

# **Pro Tools**

## **Expanded Systems Guide**

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**digidesign**

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## chapter 1

# Introduction

You can expand your Pro Tools TDM system by adding Pro Tools TDM cards to your computer, either directly in the computer or using an expansion chassis. Expanding your Pro Tools system will provide an increased track count, add to the amount of possible plug-in and mixer processing, and allow you to connect additional audio interfaces.

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## Pro Tools Expanded Systems

### (Without an Expansion Chassis)

It is possible to install as many as six Pro Tools cards in some computers. These can include the HD Core card, and one or more HD Process cards for Pro Tools|HD systems, or a MIX Core, and one or more MIX Farm and DSP Farm cards for Pro Tools|24 MIX systems.


For maximum track count, a Digidesign-qualified SCSI HBA (Host Bus Accelerator) is required. If you require more PCI card slots than your computer has available, you can use an expansion chassis.

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## Pro Tools with an Expansion Chassis

You can use a Digidesign-qualified expansion chassis to increase the number of PCI card slots for your Pro Tools system. Expansion chassis will use only one PCI card slot in your computer and provide up to 13 additional PCI card slots in the chassis itself.


Expansion chassis consist of a chassis (providing additional PCI slots for your Digidesign cards), a host card (installed in your computer), a controller card (installed in the chassis), and an expansion chassis cable that connects the host card to the controller card. Some newer expansion chassis have a built-in controller card that does not need to be installed.

 *6-foot expansion chassis cables are not supported.*

13-slot expansion chassis support up to ten Digidesign cards (which can include a maximum of seven Pro Tools|HD-series cards or seven Pro Tools|24 MIX-series cards).


7-slot chassis support up to seven Pro Tools|HD-series cards, or up to seven Pro Tools|24 MIX-series cards.

Some 2- and 4-slot CardBus expansion chassis have been approved for use with laptop computers and Pro Tools TDM. Refer to the Digidesign Web site for the latest compatibility information.


 See Chapter 4, “Expansion Chassis” for more information about card slot order and installing Pro Tools cards in an expansion chassis.

## **Powering Up Expansion Chassis**

Make sure to have the expansion chassis cable connected to both the expansion chassis and the computer before powering up. If the cable becomes disconnected from the computer while the system is powered on, shut down power to the computer and then the expansion chassis before reconnecting.

 *Before you connect your expansion chassis, or install cards in it, make sure to turn off both the chassis and your computer.*

When powering up, turn on the expansion chassis before the computer, and turn it off after powering down the computer.

 *When using an expansion chassis with a Pro Tools system, the chassis must have a 3.3 volt power supply.*

---

## **Compatibility Information**

For a complete and current list of supported configurations of computers and expansion chassis, visit the Digidesign Web site at:

[www.digidesign.com/compto/](http://www.digidesign.com/compto/)



## chapter 2

# Expanded Pro Tools|HD Systems

To ensure maximum track counts and trouble-free operations, it is important that PCI cards are installed in the appropriate slot locations, whether in the computer or in an expansion chassis (if one is being used).

### Cards and Slot Order

Whether installing in a computer or an expansion chassis, the basic order of card installation is the same. Cards should always be grouped according to type, and each type should be installed in the following order:

#### Computer Configuration

- 1 HD Core card
- 2 HD Process cards
- 3 SCSI accelerator cards

#### Computer Configuration with Expansion Chassis

- 1 Expansion chassis host card
- 2 SCSI accelerator card

#### Expansion Chassis Configuration

- 1 HD Core card
- 2 HD Process cards

### PCI Slots, Bus Masters, and Bridges (Macintosh Only)

A *bus master* card is a PCI card that controls the data transfer to and from the Bridge Chip that controls its group. Bus masters require a certain degree of autonomy in terms of their physical slot address; consequently, it is very important to observe the correct ordering of cards placed in PCI card slots. The Digidesign HD Core and HD Process cards can be bus masters.

Other cards that may act as bus masters include:

- Expansion chassis host cards
- SCSI host bus adapters (HBA)
- Most video capture cards (including AVoption and AVoption|XL)

Consult the manufacturer of your third-party PCI cards to determine if they operate as bus masters.

---

## Adding Cards to Your System

The maximum number of HD-series cards supported in a single system is seven. However, there may be further restrictions depending on your operating system and the specific model of your expansion chassis. For more information, visit the Digidesign Web site at:

[www.digidesign.com/compto/](http://www.digidesign.com/compto/)

### To install Pro Tools cards:

- 1 Turn off your computer, expansion chassis, and any peripherals. Leave your computer's power cable plugged in so the computer is grounded.
- 2 Open the computer case or expansion chassis.
  - ⚠ *Before handling any card, discharge any static electricity that may be on your clothes or body by touching a grounded metal surface, such as the power supply case inside your computer.*
- 3 Remove the metal access port cover behind the expansion slot you want to use by removing the screw and sliding the cover out from the access port. Keep the screws in a safe place.
- 4 Install the HD Core card in the lowest numbered slot.

📖 *To locate the lowest numbered slot, refer to your computer's documentation, or see "Verifying Slot Numbers in Your Computer with DigiTest" on page 23.*

- 5 Install the HD Process cards in the remaining slots.

Group similar cards together (for example, put all HD Process cards next to each other).

⚠ *Make sure the first card is a Core card. Process cards cannot occupy the lowest slot.*

- 6 Connect all Pro Tools|HD cards using Digidesign TDM FlexCables (see "Digidesign TDM FlexCable" on page 4).

- 7 If installing a SCSI HBA card, install it in the highest numbered remaining slot.

⚠ *Run DigiTest after making any changes to your hardware setup (such as adding or removing cards, adding or removing Audio Interfaces, adding or removing sync cables, and so on) to verify that your system is correctly configured and functioning properly. See Appendix A, "Using DigiTest."*

📖 *For information on installing AVoption and AVoption|XL cards, refer to the "AVoption & AVoption|XL Guide" for details.*

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## Connecting Pro Tools|HD Cards

### Digidesign TDM FlexCable

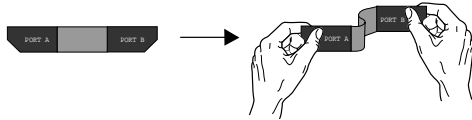
Digidesign TDM FlexCable cables connect one Pro Tools|HD card to another. You will need an additional TDM FlexCable for each additional card.

Each HD card has two ports along the top of the card, labelled Port A and Port B.

When installing multiple HD cards, data communication across HD cards is achieved by using a TDM FlexCable to connect Port B of the lead card to Port A of the next card. The FlexCable has two connectors, also labeled Port A and Port B, to ensure proper connection.

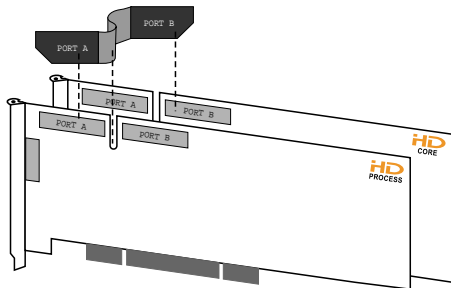
**To connect HD cards with the TDM FlexCable:**

**1** The FlexCable needs to be shaped before it can be used. To do this, grasp it with both hands, then move the Port A portion of the cable straight towards you and inwards as shown in Figure 1. Do not bend the cable more than you need to, as you may damage the traces in the cable.



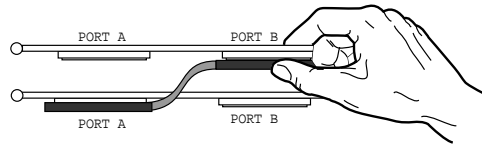
**Figure 1.** Preparing TDM FlexCable for installation

**2** Slide the FlexCable into the notch of the *second* card, so that the Port B connector of the FlexCable can be aligned with Port B of the lead card; and the Port A connector of the FlexCable can be aligned with Port A of the second card as shown in Figure 2.



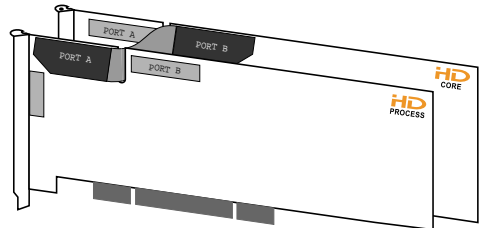
**Figure 2.** Inserting TDM FlexCable

**3** Connect the Port A connector of the FlexCable to Port A on second card. Push down gently but firmly until the cable is fully connected to the card as shown in Figure 3. Next, attach the other end of the FlexCable (labeled Port B) to Port B on the lead card.




**Figure 3.** Top view of two HD cards connected with TDM FlexCable

**4** Verify the connection, as shown in Figure 4 below.



**Figure 4.** Side view of two HD cards connected with TDM FlexCable

**5** Repeat steps 1–4 for each additional card. For example, connect a second TDM FlexCable to port B of the second card and port A of the third card, and so on. All cards must be connected in succession.

 For more information about installing Pro Tools|HD-series cards see the “Getting Started with HD Guide.”

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## Connecting Audio Interfaces

### Recommended Ordering of Interfaces

If your setup includes different types of audio interfaces, you must install them in the following order:

**192 I/O** Use as the *primary* audio interface, it provides the highest fidelity clock source (Loop Sync master) for your system.

**▲** *If you have at least one 192 I/O in your system configuration, it must be the primary audio interface and Loop Sync master.*

**96 I/O** Can be used as the primary interface, or as a *secondary* interface connected to the Expansion port of the primary interface by DigiLink and InterBox Sync cables.

**Legacy Peripherals** See “Using Legacy Audio Interfaces” on page 8.

### DigiLink

Use the 12' DigiLink cable included with each Pro Tools|HD card to connect to your DigiDesign audio interface. The primary audio interface, which functions as the Loop Sync master for other interfaces in the system, must be connected to the HD Core card.

You can purchase optional DigiLink cables of differing lengths (25', 50', and 100'), depending on the needs of your studio configuration.

The DigiLink cable encompasses the communication protocol and physical connections between the HD cards, and 96 I/O and 192 I/Os. A single Digi-Link connector carries up to 32 channels of bidirectional audio information. These 32 channels are broken up into 2 groups of 16 channels: Group A = Channels 1–16, Group B = Channels 17–32.

The maximum number of DigiLink cables supported on a single system is eight. This will allow up to 128 channels of I/O with eight HD-series audio interfaces: four connected directly to an HD card and the remaining four connected to the expansion ports of the first four.

### To connect the DigiDesign audio interfaces:

- 1 Connect the primary audio interface to the HD Core card with the provided DigiLink cable. The primary audio interface functions as the Loop Sync master.
- 2 Connect a secondary HD-series audio interface to the Expansion port on the primary audio interface using the 18" DigiLink cable (included with the audio interface). See Figure 5 below.

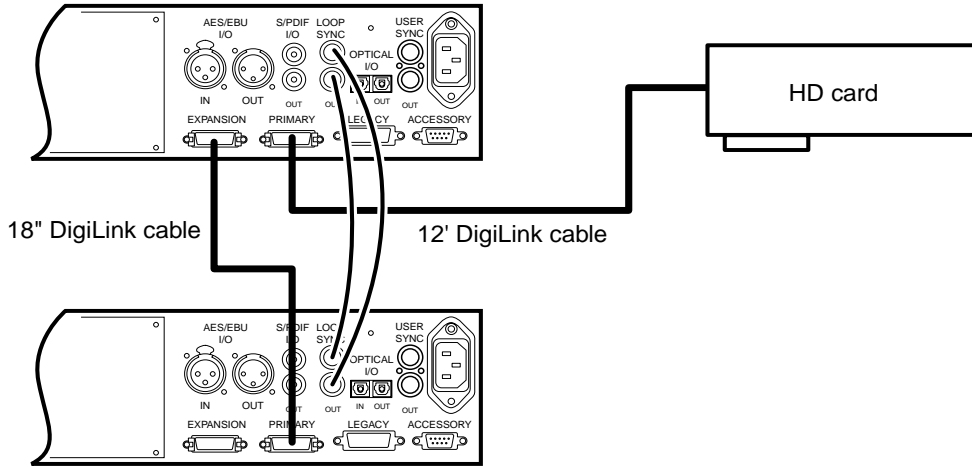


Figure 5. Two 96 I/Os, 32-channel

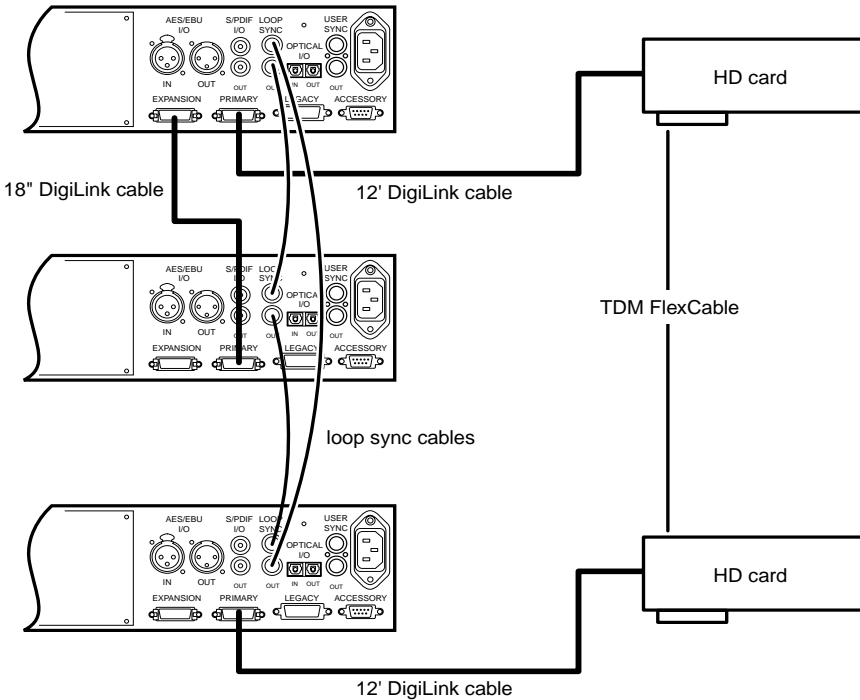


Figure 6. Three 96 I/Os, 48-channel

3 Connect additional HD-series audio interfaces to subsequent HD cards. See Figure 6 above.

4 If connecting a Digidesign Legacy audio interface (such as the 888|24 I/O), refer to “Using Legacy Audio Interfaces” on page 8.

5 Connect the Slave Clock Out of the primary interface to the Slave Clock In of the second interface with the provided Loop Sync cables.

6 Connect the Slave Clock Out of the second interface to the Slave Clock In of the next audio interface and so forth.

7 Connect the Slave Clock Out of the last audio interface to the Slave Clock In of the primary audio interface.

## Using Legacy Audio Interfaces

The Legacy Peripheral port on 192 I/O and 96 I/O allows you to connect certain MIX compatible audio interfaces to your HD system: 888|24, 888|20, 24-bit ADAT Bridge I/O, ADAT Bridge I/O, and 1622 I/O.

**⚠** *The original 888 I/O is not supported on Pro Tools|HD systems.*

The Legacy Peripheral port functions like the Expansion port.

**⚠** *The Legacy port and the Expansion port are mutually exclusive. They both use Group B: Channels 17–32. Choose between the Legacy port and the Expansion port in the Pro Tools Hardware Setup dialog.*

A single Legacy peripheral can be connected to the Legacy Peripheral port using any Pro Tools MIX peripheral cable. Two Legacy interfaces can be connected to a single Legacy Peripheral port using a “Y” cable (16-channel Peripheral Cable Adapter).

The maximum number of Legacy peripherals that can be connected to an HD system is eight; requiring four HD-series audio interfaces and four 16-channel Peripheral Cable Adapters.

**⚠** *The Legacy port is not available in Pro Tools sessions at sample rates greater than 48 kHz.*

### To connect a Legacy audio interface to a 192 I/O or 96 I/O:

1 Using any Pro Tools MIX peripheral cable, connect one end to the Legacy Peripheral port.

2 Connect the other end of the cable to your MIX compatible audio interface.

3 Connect the External Clock Out of the primary interface to the Slave Clock In of the Legacy audio interface using a BNC cable.

4 If connecting two Legacy peripherals, connect the Slave Clock Out of the first Legacy peripheral to the Slave Clock In of the second Legacy peripheral.

**⚠** *Do not connect the Slave Clock Out of the last Legacy peripheral to the Slave Clock In of any HD-series interface. Loop Sync is only used for HD-series audio interfaces.*

**⚠** *If using an 888|24 I/O, do not power on the 888|24 until you are ready to declare it in the Hardware Setup dialog (see the “Getting Started with HD” for information on the Hardware Setup dialog). If connected before proper declaration, the 888|24 I/O will emit a loud noise resulting from the DACs being driven by a 1x word clock instead of a 256x slave clock signal.*

## chapter 3

# Expanded Pro Tools|24 MIX Systems

To ensure maximum track counts and trouble-free operations, it is important that PCI cards are installed in the appropriate slot locations, whether in the computer or in an expansion chassis (if one is being used).

### Cards and Slot Order

Whether installing in a computer or an expansion chassis, the basic order of card installation is the same. Cards should always be grouped according to type, and each type should be installed in the following order:

#### Computer configuration

- 1 MIX Core card
- 2 MIX Farm cards
- 3 DSP Farm card
- 4 SampleCell II card
- 5 SCSI accelerator cards

#### Computer Configuration with Expansion Chassis

- 1 Expansion chassis host card
- 2 SCSI accelerator card

#### Expansion Chassis Configuration

- 1 MIX Core card
- 2 MIX Farm cards

3 DSP Farm card

4 SampleCell II card

### PCI Slots, Bus Masters, and Bridges

#### (Macintosh Only)

A *bus master* card is a PCI card that controls the data transfer to and from the Bridge Chip that controls its group. Bus masters require a certain degree of autonomy in terms of their physical slot address; consequently, it is very important to observe the correct ordering of cards placed in PCI card slots. The Digidesign MIX Core and MIX Farm cards can be bus masters.

Other cards that may act as bus masters include:

- Expansion chassis host cards
- SCSI host bus adapters (HBA)
- Most video capture cards (including AVoption and AVoption|XL)

Consult the manufacturer of your third-party PCI cards to determine if they operate as bus masters.

---

## Adding Cards to Your System


### Installing Pro Tools cards:

- 1 Turn off your computer, expansion chassis, and any peripherals. Leave your computer's power cable plugged in so the computer is grounded.
- 2 Open the computer case or expansion chassis.

**⚠** *Before handling any card, discharge any static electricity that may be on your clothes or body by touching a grounded metal surface, such as the power supply case inside your computer.*

- 3 Remove the metal access port cover behind the expansion slot you want to use by removing the screw and sliding the cover out from the access port. Keep the screws in a safe place.

- 4 Install the MIX Core card in the lowest numbered slot.

 *To locate the lowest numbered slot, refer to your computer's documentation, or see "Verifying Slot Numbers in Your Computer with DigiTest" on page 23.*

- 5 Install the MIX Farm and DSP Farm cards in the remaining slots.

Group similar cards together (for example, put all MIX Farm cards next to each other).


**⚠** *Make sure the first card is a Core card. Farm cards cannot occupy the lowest slot.*

- 6 Connect all TDM cards using a TDM ribbon cable for MIX-series systems (see "Digidesign TDM Ribbon Cables" on page 10).

- 7 If installing a SampleCell II card, install it in the next available slot after the Pro Tools TDM cards.

- 8 If installing a SCSI HBA card, install it in the highest numbered remaining slot.

**⚠** *Run DigiTest after making any changes to your hardware setup (such as adding or removing cards, adding or removing Audio Interfaces, adding or removing sync cables, and so on) to verify that your system is correctly configured and functioning properly. See Appendix A, "Using DigiTest."*

 *For information on installing AVoption and AVoption|XL cards, refer to the "AVoption & AVoption|XL Guide" for details.*

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## Connecting Pro Tools Cards

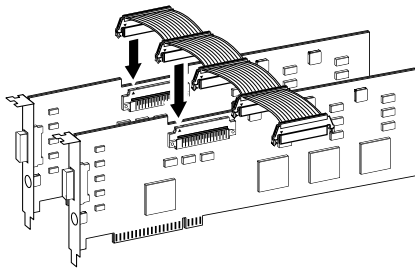
### Digidesign TDM Ribbon Cables

Digidesign TDM ribbon cables connect Pro Tools MIX-series cards to one another. When using an expansion chassis, you will need to purchase a Digidesign TDM ribbon cable to connect the TDM cards in the chassis. TDM cables are available with three, five, eight, and ten nodes. Contact your Digidesign dealer or local Digidesign office to order the appropriate TDM cable.



**Connect all TDM-equipped cards with a TDM ribbon cable:**

**1** Connect the first node of the TDM ribbon cable to the first Digidesign card. Make sure the TDM cable is facing the right direction—align the white triangle on the cable plug with the triangle on the card.



**Attaching a TDM ribbon cable**

**2** Push down gently but firmly until the node is fully connected to the card. When the plug is properly seated, the two tabs on the side of the cable's TDM connector click shut. To detach the ribbon cable, squeeze the tabs on the TDM connector inward.

**3** Attach the remaining nodes on the TDM cable to subsequent cards. Unused nodes, if any, should reside after the last TDM card.

---

## Connecting Audio Interfaces

### Recommended Ordering of Interfaces

If your setup includes different types of Audio Interfaces, install them in the following order to ensure best possible clock and synchronization to your system:

**888|24 I/O** Install as the primary audio interface, it provides the highest fidelity clock source for your system.

**882|20 I/O** Use as secondary interface.

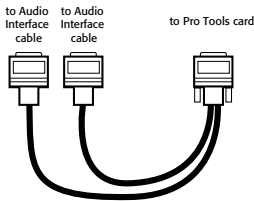
**1622 I/O** Use as secondary interface.

**ADAT Bridge I/O** Should not be used as the primary audio interface in expanded systems, with the exception of certain setups that present unique clock and sync requirements. Refer to the *ADAT Bridge I/O User's Guide* for details.

## To connect the Digidesign audio interfaces:

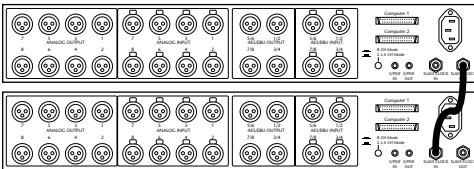
- 1 Connect the primary audio interface to the primary MIX Core card with the provided interface cable. The primary audio interface functions as the clock master.
- 2 Connect additional audio interfaces to subsequent Digidesign audio cards.

You can use Digidesign's 16-channel peripheral cable adapter (optional) to connect two audio interfaces to a MIX Core, MIX I/O, or Mix Farm card.



### 16-channel peripheral cable adapter

- 3 If using multiple audio interfaces, connect the Slave Clock Out of the primary interface to the Slave Clock In of the second interface with the provided BNC cable.



### Connecting multiple audio interfaces

- 4 Connect the Slave Clock Out of the second interface to the Slave Clock In of the next audio interface (and so forth).

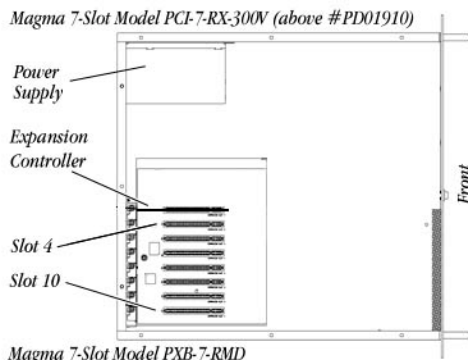
## chapter 4

# Expansion Chassis

## Magma 7-Slot Expansion Chassis

### Slot Layout for Magma 7-Slot Expansion Chassis

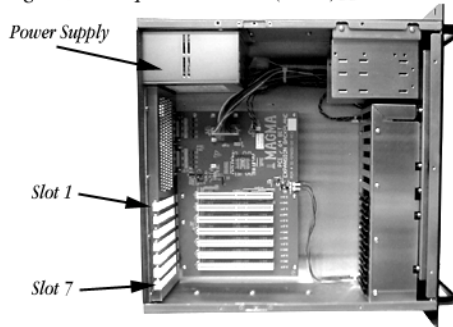
Magma models P7R-D1 and P7RQ-D1 have slots that are numbered sequentially, right-to-left from the front (4–10).



Slot numbering for Magma model PCI-7R

The 64-bit Magma 7-Slot Expansion Chassis model PCI7R6433 has slots that are numbered sequentially, right-to-left from the front (1–7).

*Magma 7-Slot Expansion Chassis (64-Bit, 33 MHz Version)*



Slot numbering for Magma model PCI7R6433

## Configuring the Magma 7-Slot Expansion Chassis

### Connecting the Expansion Chassis

#### Install the chassis host card:

- 1 Turn off the expansion chassis, your computer, and any peripherals. Leave your computer's power cable plugged in so the computer is grounded.
- 2 Open the computer case. For additional details on installing a card in your computer, refer to its User's Guide.  
  
**⚠** *Before removing cards from their antistatic bags or handling any card, discharge any static electricity that may be on your clothes or body by touching a grounded metal surface (such as the power supply case inside your computer).*
- 3 Install the Magma Host Card in the lowest numbered slot in your computer.

To locate the lowest numbered slot, refer to your computer's documentation, or see "Verifying Slot Numbers in Your Computer with DigiTest" on page 23.

- 4 Attach a 2- or 4-foot expansion chassis cable to the host card. If necessary, refer to the Magma guide for specific instructions.

**⚠** *6-foot expansion chassis cables are not supported.*

- 5 If using a SCSI HBA, install it in the highest numbered remaining slot in your computer.

#### Install the chassis controller card:

- 1 Install the Magma Controller card in the Expansion Slot of the expansion chassis.
- 2 Attach the other end of the expansion chassis cable to the controller card. If necessary, refer to the Magma guide for specific instructions.

## Installing the Digidesign Cards

#### Install the Digidesign audio cards:

- 1 Install the Pro Tools Core card in the first slot (numbered slot 4 in Magma models P7R-D1 and P7RQ-D1) of the expansion chassis.

- 2 Install the remaining cards in successive PCI card slots in the chassis in the following order:

- HD Process or MIX Farm cards
- DSP Farm cards (MIX only)
- SampleCell II cards (MIX only)

- 3 Connect all Pro Tools cards with TDM FlexCables (HD-series only) or a TDM ribbon cable (MIX-series only). See "Connecting Pro Tools|HD Cards" on page 4 for HD-series cards or "Connecting Pro Tools Cards" on page 10 for MIX-series cards.

**⚠** *HD-series cards and MIX-series cards are not compatible. For example, you cannot use a MIX Farm card with an HD Core card. Only HD-series cards can be used to expand a Pro Tools HD-series system.*

## Example 1, Magma 7-Slot

Chassis cards with multiple audio interfaces:

Slot	Card
Exp. Slot	Chassis Controller Card
Slot 1	HD Core (Interface #1 and #2)
Slot 2	HD Process (interface #3 and #4)
Slot 3	HD Process (Interface #5 and #6)
Slot 4	HD Process (Interface #7 and #8)
Slot 5	HD Process
Slot 6	HD Process
Slot 7	HD Process

## Connecting Audio Interfaces

See “Connecting Audio Interfaces” on page 6.

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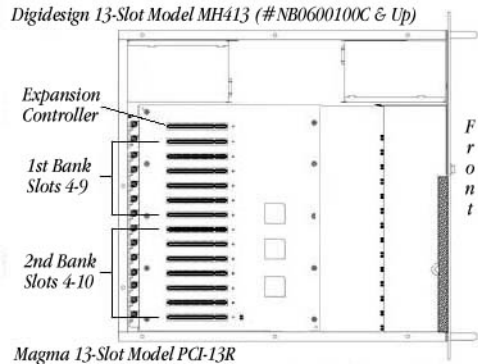
## Pro Tools and Magma 13-Slot Expansion Chassis

### Pro Tools 13-Slot Expansion Chassis

Pro Tools Expansion Chassis with serial numbers NB06000C1 or higher are identical to the Magma model PCI-13R. For compatibility and configuration details, refer to the information that pertains to that model.

## Slot Layout for Magma 13-Slot Expansion Chassis

Magma model PCI-13R has slots that are numbered sequentially, right-to-left from the front, in two banks (4–9 and 4–10).



Slot numbering for Magma model PCI-13R

## Configuring the Magma 13-Slot Expansion Chassis

### Connecting the Expansion Chassis

#### Install the chassis host card:

- 1 Turn off the expansion chassis, your computer, and any peripherals. Leave your computer's power cable plugged in so the computer is grounded.
- 2 Open the computer case. For additional details on installing a card in your computer, refer to its User's Guide.

**⚠** *Before removing cards from their antistatic bags or handling any card, discharge any static electricity that may be on your clothes or body by touching a grounded metal surface (such as the power supply case inside your computer).*

- 3 Install the Magma Host Card in the lowest numbered slot in your computer.

To locate the lowest numbered slot, refer to your computer's documentation, or see "Verifying Slot Numbers in Your Computer with DigiTest" on page 23.

- 4 Attach a 2- or 4-foot expansion chassis cable to the host card. If necessary, refer to the Magma guide for specific instructions.

**⚠** *If using Magma model PCI-13R, make sure you attach the chassis cable to the host card and not your SCSI HBA. Both cards have a 68-pin VHDCI connector.*

**⚠** *6-foot expansion chassis cables are not supported.*

- 5 If using a SCSI HBA, install it in the highest numbered remaining slot in your computer.

#### Install the chassis controller card:

- 1 Install the Magma Controller card in the Expansion Slot of the expansion chassis:
  - For model PCI-13R, this is the slot nearest the power supply.
- 2 Attach the other end of the expansion chassis cable to the controller card. If necessary, refer to the Magma guide for specific instructions.

### Installing the Digidesign Cards

#### Install the Digidesign audio cards:

- 1 Install the Pro Tools Core card in slot 4 (the first available slot) of the expansion chassis.
- 2 Install the remaining cards in successive chassis slots in the following order:
  - HD Process or MIX Farm cards
  - DSP Farm cards (MIX only)
  - SampleCell II cards (MIX only)
- 3 Connect all Pro Tools cards with TDM FlexCables (HD-series only) or a TDM ribbon cable (MIX-series only). See "Connecting Pro Tools|HD Cards" on page 4 for HD-series cards or "Connecting Pro Tools Cards" on page 10 for MIX-series cards.

**⚠** *HD-series cards and MIX-series cards are not compatible. For example, you cannot use a MIX Farm card with an HD Core card. Only HD-series cards can be used to expand a Pro Tools HD-series system.*

## Example 2, Magma 13-Slot

Chassis cards with multiple audio interfaces:

Slot	Card
Exp. Slot	Chassis Controller Card
Bank 1/Slot 4	HD Core (Interface #1 and #2)
Bank 1/Slot 5	HD Process (interface #3 and #4)
Bank 1/Slot 6	HD Process (Interface #5 and #6)
Bank 1/Slot 7	HD Process (Interface #7 and #8)
Bank 1/Slot 8	HD Process (Interface #9)
Bank 1/Slot 9	HD Process
Bank 2/Slot 4	HD Process
Bank 2/Slot 5	(empty)
Bank 2/Slot 6	(empty)
Bank 2/Slot 7	(empty)
Bank 2/Slot 8	Available for non-bus master card
Bank 2/Slot 9	Available for non-bus master card
Bank 2/Slot 10	Available for non-bus master card

## Connecting Audio Interfaces

See “Connecting Audio Interfaces” on page 6.

## Pro Tools and SBS 7-Slot Expansion Chassis

### Pro Tools 7-Slot Expansion Chassis

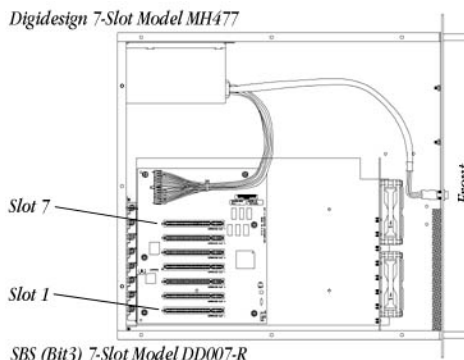
The Pro Tools 7-Slot Expansion Chassis is identical to the SBS model DD007-R. For compatibility and configuration details, refer to the information that pertains to that model.

SBS Technologies was previously called “Bit 3.” Though all of the expansion chassis in this chapter are referred to as SBS models, some may have been initially released as Bit 3 models.

### Slot Layout for SBS 7-Slot Expansion Chassis

SBS 7-Slot chassis have slots that are numbered sequentially (1–7), left-to-right, from the front.

SBS model DD007-R does not have a Backplane Controller slot. It instead has a built-in chassis controller with a connector on the back of the expansion chassis.



SBS (Bit3) 7-Slot Model DD007-R

Slot numbering for SBS model DD007-R

## Configuring the SBS 7-Slot Expansion Chassis

### Connecting the Expansion Chassis

#### Install the chassis host card:

- 1 Turn off the expansion chassis, your computer, and any peripherals. Leave your computer's power cable plugged in so the computer is grounded.
- 2 Open the computer case. For additional details on installing a card in your computer, refer to its User's Guide.

**⚠** *Before removing cards from their antistatic bags or handling any card, discharge any static electricity that may be on your clothes or body by touching a grounded metal surface (such as the power supply case inside your computer).*

- 3 Install the SBS Host Card in the lowest numbered slot in your computer.

To locate the lowest numbered slot, refer to your computer's documentation, or see "Verifying Slot Numbers in Your Computer with DigiTest" on page 23.

- 4 Attach a 2- or 4-foot expansion chassis cable to the host card. If necessary, refer to the SBS guide for specific instructions.

**⚠** *6-foot expansion chassis cables are not supported.*

- 5 If using a SCSI HBA, install it in the highest numbered remaining slot in your computer.

#### Install the chassis controller card:

- 1 If using SBS model DD22-1 or 2101-00-2, install the SBS Controller card in the Backplane Controller Slot of the expansion chassis (between slots 3 and 4).

If using SBS model DD007-R, attach the chassis cable to the connector on the back of the expansion chassis.

- 2 Attach the other end of the expansion chassis cable to the controller card. If necessary, refer to the SBS guide for specific instructions.

### Installing the Digidesign Cards

#### Install the Digidesign audio cards:

- 1 Install the Pro Tools Core card (clock master with primary audio interface) in slot 1 of the expansion chassis.

- 2 Install the remaining cards in successive chassis slots in the following order:

- HD Process or MIX Farm cards
- DSP Farm cards (MIX only)
- SampleCell II cards (MIX only)

- 3 Connect all Pro Tools cards with TDM FlexCables (HD-series only) or a TDM ribbon cable (MIX-series only). See "Connecting Pro Tools|HD Cards" on page 4 for HD-series cards or "Connecting Pro Tools Cards" on page 10 for MIX-series cards.

**⚠** *HD-series cards and MIX-series cards are not compatible. For example, you cannot use a MIX Farm card with an HD Core card. Only HD-series cards can be used to expand a Pro Tools HD-series system.*



### Example 3, SBS 7-Slot

(Models DD22-1 and 2101-00-2)

Chassis cards with multiple audio interfaces:

Slot	Card
Slot 1	HD Core (Interface #1 and #2)
Slot 2	HD Process (interface #3 and #4)
Slot 3	HD Process (interface #5 and #6)
Backplane Controller Slot	Chassis Controller Card
Slot 4	HD Process (Interface #7 and #8)
Slot 5	HD Process
Slot 6	HD Process
Slot 7	HD Process

**⚠** To use SBS model 2101-00-2 with a G4, it must have the IBM 2.1 Bridge Chip.

### Connecting Audio Interfaces

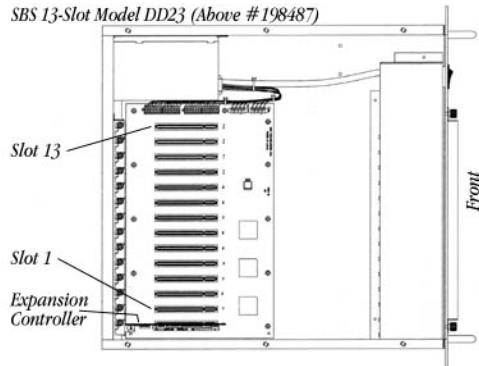
See “Connecting Audio Interfaces” on page 6.

## SBS 13-Slot Expansion Chassis

### Slot Layout for SBS 13-Slot Expansion Chassis

Most SBS 13-Slot chassis, including the newer models, have slots that are numbered sequentially, left-to-right, from the front. These chassis have serial number 198487 or higher.

SBS 13-Slot Model DD23 (Above #198487)



Slot numbering for newer SBS 13-Slot chassis

Older SBS 13-Slot chassis have slots that are numbered sequentially, right-to-left, from the front. These chassis have serial numbers 198486 or lower.

To verify the slot numbering for your chassis, refer to the SBS guide.

### Configuring the SBS 13-Slot Expansion Chassis

#### System Performance and Clock Skew

To ensure the maximum track count with expanded Pro Tools systems, you may need to adjust the clock skew on the chassis host card.

This is accomplished by changing a jumper switch on the host card. Locate the set of jumper pins marked “J2” on the host card. If the jumper cap spans pins 2–3, it should be moved to span pins 1–2.

## Connecting the Expansion Chassis

### Install the chassis host card:

- 1 Turn off the expansion chassis, your computer, and any peripherals. Leave your computer’s power cable plugged in so the computer is grounded.
- 2 Open the computer case. For additional details on installing a card in your computer, refer to its User’s Guide.

**⚠** *Before removing cards from their antistatic bags or handling any card, discharge any static electricity that may be on your clothes or body by touching a grounded metal surface (such as the power supply case inside your computer).*

- 3 Install the SBS Host Card in the lowest numbered slot in your computer.

To locate the lowest numbered slot, refer to your computer’s documentation, or see “Verifying Slot Numbers in Your Computer with DigiTest” on page 23.

- 4 Attach a 2- or 4-foot expansion chassis cable to the host card. If necessary, refer to the SBS guide for specific instructions.

**⚠** *6-foot expansion chassis cables are not supported.*

- 5 If using a SCSI HBA, install it in the highest numbered remaining slot in your computer.

### Install the chassis controller card:

- 1 Install the SBS Controller card in the Back-plane Controller slot of the expansion chassis.
- 2 Attach the other end of the expansion chassis cable to the controller card. If necessary, refer to the SBS guide for specific instructions.

## Installing the Digidesign Cards

### Install the Digidesign audio cards:

- 1 Install the Pro Tools Core card (clock master with primary audio interface) in slot 2 of the expansion chassis.
- 2 Install the remaining cards in successive chassis slots in the following order:

- HD Process or MIX Farm cards
- DSP Farm cards (MIX only)
- SampleCell II cards (MIX only)

- 3 Connect all Pro Tools cards with TDM FlexCables (HD-series only) or a TDM ribbon cable (MIX-series only). See “Connecting Pro Tools|HD Cards” on page 4 for HD-series cards or “Connecting Pro Tools Cards” on page 10 for MIX-series cards.

**⚠** *HD-series cards and MIX-series cards are not compatible. For example, you cannot use a MIX Farm card with an HD Core card. Only HD-series cards can be used to expand a Pro Tools HD-series system.*

## Example 4, SBS 13-Slot

Chassis cards with multiple audio interfaces:

Slot	Card
Slot 0	Chassis Controller Card
Slot 1	Empty
Slot 2	HD Core (Interface #1 and #2)
Slot 3	HD Process (interface #3 and #4)
Slot 4	HD Process (Interface #5 and #6)
Slot 5	HD Process (Interface #7 and #8)
Slot 6	HD Process (Interface #9)
Slot 7	HD Process
Slot 8	HD Process
Slot 9	(empty)
Slot 10	(empty)
Slot 11	(empty)
Slot 12	Available for non-bus master card
Slot 13	Available for non-bus master card

## Connecting Audio Interfaces

See “Connecting Audio Interfaces” on page 6.

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## Magma 2- and 4-Slot CardBus Expansion Chassis

### Slot Layout for Magma 2- and 4-Slot CardBus Expansion Chassis

Magma models CB2S and CB4DRQ-D1 have slots that are numbered sequentially, right-to-left from the front, starting with slot number 1.

### Configuring the Magma CardBus Expansion Chassis

#### Connecting the Expansion Chassis

##### Install the chassis host card:

- 1 Turn off the expansion chassis, your computer, and any peripherals. Leave your computer's power cable plugged in so the computer is grounded.
- 2 Insert the Magma Host PC Card in the lowest numbered PCMCIA card slot in your laptop computer.
- 3 Attach the expansion chassis cable to the Magma Host PC Card. If necessary, refer to the Magma guide for specific instructions.

**A** *The standard cable length is a 68-pin 1-meter round cable. A 1.5 meter-cable is also available for purchase.*

## Installing the Digidesign Cards

### Install the Digidesign audio cards:

1 Install the Pro Tools Core card in the first slot of the expansion chassis.

2 Install the remaining cards in successive PCI card slots in the chassis in the following order:

- HD Process or MIX Farm cards
- DSP Farm cards (MIX only)
- SampleCell II cards (MIX only)

3 Connect all Pro Tools cards with TDM FlexCables (HD-series only) or a TDM ribbon cable (MIX-series only). See “Connecting Pro Tools|HD Cards” on page 4 for HD-series cards or “Connecting Pro Tools Cards” on page 10 for MIX-series cards.

**⚠** *HD-series cards and MIX-series cards are not compatible. For example, you cannot use a MIX Farm card with an HD Core card. Only HD-series cards can be used to expand a Pro Tools HD-series system.*

### Example 5, Magma 4-Slot

*Chassis cards with multiple audio interfaces:*

Slot	Card
Exp. Slot	Chassis Controller Card
Slot 1	MIX Core (Interface #1 and #2)
Slot 2	MIX Farm (interface #3 and #4)
Slot 3	MIX Farm
Slot 4	DSP Farm

## Connecting Audio Interfaces

See “Connecting Audio Interfaces” on page 6.

## appendix a

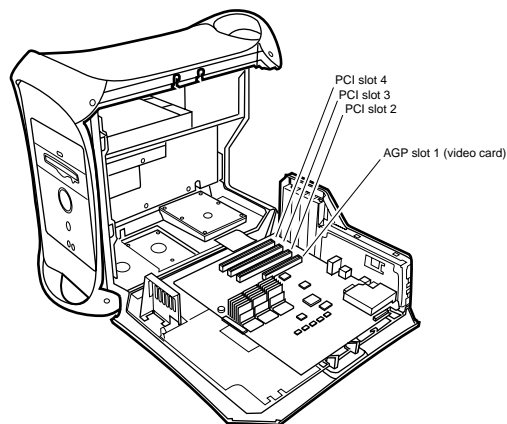
# Using DigiTest

### Verifying Slot Numbers in Your Computer with DigiTest

Use DigiTest (included with Pro Tools) to find out how the slots are numbered in your computer and expansion chassis, thereby ensuring that Digidesign cards, SCSI host bus adapters, and chassis cards are placed correctly.

#### To verify the slot numbering for your computer:

- 1 Lower the output volume for any mixers and monitors connected to your audio interfaces.
- 2 Double-click the DigiTest application in the Pro Tools Utilities folder inside the Pro Tools folder.
- 3 From the SlotArrangement menu, select your computer and chassis model. A picture appears illustrating the slot numbers for your computer.



#### G4 Dual Processor

- 4 Choose File > Quit to close DigiTest.

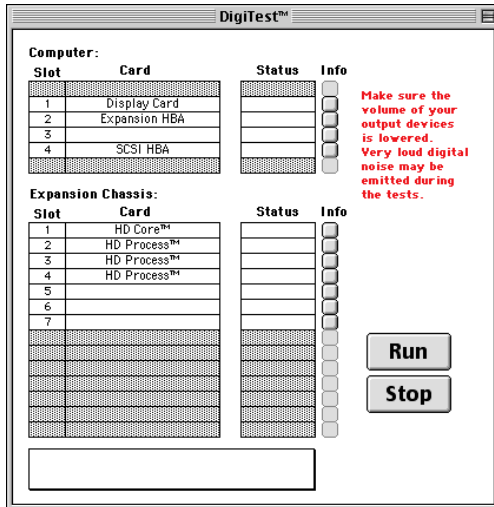
**⚠** After using DigiTest, you must restart your computer before using Pro Tools.

## Verifying Chassis Configuration with DigiTest

Use DigiTest (included with Pro Tools) to verify your expansion chassis slot configuration, and also test the Digidesign cards.


### To use DigiTest with an expansion chassis configuration:

- 1 If Pro Tools is running, quit Pro Tools.
- 2 Lower the output volume for any mixers and monitors connected to your audio interfaces.
- 3 Double-click the DigiTest application to open it. DigiTest resides in the Pro Tools Utilities folder inside the Pro Tools folder.
- 4 From the SlotArrangement menu, select both your computer and expansions chassis.



DigiTest window


5 Verify that each of the Digidesign audio cards appears in the DigiTest window. Also, make sure the cards are installed in the appropriate slots for you expansion chassis.

 For information on slot order configuration, refer to Chapter 4, "Expansion Chassis."

6 To verify and automatically test each card, click Run. When the test is completed, check in the Status column for any error messages.

Click the Info button for details of any test failures. For a list of DigiTest error codes, see your *Getting Started Guide*.

7 Choose File > Quit to close DigiTest.

 After using DigiTest, you must restart your computer before using Pro Tools.



