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Pro Tools

Expanded Systems Guide

Version 5.1 for Macintosh

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chapter 1

Introduction

By adding Digidesign cards to your Pro Tools system, you can increase track count, add to the amount of possible plug-in and mixer processing, increase SampleCell voice capacity, and connect additional audio interfaces.

Some computers have as many as six PCI slots and may provide enough slots for your Pro Tools system. Other computers have as few as three slots and therefore may require an expansion chassis.

Adding Cards to Your System

Expanding a Pro Tools 24 MIX System

You can add any of the following Digidesign cards to expand a Pro Tools 24 MIX or MIXplus system:

- MIX Core, expands DSP mixer resources, and provides up to 16 channels of I/O
- MIX Farm, expands plug-in and DSP mixer resources, and provides up to 16 channels of I/O
- MIX I/O, provides up to 16 channels of I/O
- d24, expands DSP mixer resources, and provides up to 16 channels of I/O
- DSP Farm, expands plug-in and DSP mixer resources, and provides up to eight channels of I/O

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:

1. MIX Core card, primary
2. MIX Core cards, additional
3. MIX Farm cards
4. d24 cards
5. MIX I/O cards
6. DSP Farm cards
7. SampleCell cards

⚠ *TDM cards should always be installed next to one another, in adjacent slots.*

Expanding a Pro Tools 24 System

You can add the following Digidesign cards to expand a Pro Tools 24 system:

- d24, expands DSP mixer resources, and provides up to 16 channels of I/O
- DSP Farm, expands plug-in and DSP mixer resources, and provides up to eight channels of I/O
- MIX Farm, expands plug-in and DSP mixer resources, and provides up to 16 channels of I/O

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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:

1. d24 card, primary
2. d24 card, additional
3. MIX Farm cards
4. DSP Farm cards
5. SampleCell cards

⚠ *TDM cards should always be installed next to one another, in adjacent slots.*

Cards and Slot Order

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).

The remaining chapters in this guide have many examples that specify how PCI cards should be installed. The subtleties of these configurations may vary depending on your particular computer or expansion chassis.

PCI Slots, Bus Masters, and Bridges

(Macintosh Only)

The Power Macintosh 9500 and 9600 have six PCI slots. These slots are grouped in banks of three, with each being controlled by a PCI *Bridge Chip*. The first three slots are in one group and the next three slots are in another.

A *bus master* card is a PCI card that controls the data transfer to and from the Bridge Chip that controls its group. The Digidesign MIX Core and d24 cards are bus masters.

Other cards that act as bus masters include:

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

When configuring a Pro Tools system with a Power Macintosh 9500 or 9600 (without an expansion chassis), make sure to install Pro Tools Core cards on a separate PCI bridge from other bus master cards.

When using an expansion chassis with a 9500 or 9600, install the chassis host card on a separate bridge from other bus master cards (such as SCSI HBAs and video capture cards).

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

Connecting Audio Interfaces

Use the I/O cable included with each Digidesign audio interface to connect to your Digidesign audio cards. The primary audio interface, which functions as the clock master for other interfaces in the system, must be connected to the first Core card.

You can purchase an optional 16-channel peripheral cable adapter (y-cable) to connect up to two 8-channel audio interfaces to each MIX Core, MIX Farm, MIX I/O, or d24 card. When connecting a peripheral cable adapter to your Core card, make sure the primary audio interface is connected to the y-cable's "A" connector.

⚠ *Since DSP Farm cards support only eight channels of I/O, you cannot use a y-cable adapter with these cards.*

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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:

1 888/24 I/O: Install as the primary audio interface, it provides the highest fidelity clock source for your system.

2 882/20 I/O, 1622 I/O: Use as "secondary" interfaces.

3 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.

Using Expansion Chassis

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 MIX Core and Farm cards). 7-slot chassis support up to seven cards.

Digidesign TDM Ribbon Cables

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.

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 both the expansion chassis and the computer before reconnecting.

When powering up, turn on the expansion chassis before the computer, and turn it off before powering down the computer. Do not leave the chassis powered on when the computer has been powered off.

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

When using an expansion chassis with a Pro Tools 24 MIX system, the chassis must have a 3.3 volt power supply.

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About This Guide

The remaining chapters in this guide document the following:

◆ Chapter 2, “Expanded Pro Tools Systems” documents installation of expanded Pro Tools systems that do no use an expansion chassis.

◆ Chapter 3, “Magma 13-Slot Expansion Chassis” documents installation of Magma models PCI-13R and PCI-13-RX-400V, as well as the Pro Tools 13-Slot Expansion Chassis.

◆ Chapter 4, “SBS 7-Slot Expansion Chassis” documents installation of SBS models DD007-R, DD22-1, and 2101-00-002.

◆ Chapter 5, “SBS 13-Slot Expansion Chassis” documents installation of SBS models DD23-1, 240-2-2, and 240-2-201, as well as the Pro Tools 7-Slot Expansion Chassis.

◆ Appendix A, “Using DigiTest” documents how to verify the slot numbering in your computer and expansion chassis configurations with DigiTest.

AVoption and AVoption XL

For information on installing AVoption and AVoption XL cards with expansion chassis, refer to the *AVoption & AVoption XL Guide* for details.

For Additional 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/compato/

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chapter 2

Expanded Pro Tools Systems

This chapter documents configuration of expanded Pro Tools systems with computers that have four or more PCI slots (without an expansion chassis).

Pro Tools 24 MIX Expanded Systems

(Without an Expansion Chassis)

With Pro Tools 24 MIX and MIXplus, it is possible to install as many as four Pro Tools cards in a computer with six slots. These can include the MIX Core card, one or more MIX Farm cards, as well as MIX I/O cards, Pro Tools 24 cards, and SampleCell cards.

For maximum track count, a Digidesign-qualified SCSI HBA is required with these configurations.

Before installing any of the following hardware, turn off your computer and any peripherals. Leave your computer's power cable plugged in so the computer is grounded.

Do not remove cards from their antistatic bags until you have discharged static electricity by touching a grounded object (such as the power supply of your computer).

Install the Digidesign cards:

1 Install the primary MIX Core card (clock master with primary audio interface) 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 25.

2 Install the remaining Digidesign cards in successive slots in the following order:

- MIX Core cards (additional)
- MIX Farm cards
- d24 cards
- MIX I/O card
- DSP Farm cards
- SampleCell cards

3 If using a SCSI HBA, install it in the highest numbered remaining slot.

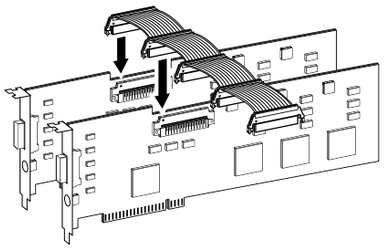
For 9500/9600 computers, the SCSI HBA should reside before the video card.

See "Example 1, Expanded System" on page 7.

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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.

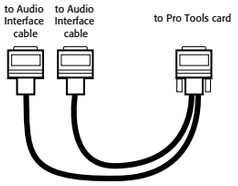
3 Attach the remaining nodes on the TDM cable to subsequent cards. Unused nodes, if any, should reside after the last TDM card.

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.

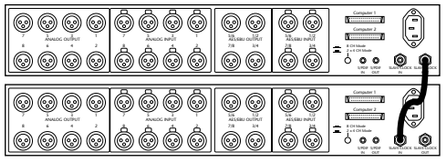
You can use Digidesign's 16-channel peripheral cable adapter (optional) to connect two audio interfaces to a MIX Core, MIX I/O, d24, or Mix Farm card.



16-channel peripheral cable adapter

See "Example 1, Expanded System" on page 7.

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).

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Example 1, Expanded System

Pro Tools 24 MIX System

Power Macintosh 9500/9600

Cards with multiple audio interfaces:

Slot	Card
Slot 0	MIX Core (Interface #1 and #2)
Slot 1	MIX Farm (Interface #3 and #4)
Slot 2	MIX I/O (Interface #5 and #6)
Slot 3	DSP Farm (Interface #7)
Slot 4	SCSI host bus adapter
Slot 5	VIdeo card

Pro Tools 24 Expanded Systems

(Without an Expansion Chassis)

With Pro Tools 24, it is possible to install as many as four Pro Tools cards in a computer with six slots. These can include two d24 cards, as well as DSP Farms and SampleCell cards.

For maximum track count, a Digidesign-qualified SCSI HBA is required with these configurations.

Before installing any of the following hardware, turn off your computer and any peripherals. Leave your computer's power cable plugged in so the computer is grounded.

Do not remove cards from their antistatic bags until you have discharged static electricity by touching a grounded object (such as the power supply of your computer).

Install the Digidesign cards:

1 Install the primary d24 card (clock master with primary audio interface) 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 25.

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

- d24 card (additional)
- MIX Farm cards
- DSP Farm cards
- SampleCell cards

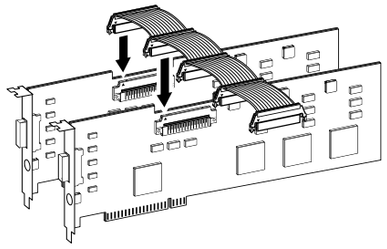
3 If using a SCSI HBA, install it in the highest numbered remaining slot.

For 9500/9600 computers, the SCSI HBA should reside before the video card.

See "Example 2, Expanded System" on page 8.

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

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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.

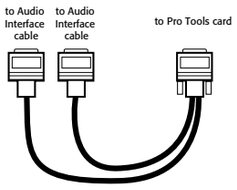
3 Attach the remaining nodes on the TDM cable to subsequent cards. Unused nodes, if any, should reside after the last TDM card.

Connect the Digidesign audio interfaces:

1 Connect the primary audio interface to the primary d24 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.

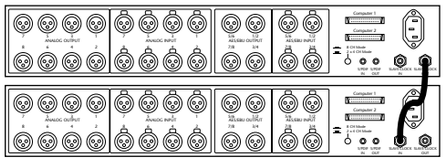
You can use Digidesign's 16-channel peripheral cable adapter (optional) to connect two audio interfaces to each d24 card.



16-channel peripheral cable adapter

See "Example 2, Expanded System" on page 8.

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).

Example 2, Expanded System

Pro Tools 24 System

Power Macintosh 9500/9600

Cards with multiple audio interfaces:

Slot	Card
Slot 0	d24 (Interface #1 and #2)
Slot 1	d24 (Interface #3 and #4)
Slot 2	DSP Farm (Interface #5)
Slot 3	DSP Farm or SampleCell card
Slot 4	SCSI host bus adapter
Slot 5	VIdeo card

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chapter 3

Magma 13-Slot Expansion Chassis

Magma 13-Slot, Model PCI-13R

The Magma 13-Slot Expansion Chassis (model PCI-13R), with Bridge Chip version Intel/DEC 2.1, is supported with the following systems:

Pro Tools 24 MIX and MIXplus:

- Power Macintosh G3 (Blue & White)
- Power Macintosh G4

For the latest compatibility information on expansion chassis, visit the Digidesign Web site (www.digidesign.com/compato/).

⚠ *Magma model PCI-13R requires DAE/DSI 5.0.1 or later.*

Magma 13-Slot, Model PCI-13-RX-400V

The Magma 13-Slot Expansion Chassis (model PCI-13-RX-400V), with Bridge Chip version Intel/DEC 2.1, is supported with the following systems:

Pro Tools 24 MIX and MIXplus:

- Power Macintosh 9500/9600
- Power Macintosh G3 (Beige)
- Power Macintosh G3 (Blue & White)
- Power Macintosh G4

Pro Tools 24:

- Power Macintosh 9500/9600
- Power Macintosh G3 (Beige)
- Power Macintosh G3 (Blue & White)
- Power Macintosh G4

For the latest compatibility information on expansion chassis, visit the Digidesign Web site (www.digidesign.com/compato/).

⚠ *Magma model PCI-13-RX-400V requires serial number PE01732 or higher.*

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Pro Tools 13-Slot Expansion Chassis

There are two versions of the Pro Tools 13-Slot Expansions Chassis:

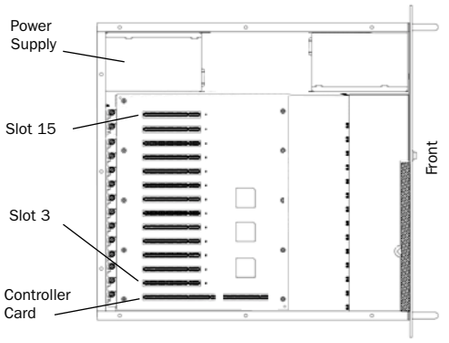
◆ Pro Tools Expansion Chassis with serial numbers NB055300B1 or lower are identical to the Magma model PCI-13-RX-400V. For compatibility and configuration details, refer to the information that pertains to that model.

◆ 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.

For the latest compatibility information on expansion chassis, visit the Digidesign Web site (www.digidesign.com/compato/).

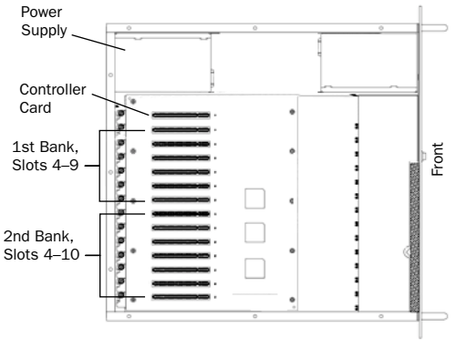
Slot Layout for Magma 13-Slot Expansion Chassis

Magma model PCI-13-RX-400V has slots that are numbered sequentially (3–15), left-to-right, from the front.



Slot numbering for Magma model PCI-13-RX-400V

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

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Configuring the Magma 13-Slot Expansion Chassis

Before installing any of the following hardware, turn off the expansion chassis, your computer, and any peripherals. Leave your computer's power cable plugged in so the computer is grounded.

Do not remove cards from their antistatic bags until you have discharged static electricity by touching a grounded object (such as the power supply of your computer).

Connecting the Expansion Chassis

Install the chassis host card:

1 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 25.

2 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.*

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

For 9500/9600 computers, the SCSI HBA should reside before the video card.

Install the chassis controller card:

1 Install the Magma Controller card in the Expansion Slot of the expansion chassis:

- For model PCI-13-RX-400V, this is the slot furthest from the power supply.
- 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 primary Core card (clock master with primary audio interface) in slot 4 of the expansion chassis.

2 If using a Pro Tools 24 MIX system, install the remaining cards in successive chassis slots in the following order:

- MIX Core cards (additional)
- MIX Farm cards
- d24 cards
- MIX I/O card
- DSP Farm cards
- SampleCell cards

See "Example 1, Magma 13-Slot" on page 13.

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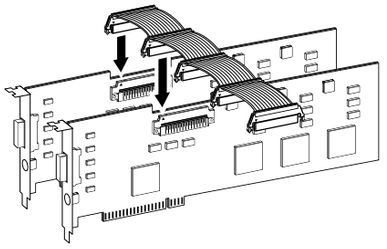
3 If using a Pro Tools 24 system, install the remaining cards in successive chassis slots in the following order:

- d24 card (additional)
- MIX Farm cards
- DSP Farm cards
- SampleCell cards

See "Example 2, Magma 13-Slot" on page 13.

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.

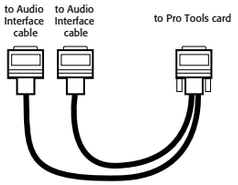
Connecting Audio Interfaces

Connect the Digidesign audio interfaces:

1 Connect the primary audio interface to the primary 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.

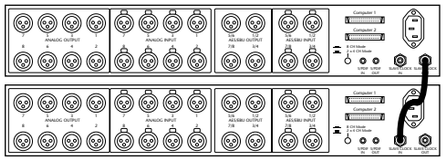
You can use Digidesign's 16-channel peripheral cable adapter (optional) to connect two audio interfaces to a MIX Core, MIX I/O, d24, or Mix Farm card.



16-channel peripheral cable adapter

See "Example 1, Magma 13-Slot" on page 13 and "Example 2, Magma 13-Slot" on page 13.

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).

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Example 1, Magma 13-Slot

Pro Tools 24 MIX/MIXplus System

Power Macintosh G3, G4, or 9500/9600

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	d24 (Interface #5 and #6)
Slot 4	MIX I/O (Interface #7 and #8)
Slot 5	DSP Farm (Interface #9)
Slot 6	DSP Farm or SampleCell card
Slot 7	DSP Farm or SampleCell card
Slot 8	DSP Farm or SampleCell card
Slot 9	DSP Farm or SampleCell card
Slot 10	DSP Farm or SampleCell card
Slot 11	Available for non-bus master card
Slot 12	Available for non-bus master card
Slot 13	Available for non-bus master card

⚠ *Beige G3 and 9500/9600 are only supported with Magma model PCI-13-RX-400V (serial number PE01732 or higher).*

Example 2, Magma 13-Slot

Pro Tools 24 System

Power Macintosh G3, G4, or 9500/9600

Chassis cards with multiple audio interfaces:

Slot	Card
Exp. Slot	Chassis Controller Card
Slot 1	d24 (Interface #1 and #2)
Slot 2	d24 (Interface #3 and #4)
Slot 3	DSP Farm (Interface #5)
Slot 4	DSP Farm (Interface #6)
Slot 5	DSP Farm (Interface #7)
Slot 6	DSP Farm (Interface #8)
Slot 7	DSP Farm (Interface #9)
Slot 8	DSP Farm or SampleCell card
Slot 9	DSP Farm or SampleCell card
Slot 10	DSP Farm or SampleCell card
Slot 11	Available for non-bus master card
Slot 12	Available for non-bus master card
Slot 13	Available for non-bus master card

⚠ *Beige G3 and 9500/9600 only supported with Magma model PCI-13-RX-400V (serial number PE01732 or higher).*

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chapter 4

SBS 7-Slot Expansion Chassis

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.

SBS 7-Slot, Model DD007-R

The SBS 7-Slot Expansion Chassis (model DD007-R), with Bridge Chip version Intel/DEC 2.1, is supported with the following systems:

Pro Tools 24 MIX and MIXplus:

- Power Macintosh G3 (Blue & White)
- Power Macintosh G4

Pro Tools 24:

- Power Macintosh G3 (Blue & White)
- Power Macintosh G4

For the latest compatibility information on expansion chassis, visit the Digidesign Web site (www.digidesign.com/compato/).

⚠ *SBS model DD007-R requires DAE/DSI 5.0.1 or later.*

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.

For the latest compatibility information on expansion chassis, visit the Digidesign Web site (www.digidesign.com/compato/).

SBS 7-Slot, Model DD22-1

The SBS 7-Slot Expansion Chassis (model DD22-1), with Bridge Chip version IBM 2.1, is supported with the following systems:

Pro Tools 24 MIX/MIXplus:

- Power Macintosh 9500/9600
- Power Macintosh G3 (Beige)
- Power Macintosh G3 (Blue & White)
- Power Macintosh G4

For the latest compatibility information on expansion chassis, visit the Digidesign Web site (www.digidesign.com/compato/).

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SBS 7-Slot, Model 2101-00-2

The SBS 7-Slot Expansion Chassis (model 2101-00-2), with Bridge Chip version IBM 2.0 or 2.1, is supported with the following systems:

Pro Tools 24 MIX/MIXplus:

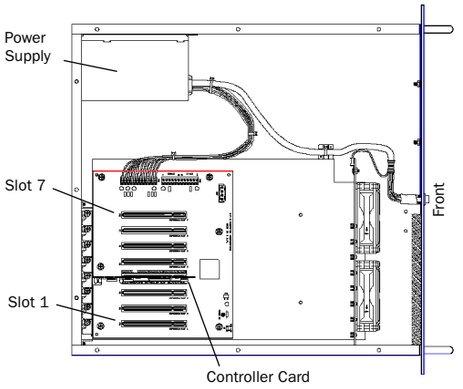
- Power Macintosh 9500/9600
- Power Macintosh G3 (Beige)
- Power Macintosh G3 (Blue & White)
- Power Macintosh G4

For the latest compatibility information on expansion chassis, visit the Digidesign Web site (www.digidesign.com/compato/).

⚠ *To use SBS model 2101-00-2 with a G3 or G4, it must have the IBM 2.1 Bridge Chip.*

Slot Layout for SBS 7-Slot Expansion Chassis

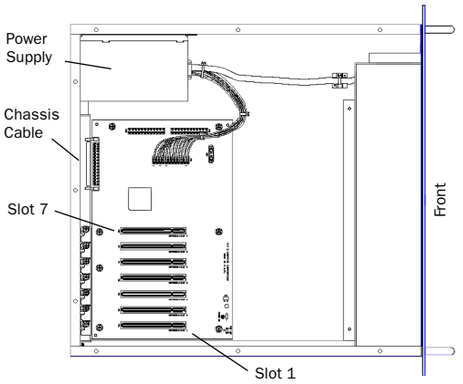
SBS 7-Slot chassis have slots that are numbered sequentially (1–7), left-to-right, from the front.



Slot numbering for SBS models DD22-1 and 2101-00-2

SBS models DD22-1 and 2101-002 have a Backplane Controller Slot between slots 3 and4.

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.



Slot numbering for SBS model DD007-R

Configuring the SBS 7-Slot Expansion Chassis

Before installing any of the following hardware, turn off the expansion chassis, your computer, and any peripherals. Leave your computer's power cable plugged in so the computer is grounded.

Do not remove cards from their antistatic bags until you have discharged static electricity by touching a grounded object (such as the power supply of your computer).

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Connecting the Expansion Chassis

Install the chassis host card:

1 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 25.

2 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.*

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

For 9500/9600 computers, the SCSI HBA reside before the video card.

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).

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

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

Installing the Digidesign Cards

Install the Digidesign audio cards:

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

2 If using a Pro Tools 24 MIX system, install the remaining cards in successive chassis slots in the following order:

- MIX Core cards (additional)
- MIX Farm cards
- d24 cards
- MIX I/O card
- DSP Farm cards
- SampleCell cards

See "Example 1, SBS 7-Slot" on page 19.

– or –

3 If using a Pro Tools 24 system, install the remaining cards in successive chassis slots in the following order:

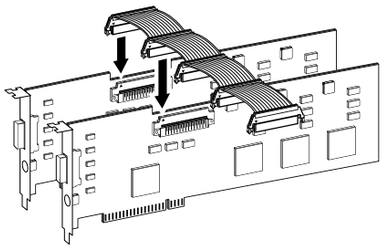
- d24 card (additional)
- MIX Farm cards
- DSP Farm cards
- SampleCell cards

See "Example 2, SBS 7-Slot" on page 19.

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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.

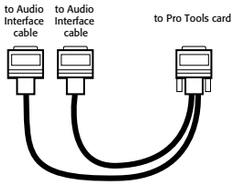
Connecting Audio Interfaces

Connect the Digidesign audio interfaces:

1 Connect the primary audio interface to the primary 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.

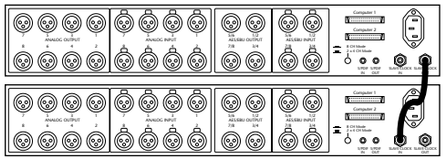
You can use Digidesign's 16-channel peripheral cable adapter (optional) to connect two audio interfaces to a MIX Core, MIX I/O, d24, or Mix Farm card.



16-channel peripheral cable adapter

See "Example 1, SBS 7-Slot" on page 19 and "Example 2, SBS 7-Slot" on page 19.

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).

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Example 1, SBS 7-Slot

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

Pro Tools 24 MIX/MIXplus System

Power Macintosh G3, G4, or 9500/9600

Chassis cards with multiple audio interfaces:

Slot	Card
Slot 1	MIX Core (Interface #1 and #2)
Slot 2	MIX Farm (interface #3 and #4)
Slot 3	MIX Farm (interface #5 and #6)
Backplane Controller Slot	Chassis Controller Card
Slot 4	MIX I/O (Interface #7 and #8)
Slot 5	DSP Farm (Interface #9)
Slot 6	DSP Farm or SampleCell card
Slot 7	DSP Farm or SampleCell card

⚠ *The Beige G3 and 9500/9600 are not supported with SBS model DD007-R.*

⚠ *To use SBS model 2101-00-2 with a G3 or G4, it must have the IBM 2.1 Bridge Chip.*

Example 2, SBS 7-Slot

(Model DD007-R)

Pro Tools 24 System

Power Macintosh Blue & White G3, or G4

Chassis cards with multiple audio interfaces:

Slot	Card
Slot 1	d24 (Interface #1 and #2)
Slot 2	d24 (Interface #3 and #4)
Slot 3	DSP Farm (Interface #5)
Slot 4	DSP Farm (Interface #6)
Slot 5	DSP Farm (Interface #7)
Slot 6	DSP Farm or SampleCell card
Slot 7	DSP Farm or SampleCell card

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.

⚠ *The Beige G3 and 9500/9600 are not supported with SBS model DD007-R.*

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chapter 5

SBS 13-Slot Expansion Chassis

The SBS 13-Slot Expansion Chassis (models DD23, 240-2-2, and 240-2-201), with Bridge Chip version Intel/DEC 2.1, are compatible with the following systems:

Pro Tools 24 MIX and MIXplus:

- Power Macintosh 9500/9600
- Power Macintosh G3 (Beige)
- Power Macintosh G3 (Blue & White)
- Power Macintosh G4

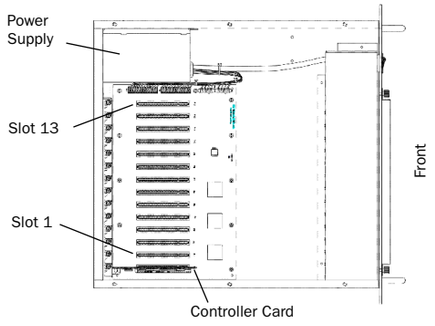
Pro Tools 24:

- Power Macintosh 9500/9600
- Power Macintosh G3 (Beige)
- Power Macintosh G3 (Blue & White)
- Power Macintosh G4

For the latest compatibility information on expansion chassis, visit the Digidesign Web site (www.digidesign.com/compato/).

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.



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.

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Configuring the SBS 13-Slot Expansion Chassis

System Performance and Clock Skew

To ensure the maximum track count with expanded Pro Tools 24 MIX and Pro Tools 24 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

Before installing any of the following hardware, turn off the expansion chassis, your computer, and any peripherals. Leave your computer's power cable plugged in so the computer is grounded.

Do not remove cards from their antistatic bags until you have discharged static electricity by touching a grounded object (such as the power supply of your computer).

Install the chassis host card:

1 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 25.

2 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.*

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

For 9500/9600 computers, the SCSI HBA should reside before the video card.

Install the chassis controller card:

1 Install the SBS Controller card in the Backplane 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 primary Core card (clock master with primary audio interface) in the appropriate slot of the expansion chassis:

- Macintosh 9500, G3/G4: Install in slot 2 (leave slot 1 empty).
- Macintosh 9600: Install in slot 4 (leave slots 1–3 empty).

2 If using a Pro Tools 24 MIX system, install the remaining cards in successive chassis slots in the following order:

- MIX Core cards (additional)
- MIX Farm cards
- d24 cards
- MIX I/O card
- DSP Farm cards
- SampleCell cards

See "Example 1, SBS 13-Slot" on page 24.

– or –

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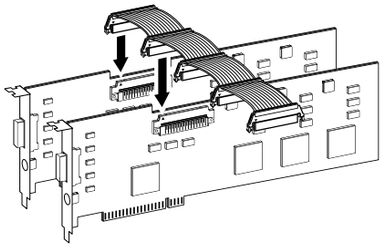
3 If using a Pro Tools 24 system, install the remaining cards in successive chassis slots in the following order:

- d24 card (additional)
- MIX Farm cards
- DSP Farm cards
- SampleCell cards

See "Example 2, SBS 13-Slot" on page 24.

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.

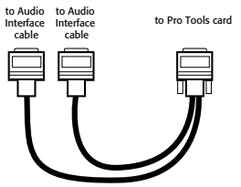
Connecting Audio Interfaces

Connect the Digidesign audio interfaces:

1 Connect the primary audio interface to the primary 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.

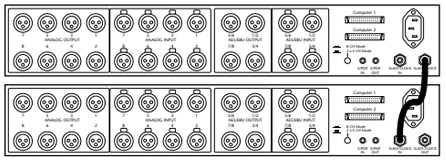
You can use Digidesign's 16-channel peripheral cable adapter (optional) to connect two audio interfaces to a MIX Core, MIX I/O, d24, or Mix Farm card.



16-channel peripheral cable adapter

See "Example 1, SBS 13-Slot" on page 24 and "Example 2, SBS 13-Slot" on page 24.

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).

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Example 1, SBS 13-Slot

Pro Tools 24 MIX/MIXplus System

Power Macintosh G3, G4, or 9500/9600

Chassis cards with multiple audio interfaces:

Slot	Card
Slot 0	Chassis Controller Card
Slot 1	Empty
Slot 2	MIX Core (Interface #1 and #2)
Slot 3	MIX Farm (interface #3 and #4)
Slot 4	d24 (Interface #5 and #6)
Slot 5	MIX I/O (Interface #7 and #8)
Slot 6	DSP Farm (Interface #9)
Slot 7	DSP Farm or SampleCell card
Slot 8	DSP Farm or SampleCell card
Slot 9	DSP Farm or SampleCell card
Slot 10	DSP Farm or SampleCell card
Slot 11	DSP Farm or SampleCell card
Slot 12	Available for non-bus master card
Slot 13	Available for non-bus master card

⚠ *Macintosh 9600: Slots 1–3 should be empty, with the MIX Core card installed in slot 4.*

Example 2, SBS 13-Slot

Pro Tools 24 System

Power Macintosh G3, G4, or 9500/9600

Chassis cards with multiple audio interfaces:

Slot	Card
Slot 0	Chassis Controller Card
Slot 1	Empty
Slot 2	d24 (Interface #1 and #2)
Slot 3	d24 (Interface #3)
Slot 4	DSP Farm (Interface #4)
Slot 5	DSP Farm (Interface #5)
Slot 6	DSP Farm (Interface #6)
Slot 7	DSP Farm (Interface #7)
Slot 8	DSP Farm (Interface #8)
Slot 9	DSP Farm (Interface #9)
Slot 10	DSP Farm or SampleCell card
Slot 11	DSP Farm or SampleCell card
Slot 12	Available for non-bus master card
Slot 13	Available for non-bus master card

⚠ *Macintosh 9600: Slots 1–3 should be empty, with the d24 card installed in slot 4.*

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appendix a

Using DigiTest

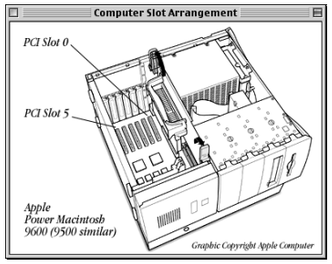
Verifying Slot Numbers in Your Computer with DigiTest

You can 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 appropriately placed.

To verify the slot numbering for your computer:

1 Double-click the DigiTest application in the Pro Tools Utilities folder inside the Pro Tools folder.

2 From the SlotArrangement menu, select your computer and chassis model. A picture appears illustrating the slot numbers for your computer.



Slot numbering for 9600

3 Choose File > Quit to close DigiTest.

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

Verifying Chassis Configuration with DigiTest

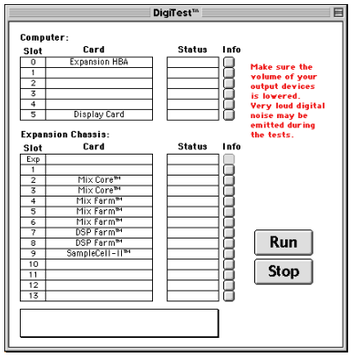
You can use DigiTest (included with Pro Tools) to verify your expansion chassis slot configuration, and also test the Digidesign cards.

To use DigiTest with an expansion chassis configuration:

1 Lower the output volume for any mixers and monitors connected to your audio interfaces.

2 Double-click the DigiTest application to open it. DigiTest resides in the Pro Tools Utilities folder inside the Pro Tools folder.

3 From the SlotArrangement menu, select both your computer and expansions chassis.



DigiTest window, 9600 with SBS 13-Slot

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4 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 the chapter for your expansion chassis in this Expanded Systems Guides.

5 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 the *TDM Installation Guide*.

6 Choose File > Quit to close DigiTest.

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

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