu, select Audio I/O Prefs.
   The Audio I/O Preferences dialog will appear on screen.

Input Mode Switches

7. Identify the Input Mode button for the input (P2 or P3) that is connected to the audio source device.

8. Click on that button with the mouse.
   This opens a smaller dialog box to turn the input on or off.

Enable Input ————

9. Select ON to activate the audio port to which the source device is connected

10. Click on OK, or hit the Return key on the keyboard to close the small dialog and return to Audio I/O Preferences.

11. It is important that only one input is switched on. If necessary, click on the button for the other audio input, and set that input's state to OFF.

12. Click on the OK button in Audio I/O Preferences, or hit the keyboard Return key to close the dialog and return to the mixing desk.

When the Audio I/O Preferences dialog is closed, the system performs a complete reset of the DSP chips and reloading of program code on the 4•12 card to configure the routing of digital audio in the system. For this reason the dialog closes more slowly than most dialogs in SonicStudio.

Audio Checkout for SonicStudio 16•24

Once SonicStudio is running, the next step is to configure SonicStudio audio ports, and pass a signal through the system.

The Audio I/O Preferences dialog controls the operation of the SonicStudio's digital audio ports.

Audio I/O Preferences

The SonicStudio card's audio inputs must be configured to work with the devices connected. The Audio I/O Preferences dialog is used to set the configuration of SonicStudio's digital audio inputs and outputs.

To set digital inputs and outputs:

1. Select an audio source device to serve as primary source for testing. Make sure the device is powered up and providing a digital audio output.

2. Connect your designated source device to the lowest-numbered input of the external I/O box with the lowest address as set by the rear-panel DIP switches.

3. Select a pair of D/A outputs for monitoring, or a digital device with D/A capability.

4. Pull down the File menu, and slide with the mouse to the command item Preferences.

5. Continue to hold the mouse button.
   A pull-right submenu appears.

6. Select the topmost item, Audio I/O Preferences.
   (You may also use the QuicKey key equivalent, *Option-A,* to open the dialog.

   The SonicStudio Audio I/O Preferences dialog appears on screen.
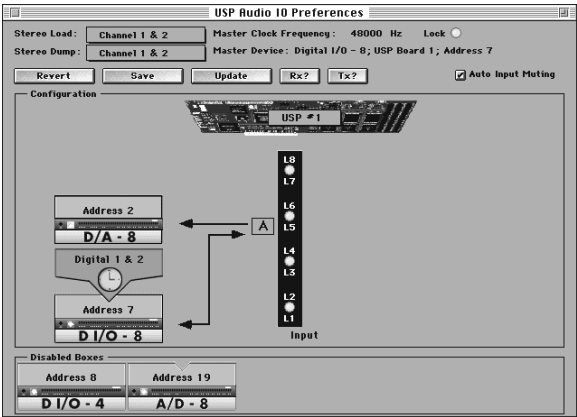
The diagram at the center of the dialog depicts the physical configuration of the system. Each element of the system, SonicStudio card(s) and external I/O boxes, is depicted by an illustration of the physical item.

Pop-up for selecting among multiple SonicStudio cards

SonicStudio Card

8-channel D/A

Designates Master Clock

8-channel Digital I/O
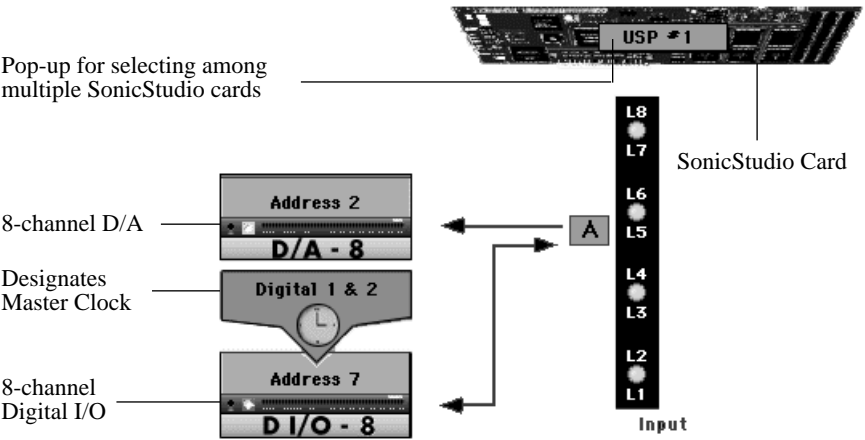
If you do not see the I/O boxes that you know to be attached to the system represented in this window, jump ahead to *Troubleshooting Audio* later in this chapter.

Setting the Master Clock Source

Besides the icons representing the physical SonicStudio card and I/O boxes, notice the box with a downward-pointing arrow and representation of a clock face. This is the Clock Master designator, indicating which device in the system is supplying master clock. This icon will always be found *docked* to one or another of the peripheral I/O box icons.

Click here to open
Clock Select dialog

Digital 1 & 2

Address 7

D I/O - 8

A digital audio system requires a master clock that is held common among all elements of the system. Master clock is always provided by one of the peripheral devices, and SonicStudio will not run properly without a valid clock.

SonicStudio can receive its clock from the clock signal embedded in a digital audio source or from a dedicated word clock. Besides selecting one of the peripheral I/O devices to provide clock, it is also necessary to select from the available inputs or internal clock sources.

Clock is derived
from digital audio
input

Clock Master

Device: Digital I/O – 8; USP Board 1; Address 7

Master Clock

○ Word Sync

○ Internal 44.1 Khz   ○ Internal 48 KHz
◉ Digital Input 1 & 2   ○ Digital Input 3 & 4
○ Digital Input 5 & 6   ○ Digital Input 7 & 8
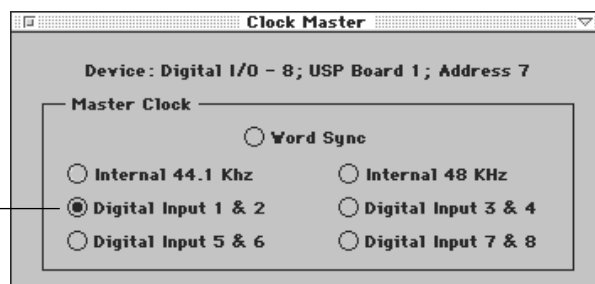
1. If the Clock Master designator icon initially appears on an I/O box <u>other</u> than the one you have connected audio to, hold down the *Option* key and click on the icon of the box you are actually using for input.

2. Click on the master clock designator icon to open the Clock Master dialog.

3. If you are using a digital input source, in the Clock Master dialog, select the button labeled Digital Input 1 & 2.
   If you have elected a different set of inputs, select those.

4. Close the Clock Master dialog by clicking on the close box.

Selecting Digital Input Type

If you are using a digital audio signal as input source, you will need to tell the 4-Channel Digital I/O box which of the three types of connection (XLR, RCA, or optical) is being used.
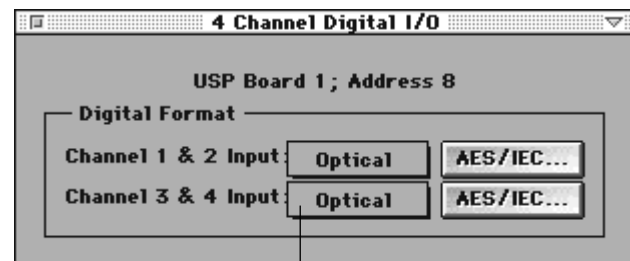
Click here to open and
select the input type

1. Click on the icon of the I/O box that you are using for input to open its dialog.
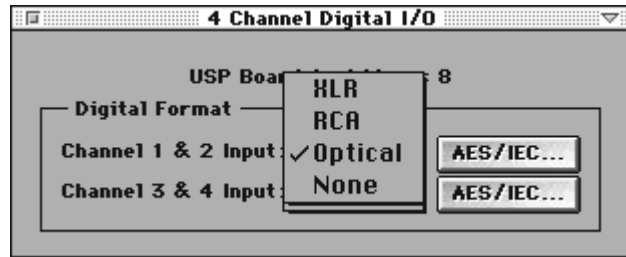
2. Use the pop-up menus in the center to select the type of digital audio connection you are using.

The selections correspond to the major standard formats for digital audio connections. XLR corresponds to the AES/EBU standard, RCA matches the S/PDIF format, and Optical refers to the 2-channel optical variant of AES/EBU.

Patching the Mixing Desk

On the mixing desk screen, locate the Channel Input Select buttons at the top of the channel faders to select audio sources for monitoring.

Channel
Input Select

When SonicStudio is first launched, these are set to A1 through A16, indicating the playback or Audition channels from the sound-storage disk.

1. Click and hold on the Channel Input Select button for the <u>third</u> channel from the left.
   A pop-up menu appears, listing the possible selections for channel input.

2. Select the first active Line input (L1 or L3)

3. Release the mouse button.

4. Repeat to select L2 (L4) for the input to the right most mixing desk channel

The Channel Input Selects should now appear with the first two channels assigned to A1/A2, while the last two channels read L1/L2, or L3/L4.

With L1 and L2 assigned to the channel inputs, an audio signal can be passed through the entire system as soon as the channels are assigned to output buses.

5. Locate the Channel Output Select buttons at the top of each channel strip.

Channel
Output Select
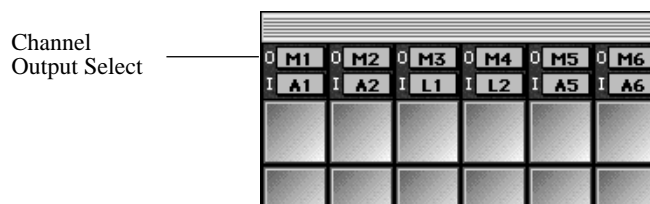
Desk channel outputs are routed with the Output Select buttons at the top of each strip. The M1 and M2 buses connect to output channels 1 and 2, and so on. When SonicStudio starts up, the desk outs are set to consecutive outputs. To monitor the output of the second and third channels strips, you must assign these to the outputs you are using for monitoring.

6. Click and hold on the Channel Output Select button for the third channel of the mixing desk.
   As with the Channel Input Select, a short pop-up menu appears that allows selection of an output bus.

7. Choose M1 or M2 if the monitoring is connected to the first two outputs, or to the output channels you are actually using.

The figure below illustrates the flow of audio through the system in simplified form.
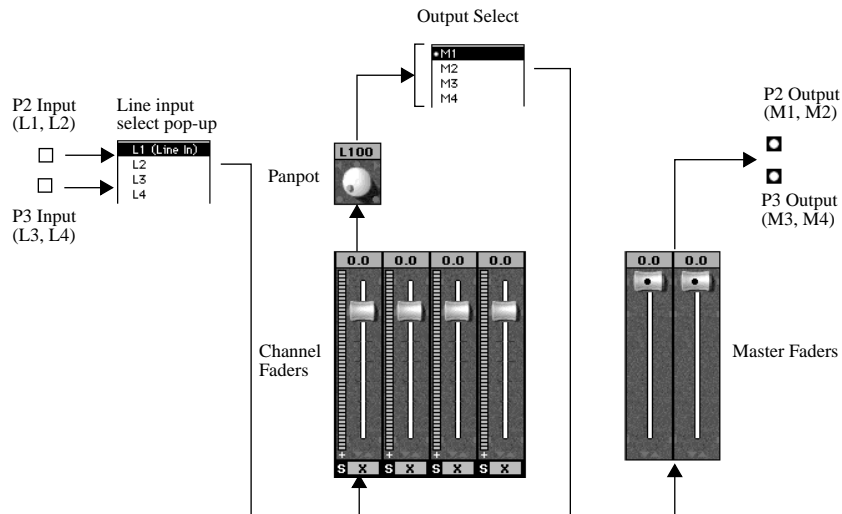
Testing Audio Throughput

With the mixing desk and Audio I/O Preferences set, a digital audio signal at SonicStudio's input will be routed to the channel input strips on the mixing desk, and from there through the master faders to the audio outputs.

1. Send an audio signal into the SonicStudio input by playing a tape, CD, live feed, etc. into the system.

2. Observe level meters on the mixing desk.

The large meters above the master faders show the desk output, while the smaller meter strips on each fader show the level of audio entering the strip. A signal level should be visible on these meters. If not, re-check all physical connections and the settings of Audio I/O Preferences and the mixing desk channel inputs. If there is still no signal, skip ahead to *Troubleshooting Audio.*

3. Listen to the output from the monitoring system.
   If the monitoring device has input or output level meters of its own, observe those for signal as well.

If no output signal is heard, but signal level is visible on the mixing desk's meters and you are certain that the correct output port has been selected on the mixing desk's output bus assign switches, then the problem is on the output side only. Carefully check all setting and connections. If there is still no success, follow the instructions under Troubleshooting Audio.

The channel and master faders can be used to change audio level. The desk filters may be used for real-time processing of audio coming through the system.

Troubleshooting Audio

There are only three ways in which the audio throughput test can fail:

- No audio input visible on the mixing desk meters.

- Input present, but no output signal observed.

- Signals present, but output noisy or distorted.

In each instance, simple troubleshooting procedures will eliminate any problem quickly and easily.

No Input

1. Make sure the source device is putting out an active audio signal (not silence).

2. Verify that cables are connected properly, and that all routing switches are in the correct position.

3. Make sure the source signal is connected to the SonicStudio card input that is selected as the master clock source.

4. Make sure that the monitoring system is connected to the outputs indicated at the mixing desk.

5. Pull the optical connector out from the SonicStudio card's input connector and look to see if a red light is visible at the end of the cable.
   If <u>not</u>, then no digital audio signal is reaching the SonicStudio card.

   Most problems in passing audio through the system prove to be simple patching problems such as these.

   If checking the physical connections does not reveal the source of a problem, examine the software settings that control audio I/O and routing.

6. Make sure that the channel inputs for the mixing desk channels are correctly set to the active input (L1 and L2 for the first two inputs, and so on).

7. Make sure that the output selected for Meter in Audio I/O Preferences matches the output bus selected for mixing desk channels 3 and 4.

If the problem is not solved by checking the input path, then:

1. Reopen the Audio I/O Preferences dialog.

2. Check to make sure that the correct device and input are selected as the clock master

If there is still no success, there is another test that can verify if the active input is receiving a valid digital audio signal.

Click here to open CP-340
Channel Status dialog
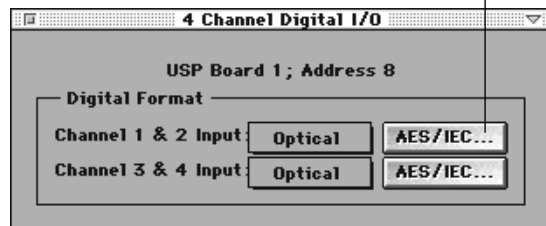
1. In Audio I/O Preferences, click on the icon of the peripheral box that is providing input.

2. In the dialog for selecting inputs on the peripheral box, click on the This opens the CP-340 Channel Status dialog. CP-340 is a specification (recently subsumed into AES/EBU) that defines digital audio I/O standards. This dialog provides details of activity on the selected input.

```
┌─────────────────────── CP-340 Channel Status ───────────────────────┐
│                                                                      │
│  EIAJ CP-340 CHANNEL STATUS SELECTION:                               │
│    ○ Professional      Emphasis Flag:  ◉ Auto    ○ ON    ○ OFF       │
│    ◉ Consumer       Sampling Rate Field:  ○ Auto   ◉ 44.1  ○ 48  ○ 32│
│    ○ HEX              Category Field:  ◉ General ○ CD  ○ PCM  ○ DAT   │
│                                            □ Copy Permitted          │
│                                                                      │
│  ┌────────────────────────────────────────────────────────────┐     │
│  │ 510780000000000000000000000000000000000000000000000030     │     │
│  └────────────────────────────────────────────────────────────┘     │
│                                                                      │
│  LOCKED              CRC-A OK                    44056.15            │
│  DATA PRES           CRC-B OK                                        │
│                                                                      │
│  ( UPDATE )   ( INPUT )   ( RESET )   ( LOAD )   ( WRITE )  ( READ )  │
│                                                                      │
│                                           ( Cancel )  [ OK ]         │
└──────────────────────────────────────────────────────────────────────┘
```

Input Button ──────────────→

Look at the long alphanumeric box in the middle of the dialog and the indications just below it. When the window initially opens, the indicators are not yet valid and should be ignored. The Input button is used to update the dialog to read the correct information.

If the Input Mode is changed in Audio I/O Preferences, the Channel Status window for that input <u>will not </u>function properly until Audio I/O Preferences has been closed and reopened.

This action reloads the input processor's software with the new information.

3. To read the information from the audio input, click on the button labeled INPUT.
It may be necessary to click this button more than once to properly read the signal.

When a valid audio input signal is present, the display under the long field will read:

LOCKED

DATA PRES

The audio sample rate will also read out to the right of these two words, and the long field in the middle will show a stable display, consisting of mostly zeros with a few other alphanumeric characters.

If the display reads:

NOT LOCKED

NO DATA

then there is no audio input signal detected.

If the display reads

NOT LOCKED

DATA PRES

then it usually indicates an unstable input signal. In this case, the Channel Status field (the long box) will usually show a garble of characters that changes each time the INPUT button is clicked.

In this case, one possibility is that the wrong input to peripheral box has been used. Make sure that the same type of connector is used at each end of the cable joining the source device to the converter.

If this is not the case, but the signal remains unstable, it may be that the source device's output is defective in some way.

No Output

If audio signal level appears on the mixing desk's Output Level Meters, but not at the monitor speakers or output device, continue the procedures used to troubleshoot the input.

1. Check that the button at the top of the strip for each channel of the mixing desk is set to the output bus corresponding to the SonicStudio card output connected to the monitor (D/A) device.

2. Verify that the correct digital audio output from SonicStudio is connected to the audio output device.

3. Make sure that all cables, connections, and front-panel settings are correct and functioning for the monitoring system.

4. Make sure that the monitoring device's analog output is connected to an amplifier/speaker combination, that the device is powered up, and that the volume is not set to zero.
If no result is obtained, it may be that the monitoring device is not responding to the output signal because the Channel Status or sample rate of the output are not valid for that device.

5. Reopen the Audio I/O Preferences dialog.

6. Open the Channel Status window for the active input, by clicking on the Function button for that channel.

7. Click on the INPUT button in the Channel Status dialog

8. Observe the sample rate field, beneath and to the right side of the long Channel Status field.
This should read a number that is close to either 44100, or 48000. Note that it will not be exactly either value, but should be within plus or minus 100. The number displayed may change by a small amount when the INPUT button is clicked repeatedly. This is of no concern.

Most digital audio devices happily accept either 44100 or 48000 kHz sample rate. Many can respond to a considerable range on either side. Some consumer model DAT machines, however, will not accept a digital input at the 44100 sample rate.

If the sample rate appears to be compatible with the output device, then the next possibility is that the Channel Status bits on the output are incompatible with that device.

9. Go to the Channel Status window for the monitor output
The radio buttons along the top of the dialog control the settings of the major output flags contained in the Channel Status bits.

10. Examine these to see if there is any obvious conflict with the selected output device.
Some consumer digital audio devices, for example, will reject an input that has the bit for Professional format selected.

```
┌─────────────────────────────────────────────────────────────┐
│  ═══════════════  CP-340 Channel Status  ═══════════════     │
├─────────────────────────────────────────────────────────────┤
│  EIAJ CP-340 CHANNEL STATUS SELECTION:                       │
│    ○ Professional      Emphasis Flag:   ○ Auto    ○ ON    ◉ OFF    │
│    ◉ Consumer      Sampling Rate Field: ○ Auto   ◉ 44.1  ○ 48   ○ 32  │
│    ○ HEX            Category Field:     ○ General ◉ CD   ○ PCM  ○ DAT  │
│                                                  ☐ Copy Permitted │
└─────────────────────────────────────────────────────────────┘
```
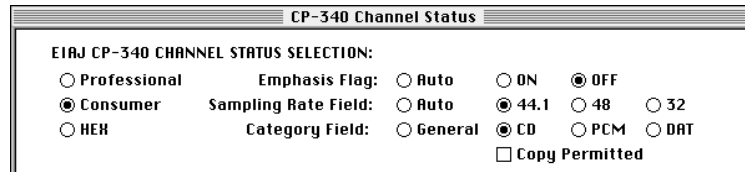
Channel Status mismatches generally fall into one of a few categories, and most problems of this type can be resolved easily:

- Some DAT machines, especially non-professional models, record only at a sample rate of 48 kHz, and mute if presented with data flagged as 44.1 kHz.

- Some DAT machines also need to see the Channel Status bit for Professional or Consumer format set a certain way.

- A few digital audio devices (for example, the Sony D-2 Digital Video recorder) require an error correction word for the channel status word. When Professional data format is selected, the Channel Status window shows a check-box to calculate the correct value for this part of the status word.

If the device used for monitoring also produces a digital output, the Channel Status window may be used to examine the exact bit setting used for device.

To grab the Channel Status setting from a digital input and apply the same setting to the SonicStudio output:

1. Connect the desired signal to the input that corresponds to the output to be set.

2. Switch that input ON. Make sure that the other input is switched to OFF (this is very important).

3. Close and reopen Audio I/O Preferences, if need be, to activate the new configuration.

4. Open the Channel Status window and use the Input button to read the Channel Status bits directly from the incoming signal.

5. Click the Load button to apply the same data to SonicStudio's output.

If none of these steps produces the desired result, contact Sonic Solutions customer support.

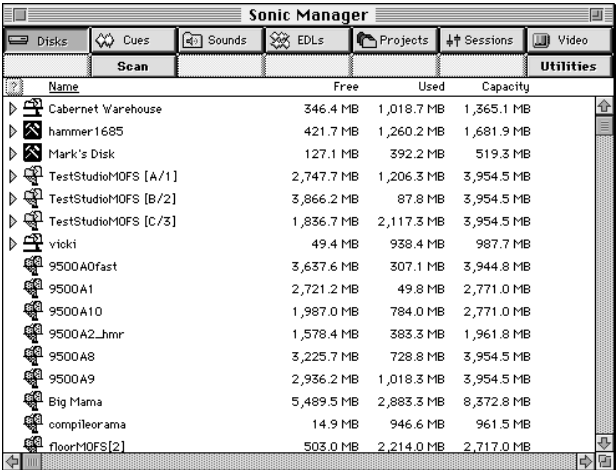### Noise or Distortion on Output

If input and output are available but noises, especially clicks, are heard, a likely cause is that both audio inputs are enabled, but with non-synchronous sources connected.

1. Verify that the Clock Master setting in Audio I/O Preferences matches the input that you are actually using.
   If a different input is selected for Clock Master, then you may hear a repetitive burst of noise produced by the lack of synch between the system and the digital source.

2. Check the status of the inputs in the Audio I/O Preferences window.

3. If the solution to the problem cannot not be found, contact your dealer support person or Sonic Solutions customer support.

Testing Sound Storage

Once audio throughput is established, verify that the sound disks are connected and operating correctly. The Sonic Manager is a utility for examining and maintaining libraries for the different types of devices and documents used by SonicStudio.

1. Select the File menu and click and hold on the Managers command to make a Macintosh pull-right submenu appear, displaying available options.

2. Choose Sonic Manager... from the Managers submenu (or use the QuicKey equivalent, *Option-S*)

The Sonic Manager window will appear. This window provides a view of all disks (both sound storage disks and Macintosh HFS volumes), soundfiles, edit lists, mix automation Sessions, Projects, and video clips on the system. A group of buttons across the top of the dialog select the type of item shown.

Initially, the Sonic Manager opens showing all soundfiles available. When the system is first started, the sound disks should be blank, so the window is empty.

Select Disks library

3. Click on the button labeled Disks at the left of the top row of Sonic Manager buttons
The Sonic Manager display will switch to show a listing of all disks attached to the systems, including both Hierarchical File System (HFS) volumes attached to the Macintosh, and Media-Optimized File System (MOFS) that connect to the SonicStudio card SCSI bus.

Macintosh
HFS volumes

SonicStudio System
MOFS volumes
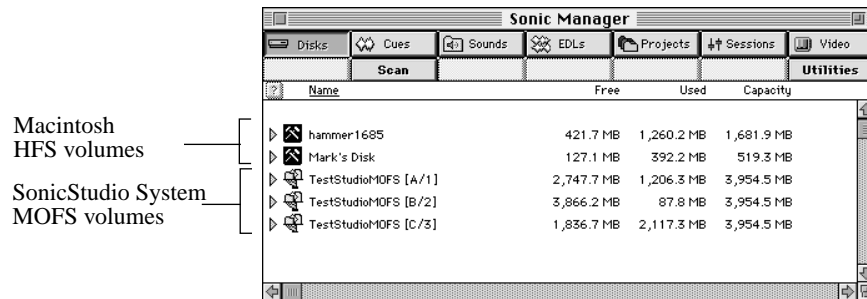
Each sound disk attached to the system is represented by a line in the window. If the system is networked by MediaNet with other SonicStudio Systems, then disk volumes attached to those remote systems are also represented.

Macintosh HFS and SonicStudio MOFS volumes are represented by distinctive icons. The MOFS server icon shown here identifies MOFS sound storage disks, used exclusively for all soundfiles recorded on SonicStudio.

4. Verify that the sound storage disks attached to the system are shown in the Sonic Manager's Disk library.
If no entries are seen that match the sound storage drives attached, verify that:

   a. **The sound disks are connected correctly.**

   b. **Each disk is assigned a different SCSI ID number.**

   c. **Power is turned on for each disk.**

   If problems persist, skip ahead to *Sound Disk Troubleshooting*.

The Disk Library of the Sonic Manager provides capabilities to attach and detach (Mount/Unmount) any sound disk volume f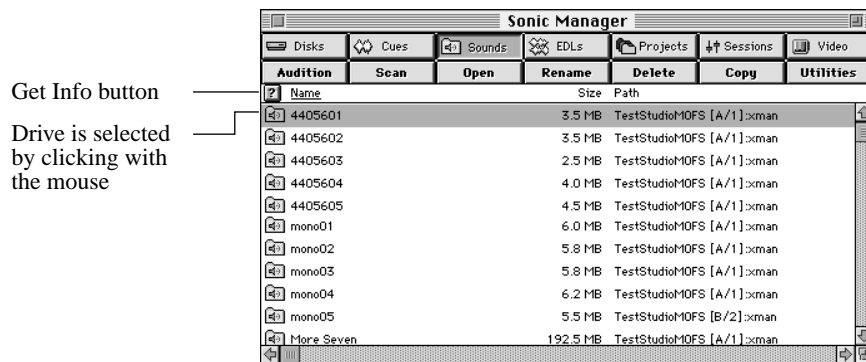rom the system, gives accurate overall information concerning hard disk usage, and provides for remaking sound disks in order to clear all sound and return the file system to a pristine state.

When SonicStudio is used in a MediaNet network with other systems, remote as well as local volumes are displayed in the Disk Library. These disks are not automatically mounted at start-up, as the local drives are. The user has the option to mount or unmount only those network volumes that are of interest.

Reading the Sound Disk Information

Complete information may be obtained about any connected drive. The Get Info button is a small, square button with a question mark in it at the left of the window and above the actual disk listing.

Get Info button ———

Drive is selected by clicking with the mouse

Sonic Manager						
Disks	Cues	Sounds	EDLs	Projects	Sessions	Video
Audition	**Scan**	**Open**	**Rename**	**Delete**	**Copy**	**Utilities**

Name	Size	Path
4405601	3.5 MB	TestStudioM0FS [A/1]:xman
4405602	3.5 MB	TestStudioM0FS [A/1]:xman
4405603	2.5 MB	TestStudioM0FS [A/1]:xman
4405604	4.0 MB	TestStudioM0FS [A/1]:xman
4405605	4.5 MB	TestStudioM0FS [A/1]:xman
mono01	6.0 MB	TestStudioM0FS [A/1]:xman
mono02	5.8 MB	TestStudioM0FS [A/1]:xman
mono03	5.8 MB	TestStudioM0FS [A/1]:xman
mono04	6.2 MB	TestStudioM0FS [A/1]:xman
mono05	5.5 MB	TestStudioM0FS [B/2]:xman
More Seven	192.5 MB	TestStudioM0FS [A/1]:xman

To read the information for a given disk drive:

1. Select the desired drive by clicking with the mouse on its icon and name in the Disk Library window.

2. Click on the Get Info button with the mouse.
   A special window opens to display all of the desired information concerning the selected drive.
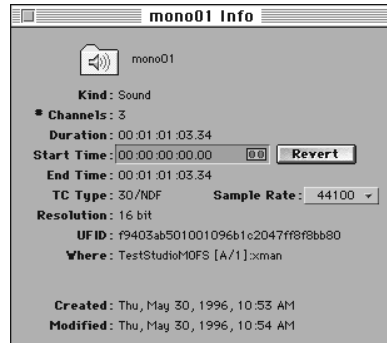
Sound Disk Troubleshooting

If problems are encountered with the SCSI sound disk or disks(s) attached to the system. There are four possibilities:

- The devices are not correctly connected to the SonicStudio card.

- The sound disks were not powered on when the SonicStudio application was started. This problem can be solved using the Update and Mount buttons.

- One of the sound disks, the SSP card's SCSI port, or one or the connecting cables is defective.

- The SCSI chain is not correctly terminated. If termination is missing from one end of the chain, the sound disks will not operate reliably.

If checking the SCSI chain and examining the connected devices does not solve the problem, contact your dealer or Sonic Solutions.

SCSI "Hangs"

A common symptom that occurs when a SCSI system is not properly connected, terminated incorrectly, or too long is that one or another of the sound disks will become inactive in the middle of operation. Typically, the activity light on the disk or disks that are hung will be stuck on.

If this occurs, there is a command in the Utilities submenu in the Files menu called Unhang Sound Disks. Using this button may bring the hung disk back on-line, but the user should save all work in progress and try to determine the cause of the hang. Unless the condition (termination, SCSI ID conflict, bad cabling, and so on) that caused the hang in the first place is corrected, it will recur.

Testing Time Code Read/Write

For applications using SMPTE or EBU Longitudinal Time Code, the user should verify that reading and generating functions are operational. If the basic functions work, then complex functions such as synchronization will operate properly as well.

| Preferences ▶	Audio I/O...
Managers ▶	Audio I/O Parameters...
Status Monitors ▶	Desk Parameters...
Utilities ▶	System...
Page Setup...	Cue Path...
Print One	Record Channel...
Print...	Record Path...
Import...	Edit List...
Export...	Edit Fade...
Template ▶	Frequency Analysis...
	Nudge...
Quit ⌘Q	
	External Devices...
	MIDI...
	PQ Read/Write...
	Time Code Read/Write...
	SCS-1000...

Time Code Reader/Generator

The Time Code reader and generator connect to the outside world by the Time Code/PQ Burst I/O cable. The mini-DIN end of this cable plugs into the connector on the rear of the SonicStudio card. The male and female XLR cables connect to suitable devices that provide time code output, or read time code from SonicStudio.

With the Time Code/PQ Burst cable connected, it is still necessary to activate the reader and generator in SonicStudio software.

1. Select Time Code Read/Write Prefs from the submenu to Preferences in the File menu, or use QuicKey command *Option-T.*

Time Code Reader/Generator Preferences contains a number of options for setting up the way that the system reads and generates time code.
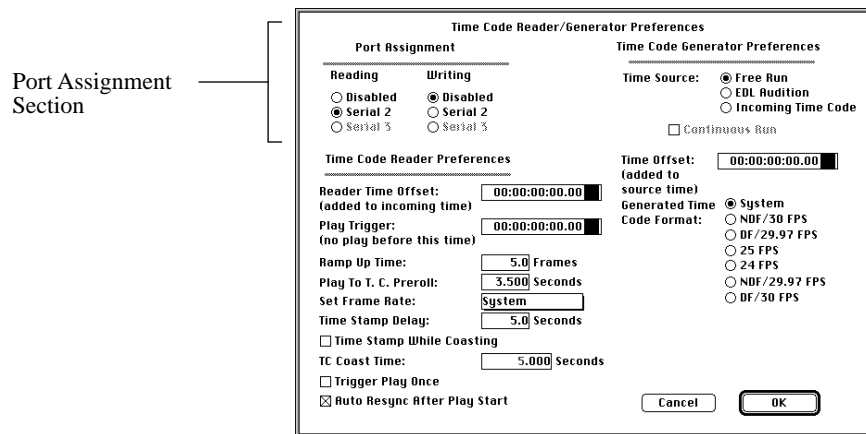
At this time, the only part of the dialog to be concerned with is the Port Assignment section in the upper left corner of the window.
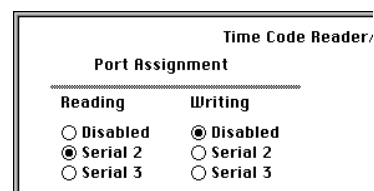
When SonicStudio is initially started, both reader and generator are disabled. They can each be enabled by selecting an appropriate serial port in the Time Reader/Generator Preferences dialog.

Reading Time Code

The Time Code Status window displays the status of both reader and generator. The reader and generator should be tested separately to avoid possible confusion and interaction between the two sections of the system.

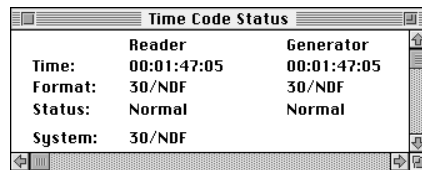1. In the Time Code Preferences dialog, select Port 2 for the Reader. (Leave Writing disabled.) Close the dialog.

2. Select Time Code Status from the pull-right submenu to Status Monitors in the File menu.
   If there is no time code signal being input, the Reader section of Time Code Status will show the Format as Unknown and the Status as Stopped. If the Reader is not properly enabled (in Time Code Reader/Generator Preferences), the Status is displayed as Disabled.

```
╔══════════ Time Code Status ══════════╗
║                                      ║
║               Reader      Generator  ║
║  Time:        00:01:47:05  00:01:47:05 ║
║  Format:      30/NDF      30/NDF     ║
║  Status:      Normal      Normal     ║
║                                      ║
║  System:      30/NDF                 ║
╚══════════════════════════════════════╝
```

When a valid time code signal is presented to SonicStudio serial port 2, the Time Code Status window shows the current value, as well as the format.

If the time code value does not appear in the Status window, check to see that the reader Time Code/PQ Burst cable is connected properly between the SonicStudio card and the time code source, and that the time code source is in fact delivering valid time code. If there are any adapters used in connecting time code, check to see that they are wired properly.

The SonicStudio time code reader provides an electronically balanced input. The XLR connectors in SonicStudio SMPTE cable are wired so that the high, or plus side of the input connect to XLR pin 3. Pin 2 carries the low, or negative side, while Pin 1 connect to ground. To adapt SonicStudio time code

input to a single-ended time code source, connect XLR pin 3 to the active signal, and tie Pins 1 and 2 to ground. This unbalances the input, allowing it to read the signal.

If time code input still cannot be read after checking all connections, contact your dealer or Sonic Solutions customer support for assistance.

Generating Time Code

The Time Code Generator is enabled by reopening the Time Code Reader/Generator Preferences dialog and selecting Serial 3 (only).

Note that while SonicStudio is capable of generating readable longitudinal time code in all common formats, it should not be considered a substitute for a professional time code generator.

The time code output of the SonicStudio card is produced by one of the on-board DSP processors, which is also heavily loaded in processing digital audio at the same time. As a result, the time code output has significant jitter and short-term fluctuations in frequency.

SonicStudio's time code output is suitable for triggering devices (such as MIDI sequencer, for example) at a specific time. It is not suited to applications that require continuous tracking to time code.

It is recommended that the Time Code Reader be disabled when time code is being generated. Reading and generating time code at the same time increases jitter in the time code output.

1. Open the Time Code Reader/Generator Preferences dialog.

2. Set the Generator to Serial 2 in the dialog's Port Assignment section. Set the Reader to Disabled.
   If you are familiar with previous versions of SonicStudio, note that this setting is not the same as that required with SSP-3 hardware.

3. In the Generator Preferences section of the dialog, set the Time Source to Free Run.

4. Close the Time Code Preferences dialog.

5. Verify that the male connector from the Time Code/PQ Burst cable is connected to a device that can read and display code.

6. Verify that the Generator is outputting readable time code.

If you are not successful in reading time code output from the SonicStudio, open the Time Code Status window. The Generator section of the dialog should show a continuously incrementing value. This would indicate that the problem lies in the connection between the on-board generator and the external timecode-reading device.

If output does not appear in the Time Code Status window, return to Time Code Reader/Generator Preferences and make sure the Generator is assigned to Serial 2 and is in Free Run mode.

If Time Code Status shows the generator operating, but code still is not readable, carefully check all connections, including adapters, from the SonicStudio's serial output to the reading device. If no result is obtained, contact your dealer or Sonic Solutions customer support.

5 External Controllers

Using External Controllers with SonicStudio

A MIDI controller is a device with physical controls that resembles a cross between a mixing console and tape machine. It has tactile faders, rotary pots, transport controls, a shuttle wheel, and function keys.

The controls generate and receive MIDI messages. Once the device has been configured to work with SonicStudio, it can control the mixing, editing, and playback functions in SonicStudio.

Many controllers are dedicated MIDI devices, such as the JL Cooper CS-10, which doesn't actually process or pass audio. This type of controller simply sends and receives MIDI messages.

Other MIDI controllers are, in fact, mixers, such as the Yamaha ProMix 01, which also includes the ability to send MIDI controller messages.

The MIDI controllers selected for use with SonicStudio have a unique MIDI map that opens a pathway between the MIDI controller and SonicStudio without requiring extra setup procedures. These MIDI controllers are:

- JL Cooper CS-10
- Penny & Giles DC16
- Penny & Giles MM16

Although it's possible to configure other types of MIDI controllers to send MIDI messages in order to control SonicStudio software, Sonic Solutions can't guarantee that the MIDI controller will respond correctly to the messages it receives from the SonicStudio software. More information on working with standard MIDI controllers is in the section on the MIDI Preferences dialog box in this chapter.

The Open Music System

SonicStudio 5.2 supports the Open Music System (OMS) developed by Opcode. OMS has become the MacOS standard for interfacing MIDI hardware and software. OMS replaces the Apple MIDI Manager as the primary software interface for MIDI data between SonicStudio and the Macintosh serial ports. MIDI Manager is no longer developed by Apple and is unlikely to be supported on future Macintosh models or MacOS compatibles.

MIDI controllers such as the JL Cooper CS-10, Penny + Giles MM16 and the recently introduced Penny + Giles DC16 all communicate with SonicStudio through a Macintosh-compatible MIDI interface connected to the modem or printer ports. Additionally, other standard MIDI fader controllers that send MIDI Continuous Controller 7 (Volume) and MIDI Continuous Controller 10 (Pan) can be used to communicate to SonicStudio's Desk faders and panpots via OMS. Whichever controller you setup in OMS Setup will also appear in the MIDI Routing section of SonicStudio's MIDI Preferences dialog box.

OMS provides a central software location (called the Studio Setup) for defining and storing a detailed description of your studio controllers. OMS version 2.1 or later (as provided on SonicStudio 5.2 CD-ROM) should be used for interfacing SonicStudio with controllers. A typical OMS Setup description follows to get you started using OMS. However, if you are new to OMS, you should read the OMS manual for more detailed information on using OMS Setup.

Setting up OMS for MIDI Controllers

Before you install the OMS software, check your physical connections and MIDI setup. A basic MIDI controller setup for SonicStudio consists of:

- The MIDI controller itself

- A MIDI interface for connection to the Macintosh

- MIDI cabling

- Opcode OMS

Make sure that you have:

- Connected your MIDI interface to the Macintosh's modem or printer port

- Connected your controller to the MIDI interface

- Installed OMS software

More extensive setups can be achieved using multi-port MIDI interfaces such as the Studio 4 from Opcode or MIDI Time Piece from Mark of The Unicorn. Using these devices or the MIDI Thru port on your MIDI controller, other MIDI devices such as samplers, keyboard controllers, synthesizers, or sequencers may be integrated into your MIDI setup. It is beyond the scope of this document to provide information on configuring these kinds of setups. Refer to the OMS manual or the documentation that accompanies your MIDI devices for more information.

To configure OMS for your MIDI controller and SonicStudio:

1. Run OMS Setup.
    The Setup program will ask if you want to Create a New Studio Setup.

2. Click OK.
    OMS will ask you to confirm that it should search for the type of MIDI interface connected to one of the serial ports.

3. Click OK to continue.
    If your MIDI interface is setup correctly, OMS will open another dialog that displays information about your MIDI interface's serial port and driver.

4. Click OK to confirm the serial port and driver.
    OMS will open a dialog that displays information about the default controller connection to that MIDI interface (represented as a keyboard icon checkbox with an overlayed question mark).

5. Click OK to confirm the controller connection.

6. OMS will prompt you to save your studio setup on your Macintosh hard drive.
   You have now completed a basic SonicStudio compatible OMS Studio Setup that displays icons of the chosen Mac serial port, your type of MIDI interface, and a connected MIDI controller icon.

7. Quit OMS Setup and run SonicStudio 5.2 with your controller.

If you wish, you may further customize both the name and icon of default MIDI keyboard device.

To do this:

1. Double click the keyboard icon in your Studio Setup.

2. Change the name or icon of the MIDI controller using the MIDI Device Info dialog box.
   The name you select will appear in SonicStudio's MIDI Preferences dialog box in the MIDI Routing section, next to the Receive and Send on device options. It is not recommended that you make any custom modifications other than to the name and keyboard icon in OMS's MIDI Device Info dialog box.
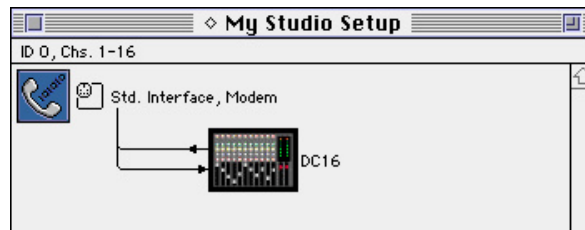
If you encounter any problems in OMS Setup or wish to further customize your Studio Setup to use a standard MIDI Volume and Pan controller, you may need to refer to the documents supplied with OMS, your MIDI interface, and your controller. The next section in this chapter describes the MIDI Preferences dialog box, as well as the specific features available with the controllers supported by SonicStudio.

The MIDI Preferences Dialog Box

In order to use the any external MIDI controller, your computer must have installed either the OMS software by Opcode as the MIDI interface or the Apple MIDI Manager.
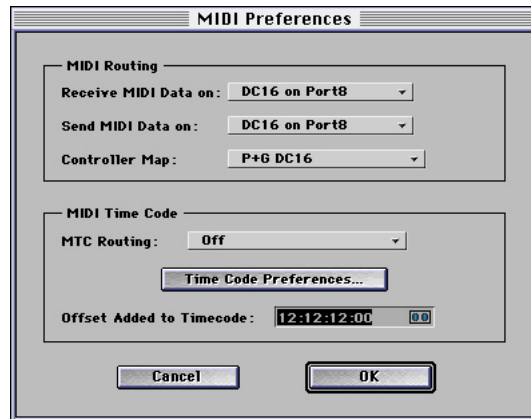
The MIDI Preferences dialog box has two sections: MIDI Routing and MIDI Time Code.

The MIDI Routing section has options you can use to assign the ports for sending and receiving MIDI information. The MIDI information includes messages from the external controller, system exclusive data, and the MIDI controller map that matches the SonicStudio functions to functions in the particular external controller you are using.

The choices you can select in the MIDI Routing section depend on if you are using MIDI Manager or OMS. Sonic Solutions recommends that you use Opcode's OMS for routing MIDI data. If you are using OMS, the ports you selected on the OMS MIDI setup dialog box will automatically appear in the MIDI Routing section. If you are using the MIDI Manager, you can choose MIDI Manager Port A or MIDI Manager Port B.

In the MIDI Routing section, use the list for the Receive MIDI Data on option to select the data port for incoming MIDI messages.

Use the list for the Send MIDI Data on option to select the data port for outgoing MIDI messages.

Use the Controller Map option to select the appropriate controller map for your MIDI controller: General Volume and Pan, JLCooper CS-10, P+G MM16, and P+G DC16. The controller map is a configuration file that maps MIDI controller messages to SonicStudio function and vice versa. The controller map allows the external controller to work with SonicStudio without additional setup procedures.

If you already have a MIDI controller that sends and receives standard MIDI volume and panning information, you should select the generic General Volume and Pan option. This option allows you to use any standard MIDI controller for basic software control.

Use the MIDI Time Code section to assign Sonic's time code generator to a MIDI port, generating MIDI Time Code (MTC). Currently MTC can only be routed via the MIDI Manager; it can't be routed for OMS. If you are using OMS and have the MIDI Manager installed on your Macintosh, you will see OMS ports in the MIDI Routing section and MIDI Manager ports in the MIDI Time Code section.

Use the MTC Routing option to select MIDI Manager Port A or MIDI Manager Port B to send MTC data to your MIDI devices using the MIDI Manager.

Click the Time Code Preferences button to open a dialog box where you can turn on Time Code Generation or set your Time Code Preferences.

Use the Offset Added to Timecode option to specify an offset added to the MIDI time code sent to the MIDI port. The offset you select will be added to the offset specified in the Time Code Generator section of the Time Code Read/Write dialog box.

Using the JL Cooper CS-10

Setting Up the JL Cooper CS-10

SonicStudio 5.2 has enhanced support for the CS-10 MIDI controller from JL Cooper.

To set up the JL Cooper CS-10:

1. Make sure that you have the proper MIDI connections and OMS configuration, as described in this manual and in the documentation supplied with the OMS software.

2. In SonicStudio, from the File menu, select Preferences.

3. From the Preferences menu, select MIDI Preferences.
   The MIDI Preferences dialog box opens.

4. In the MIDI routing section of the dialog box, select the send and receive ports for MIDI data.

5. Select the MIDI controller map for JLCooper CS-10.

6. Click OK.

CS-10 Controls

The basic controls of the CS-10 are shown below:
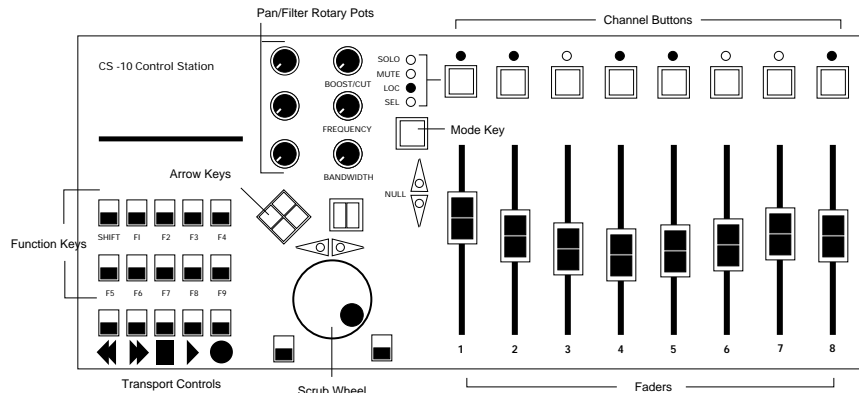
CS-10 Operating Modes

SonicStudio uses various modes on the CS-10. The function of a control on the CS-10 depends on the mode you are working with. The table below lists the modes available on the CS-10. The rest of this section on the CS-10 has more details on working with each mode.

CS-10 Operating Mode	SonicStudio Function
SOLO	Channel keys are solos
MUTE	Channel keys are mutes
LOC	Faders 7 and 8 become master faders
SEL	Channel keys choose the channel to be modified by filter control pots
SHIFT+mode key	Faders become pan controls

SOLO Mode is Default

The SOLO mode is the mode that is automatically selected when you start SonicStudio with the CS-10.

CS-10 Control	SonicStudio Function
Faders	Sonic faders
Channel keys	Solo
Rewind	Rewind
Fast Forward	Fast Forward
Stop	Stop
Play	Play from current time
Record	Record sound file dialog/punch in
<	Move EDL view left
>	Move EDL view right
Up arrow	Zoom out
Down arrow	Zoom out
F1	Insert with Crossfade
F2	Delete with Crossfade
F3	Insert with Ripple
F4	Delete with Ripple
F5	Edit Fade window
F6	Show Desk
F7	Show EDL
F8	Set In Point
F9	Set Out Point
Send 1	Filter tile selection (shown in LED window on CS-10 as F1-F4)
Send 2	Filter type selection
Pan	Panning
Boost/Cut	1st Filter Parameter (if any)
Frequency	2nd Filter Parameter (if any)
Bandwidth	3rd Filter Parameter (if any)
Wheel/keys	Move Left and Right Gates

The Pan and Filter rotary pots control the channel which was most recently selected under SEL mode. Leaving SEL mode still allows the pots to control panning and filtering for that channel.

SHIFT Mode

CS-10 Control	SonicStudio Function
Faders	Null Desk Faders
Channel keys	EQ Bypass
<	Move controls 8 channels lower
>	Move controls 8 channels higher
up arrow	Zoom to Entire
down arrow	Zoom to Gates
Rewind	Play between in and out points
Fast Forward	Play between gates
Stop	Pause
Play	Enter Reel-Rock Mode (Left wheel key = Jog, Right wheel key = shuttle)
F1	Slave - EDL
F2	Slave - TC Generator
F3	Slave - Load Machine
F4	Slave - Dump Machine
F5	Master - System
F6	Master - EDL
F7	Master - TC Reader
F8	Master - Load Machine
F9	Master - Dump Machine

Null Desk Faders allow you to move the CS-10 fader without moving the on-screen fader until the CS-10 fader matches the location of the on-screen fader. This is helpful when using automation, as the CS-10 faders will not match the on-screen faders when SonicStudio automation plays back. The null feature allows you to make changes to the automation without the on-screen fader jumping to the current CS-10 fader position.

The left and right arrow keys allow you to control higher numbered channels if your SonicStudio mixing desk is larger than eight channels. Use the right arrow (with the SHIFT key) to control the next eight channels, and the left arrow to return to channels 1 to 8.

The SHIFT key plus the function keys correspond to the SonicStudio Transport Panel, allowing you to designate master and slave relationships between the software and your external devices.

## Setting up the Penny & Giles DC16 and MM16

To use the DC16 and MM16 with SonicStudio:

1. Make sure that you have the proper MIDI connections and OMS configuration, as described in this manual and in the documentation supplied with the OMS software.

2. In SonicStudio, from the File menu, select Preferences.

3. From the Preferences menu, select MIDI Preferences.
   The MIDI Preferences dialog box opens.

4. In the MIDI routing section of the dialog box, select the send and receive ports for MIDI data.

5. Select the MIDI controller map for P+G DC16 or P+G MM16.

6. Click OK.

7. Try moving the faders on the controller. You should see the SonicStudio faders move when you move the faders on the controller.

Using the Penny & Giles DC16

The Penny & Giles DC16, like the MM16, can be used to control SonicStudio functions like mixing, editing, playback and scrubbing. The main components of the DC16 interface are the fader belts, channel keys, auxiliary keys, transport controls, and master section. The DC16 and MM16 are identical in functionality except the DC16:

- Supports 8-bit MIDI for increased resolution on fader control

- Has eight auxiliary keys for increased control

- Provides templates for labeling the master section

- Has a reorganized master section for better ergonomics
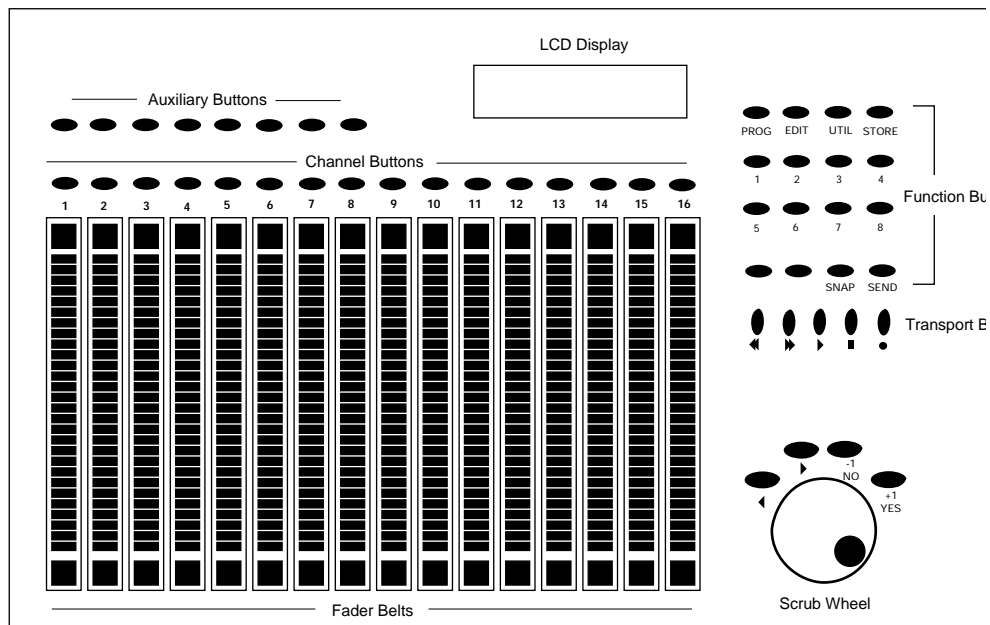
Note – The HOLD and TEMPO keys, although labeled in the graphic, are not labeled on the actual controller. These keys have the same functionality as the HOLD and TEMPO keys on the MM16.

DC16 Operating Modes

SonicStudio utilizes six modes on the DC16 to use the controller more extensively. A key may have several functions depending on what mode the controller is in. Each mode corresponds to an aspect of Sonic functionality.

Controller Operating Mode	SonicStudio Function
Default	Playback, Other
PROG (program)	Panning
EDIT	Editing
UTIL (utility)	Filters
TEMPO	Master/Slaves
SNAP	More editing
SEND	Master faders

To access a mode, simply press the desired mode key once. The LED above the key will light, indicating that the unit is now in the specified mode.

To exit the mode, push another mode key, or push the same key to return to default mode.

The rest of this section on the DC16 has tables that list the SonicStudio functions available using the controls on the DC16 in the following modes: default, PROG, EDIT, UTIL, TEMPO, SNAP, and SEND.

Default Mode

The default mode is the mode that is automatically selected when you start SonicStudio with the DC16.

DC16 Control	SonicStudio Function
Aux 1	Move EDL view left
Aux 2	Move EDL view right
Aux 3	Zoom In
Aux 4	Zoom Out
Aux 5	Zoom to Gates
Aux 6	Zoom to Previous
Aux 7	Zoom to Entire Track
Aux 8	Zoom to Entire EDL
Channel keys	Mutes
Fader belts	Faders
F1	Play from In Point
F2	Play to Out Point
F3	Show EDL
F4	Show Desk
F5	Play between in and out points
F6	Play between Gates
F7	Enter or exit Reel-Rock mode
F8	Fine Desk Controls
HOLD	Toggles channel keys between Mute and Solo
<< (Rewind symbol)	Rewind

>> (Fast Forward symbol)	Fast Forward
> (Play symbol)	Play from current position
■ (Stop symbol)	Stop
• (Record symbol)	Record
<	Move left gate with control wheel
>	Move right gate with control wheel
-1/No	Set in point
+1/Yes	Set out point
Wheel	Depends on control selected

Note – When the HOLD key LED is lit, the channel keys act as Solo keys. When the LED is off, the keys are again Mute keys.

PROG Mode

In PROG mode, all functions are the same with the exception of the Fader Belts, which become Panning controllers.

Moving a Fader Belt up moves the corresponding channel pan pot to the right, while moving the Fader Belt down moves the pan to the left.

The channel keys themselves keep their functionality as Mutes or Solos, and may still be toggled between the two using the HOLD key.

EDIT Mode

In EDIT mode, most controls keep their default function, but several other keys execute new commands.

| DC16 Control	SonicStudio Function
F1	Insert with Crossfades
F2	Delete with Crossfades
F3	Insert and Ripple with crossfades
F4	Delete and Ripple with crossfades
F5	Create New Crossfade
F6	Edit Fade window
F7	Create Segment from Gates
F8	Adjust Gain
<	Select Between Gates
>	Select Left Gate to End
-1/No	Nudge Segment Left
+1/Yes	Nudge Segment Right

UTIL Mode

In UTIL mode, all keys keep their default function except the channel keys, the HOLD key, and the Fader Belts.

The UTIL mode is mainly for filter selection and parameter control. This allows you to choose a filter type, such as Parametric EQ, and adjust the Frequency, Q, and Boost, all from the DC16. The changes in UTIL mode are as follows:

DC16 Control	SonicStudio Function
Fader Belts	Filter type and parameters
Channel keys	Mixing desk channel selection
HOLD key	EQ bypass/channel select toggle

Use the channel keys to choose the corresponding mixing desk channel you wish to control. The Fader Belts now control that channel's filter sections.

In UTIL mode, the Fader Belts control the following functions:

Faders 1-4

Faders 5-8

Faders 9-12

Faders 13-16
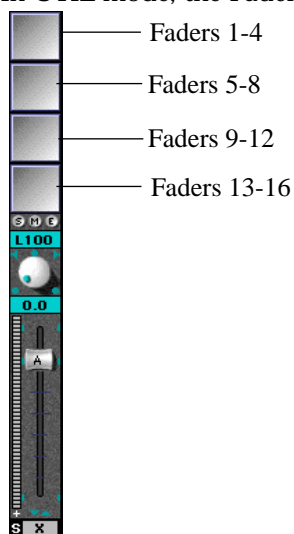
In each group of four faders, the first fader from the left controls the filter type, while the second, third, and fourth control the parameters of that particular filter type.
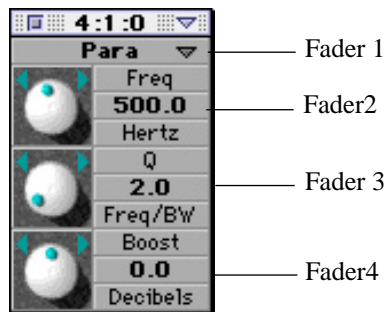
For utility filters, such as DC Reject and Emphasis, which have no parameter controls, the parameter faders will have no effect.

Also, while in UTIL mode, the HOLD key changes function from a Mute/Solo toggle to a Channel Select/EQ Bypass toggle. In other words:

• When the HOLD key LED is off, the channel keys select the SonicStudio mixing desk channel for the filters that the Fader Belts will affect.

• When the HOLD key LED is on, the channel keys select EQ Bypass on the corresponding SonicStudio mixing desk channel.

To switch between functions, simply press the HOLD key while in UTIL mode.

TEMPO Mode

The TEMPO mode allows the function keys to become master-slave designators that correspond to the SonicStudio Transport Panel. Most other DC16 controls remain in their default function.

The key functions in TEMPO mode are as follows:

DC16 Control	SonicStudio Function
F1	Slave - EDL
F2	Slave - Timecode Generator
F3	Slave - Load Machine
F4	Slave - Dump Machine
F5	Master - EDL
F6	Master - Timecode Reader
F7	Master - Load Machine
F8	Master - Dump Machine
HOLD	Master - System

While in TEMPO mode, pressing any of the above keys toggles the selections on or off. The LEDs above each key will indicate which selections are currently engaged as masters or slaves.

For example, if you wish to make the EDL lock to the incoming time code, then switch to control your Load Machine (such as a VTR), simply press TEMPO to enter into the mode, then select F6, F1, then F7. You will also see that the appropriate keys are pressed on the SonicStudio Transport Panel.

SNAP Mode

The SNAP mode has more editing commands for use with the SonicStudio EDL. All controls retain their default function except the following keys.

DC16 Control	SonicStudio Function
F1	Offset Left Edge to Left Gate
F2	Offset Left Edge to Wherever...
F3	Offset Sync Mark to Left Gate
F4	Offset Sync Mark to Wherever...
F5	Left Gate to Next Exit
F6	Left Gate to Next Mark
F7	Select All
F8	Deselect All
<	Move DC16 mixing controls to previous 16 channels
>	Move DC16 mixing controls to next 16 channels

The last two functions in the table are for larger SonicStudio configurations, of 24 channels or more. They allow the Fader Belts and channel keys to control the faders, pans, and filters of the higher numbered channels. For example, pressing SNAP then the > key would enable control of channels 17 to 32. Pressing the < key would return the control to channels 1 to 16.

SEND Mode

The final mode on the DC16 is the SEND mode, which is used to control the SonicStudio mixing desk master faders.

When the SEND key is pressed, Faders 15 and 16 on the DC16 control the master faders, while the rest of the Fader Belts still control the channel faders in SonicStudio.

Using The Penny & Giles MM16

All of the controls for the MM16 are identical to the DC16, except that the MM16 does not have auxiliary keys.
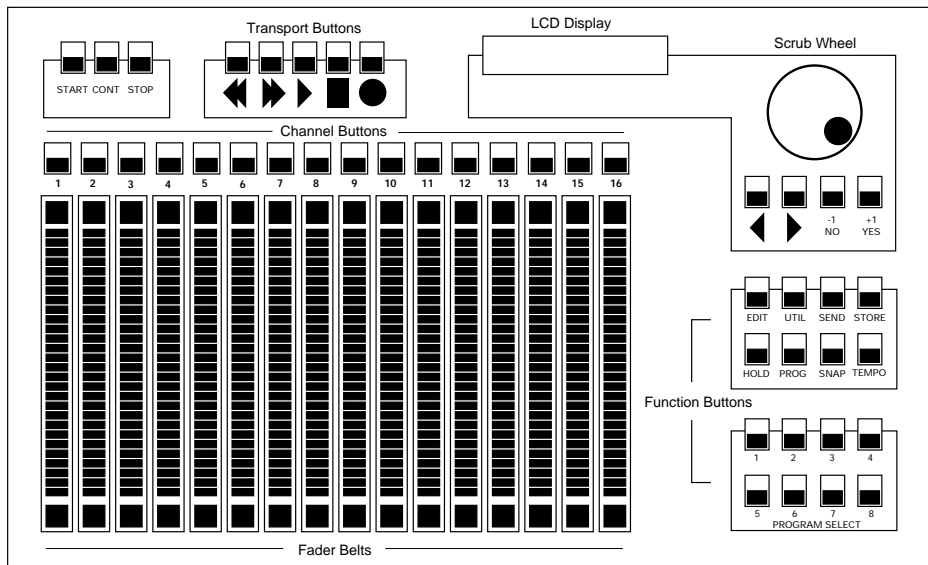
You can access the functions assigned to the auxiliary keys on the DC16 by pressing the STORE key on the MM16 and then pressing a function key. The STORE key selects the STORE mode, which is used to select zoom and move commands.

Note – The DC16 does not have a STORE mode.

The table that follows shows the commands you can select by pressing STORE plus a function key.

Use STORE plus this key. . .	To select this SonicStudio function. . .
F1	Move EDL view left
F2	Move EDL view right
F3	Zoom In
F4	Zoom Out
F5	Zoom to Gates
F6	Zoom to Previous
F7	Zoom to Entire Track
F8	Zoom to Entire EDL

Sonic SCS–Series Controllers

The Sonic Control Surface (SCS) is a system of hardware controllers editing and mixing with SonicStudio digital audio workstation.

SCS Features

- Weighted shuttle/job wheel
- Keypad for timecode entry
- User-assignable knobs and switches for mixing, EQ, and automation functions
- 16 user-assignable soft keys
- 3 cue location keys
- LCD display
- Complete channel strips in groups of eight, using high-grade Penny & Giles motorized faders
- RS-422 serial interface to SonicStudio

The SCS system consists of two units, the SCS-1000 Edit Control Unit, and the SCS-2000 8-channel Mix controller. These are accompanied by a separate manual that describes the installation and use of these controllers in detail.

6 Maintaining Your Sound Disks

As data storage devices, the high-capacity hard disks used by the Sonic System are very reliable. Like any recording device, however, there is a certain amount of maintenance know-how required in using the system day in and day out.

Conventional audio tape recorders require cleaning or heads, alignment of the tape, and periodic attention to mechanical adjustment and wear. For a disk-based recording system, maintenance consists of ensuring that the file system on disk is maintained in good condition. To use the Sonic System effectively, you need to know how to reformat and maintain the sound disks that store you audio data.

Disk Fragmentation

As you work recording, deleting files and replacing them with other files, the storage areas of the hard disk become increasingly *fragmented,* meaning that sound data is scattered around the disk rather than being grouped together. As this process continues, the system has a more difficult time playing and recording as the record/playback hear within the drive must jump around the disk at high speed.

Periodically, the process needs to be reset to a clean beginning. This is called *remaking* the sound disk.

Damaged File System

Although it should be a rare occurrence, situations may occur in which the file system on disk becomes damaged. This type of damage can generally be *repaired,* using the functions of the Sonic System or of the MediaNet Admin application (see below).

Network & Non-Networked Systems

In software version 2.2, the exact procedures of maintaining the system are different depending system configuration.

- If your system is not equipped with MediaNet boards, all disk maintenance is performed using the Sonic Manager window in the Sonic System.

- If the system is equipped with MediaNet, then disk maintenance activity is performed using a separate application called *MediaNet Admin.*

The reason for this procedural difference is that the MediaNet board, when it is used, performs all the tasks of managing the file systems on the sound disks. In systems that are not equipped with MediaNet boards, the job of maintaining and managing the file system is performed by the SSP card, using program resources within the Sonic System itself.

Maintenance with the Sonic Manager

In Sonic Systems that do not use the MediaNet board, the major operations of disk maintenance are performed from within the Sonic Manager's Disks library.
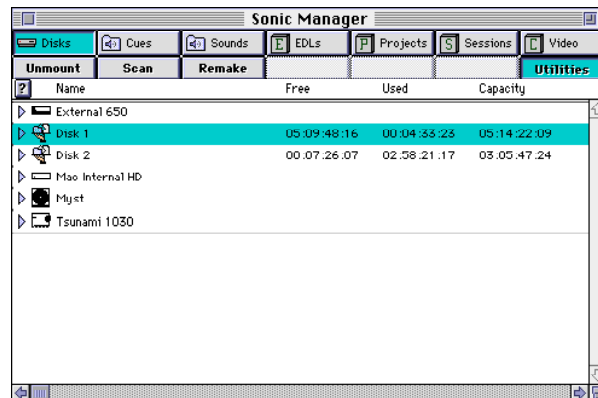
When you select a disk volume from the listing in the directory window, the button at far right of the lower row reads Utilities. Clicking on this button switches to an alternate set of button functions, including sound disk remake.

Remaking a Disk Volume

Disk volumes need to be remade for one of two reasons:

- The volume has not been initialized as a MOFS volume. This may occur with newly purchased disks, or if you are changing over to 2.2 from an earlier version of the Sonic System

- The volume has been used extensively and needs to be remade to restore its file system to a pristine state.

⚠️ CAUTION – Remaking a sound disk will erase <u>all</u> files on disk. If you need to retain the contents of the disk, you must archive it <u>before</u> you remake.

To remake a MOFS volume or to convert a non-MOFS hard disk to MOFS:

1. Open the Sonic Manager and click on the button for the Disks library.

2. Identify and select the disk (or disks) that you want to remake.

3. Click on the Utilities button in the second row to bring up the alternate button commands.

4. Click on the button labeled Remake.

The spinning cursor will appear for a few minutes (exact time depending on disk size). When it stops, the designated disk has been remade, and all soundfiles cleared.

Repairing a Damaged Disk

In some circumstances, the file system on a disk can become corrupted in ways that prevent opening of soundfiles. This may occur, for example, if a disk drive loses power during recording.

This type of file system damage can be repaired by the system, using the facilities in the Sonic Manager.

When a disk drive has become damaged, it is displayed with a generic non-MOFS icon and name. If you select that drive in the window and go to the Utilities command subgroup, a button labeled Repair appears.

To repair a damaged disk volume:

1. Open the Sonic Manager Disks library.

2. Select the disk to be repaired and click on the Utilities button in the upper portion of the Manager window.

3. Click on the Repair button.

4. Answer the prompt that verifies your intent to repair the disk

5. After repair completes, restart the system.

The selected disk will appear as a MOFS volume, with its original name and all soundfile intact.

If you start the system up with a damaged file system on one or more disks, the system attempts to start and reports to you that attention is needed to the damaged disk. You can then repair as needed.

In some cases, the file system damage may be such that the system cannot complete its start-up. In such a case, you may see the cursor spin unendingly. In such case, you should force-quit the system (by pressing the Escape key while holding down the Command and Option keys), then switch off all disk drives. You can then restart and repair the damaged volume or volumes as needed.

Usually, repair of a disk volume will restore all soundfiles intact. It is possible, however, for a disk to be damaged in such a way that this isn't possible. In these cases, one or more files from the disk may be missing following repair.

Maintaining Disks in a Network System

For systems using MediaNet network boards, maintenance of the sound disks is performed using the MediaNet Admin application. This powerful utility program provides a variety of capabilities.

The presence of MediaNet also changes the way the Sonic Manager indicates non-MOFS disk volumes or volumes whose file system might have become damaged.

Displaying Non-MOFS Volumes

When running with a Sonic Solutions MediaNet board in the system, the Sonic Manager treats non-MOFS or damaged volumes differently. In a non-network system, these volumes are shown in the Manager's Disks library with a generic disk icon and a name that indicates the SCSI ID of the drive and where it is connected in the system.

In a networked system, these volumes are not shown at all. Instead, you will used the MediaNet Admin application to identify and address the situation. Using MediaNet Admin, you can Remake the file system of a non-MOFS volumes or Repair a damaged file system.
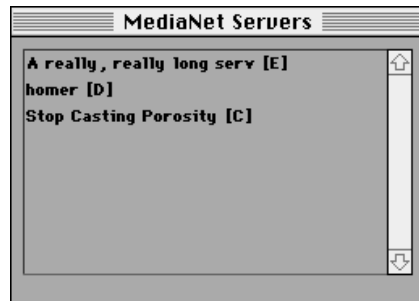
Launching MediaNet Admin

MediaNet Admin is installed on your computer's hard disk as part of the Sonic System installation. You can run MediaNet Admin at the same time as the Sonic System, or you can run it separately without booting the Sonic System application.

To launch MediaNet Admin:

1. Locate the MediaNet Admin application on you hard disk.

2. Double-click on the MediaNet Admin icon.

The application's main window will appear, showing a list of systems connected to the network.

The server names seen in this window are entered using the Sharing Setup control panel in the Macintosh system.

Remaking a Sound Disk with MediaNet Admin

MediaNet Admin provides the ability to convert disks to the MOFS file system or to re-establish a pristine, un-fragmented file system to a MOFS disk that has been used extensively.

To remake a sound disk using MediaNet Admin:

1. Launch MediaNet Admin as described above.

2. In the server select dialog that opens, select and double-click on the name of your local system.

This opens the MediaNet Server Info dialog. This dialog displays all disks attached to any of the selected systems' SCSI busses.

Each MediaNet board supports two separate SCSI chains, and multi-track configurations of the system may have as many as three network boards installed.

3. Select the disk that you wish to Remake (or Initialize)

4. Click on the button that says Initialize Disk.
   The following window will appear.

5. Click on the radio button corresponding to the disk you want to initialize.

6. Click Initialize Disk.
   This operation takes the computer a minute or so; a progress thermometer shows you its status.

7. Set the Administrator password, if necessary.

When you initialize a MediaNet volume, you automatically create a Macintosh Users and Groups file. Initially, you will see only two users: Guest and Administrator. The Administrator account requires a password from anyone who wants to administer the server remotely. Please choose a non-obvious password—and remember it.

The Guest account requires no password, but provides only limited access to volumes.

At this point, you have fully initialized your MediaNet volume, so you can log in as Guest and use it immediately. However, you will probably want to create separate user accounts. Please see Chapter 5 of the *MediaNet User Manual* for the necessary procedures.

Disk Repair with MediaNet Admin

To repair a disk whose file system has become damaged, use the MediaNet Volume Info dialog.

To open the MediaNet Volume Info dialog:

1. Double-click on the disk name as shown in the MediaNet Server Info dialog.
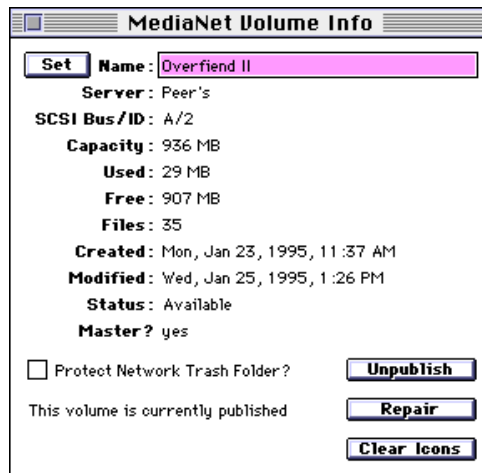
The MediaNet Volume Info window shows you various pieces of information about the volume: its name, its capacity, the amount of disk space used and free, and so on.

2. Click on the Repair button in this dialog.

Once the volume has been repaired, you may need to restart the Sonic System application to access the disk.