



ENHANCED DISK RECORDER BOARD

Installation Manual

071-8059-00

SEPTEMBER 2000

PROFILE FAMILY
VIDEO FILE SERVERS

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General Safety Summary

Review the following safety precautions to avoid injury and prevent damage to this product or any products connected to it.

Only qualified personnel should perform service procedures.

Injury Precautions

**Do Not Operate
Without Covers**

To avoid electric shock or fire hazard, do not operate this product with covers or panels removed.

**Do Not Operate in
Wet/Damp
Conditions**

To avoid electric shock, do not operate this product in wet or damp conditions.

**Do Not Operate in an
Explosive
Atmosphere**

To avoid injury or fire hazard, do not operate this product in an explosive atmosphere.

**Avoid Exposed
Circuitry**

To avoid injury, remove jewelry such as rings, watches, and other metallic objects. Do not touch exposed connections and components when power is present.

Product Damage Precautions

Provide Proper Ventilation

Prevent product overheating by providing proper ventilation.

Do Not Operate With Suspected Failures

If you suspect there is damage to this product, have it inspected by qualified service personnel.

Safety Terms and Symbols

Terms in This Manual

These terms may appear in this manual:



WARNING: Warning statements identify conditions or practices that can result in personal injury or loss of life.



CAUTION: Caution statements identify conditions or practices that can result in damage to the equipment or other property.

Terms on the Product

These terms may appear on the product:

DANGER indicates a personal injury hazard immediately accessible as one reads the marking.

WARNING indicates a personal injury hazard not immediately accessible as you read the marking.

CAUTION indicates a hazard to property, including the product.

Symbols on the Product

The following symbols may appear on the product:



DANGER high voltage



Protective ground (earth) terminal



ATTENTION – refer to manual



Service Safety Summary



WARNING: These instructions are for use by qualified service personnel only. To avoid personal injury, do not perform any servicing unless you are qualified to do so. Refer to all safety summaries before performing service.

Do Not Service Alone

Do not perform internal service or adjustment of this product unless another person capable of rendering first aid and resuscitation is present.

Disconnect Power

To avoid electric shock, disconnect the main power by means of the power cord or, if provided, the power switch.

Use Care When Servicing With Power On

Dangerous voltages or currents may exist in this product. Disconnect power and remove battery (if applicable) before removing protective panels, soldering, or replacing components.

To avoid electric shock, do not touch exposed connections.

Certifications and Compliances

FCC Emission Control

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. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense. Changes or modifications not expressly approved by Grass Valley Group can affect emission compliance and could void the user's authority to operate this equipment.

Canadian EMC Notice of Compliance

This digital apparatus does not exceed the Class A limits for radio noise emissions from digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communications.

Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de la classe A prescrites dans le Règlement sur le brouillage radioélectrique édicté par le ministère des Communications du Canada.

EN55022 Class A Warning

For products that comply with Class A. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.



Certification

Category	Standard
Safety	<i>Designed/tested for compliance with:</i> UL1950 –Safety of Information Technology Equipment, including Electrical Business Equipment (Third Edition, 1995) IEC 950 – Safety of Information Technology Equipment, including Electrical Business Equipment (Second edition, 1991) CAN/CSA C22.2, No. 950-95 –Safety of Information Technology Equipment, including Electrical Business Equipment EN60950 –Safety of Information Technology Equipment, including Electrical Business Equipment

Enhanced Disk Recorder Installation

Introduction

Use these instructions to install a second disk recorder in a Profile system. The Slave Enhanced Disk Recorder (EDR) board provides two JPEG codecs and two SCSI-2 channels. Note that these two codecs may require adding another video I/O board or additional disks.

You can install the board with the Profile chassis fully extended on the rack slides if the equipment rack is adequately mounted to prevent tipping, and if there is sufficient slack in the cables connected to the rear panel to allow the chassis to fully extend on the slides.

If it is necessary for you to remove the Profile chassis from the equipment rack to perform this installation, refer to the Profile system's Installation manual for instructions.



WARNING: Unless the equipment rack is adequately anchored, the rack could tip when the Profile chassis is extended on the rack slides. To avoid possible injury, make sure the rack is firmly secured before extending the chassis on the rack slides.

System Requirements

The Profile System Software installed in the Profile system must be Version 2.2 or higher. To check the software version installed in your Profile system, open the VrdPanel application and choose **Help | About VdrPanel**. The software version is listed in the Product Version field in the displayed window.

Kit Contents

In addition to this manual, the kit includes the following items:

- Label strip (1)
- PCI Interconnect board (1)
- SCSI B cable (1)
- SCSI D cable (1)
- Slave Enhanced Disk Recorder board (1)



Tools Required

Tools required, but not supplied, to install this kit are:

- Torx tool with T10 and T15 tips
- 3/16-inch hex wrench
- Electrostatic discharge (ESD) grounding straps

Electrostatic Precautions



CAUTION: This product contains components that are highly sensitive to electrostatic discharge. To protect these components from damage and to maintain product reliability, take the following precautions when handling the circuit boards:

- ***Handle all circuit boards in a static-protected area capable of controlling static charge on conductive materials, people, and non-conductive materials. Static-protected areas include non-static table tops and non-static floor mats.***
- ***Handle the circuit boards only by the edges. Avoid touching the printed wires on the back of the circuit board as much as possible.***
- ***Leave the board in its static-shielded bag until you are ready to install the board.***
- ***Wear ESD grounding straps when handling boards not protected by static-shielded bags.***

Installation Procedures

The manual includes step-by-step instructions for:

- Removing the Profile unit from the instrument rack (this page)
- Removing the chassis covers (page 4)
- Removing the circuit board hold-down brackets (page 5)
- Repositioning circuit boards (page 6)
- Selecting a board location (page 7)
- Installing the Slave EDR board (page 21)
- Connecting the SCSI cables (page 23)
- Installing the PCI Interconnect board (page 27)
- Reassembling the system (page 28)
- Verifying the installation (page 29)

There is also a section that discusses internal audio clock cabling (page 16).

Removing the Profile Unit from the Instrument Rack

If you cannot or do not want to install the Slave EDR board with the Profile chassis extended on the rack slides (as explained in the Profile system's Installation manual), you will need to use the following procedure to remove the Profile unit from the instrument rack:

1. Remove all cabling connected to the Profile chassis.
2. Loosen the front-panel retaining screws.
3. Grasp the handles and pull the chassis out until the slide sections latch. This holds the Profile chassis firmly in that position.



WARNING: *Removing the Profile chassis from the rack requires two people; it is too heavy for one person to lift.*

4. Press both track stop latch buttons (visible in the stop latch holes) and carefully slide the Profile chassis free of the tracks.



Removing the Chassis Covers

Use the following procedure to remove the chassis covers:

1. Turn off Profile system power and remove the power cord.

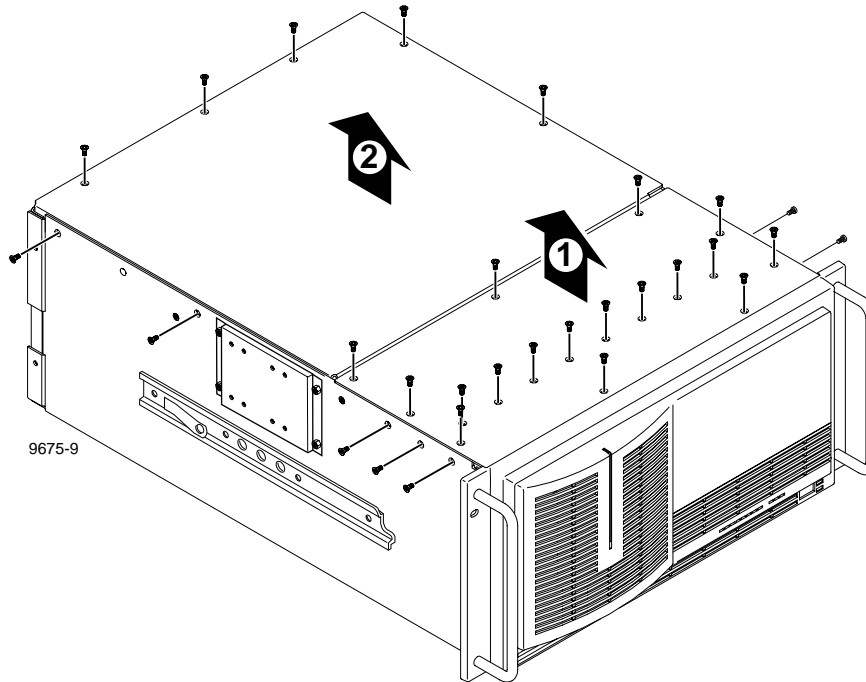


Figure 1. Removing the Chassis Cover Screws

2. Using a Torx tool with a T10 tip, remove the top screws from the front chassis cover and then use the T15 tip to remove the side screws. Remove the front cover (❶ in Figure 1). The front chassis cover must be removed first because it overlaps the rear chassis cover.

NOTE: Take care not to lose the chassis screws—they are required to meet EMI specifications for the Profile system. Also note that the PDR100 may not have the same number of screws as shown in Figure 1.

3. Using a Torx tool with a T10 tip, remove the rear chassis screws and then remove the rear cover (❷ in Figure 1).

Removing the Circuit Board Hold-down Brackets

There are two hold-down brackets (shown in Figure 2) you must remove to access the circuit boards. Use the procedure below to remove these brackets.

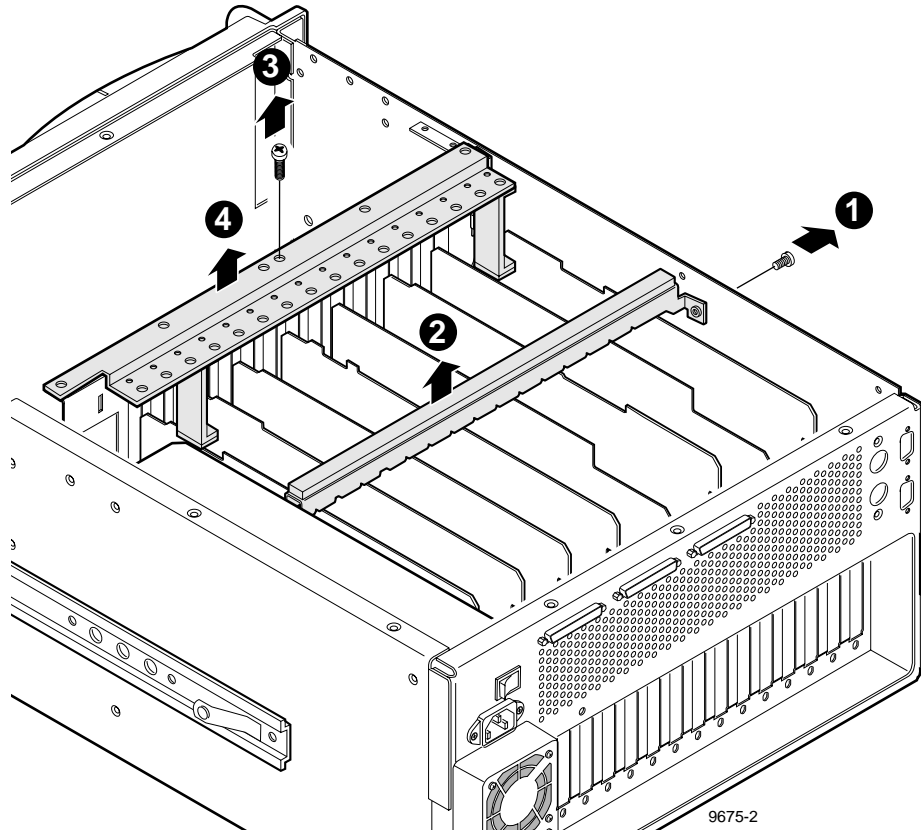


Figure 2. Removing the Circuit Board Hold-down Brackets

1. Using a Torx tool with a T10 tip, remove the screw (❶ in Figure 2) which secures the rear board hold-down bracket.
2. Lift the hold-down bracket (❷ in Figure 2) out of the chassis and set aside.
3. Using a Torx tool with a T10 tip, remove the screw (❸ in Figure 2) which secures the front board hold-down bracket.
4. Lift the hold-down bracket (❹ in Figure 2) out of the chassis and set aside.



Repositioning Circuit Boards

Installing the Slave EDR board may require repositioning one or more currently installed boards to either make room for the new board or meet internal cabling constraints. When unplugging boards it may also be necessary to remove a screw that mounts an adjacent circuit board or, in the case of some shorter circuit boards, it might be necessary to remove an adjacent tall circuit board to ease removal of the shorter board.

Use the following procedure to unplug a circuit board from the motherboard:

1. Remove all interior and rear panel cables, if any, from the circuit board.
2. Using a Torx tool with a T15 tip, remove the two bracket mounting screws: one that anchors the top of the bracket from inside the chassis (❶ in Figure 3) and one that anchors the bottom of the bracket from the outside rear panel of the chassis (❷ in Figure 3).



CAUTION: To avoid damage to a circuit board during removal or installation: 1) Do not rock the circuit board in the EISA Bus connector — pull it straight up. 2) Do not grasp or push on the rear-panel connectors when removing or installing circuit boards in the card slots.

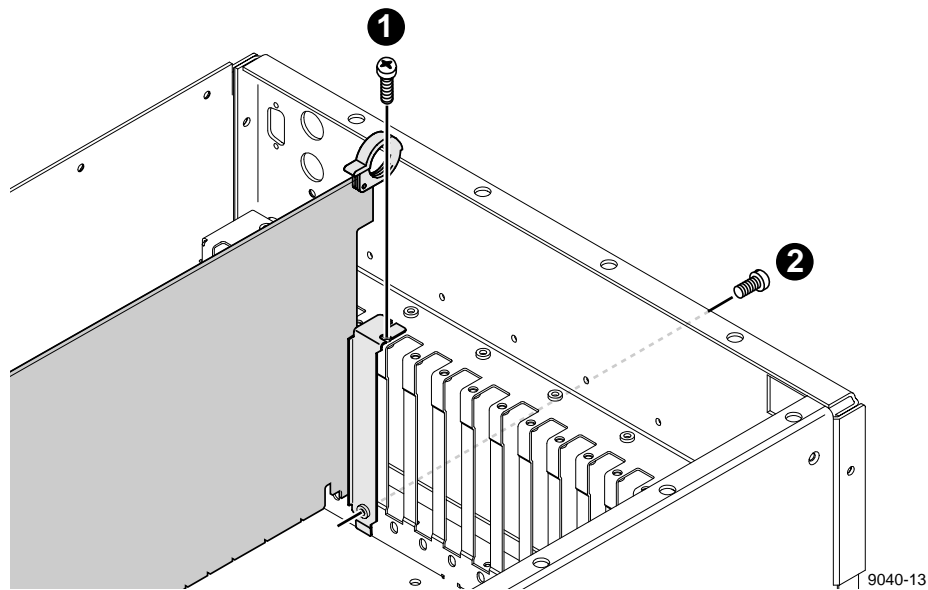


Figure 3. Removing the Board Mounting Bracket Screws

3. Extract the circuit board:
 - *For tall circuit boards*, use the extraction lever on the front of the board and the extraction ring at the back of the board to lift the circuit board free of the connectors on the motherboard.
 - *For short circuit boards*, carefully grasp the board and lift upward to free the circuit board from the motherboard connectors. You might need to remove an adjacent tall board to get enough room for a safe hold on the shorter board.

Board Location Guide

This section provides a simple approach you can use to determine proper board location. It explains the relationship between the motherboard and video router connectors and provides tables, charts and examples to assist you in installing boards.

Table 1 (page 8) identifies the inputs and outputs of all Profile boards currently available, as well as the input and output connections on the video router connectors on the motherboard. Use this information when:

- Adding a new circuit board to your Profile system and you need to select an installation slot.
- Moving boards to meet requirements for a new board.

Keep in mind that some circuit boards must occupy a specific slot, while you can install other boards in almost any slot that meets their I/O requirements.

NOTE: If more than one slot appears in a column in Table 1, the slots are listed in order of preference.

Video Router to Motherboard Relationship

The video router provides and controls video data to twelve connectors on the motherboard. These video data connectors are aligned with the main motherboard connectors for slots J5 through J16. Since the Reference Genlock (RefGen) board must occupy J16 to provide the necessary system clocks, this discussion excludes J16.

When choosing a board slot, the major constraint on a slot is how the board connects to the video router. Not all boards require the same number of video I/O connections and not all video data connectors provide the same number of video I/O connections. Therefore, you must know how many input and output connections the board you want to install needs, as well as the available slots that meet those requirements.



Table 1. Board Location Guide

Board	Video Router Connection Requirements		Recommended Slot		Other Possible Slots	Restrictions
	Inputs	Outputs	PDR 100	PDR 200		
CPU	None	n/a	J1	J1	None	
VGA	n/a	n/a	J2	J2	None	
LAN	n/a	n/a	J3	J3	None	
SCSI	n/a	n/a	J4	J4	None	
RefGen	n/a	n/a	J16	J16	None	
RS422	n/a	n/a	J17	J17	None	
FibreChannel	n/a	n/a	J15	J8	J5–J15	Must be adjacent to Master EDR
Master EDR	2	2	J14	J9	J5–J15	Must be adjacent to Slave EDR and (if installed) Fibre Channel
Slave EDR	2	2	J13	J10	J5–J15	Must be adjacent to Master EDR
Master DR	2	2	J14	n/a	J5–J15	Must be in adjacent to Slave DR
Slave DR	2	2	J15	n/a	J5–J15	Must be adjacent to Master DR
Serial Digital I/O	2	2	J11	J14, J15	J5–J15	Can't go in J5 if Mix Effects is in J6 or in J8 if Mix Effects is in J7
Decoder	None	None	J8	J5	J7, J11	Must be adjacent to Analog Composite In
Analog Composite In	None	1	J9	J6	J8, J12	Must be adjacent to Decoder
Analog Composite I/O	2	2	J11	J14, J15	J5–J15	Can't go in J5 if Mix Effects is in J6 or in J8 if Mix Effects is in J7
Mix Effects	6	2	J7	J7	J6	Only J6 and J7 have 5 inputs; board must be able to get a shared input (the 6th) from an adjacent slot (J5 or J8)
4 Ch. Analog Out	4	None	J6	J6	J12, J7, J11	Only J6, J7, J11, and J12 have 3 (or more) inputs. If in J11 or J12, board must be able get a shared input (the 4th) from an adjacent slot (J10 or J13)
Analog Composite Monitor	4	None	J12	J12	J6, J7, J11	Only J6, J7, J11, and J12 have 3 (or more) inputs. If in J11 or J12, board must be able get a shared input (the 4th) from an adjacent slot (J10 or J13)
Audio Signal Processing Bd (ASPB)	None	None	J13	J13	J5–J15	
CAV In	None	1	J5	J5	J5–J15	
Audio I/O	None	None	J5–J15	n/a	J5–J15	

Video Router I/O Connections

Now let's look at the video router connections available in slots J5–J15. Table 2 (page 10) lists the video router input and output connections. Here's a description of what appears in each column:

- The **Slot** column lists each slot on the motherboard connected to the video router.
- The **Board** column lists the boards currently installed, as well as the boards you want to install.
- The **Input** column identifies data input connections to the slots (boards) from the video router. The numbers in the blocks correspond to the order in which input connections are assigned at the video router connector.
- The **Output** column identifies data output connections from the slots (boards) to the video router. The numbers in the blocks correspond to the order in which output connections are assigned at the video router connector.

The shaded blocks in the diagram indicate video router connections shared between slots. Shared connections are available to either slot, but not both slots at the same time. Specifically, in Table 2:

- The shaded blocks between slots J5 and J6, slots J7 and J8, slots J10 and J11, and slots J12 and J13 indicate shared *input* connections.
- The shaded blocks between slots J8 and J9, slots J10 and J11, and slots J12 and J13 indicate shared *output* connections.

The next section describes how to select a board location.



Table 2. Board Location Chart

Slot	Board	Input	Output
J5		1	1
			2
		2	3
J6		6	
		5	
		4	2
		3	1
		2	
		1	
J7		1	1
		2	
		3	
		4	2
		5	
		6	
J8		2	1
			2
		1	3 4
J9		1	4 3
		2	2
			1
J10		1	1
			2
J11		2	3 4
		4	4 3
		3	
		2	2
J12		1	1
		2	2
		3	
		4	3 4
J13		2	4 3
			2
		1	1
J14		1	1
			2
J15		2	3
		1	1
			2
		2	3

Selecting a Location

The following procedure explains how to select a location for a board you want to add to your Profile system. Use Table 2 (page 10) as a template for recording information for the new board placement.

1. On Table 2, put a ✓ in each input and output block used by every board currently installed in your Profile system, starting with the **1** block for each board. Look in Table 1 (page 8) to get this information.
2. Using Table 1, find the input and output requirements, and the recommended slot and alternate slots (if any), for the board you want to install.
3. On Table 2, complete the following steps:
 - In the **Board** column, next to the appropriate slot number, write the name of the board you want to install.
 - Put an ✗ in the appropriate input blocks.
 - Put an ✗ in the appropriate output blocks.

NOTE: If you can't find an open slot with an I/O which meets the requirements of the board you want to install, you will have to move existing boards. You can use Table 1 and Table 2 to experiment with various board locations before deciding which board configuration you want to use.

The following examples show how to use the above procedure to select a location for the Slave EDR board.



Example 1

In this example you're going to add the Slave EDR board to a Profile 202D system which has the following boards already installed: Master EDR, Serial Digital I/O and Audio Signal Processing.

Table 3 (page 13) shows how the Board Location Chart should look after you have completed the following procedure.

1. On Table 2 (page 10), put a ✓ in each input and output block used by every board currently installed in your Profile system, starting with the **1** block for each board. Look in Table 1 (page 8) to get this information.
 - a. For the Master EDR board in slot J9, which requires two inputs and two outputs:
 - Put a ✓ in Input blocks 1 and 2 for slot J9.
 - Put a ✓ in Output blocks 1 and 2 for slot J9.
 - b. For the Audio Signal Processing board (ASPB) in slot J13:
 - There are no video router I/O connection requirements—no action is required.
 - c. For the Serial Digital I/O board in slot J14, which requires two inputs and two outputs:
 - Put a ✓ in Input blocks 1 and 2 for slot J14.
 - Put a ✓ in Output blocks 1 and 2 for slot J14.
2. Using Table 1, find the input and output requirements, and the recommended slot and alternate slots (if any), for the Slave EDR board. That table shows the Slave EDR board needing two input blocks and two output blocks. It also shows that the recommended slot position is J10 and that the board must be adjacent to the Master EDR board. Since the Master EDR board occupies slot J9 and the recommended slot for the Slave EDR board (J10) is open, that is the slot you must use.
3. On Table 2, complete the following steps:
 - Write **Slave EDR** in the **Boards** column for slot J10.
 - Put an ✗ in Input blocks 1 and 2 for slot J10.
 - Put an ✗ in Output blocks 1 and 2 for slot J10.

Table 3. Completed Chart for Example 1

Slot	Board	Input	Output
J5		1	1 2
		2	3
J6		6	2 1
		5	
		4	
		3	
		2	
		1	
J7		1	1
		2	
		3	
		4	2
		5	
		6	
J8		2	1
		1	2 3 4
J9	Master EDR	1 ✓	4 3
		2 ✓	✓ 2 ✓ 1
J10	Slave EDR	1 ✗	1 ✗ 2 ✗
		2 ✗	3 4
J11		4	4 3
		3	
		2	2
		1	1
J12		1	1
		2	2
		3	
		4	3 4
J13	ASPB	2	4 3
		1	2 1
J14	Serial Digital I/O	1 ✓	1 ✓ 2 ✓
		2 ✓	3
J15		1	1 2
		2	3



Example 2

This example is similar to Example 1 (page 12), with the exception that a Fibre Channel board has been previously installed in the Profile 202D system.

Table 4 (page 15) shows how the Board Location Chart should look after you have completed the following procedure.

1. On Table 2 (page 10), put a ✓ in each input and output block used by every board currently installed in your Profile system, starting with the **1** block for each board. Look in Table 1 (page 8) to get this information.
 - a. For the Fibre Channel board in slot J8:
 - There are no video router I/O connection requirements—no action is required.
 - b. For the Master EDR board in slot J9, which requires two inputs and two outputs:
 - Put a ✓ in Input blocks 1 and 2 for slot J9.
 - Put a ✓ in Output blocks 1 and 2 for slot J9.
 - c. For the Audio Signal Processing board (ASPB) in slot J13:
 - There are no video router I/O connection requirements—no action is required.
 - d. For the Serial Digital I/O board in slot J14, which requires two inputs and two outputs:
 - Put a ✓ in Input blocks 1 and 2 for slot J14.
 - Put a ✓ in Output blocks 1 and 2 for slot J14.
2. Using Table 1, find the input and output requirements, and the recommended slot and alternate slots (if any), for the Slave EDR board. That table shows the Slave EDR board needing two input blocks and two output blocks. It also shows that the recommended slot position is J10 and that the board must be adjacent to the Master EDR board. Since the Master EDR board occupies slot J9 and the recommended slot for the Slave EDR board (J10) is open, that is the slot you must use.
3. On Table 2, complete the following steps:
 - Write **Slave EDR** in the Boards column for slot J10.
 - Put an ✗ in Input blocks 1 and 2 for slot J10.
 - Put an ✗ in Output blocks 1 and 2 for slot J10

Table 4. Completed Chart for Example 2

Slot	Board	Input	Output
J5		1	1 2
		2	3
J6		6	2 1
		5	
		4	
		3	
		2	
		1	
J7		1	1
		2	
		3	
		4	2
		5	
		6	
J8	FibreChannel	2	1
		1	2 3 4
J9	Master EDR	1 ✓	4 3
		2 ✓	✓ 2
			✓ 1
J10	Slave EDR	1 ✗	1 ✗
		2 ✗	2 ✗
J11		4	4 3
		3	
		2	2
		1	1
J12		1	1
		2	2
		3	
		4	3 4
J13	ASPB	2	4 3
		1	2 1
J14	Serial Digital I/O	1 ✓	1 ✓
		2 ✓	2 ✓ 3
J15		1	1 2
		2	3



Audio Clock Cabling

NOTE: Although the Slave EDR board does not require audio clock cabling, the information is included here in case you have to move other boards to make room for the Slave EDR board.

This section provides information about audio clock cabling. In general, if all the audio/video devices are connected to house reference, audio clock cabling is not required. The need for audio clock cabling arises when an external audio clock signal from the appropriate video board must be used to synchronize the audio to the video. Cabling between connectors on the top of the video boards and connectors on the top of the ASPB provide the external audio clock signals.

ASPB Audio Clock Cabling

The ASPB provides input of four external audio clock signals, one to each Audio 1–Audio 4 bank, where each bank consists of four audio channels. ASPB Audio 1–Audio 4 connectors begin closest to the rear panel and go toward the front panel.

In general, the video board in the lowest numbered slot must provide the audio clock signal to the Audio 1 bank, the video board in the next lowest numbered slot must provide the audio clock signal to the Audio 2 bank, etc. For example, if you have video boards in slots J5 and J11, the audio clock signal from the video board in J5 must be connected to Audio 1 on the ASPB and the audio clock signal from the video board in J11 must be connected to Audio 2 on the ASPB. If, however, the video board in J5 has two audio clock signals, those signals must be connected to Audio 1 and Audio 2, respectively, on the ASPB and the audio clock signal from the video board in J11 must be connected to Audio 3.

Figure 4 (page 17) and Figure 5 (page 18) show examples of external audio clock cabling with the ASPB. In Figure 4, the Analog Composite I/O boards, installed in slots J14 and J15, are the only video boards. The audio clock cable connections are:

- Channel A of the board in slot J14 to Audio 1 on the ASPB in slot J13.
- Channel B of the board in slot J14 to Audio 2 on the ASPB in slot J13.
- Channel A of the board in slot J15 to Audio 3 on the ASPB in slot J13.
- Channel B of the board in slot J15 to Audio 4 on the ASPB in slot J13.

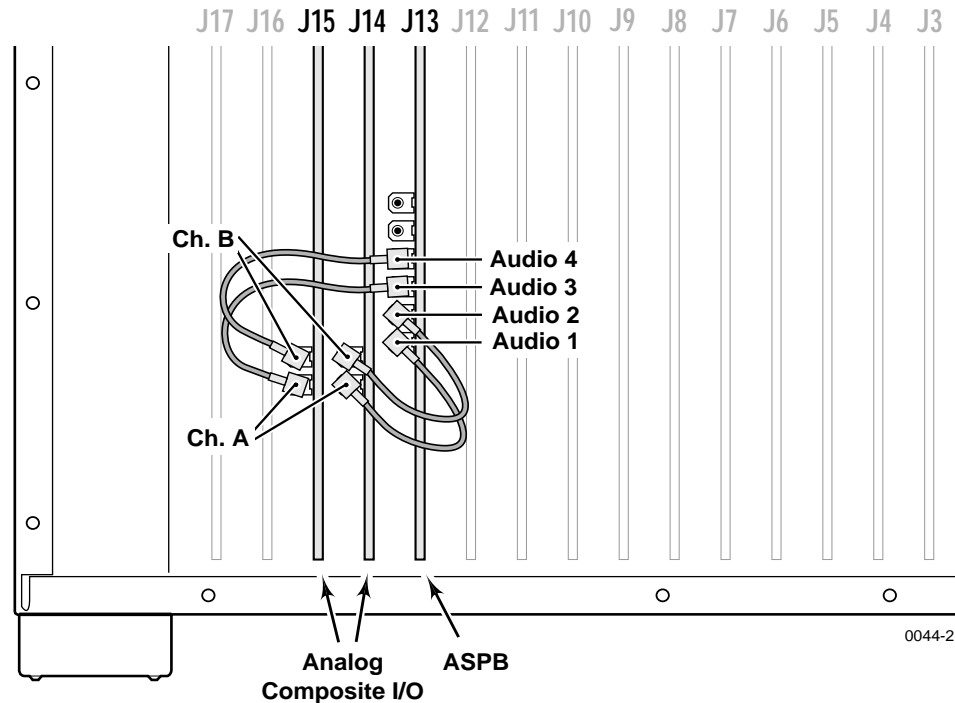


Figure 4. Example of Audio Clock Cabling in a PDR204A

In Figure 5 (page 18), the Analog Composite I/O board installed in slot J11 makes it the first video board (counting from J5 to J15) and the Serial Digital I/O board in slot J14 becomes the second video board. The new Audio clock cable connections should now be:

- Channel A of the board in slot J11 to Audio 1 on the ASPB in slot J13.
- Channel B of the board in slot J11 to Audio 2 on the ASPB in slot J13.
- Channel 1 of the board in slot J14 to Audio 3 on the ASPB in slot J13.
- Channel 2 of the board in slot J14 to Audio 4 on the ASPB in slot J13.

Keep in mind that the ASPB only provides for input of four audio clock signals. Also note the following:

- Figure 5 is an example of a two-channel PDR200 with one Serial Digital I/O board.
- If you have a four-channel PDR200 with two Serial Digital I/O boards, all four ASPB audio clock inputs may be connected.



Enhanced Disk Recorder Installation

- If all four ASPB clock inputs are connected and you then install another video board, you will have more audio clock signals than you have connections on the ASPB (two from the Analog Composite I/O board and four from the two Serial Digital I/O boards).

You will have to determine how you want to set up your system; that is, what you want to use as the signal sources that synchronize the audio to the video. While this is primarily a software configuration function, keep in mind that how you configure the audio clocks in software *must* match the physical connections.

NOTE: The Configuration Manager (see the Profile Family User Manual) allows you to assign either the system clock or a video source as the source of audio clocks. If you select a video source, then you must ensure that the audio associated with that video source is connected to the correct audio channel connectors.

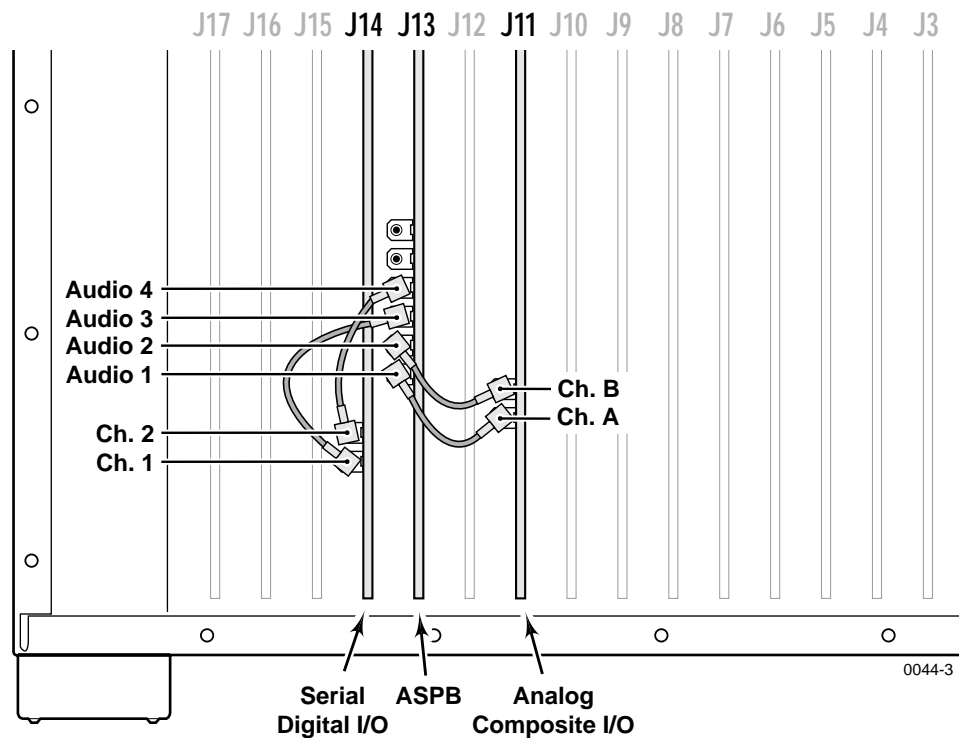


Figure 5. Example of Audio Clock Cabling in a PDR202D

Audio I/O Audio Clock Cabling

Figure 6 (page 20) shows an example of an Analog Composite I/O board installation in a PDR100 with two Analog Audio I/O boards. In the figure, audio clock cable connections are from:

- Analog Composite I/O Channel A to the RECORD connector on the Analog Audio I/O board in the lowest numbered slot from slot J5 to slot J15 (in this example, J9).
- Analog Composite I/O Channel B to the RECORD connector on the Analog Audio I/O board in the next lowest slot (in this example, J10).
- PLAY cables on both Audio I/O boards to any of the system clocks on the RefGen board, or to any board which has system clock connectors (such as the Analog Composite Output board).

Figure 6 is an example. If you have other video boards installed, or add Audio I/O boards, you will need to determine which video source you want to use for the audio clock signals and then make the appropriate Audio I/O board connection adjustments.

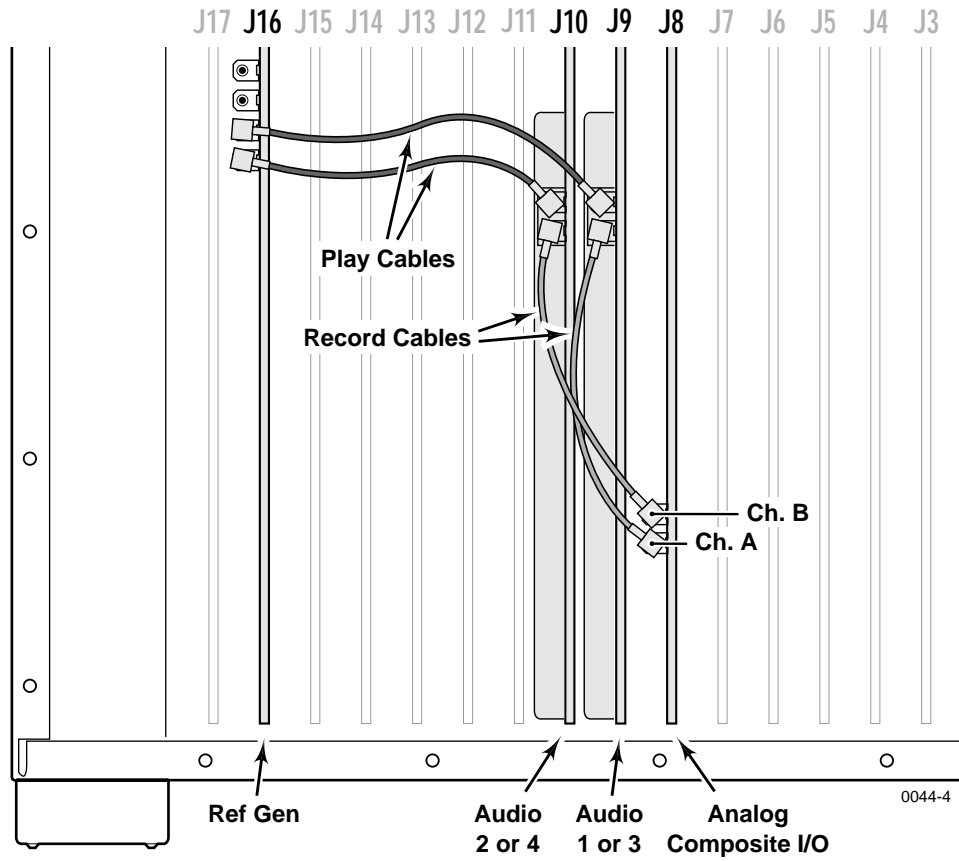


Figure 6. Example of Audio Clock Cabling with Two Audio I/O Boards

Installing the Slave Enhanced Disk Recorder Board

The following procedure explains how to install the Slave EDR board:

1. Disconnect the SCSI cable from the Master EDR board (❶ in Figure 7). Note that there are *two* SCSI cables to disconnect if your system has eight hard drives.
2. Determine which slot the Slave EDR board will be using. Refer to Table 1 (page 8). If you aren't sure how to interpret Table 1, read the section titled "Board Location Guide" (page 7).
3. If necessary, remove the slot cover where you want to install the board.
4. Align the board with the connectors on the motherboard, making sure the extractor on the front end of the board is in the up position. Firmly press down on the board (❷ in Figure 7) until the board seats. The board is properly seated when the top of the rear mounting bracket is resting on the rear chassis wall shelf.

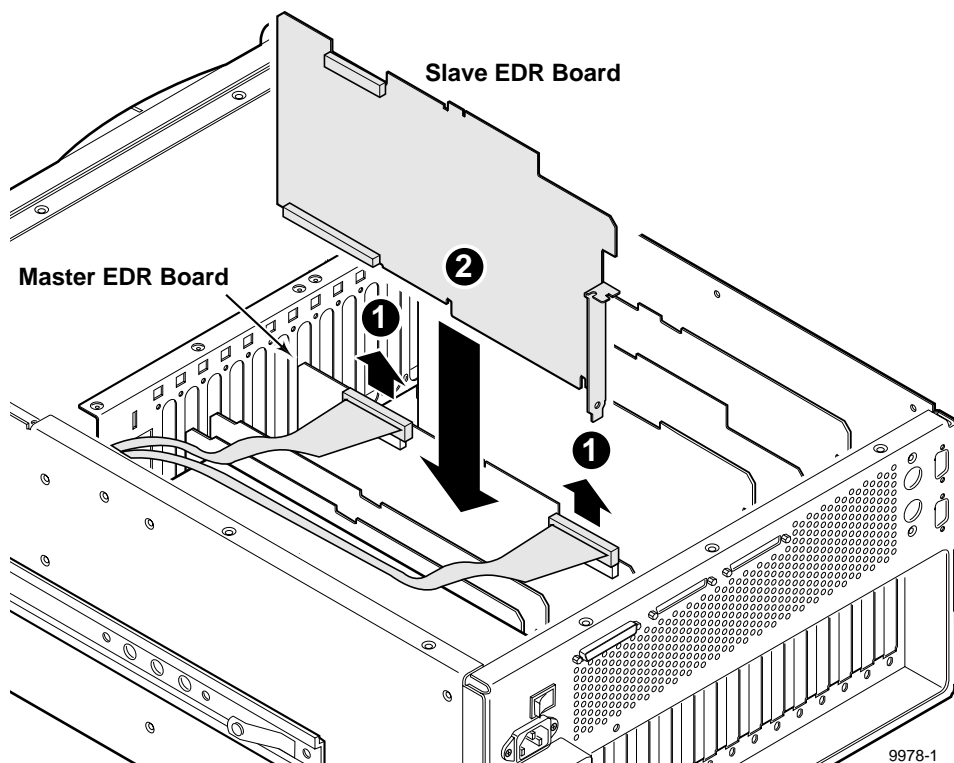


Figure 7. Installing the Slave EDR Board



Enhanced Disk Recorder Installation

- Using a Torx tool with a T15 tip, install the two mounting bracket screws: one that anchors the top of the bracket from inside the chassis (❶ in Figure 8) and one that anchors the bottom of the bracket from the outside rear panel of the chassis (❷ in Figure 8).

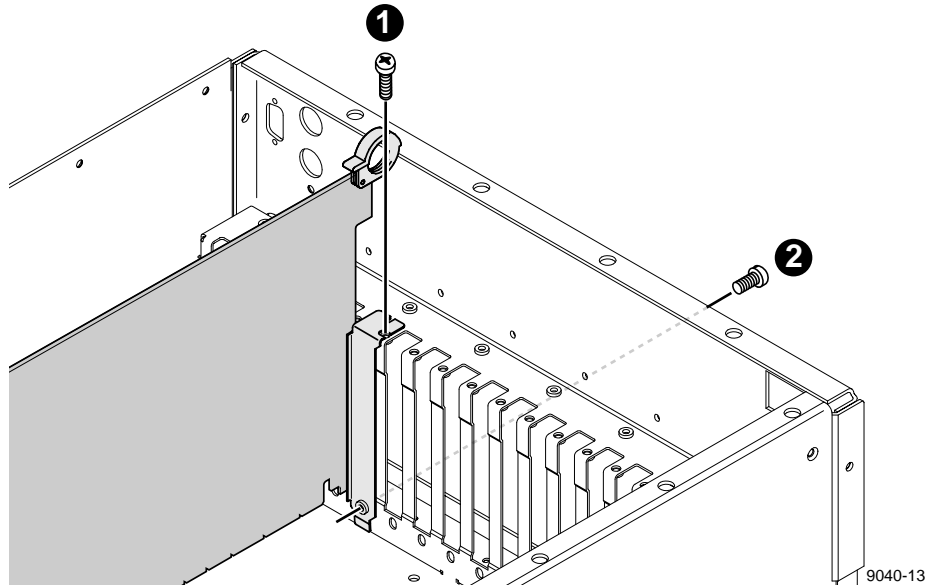


Figure 8. Installing the Board Mounting Bracket Screws

- If necessary, install the blank circuit board brackets in the empty board slots on the rear panel of the chassis.
- Reconnect any audio clock cables previously removed. Refer to “Audio Clock Cabling” (page 16) if you need help determining cable connections.
- Using a Torx tool with a T10 tip, reinstall the rear board hold-down bracket. See Figure 2 (page 5).



CAUTION: To prevent damage to a Monitor board, if installed, do not install a short board extension on the front hold-down bracket at the Monitor board location.

- If necessary, reconfigure the front board hold-down, moving or removing a short board extension.
- Using a Torx tool with a T10 tip, reinstall the front board hold-down bracket. See Figure 2.

Connecting the SCSI Cables

After installing the Slave EDR board, you need to reconnect the SCSI cables you had removed earlier. You will also need to add other SCSI cables, depending on your system configuration. All necessary cables are included in this kit.

Table 5 lists SCSI cable connections for a Profile system that has eight hard drives, a Master EDR and a Slave EDR.

Table 5. SCSI Cables Connections

Connect This SCSI Cable:	From:	To:
A	Hard Drive (Bank A)	Master EDR
B	Master EDR	External B slot
C	Hard Drive (Bank C)	Slave EDR
D	Slave EDR	External D slot

After determining which SCSI cables your system needs, use the procedure, explained below, to connect the cables.

NOTE: For illustrative purposes, the following procedure shows a Profile system that includes eight hard drives, a Master EDR board and a Slave EDR board. Your system may have a different configuration.



Enhanced Disk Recorder Installation

1. Connect the SCSI A cable from the Hard Drive (Bank A) to the SCSI A connector on the Master EDR board, and the SCSI C cable from the Hard Drive (Bank C) to the SCSI C connector on the Slave EDR board, as shown in Figure 9.

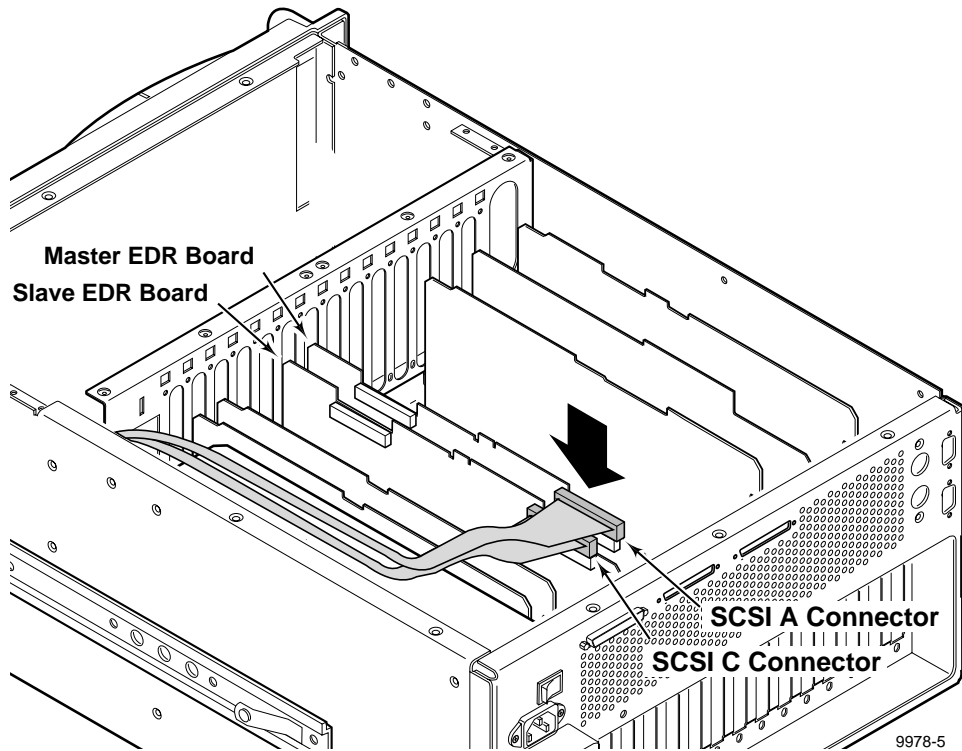


Figure 9. Connecting the SCSI A and SCSI C Cables

- Using a 3/16-inch hex wrench, remove and set aside the metal plate that covers the SCSI D slot and (optionally) the SCSI B slot on the back panel of the Profile chassis. See Figure 10.

NOTE: Skip this step if you installing the Slave EDR board into a Profile PDR100.

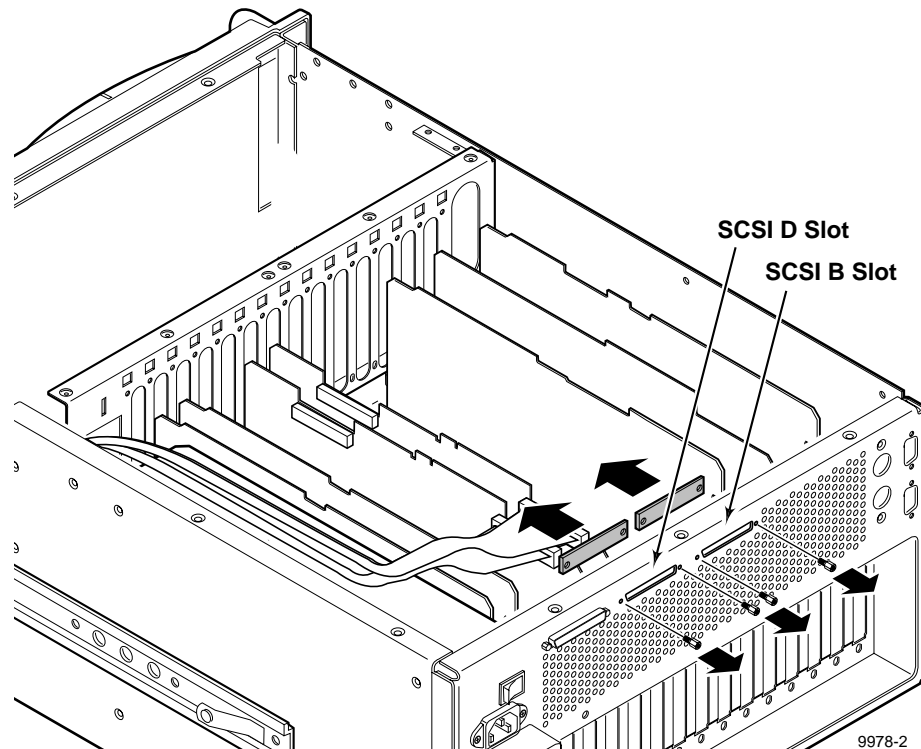


Figure 10. Removing the Back Panel Metal Plates



Enhanced Disk Recorder Installation

3. Connect the SCSI B cable from the Master EDR board to the SCSI B slot on the back panel of the Profile chassis, and the SCSI D cable from the Slave EDR board to the SCSI D slot on the back panel, as illustrated in Figure 11.

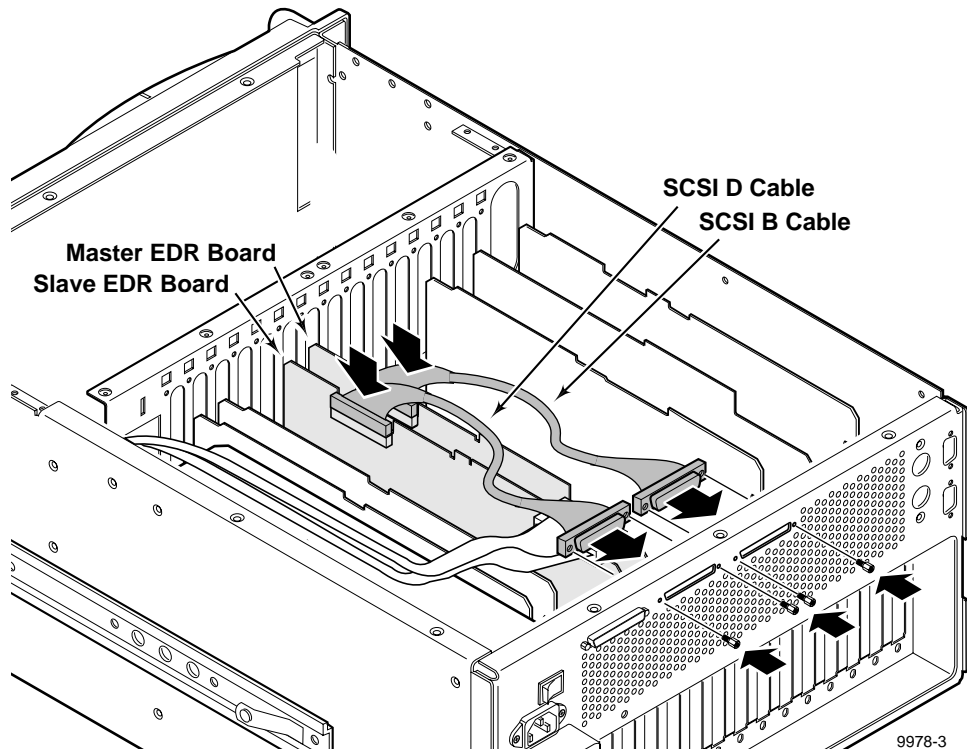


Figure 11. Connecting the SCSI B and SCSI D Cables

Installing the PCI Interconnect Board

The PCI Interconnect board is a high-speed bus used to move data between the Master EDR and the Slave EDR.

To connect the PCI Interconnect board, as illustrated in Figure 12:

1. Align the keys on the PCI Interconnect board with the key on the Master EDR board and with the key on the Slave EDR board.
2. Press down firmly on the Slave EDR board to ensure the board is properly seated.

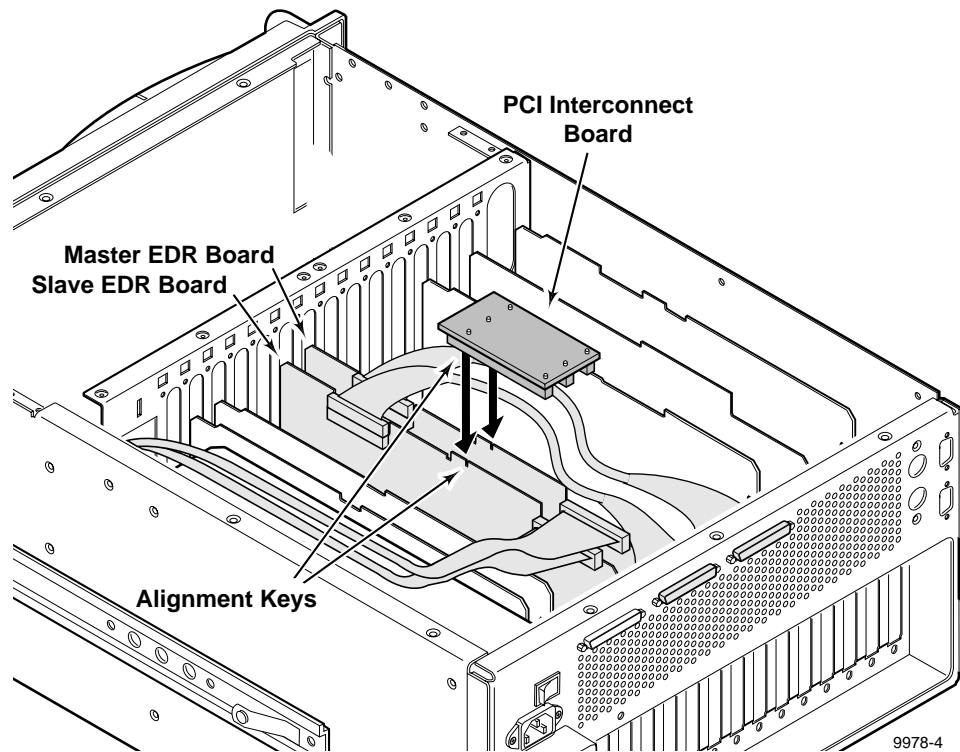


Figure 12. Installing the PCI Interconnect Board



Reassembly Procedure

After installing the Slave EDR board and adding any other I/O boards you want, use the following procedure to reassemble your system:

1. Using a Torx tool with a T10 tip, reinstall the rear chassis cover with the screws previously removed. See Figure 1 (page 4).
2. Using a Torx tool with T10 and T15 tips, reinstall the front chassis cover with the screws previously removed. See Figure 1.
3. Apply the stick-on label to the appropriate location on the Profile chassis rear panel to identify the location of the Slave EDR board and any other boards you may have added or repositioned.
4. *If you previously removed the Profile chassis from the mounting rack*, reinstall the chassis, as explained in the Profile system's Installation manual.
5. Reconnect all cables previously removed.
6. Apply power to the Profile system.
7. Verify the installation. See "Installation Verification" (page 29) for more information.
8. Configure the system for the Slave EDR board. Refer to the chapter in the *Profile Family User Manual* that describes the Profile Configuration Manager.

Installation Verification

Installation verification of a board you have added to your Profile system consists of using the Diagnostics window to ensure that the system recognizes the board. Use the following procedure to check for recognition of the Slave EDR board you just installed:

1. From the Windows NT 4.0 desktop, open the Diagnostics window by choosing **Start | Programs | PDR Debug Tools | PDR Diagnostics**.
2. Ensure that the Slave EDR board appears in the slot where you installed it.

Figure 13 is an example of what would appear in the Diagnostic window if all the boards shown in Example 2 (page 14) were actually installed.

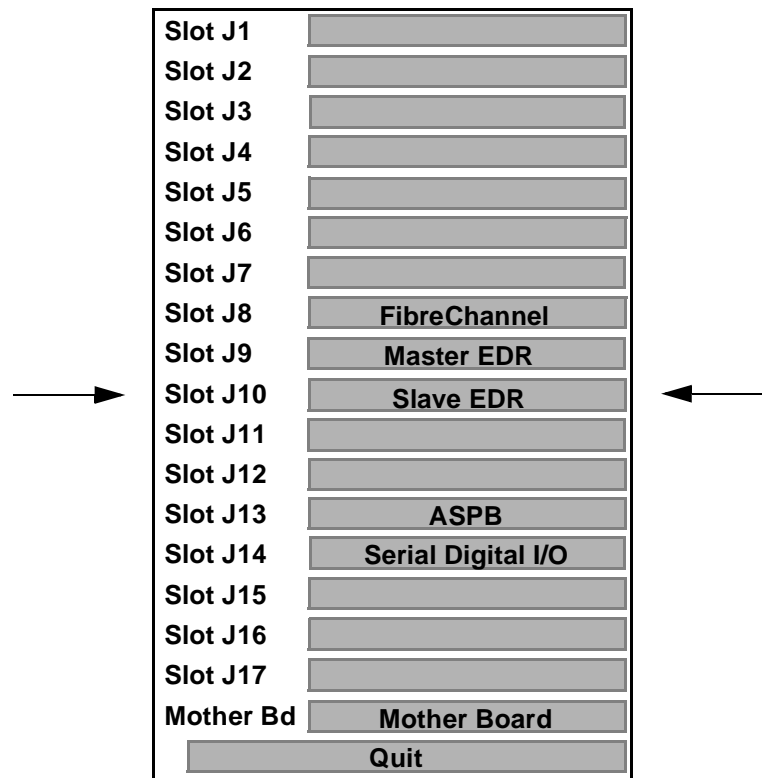


Figure 13. Example Diagnostics Window Display

This completes the installation of the Profile Enhanced Disk Recorder board.

