GRASS VALLEY GROUP

AUDIO SIGNAL PROCESSING BOARD

Installation Manual

071-0047-02

NOVEMBER 2000

PROFILE FAMILY

VIDEO FILE SERVERS

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Revision Status

Rev Date	Description
December 1997	Original issue. Manual Part Number 071-0047-00.
July 1998	Modified to include PDR300 and also new PDR200 recommended board slot table, roll P/N to 071-0047-01.
November 2000	Revised Product Support contact information. Part Number 071-0047-02.

Contents

Tables

Figures

Grass Valley Group Product Support

You can get technical assistance, check on the status of problems, or report new problems by contacting our Product Support Group.

United States and Canada

Monday–Friday 5:30AM–5:00PM Pacific Time
(800) 547-8949

Europe

Monday–Friday 9:00AM–5:30PM

France	01 45 29 73 00	United Kingdom	01628 405830
Germany	49 221 1791 234	Other	+44 1753 218 777
Italy	02 25086606		

Asia and South America

Australia	02-9888 0100	Japan	81-3-3448-3111
- from overseas	61-2-9888 0100	Korea	82-2-528-5299
Beijing	86-10-62351230 ext. 711	Mexico	52-5-666-6333
		Singapore	65-356-3900
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World Wide

24-hour Emergency Hotline (530) 478-4148 (Contract and warranty customers)

World Wide Web	http://www.grassvalleygroup.com/support//
FTP Site	ftp.grassvalleygroup.com
E-mail	profile-users@grassvalleygroup.com

General 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.***

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

While using this product, you may need to access other parts of the system. Read the general safety summary in other system manuals for warnings and cautions related to operating the system.

Injury Precautions

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 while servicing, disconnect the main power by means of the power cord.

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.

Avoid Exposed Circuitry

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

Do Not Operate Without Product Covers in Place

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.

Product Damage Precautions

Use the Proper Voltage Setting

Ensure that the line selector is in the proper position for the power source before applying power.

Provide Proper Ventilation

Prevent product overheating by providing proper ventilation.

Do Not Operate If You Suspect Product 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 you read 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

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 this installation 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 or her 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 a 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 préscrites 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	*Designed/tested for compliance with:* **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 (includes Appendix ZB)

ASPB Installation

Before You Start

These instructions describe how to install an Audio Signal Processing Board (ASPB) as an upgrade.

Procedures included are for:

- PDR200 or PDR300 - adding a second ASPB to the existing ASPB, upgrading the unit from 16 to a total of 32 audio channels.
- PDR100 - replacing the standard Analog Audio I/O board set (up to four boards) with a single ASPB for a maximum of 16 audio channels.

Here are some common reasons for installing this upgrade in your Profile system:

- PDR200 or PDR300 - To add more audio channels when adding more video channels (for instance, the MPEG upgrade), or to add more audio channels for existing video channels.
- PDR100 - To give the unit digital audio capability, or to free up motherboard slots for other options.

NOTE: If you are installing upgrades other than the ASPB, Grass Valley Group recommends that you perform those upgrades first.

Audio Interface Requirements

The ASPB can be configured to operate with analog, AES/EBU digital, and digital embedded (SMPTE 272M Level A) audio.

- Embedded Audio - No interface chassis is required when using embedded audio since the audio is embedded in the serial digital video signal.
- Embedded audio can be used with all products; however, with the ASPB, embedded audio is only available in a PDR100 if you upgrade it with the latest serial digital I/O boards.
- Analog and AES/EBU Audio - An interface chassis is required for analog or AES/EBU digital audio. Table 14 on page 65 contains a summary of audio interface chassis available.

Verifying System Requirements

Use the following information to determine if your unit has the correct software and hardware installed for this upgrade.

Profile System Software

You may need to upgrade the Profile system software to complete this upgrade. Follow this procedure to check the software version installed on the Profile system and then refer to Table 1.

1. Open the VdrPanel application.
2. Choose **Help | About VdrPanel**.
3. The software version is listed in the Product Version field in the displayed window.
4. Refer to Table 1 below for system software requirements and then perform a software upgrade if necessary.

NOTE: To obtain software and software release notes in order to complete the upgrade, contact your Grass Valley Group representative.

Table 1. System software requirements for ASPB upgrade

Product Name	Required Software Version
PDR200 or PDR300	2.4 or greater
PDR100	2.2

Profile System Hardware

Refer to Table 2 for system hardware requirements.

Table 2. Hardware requirements

Product Name	Hardware Requirements
PDR100	1. All Analog Audio I/O boards must be removed. 2. Only one ASPB may be installed.
PDR200 or PDR300	1. One open motherboard slot for the 2nd ASPB. 2. No more than two ASPBs may be installed. 3. PDR200s with serial numbers B029999 and below may require a Enhanced Disk Recorder board memory upgrade. Please refer to the software release notes for information regarding memory requirements. If you don't have a copy of the software release notes please view the Grass Valley Group Web site or contact your Grass Valley Group representative.

Kit Contents

A list of kit contents is shown in Table 3.

Table 3. ASPB kit contents

Qty.	Item
1	Audio Signal Processing Board (ASPB)
4	Sharcnet ribbon cables for digital embedded audio
4	50 Ω coaxial audio clock cables
3	Blank circuit board brackets (for PDR100)
1	Set of stick-on board identification labels
5	Screws for circuit board brackets
1	Installation manual
1	Warranty card

Tools Required

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

- A Torx tool with T10 and T15 tips.
- 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 nonconductive materials. Static-protected areas include nonstatic table tops and nonstatic 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 ESD static-shielded bag until you are ready to install the board.***

Installation Procedures

The procedures that follow take you step-by-step through the installation of the Audio Signal Processing Board (ASPB).

Procedure Overview

Table 4 contains a list of steps you will perform in this procedure.

Table 4. Procedure overview

Gaining Access To the Profile Chassis Covers

You can install the ASPB with the Profile chassis fully extended on the rack slides if the instrument rack is adequately anchored 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.

To gain access to the chassis covers:

1. Turn Profile system power off and remove the power cord.
2. Loosen the front panel retaining screw and pull the chassis out until the slide sections latch. If the rack is not anchored firmly, remove the chassis from the rack. (For more information, see the discussion on rack mounting in the product ***Installation Manual***.)

⚠ ***WARNING: To avoid possible injury, get help when removing the Profile chassis from the rack. The Profile chassis is too heavy for one person to remove from an equipment rack.***

Removing the Chassis Covers

To remove both chassis covers:

NOTE: The front chassis cover must be removed first because it overlaps the rear chassis cover (❷ in Figure 1).

1. Confirm that the Profile system power is switched off and the power cord is removed.
2. Use the Torx tool with the T10 tip to remove the top screws from the front chassis cover (❶ in Figure 1) and then use the T15 tip to remove the pan-headed side screws.

NOTE: Take care not to lose these chassis screws. They are required to meet the EMI specifications for the Profile system. Also, not all the screws shown in Figure 1, are present on a PDR100.

3. Use the Torx tool with the T10 tip to remove the rear chassis cover (❷ in Figure 1) which covers the circuit boards.

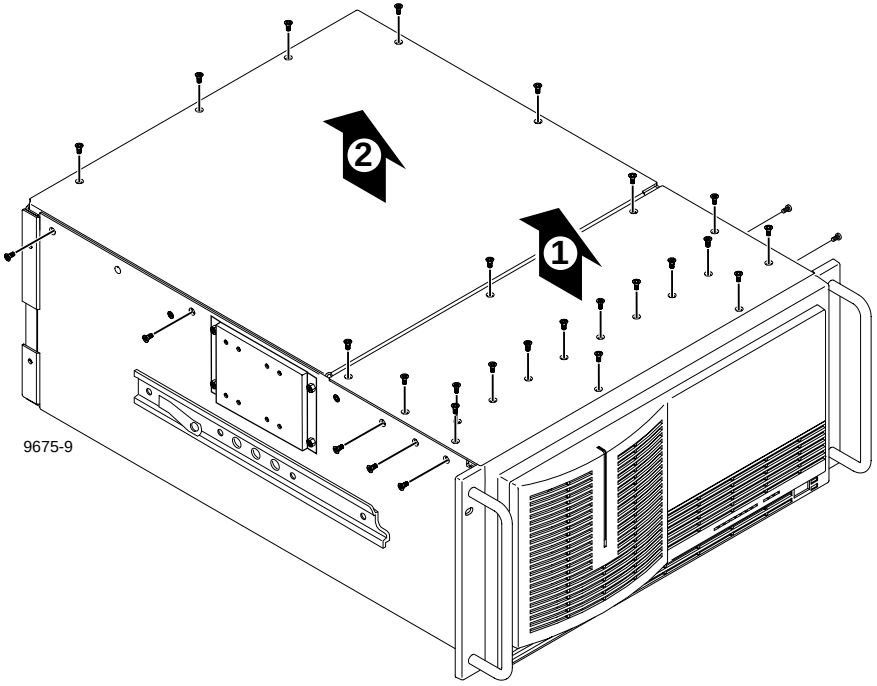

Figure 1. Removing the front and rear chassis covers

Removing the Circuit Board Hold-down Brackets

There are two hold-down brackets located in the circuit board area of the chassis that must be removed in order to install other boards.

To remove the board hold-down brackets:

1. Use the Torx tool with the T10 tip to remove the exterior screw (❶ in Figure 2) that secures the rear board hold-down bracket.
2. Lift the bracket (❷ in Figure 2) up and out of the chassis and set it aside.
3. Use the Torx tool with the T10 tip to remove the interior screw (❸ in Figure 2) that secures the front board hold-down bracket.
4. Lift the bracket (❹ in Figure 2) up and out of the chassis and set it aside.

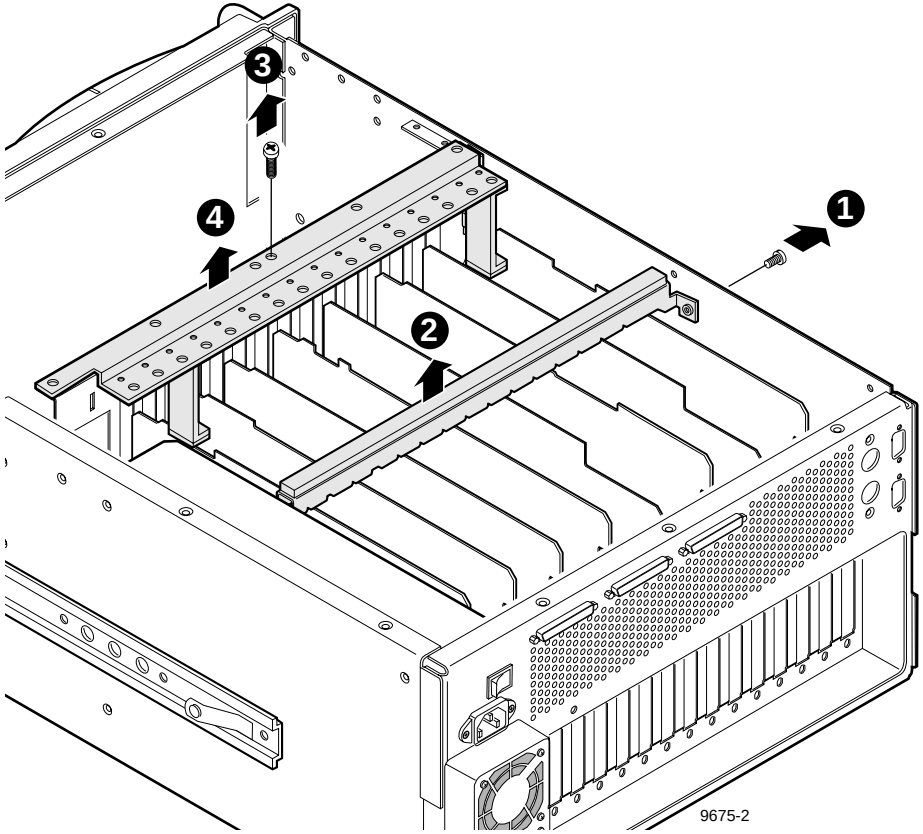

Figure 2. Removing the circuit board hold-down brackets

Removing Analog Audio I/O Boards (PDR100 ONLY)

NOTE: If you are not upgrading a PDR100 proceed to the next step, "Installing the ASPB In Recommended Slot Locations" on page 26.

You **must remove all** Analog Audio I/O boards from the PDR100 before installing the ASPB.

To remove all the Analog Audio I/O boards:

1. Remove all interface cables from the rear of the Analog Audio I/O boards if you have not done so already. Refer to the rear panel labeling to help identify the Analog Audio I/O boards.
2. Disconnect and remove all internal coaxial clock cables connected between the Analog Audio I/O boards and video boards.
3. Remove the circuit board mounting screw inside the chassis for each Analog Audio I/O board using the Torx tool with the T15 tip (❶ in Figure 3).

CAUTION: To avoid damage to the circuit board when removing or installing it:

- ***Do not rock the circuit board in the EISA bus connector—pull straight up to remove.***
- ***Do not grasp or push on the rear-panel connectors when removing or installing circuit boards in the card slots.***

4. Carefully grasp the Analog Audio I/O board and lift upward to free the circuit board from the motherboard connectors.

NOTE: If you have difficulty removing the circuit boards:

- ***It may be necessary to remove the screw mounting an adjacent circuit board.***
- ***It may be necessary to remove an adjacent tall circuit board to ease removal of the shorter Analog Audio I/O board. Use the following procedure to remove adjacent tall circuit boards.***

To remove adjacent tall circuit boards:

1. Remove all interior and rear panel cables from the circuit boards that are to be removed.
2. Use the Torx tool with the T15 tip to remove the screw from the bracket inside the chassis (❶ in Figure 3) and the screw through the rear panel outside the chassis (❷ in Figure 3).
3. Extract the circuit board using 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.
4. Replace the tall boards after all Analog Audio I/O boards have been removed.
5. Proceed to "Installing the ASPB In Recommended Slot Locations" on page 26.

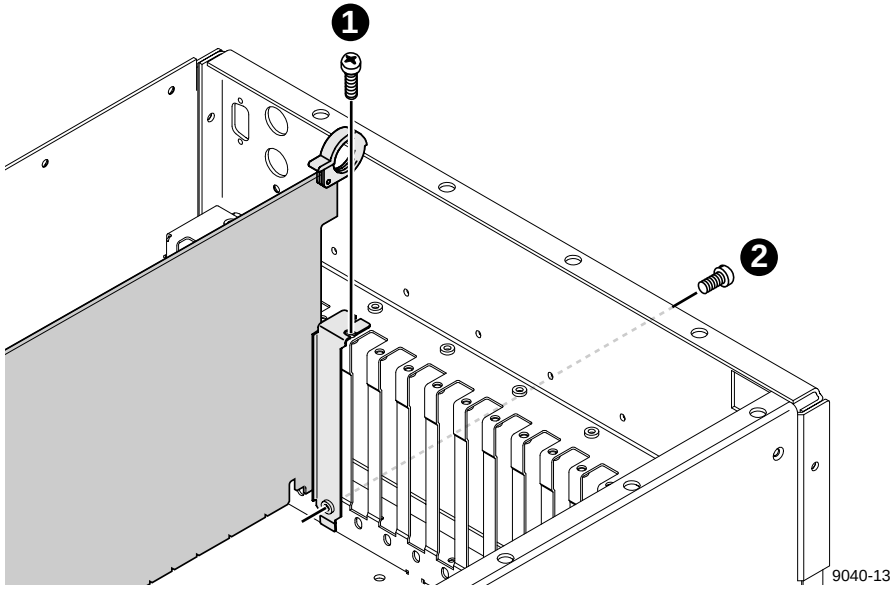

Figure 3. Screw locations for board mounting bracket

Installing the ASPB In Recommended Slot Locations

The ASPB may be installed in any motherboard slot from J5 to J15. However, depending on the product and serial number, there are certain recommended slots.

To install the ASPB:

1. Refer to Table 5 to determine the recommended slot location for your product and serial number. Slot numbers are labeled on the rear panel of your unit. If the recommend slots are not open, choose any slot from J5 to J15, keeping in mind cable dress issues.

NOTE: If for any reason you chose to move any other circuit boards, refer to the "Board Locator Guide" on page 74. Follow the instructions under "Selecting a Board Location" on page 77.

Table 5. ASPB recommended slot locations

Product	Serial Number	Recommended Slot
PDR100	any serial number	any open slot
PDR200	B029999 and below	J13 or J5
PDR200 with MPEG Option	B029999 and below	J5 or J7
PDR200	B030000 and up	J5 or J7
PDR300	B010000 and up	J5 or J7

2. If necessary, remove the slot cover where you plan to install the ASPB.
3. To seat the ASPB into the motherboard:
   a. Align the board with the connectors on the motherboard. Make sure that the board is in the board guide at the front edge.
   b. With the extractor on the front end of the board in the up position, press down on the board firmly until it is seated.
   c. As you push the board into the connectors, you will feel the board engage first one, then another set of contacts in the connector. The board is properly seated when the top of the rear mounting bracket is resting on the rear chassis wall shelf.

4. Use the Torx tool with the T15 tip to install the mounting screws in the top of the bracket inside the chassis (❶ in Figure 3) and through the rear panel at the bottom of the bracket (❷ in Figure 3).
5. Install slot covers (if necessary) in the empty board slots on the rear panel.
6. Proceed to the next step “Connecting Audio Clock and Sharcnet Cables” on page 28.

Connecting Audio Clock and Sharcnet Cables

This section describes how to connect coaxial audio clock cables and Sharcnet ribbon cables between the Audio Signal Processing Boards (ASPB) and video I/O boards. The following paragraphs describe briefly the function of the ASPB cables. If you want a more detailed description, refer to “Detailed Explanation Of ASPB Cabling” on page 59.

- Audio Clock Cables - These cables connect the ASPB to the video input boards. The ASPB may be configured to use the signals from the video boards as a reference to synchronize audio sampling to non-synchronous video feeds.
- Sharcnet Ribbon Cables to Serial Digital Video I/O boards - Sharcnet ribbon cables are used to connect the ASPB to Serial Digital I/O boards that have Sharcnet connectors. These boards have the embedded audio feature. The Sharcnet cables carry audio to and from the ASPB.
- Sharcnet Cables Between ASPBs - If two ASPBs are installed in a unit they must be connected together using these Sharcnet ribbon cables.

Before You Start

Study Figure 4 and your unit to determine what video I/O boards are installed, and then, do one of the following:

1. **Follow a cabling example** - Check to see if your configuration matches one of those in Table 6 on page 31.

   If so, turn to the correct page and use the cabling example as a guide to connect the ASPB cables. When you are finished, proceed with "Reassembling the Profile Chassis" on page 63.

   If you don't find your configuration in Table 6, go to step 2 which follows.

   Although the actual board locations shown in the cabling examples may differ from yours, the cabling rules are the same.

2. **Follow the written instructions** - If you do not find your configuration in Table 6 use one of the following procedures:

   - "Connecting Audio Clock Cables in the PDR 200/300" on page 46.
   - "Connecting Audio Clock Cables in the PDR 100" on page 50.

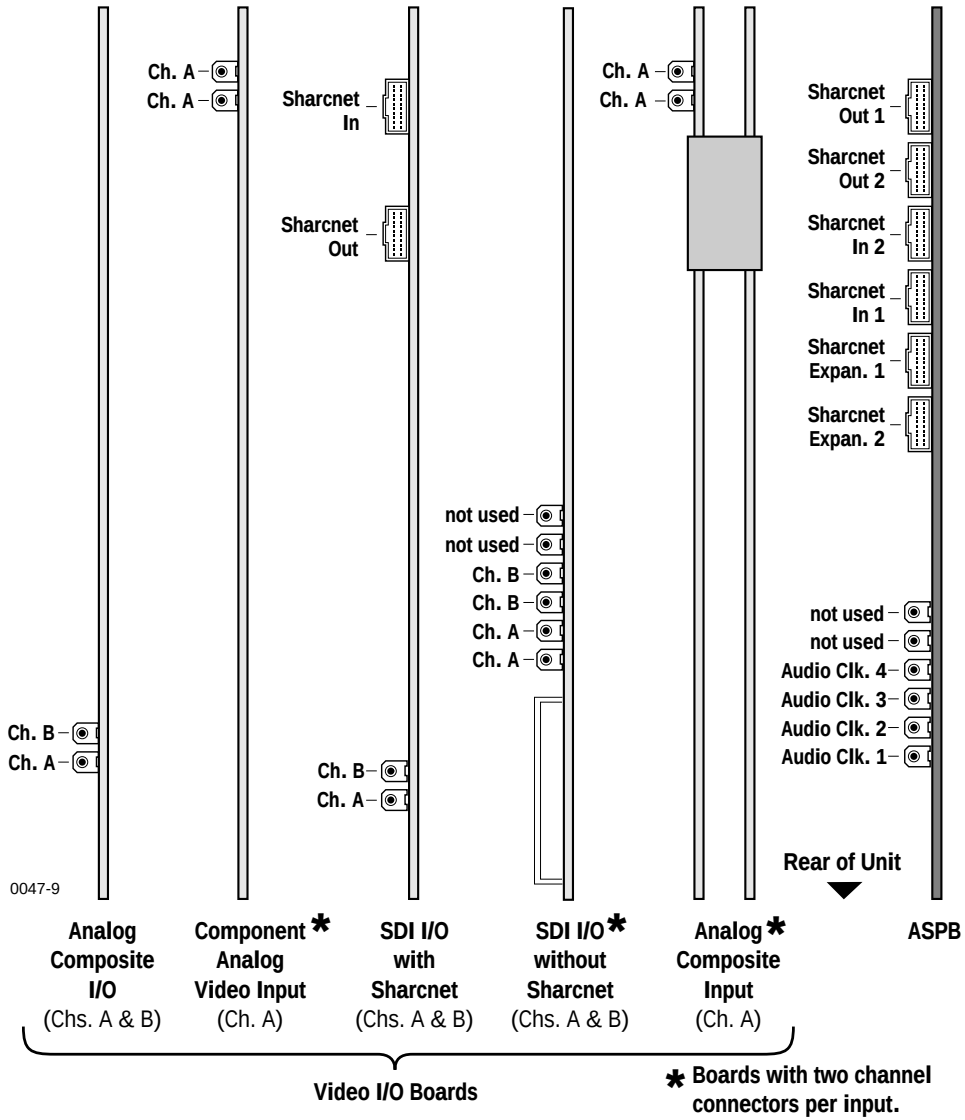

Figure 4. Identifying the ASPB, the video I/O boards, and their connectors

Table 6. Sharcnet and Audio Clock cabling examples

Product	Number of ASPBs	Video Boards Installed	Example Page Number
PDR200/300	2	two Serial Digital I/O	32
PDR200/300	2	four Serial Digital I/O	34
PDR200	2	two Analog Composite I/O	36
PDR100	1	two Serial Digital I/O (no Sharcnet connectors)	38
PDR100	1	two Serial Digital I/O (with Sharcnet connectors)	40
PDR100	1	two Analog Composite I/O	42
PDR100	1	two Analog Composite Input board sets	44

Two SDI Boards and Two ASPBs

The example in Table 7 and Figure 5 shows audio clock and Sharcnet cabling for two Serial Digital I/O boards and two ASPB.

Table 7. Cabling for two Serial Digital I/O boards and two ASPBs

Cable Type	Serial Digital I/O Slot	Serial Digital I/O Connection	ASPB1 Connection (J12)	ASPB 2 Connection (J13)
Sharcnet	N/A	N/A	Sharcnet Expansion 2	Sharcnet Expansion 1
Sharcnet	N/A	N/A	Sharcnet Expansion 1	Sharcnet Expansion 2
Sharcnet	J14	Sharcnet In	Sharcnet Out 1	N/A
Sharcnet	J14	Sharcnet Out	Sharcnet In 1	N/A
Sharcnet	J15	Sharcnet In	N/A	Sharcnet Out 1
Sharcnet	J15	Sharcnet Out	N/A	Sharcnet In 1
Audio clock	J14	Channel A	Audio 1	N/A
Audio clock	J14	Channel B	Audio 2	N/A
Audio clock	J15	Channel A	N/A	Audio 1
Audio clock	J15	Channel B	N/A	Audio 2

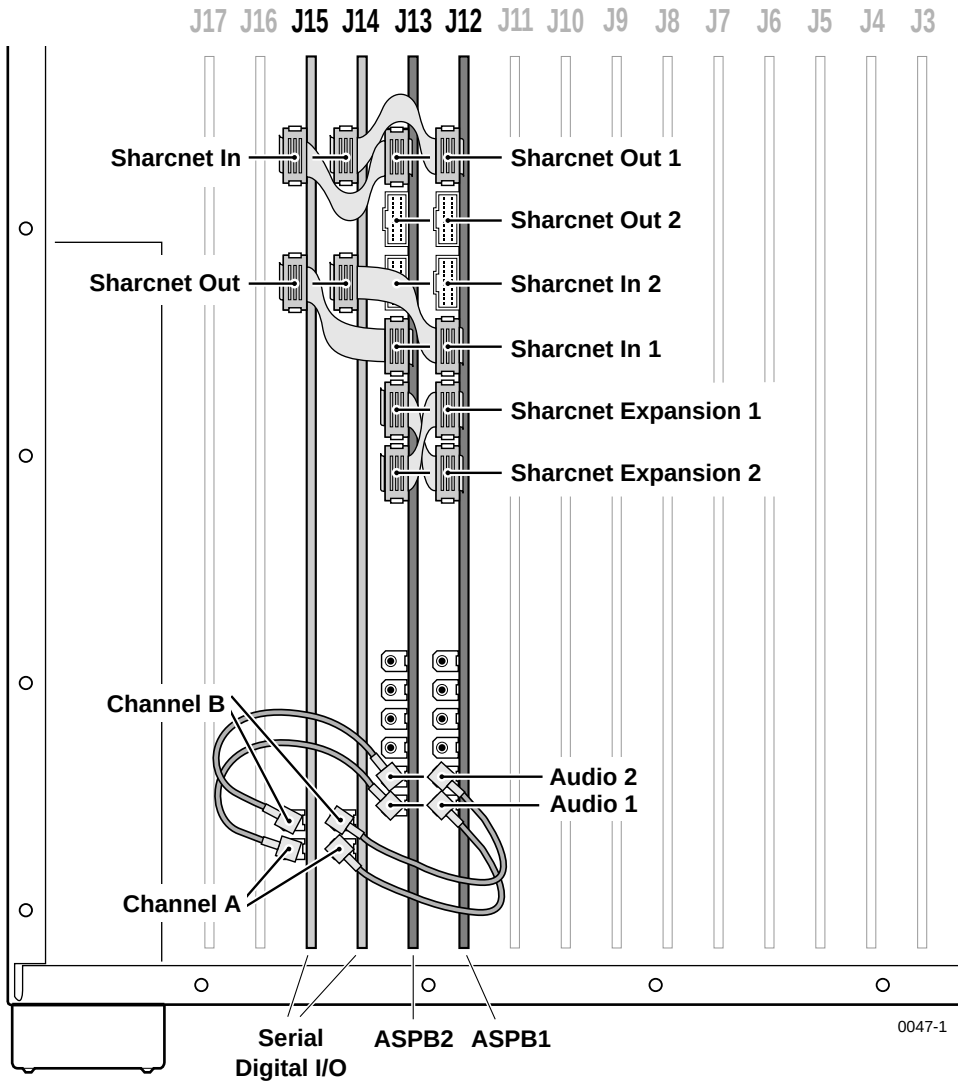

Figure 5. Two Serial Digital I/O boards and two ASPBs

Four SDI Boards and Two ASPBs

The example in Table 8 and Figure 6 shows audio clock and Sharcnet cabling for four Serial Digital I/O boards and two ASPBs, a common MPEG configuration.

Table 8. Cabling for four Serial Digital I/O boards and two ASPBs

Cable Type	Serial Digital I/O Slot	Serial Digital I/O Connection	ASPB 1 Connection (J5)	ASPB 2 Connection (J7)
Sharcnet	N/A	N/A	Sharcnet Expansion 2	Sharcnet Expansion 1
Sharcnet	N/A	N/A	Sharcnet Expansion 1	Sharcnet Expansion 2
Sharcnet	J6	Sharcnet In	Sharcnet Out 1	N/A
Sharcnet	J6	Sharcnet Out	Sharcnet In 1	N/A
Sharcnet	J13	Sharcnet In	Sharcnet Out 2	N/A
Sharcnet	J13	Sharcnet Out	Sharcnet In 2	N/A
Sharcnet	J14	Sharcnet In	N/A	Sharcnet Out 1
Sharcnet	J14	Sharcnet Out	N/A	Sharcnet In 1
Sharcnet	J15	Sharcnet In	N/A	Sharcnet Out 2
Sharcnet	J15	Sharcnet Out	N/A	Sharcnet In 2
Audio clock	J6	Channel A	Audio 1	N/A
Audio clock	J6	Channel B	Audio 2	N/A
Audio clock	J13	Channel A	Audio 3	N/A
Audio clock	J13	Channel B	Audio 4	N/A
Audio clock	J14	Channel A	N/A	Audio 1
Audio clock	J14	Channel B	N/A	Audio 2
Audio clock	J15	Channel A	N/A	Audio 3
Audio clock	J15	Channel B	N/A	Audio 4

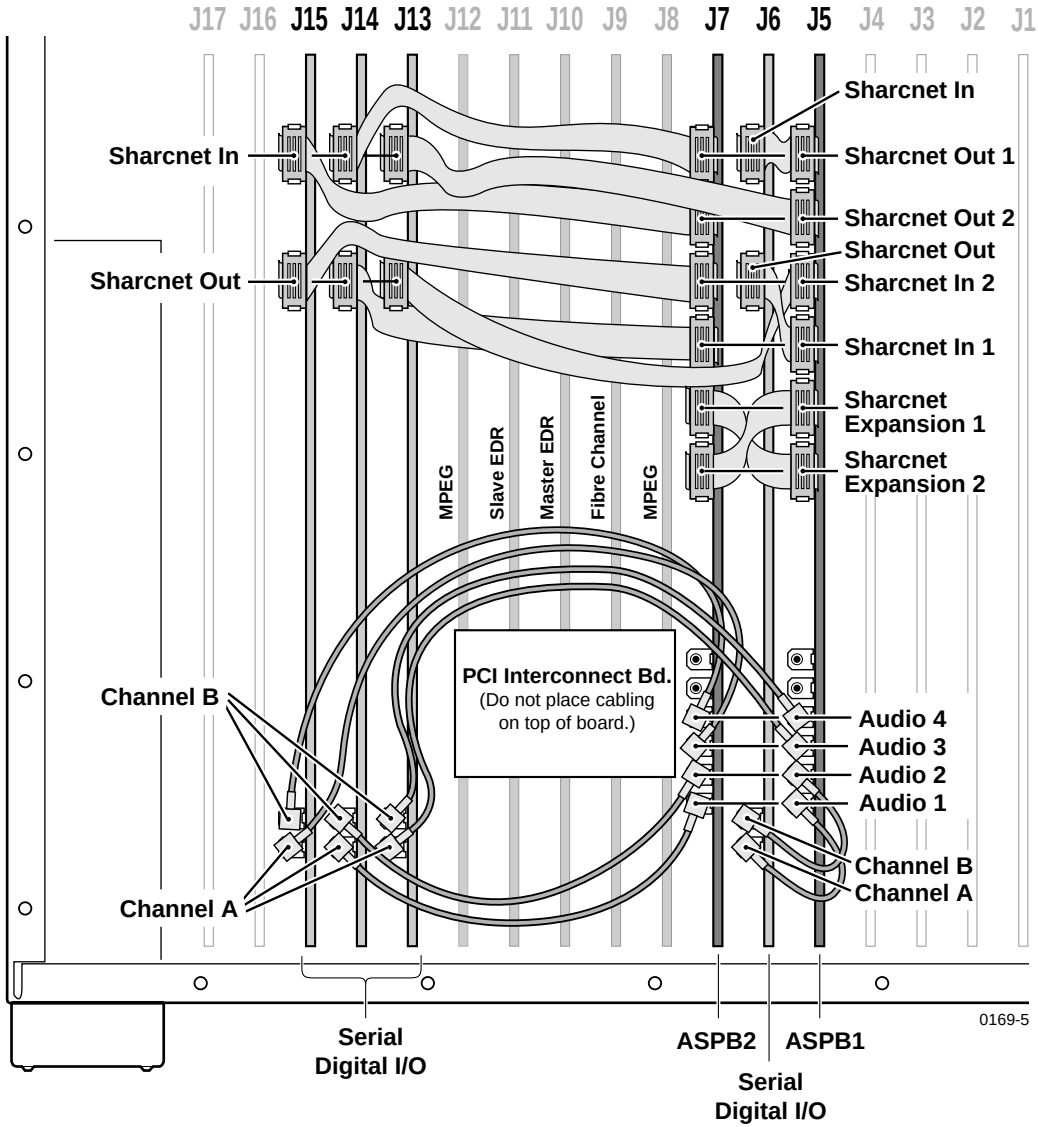

Figure 6. Four serial digital I/O boards and two ASPBs

Two Analog Composite I/O Boards and Two ASPBs

The example in Table 9 and Figure 7 shows audio cabling for two Analog Composite I/O boards and two ASPBs.

Table 9. Audio clock cabling for two Analog Composite I/O boards and two ASPBs

Cable Type	Analog Composite I/O Slot	Analog Composite I/O Connection	ASPB 1 Connection (J5)	ASPB 2 Connection (J7)
Sharcnet	N/A	N/A	Sharcnet Expansion 2	Sharcnet Expansion 1
Sharcnet	N/A	N/A	Sharcnet Expansion 1	Sharcnet Expansion 2
Audio clock	J14	Channel A	Audio 1	N/A
Audio clock	J14	Channel B	Audio 2	N/A
Audio clock	J15	Channel A	Audio 3	N/A
Audio clock	J15	Channel B	Audio 4	N/A

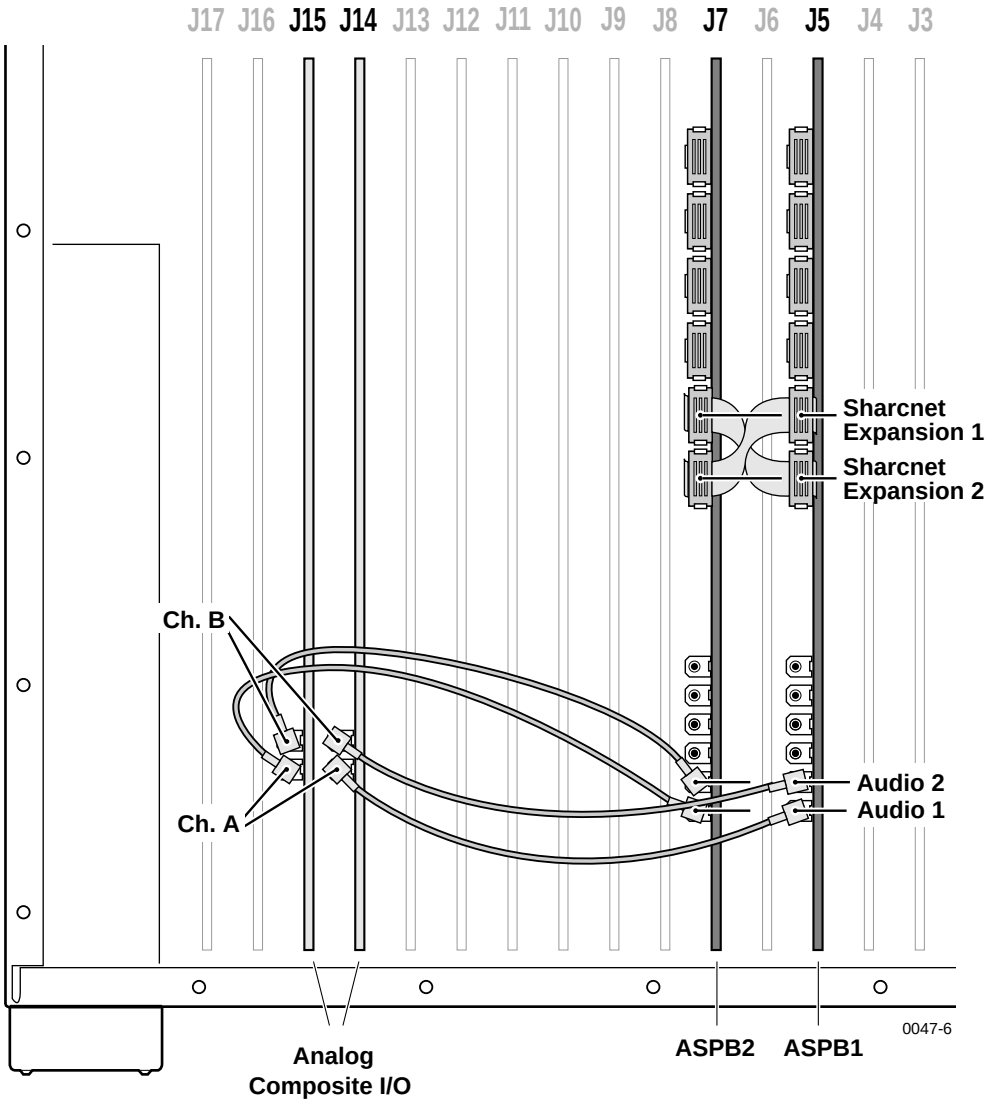

Figure 7. Two Composite Analog I/O boards and two ASPBs

PDR100 - Two SDI boards (without Sharcnet connectors) and One ASPB

The example in Table 10 and Figure 8 shows audio clock cabling for two Serial Digital I/O (SDI) boards without Sharcnet connectors and one ASPB board.

Table 10. PDR100 - Two SDIs (without Sharcnet connectors) and one ASPB

Cable Type	Serial Digital I/O Slot	Serial Digital I/O Connection	ASPB 1 Connection (J9)
Audio clock	J8	Channel A	Audio 1
Audio clock	J8	Channel B	Audio 2
Audio clock	J11	Channel A	Audio 3
Audio clock	J11	Channel B	Audio 4

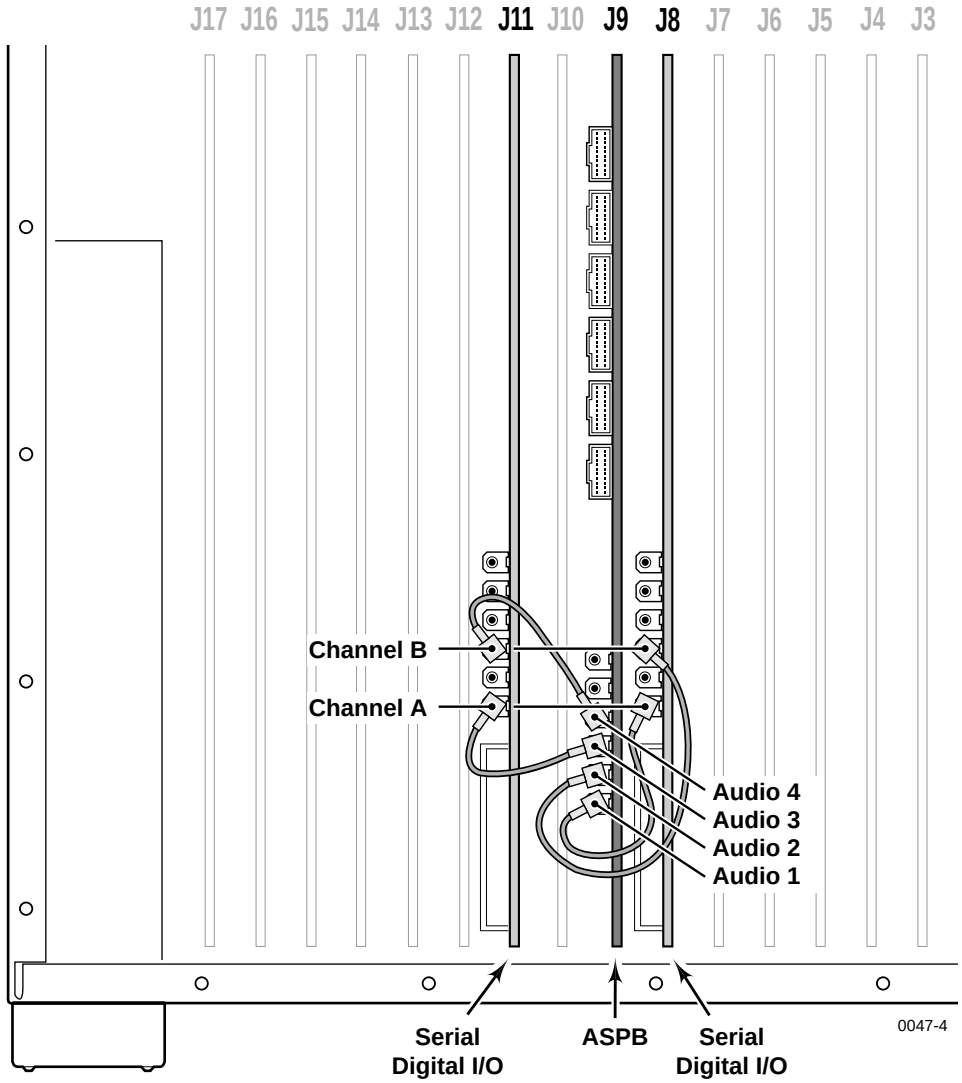

Figure 8. Two SDIs without Sharcnet connectors and one ASPB

PDR100 - Two SDIs (with Sharcnet connectors) and One ASPB

The example in Table 11 and Figure 9 shows audio clock and Sharcnet cabling for two SDI boards with Sharcnet connectors and one ASPB board.

Table 11. PDR100 cabling for two SDI boards (with Sharcnet connectors) and one ASPB

Cable Type	Serial Digital I/O Slot	Serial Digital I/O Connection	ASPB Connection (J8)
Sharcnet	J9	Sharcnet In	Sharcnet Out 1
Sharcnet	J9	Sharcnet Out	Sharcnet In 1
Sharcnet	J10	Sharcnet In	Sharcnet Out 2
Sharcnet	J10	Sharcnet Out	Sharcnet in 2
Audio clock	J9	Channel A	Audio 1
Audio clock	J9	Channel B	Audio 2
Audio clock	J10	Channel A	Audio 3
Audio clock	J10	Channel B	Audio 4

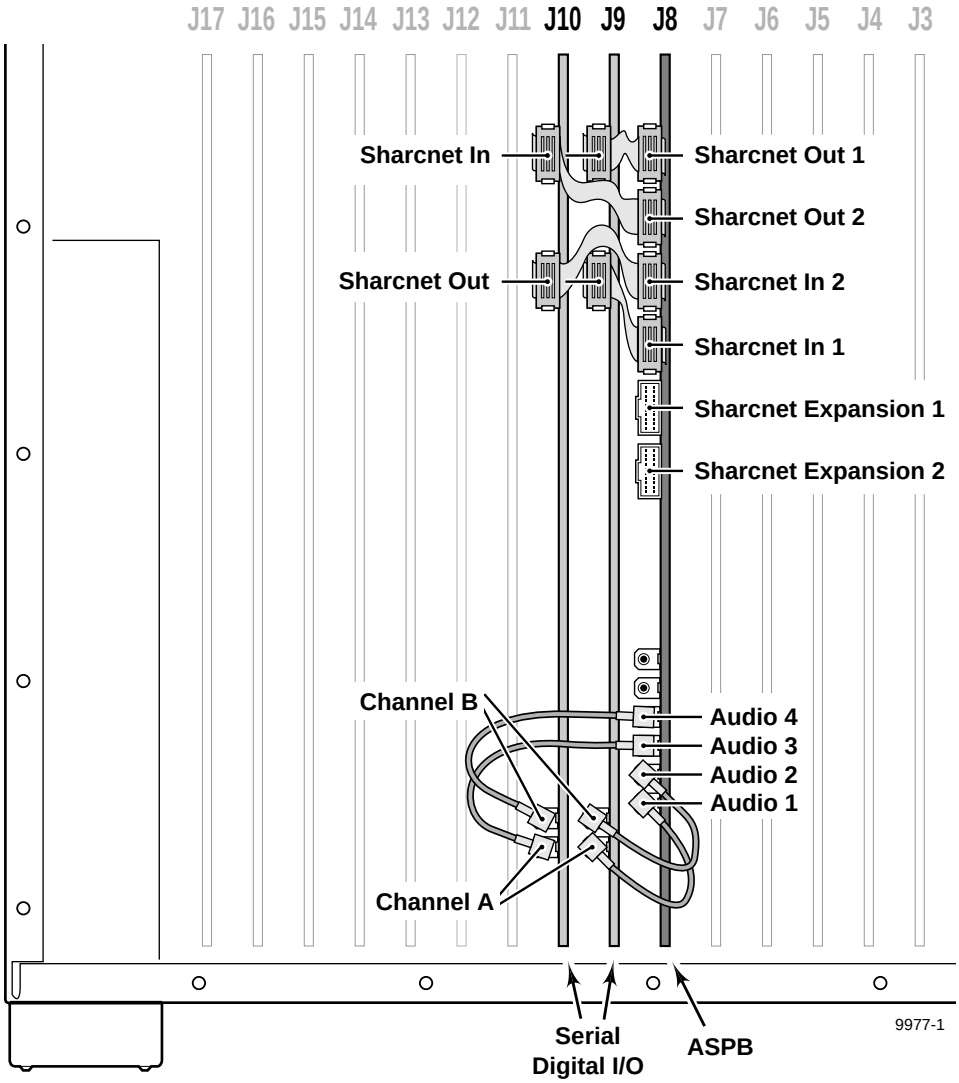

Figure 9. Two SDI boards (with Sharcnet connectors) and one ASPB

PDR100 - Two Analog Composite Video I/O boards and One ASPB

The example in Table 12 and Figure 10 shows audio clock cabling for two Analog Composite Video I/O boards and one ASPB board.

Table 12. Audio clock cabling for two Analog Composite Video I/O and one ASPB board

Cable Type	Analog Composite I/O Slot	Analog Composite I/O Connection	ASPB Connection (J5)
Audio clock	J12	Channel A	Audio 1
Audio clock	J12	Channel B	Audio 2
Audio clock	J13	Channel A	Audio 3
Audio clock	J13	Channel B	Audio 4

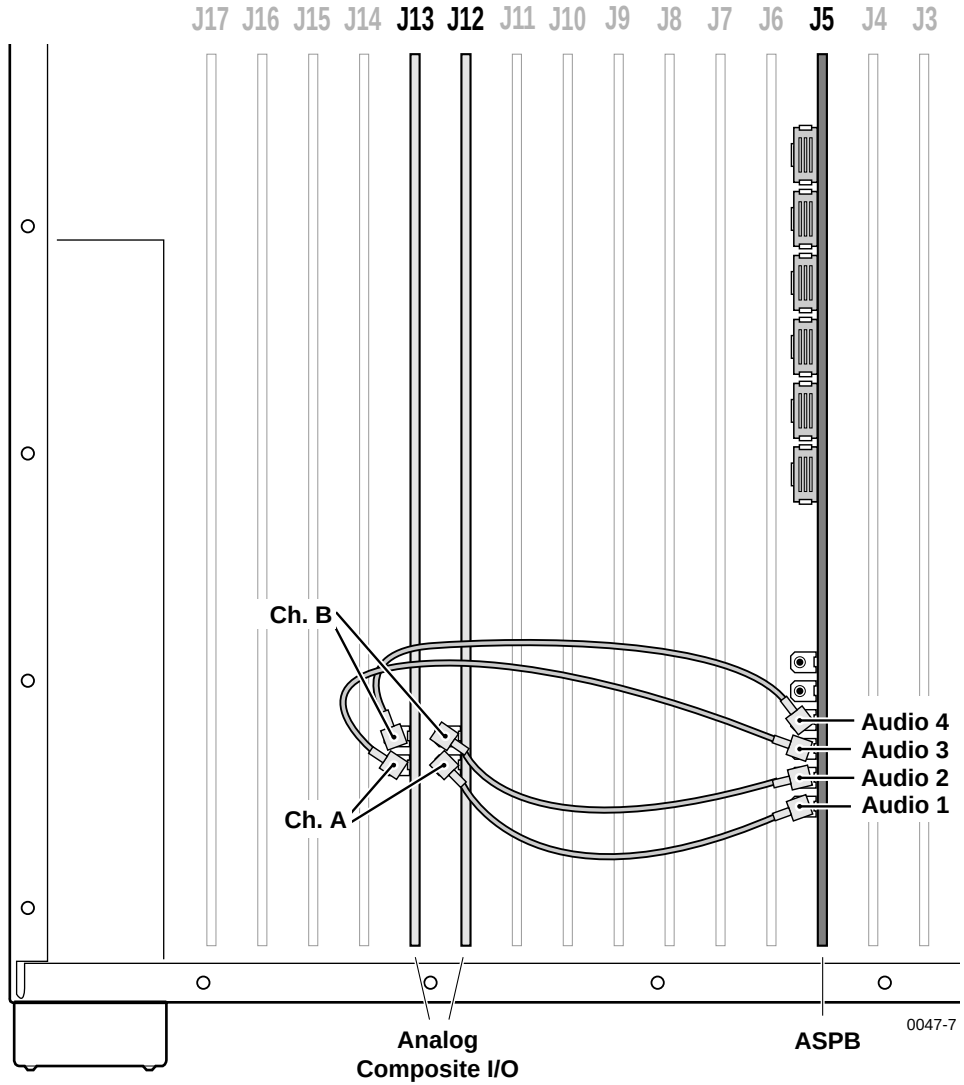

Figure 10. Two Analog Composite Video I/O and one ASPB board

PDR100- Two Analog Composite Input Board Sets and One ASPB

The example in Table 13 and Figure 11 shows audio clock cabling for two Analog Composite Video Input board sets and one ASPB board.

Table 13. Audio clock cabling for two Analog Composite Video Input board sets and one ASPB board

Cable Type	Analog Composite Input Slot	Analog Composite Input Connection	ASPB Connection (J6)
Audio clock	J5	Channel A	Audio 1
Audio clock	J9	Channel A	Audio 2

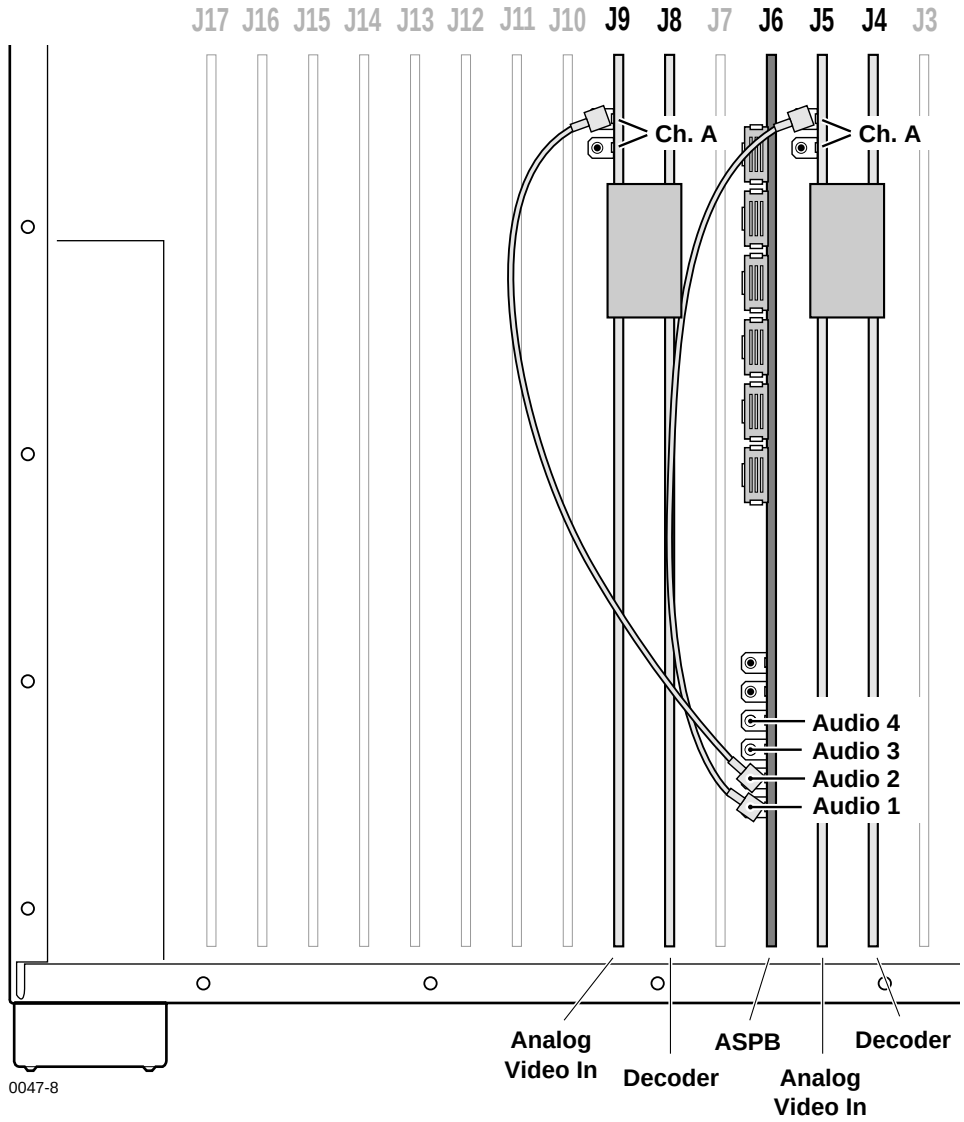

Figure 11. Two Analog Composite Input board sets and one ASPB

Connecting Audio Clock Cables in the PDR200/300

The procedure that follows describes step by step how to make audio clock cable connections to the ASPBs. If you want more detailed information on audio clock cabling refer to “Detailed Explanation Of ASPB Cabling” on page 59.

NOTE: Before making connections, check to see if any of your video input boards have two Channel A or two Channel B connectors. (Refer to Figure 4.) Use only one of the Channel A and one of the Channel B connectors on these boards. Follow this rule throughout the procedure.

Connecting ASPB1 and ASPB2 audio clock cables:

1. To connect the **first** audio clock cable to ASPB1:
   a. Connect one end of an audio clock cable to the ASPB1 Audio Clock1. (ASPB1 is the ASPB in the lower numbered slot.)
   b. Connect the other end of the cable to Channel A of the video input board in the lowest numbered slot (❶ in example Figure 12).

NOTE: Do not connect any audio clock cables to the four channel Composite Analog Video Output board. These connectors are not used with the ASPB.

2. To connect the **second** audio clock cable to ASPB1:
   a. Connect one end of an audio clock cable to the ASPB1 Audio Clock2.
   b. Connect the other end of the cable to Channel B of the same video input board to which the previous clock cable was attached (❷ in example Figure 12) or to Channel A of the video input board in the next higher numbered board slot. (Remember, if a board has two Channel A connectors use only one of them as shown by ❷ in Figure 13 on page 48.)
3. To connect the **third** audio clock cable to ASPB1:
   a. Connect one end of an audio clock cable to the ASPB1 Audio Clock3.
   b. Connect the other end of the cable to Channel A of the video input board in the next higher numbered board slot (❸ in example Figure 12) or to Channel B of the same video input board to which the previous clock cable was attached. (Remember, if a board has two Channel B connectors use only one of them as shown by ❸ in Figure 13 on page 48.)

4. To connect the **fourth** audio clock cable to ASPB1:
   a. Connect one end of an audio clock cable to the ASPB1 Audio Clock4.
   b. Connect the other end of the cable to Channel B of the same video input board to which the previous clock cable was attached (❹ in example Figure 12) or to Channel A of the video input board in the next higher numbered board slot (❹ in example Figure 13).

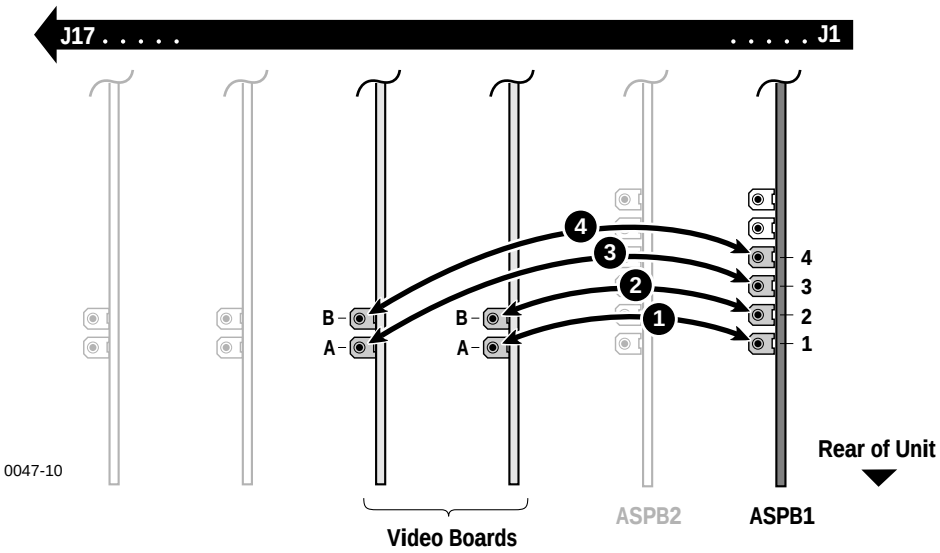

Figure 12. Audio Clock cabling example for ASPB1

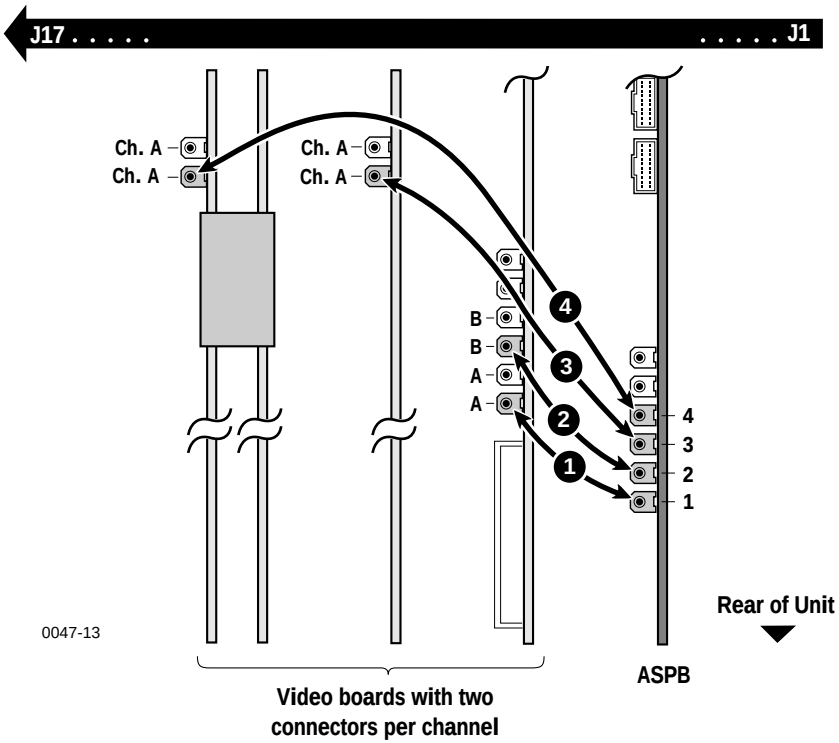

Figure 13. Cabling example for boards with two connectors per channel

5. To connect the **first** Audio Clock Cable to ASPB2:

   a. Connect one end of an audio clock cable to the ASPB2 Audio Clock1. (ASPB2 is the ASPB installed in the higher numbered board slot.)

   b. Connect the other end of the cable to Channel A of the video input board in the next higher numbered board slot (❶ in example Figure 14) or to Channel B of the same video input board to which the previous ASPB1 clock cable was attached.

6. To connect the **remaining** ASPB2 audio clock cables:

   a. Proceeding with ASPB2 Audio Clock2, repeat step 5 until all remaining video input references are connected or until all four ASPB2 audio clock connectors are used (❷, ❸, ❹ in example Figure 14).

NOTE: If you have more than eight video inputs, it is important that you refer to "Detailed Explanation Of ASPB Cabling" on page 59.

   b. When you are finished, compare your ASPB2 cabling with the example in Figure 14.

7. After installing the ASPB1 and ASPB2 clock cables do one of the following:

   a. If you have Serial Digital I/O boards with Sharcnet connectors go to "Connecting Sharcnet Cables To The Serial Digital I/O Boards" on page 53.

   b. If you have **no** Serial Digital I/O boards with Sharcnet connectors go to "Connecting Sharcnet Cables Between Two ASPBs" on page 57.

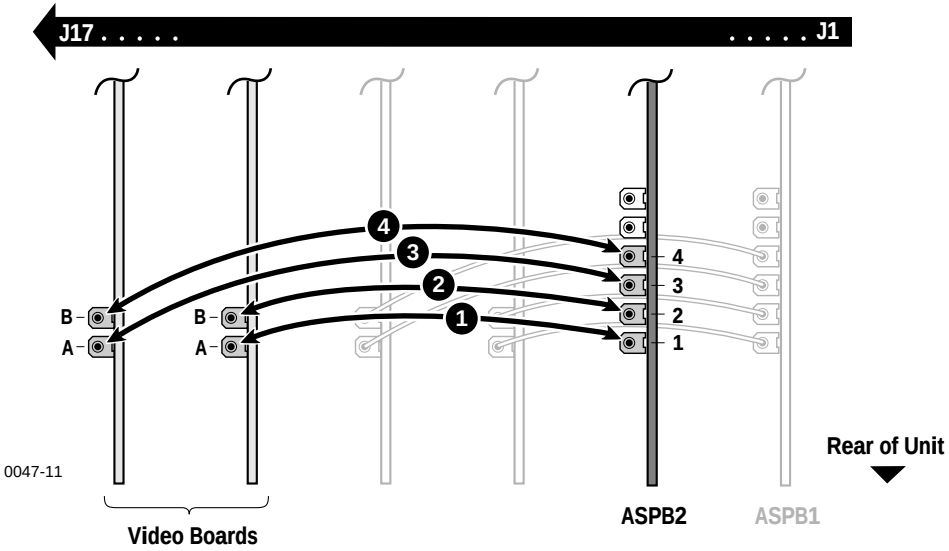

Figure 14. Audio Clock cabling example for ASPB2

Connecting Audio Clock Cables in the PDR100

The procedure that follows describes step by step how to make audio clock cable connections to the your ASPB in the PDR100. If you want more detailed information on audio clock cabling refer to “Detailed Explanation Of ASPB Cabling” on page 59.

NOTE: Before making connections, check to see if any of your video input boards have two Channel A or two Channel B connectors. (Refer to Figure 4.) Use only one of the Channel A and one of the Channel B connectors on these boards as shown in Figure 13. Follow this rule throughout the procedure.

Connecting ASPB audio clock cables in the PDR100:

1. To connect the **first** audio clock cable to the ASPB:
   a. Connect one end of an audio clock cable to the ASPB Audio Clock1.
   b. Connect the other end of the cable to Channel A of the video input board in the lowest numbered slot (❶ in example Figure 15).

NOTE: Do not connect any audio clock cables to the four channel Composite Analog Video Output board. These connectors are not used with the ASPB. (See Detailed Explanation Of ASPB Cabling on page 59.)

2. To connect the **second** audio clock cable to the ASPB:
   a. Connect one end of an audio clock cable to the ASPB Audio Clock2.
   b. Connect the other end of the cable to Channel B of the same video input board to which the previous clock cable was attached or to Channel A of the video input board in the next higher numbered board slot (❷ in example Figure 15). (Remember, if a board has two Channel A connectors use only one of them.)
3. To connect the **third** audio clock cable to the ASPB:
   a. Connect one end of an audio clock cable to the ASPB1 Audio Clock3.
   b. Connect the other end of the cable to Channel A of the video input board in the next higher numbered board slot (❸ in example Figure 15) or to Channel B of the same video input board to which the previous clock cable was attached. (Remember, if your board has two Channel B connectors use only one of them as shown in Figure 13 and Figure 15.

4. To connect the **fourth** audio clock cable to the ASPB:
   a. Connect one end of an audio clock cable to the ASPB Audio Clock4.
   b. Connect the other end of the cable to Channel B of the same video input board to which the previous clock cable was attached (❹ in example Figure 15) or to Channel A of the video input board in the next higher numbered board slot (❹ in example Figure 13).

NOTE: If you have more than four video inputs, it is important that you refer to"Detailed Explanation Of ASPB Cabling" on page 59.

5. After installing the ASPB audio clock cables do one of the following:
   a. If you have Serial Digital I/O boards with Sharcnet connectors go to "Connecting Sharcnet Cables To The Serial Digital I/O Boards" on page 53.
   b. If you have **no** Serial Digital I/O boards with Sharcnet connectors go to "Reassembling the Profile Chassis" on page 63.

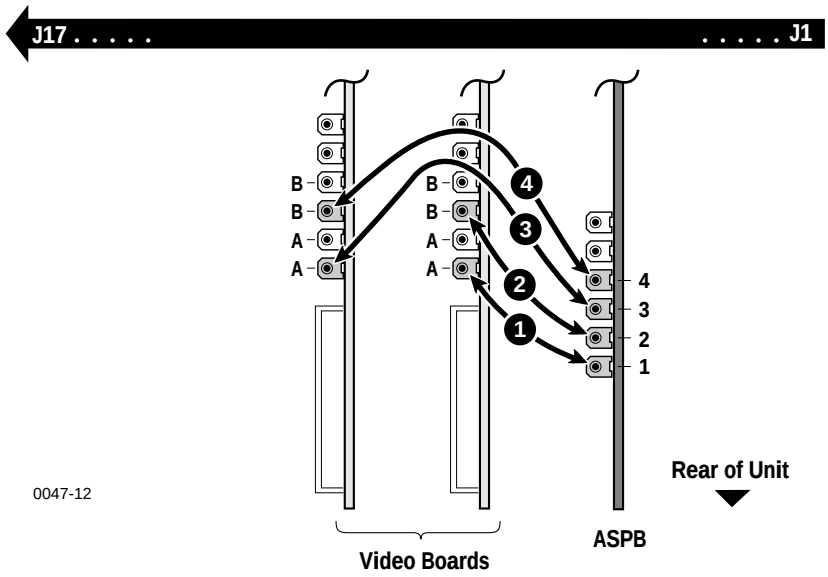

Figure 15. Audio Clock cabling example in the PDR100

Connecting Sharcnet Cables To The Serial Digital I/O Boards

Sharcnet ribbon cables are used with Serial Digital I/O (SDI) boards having Sharcnet connectors. If your unit does not have Serial Digital I/O boards with Sharcnet connectors then go to “Connecting Sharcnet Cables Between Two ASPBs” on page 57.

If you want more detailed information about Sharcnet cabling refer to “Detailed Explanation Of ASPB Cabling” on page 59.

NOTE: If a Sharcnet cable appears to be too short when you are attempting to make a connection, reverse the cable and try again.

Connecting ASPB Sharcnet cables to the SDI boards:

1. To connect ASPB1 Sharcnet cables to the **first** SDI board:

   a. Locate the ASPB1 or the ASPB if only one ASPB is installed. (If two ASPBs are installed, ASPB1 is in the lower numbered slot.)

   b. Connect a Sharcnet ribbon cable between the ASPB1 Sharcnet Out1 connector and the Sharcnet In connector of the Serial Digital I/O board in the lowest numbered board slot (❶ in example Figure 16).

   c. Connect a Sharcnet ribbon cable between the ASPB1 Sharcnet In1 connector and the Sharcnet Out connector of the Serial Digital I/O board in the lowest numbered board slot (❷ in example Figure 16).

   d. **Go to step 2** if you have more Serial Digital I/O boards to connect, otherwise, do one of the following:

   - If you have **two ASPBs** installed go to “Connecting Sharcnet Cables Between Two ASPBs” on page 57.
   - If you have **one ASPB** installed go to “Reassembling the Profile Chassis” on page 63.

2. To connect ASPB1 Sharcnet cables to the **second** Serial Digital I/O board:

   a. Connect a Sharcnet ribbon cable between the ASPB1 Sharcnet Out2 connector and the Sharcnet In connector of the Serial Digital I/O board in the next higher numbered board slot (❸ in example Figure 16).

   b. Connect a Sharcnet ribbon cable between the ASPB1 Sharcnet In2 connector and the Sharcnet Out connector of the Serial Digital I/O board in the next higher numbered board slot (❹ in example Figure 16).

   c. **Go to step 3** if you have more SDI boards to connect, otherwise, do one of the following:

   - If you have **two ASPBs** installed go to "Connecting Sharcnet Cables Between Two ASPBs" on page 57.
   - If you have **one ASPB** installed go to "Reassembling the Profile Chassis" on page 63.

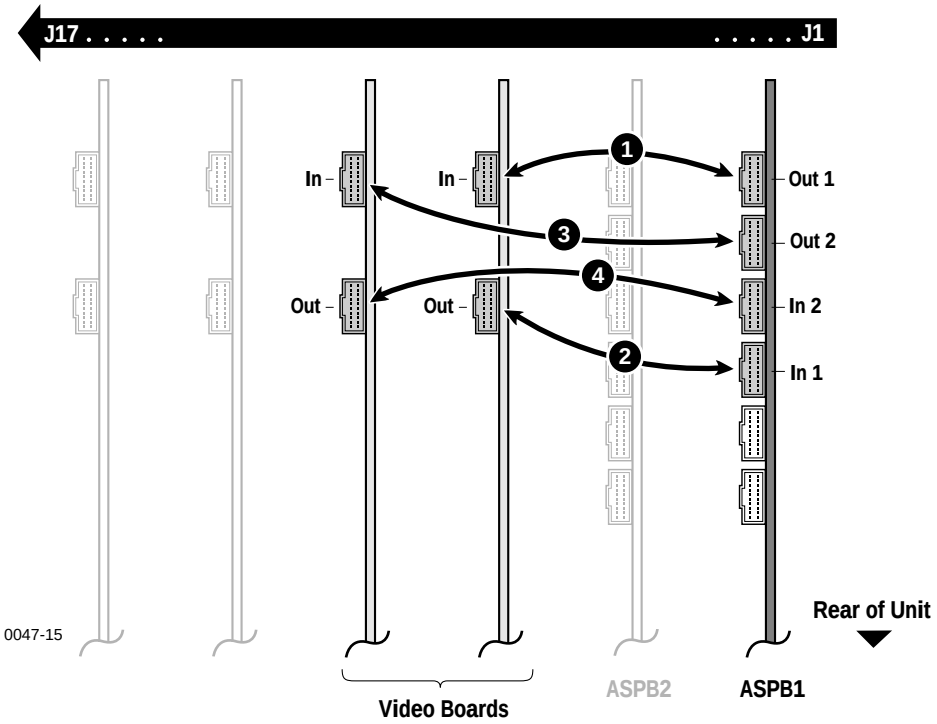

Figure 16. Sharcnet cabling example for ASPB1 or ASPB

3. To connect ASPB2 Sharcnet cables to the **third** Serial Digital I/O board:

   a. Locate the ASPB2 board. ASPB2 is the ASPB installed in the higher numbered board slot.

   b. Connect a Sharcnet ribbon cable between the ASPB2 Sharcnet Out1 connector and the Sharcnet In connector of the Serial Digital I/O board in the next higher numbered board slot (❶ in example Figure 17).

   c. Connect a Sharcnet ribbon cable between the ASPB2 Sharcnet In1 connector and the Sharcnet Out connector of the Serial Digital I/O board in the next higher numbered board slot (❷ in example Figure 17).

   d. If there are more Serial Digital I/O boards continue with step 4 below, otherwise proceed with “Connecting Sharcnet Cables Between Two ASPBs” on page 57.

4. To connect ASPB2 Sharcnet cables to the **fourth** Serial Digital I/O board:

   a. Connect a Sharcnet ribbon cable between the ASPB2 Sharcnet Out2 connector and the Sharcnet In connector of the Serial Digital I/O board in the next higher numbered board slot (❸ in example Figure 17).

   b. Connect a Sharcnet ribbon cable between the ASPB2 Sharcnet In2 connector and the Sharcnet Out connector of the Serial Digital I/O board in the next higher numbered board slot (❹ in example Figure 17).

   c. Now that the ASPB2 Sharcnet cables have been connected to the Serial Digital I/O boards go to “Connecting Sharcnet Cables Between Two ASPBs” on page 57.

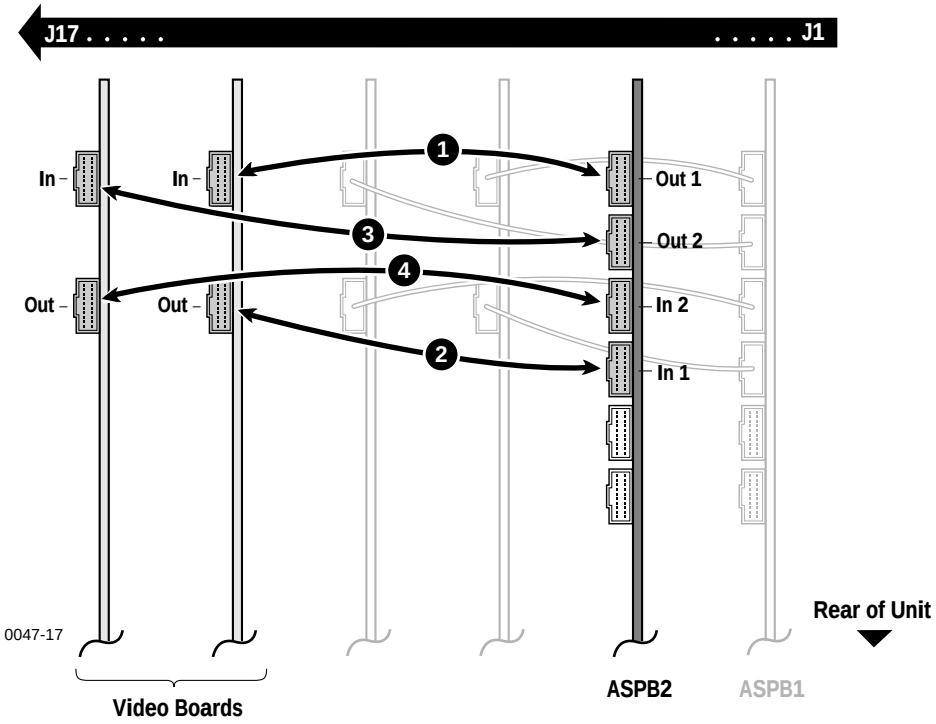

Figure 17. Sharcnet cabling example for ASPB

Connecting Sharcnet Cables Between Two ASPBs

If you have two ASPBs in your unit you must connect them together using the Sharcnet Expansion connectors. If you have only one ASPB board in our unit then go to “Reassembling the Profile Chassis” on page 63.

To connect Sharcnet cables between ASPBs:

1. Locate ASPB1 (the ASPB in the lower numbered slot).
2. Connect a Sharcnet ribbon cable from ASPB1 Expansion1 to ASPB2 Expansion2 (❶ in Figure 18).
3. Connect a Sharcnet ribbon cable from ASPB1 Expansion2 to ASPB2 Expansion1 (❷ in Figure 18).
4. Now that you have completed installing the Sharcnet cables you are ready to go to “Reassembling the Profile Chassis” on page 63.

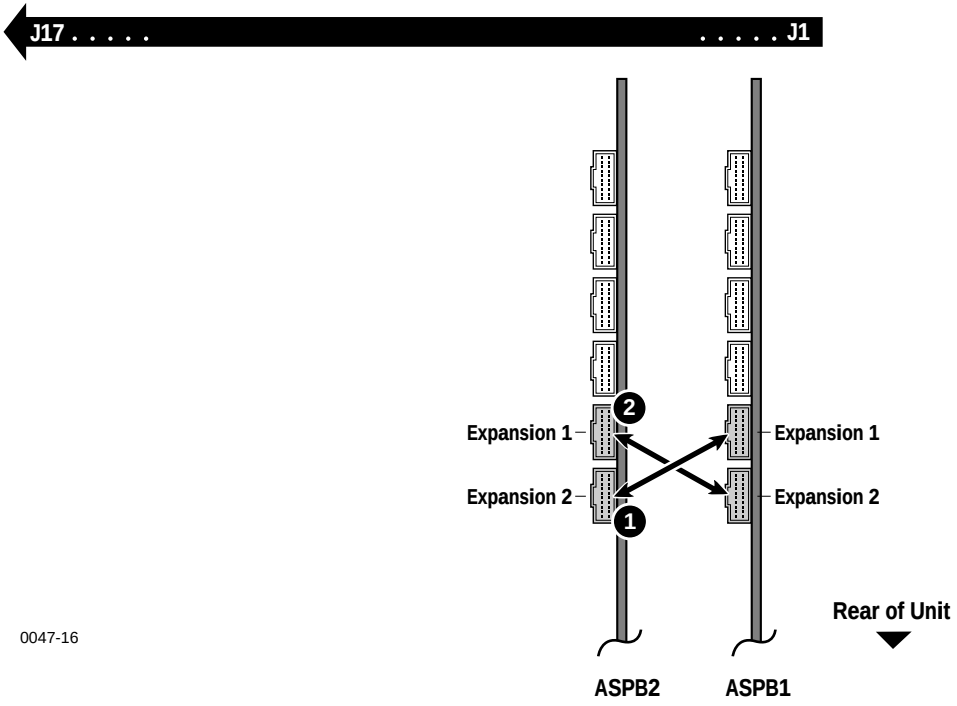

Figure 18. Connecting Sharcnet cables between two ASPBs

Detailed Explanation Of ASPB Cabling

If you are following one of the cabling examples or the cabling instructions, this section is for reference only. Read this information if you have questions about the ASPB cabling.

Audio Clock Cabling

When the Profile system records, audio sampling must be referenced to the video signal, otherwise audio artifacts will occur. The ASPB hardware and Profile software allows the you to select the appropriate audio sample reference for recording as follows:

- When recording synchronous video feeds, use “system clock” derived from house reference and supplied to the ASPB through its motherboard connector.
- When recording non-synchronous video feeds, use the reference signal supplied by the video input card over an Audio Clock coaxial cable connected to the ASPB.

Each ASPB has four audio clock input connectors for attaching an audio clock reference. These connectors are attached by coaxial cable to the video input boards. The cables carry a 27MHz reference signal derived from the video input to the ASPB. This signal is used as a reference for the audio phase lock loops. (See Figure 19.)

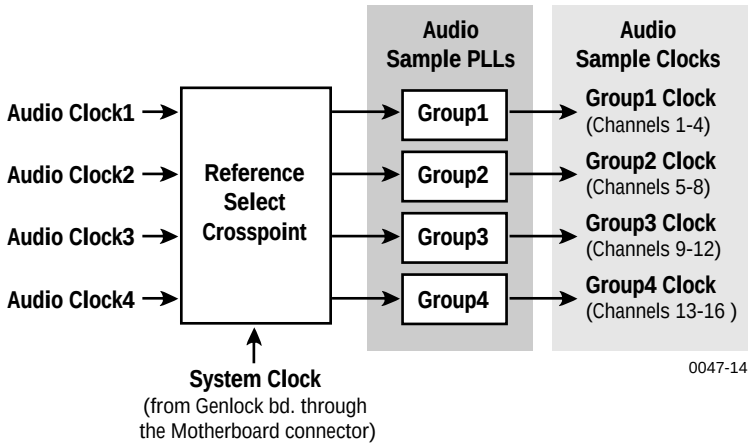

Figure 19. Audio clock groups and reference selection

A single ASPB supports 16 audio channels. These 16 channels are divided into four audio groups with four audio channels in each group. Group 1 consists of channels 1 to 4. Group 2 consists of channels 5 to 8, and so on up to Group 4.

There is a phase lock loop and audio sample clock for each audio group 1 through 4 as seen in Figure 19. You can also see in Figure 19 how the Reference Select Crosspoint allows selection of the reference to the Audio Sample Phase Lock Loops. Profile software allows the user to select the appropriate reference for the Audio Sample Phase Lock Loops, either “system clock” derived from house reference or one of the four audio clocks derived from video inputs.

When the potential for recording non-synchronous video feeds exists, it becomes important to select the correct video reference and to have the coaxial audio clock cables connected properly. Here are the audio clock cabling guidelines.

- Profile software recognizes and numbers video inputs beginning with Channel A of the board in the lowest numbered motherboard slot.
- When two ASPBs are installed, ASPB1 is the ASPB in the lower number board slot and ASPB2 is in the higher numbered slot.
- Profile software refers to the four ASPB audio clock references as “Video Input 1” through “Video Input 4”.
- ASPB1 audio clocks 1 through 4 should be connected to video inputs 1 through 4.
- ASPB2 audio clocks 1 through 4 should be connected to video inputs 4 through 8, if installed.
- Audio clock references connected to ASPB1 cannot be used by ASPB2. The opposite is also true, references attached to ASPB2 cannot be used by ASPB1.

NOTE: Do not connect any audio clock cables to the connectors on the four channel Composite Analog Video Output board. These are system clock connectors and are not used because the ASPB receives system clock through its motherboard connector.

If your Profile unit has one ASPB, you can connect only four audio clock references to it. If your Profile unit has two ASPBs installed, a total of eight audio clocks can be connected. *In practice, if your Profile unit has more video inputs than the number of ASPB clock inputs, you should connect audio clocks from*

video inputs that might record video that is not genlocked to your house reference. Any video inputs that are not supplying a record clock to the ASPB should be locked to your house reference, if audio is to be associated with those inputs. Otherwise, audio clock errors could occur during recording.

For more information on audio input clocking refer the Audio Configuration information in the ***Profile Family User Manual***.

Sharcnet Cabling

Serial digital I/O boards (SDI boards) with Sharcnet connectors have embedded audio capability. These SDI boards extract audio from incoming video, route it to the ASPB, and receive audio output from the ASPB to be embedded in the serial digital stream. Sharcnet cables are used to route the audio between the ASPB and SDI boards.

On both the ASPB and SDI board there are Sharcnet In and a Sharcnet Out connectors. These are shown in Figure 4 on page 30. In general, ASPB Sharcnet Outs are connected to SDI Sharcnet Ins, and ASPB Sharcnet Ins are connected to SDI Sharcnet Outs. Simple enough, but connection order is important. Here are the guidelines for making the Sharcnet connections:

- Beginning with the ASPB in the lowest numbered slot (ASPB1), Sharcnet In1/Out1 are connected to Sharcnet Out /In of the serial digital video board in the lowest numbered slot.
- Next, Sharcnet In2/Out2 are connected to Sharcnet Out/ In of the serial digital video board in the next higher numbered slot.
- The pattern above continues for ASPB2 if two ASPBs are installed.
- The Exact number of Sharcnet cables will vary depending on how many serial digital video I/O boards are installed.
- When two ASPBs are installed, Sharcnet Expansion 1 connectors on each board are connected the Sharcnet Expansion 2 connectors on the other.

Reassembling the Profile Chassis

To reassemble the Profile chassis:

1. Apply stick-on labels on the Profile chassis rear panel to help identify all new board locations. (See Figure 20.)
2. Bundle any loose cables with the tie wraps provided.
3. Use the Torx tool with the T10 tip to reinstall the rear board hold-down bracket. (See Figure 2 on page 23.) Make sure that boards in the chassis fit into the grooves in the bracket.

⚠ ***CAUTION: To prevent damage to an Analog Composite Monitor board, do not install a short board extension on the front hold-down bracket at the Monitor board location.***

4. If necessary, move or remove any short board extensions on the front board hold-down bracket. Then use the Torx tool with the T10 tip to reinstall the bracket. (See Figure 2 on page 23.)
5. Use the Torx tool with the T10 tip to reinstall the rear chassis cover with the screws previously removed.

NOTE: When reinstalling rear and front chassis covers, start all the screws before tightening them.

6. Use the Torx tool with the T10 and T15 tips to reinstall the front chassis cover with the screws previously removed. (See Figure 1 on page 21.)
7. Reinstall the Profile chassis in the rack and reconnect all external cables previously removed.
8. Connect ASPB audio interface chassis if required. For assistance on connecting audio interface chassis refer to “Installing Audio Interfaces” on page 65.

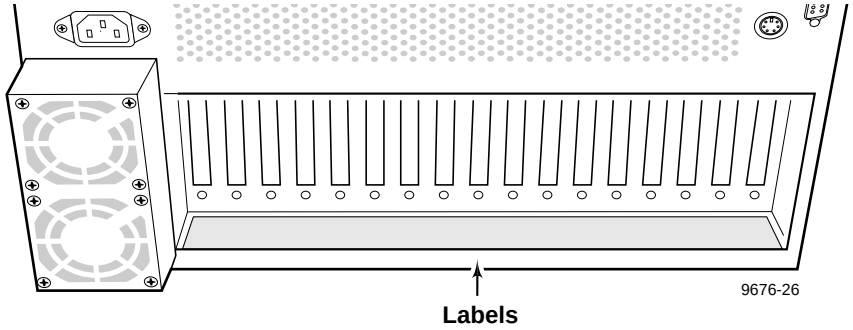

Figure 20. Stick-on label location

Installing Audio Interfaces

The ASPB can be configured to operate with analog, AES/EBU digital, and digital embedded (SMPTE 272M Level A) audio. If you are using only embedded audio no interface chassis is required. If you are using embedded audio go to “Verifying the Installation” on page 72.

An interface chassis is required for Analog and AES/EBU Audio. Table 14 contains a summary of interface chassis available.

NOTE:

- ***An interface chassis must be connected to both ASPBs for operation with 32 channels of analog or AES/EBU digital audio.***
- ***To determine if the PAC200 Analog Audio Chassis is a PAC208 or PAC216 look at the identification tag toward the rear on the left side of the chassis.***

Table 14. Audio Interface chassis summary

PAC200 Chassis Models	Number of Analog Audio Channels	Number of AES/EBU Audio Ch	Comments
PAC208	8 (Ch 1 to 8)	8 (Ch 9 to 16)	ASPB audio channels 1 to 8 are always assigned to PAC208 analog channels 1 to 8. ASPB audio channels 9 to 16 are always assigned to PAC208 AES/EBU digital channels 9 to 16.
PAC216 (includes PACXLR breakout chassis)	16	16	The 16 ASPB audio channels are divided into four audio groups (4 channels each). You can assign the input for each audio group to either the analog or digital inputs of the PAC216. For example, the input to ASPB Group1 can be assigned to analog channels 1 to 4 or digital channels 1 to 4 on the PAC216. The 16 ASPB audio channels are always assigned to both analog and digital outputs on the PAC216.
XLR216	none	16	Provides digital audio interface using XLR connectors.
BNC216	none	16	Provides digital audio interface using BNC connectors.

Several cabling examples are provided here as a guide for connecting cables to the audio interface chassis.

To connect the interface chassis:

1. Refer to Table 15 to find the configuration that best matches yours.
2. Connect cables to the interface chassis using the appropriate example as a guide.
3. After you have installed the interface chassis, proceed to "Verifying the Installation" on page 72.

NOTE: Actual ASPB board locations in these examples may differ from yours, but the cabling is the same.

Table 15. Installing audio interface chassis

Product	Number of ASPBs	Interfaces Used	Page Number
PDR200 or PDR300	2	Two XLR216	67
PDR200 or PDR300	2	Two BNC216	67
PDR200 or PDR300	2	Two PAC216	69
PDR100	1	XLR 216 or BNC216	69
PDR100	1	PAC208	70
PDR100	1	PAC216	71

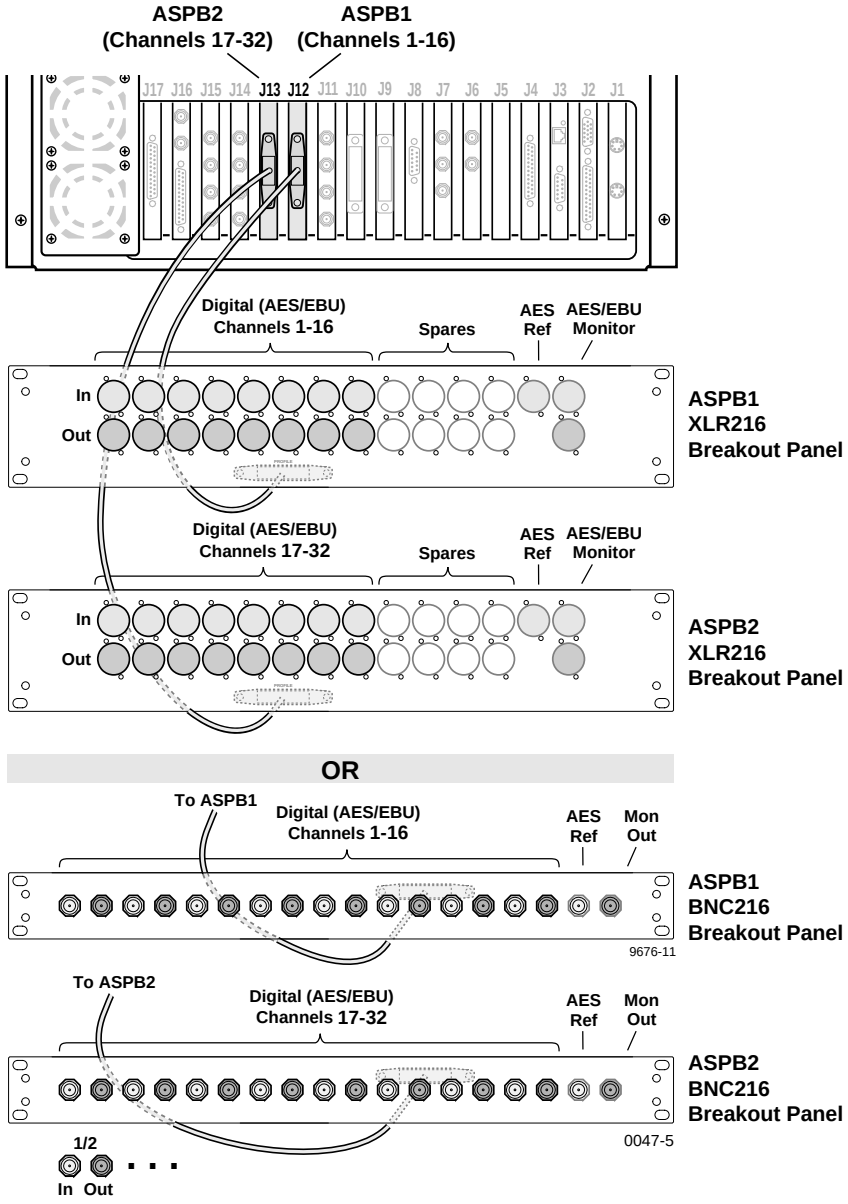

Figure 21. PDR200 or PDR300 connected to two XLR216 or two BNC216 AES/EBU Digital Audio Interfaces

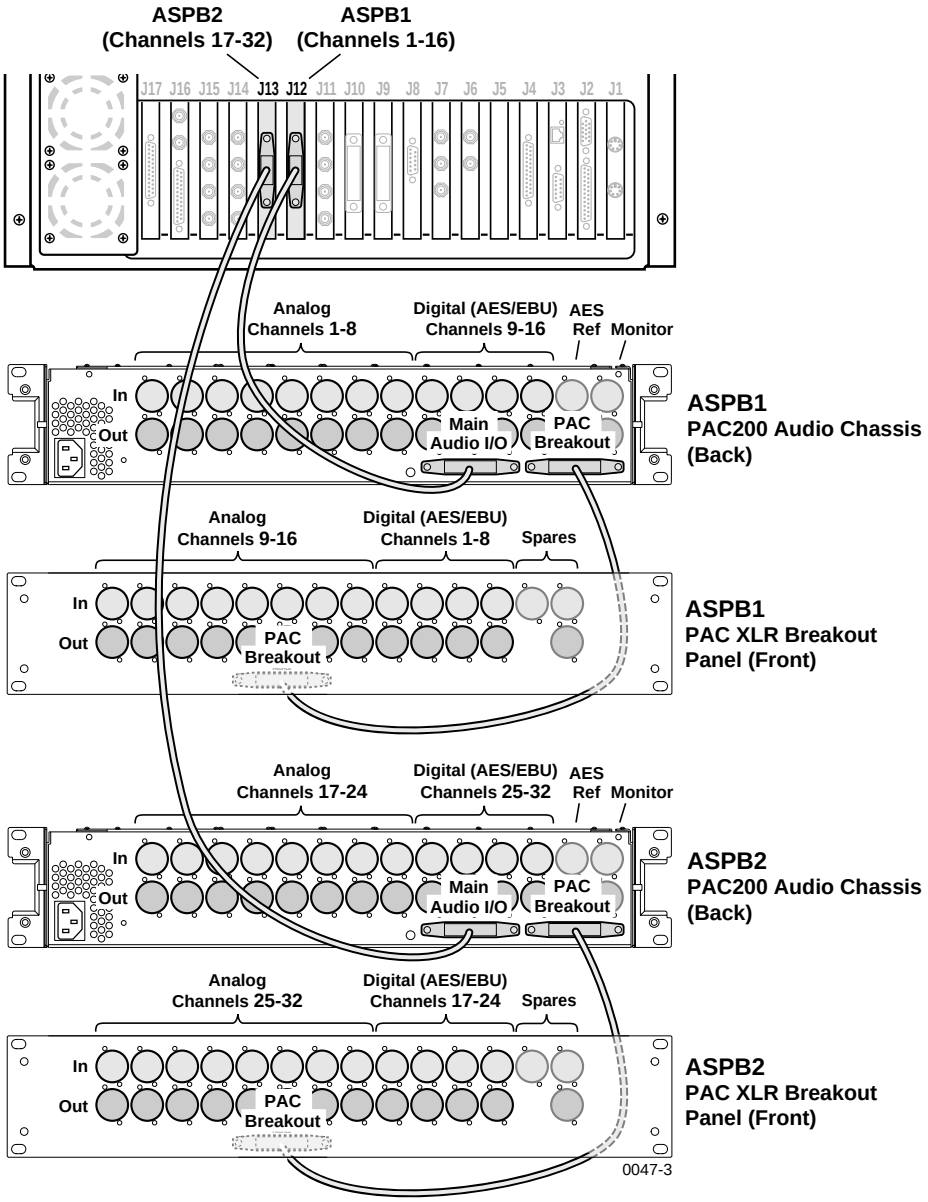

Figure 22. PDR200 or PDR300 connected to two PAC216 Analog Audio Interface chassis

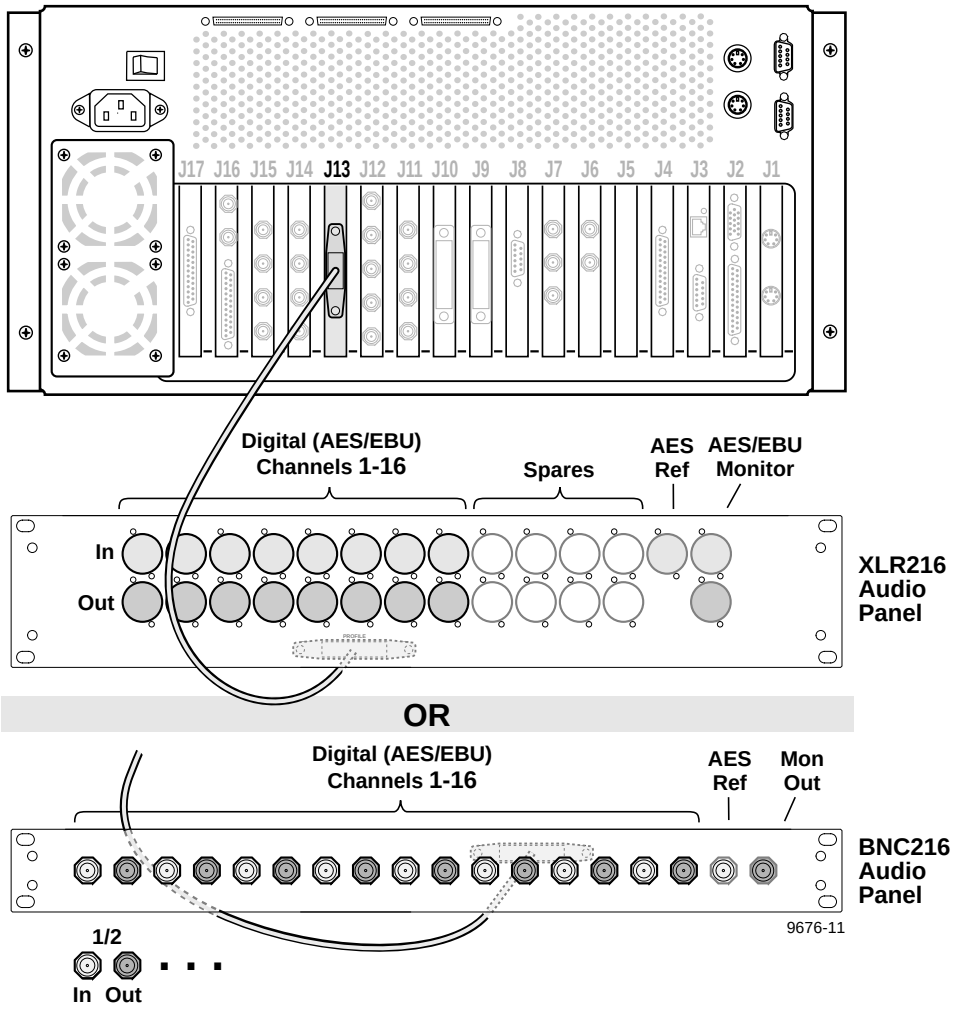

Figure 23. Connecting an XLR216 or BNC216 Audio Panel to an ASPB in a PDR100

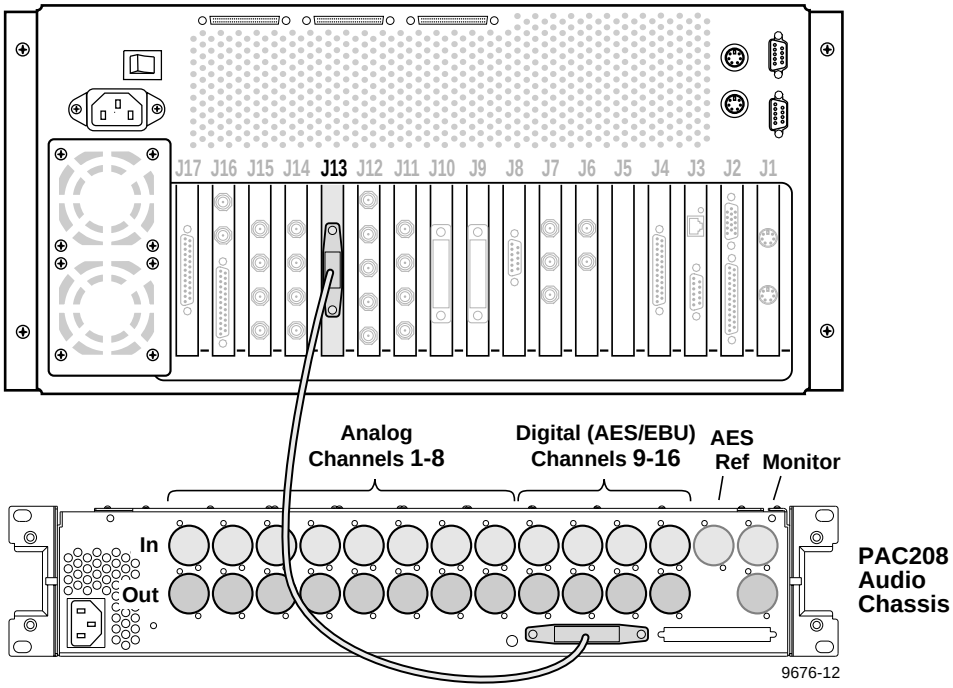

Figure 24. Connecting a PAC208 Audio Chassis to an ASPB in a PDR100

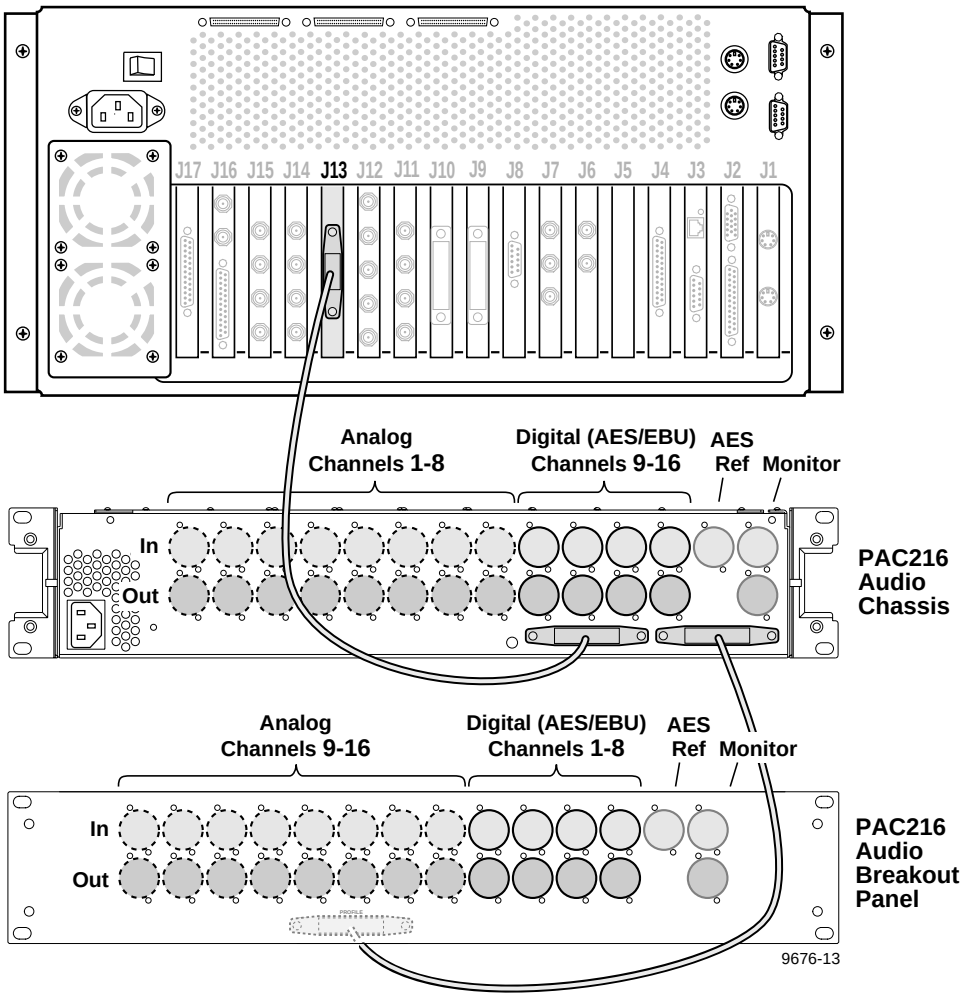

Figure 25. Connecting a PAC216 Audio Chassis to an ASPB in a PDR100

Verifying the Installation

Now that the unit is reassembled and the interface chassis is attached (if required), you are ready to verify installation of the ASPB.

Verification for installation of the ASPB board consists of:

- Using Configuration Manager to see if the system recognizes the newly installed boards. For instructions, see *Using Configuration Manager to Verify Boards* on this page.
- Using VdrPanel to verify that you can configure video and audio resources, and then record and play on all available channels. This will help detect any problems with the ASPB, video boards and/or Sharcnet cabling for audio. For information on configuring VdrPanel, as well as recording and playing clips, see the chapter on VdrPanel in the ***Profile Family User Manual***.

Using Configuration Manager to Verify Boards

You can use the Profile configuration software, called Configuration Manager, to verify the presence of ASPB board.

To check for recognition of the ASPB boards:

1. Apply power to the Profile system.
2. From the Windows NT 4.0 desktop, start the Configuration Manager application by choosing **Start | Programs | PDR Applications | Configuration Manager**.
3. Look at the bottom of the Configuration Manager window to ensure that *Aud I/O Digital* appears in the slots where you have ASPBs installed. (See Figure 26.)
4. You will need to configure several aspects of how the ASPB and the rest of the Profile audio system operates. See the instructions on configuring the audio system in the chapter on Configuration Manager in the ***Profile Family User Manual***.
5. This completes the ASPB installation procedure.

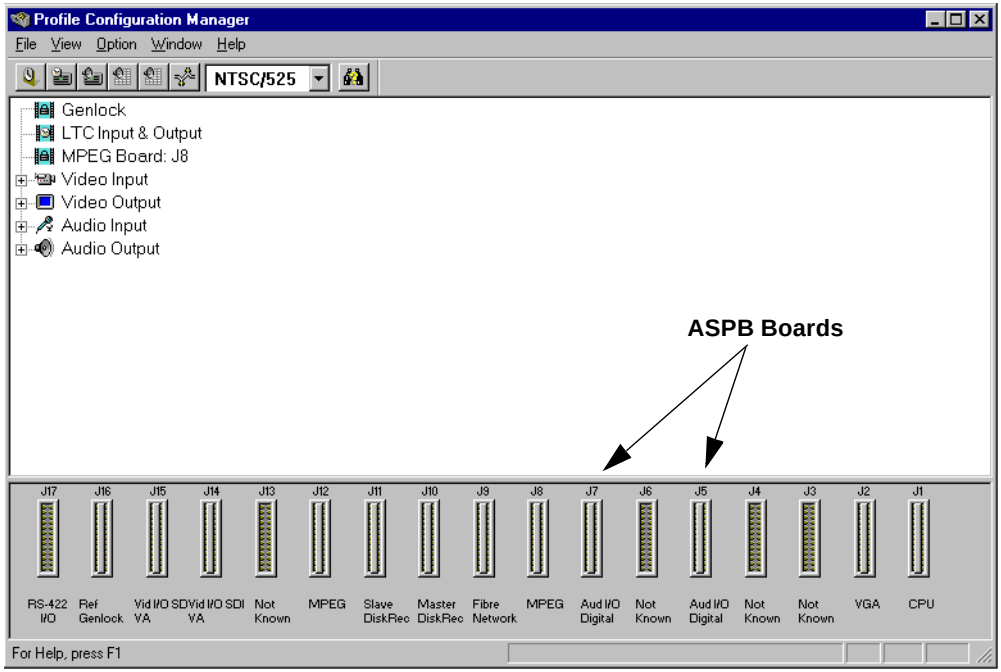

Figure 26. Configuration Manager showing two ASPB boards installed

Board Locator Guide

The ASPB may be installed in any open motherboard slot location from J5 to J15. However, you may chose to move existing boards for some reason, such as, to improve cable dress. If you move any circuit boards, remember that some boards must occupy specific slots, while others can be installed in almost any slot as long as their I/O requirements are met.

This guide provides a general approach to board location. It explains the relationship between the motherboard slots and video router connectors and provides tables and charts to assist you in installing boards.

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 (Ref Gen) board must occupy J16 to provide the necessary system clocks, this discussion excludes J16.

When choosing a slot for a board, the major constraint for 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 needs, if any, and the slots available that meet those needs.

Table 17 through Table 19 lists recommended slots based on product and serial number as well as possible alternatives slots and restrictions for each board type. If more than one slot is recommended or possible for a board, those slots are listed in the order of preference.

Video Router I/O Connections

Now let's look at the video router connections available at slots J5–J15. Table 16 is a blank board location chart that shows the video router input and output connections. In this table:

- The **Slot** column lists each slot on the motherboard connected to the video router.
- The **Board** column is where you write the boards currently installed and the name of the board you want to install.
- The **Input** column identifies input connections available *to* the installed boards *from* the video router. The numbers in the blocks correspond to the order input connections are assigned at the video router connector.
- The **Output** column identifies output connections available *from* the installed boards *to* the video router. The numbers in the blocks correspond to the order output connections are assigned at the video router connector.
- The shaded blocks in the diagram indicate video router connections shared between slots. A shared connection is available to either slot, but not both at the same time. For instance:
  - 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.

Table 16. Board location chart

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

Selecting a Board Location

Here's how to use the tables to select a location for a board. Make a copy of Table 16 to use as a template for recording information for board placement.

1. Identify which table of Table 17 through Table 19 to use based on your product and serial number.
2. In Table 16 write the name of every board currently installed in your product. Next, referring to the Board I/O Requirements table you are using, put a check mark (✓) in each input and output block used by each board currently installed in your Profile system. Start with the **1** block for each board.
3. Look in the Board I/O Requirements table you are using to determine what are the input and output requirements of board you want to install.
4. Look in Table 16 for a slot with the required video router connections available. Starting with the **1** block, put an ✘ in each block that corresponds to an input and output requirement for the newly added board. If the recommended slot is occupied, or there are not enough input or output blocks available, look at the alternative slots.
5. If all input and output requirements for the board match the available ones for the slot, write the board name in the **Board** column for the slot and install the board.

NOTE: If you can't find an open slot with the I/O connections which meets the I/O requirements of the board you want to install, you will have to move existing boards. You can use the tables in this section to experiment with various board locations before deciding on one.

Table 17. Board I/O requirements and restrictions for PDR200 B029999 and below with no MPEG

Board	Video Router Connection Requirements		Recommended Slots	Other Possible Slots	Comments
	Inputs	Outputs			
CPU	n/a	n/a	J1	None	Reserved for PC card only
VGA	n/a	n/a	J2	None	ISA only
LAN	n/a	n/a	J3	None	EISA only
SCSI	n/a	n/a	J4	None	EISA only
RefGen	n/a	n/a	J16	None	Reference genlock
RS-422	n/a	n/a	J17	None	EISA only
Master EDR	2	2	J9	J5-J15	Must be adjacent to Slave EDR and Fibre Channel (if installed). PCI Interconnect required.
Slave EDR	2	2	J10	J5-J15	Must be adjacent to Master EDR. PCI Interconnect required.
Analog Composite In	None	1	J15, J7	J5-J15	Any open slot if board in adjacent slot does not use the same shared router points. Must be adjacent to the Analog Composite Decoder.
Analog Composite Decoder	None	None	J14, J6	J4-J15	Must be adjacent to Analog Composite In. May be installed in J4 since it does not require any router connections.
Four Channel Analog Out	4	None	J12	J6, J7, J11	Only J6, J7, J11, and J12 have 4 (or more) inputs. If in J11 or J12, board must be able to get a shared input (the 4th) from an adjacent slot (J10 or J13).
Analog Composite Monitor Out	4	None	J12	J6, J7, J11	Only J6, J7, J11, and J12 have 4 (or more) inputs. If in J11 or J12, board must be able to get a shared input (the 4th) from an adjacent slot (J10 or J13).
Analog Composite I/O	2	2	J14, J15	J5-J15	Any open slot if board in adjacent slot does not use the same shared router points.
Serial Digital I/O	2	2	J14, J15	J5-J15	Any open slot if board in adjacent slot does not use the same shared router points. Cables must be able to reach ASPBs.
CAV In	None	1	J6	J5-J15	Any open slot if board in adjacent slot does not use the same shared router points.
Fibre Channel	None	None	J8	J5-J15	Must be adjacent to Master EDR. PCI Interconnect required.
Mix Effects	6	2	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).
Audio Signal Processing Board (ASPB)	None	None	J13 (1st) J5 (2nd)	J5-J15	Cables must be able to reach video boards or additional ASPB. Second ASPB necessary for 32 channels of audio.

Table 18. Board I/O requirements and restrictions for PDR300 B010000 and up, PDR200 B030000 and up, and PDR200 B029999 and below with MPEG

Board	Video Router Connection Requirements		Recommended Slots	Other Possible Slots	Comments
	Inputs	Outputs			
CPU	n/a	n/a	J1	None	Reserved for PC card only
VGA	n/a	n/a	J2	None	ISA only
LAN	n/a	n/a	J3	None	EISA only
SCSI	n/a	n/a	J4	None	EISA only
RefGen	n/a	n/a	J16	None	Reference genlock
RS-422	n/a	n/a	J17	None	EISA only
Master EDR	2	2	J10	None	Must be adjacent to Slave EDR and Fibre Channel (if installed). PCI Interconnect required.
Slave EDR	2	2	J11	None	Must be adjacent to Master EDR and MPEG (if installed). PCI Interconnect required.
Four Channel Analog Out	4	None	J12	J6,J7	Only J6, J7, J11, and J12 have 4 (or more) inputs. If in J11 or J12, board must be able to get a shared input (the 4th) from an adjacent slot (J10 or J13).
Analog Composite Monitor Out	4	None	J12	J6, J7	Only J6, J7, J11, and J12 have 4 (or more) inputs. If in J11 or J12, board must be able to get a shared input (the 4th) from an adjacent slot (J10 or J13).
Analog Composite I/O	2	2	J14, J15	J5-J15	Any open slot if board in adjacent slot does not use the same shared router points.
Serial Digital I/O	2	2	J14, J15	J5-J15	Any open slot if board in adjacent slot does not use the same shared router points. Cables must be able to reach ASPBs.
CAV In	None	1	J11	J5-J15	Any open slot if board in adjacent slot does not use the same shared router points.
MPEG encoder	1	2	J8, J12	None	Must be adjacent to either Slave EDR or Fibre Channel (if installed). PCI Interconnect required.
MPEG decoder	None	4	J12, J8	None	Must be adjacent to either Slave EDR or Fibre Channel (if installed). PCI Interconnect required.
Fibre Channel	None	None	J9	None	Must be adjacent to Master EDR. PCI Interconnect required.
Mix Effects	6	2	J6	J7	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).
Audio Signal Processing Board (ASPB)	None	None	J5 (1st) J7 (2nd)	J5-J15	Cables must be able to reach video boards or additional ASPB. Second ASPB necessary for 32 channels of audio.

Table 19. Board I/O requirements and restrictions for a PDR100

Board	Video Router Connection Requirements		Recommended Slots	Other Possible Slots	Comments
	Inputs	Outputs			
CPU	n/a	n/a	J1	None	Reserved for PC card only
VGA	n/a	n/a	J2	None	ISA only
LAN	n/a	n/a	J3	None	EISA only
SCSI	n/a	n/a	J4	None	EISA only
RefGen	n/a	n/a	J16	None	Reference genlock
RS-422	n/a	n/a	J17	None	EISA only
Master Disk Recorder	2	2	J14	None	Must be adjacent to Slave Disk Recorder and Fibre Channel (if installed).
Slave Disk Recorder	2	2	J15	None	Must be adjacent to Master Disk Recorder.
Analog Composite In	None	1	any slot	J5-J15	Any open slot if board in adjacent slot does not use the same shared router points. Must be adjacent to the Analog Composite Decoder.
Analog Composite Decoder	None	None	any slot	J4-J15	Must be adjacent to Analog Composite In. May be installed in J4 since it does not require any router connections.
Four Channel Analog Out	4	None	J11,J12	J6,J7	Only J6, J7, J11, and J12 have 4 (or more) inputs. If in J11 or J12, board must be able to get a shared input (the 4th) from an adjacent slot (J10 or J13).
Analog Composite Monitor Out	4	None	J11,J12	J6,J7	Only J6, J7, J11, and J12 have 4 (or more) inputs. If in J11 or J12, board must be able to get a shared input (the 4th) from an adjacent slot (J10 or J13).
Analog Composite I/O	2	2	any slot	J5-J15	any open slot if board in adjacent slot does not use the same shared router points.
Serial Digital I/O	2	2	any slot	J5-J15	any open slot if board in adjacent slot does not use the same shared router points.
CAV In	None	1	any slot	J5-J15	any open slot if board in adjacent slot does not use the same shared router points.
Fibre Channel	None	None	J13	None	Must be adjacent to Master Disk Recorder. PCI Interconnect required.
Mix Effects	6	2	J6	J7	Only J6 and J7 have 5 dedicated inputs; board must be able to get a shared input (the 6th) from an adjacent slot (J5 or J8).
Audio Signal Processing Board (ASPB)	None	None	any slot	J5-J15	Cables must be able to reach video boards or additional ASPB. Second ASPB necessary for 32 channels of audio.