

Digidesign ADAT Bridge I/O

Digidesign Inc.

3401-A Hillview Avenue
Palo Alto, CA 94304 USA
tel: 650-842-7900
fax: 650-842-7999

Technical Support (USA)

650-842-6699
650-856-4275

Product Information

650-842-6602
800-333-2137

Fax on Demand

1-888-USE-DIGI (873-3444)

World Wide Web

www.digidesign.com

Digidesign FTP Site

<ftp.digidesign.com>

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Communications & Safety Regulation Information

Compliance Statement

The model ADAT Bridge I/O complies with the following standards regulating interference and EMC:

- FCC Part 15 Class A
- EN55103 – 1, environment E4
- EN55103 – 2, environment E4
- AS/NZS 3548 Class A
- CISPR 22 Class A

Radio and Television Interference

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules.

Communications Statement

This equipment has been tested to comply with the limits for a Class A digital device. Changes or modifications to this product not authorized by Digidesign, Inc., could void the Certification and negate your authority to operate the product. This product was tested for CISPR compliance under conditions that included the use of peripheral devices and shielded cables and connectors between system components. Digidesign recommends the use of shielded cables and connectors between system components to reduce the possibility of causing interference to radios, television sets, and other electronic devices.

Safety Statement

This equipment has been tested to comply with USA and Canadian safety certification in accordance with the specifications of UL Standards; UL813 and Canadian CSA standard; CSA C22.2 No.1-M90. Digidesign Inc., has been authorized to apply the appropriate UL & CUL mark on its compliant equipment.

Important Safety Instructions

When using electric or electronic equipment, basic precautions should always be followed, including the following:

- Read all instructions before using this equipment.
- To avoid the risk of shock, keep this equipment away from rain water, and other moisture. Do not use this equipment if it is wet.
- The equipment should only be connected to the correct rating power supply as indicated on the product.
- Do not attempt to service the equipment. There are no user-serviceable parts inside. Please refer all servicing to authorized Digidesign personnel.
- Any attempt to service the equipment will expose you to a risk of electric shock, and will void the manufacturer's warranty.
- The product should be connected only to the correct power supply as indicated on the product.

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chapter 1

Introducing the Digidesign ADAT Bridge I/O

The Digidesign ADAT Bridge I/O allows you to combine the power and flexibility of Pro Tools™ disk-based digital audio production system with the convenience and affordability of Alesis ADAT®, ADAT-compatible modular digital multitracks (MDMs), and ADAT optical interface-equipped digital mixing consoles.

The ADAT Bridge I/O can be used with either the Macintosh or Windows version of Pro Tools, and this guide contains instructions for all supported systems/platforms (see the System Requirements later in this chapter for details.)

If you are installing Pro Tools for the first time:

If you are installing Pro Tools for the first time, follow the appropriate setup and configuration instructions found in chapters 2 and 3 of your ADAT User's Guide. After you have connected your ADAT Bridge/Pro Tools system, return to your Pro Tools System Installation Guide and complete the rest of your Pro Tools installation.

If you are adding the ADAT Bridge I/O to an existing Pro Tools system:

If you already have a Pro Tools system installed and you want to add the ADAT Bridge I/O, follow the complete installation instructions included in this guide.

ADAT Bridge I/O Features

- 16 discrete channels of digital input and output for transferring digital audio between Pro Tools and ADAT optical interface-equipped devices.
- 2-channel 20-bit D/A converters for superior analog monitoring.
- S/PDIF and AES/EBU digital inputs and outputs.
- Slave clock input and output, and word clock output for synchronizing and resolving your Pro Tools/ADAT system to an external synchronization source using Digidesign or third-party synchronization peripherals.
- Up to five ADAT Bridge I/Os can be used with Pro Tools for a maximum of 72 channels of input and output.
- The ADAT Bridge I/O allows you to use an ADAT-compatible device as an audio interface for Pro Tools by using its A/D and D/A converters.

Capabilities

The ADAT Bridge I/O Interface allows you to digitally transfer up to 16 tracks/channels simultaneously from ADAT into Pro Tools for:

- Non-linear editing
- Plug-In effects processing
- Digital mixing with automation

The ADAT Bridge I/O allows you to Digitally transfer up to 16 tracks/channels simultaneously per ADAT Bridge I/O from Pro Tools to ADAT to:

- Replace original tracks with edited tracks
- Transfer Pro Tools tracks to another Pro Tools/ADAT system via affordable S-VHS tape media
- Back up Pro Tools tracks on S-VHS tape.

With an optional synchronization peripheral, you can use the ADAT Bridge I/O to:

- Perform synchronized recording and playback.
- Combine tape-based tracks and/or MIDI instruments into the Pro Tools TDM environment for mix automation and effects processing.

The ADAT Bridge allows you to interface with digital mixing consoles equipped with ADAT lightpipe connections (using the 20-bit ADAT Optical standard).

The ADAT Bridge I/O can also be used as a stand-alone digital converter (S/PDIF or AES/EBU-to-ADAT-optical). This capability allows you to digitally transfer audio from DAT or CD to ADAT without having to power on your computer or launch Pro Tools.

About This User's Guide

This User's Guide explains everything you need to know in order to successfully use your Digidesign ADAT Bridge I/O with Pro Tools and ADAT.

In addition, you should have a basic working knowledge of your ADAT or ADAT-compatible device, and know how to format tapes, how to record and play back audio, and other ADAT functions.

The term "ADAT" can mean any ADAT-optical interface equipped device. This includes ADAT-compatible modular digital multitrack recorders (MDMs) as well as digital consoles that are equipped with an ADAT optical interface.

Conventions Used in This Manual

Digidesign guides use the following conventions to indicate menu choices and key commands:

Convention	Action
File > Save Session	Choose Save Session from the File menu
Control+n	Hold down the Control key and press the <i>n</i> key
Option-click	Hold down the Option key and click the mouse button
Right-click (Windows)	Click with the right mouse button

The following symbols are used to highlight important information:

* *User Tips* are helpful hints for getting the most from your system.

▲ *Important Notices* include information that could affect your session data or the performance of your system.

🔍 *Cross References* point to related sections in other Digidesign Guides.

- The original ADAT should be equipped with firmware version 4.03 or higher.
- The ADAT XT should be equipped with firmware version 1.04 or higher.
- The ADAT M-20 should be equipped with firmware version 1.0 or higher.
- The ADAT XT20 should be equipped with firmware version 2.0 or higher.
- The ADAT LX20 should be equipped with firmware version 2.0 or higher.

System Requirements

The Digidesign ADAT Bridge I/O requires:

- A Pro Tools 24 MIX or MIXplus, Pro Tools 24 or Pro Tools III system, on an appropriate CPU (Mac OS or Windows NT).
- Version 4.3 or higher of the Pro Tools software and it's associated versions of DAE and the DigiSystem INIT.
- An external mixing console and monitoring system (amplifier, speakers, headphones, etc.).
- One or more ADAT or ADAT-compatible devices.

ADAT Firmware Requirements

In order to ensure that your ADAT is fully compatible with the ADAT Bridge I/O, we recommend that it have the firmware version given below. If you are not sure of the firmware version of your ADAT or ADAT-compatible recorder, please contact the manufacturer or your professional audio dealer.

chapter 2

Connecting Your Studio

This chapter covers connecting the ADAT Bridge I/O to your Pro Tools system and to an ADAT-compatible device. There are two types of connections that can be made:

Primary Connections (all systems)

- ◆ Connecting the ADAT Bridge I/O to your ADAT or ADAT-compatible devices.
- ◆ Connecting the ADAT Bridge I/O to your Pro Tools system.

Synchronization Connections (optional)

This section includes connection diagrams and examples for systems which include the following synchronization peripherals:

- BRC
- BRC and Digidesign Universal Slave Driver (USD)
- JL Cooper DataSync2
- Mark of the Unicorn MIDI TimePiece AV (MTP AV)
- Mark of the Unicorn Digital TimePiece (DTP)
- Opcode Studio 64XTC
- Yamaha 02R digital mixing console

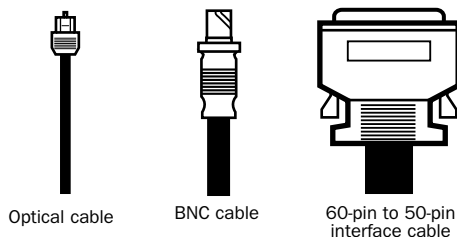
Before You Begin

- Make sure your Pro Tools system is properly installed.
- Turn off your computer, hardware interfaces, and ADATs. Making connections while power is on can damage your system.

These cables are provided with your ADAT Bridge I/O:

- One (1) AC power cable
- One (1) 60-pin to 50-pin interface cable
- Two (2) ADAT optical cables
- One (1) BNC slave clock cable

The optical cables included with your ADAT Bridge I/O are 2 feet in length. Optical cables of up to 30 feet can be used with your system as long as they are high-quality, Alesis-approved cables.



Cables included with ADAT Bridge I/O

The enclosed BNC cable is the suggested maximum length for Word clock connections to the ADAT Bridge. It is possible to utilize longer BNC cables, but doing so can introduce clock problems which will result in clicks, pops and other digital noise on channel 1 of your system.

ADAT Bridge I/O Front Panel

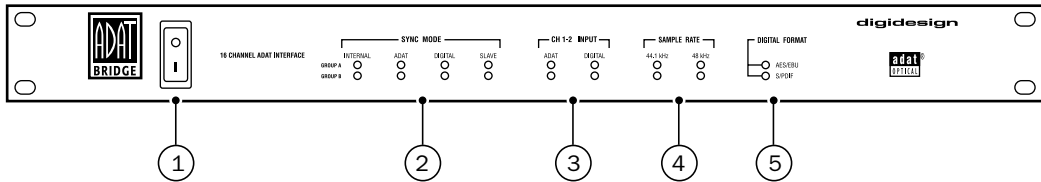


Figure 1. ADAT Bridge I/O front panel

1. Power Switch

This switch applies power to the Digidesign ADAT Bridge I/O. The “I” position is on. The “O” position is off.

2. Sync Mode LEDs

These LEDs indicate which master sample clock reference is currently being used by the ADAT Bridge I/O. The ADAT Bridge I/O’s 16 input/outputs are divided into 2 discrete groups: Group A (channels 1-8) and Group B (channels 9-16).

About 8- and 16-channel Modes — Group A and Group B

Each ADAT Bridge I/O is capable of sending and receiving 16 channels of audio. You can connect up to two 8-channel ADATs to each ADAT Bridge I/O. The ADAT Bridge I/O manages its I/O in two separate 8-channel groups:

- Group A, which appears in Pro Tools I/O pop-ups as ADAT Bridge A 1-8.
- Group B, which appears in Pro Tools I/O pop-ups as ADAT Bridge B 1-8 (think of these as channels 9-16)

Group A and Group B each have their own front panel LEDs which indicate that par-

ticular group’s sync mode, channel 1-2 input format, sample rate, and digital format. Group B will always slave to Group A’s sync mode and sample rate settings. Channel 1-2 input is software-selectable.

Group A and Group B also each have their own pair of rear-panel optical ports for connection to an ADAT. Optical #1 carries Group A, channels 1-8. Optical #2 carries Group B, channels 9-16.

Group A and Group B also have their own rear-panel data ports for connecting an interface cable to the appropriate Digidesign card(s) inside your computer.

If you are using a single ADAT, you will only make connections to Group A. Use Group B to connect a second ADAT to the ADAT Bridge I/O or if you wish to use the Group B digital ports (channels 9-10) for digital effects sends and returns.

The front panel LEDs provide a convenient troubleshooting feature. If any of the Sync Mode or Sample Rate LEDs flash, this indicates a mismatch between the signals being received by the ADAT Bridge I/O and the settings currently selected in Pro Tools (in the Hardware dialog or Session Setup window). Once you have identified a problem,

you can easily correct it by resetting the appropriate parameter.

Internal When lit, this LED indicates that the ADAT Bridge I/O sample clock reference is its own internal clock. The internal clock frequency is determined by the Sample Rate setting in the Pro Tools Hardware dialog or Session Setup window. Internal sync mode is used whenever the ADAT Bridge I/O's sample rate clock is not being determined by an external source such as an ADAT, DAT machine, or synchronization peripheral.

ADAT When continuously lit, the ADAT Bridge I/O sample rate is being slaved to an ADAT (the ADAT Bridge I/O is using the ADAT as its master clock reference). This parameter is set by choosing ADAT Optical in the Sync Mode pop-up in the Pro Tools Hardware dialog or Session Setup window. If this LED is flashing, it indicates that the ADAT Bridge I/O is either not receiving a signal from the ADAT or that the signal is invalid for some reason.

Digital When continuously lit, the ADAT Bridge I/O is being slaved to an external AES/EBU or S/PDIF signal (the ADAT Bridge I/O is using the signal as its master clock reference). This parameter is set by choosing Digital in the Sync Mode pop-up in the Pro Tools Hardware dialog or Session Setup window. This is the setting typically used for transferring material from DAT machines or other digital devices into Pro Tools. If this LED is flashing, it indicates that the ADAT Bridge I/O is either not receiving an AES/EBU or S/PDIF signal or that the signal is invalid for some reason. (This could occur if, for example, you have chosen AES/EBU as your digital format in

the Pro Tools Hardware dialog or Session Setup window and are actually receiving a signal via the S/PDIF port.)

Slave When continuously lit, this LED indicates that the ADAT Bridge I/O master sample clock reference is being determined by an external device connected to the Slave Clock In port on the ADAT Bridge I/O's rear panel—typically another Digidesign Audio Interface or a synchronization peripheral such as the Universal Slave Driver. The ADAT Bridge I/O will automatically switch to Slave mode when a valid slave clock signal is connected to its Slave Clock Input port and the ADAT Bridge I/O is set for internal sync in the Pro Tools Hardware Setup dialog or Session Setup window.

3. Channel 1-2 Input

This LED indicates the source of input to Pro Tools for channels 1-2 of Group A and/or Group B. When the ADAT LED is lit, input channels 1-2 in Pro Tools are currently selected to receive digital input via the ADAT Bridge I/O's optical port. When the Digital LED is lit, it indicates that channels 1-2 in Pro Tools are currently selected to receive digital input via its AES/EBU or S/PDIF ports. This parameter is set using the Ch 1-2 Input pop-up in the Pro Tools Hardware dialog or Session Setup window.

The AES/EBU or S/PDIF inputs can be routed to Channels 1-2 of either Group A or Group B. This gives you the flexibility to set Channel 1-2 to ADAT on Group A, and Channel 1-2 input to digital on Group B. This allows you to record eight channels audio from ADAT on group A, and two channels of digital input on Group B. If

you wish to record a full 16 channels of audio from ADAT, Channel 1-2 input must be set to ADAT for both Group A and Group B.

4. Sample Rate

These LEDs indicate the current sample rate of Group A and Group B of the ADAT Bridge I/O. If these LEDs are flashing, it indicates that the currently selected sample rate does not match the sample rate currently being received by the ADAT Bridge I/O.

5. Digital Format

These LEDs indicate which digital port (AES/EBU or S/PDIF) is currently being used for digital input on channels 1-2 of Group A or Group B.

ADAT Bridge I/O Back Panel

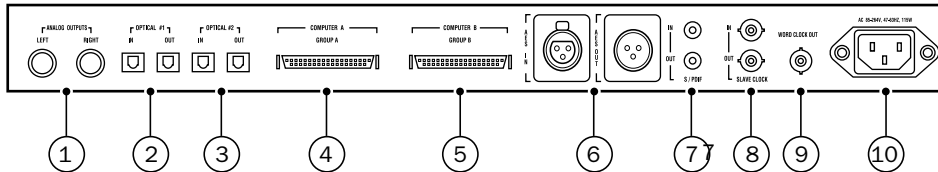


Figure 2. ADAT Bridge I/O Back Panel

1. Analog Outputs

These are balanced TRS (tip-ring-sleeve) connectors which carry audio output on channels 1-2. By routing a Pro Tools output mix to channels 1-2 you can then monitor an entire mix via these outputs. The ADAT Bridge I/O's analog outputs feature 20-bit D/A convertors for superior audio quality. These outputs are software-switchable between -10 dBV and +4 dBu operation via the Other Options section of the Pro Tools Hardware dialog (in the Setups menu). Output levels default to -10 dBV when the ADAT Bridge I/O is used in stand-alone mode (see Chapter 3).

2. Optical In/Out #1

These are fiber optic ports. They are designed to send and receive 8 channels of digital audio to and from an ADAT's optical ports. The Optical #1 port carries data for Group A, the first eight channels (1-8) of the ADAT Bridge I/O. Please note that both the optical inputs and optical outputs must be connected to your ADAT in order for your system to work properly.

3. Optical In/Out #2

Similar to "Optical In/Out #1, except the Optical #2 port carries data for Group B,

the second eight channels (9-16) of the ADAT Bridge I/O.

4. Computer A

This port is used to make connections between the Digidesign ADAT Bridge I/O and a Pro Tools MIX, MIXplus, d24, DSP Farm, or Disk I/O card installed inside your computer. The Computer A port carries data for the first eight channels (1-8) of audio between the ADAT Bridge I/O and Pro Tools.

5. Computer B

Similar to Computer A, except the Computer B port carries data for the second eight channels (9-16) of audio between the ADAT Bridge I/O and Pro Tools.

6. AES/EBU In/Out

These are balanced, three conductor, XLR connectors which accept and output a 24-bit AES/EBU digital data stream. Output is continuously active on the AES/EBU jacks, carrying audio routed to outputs 1-2 in Pro Tools.

7. S/PDIF In/Out

These are unbalanced, two-conductor, phono (RCA) jacks which accept and output a 24-bit S/PDIF digital data stream.

Output is continuously active on the S/PDIF jacks, carrying audio routed to outputs 1-2 in Pro Tools. To avoid RF interference during S/PDIF transfers, we recommend that you use 75 ohm coaxial cable and don't go beyond a maximum cable length of 10 meters.

8. Slave Clock In/Out

The Slave Clock Out jack is a standard BNC connector that outputs a 256 times sample rate "Super Clock" signal for slaving additional ADAT Bridge I/Os, Audio Interfaces, or synchronization peripherals.

The Slave Clock In jack is a standard BNC connector designed to receive a Slave Clock Out signal from another ADAT Bridge I/O or other Digidesign audio interface, or a Digidesign synchronization peripheral such as the Universal Slave Driver. Because crucial timing data is passed via these ports, you should use high-quality, 75 ohm RG-59 cables for making connections and keep total cable lengths to less than 3 meters between all connected devices.

9. Word Clock Out

The Word Clock Out jack is a standard BNC-type connector that outputs a word clock signal. This jack is typically used to connect the ADAT Bridge I/O to a BRC or other sync device which requires a separate word clock input for properly resolved sync.

10. AC Power Input

This connector accepts a modular AC power cable. The Digidesign ADAT Bridge I/O is auto power-selecting (100V-240V) and will work with a standard modular ca-

ble when connected to AC power receptacles in any country.

Primary Connections for All Systems

Connecting the ADAT Bridge I/O to Pro Tools and ADAT

This section covers the basic connections between the ADAT Bridge I/O, your Pro Tools system and ADAT:

- ADAT *Optical* connections between the ADAT Bridge and your ADAT(s).
- *Audio Interface* connections between the ADAT Bridge I/O and Pro Tools.
- *Clock* connections.
- (Optional:) *Audio* connections from the ADAT Bridge I/O to a monitoring system.

It is important that you establish basic ADAT Bridge I/O system connections before putting together a more complex configuration. Refer to the basic system setup instructions that follow to configure and test the essential portion of your system. Then refer to the larger system setup instructions that apply to your particular studio setup and configure those additional pieces of equipment.

Step 1: Optical Connections

Quickstart Instructions:

- ◆ One ADAT:
 - ADAT Bridge Optical #1 Out to ADAT #1 Optical Input.
 - ADAT Bridge Optical #1 In to ADAT #1 Optical Output.

- ◆ Two ADATs:
 - Same as instructions for one ADAT, but using ADAT Bridge Group B Optical In/Out and ADAT #2 Optical Out/In.

If you use a BRC or other device to synchronize your ADATs, refer to “Synchronization Connections” on page 16 for additional instructions on integrating the ADAT Bridge I/O into your system.

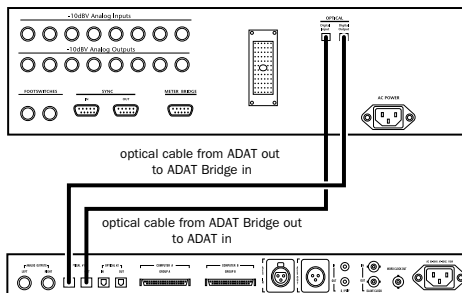
The following sections provide optical connection instructions for systems with one or two ADATs.

▲ If you connect a fiber optic cable to the Optical Out of the ADAT or ADAT Bridge I/O while it is on, you will see a red light at the other end of the cable. This is not a laser, so it will not damage your eyes.

To make optical cable connections between the ADAT Bridge I/O and your ADAT(s):

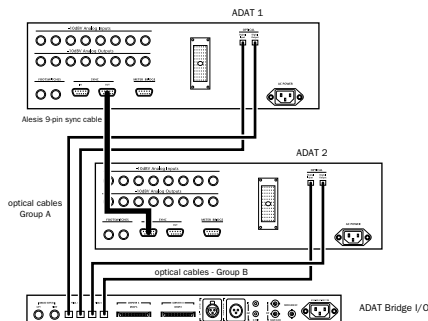
1 Connect one of the fiber optic cables (provided with the ADAT Bridge I/O) to the jack labeled Optical #1 Out on the Digidesign ADAT Bridge I/O, and connect the other end to the Digital Input on your primary (master) ADAT. Avoid touching the ends of the cable to prevent oils from your skin from getting on the lenses.

2 Connect the second fiber optic cable to the jack labeled Optical #1 In on the Digidesign ADAT Bridge I/O and attach the other end to the Digital Output on your ADAT.



Optical connections between a single ADAT Bridge I/O and a single ADAT

3 If you are using two ADATs with your ADAT Bridge I/O (16-channel mode), make the same In/Out connections from the Optical #2 In/Out ports on the Digidesign ADAT Bridge I/O to the Digital In/Out ports on ADAT #2.



Optical connections between an ADAT Bridge and two ADATs (ADAT 9-pin Sync connection also shown)

About ADAT Sync 9-pin

Also shown in the above diagram is the ADAT 9-pin sync cable (from the master ADAT Sync Out to the slave ADAT Sync In), required for proper clocking between your ADATs. Your ADAT User’s Guide assumes that if you have two ADATs you already have their Sync cables connected in this

manner and operating correctly. Refer to your ADAT manual if you need more information.

Step 2: Pro Tools Interface Connections

Quickstart Instructions, 50-pin data/interface cable:

- ◆ One ADAT (8-channel mode):
 - ADAT Bridge Computer A to interface port A on primary Pro Tools audio card (MIX, d24 or Disk I/O), or the I/O port on the Pro Tools audio card in the highest available slot.
- ◆ Two ADATs (16-channel mode):
 - Same as for one ADAT, plus additional 50-pin interface cable (not included) from ADAT Bridge I/O Computer B port to primary Pro Tools interface Port B (if using the optional Y-cable), or to the interface port on the next highest Pro Tools I/O-capable card.

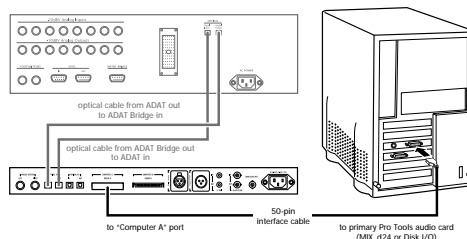
The following section provides more detailed interface connection instructions for systems with one or two ADATs.

Single-ADAT systems (8-channel operation)

This basic configuration allows 8-channel transfer between Pro Tools and ADAT, but has no provisions for synchronizing playback or recording of the two devices. You will have to manually start and stop recording/playback of Pro Tools and ADAT independently. (Unsynchronized operation can be used to make basic backups of your Pro Tools and/or ADAT tracks.)

To make basic system connections from the ADAT Bridge I/O to a single ADAT:

- 1** Connect the large end of the 50-pin interface cable (provided with your ADAT Bridge I/O) to the Computer A port on the ADAT Bridge I/O. To do this, pinch the metal tabs on either side of the 50-pin connector and push it into the port. Release pressure on the tabs to lock the connector into place.
- 2** Connect the other end of the interface cable to the Pro Tools MIX, d24 or Disk I/O card installed inside your computer. Use the thumbscrews on this connector to secure the cable in place. Whenever possible, attach the interface cable to the “master” card (the first Pro Tools MIX, d24 or Disk I/O card in your system).



Interface connection, 8-channel operation

- ◆ If you are adding the ADAT Bridge I/O as expansion I/O, connect the Bridge to the appropriate expansion I/O port. This will be the I/O port on the Pro Tools I/O card in the next-highest PCI slot in your CPU (or PCI expansion chassis). Refer to your Pro Tools System Installation Guide for details on determining the slot order of your cards.

Two ADATs (16-channel operation)

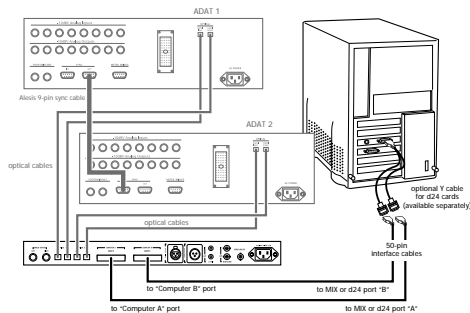
The following describes connections for a single ADAT Bridge I/O and two ADATs. This basic configuration allows 16-channel transfer between Pro Tools and ADAT, but has no provisions for synchronizing playback or recording of the two devices (though the two ADATs will be in sync with each other by virtue of their 9-pin Sync connection). You will have to manually start and stop recording/playback of Pro Tools and ADAT independently. Un-synchronized operation can be used to make basic ADAT backups of your Pro Tools tracks, and vice-versa. i

To make basic connections from the ADAT Bridge I/O to two ADATs:

1 Connect a second 50-pin interface cable to the port labeled Computer B on the ADAT Bridge I/O. This cable is available separately from your dealer.

2 Connecting both computer ports of the ADAT Bridge I/O to your computer depends upon your Pro Tools system:

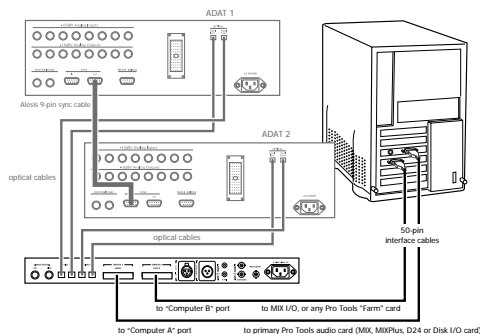
- For Pro Tools MIX and 24 owners, either connect the second interface cable to the DSP Farm, or, if you have the optional 16-channel peripheral cable adapter (this Y-cable is available separately), connect the cable to port B. Be sure to connect the Computer A port to the A branch of the Y cable and the Computer B port to the B branch of the Y cable as shown in the illustration.



ADAT Bridge I/O connected to two ADATs, using the optional Y-cable for Pro Tools MIX and d24 cards

– OR –

- Connect the second interface cable to the next available I/O card (MIXPlus, MIXI/O, d24, or DSP Farm).



16-channel Interface connections between the ADAT Bridge and an expanded Pro Tools system using a pair of standard Digidesign interface cables

Step 3: Clock Connections

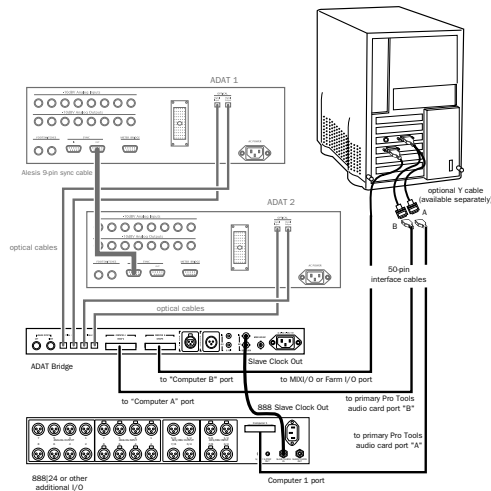
If you are only using a single ADAT Bridge I/O with no other Digidesign Audio Interfaces and no external synchronization peripherals, you can skip this step.

If you also use a Digidesign 888 24 or 882 20 audio interface, you will most likely want to use them as your primary audio interface and use the ADAT Bridge as expansion I/O for your system.

▲ This section covers clock connections between Pro Tools audio interfaces only. Many synchronization peripherals add their own requirements for clock. Refer to “Synchronization Connections” on page 16 for more information.

To make clock connections to other Digidesign audio interfaces:

1 Connect the Slave Clock Out of your primary audio interface (such as the 888/24) to the Slave Clock In of your next audio interface (such as the ADAT Bridge I/O) using the BNC cable.



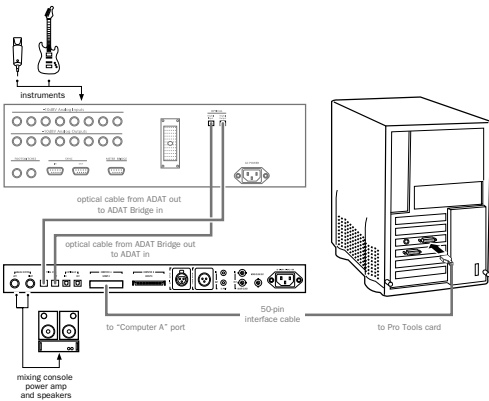
Slave Clock and interface connections with an 888 24 and an ADAT Bridge

2 Connect any other Pro Tools audio interfaces by repeating the above instructions

and daisy-chaining the Slave Clock signal between each interface.

Step 4: Stereo Monitor connections (optional)

The ADAT Bridge I/O provides a pair of analog outputs which carry audio output channels 1 and 2. If the ADAT Bridge I/O is the primary audio interface, these will be Pro Tools output channels 1 and 2. If you are using the ADAT Bridge I/O as expansion I/O, then these outputs will be channels 1 and 2 in the bank of outputs represented by the ADAT Bridge I/O's Group A channels.



Stereo output and instrument input connections

The illustration above shows a single example setup in which the ADAT Bridge I/O is the primary Pro Tools audio interface (in 8-channel mode). If the ADAT Bridge is being installed as expansion I/O, then its 60- to 50-pin Interface cable would be connected to a different interface port than the primary disk card.

This simple configuration allows track transfer and mixing of ADAT tracks between Pro Tools and ADAT, but has no provisions for synchronized playback or re-

cording of the two devices. You will have to manually start and stop recording/playback of Pro Tools and ADAT independently.

For frame/sample accurate transfers, you will need an optional third-party synchronization peripheral. The more complex system configurations given later in this chapter show how to use optional synchronization peripherals to achieve synchronized playback and recording between Pro Tools and ADAT

- BRC with a Digidesign Universal Slave Driver
- JL Cooper DataSync 2 (MIDI interface required)
- Mark of the Unicorn MTP AV
- Mark of the Unicorn Digital TimePiece (DTP)
- Opcode Studio 64XTC
- Other digital devices, including ADAT-compatible digital mixing consoles.

Synchronization Connections

If you want to synchronize Pro Tools to an ADAT-compatible device while using the ADAT Bridge, certain synchronization hardware is required.

Synchronizing the two systems lets you transfer tracks back and forth between Pro Tools and your ADATs in perfect sync. You can then utilize your devices' combined track capacity for mammoth mixes, fly tracks from tape into Pro Tools for editing and processing, or use the ADATs as a backup mechanism for Pro Tools audio.

The setup requirements for a synchronized Pro Tools/ADAT system differ slightly depending on the specific device(s) employed (e.g., BRC, MTP AV, DTP, etc.).

Diagrams are provided for synchronization connections between your ADAT Bridge I/O, Pro Tools, and each of the following devices:

- Alesis BRC (requires a MIDI interface)

Setup A: Synchronizing Pro Tools and ADAT with an Alesis BRC

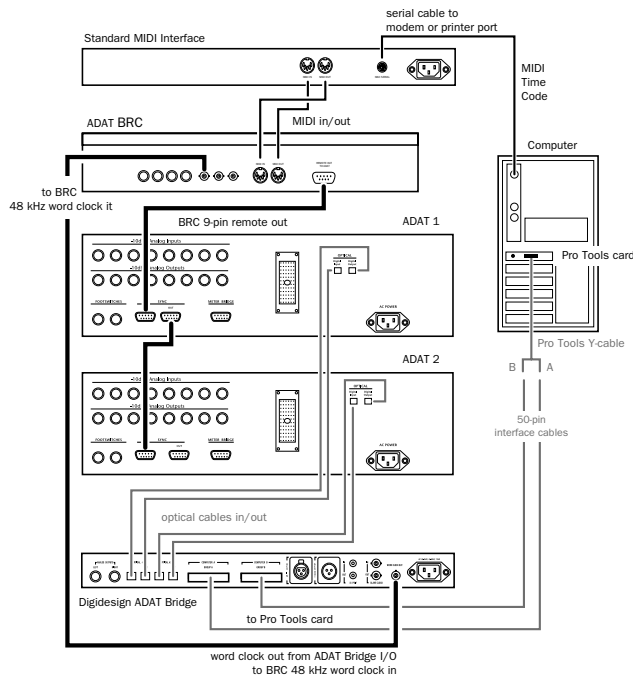


Figure 3. Wiring example for a BRC-equipped system

When used with a MIDI Interface, the BRC can function as the transport master while Pro Tools (via the ADAT Bridge I/O) is the clock master. This configuration is best for synchronized audio playback, recording, and track transfer from Pro Tools to ADAT with better than 1/4 frame accuracy.

About 44.1 Sessions with the BRC

The BRC's 48k clock input allows you to resolve the BRC to the ADAT Bridge's word clock out. With the ADAT XT, this requires that all sessions be at 48k in order to avoid clock anomalies (clicks, pops).

To connect this setup:

- 1 Make sure your primary connections (optical/lightpipe and 50-pin interface) are correct, as described previously.
- 2 Connect a 9-pin sync cable from the BRC's Remote Out port to the (master) ADAT's Sync In port.
- 3 Connect the Word Clock Out of the ADAT Bridge I/O to the BRC 48 kHz In.
- 4 Connect the MIDI In and MIDI Out of the BRC to the appropriate MIDI In/Out of your MIDI Interface.

5 Make sure that your MIDI interface is connected to your computer and other devices.

BRC Settings for Pro Tools-to-ADAT Transfer:

- ◆ Enable EXT SYNC, then make sure the BRC external clock/sync source is 48kHz Input. (To change this setting, press EDIT, then press EXT SYNC until Clock Source is displayed in the LED. Use the lower-case/uppercase increment arrows to scroll to 48kHz Input. Press EDIT again to exit.)

For highest-quality ADAT-to-Pro Tools transfers with this setup, the BRC needs to be the clock *and* positional master. The example that follows shows how Digidesign's Universal Slave Driver can be used to achieve this configuration.

Using a Digidesign Universal Slave Driver with a BRC

Digidesign's Universal Slave Driver is a high-quality, multipurpose synchronization peripheral. By adding the USD to your system, you can transfer from ADAT to Pro Tools or Pro Tools to ADAT with near sample accuracy, using the BRC as your transport master.

To integrate a Universal Slave Driver with a BRC and ADAT Bridge/Pro Tools system:

- 1** Make the primary connections as described earlier in this chapter (optical/light-pipe, 9-pin ADAT Sync).

2 Make sure your Universal Slave Driver is connected to the DigiSerial Port, and that your MIDI interface is properly connected to your CPU.

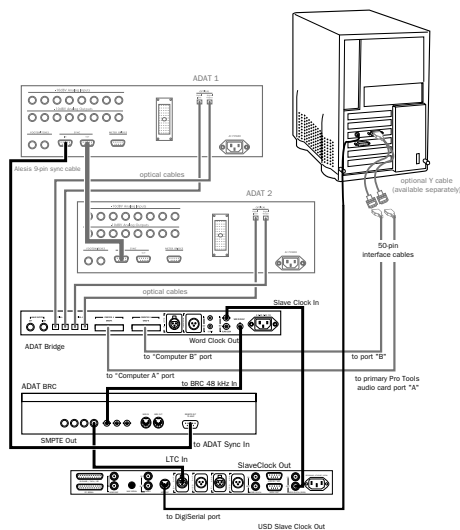
3 Connect the BRC as described in the previous section Sync Setup A, except:

4 Use a BNC cable to connect the USD's Slave Clock Out to the Slave Clock In of your master Pro Tools audio interface.

5 Daisy-chain the Slave Clock signal to all your audio interfaces as explained in your Pro Tools System Installation Guide.

6 Use another, short BNC cable to connect the ADAT Bridge Word Clock Out to the BRC 48 kHz In. Try to use the shortest BNC cable possible for word clock connections to the BRC.

7 Make a connection from the BRC SMPTE Out port to the LTC In port on the USD. Make sure to set the USD positional reference to LTC, and its clock reference to Internal.



Connecting a USD and BRC to an ADAT Bridge

For software configuration and operational instructions, see *Chapter 3: Using Your System*, and “Setup A: Synchronizing Pro Tools and ADAT with a BRC” on page 38.

Setup B: Synchronizing Pro Tools and ADAT Using a JL Cooper DataSync2

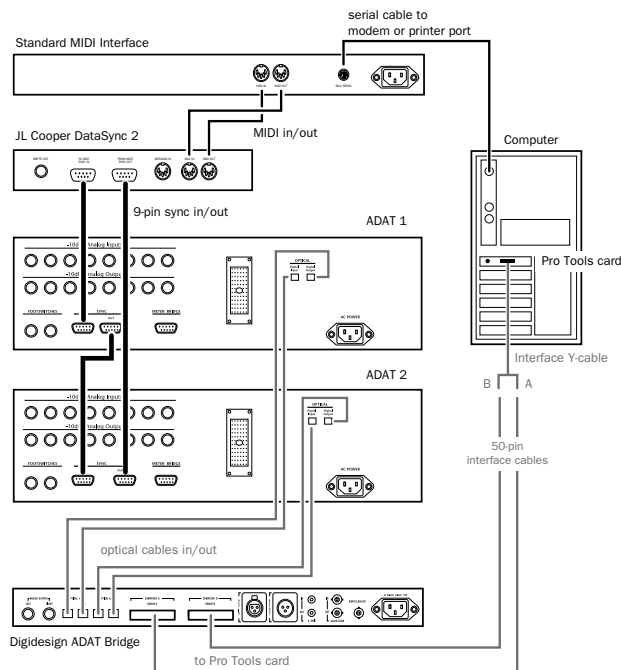


Figure 4. Wiring example for the JL Cooper DataSync2

The JL Cooper DataSync2™ translates the ADAT-proprietary ABS time reference signal embedded on ADAT tapes into MIDI Time Code. With a DataSync2 and a MIDI interface, ABS is converted to MTC, sent to your computer, and used to trigger Pro Tools via the ADAT’s transport. This allows synchronized audio playback, recording, and track transfer between Pro Tools and ADAT with better than 1/4 frame accuracy. (For near-sample accurate sync, add a Digidesign Universal Slave Driver, or similar Slave Clock-capable device.)

To connect this setup:

- 1** Make the primary connections (optical, 50-pin interface and clock) explained earlier in this chapter, then;
- 2** Make the 9-pin sync connections between the DataSync2 and your ADAT(s) as shown in the illustration.
- 3** Connect the MIDI In and MIDI Out of the DataSync2 to an appropriate MIDI In and MIDI Out of your MIDI interface.

For additional instructions, see Chapter 3: “Basic Connections” and “Setup B: Synchronizing Pro Tools and ADAT with a DataSync2” on page 42

Setup C: Synchronizing Pro Tools and ADAT using the MTP AV

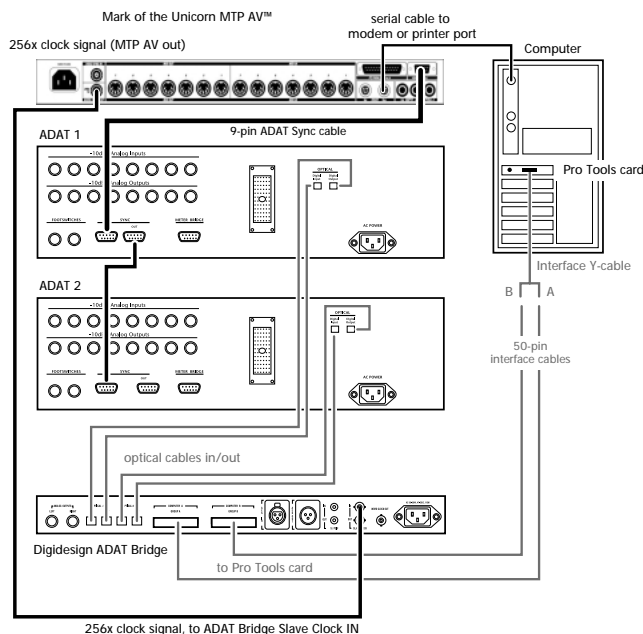


Figure 5. Wiring Example for the MTP AV

The Mark of the Unicorn MTP AV provides extensive MIDI and sync capabilities, and you can use it to synchronize your Pro Tools/ADAT system. In this role, the MTP not only translates MMC from Pro Tools to ADAT sync (allowing Pro Tools to be the positional/transport master) but it also serves as the clock master (in fact, it must be the clock master).

To connect this system:

- 1 Connect a 9-pin cable from the MTP AV's ADAT 9-pin Sync Out" port to your primary ADAT's 9-pin Sync In port.
- 2 Connect "256x clock OUT" from the MTP AV to the "Slave Clock In" port on the ADAT Bridge I/O.

- 3 Make sure that the serial connection from the MTP AV to your CPU is correct.

MTP AV Settings:

- ◆ MTP AV clock must be set to Internal.
- ◆ Word Clock Out must be set to "Digi"
- ◆ The MTP AV's MMC ID must match Pro Tools. You will learn how to set the Pro Tools MMC ID in Chapter 3: Using your Studio.

For additional instructions for this set up, see *Chapter 3: Using Your System* and "Setup C: Configuring Pro Tools and ADAT sync with an MTP AV" on page 45.

Setup D: Synchronizing Pro Tools and ADAT Using a Digital TimePiec

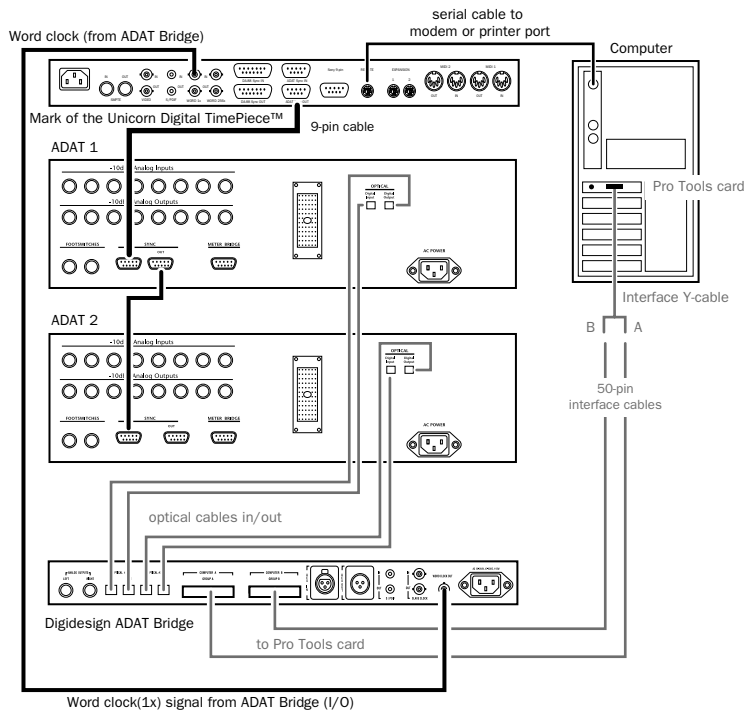


Figure 6. Connecting a Digital TimePiec to an ADAT Bridge, Pro Tools and ADAT

The following sample setup allows Pro Tools to act as the positional (transport) master via MMC, using a Mark of the Unicorn Digital TimePiec™. The DTP is the clock master.

To connect this setup:

- 1 Connect the Digital TimePiec to the ADAT by attaching 9-pin sync cables between these devices as shown in the illustration above.
- 2 Connect the Digital TimePiec to your computer's modem or printer port via serial cable as shown in the illustration.

- 3 Connect Word Clock Out from the ADAT Bridge to the Word 1x In port on the Digital TimePiec.

DTP Settings:

- ◆ Timebase Source set to Word 1x and MTC.

For additional instructions for this set up, see *Chapter 3: Using Your System* and then refer to "Setup D: Configuring Pro Tools and ADAT sync with a Digital TimePiec" on page 47

Setup E: Synchronizing Pro Tools and ADAT using an Opcode Studio 64XTC

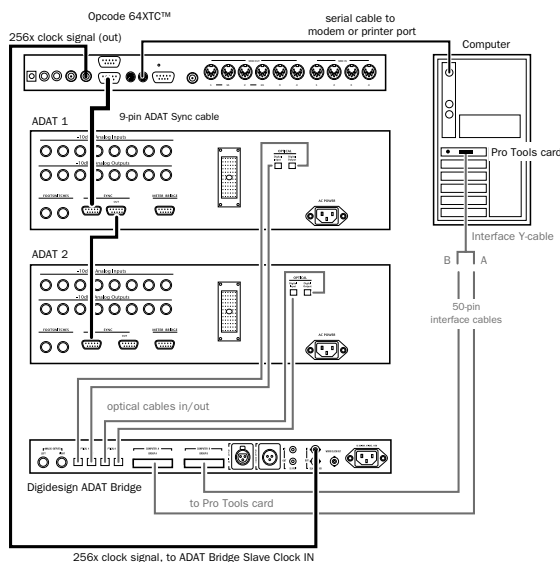


Figure 7. Connecting a Studio 64XTC to an ADAT Bridge, Pro Tools and ADATs

Opcode's Studio 64 XTC has Word & Super-clock outs, ADAT Sync out and SMPTE in and out. Because the 64XTC has only 256x & ADAT Sync Outs, it must always be the clock master in a Pro Tools system. The following setup allows you to synchronize your system with Pro Tools being the positional/transport master.

To connect this setup:

- 1 Connect the ADAT Sync Out from the 64XTC to the Sync In on your primary ADAT.
- 2 Connect the Studio 64XTC's 256x Clock Out to the Slave Clock (256x) In of your primary audio interface (ADAT Bridge I/O or other). If you have multiple audio inter-

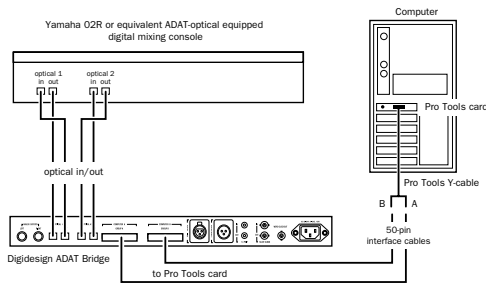
faces, daisy-chain the Slave Clock signal as described previously.

- 3 Make sure your 64XTC's serial cable is correctly connected to your CPU.

For additional instructions for this set up, see "Basic Settings" on page 26 and "Setup E: Configuring Pro Tools and ADAT sync with an Opcode 64XTC" on page 49.

Setup F: Connecting Pro Tools to an ADAT-Compatible Digital Mixing Console

A final use for your Pro Tools/ADAT system is as an affordable means to connect with an ADAT-compatible, ADAT lightpipe-equipped digital mixing console such as the Yamaha 02R, Ramsa DA7 and others.



ADAT Bridge I/O linking between Pro Tools and a digital mixing console

To connect the ADAT Bridge I/O to a ADAT-compatible digital mixing console:

- 1 Follow the basic setup instructions previously given in Setup A, but instead of making connections to an ADAT:
- 2 Connect a fiber optical cable from Optical #1 Out on the ADAT Bridge I/O to optical input #1 on the digital mixing console.
- 3 Connect a fiber optical cable from optical output #1 on the digital mixing console to Optical #1 In on the ADAT Bridge I/O.
- 4 Connect a fiber optical cable from Optical #2 Out on the ADAT Bridge I/O to optical input #2 on the digital mixing console.
- 5 Connect a fiber optical cable from optical output #2 on the digital mixing console to Optical #2 In on the ADAT Bridge I/O.
- 6 If your digital console has the ability to lock to the word clock signal carried over

these optical connections, connect the word clock out of the ADAT Bridge I/O to the word clock in of the digital console. This is necessary for both systems to be able to synchronize to the same master clock reference.

Refer to the documentation that came with your digital console for additional installation and operational information.

chapter 3

Using Your System

This chapter explains how to start up, configure and use your Pro Tools/ADAT system.

If you are using the ADAT Bridge as your primary Pro Tools audio interface and do not need positional sync between Pro Tools and ADAT, then the primary configuration instructions are all you need.

If you are also using a synchronization peripheral with your Pro Tools/ADAT system (for synchronized playback and recording), refer to the section that most closely resembles your studio setup:

- “Setup A: Synchronizing Pro Tools and ADAT with a BRC” on page 38
- “Setup B: Synchronizing Pro Tools and ADAT with a DataSync2” on page 42
- “Setup C: Configuring Pro Tools and ADAT sync with an MTP AV” on page 45
- “Setup D: Configuring Pro Tools and ADAT sync with a Digital TimePiece” on page 47
- “Setup E: Configuring Pro Tools and ADAT sync with an Opcode 64XTC” on page 49

Powering Up Your System

Your Pro Tools/ADAT system consists of several devices that must communicate properly, so you should turn them on in the proper order. Make sure your computer and peripherals are all off before beginning.

Power up your system in this order:

- 1 Turn on your Pro Tools hard drive(s).
- 2 Turn on the ADAT (If you have multiple ADATs, turn on the designated master ADAT), and do the following:
 - Confirm that the ADAT’s clock is set to Internal. (If you have multiple ADATs, set this on the master ADAT.) To do this on the original ADAT, hold down the Set Locate button on the front of the ADAT and press the Digital In button until “INT” appears in the ADAT display. For all other ADAT models, use the Clock Select button on the front of the ADAT to set the clock mode so the ADAT’s display reads “INT” or “Internal.”
 - If you have additional ADATs turn them on. If they are connected properly, all ADATs will display an ID number when they start up. The Master ADAT should display “ID 1.”

- Insert an ADAT tape. If you have multiple ADATs, there must always be a tape in the master ADAT.
- 3 Turn on synchronization or other MIDI peripherals/interfaces.
 - 4 Turn on the Pro Tools Audio master interface. Depending on your studio setup, this could be the ADAT Bridge I/O, or it could be a different Pro Tools Audio Interface.
 - 5 Turn on any additional Pro Tools Audio Interfaces.
 - 6 Turn on your computer.

Basic Settings

There are several software settings that you need to configure after installing the ADAT Bridge I/O.

The following instructions explain how to make these basic settings. In most examples, the ADAT Bridge is the primary Pro Tools audio interface. Using the ADAT Bridge I/O as an expansion interface has special requirements which are noted throughout this guide.

Trashing the DigiSetup file

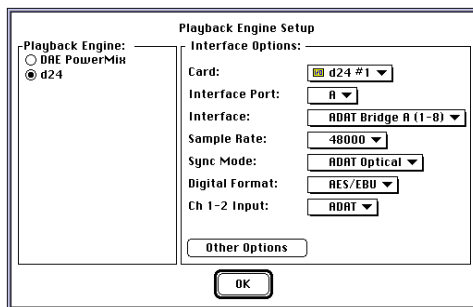
(Macintosh only)

If you are using a Macintosh computer and are adding the ADAT Bridge to a previously installed Pro Tools system, you will need to throw away your DigiSetup file before you open and configure Pro Tools. This file is located in the Preferences Folder which is inside the System Folder. Restart your computer and proceed with the instructions that follow.

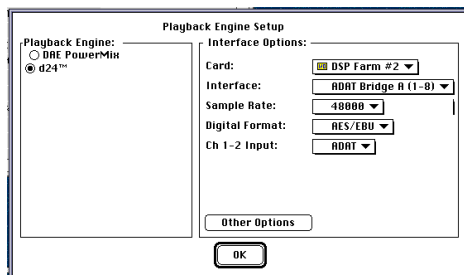
Configuring the ADAT Bridge for Pro Tools

To configure Pro Tools software:

- 1 Launch Pro Tools. Depending on your setup, one of the following will occur:
 - If this is the first time you have installed and launched Pro Tools software, you will be prompted to choose the Audio Interfaces connected to your system from the Playback Engine dialog.



Playback Engine (Macintosh) with ADAT Bridge I/O as the primary audio interface (note the Card popup setting “d24 #1”).



Playback Engine (Macintosh) where ADAT Bridge I/O not the primary audio interface (note the Card setting “DSP Farm #2”).

- If you have previously installed and launched Pro Tools, choose Setups > Playback Engine.

2 Choose the Playback Engine that corresponds to the master Digidesign card in your computer (MIX, d24, etc.). Refer to the *Pro Tools System Installation Guide* if you need more information.

3 If you have a MIX or d24 card, click the Interface Port pop-up and choose the port that your ADAT Bridge I/O is connected to:

- If you have a single ADAT Bridge I/O port (Group A on ADAT Bridge back panel) connected to your card, choose port A.
- If you have both ports (A and B) connected to a MIX or d24 card with the optional 16-Channel Peripheral Cable Adapter (the Y-cable), first configure interface port A then configure interface port B.

4 Click the Interface pop-up and choose the appropriate interface that is connected to the card you selected in the previous step. If you have a MIX or d24 card with a single ADAT Bridge I/O connected to it, choose ADAT Bridge A. If you have both ADAT Bridge I/O Group A and B ports connected to a MIX or d24 card (with the optional Y cable), first choose ADAT Bridge A (1-8) for the one connected to port A. Then, click the Interface Port pop-up, choose port B, and choose ADAT Bridge B (1-16) as the interface connected to port B.

5 Click the Sample Rate pop-up and choose the appropriate sample rate, 44100 (44.1 kHz), or 48000 (48 kHz) for the currently selected card and interface. This should be configured from the primary card/audio interface settings.

ADAT tapes are typically formatted at 48 kHz. Make sure you choose the sample rate that matches the material that you plan to work with. If the Pro Tools sample

rate doesn't match that of the ADAT tape, pops and clicks may occur during recording/monitoring.

6 Click the Sync Mode pop-up and choose the appropriate sync mode. Your choice depends on which device in your setup you want to make the master clock device. See "Sync Mode Options" on page 28 for details.

7 Click the Digital Format pop-up to choose the digital format (AES/EBU or S/PDIF) for channels 1-2 of the currently selected interface. If a digital device is connected to both the AES/EBU and S/PDIF ports of your interface, this pop-up allows you to choose which port the ADAT Bridge "listens to" for digital audio input and word clock input. Only one port can be used at a time.

8 Click the Ch 1-2 Input pop-up to select the input format of channels 1-2 of the currently selected interface. When configuring the Playback Engine and/or Hardware Setup for the ADAT Bridge, do one of the following:

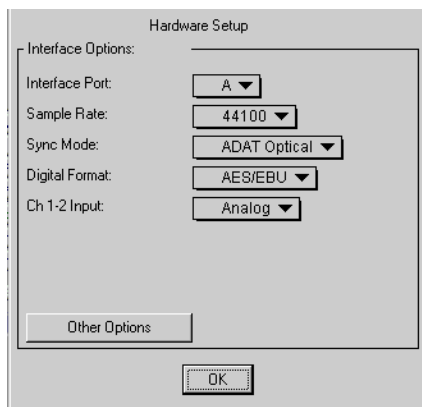
- Choose ADAT to select optical input from the ADAT. In this configuration, all 8 channels of the attached ADAT optical device will appear in Pro Tools.
- Choose Digital to select digital format input from a DAT deck or a word-clock generating device. When Ch 1-2 Input is set to Digital, channels 1-2 will carry data from digital port (either AES/EBU or S/PDIF, whichever format is selected), and channels 3-8 will represent the data from the ADAT.

9 If you have additional interfaces, configure them in a similar manner.

10 Click OK to close the Playback Engine dialog when you have finished.

Pro Tools will remember your configuration until you change it. If you wish to change your Pro Tools hardware configuration in the future, you can do it from any of these locations:

- The Playback Engine dialog (in the Setups menu).
- or –
- The Hardware dialog (in the Setups menu).



Hardware Setup dialog (Windows version shown).

In addition, several settings can be made from the Session Setup window. These settings are described later in this chapter.

Sync Mode Options

The choices you see for Sync Mode will depend on how you have connected the ADAT Bridge I/O to Pro Tools.

If the ADAT Bridge is the primary interface

If the ADAT Bridge I/O is being used as the primary audio interface, then the following choices are available for Sync Mode:

ADAT as clock master Choose ADAT Optical to select the ADAT as the clock master (ADAT Bridge must be your primary audio interface for this choice to be available). When the ADAT Bridge is your primary audio interface, this will be the setting to use for ADAT-to-Pro Tools audio transfers.

Pro Tools as clock master Choose Internal to select Pro Tools as the clock master. This is the setting to use whenever the ADAT Bridge is *not* the primary audio interface (in which case, the “ADAT Optical” choice is not available for Sync Mode). The ADAT should then be set for “Dig” or digital mode (or, if you are using an ADAT synchronizer, “Ext” or external). This is the setting you will want to use whenever you perform a Pro Tools-to-ADAT transfer, or when the ADAT Bridge is not the primary audio interface.

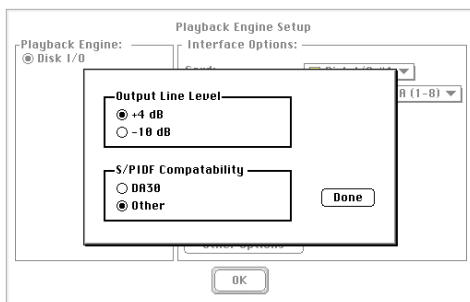
Another device as clock master Choose Digital if you are recording digital material into Pro Tools from a DAT deck or a digital device other than your ADAT. In this mode, the clock master comes from whatever digital device is connected to the ADAT Bridge I/O digital inputs. You must then use the Digital Format pop-up to choose the digital port (AES/EBU or S/PDIF) for the digital word clock signal. The ADAT should then be set to “Dig” or digital sync mode. If you own an Alesis M20, set it to Optical.

If the ADAT Bridge is not the primary interface

If the ADAT Bridge is not the primary audio interface, the ADAT Optical setting will not be an available choice for Sync Mode. If this is the case, select Internal unless you want to use Digital, as described above, for transferring material digitally into Pro Tools AES/EBU or S/PDIF ports. When set to Internal, the ADAT will lock to Pro Tools clock via the ADAT Bridge light-pipe connections.

Switching Output Levels

If you wish to switch the output levels of the ADAT Bridge I/O from +4 dBu to -10 dBV, click the Other Options button in the Playback Engine dialog (make sure the ADAT Bridge is currently selected in the dialog).



The Other Options dialog

Choose the operating level that best matches your mixing console. (If you plan to record to or from a Tascam DA30 DAT recorder, this dialog also allows you to set S/PDIF data compatibility for this recording device.)

Transferring Audio Between ADAT and Pro Tools (Unsynchronized)

This section contains instructions for unsynchronized audio transfer to/from Pro Tools and ADAT, and covers the following tasks:

- Transferring ADAT tracks to Pro Tools (unsynchronized)
- Using the ADAT's inputs to record audio into Pro Tools
- Transferring Pro Tools tracks to an ADAT
- Using Pro Tools inputs to record audio to an ADAT

✎ If your ADAT system includes a BRC, refer to “Setup A: Synchronizing Pro Tools and ADAT with a BRC” on page 38.

Using the ADAT Bridge in this manner provides a convenient and cost-effective way to back up Pro Tools tracks (8 or 16 at a time), or to transfer tracks or mixes to Pro Tools for mastering. You can also use the ADAT Bridge/ADAT as the “mastering deck” destination for Pro Tools multi-channel stem mixes of music, sound for post, or multi-channel surround mixes.

The setups given in this section have no provisions for synchronizing playback or recording of Pro Tools and ADAT. You will have to manually start and stop recording/playback of Pro Tools and the ADAT independently.

To use a third-party synchronizer to achieve synchronized recording and playback between Pro Tools and ADAT, see “Configuring Sync” on page 34.

Prepare Your ADAT Tapes Before You Begin

If you plan to do any recording from Pro Tools to one or more ADATs, make sure that you have an ADAT formatted S-VHS cassette prepared for each ADAT in the system (see your ADAT Reference Manual for specific instructions). Because this can be time consuming, it is a good idea to allow plenty of time for formatting before you begin recording with your ADAT. When formatting ADAT tapes, be sure to set the sample rate to either 48 kHz or 44.1 kHz, depending on the rate at which you wish to record.

▲ Refer to your ADAT manual for details on recording or playback at 44.1 kHz. Different ADAT models have different requirements for formatting tapes and/or configuring the unit.

About Pro Tools Monitoring Modes

Use Input Only Monitor if you wish to be able to hear incoming material on record-enabled Pro Tools tracks before you initiate recording. Use Auto Input Monitor to hear incoming material only during actual recording.

Recording Tracks from an ADAT to Pro Tools (Unsynchronized)

Each ADAT Bridge I/O allows you to digitally transfer up to 16 tracks at once between Pro Tools and ADAT.

To perform the unsynchronized transfer described in this section, the ADAT Bridge must be the primary interface in your Pro Tools system.

This basic setup has no provisions for synchronizing playback or recording of the two devices. You will have to manually start and stop recording/playback of Pro Tools and the ADAT independently.

To record ADAT tracks into Pro Tools:

- 1 Set the ADAT clock to Internal.
- 2 In Pro Tools, create a new session or open an existing session.
- 3 In the Pro Tools Session Setup window:
 - Set Channel 1-2 input to ADAT.
 - Set the Pro Tools Sync Mode to ADAT Optical.
 - Choose the sample rate that matches the sample rate of the material on the ADAT(s).
- 4 In Pro Tools, create the number of destination audio tracks you want to transfer from ADAT. Make sure the destination tracks each have a different voice assignment in the Pro Tools session.
- 5 Use the Input Selector of each destination track to assign its input. With the ADAT Bridge I/O as your master Pro Tools interface, this is done for you automatically: Pro Tools track inputs 1-8 correspond to Group A optical inputs (1-8) and track inputs 9-16 correspond to Group B optical inputs (9-16).
- 6 Select a Pro Tools monitoring mode (Auto Input Monitor or Input Only Monitor).
- 7 Record enable your destination tracks in Pro Tools.
- 8 Click Record and then Play in the Pro Tools Transport window.
- 9 Press Play on the ADAT to begin playback into Pro Tools.

10 When you have finished recording, click **Stop** in the Pro Tools Transport window and press **Stop** on the ADAT.

Recording into Pro Tools Using the ADAT Analog Inputs

Depending on your setup — particularly if you are using the ADAT Bridge I/O as your only Pro Tools interface — you may want to record into Pro Tools using the ADAT analog inputs. The following section explains how to connect and play an audio source through your ADAT and record it digitally onto your hard disk. Because most ADATs have no input attenuation controls, you must control your audio input levels at their source, using an instrument preamp or mixing console.

This setup also applies if you are using an ADAT optical interface-equipped digital mixing console and wish to record into Pro Tools using that console's A/D converters.

▲ The original ADAT (but not later models such as the XT, LX20, or M20) inverts the polarity of its analog input signals. Thus, material recorded into Pro Tools through an original ADAT's analog inputs will have its polarity reversed. To compensate for this, you can use the "Invert" AudioSuite Plug-In in Pro Tools to return the signal to its correct polarity.

To record audio from ADAT inputs into Pro Tools:

- 1** Connect your audio source(s) to the analog input jacks on the back panel of your ADAT.
- 2** Set the ADAT to analog input.

3 On your ADAT, enable **All Input Monitor** button.

4 Configure Pro Tools as if you were transferring ADAT tracks as described in the previous section (i.e., create destination tracks, select their inputs, and record enable them).

5 Click **Record** and then **Play** on the Pro Tools Transport.

6 Play the audio sources that are connected to the ADAT analog inputs.

7 When you have finished recording, click the Pro Tools **Stop** button.

▲ In the scenario above, the ADAT stays idle during recording. There is no need to press the ADAT's **Play** or **Record** buttons. The ADAT is merely converting the audio into a digital stream and passing it to Pro Tools via the optical connectors on the ADAT Bridge I/O.

Recording Tracks from Pro Tools to ADAT (Unsynchronized)

The following section explains how to perform a basic, non-synchronized Pro Tools-to-ADAT audio transfer.

To record Pro Tools tracks into ADAT:

- 1** Set the ADAT's clock to Digital using its front panel buttons. (Before you do this, turn your monitor volume down, since ADATs can emit a loud pop when their clock source is changed.)
- 2** Insert the ADAT tape you wish to record on into your ADAT. Make sure that it is formatted to the same sample rate as the current Pro Tools sample rate.
- 3** On the ADAT, record enable the destination ADAT tracks. Make sure that the same tracks are not configured as Pro Tools input sources or a feedback loop will occur.
- 4** In Pro Tools, open the session with the audio you wish to transfer to the ADAT.
- 5** In the Pro Tools Session Setup window, set Channel 1-2 input to ADAT (if the ADAT Bridge is your primary audio interface), or Analog (if the ADAT Bridge is not your primary audio interface).
- 6** In the Pro Tools Session Setup window, set the Pro Tools Sync Mode to Internal.
- 7** Use the Output Selector of each Pro Tools track to assign its output to an ADAT channel.
 - If you are using an ADAT Bridge I/O as your master Pro Tools interface, Pro Tools channel 1-8 outputs correspond to ADAT Group A (1-8) and chan-

nel outputs 9-16 correspond to Group B (9-16).

- If your ADAT Bridge I/O is not your master Pro Tools interface, you must use the output selector to route each track to the ADAT Bridge and its available channels (for example, #3 1/2 ADAT Bridge A).

8 Press the ADAT's Record and Play buttons.

9 Click the Play button on the Pro Tools Transport. Pro Tools begins playback. The Pro Tools material is recorded to ADAT.

10 When you have finished recording, click the Stop button in Pro Tools, then press the ADAT's Stop button.

Recording from Pro Tools Analog Inputs to an ADAT

If you own other Audio Interfaces in addition to your ADAT Bridge I/O, you may find it convenient to record directly to ADAT from audio sources connected to your Pro Tools Audio Interface. For example, if you have an 888/24 I/O-equipped Pro Tools system, you may wish to take advantage of the high-performance/low-jitter 24-bit analog-to-digital converters on the 888/24 I/O. (Keep in mind that the ADAT optical standard is a 20-bit path.)

To record to ADAT through Pro Tools analog inputs:

- 1** Connect the instruments or other audio sources to the desired input jacks on the back of your Audio Interface.
- 2** In the Pro Tools Session Setup window, set the Sync Mode to Internal.
- 3** In Pro Tools, create new audio tracks or auxiliary inputs to correspond to each

channel of analog source audio. Route the connected analog sources to them using the Input Selector pop-up on each Pro Tools track. Make sure to record-enable any audio tracks that you create in order to pass the audio to the ADAT.

4 Use the Output Selector of each Pro Tools track to assign its output to an ADAT channel.

- If you are using an ADAT Bridge I/O as your master Pro Tools interface, Pro Tools channel 1-8 outputs correspond to Group A optical outputs (1-8) and channel outputs 9-16 correspond to Group B optical outputs (9-16).
- If your ADAT Bridge I/O is not your master Pro Tools interface, use the output selector to route each destination track to the ADAT Bridge.

5 Insert the ADAT tape you wish to record on into your ADAT. Make sure that it is formatted to the same sample rate as the current Pro Tools sample rate.

6 Set the ADAT's clock to Digital.

7 On the ADAT, record-enable the ADAT destination tracks you wish to record to. Make sure that the same ADAT tracks are not configured as Pro Tools input sources or a feedback loop will occur.

8 In Pro Tools, adjust the output level of the source audio using the track output level faders.

9 Press the Record and Play buttons on your ADAT.

10 Begin playback of the analog sources connected to your Pro Tools Audio Interface. The audio is recorded to the ADAT.

11 To stop recording, press Stop on your ADAT.

Recording from Pro Tools Digital Inputs to an ADAT

You can record to ADAT from Pro Tools digital inputs just as easily as with the analog inputs.

To record onto ADAT tracks from Pro Tools digital inputs:

1 Connect a digital audio source to the digital inputs on the back of your master Audio Interface. (This could be the ADAT Bridge I/O or another Audio Interface, depending on which interface is connected to the first Pro Tools card installed in your computer.)

2 In the Pro Tools Session Setup window, set Channel 1-2 input to Digital, and set the Pro Tools Sync Mode to Digital.

3 In Pro Tools, create new audio tracks or auxiliary inputs to correspond to each channel of analog source audio. Route the connected analog sources to them using the Input Selector pop-up on each Pro Tools track.

4 Use the Output Selector of each Pro Tools track to assign its output to an ADAT channel.

5 Insert the ADAT tape you wish to record on into your ADAT. Make sure that it is formatted to the same sample rate as the current Pro Tools sample rate.

6 Set the ADAT's clock to Digital.

7 On the ADAT, record-enable the ADAT destination tracks you wish to record to. Make sure that the same ADAT tracks are not configured as Pro Tools input sources or a feedback loop will occur.

8 In Pro Tools, adjust the output level of the source audio using the track output

level faders. This will help you prevent overloading the ADAT's inputs.

9 Press the Record and Play buttons on your ADAT.

10 Begin playback of the digital sources connected to your Pro Tools Audio Interface. The audio is recorded to the ADAT.

11 To stop recording, press Stop on your ADAT.

Configuring Sync

Synchronized transfers between Pro Tools and ADAT have special configuration requirements for clock, time code and other sync-related connections. These configuration requirements vary with the devices being used. Several example setups are provided in this chapter.

Configuring Windows Computers for Sync

All that is required to configure Pro Tools/ADAT sync on Windows computers is that your sync peripheral be correctly connected, installed and configured to operate on your computer (refer to your MIDI interface or other sync peripheral's installation instructions). Once properly connected, your device's sync/MIDI ports will be listed in Pro Tools and available as sync sources/destinations.

Configuring Macintosh Computers for Sync

For Pro Tools/ADAT sync on Macintosh computers, Pro Tools requires either OMS

or FreeMIDI software. OMS, developed by Opcode, is supplied with Pro Tools and with all Opcode MIDI interfaces and sync devices. FreeMIDI, by Mark of the Unicorn, is the MIDI system included with the MTP AV, DTP and other MoTU devices.

The following section shows how to configure OMS for a single type of sync peripheral (the Cooper DataSync2). Though it is not within the scope of this User's Guide to provide OMS or FreeMIDI configurations for all possible peripherals, the section that follows provides some general guidelines for configuring a device so that Pro Tools can communicate with it.

* For FreeMIDI configuration instructions, refer to your Mark of the Unicorn/FreeMIDI documentation.

OMS Example Setup

(Macintosh only)

If you are using Macintosh with a MIDI interface, BRC, JL Cooper DataSync2, or an Opcode Studio 64XTC, you must configure these devices in OMS so that they can communicate properly with Pro Tools.

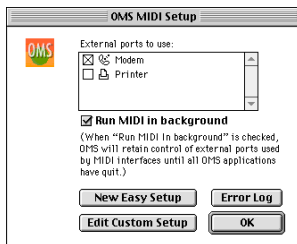
OMS should have been installed on your computer as part of the standard Pro Tools installation. If this is not the case, you will need to install OMS using your Pro Tools Installer CD-ROM. For detailed instructions on how to install and configure OMS, refer to the *Pro Tools System Installation Guide*.

If you are not using a MIDI interface, BRC, or synchronization peripheral with your Pro Tools/ADAT system, you can skip this section.

▲ The directions given here explain how to add a MIDI device to OMS. This setup assumes you have already configured your MIDI interface, if you are using one. You must configure the MIDI interface before configuring any OMS devices.

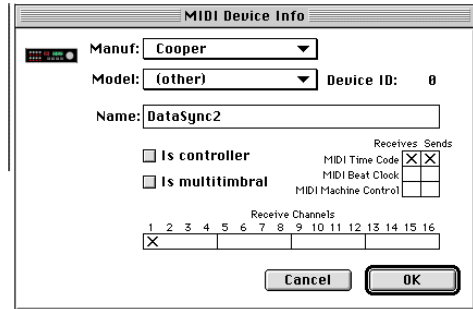
To configure an OMS device:

- 1 Make sure that the peripheral and/or MIDI interface is turned on and connected properly to your system.
- 2 Launch Pro Tools.
- 3 From the Pro Tools Setups menu, choose the OMS MIDI Setup command. The OMS MIDI Setup dialog appears, allowing you to select the serial port(s) that your MIDI interface is connected to. After you have chosen the desired port(s), click OK.



The OMS MIDI Setup dialog

- 4 Launch the OMS Setup application.
- 5 Choose Studio > New Device.
- 6 In the MIDI Device Info window, choose the Manufacturer and Model names for your device (if available) and name the device using the Name field.
- 7 Uncheck both Is Controller and Is Multitimbral.
- 8 Check both Receives and Sends MIDI Time Code.



Defining an OMS MIDI device

- 9 Click OK to close the MIDI Device Info window, and save this document as your current OMS Setup document.
- 10 In the OMS Setup window, connect the peripheral to the correct OMS port location or MIDI interface. To do this, drag the peripheral's icon over the icon for the desired port or MIDI interface. Arrows connecting the peripheral to and from the desired port or MIDI interface signify that a connection has been made.



Connecting a peripheral (in this case, a DataSync2) to the correct port in the OMS Setup window

11 In Pro Tools, choose Peripherals from the Setups menu. From the Device pop-up, choose Generic MTC Reader. From the Port pop-up, select the OMS port location that you defined in OMS Setup (modem or printer). Click OK to close this dialog.

OMS should now be configured for communication between your peripheral and Pro Tools.

▲ Pro Tools requires that you disable (uncheck) the “Use Apple Serial DMA driver when available” preference in OMS Setup. If you do not disable this option, problems may occur with MIDI and synchronization functions.

To disable Serial DMA in OMS:

- 1** Choose Preferences from OMS Studio Setup’s Edit menu.
- 2** Deselect the Use Serial DMA option.
- 3** Click OK to close the Preferences window.

Transferring Audio Between ADAT and Pro Tools (Synchronized)

A more powerful way to transfer tracks between Pro Tools and ADAT is to do it with both systems synchronized. With the systems in sync, you can record tracks into Pro Tools to edit and process them as needed, then record them back into place on the ADAT.

This section provides a few of the most commonly used configurations for synchronizing Pro Tools and ADAT.

Choosing the Master Clock Source

A synchronized system requires a master clock reference signal so that all connected devices will run at the same speed, slaved to that clock. Possible sources of the master clock reference include:

- Pro Tools
- ADAT
- A BRC
- A blackburst generator
- A third-party synchronization peripheral (MTP AV, DTP, or 64XTC)
- Any digital device that generates an AES/EBU, S/PDIF, or word clock signal

Which device you choose will depend on the equipment you are using with your system. As a general rule, you should choose the most stable clock source possible. Whatever device you use as your master clock reference, you must configure Pro Tools and the ADAT accordingly.

Choosing the Transport Master

In a synchronized setup, you must decide which system, Pro Tools or ADAT, will provide the positional reference for both systems and function as the transport master. This is necessary for both systems to start and stop playback/recording from the same time code/session location.

Because Pro Tools can both broadcast and respond to MIDI Machine Control (MMC), you can use MMC to communicate transport commands (such as Play, Stop) between your devices. When playback begins, time code (usually MIDI Time Code, or SMPTE in some setups) provides the positional reference to keep all the devices at the same place while the designated clock master (Pro Tools, ADAT, or Slave Clock-capable synchronization peripheral) keeps everything running at precisely the same speed/sample rate. Your choice of transport master will depend upon what type of synchronization device you are using, and instructions for selecting the transport master are included in each of the following setup examples.

* If you use Pro Tools MIDI Machine Control, you can use the Pro Tools Transport Master popup menu (in the Transport window) to control either Pro Tools or the ADAT. Refer to your Pro Tools manuals for more information.

ADAT as Master Clock and Pro Tools as Slave

In general, you should make ADAT the master clock device when you are transferring audio originally recorded on ADAT to Pro Tools. Also, because Pro Tools is a non-linear system, it is ideally suited to be a slave device (it can cue up instantly with-

out having to wind tape). In some situations, however, Pro Tools must be the clock master. These situations are noted as in the setup examples that follow.

Pro Tools as Master Clock and ADAT as Slave

In general, Pro Tools should be the master clock device when you are transferring audio originally recorded in Pro Tools to an ADAT, or whenever the ADAT Bridge I/O is not your primary audio interface.

Both Pro Tools and ADAT as Slaves

If you are using an external synchronization device such as a Digidesign Universal Slave Driver (or any Slave Clock-capable device such as the MTP AV or 64XTC) that device should provide the master clock signal to which both Pro Tools and the ADAT will be slaved.

The sections that follow provide instructions for achieving synchronized playback/recording between Pro Tools and the ADAT using a number of different devices. Please refer to the section that applies to your particular setup.

* The sync circuitry built into your ADAT Bridge is able to automatically detect whenever an external sync source is lost. In such a situation, the ADAT Bridge I/O will automatically switch to internal sync mode until the external sync input is reconnected to ensure that playback is maintained even if the sync source is removed.

Setup A: Synchronizing Pro Tools and ADAT with a BRC

The following section explains how to synchronize Pro Tools/ADAT with a BRC. In this case, the BRC provides both the clock reference signal and the positional reference. This enables you to synchronize the ADAT and Pro Tools with near sample accuracy. Pro Tools transport is controlled by the BRC.

You can also utilize MIDI Machine Control in this (and all other) sync setups. MMC configurations are covered later in this BRC section.

Synchronizing on Windows systems

When using Pro Tools on a Windows computer, simply make sure your MIDI interface is installed and operating correctly. Instead of choosing OMS or FreeMIDI device names, Pro Tools popup menus of MIDI ports simply list the available hardware MIDI ports of the currently installed MIDI Interface.

Recording Tracks from an ADAT to Pro Tools Using a BRC

This setup explains how to perform a synchronized ADAT-to-Pro Tools track transfer using a BRC.

To transfer audio from ADAT to Pro Tools:

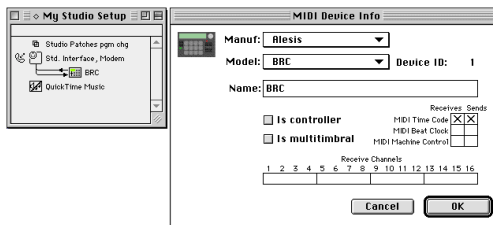
- 1 Connect the BRC and MIDI Interface to your system as shown in Chapter 2.

On the BRC:

- 2 Make sure the EXT SYNC button is off (unlit).
- 3 Enable the GEN SYNC button on the BRC. This enables the BRC to generate time code.

In OMS Setup (Macintosh Only):

- 4 On your computer, open the OMS Setup application and configure the BRC and your MIDI interface. (If you choose Alesis in the Manuf pop-up menu, and BRC in the Model pop-up in this dialog, the appropriate settings will be configured automatically). In OMS' MIDI Device Info dialog, enable Sends and Receives MTC for the BRC. You must have an OMS device defined for the BRC if you haven't already done so. Click OK after configuring the OMS Device Info window, then connect the BRC to the appropriate MIDI port in the OMS Setup Window.



Configuring the BRC in OMS

- 5 Save the BRC/MIDI interface configuration document as your current OMS setup.

In FreeMIDI (Macintosh Only)

If you use Mark of the Unicorn's FreeMIDI system, configure it for the BRC according to the instructions provided by Mark of the Unicorn.

In Pro Tools:

6 In Pro Tools, choose Setups > Peripherals and display the Synchronization window. From the Device pop-up, choose Generic MTC Reader. From the Port pop-up, choose BRC (on the Macintosh) or the appropriate port of your MIDI interface (in Windows). Alternatively, if the name of the (BRC) OMS device does not appear here, choose the serial port to which your MIDI interface is connected.

7 In the Pro Tools Session Setup window,

- Set Channel 1-2 input to ADAT if the ADAT Bridge is your primary interface, or Analog if it is not your primary audio interface.
- Set Pro Tools Sync Mode to ADAT Optical (if the ADAT Bridge is not your primary audio interface, this choice will be simply “Optical.”)
- Choose the sample rate and frame rate that matches the material on the ADAT(s).

8 Create destination audio tracks for the the ADAT track(s) to be transferred. Make sure the destination tracks each have a different Pro Tools voice assignment.

9 Use the Input Selector of each destination track to assign its input. When the ADAT Bridge is your primary interface, Inputs 1-8 correspond to the ADAT Bridge I/O's Group A inputs. Inputs 9-16 correspond to ADAT Bridge I/O's Group B inputs. If you have additional ADAT Bridges/ADATs, assign their inputs as well.

10 Select a Pro Tools monitoring mode (Auto Input Monitor or Input Only Monitor).

11 Configure Pro Tools to display Time Code.

12 Choose Setups > Preferences, then click the Operations button to display the Operations Preferences dialog. Choose the desired Pro Tools online recording mode: Record Online at Time Code (or ADAT) Lock, or Record Online at Insertion/Selection. If you are not familiar with these modes, refer to the *Pro Tools Reference Guide*.

13 Record-enable your Pro Tools destination tracks.

14 At this point, you may wish to confirm that time code is being received by Pro Tools. Do this by pressing Play on the BRC. The counter in the Pro Tools Session Setup window should begin running. Make a note of the SMPTE frame number where the time starts. If there appears to be an offset, you'll need to enter the offset number as the Pro Tools session start time in the Session Setup window. Rewind the BRC/ADAT to a location at least 10 seconds before the time code address at which you want to start Pro Tools recording. This is necessary to provide Pro Tools with enough time to lock to the time code that it receives.

15 Put Pro Tools online.

16 Click Pro Tools Record button.

17 Press Play on the BRC. When sync is established, Pro Tools begins online recording.

18 When you have finished recording, press the BRC's Stop button. Pro Tools will stop recording.

Recording Tracks from Pro Tools to ADAT with a BRC

This setup explains how to perform a synchronized Pro Tools-to-ADAT track transfer with a BRC. In this case Pro Tools provides the clock reference signal, but the BRC provides the positional reference and controls the Pro Tools Transport.

To transfer audio from Pro Tools to ADAT:

- 1** Make sure the desired Pro Tools session is open and the Sync Mode is set to Internal in the Session Setup window.
- 2** On the BRC, make sure the Gen Sync button is on.
- 3** Press the Ext Sync button. (Before doing this, lower your main monitor levels, as ADATs can emit a loud pop when the master clock is changed on the BRC.)
- 4** Make sure that the ADAT tape is formatted to the same sample rate as the Pro Tools material you intend to transfer.
- 5** On the ADAT, make sure that the Digital In button is on.
- 6** On the BRC, record-enable the destination ADAT tracks. Make sure that the same tracks are not configured as Pro Tools input sources or a feedback loop will occur.
- 7** In Pro Tools Session Setup window:
 - Confirm that Channel 1-2 input is set to ADAT (if the ADAT Bridge is your primary audio interface). If the ADAT Bridge is not your primary audio interface, set it to Analog.
 - Confirm that Sync Mode is set to Internal.
- 8** Use the Output Selector of each Pro Tools track to assign its output to an ADAT channel.

- If you are using an ADAT Bridge as your master Pro Tools interface, Pro Tools hardware outputs 1-8 correspond to Group A optical outputs (1-8) and channel outputs 9-16 correspond to Group B optical outputs (9-16).
 - If your ADAT Bridge I/O is not your master Pro Tools interface, you must use the output selector to route each track according to how your Audio Interfaces are ordered.
- 9** Put Pro Tools online.
 - 10** Cue the BRC to a location at least 10 seconds before the time code address at which you want to start Pro Tools playback. This provides adequate time for Pro Tools to lock to the time code and begin playback.
 - 11** Press the BRC's Record and Play buttons. Pro Tools locks to the ADAT and begins playback. The Pro Tools material is then recorded to ADAT.
 - 12** When you have finished recording, press the Stop button on the BRC.

▲ If you are recording to the ADAT and audio already exists before the punch point, you may wish to manually “punch in” to avoid erasing a portion of the existing audio that you wish keep. To do this, simply press Play on the BRC to start the ADAT/Pro Tools rolling, then press the BRC's Record and Play buttons right before you wish to begin recording. Refer to your ADAT manual for details.

Using MIDI Machine Control (MMC) with a BRC

This section provides an example of how you can utilize MIDI Machine Control in your synchronized Pro Tools/ADAT system. MMC can often solve problems you may experience when trying to control one device from another's transport while using certain combinations of sync peripherals. Refer to the *Pro Tools Reference Guide* for details on using MMC with Pro Tools.

In this setup, Pro Tools is the transport master over a BRC/ADAT system using MIDI Machine Control (MMC). The hardware connections for this setup can be found in the Synchronization Connections section in Chapter 2.

Configuring MIDI

Macintosh: OMS or FreeMIDI

* If you are using FreeMIDI, you must have FreeMIDI version 1.34 or higher. FreeMIDI is available from Mark of the Unicorn.

- 1 Make sure that OMS or FreeMIDI has been recognized by your MIDI interface.
- 2 Make sure you have a device called the BRC. OMS and FreeMIDI both have a preset for the BRC.
- 3 If you are using FreeMIDI, go to the FreeMIDI Preference window and select Emulate OMS/FreeMIDI applications.
- 4 In OMS or FreeMIDI, make sure that the BRC is set to "RECEIVE MMC" and sends and receives MTC. You do not need to enable any receive channels.

* If you are using FreeMIDI and have an MTP or MTP AV make sure you have set MTC as the LTC source in your MTP Control Panel. The MTP Control Panel comes with your MoTU MIDI interface, and is also available from Mark of the Unicorn.

Windows

Make sure your MIDI interface is properly connected and recognized by your system. In Windows, Pro Tools popup menus of MIDI ports simply list the available hardware MIDI ports of the currently installed MIDI Interface.

Configuring the BRC

Before you configure the BRC, make sure a tape is in the ADAT and that the correct start time is selected.

- 1 Press the GEN SYNC button on the BRC.
- 2 Press the EDIT button just (just to the right of the GEN SYNC button), then press GEN SYNC until Generate Sync-MIDI is displayed in the display. If MTC is not already selected as the Generate Sync MIDI choice, use the up/down arrows in the BRC's keypad (the lowercase/uppercase keys) to display MTC.
- 3 With MTC selected, press the EDIT button to exit edit mode.

Pro Tools needs to send an MMC message that will tell the BRC what start time to go to, but Pro Tools is going to be waiting for the timecode to come back from the BRC when the ADATs begin to play.

Configuring Pro Tools

- 1 Choose Setups > Peripherals and open the Peripherals/Synchronization window.
- 2 Select “Generic timecode reader” as the synchronization Device, then choose the port that your MIDI interface is connected to (if in doubt, select Any).
- 3 Now click the Machine Control tab to open the Peripherals/Machine Control page
- 4 In the MIDI Machine Control section (in the lower left of the window), do the following:
 - Enable MIDI Machine Control
 - Set the MMC port by selecting BRC (Macintosh) or the appropriate hardware port (Windows) from the Send To popup, and leave the (channel) ID to 127
- 5 Click OK to close the Peripherals window.
- 6 Choose Display > Session Setup Window.
- 7 In the Generate Time Code area of the Session Setup window, enable MTC to Port and then choose from the port popup.
- 8 Check to make sure the session start time is correct for the current ADAT project.
- 9 Put Pro Tools online by clicking the Online button in the Pro Tools Transport window.
- 10 Press the Play button in the Pro Tools Transport window and the ADAT(s) should locate to the current Pro Tools playback location.

Troubleshooting MMC

If when you press Play the ADAT(s) locate but Pro Tools won't start, make sure that Pro Tools is getting timecode. To do this,

press Play on the BRC and check the Current TC field in Pro Tools Session Setup window to make sure Pro Tools is receiving timecode. If it's not, check your cable connections.

On the Macintosh, double-check your OMS or FreeMIDI configurations. In Windows, check to make sure your MIDI interface is properly connected and recognized by your system.

If the ADAT(s) do not locate, check your settings in the Peripherals > Synchronization window (double-check your port selection).

Setup B: Synchronizing Pro Tools and ADAT with a DataSync2

The following example uses a JL Cooper DataSync2 and MIDI Interface to Slave Pro Tools to the ADAT. In this case, the ADAT provides both the clock reference signal and the positional reference. This enables you to synchronize the ADAT and Pro Tools with better than 1/4 frame accuracy (typically accurate to within a few samples). The Pro Tools Transport is controlled by the ADAT. To achieve near-sample accuracy, a Universal Slave Driver or other Slave Clock-capable sync peripheral is required.

Recording Tracks from an ADAT to Pro Tools with a DataSync2

This setup explains how to perform a synchronized ADAT-to-Pro Tools track transfer.

To transfer audio from ADAT to Pro Tools:

1 Connect the DataSync and MIDI Interface to your system as shown in Chapter 2.

On the ADAT:

2 Set the ADAT's clock to Internal.

On the DataSync2:

3 Turn on the DataSync2 after you've turned on the ADAT. This is necessary in order for the DataSync2 to communicate properly with the ADAT.

4 Set the desired frame rate on the DataSync2 by pressing the mode button. You must do this in order for the DataSync2 to output SMPTE/MTC.

5 Enable MTC on the DataSync2 by pressing the MTC On button.

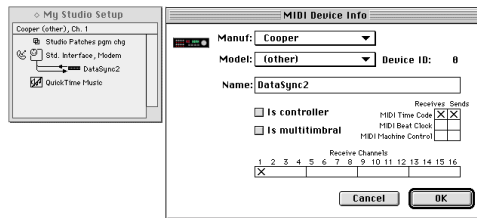
Configuring OMS Setup/FreeMIDI for the DataSync2 (Macintosh Only)

(If you are using Pro Tools on a Windows computer, skip these steps.)

6 Configure the DataSync2 and your MIDI interface as appropriate in OMS or FreeMIDI.

- Create a device for the DataSync2.
- Enable Send and Receive MTC for the DataSync2.
- Connect the DataSync2 to the appropriate MIDI port.

7 Save the DataSync2/MIDI interface configuration document as your current OMS or FreeMIDI setup.



Configuring the DataSync2 in OMS

In Pro Tools:

8 In Pro Tools, choose Setups > Peripherals. From the Synchronization Device pop-up, choose Generic MTC Reader. From the Port pop-up, choose the device that you defined earlier in the OMS Studio Setup window (in this case, the DataSync2). Alternatively, if the name of the OMS device does not appear here, choose the serial port (modem or printer) to which your MIDI interface is connected.

9 In the Pro Tools Session Setup window

- Set Channel 1-2 input to ADAT.
- Set the Pro Tools Sync Mode to ADAT Optical.
- Choose the sample rate that matches the material on the ADAT(s).
- Choose the SMPTE frame rate that matches the rate chosen on the DataSync2.

10 In Pro Tools, create the number of destination audio tracks you wish to transfer from the ADAT(s). Make sure the destination tracks each have a different voice assignment in the Pro Tools session.

11 Use the Input Selector of each destination track to assign its input. Inputs 1-8 correspond to the ADAT Bridge I/O's Group A inputs. Inputs 9-16 correspond to ADAT

Bridge I/O's Group B inputs. If you have additional ADAT Bridges/ADATs, assign their inputs as well. (When Ch 1-2 input set to ADAT, Pro Tools automatically sets I/O pop-ups to ADAT Bridge Group A/B input & output labels.)

12 Select a Pro Tools monitoring mode (Auto Input Monitor or Input Only Monitor).

13 Choose Display > Time Code.

14 Choose Setups > Preferences, and then click Operations. Choose the desired Pro Tools online recording mode:

- Record Online at Time Code (or ADAT) Lock
– or –
- Record Online at Insertion/Selection.

If you are not familiar with these modes, refer the to the *Pro Tools Reference Guide*.

15 Record-enable your Pro Tools destination tracks.

16 At this point, you may wish to confirm that time code is being received by Pro Tools. Do this by pressing Play on the ADAT. The Current TC counter in Pro Tools Session Setup window should begin running. Make a note of the SMPTE frame number where the time starts. If there appears to be an offset, you'll need to enter the offset number as the Pro Tools session start time in the Session Setup window.

17 Rewind the ADAT to a location at least 10 seconds before the time code address at which you want to start Pro Tools recording. This provides adequate time for Pro Tools to lock to the time code and start recording.

18 Put Pro Tools online.

19 Click the Pro Tools Record button.

20 Press play on the ADAT's transport. Pro Tools begins online recording.

21 When you have finished recording, press the ADAT's Stop button. Pro Tools will stop recording.

Recording Tracks from Pro Tools to ADAT with a DataSync2

This section explains how to perform a synchronized Pro Tools-to-ADAT track transfer. In this case Pro Tools provides the clock reference signal and the ADAT provides the positional reference. If you are laying audio back to a specific location on an ADAT tape (after editing or processing them in Pro Tools, for example), you should cue the ADAT tape near the point where you wish to layback.

Also, be aware that because this is not a sample-accurate transfer, the tracks that you lay back may be a few samples off. Sample accuracy is generally only a critical concern with phase-synchronous material such as audio recorded with multiple microphones (a pair of drum overhead mics, for example).

In such cases, you should transfer the phase-synchronous material in a single pass. That way, whatever delay is introduced will be introduced equally to the material, maintaining its phase coherence.

To transfer audio from Pro Tools to ADAT:

1 Make sure the DataSync2 is configured as described in the previous ADAT-to-Pro Tools setup.

2 On the ADAT, set the ADAT's clock to Digital.

3 Make sure that the ADAT tape is formatted to the same sample rate as the Pro Tools material you intend to transfer.

4 On the ADAT, record-enable the destination ADAT tracks. Make sure that the same tracks are not configured as Pro Tools input sources or a feedback loop will occur.

5 In the Pro Tools Session Setup window:

- Set Channel 1-2 input to ADAT (or Analog, if the ADAT Bridge is not your primary audio interface).
- Set the Pro Tools Sync Mode to Internal.

6 Use the Output Selector of each Pro Tools track to assign its output (explained in the previous setup instructions).

7 Put Pro Tools online.

8 Rewind the ADAT to a location at least 10 seconds before the time at which you want to start Pro Tools playback.

9 Press the ADAT's Record and Play buttons. Pro Tools locks to the ADAT and begins playback. The Pro Tools material is then recorded to ADAT.

10 When you have finished recording, click the Stop button on the ADAT.

▲ If you are recording to the ADAT and audio already exists before the punch point, you may wish to manually “punch in” to avoid erasing a portion of the existing audio that you wish keep. To do this, simply press Play on the BRC to start the ADAT/Pro Tools rolling, then press the BRC's Record and Play buttons right before you wish to begin recording. Refer to your ADAT manual for details.

Setup C: Configuring Pro Tools and ADAT sync with an MTP AV

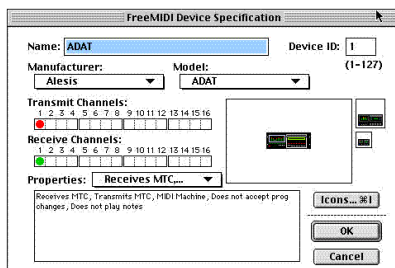
The MTP AV has only ADAT Sync, Word Clock (1x) and Slave Clock (256x) *outs*, and therefore has to be the clock master. This setup requires the use of Pro Tools MIDI Machine Control (MMC) output capabilities (this is because, with only clock outputs, the MTP cannot “listen” to the ADAT). Essentially, the MTP AV responds to MMC from Pro Tools, sending ADAT Sync to the ADAT along with MTC to Pro Tools.

Configuring OMS/FreeMIDI

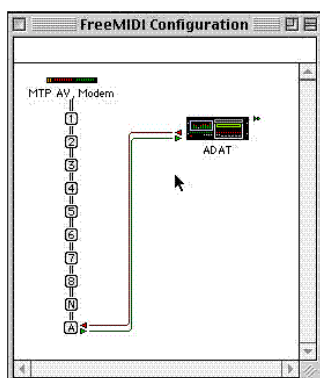
The simplest way to configure the MTP AV is to use the “MTP/Express Console” application (included with your MTP AV) to navigate through the MTP AV's front panel via software. FreeMIDI is required.

Make sure the MTP AV's MMC ID number matches that set in Pro Tools Peripherals/MachineControl window. (Refer to the *Pro Tools Reference Guide* for details on configuring Pro Tools to output MMC.)

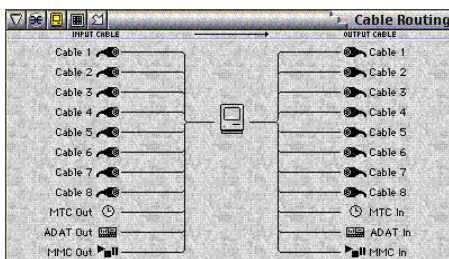
Example Setups for the MTP AV



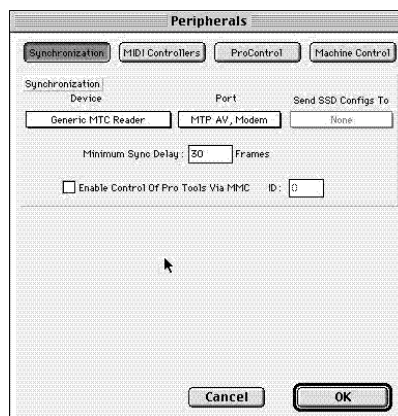
FreeMIDI Device Specification window configured for an ADAT.



FreeMIDI configuration for an ADAT



Configuring the FreeMIDI Cable Routing window for the MTP AV



Synchronization window with MTP AV (Pro Tools as transport master).

To record from ADAT to Pro Tools:

- 1 In the Session Setup window:
 - Set Pro Tools Sync Mode to Internal. (Do not select ADAT Optical — Pro Tools must be slaved to the MTP AV).
 - Set Channel 1-2 Input to ADAT (or Analog if the ADAT Bridge is not your primary audio interface).
- 2 Create, name and record enable destination tracks in Pro Tools.
- 3 Cue the ADAT to at location at least 10 seconds prior to where you want Pro Tools to begin recording.
- 4 Click the Record button on Pro Tools Transport.
- 5 Press Play to begin recording to Pro Tools.

Setup D: Configuring Pro Tools and ADAT sync with a Digital TimePiece

The following example uses a Mark of the Unicorn Digital TimePiece. This device has the ability to translate the ADAT-proprietary time reference signal embedded on ADAT tapes into MIDI Time Code. This enables you to synchronize the ADAT and Pro Tools with near sample accuracy.

The Digital TimePiece allows you to either control the Pro Tools transport via the ADAT, or control the ADAT's transport via Pro Tools. In either case, Pro Tools should provide the master *clock* reference signal.

▲ Note that there are some combinations of devices which impose special clock master/slave requirements on your setup, including the combination of a BRC with an MTP AV or DTP. Refer to “Setup A: Synchronizing Pro Tools and ADAT with an Alesis BRC” on page 17 for determining which device should be the clock master when using a BRC and any other sync peripherals with your Pro Tools/ADAT system.

Recording Tracks from ADAT to Pro Tools with a Digital TimePiece

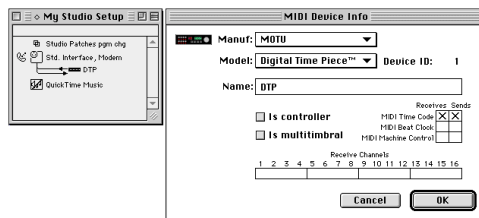
This setup explains how to perform a synchronized ADAT-to-Pro Tools track transfer. Pro Tools functions as both transport and clock master.

To transfer audio from ADAT to Pro Tools:

1 Connect the Digital TimePiece to your system as shown in Chapter 2.

Configuring the DTP in OMS Setup (Macintosh Only)

- 2** In OMS Setup, create an OMS device for the Digital TimePiece if you haven't already done so.
- 3** In OMS' MIDI Device Info dialog, enable send and receive MTC for the Digital TimePiece.
- 4** In the OMS Setup window, connect the Digital TimePiece to the appropriate MIDI port.
- 5** Save the Digital TimePiece configuration document as your current OMS setup.



Configuring the Digital TimePiece in OMS

Configuring FreeMIDI (Macintosh only)

For FreeMIDI, follow the configuration instructions in your FreeMIDI/DTP documentation.

On the Digital TimePiece:

- 6** Press the source button until both the MTC and Word 1x LEDs are lit.
- 7** Press the format button and choose the desired frame rate.

In Pro Tools:

- 8** In the Pro Tools Session Setup window, set Channel 1-2 input to ADAT.
- 9** In the Pro Tools Session Setup window, set the Pro Tools Sync Mode to Internal.

10 In the Pro Tools Session Setup window, choose the sample rate that matches the material on the ADAT(s).

11 In the Pro Tools Session Setup window, check and enable the MTC to Port button, then select the Digital TimePiece's OMS port in the pop-up that appears below this button.

12 In the Pro Tools Session Setup window, choose the SMPTE frame rate that matches the rate chosen on the Digital TimePiece.

13 Create the number of destination audio tracks you wish to transfer from the ADAT(s). Make sure the destination tracks each have a different voice assignment in the Pro Tools session.

14 Use the Input Selector of each destination track to assign its input. Inputs 1-8 correspond to the ADAT Bridge I/O's Group A inputs. Inputs 9-16 correspond to ADAT Bridge I/O's Group B inputs. If you have additional ADAT Bridges/ADATs, assign their inputs as well. (When Ch 1-2 input set to ADAT, Pro Tools automatically sets I/O pop-ups to ADAT Bridge Group A/B input & output labels.)

15 Select a Pro Tools monitoring mode (Auto Input Monitor or Input Only Monitor). Use Input Only Monitor if you wish to be able to hear incoming material on record-enabled Pro Tools tracks before you initiate recording. Use Auto Input Monitor to hear incoming material only during actual recording.

16 Choose Time Code from the Pro Tools Display menu so that the Pro Tools counter will display time in SMPTE frames.

17 Choose the desired Pro Tools online recording mode: Record Online at Time Code Lock, or Record Online at Insertion/Selec-

tion. To do this, choose Preferences from the Pro Tools Setups menu. Click the Operation button and enable the desired mode at the bottom of this dialog. If you are not familiar with these modes, refer the explanation in your Pro Tools Reference Guide.

18 Set the Pro Tools pre-roll time to at least 10 seconds.

19 Click the Pro Tools Record button

20 Click the Pro Tools Play button.

21 When you have finished recording, click Pro Tool's Stop button. The ADAT will stop recording.

Recording Tracks from Pro Tools to ADAT with a Digital TimePiece

This setup explains how to perform a synchronized Pro Tools-to-ADAT track transfer using the Digital TimePiece.

To transfer audio from Pro Tools to ADAT:

1 Make sure your DTP is configured as described in the previous ADAT-to-Pro Tools setup.

2 Make sure that the ADAT tape is formatted to the same sample rate as the Pro Tools material you intend to transfer.

3 On the ADAT, record-enable the destination ADAT tracks. Make sure that the same tracks are not configured as Pro Tools input sources or a feedback loop will occur.

4 In Pro Tools, open the session with the audio you wish to transfer to the ADAT.

5 In the Pro Tools Session Setup window, set Channel 1-2 input to ADAT.

6 In the Pro Tools Session Setup window, set the Pro Tools Sync Mode to Internal.

7 Use the Output Selector of each Pro Tools track to assign its output.

- If you are using an ADAT Bridge I/O as your master Pro Tools interface, Pro Tools channel 1-8 outputs correspond to Group A optical outputs (1-8) and channel outputs 9-16 correspond to Group B optical outputs (9-16).
- If your ADAT Bridge I/O is not your master Pro Tools interface, you must use the output selector to choose the inputs for each destination track according to how your Audio Interfaces are ordered.

8 Set the Pro Tools pre-roll time to at least 10 seconds.

9 Click the Pro Tools Play button.

10 At the point at which you wish to begin recording on the ADAT, press the ADAT's Record and Play buttons.

11 When you have finished recording, click the Pro Tools Stop button.

Setup E: Configuring Pro Tools and ADAT sync with an Opcode 64XTC

Windows

In Windows, if you are using the 64XTC on Windows, you must first install the 64XTC drivers and confirm that it is operating correctly. The 64XTC ports will appear directly in Pro Tools as available sync sources/destinations.

Macintosh

On the Macintosh, the 64XTC requires OMS.

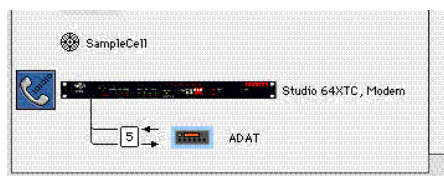
OMS Setup (Macintosh Only)

Before you begin, confirm that you have installed and configured the 64XTC, and that it is recognized by OMS (i.e., it is shown in OMS Setup). Once the XTC is recognized by OMS, a “Studio 64 XTC” pull-down menu appears in the OMS application.

1 Add a new device and assign it to Port 5 (even though the 64XTC only has four physical ports, configure this new device for “port 5”). Refer to your OMS documentation for details on creating an OMS device or assigning its port.

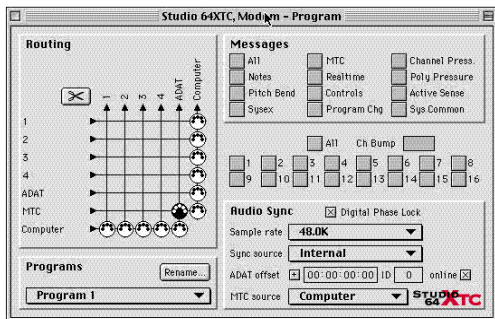
2 Name the device ADAT, and for MMC, enable Sends and Receives. Nothing else need be checked.

3 Click OK to close the New Device window. In OMS Setup, the 64XTC and ADAT device should appear similar to the following (your setup will probably include other devices than the example shown below):



OMS Setup with an ADAT device defined and configured to use “port 5”

4 In OMS, choose Studio 64XTC > Edit Programs. Configure it similar to the following:



The Studio 64XTC Edit Programs window

5 Select Store Current Program in the Studio 64XTC menu to save the settings.

In Pro Tools:

6 In the Peripherals/Synchronization window select “Generic Device” in Synchronization and “Studio 64 XTC” for Port.

7 At the top of the Peripherals dialog, click the Machine Control button to open the Machine Control Peripherals window. There, enable Machine Control (at the bottom of the window) and for “Send to” select ADAT (this is the device/port you just defined in OMS Setups) and set its ID to 127.

8 Click OK to close the Peripherals dialog.

9 Once configured in this way, the 64XTC will receive transport commands from Pro Tools via MMC and send those commands to the ADAT via OMS and the 64XTC. The 64XTC then converts that into ADAT Sync, which it sends to the ADAT via the 9-pin connection. The 64 XTC is providing the master clock reference to Pro Tools via 256x (Slave Clock) connection as described in “Setup E: Synchronizing Pro Tools and ADAT using an Opcode Studio 64XTC” on page 22.

Using the ADAT Bridge I/O in Stand-Alone Mode

In addition to its role as a bridge between Pro Tools and ADAT, the ADAT Bridge I/O can also be used on its own as a stand-alone S/PDIF or AES/EBU-to-ADAT-optical converter. This capability allows you to digitally transfer audio from DAT or a digital I/O-equipped CD player or digital mixing console to ADAT without having to power on your computer or launch Pro Tools.

Audio received over the ADAT Bridge I/O’s digital ports can be monitored with 20-bit fidelity through its analog outputs. These outputs default to -10 dBV operating levels when the ADAT Bridge I/O is used in stand-alone mode.

To use the ADAT Bridge I/O in stand-alone mode:

- 1** Make sure that your computer is off.
- 2** Connect the digital audio source (the DAT or digital I/O-equipped CD player) to the ADAT Bridge I/O.
- 3** Turn on the digital audio source (the DAT or digital I/O-equipped CD player).
- 4** Turn on the ADAT Bridge I/O.
- 5** The ADAT Bridge I/O will scan both its S/PDIF and AES/EBU ports for word clock. Once word clock lock has been achieved, the ADAT Bridge I/O will switch to digital sync mode and automatically match its sample rate to the incoming data. (If the incoming word clock is 48 kHz, the 48 kHz sample rate LED will remain lit. If the incoming word clock is 44.1 kHz, the 48 kHz sample rate LED will flash.) Accordingly, digital output sent via the ADAT Bridge

I/O's AES/EBU, S/PDIF, and optical ports will also match the sample rate of the incoming data.

6 Set the ADAT, or ADAT-compatible device to digital sync and digital input. (If you own an Alesis M20, set it to Optical sync.)

7 Record enable the ADAT tracks to which you want to record. The ADAT Bridge I/O multiplexes the digital audio to all 16 optical channels. Channel 1 audio (the left channel) is sent to all odd channels of the ADAT (1, 3, 5, 7, 9, 11, 13, 15) and channel 2 audio (the right channel) is sent to all even channels (2, 4, 6, 8, 10, 12, 14, 16).

8 Press Record and Play on the ADAT.

9 Begin playback of the source material on DAT or CD.

Since both the AES/EBU and S/PDIF outputs of the ADAT Bridge I/O are active when it is in stand-alone mode, the ADAT Bridge I/O can be used to convert the format of digital audio to or from S/PDIF to AES/EBU.

appendix a

ADAT Bridge I/O Technical Specifications

Analog performance

Audio Output

Actively balanced (unbalanced operation also supported)

Signal-to-Noise Ratio

99 dB A-weighted

97 dB unweighted, 22 Hz - 22 kHz bandwidth

THD + N

<.002%, 0 dBFS@1 kHz, 22 Hz - 22 kHz bandwidth

Maximum Output Level

+18 dBu +/- 1 dB (at +4 dBu gain setting)

Frequency Response

20 Hz - 20 kHz \pm 1 dB

Gain Settings

+4 dBu and -10 dBV, software selectable

Digital-to-Analog Converter

20-bit D/A converters, Delta-Sigma

Connectors

Analog Output

Two 1/4" TRS connectors, tip "+", ring "-"

S/PDIF In

Level 0 to .5 V (low), 2.0 to 6.0 V (high)

Connector Gold-plated coaxial RCA jack

S/PDIF Out

Level TTL (3.3 V typical)

Connector Gold-plated coaxial RCA jack

AES/EBU In

Level 5 V p-p at 110 ohms (pin 2 hot)

Connector XLR female per IEC 268-12

AES/EBU Out

Level V p-p (typ) at 110 ohms (pin 2 hot)

Connector XLR male per IEC 268-12

Word Clock Out

Level TTL (3.3 V typical)

Connector BNC Female

Slave Clock In

Level 0 to .5 V (low), 2.0 to 6.0 V (high)

Connector BNC Female

Frequency 256x word clock

Slave Clock Out

Level TTL (3.3 V typical)

Connector BNC Female

Frequency 256x word clock

Optical In/Out

Two pairs of EIAJ fiber optic connectors

Computer ports

Two 50-pin SCSI connectors

Miscellaneous**Digital I/O Resolution**

24 bit

Optical Resolution

16 - 20 bit

Sample Rates

44.1 kHz or 48 kHz, software selectable

Sync Modes

Internal, ADAT optical, digital audio, slave clock

Front-Panel Display

18 green and yellow LEDs arranged in two rows by 9 columns

Optical compatibility

Includes Alesis ADAT, ADAT XT, M20 and compatible products

Physical Specifications

Height:1RU/1.75" (4.45 cm)
Width:19.0" (48.26 cm)
Depth:10.5" (26.67 cm)

Power Requirements

Voltage

85 to 264 VAC

Frequency

47 to 63 Hz, autoswitching

Wattage

5 W Typical, 30 W max
+5V:2.66 W
+15V:1.32 W
-15V:0.42 W

Connector

3-pin, AC and ground (IEC style)

Operating Temperature

32 to 131 degrees F (0 to 55 degrees C)

Storage Temperature

-40 to 176 degrees F (-40 to 80 degrees C)

Relative Humidity

0 to 95%, non-condensing

Weight

4.4 lbs (2.4 kg)

Vibration Resistance

5 mm displacement, 10 to 55 Hz, each axis

Shock

5 G max

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