

# DWLPA PCI Shelf Installation Guide

Order Number EK-DWL82-IN. A01

This manual describes the installation of the DWLPA PCI shelf into the AlphaServer 8200 system. In addition, the manual describes the installation of the KFE70-AA, the PCI-to-EISA bridge.

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# Preface

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## Intended Audience

This manual is written for Digital customer service engineers and self-maintenance customers who require information to install DWLPA PCIs and the KFE70 option, in AlphaServer 8200 systems.

## Document Structure

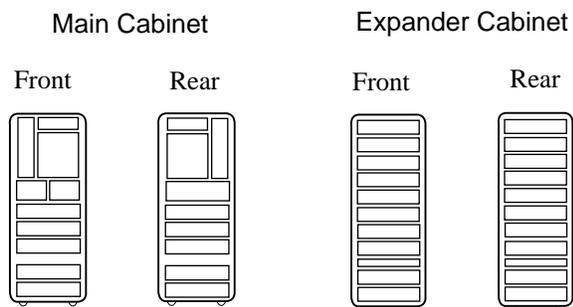
This manual uses a structured documentation design. Topics are organized into small sections for efficient reference. Each topic begins with an abstract. You can quickly gain a comprehensive overview by reading only the abstracts. Next is an illustration or example, which also provides quick reference. Last in the structure are descriptive text and syntax definitions.

This manual has four chapters as follows:

- **Chapter 1, Installation Overview**, provides a flowchart that summarizes the installation process.
- **Chapter 2, DWLPA Shelf Installation**, shows how to install a PCI shelf into either a system or expander cabinet.
- **Chapter 3, KFE70-AA Installation**, shows how to install a KFE70 option, the PCI-to-EISA bridge, into a PCI/IO subsystem.
- **Chapter 4, Verification Procedure**, shows how to verify the installation of the various options.

## Conventions Used in This Document

*Icons.* The icons shown below are used in illustrations for designating part placement in the system described. A shaded area in the icon shows the location of the component or part being discussed.



## Documentation Titles

Table 1 lists the books in the AlphaServer 8200 and 8400 documentation set. Table 2 lists other documents that you may find useful.

Table 1 AlphaServer 8200 and 8400 Documentation

Title	Order Number
<b>Hardware User Information and Installation</b>	
<i>Operations Manual</i>	EK-T8030-OP
<i>Site Preparation Guide</i>	EK-T8030-SP
<i>AlphaServer 8200 Installation Guide</i>	EK-T8230-IN
<i>AlphaServer 8400 Installation Guide</i>	EK-T8430-IN
<b>Service Information Kit</b>	
<i>Service Manual (hard copy)</i>	EK-T8030-SV
<i>Service Manual (diskette)</i>	AK-QKNFA-CA

Table 1 AlphaServer 8200 and 8400 Documentation (Continued)

Title	Order Number
<b>Reference Manuals</b>	
<i>System Technical Manual</i>	EK-T8030-TM
<i>DWLPA PCI Adapter Technical Manual</i>	EK-DWLPA-TM
<b>Upgrade Manuals for Both Systems</b>	
<i>KN7CC CPU Module Installation Card</i>	EK-KN7CC-IN
<i>MS7CC Memory Installation Card</i>	EK-MS7CC-IN
<i>KFTHA System I/O Module Installation Guide</i>	EK-KFTHA-IN
<i>KFTIA Integrated I/O Module Installation Guide</i>	EK-KFTIA-IN
<b>Upgrade Manuals: 8400 System Only</b>	
<i>AlphaServer 8400 Upgrade Manual</i>	EK-T8430-UI
<i>BA654 DSSI Disk PIU Installation Guide</i>	EK-BA654-IN
<i>BA655 SCSI Disk and Tape PIU Installation Guide</i>	EK-BA655-IN
<i>DWLAA Futurebus+ PIU Installation Guide</i>	EK-DWLAA-IN
<i>DWLMA XMI PIU Installation Guide</i>	EK-DWLMA-IN
<i>DWLPA PCI PIU Installation Guide</i>	EK-DWL84-IN
<i>H7237 Battery PIU Installation Guide</i>	EK-H7237-IN
<i>H7263 Power Regulator Installation Card</i>	EK-H7263-IN
<i>H9F00 Power Upgrade Manual</i>	EK-H8463-UI
<i>KFMSB Adapter Installation Guide</i>	EK-KFMSB-IN
<i>KZMSA Adapter Installation Guide</i>	EK-KXMSX-IN
<i>RRDCD Installation Guide</i>	EK-RRDRX-IN
<b>Upgrade Manuals: 8200 System Only</b>	
<i>DWLPA PCI Shelf Installation Guide</i>	EK-DWL82-IN
<i>H7266 Power Regulator Installation Card</i>	EK-H7266-IN
<i>H7267 Battery Backup Installation Card</i>	EK-H7267-IN

Table 2 Related Documents

Title	Order Number
<b>General Site Preparation</b>	
<i>Site Environmental Preparation Guide</i>	EK-CSEPG-MA
<b>System I/O Options</b>	
<i>BA350 Modular Storage Shelf Subsystem Configuration Guide</i>	EK-BA350-CG
<i>BA350 Modular Storage Shelf Subsystem User's Guide</i>	EK-BA350-UG
<i>BA350-LA Modular Storage Shelf User's Guide</i>	EK-350LA-UG
<i>CIXCD Interface User Guide</i>	EK-CIXCD-UG
<i>DEC FDDIcontroller 400 Installation/Problem Solving</i>	EK-DEMFA-IP
<i>DEC FDDIcontroller/Futurebus+ Installation Guide</i>	EK-DEFAA-IN
<i>DEC FDDIcontroller/PCI User Information</i>	EK-DEFPA-IN
<i>DEC LANcontroller 400 Installation Guide</i>	EK-DEMNA-IN
<i>DSSI VAXcluster Installation/Troubleshooting Manual</i>	EK-410AA-MG
<i>EtherWORKS Turbo PCI User Information</i>	EK-DE435-OM
<i>KZPSA PCI-to-SCSI Storage Adapter User's Guide</i>	EK-KZPSA-UG
<i>RF Series Integrated Storage Element User Guide</i>	EK-RF72D-UG
<i>StorageWorks RAID Array 200 Subsystem Family Installation and Configuration Guide</i>	EK-SWRA2-IG
<i>StorageWorks RAID Array 200 Subsystem Family Software User's Guide for OpenVMS AXP</i>	AA-Q6WVA-TE
<i>StorageWorks RAID Array 200 Subsystem Family Software User's Guide for DEC OSF/1</i>	AA-Q6TGA-TE
<b>Operating System Manuals</b>	
<i>Alpha Architecture Reference Manual</i>	EY-L520E-DP
<i>DEC OSF/1 Guide to System Administration</i>	AA-PJU7A-TE
<i>Guide to Installing DEC OSF/1</i>	AA-PS2DE-TE
<i>OpenVMS Alpha Version 6.2 Upgrade and Installation Manual</i>	AA-PV6XC-TE

# Chapter 1

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## Installation Overview

The DWLPA PCI shelf provides a PCI I/O subsystem bus that can be installed in an AlphaServer 8200 system or expander cabinet. The DWLPA PCI bus can have an EISA bridge, the KFE70, installed in it. This chapter describes DWLPA PCI shelf placement in both system and expander cabinets and gives PCI and PCI/EISA configuration rules.

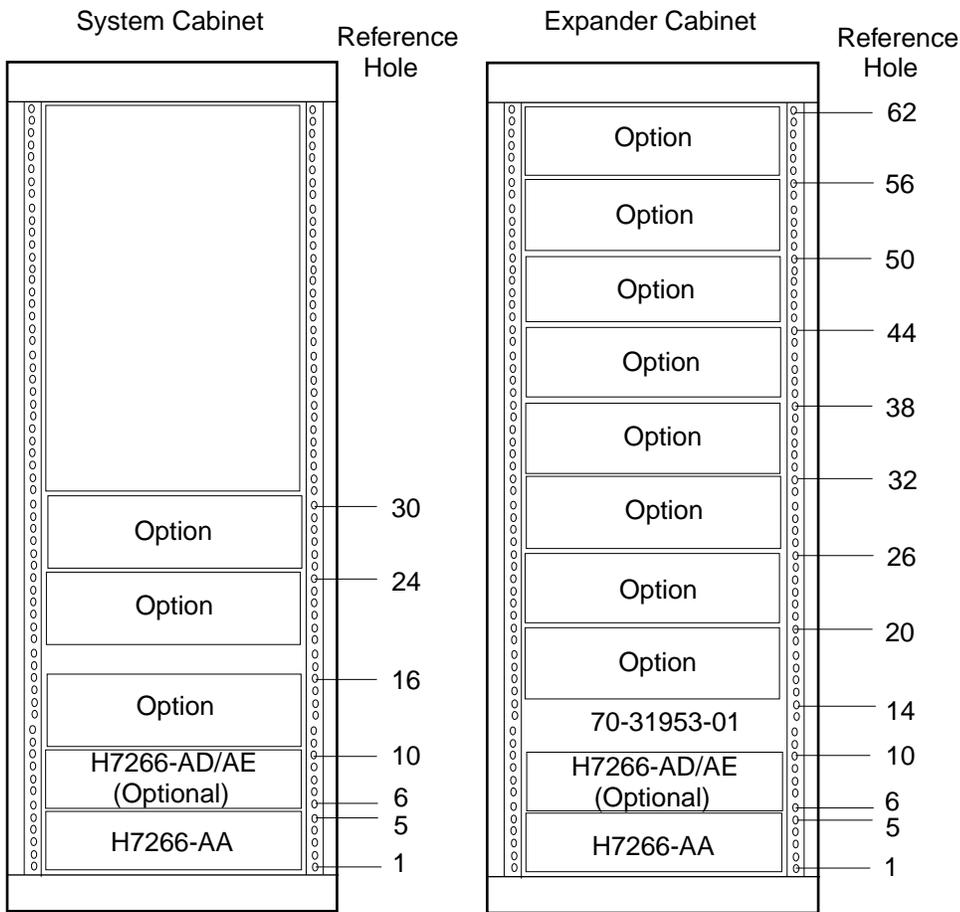
Sections include:

- DWLPA PCI Placement and Configuration Rules
- Installation Flowchart

## 1.1 DWLPA PCI Placement and Configuration Rules

**The DWLPA shelf is installed in option slots in system or expander cabinets.**

Figure 1-1 Option Slots in System and Expander Cabinets



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Figure 1-1 shows the AlphaServer 8200 system and expander cabinets option locations. DWLPA PCI shelves can be placed in any of the locations designated Option in the drawing. The following rules apply:

1. DWLPA Shelves in Systems
  - a. Up to three shelves can be placed in a system cabinet.
  - b. Up to four shelves can be placed in an expander cabinet. To keep a low center of gravity they are placed in the lower option slots.
  - c. Up to nine shelves can be placed in a system with two expander cabinets. This limit is imposed by the available I/O hose cables from two KFTHAs and a KFTIA on the system bus.
  - d. By convention DWLPA PCI shelves are sequentially placed in option slots from the bottom up.
2. PCI Configuration Rules
  - a. Each DWLPA PCI has 12 slots available for PCI options.
  - b. When the EISA bus is enabled on the DWLPA by the KFE70, slot usage is constrained as shown in Table 1-1.

**Table 1-1 PCI/EISA Slot Usage**

Slot	Usage
0	Standard I/O module (PCI-to-EISA bridge)
1	EISA option only
2	Connector module (floppy, keyboard, and mouse)
3	EISA option only
4	PCI or EISA option
5	PCI or EISA option
6	PCI option only
7	PCI or EISA option
8	PCI or EISA option
9	PCI or EISA option
10	PCI option only
11	PCI or EISA option

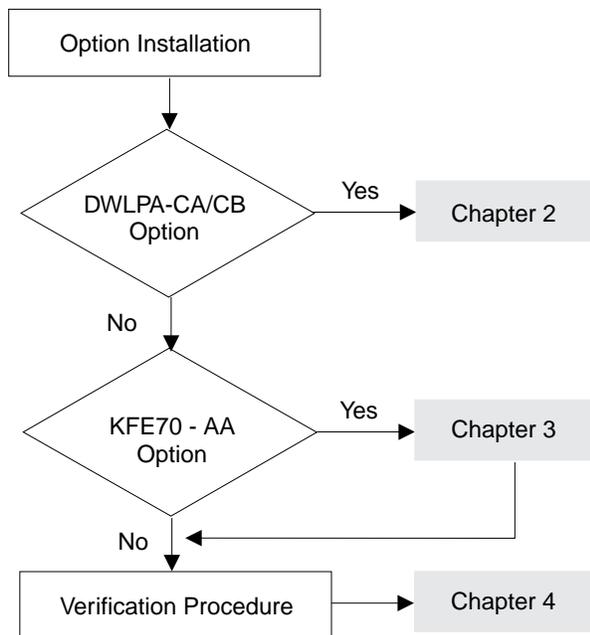
## 1.2 Installation Flowchart

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**There are two option installations covered by this book. Figure 1-2 points to the chapter covering each option. Go to the appropriate chapter and perform the installation.**

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Figure 1-2 Installation Flowchart



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## Chapter 2

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### DWLPA Shelf Installation

This chapter describes the DWLPA PCI shelf installation in both system and expander cabinets.

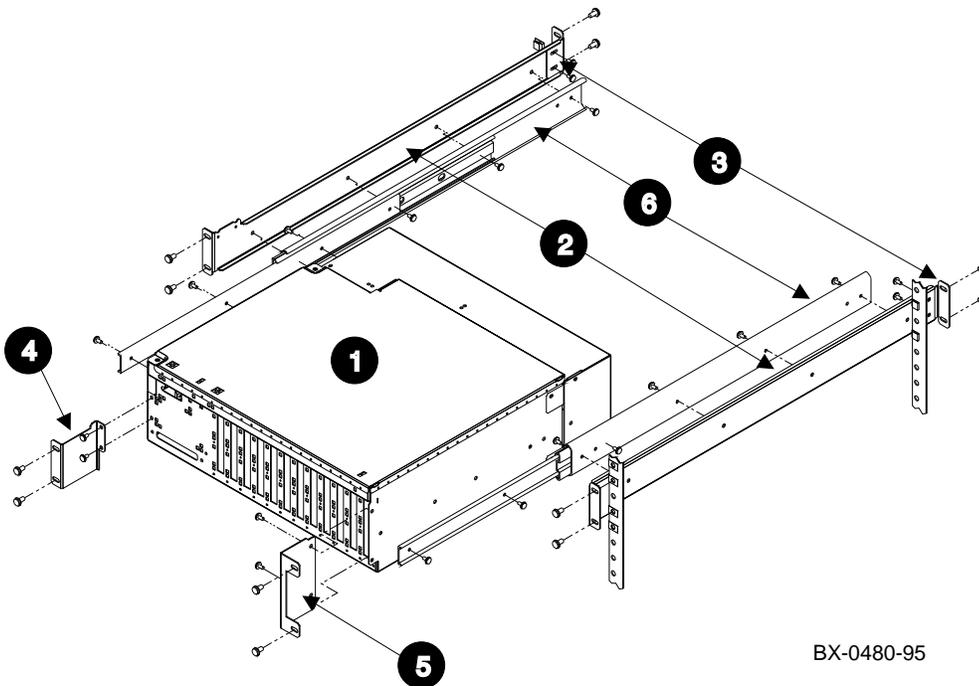
Sections include:

- DWLPA–CA/CB Kit Contents
- Prepare the Cabinet for the Shelf
- Prepare the Mounting Slides
- Prepare the PCI Shelf
- Mount the PCI Shelf to the Cabinet
- Install the Cable Management Rack
- Connect Hose Cable to the PCI Shelf
- Connect the Power Cable

## 2.1 DWLPA-CA/CB Kit Contents

Figure 2-1 shows the DWLPA shelf and mounting hardware. The kit contains a PCI shelf with fans, two slides for attaching the shelf to the cabinet, and I/O cables.

Figure 2-1 DWLPA PCI Shelf and Mounting Hardware



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Table 2-1 shows the contents of the DWLPA–CA/CB options. Table 2-2 shows the contents of the PCI rackmount kit.

**Table 2-1 DWLPA–CA/CB Kit Contents**

Part Number	Quantity	Description
70-31939-01	1	PCI rackmount kit
17-03085-04	*	1.95 m (6.4 ft) hose cable for the CA variant
17-03085-03	*	3.8 m (12.5 ft) hose cable for the CB variant
17-04044-02	1	Cable assembly, power extender
74-49788-01	1	Rack for cable management
16-25105-14	2	Ferrite choke (sleeve)
90-07031-00	1	Tiewrap bundle, power cable management
90-07032-00	1	Tiewrap bundle, hose cable management

\* One hose cable is in each kit.

**Table 2-2 PCI Rackmount Kit Contents**

Part Number	Quantity	Description
❶	1	PCI card cage, assembly
❷ 74-48372-01	2	Bracket, slide support
❸ 74-48373-01	2	Bracket, rear frame slide support
❹ 74-47374-01	1	Bracket, left front securing
❺ 74-48375-01	1	Bracket, right front securing
❻ 12-43333-03	2	Chassis slide, ball bearing
90-09984-19	4	Screw M4 pan 8 mm
90-09984-18	12	Screw M5 pan 12 mm
90-07786-04	12	U-nut M5
90-06035-01	18	8-32 pan machine screws without washers

## 2.2 Prepare the Cabinet for the Shelf

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**Decide where the DWLPA PCI shelf will go and attach the U-nuts to the cabinet frame based on the locations indicated by Figures 1-1 and 2-2.**

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Figure 2-2 U-Nut Locations for DWLPA PCI Shelf

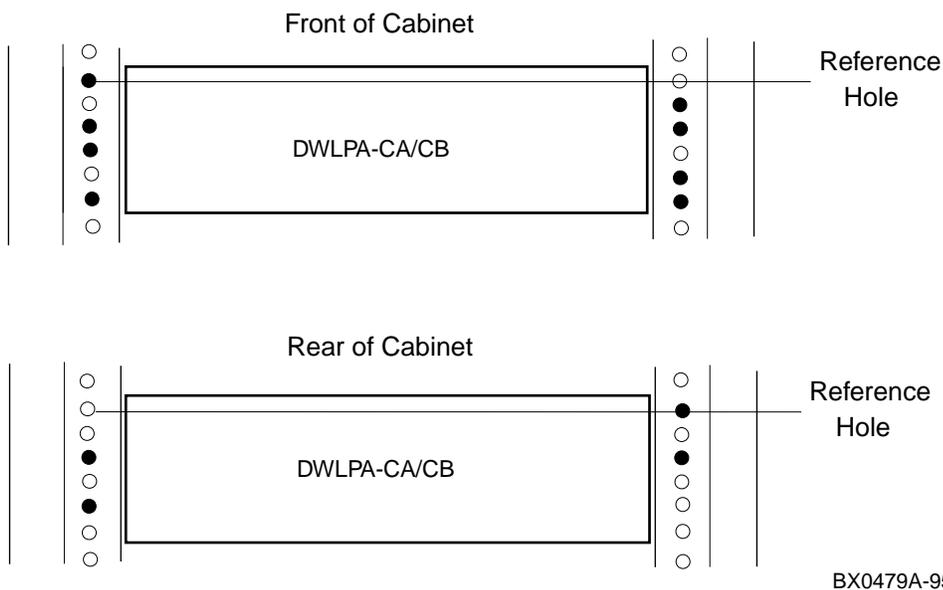


Figure 1-1 in Chapter 1 shows option locations, and Figure 2-2 shows U-nut locations for the DWLPA PCI shelf. Note that the slides are not vertically symmetrical but are offset from each other.

Take the following steps to prepare the system:

1. Perform an orderly shutdown of the system.
2. Push the On/Off button.
3. Open the front door.
4. Remove the back door.
5. Place the circuit breaker(s) on all power supplies to the Off position.
6. Determine which option slot will hold the DWLPA PCI shelf. See Figure 1-1 for locations in both the system and expander cabinets. PCI shelves are added to systems in option slots from the bottom up.
7. Find the reference hole for the option slot chosen for the PCI shelf. Place U-nuts (90-07786-04) according to the pattern shown in Figure 2-2. U-nut placement is designated by the black circles. The nuts are placed on the frame so that the nut protrudes into the cabinet.
8. Place the two rear slide support brackets (74-48373-01) on the right and left rear frame using four 12 mm screws (90-09984-18). The supports need to be tight enough to support the shelf when it is put in place. They will be adjusted later.

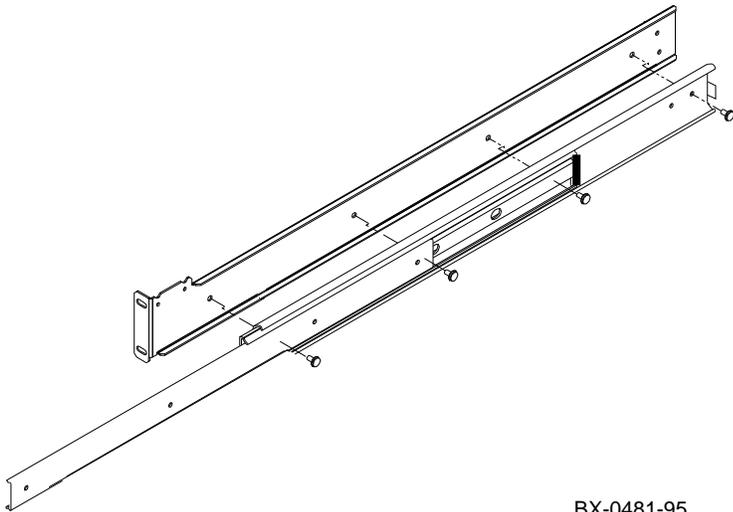
## 2.3 Prepare the Mounting Slides

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**Mount the slides to the slide support.**

---

Figure 2-3 Slide and Slide Support Assembly



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1. Orient one ball bearing slide (12-43333-03) to one support bracket (74-48372-01) as shown in Figure 2-3.
2. Attach the slide to the support using 4 8-32 panhead screws without washers (90-06035-01). The slide and screw height have low tolerances, so tighten the screws securely.
  - a. Extend the slide fully.
  - b. Insert two screws at the back of the slide and the one most forward on the support through the access hole in the middle slide. Tighten each screw.
  - c. Insert the fourth screw by orienting the access hole in the middle piece of the slide over the remaining screw hole. Tighten the screw.
3. Repeat the procedure for the second slide.

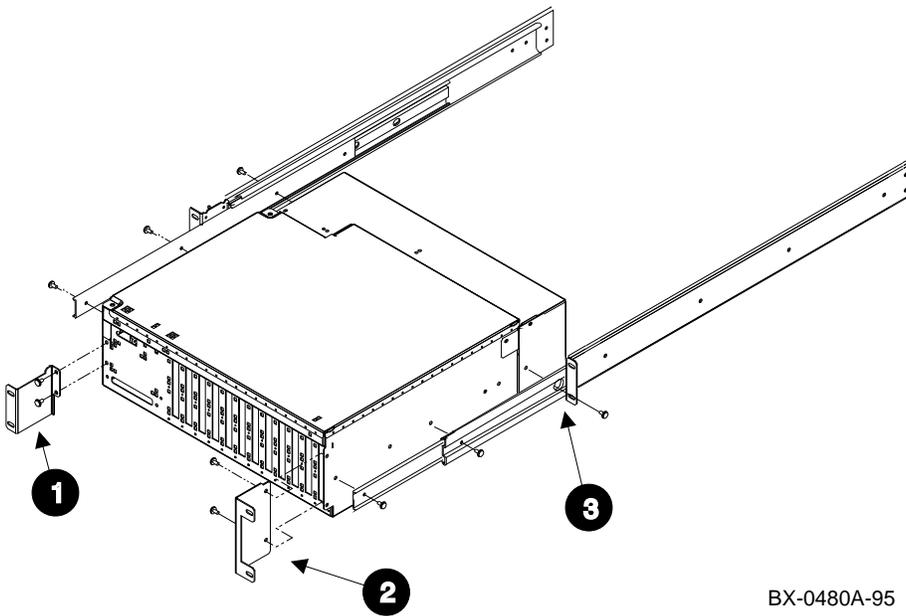
## 2.4 Prepare the PCI Shelf

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**Prepare the PCI shelf for insertion into the cabinet by mounting the slides and slide supports onto the card cage and attaching the right and left securing brackets.**

---

Figure 2-4 Card Cage and Mounting Bracket Assembly



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1. Attach the left securing bracket (74-48374-01) to the front of the PCI card cage using two 8 mm Phillips head screws (90-09984-19). See ❶ in Figure 2-4.
2. Attach the right securing bracket (74-48375-01) to the front of the PCI card cage using two 8 mm Phillips head screws (90-09984-19). See ❷.
3. Attach the slide and support bracket to the card cage using three Phillips head screws without washers (90-06035-01). The slide and screw height have low tolerances, so tighten the screws securely.
  - a. Orient the slide to the card cage as shown in Figure 2-4.
  - b. Extend the slide fully.
  - c. Insert two screws at the front of the slide. Tighten each screw.
  - d. Insert the third screw by orienting the access hole in the middle piece of the slide over the remaining screw hole. Tighten the screw. See ❸.
4. Repeat step 3 for the other slide and support bracket.

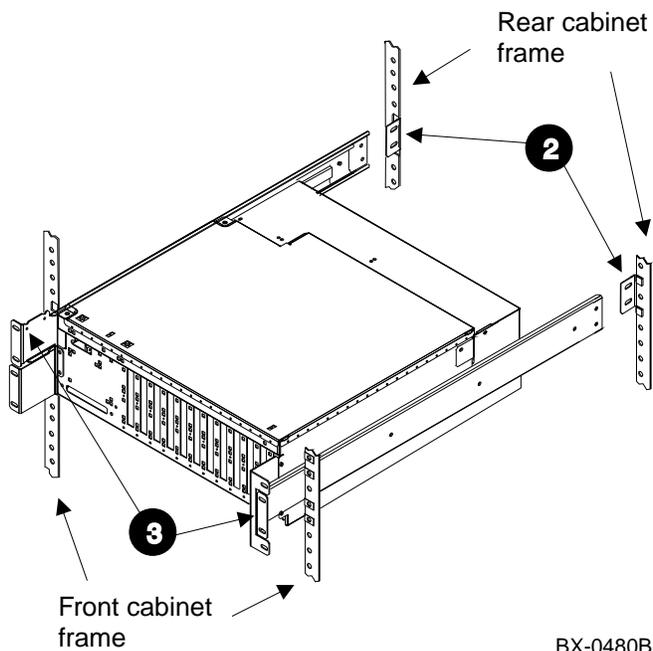
## 2.5 Mount the PCI Shelf to the Cabinet

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**Place the PCI shelf in the cabinet.**

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Figure 2-5 PCI Shelf in Cabinet



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The ease of installation depends upon whether there is an option or power supply below the option slot to be filled. If the space is empty, you may wish to get a box to fill it so you can rest the shelf on the box while you are securing the shelf to the cabinet. The instructions describe the installation assuming empty space below the slot used.

**From the front of the cabinet:**

1. Hold the PCI shelf so the slides are collapsed.
2. Carefully insert the shelf so that the rear frame slide supports on the back frame insert into the slides. (The back of the shelf is now supported.) If necessary, adjust the rear frame slide supports on the frame and try again. See ❷ in Figure 2-5.
3. Once the slides rest on the rear frame slide support brackets, secure the front of the shelf to the right and left front frame using the 12 mm Phillips head screws (90-09984-18). Secure only the slide supports at this time. See ❸.
4. Adjust the mounting hardware so the slides are parallel to the PCI shelf.

**From the back of the cabinet:**

1. Secure the rear frame slide support brackets to the slide using four Phillips head screws (90-06035-01). See ❷.
2. Adjust the mounting hardware so the slides are parallel to the PCI shelf. Tighten all screws on the rear frame slide supports.

If you are installing a KFE70, go to Chapter 3. If you are installing PCI or EISA options, pull the shelf out and install them now. Be sure option bulkheads mate with the EMI gasket on the PCI card cage and are secure.

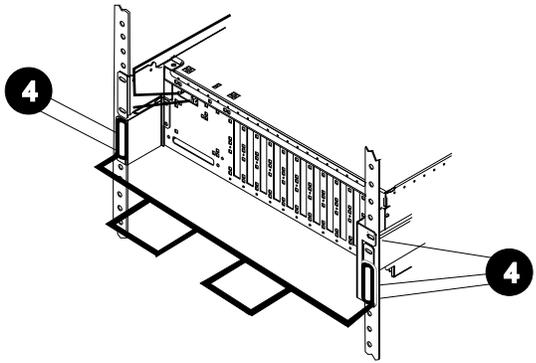
## 2.6 Install the Cable Management Rack

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**A cable management rack is installed just below the PCI shelf to support the hose cable.**

---

Figure 2-6 Cable Management Rack



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If you have installed all the PCI/EISA options, you are now ready to secure the PCI shelf.

Working at the front of the cabinet to install the cable management rack and secure the PCI shelf to the cabinet:

1. Remove the bottom Phillips head screw from the right PCI shelf slide.
2. Push the PCI shelf completely into the cabinet so that the securing brackets are against the frame.
3. Orient the cable management rack (74-49788-01) as shown in Figure 2-6.
4. Secure the PCI shelf and the cable management rack to the frame using five Phillips head 12 mm screws (90-09984-18). See ④.

## 2.7 Connect Hose Cable to the PCI Shelf

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**Connect the I/O hose cable to the PCI shelf.**

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Figure 2-7 Hose Cable Installation

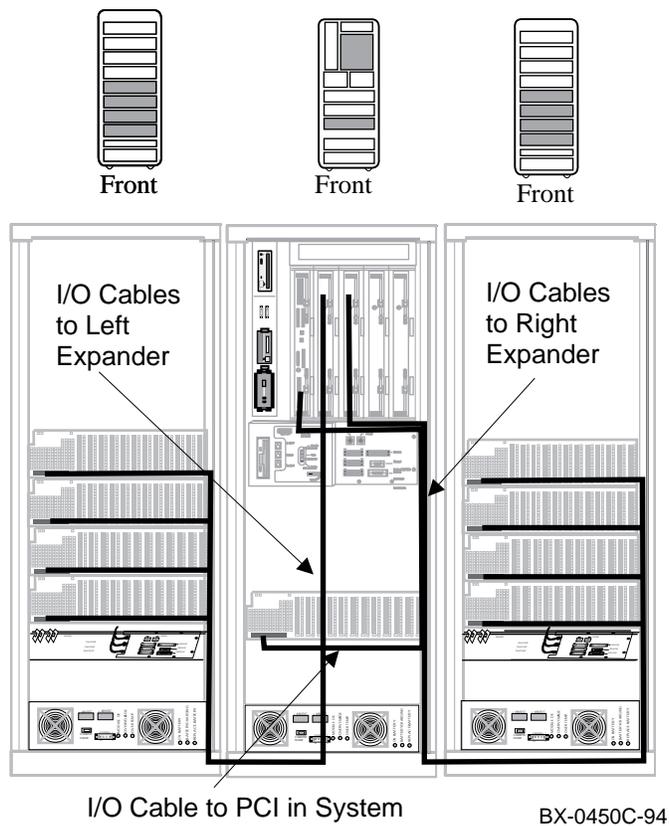


Figure 2-7 shows a system with nine PCIs. In this configuration, a single KFTIA is in TLSB slot 8 and two KFTHAs are in TLSB slots 7 and 6. This is the maximum configuration for the 8200.

### **Cabling Guidelines**

- The PCI in the system cabinet is connected to the KFTIA in slot 8.
- If there is one expander cabinet, the PCIs in it are connected to the KFTHA in slot 7.
- If there are two expander cabinets, the PCIs in the right expander are connected to the KFTHA in slot 6, and the PCIs in the left expander are connected to the KFTHA in slot 7.
- The cable from the topmost connector on the KFTHA is connected to the PCI in the lowest position in the expander, the cable from the next topmost position is connected to the PCI that is above the lowest one in the expander. The other two cables follow this principle.

Plan the cabling carefully considering the Cabling Guidelines and how the cables are routed and bundled as shown in Figure 2-7. Each PCI must be connected to a KFTHA or KFTIA. Cable 17-03085-04 connects the KFTIA to the PCI in the system cabinet, and the longer cable, the 17-03085-03, connects PCIs in expander cabinets to KFTHAs in the system cabinet.

1. Install the end of the I/O cable labeled IOP (17-03085-0x) to the KFTHA or KFTIA connector. Be sure the connector is aligned before tightening the screws.
2. Route the I/O cable(s) as shown in Figure 2-7. **Be sure not to block the power supply cooling fans.**
3. Install the end of the I/O cable labeled PIU to the appropriate PCI shown in Figure 2-7.
4. Once all the cables are connected, place tiewraps on them and secure them as best you can in the positions shown in Figure 2-7.
5. Make sure the front door closes and latches.

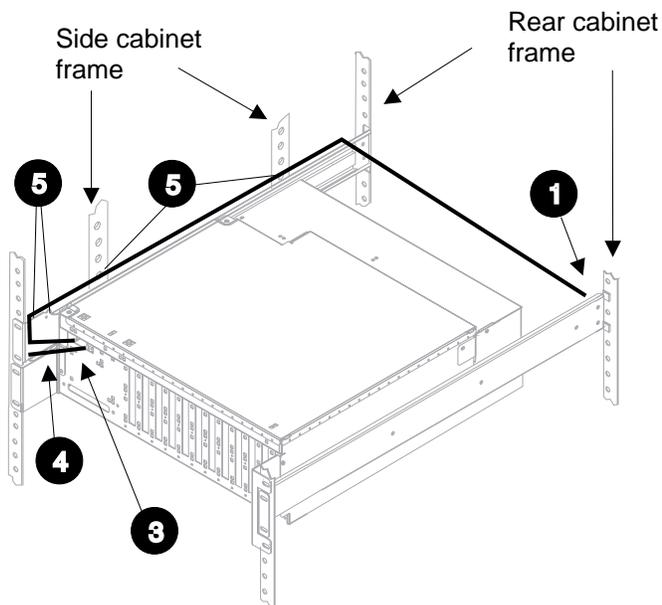
## 2.8 Connect the Power Cable

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**Power to the PCI shelf is provided from the two power cable bundles attached to the left front and right rear frame when viewing the cabinet from the front.**

---

Figure 2-8 Power Cable Installation



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After you have completed installation of PCI and/or EISA options, install the power cable extension and secure the PCI shelf.

1. Plug one end of the power extension cable assembly (17-04044-02) into the power cable assembly for the option slot on the left rear frame. See ❶ in Figure 2-8.
2. Route the cable to the front of the shelf as shown in Figure 2-8.
3. Plug the other end of the power cable assembly into one of the two power sockets on the front of the PCI shelf. See ❸.
4. Plug the power cable associated with the particular slot from the power cable assembly on the left front frame into the other power socket on the PCI shelf. See ❹.
5. Tie-wrap the power extension cable assembly in the locations indicated by ❺.
6. Place one ferrite sleeve (16-25105-14) onto the power extension cable assembly as close to the connector on the PCI shelf as you can. See Section 3.8 if you need instructions on how to install the ferrite sleeve.
7. Place the other ferrite sleeve (16-25105-14) onto the other power cable as close to the connector on the PCI shelf as you can.



## Chapter 3

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# KFE70-BA Installation

This chapter describes installation of the KFE70.

Sections include:

- KFE70-BA Kit Contents
- Install KFE70 Modules
- Remove the Control Panel and Cover Plate
- Install the Floppy Drive
- Change the Control Panel Bezel
- Install Cables and Control Panel
- Run the EISA Configuration Utility
- Ferrite Sleeve Installation

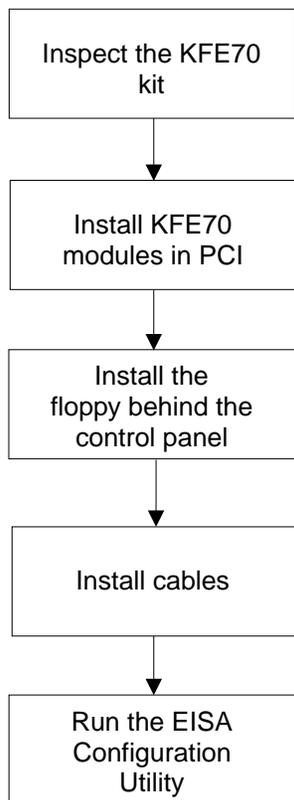
### 3.1 KFE70-BA Kit Contents

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**The KFE70 is a PCI-to-EISA bridge installed in a PCI I/O subsystem. Since EISA options require software utility support supplied on floppy disks, this option includes a floppy drive.**

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Figure 3-1 Installation Flowchart



BX0474A-95

Table 3-1 lists the contents of the KFE70–BA option kit.

**Table 3-1 KFE70–BA Kit Contents**

Part Number	Quantity	Description
RX26-AA	1	2.8 Mbyte, 3.5" diskette drive
B2110-AA	1	PCI-to-EISA bridge module
54-23491-01	1	Connector module
17-04100-01	1	Cable assembly, flat, 34 cond (from floppy to drive panel plate)
17-04115-01	1	Cable assembly, flat, 34 cond (bridge to connector)
17-04116-01	1	Cable assembly, flat, 60 cond (bridge to connector)
BN21H-1E	1	Signal cable, RX26, connector module to drive panel plate
17-04101-01	1	Power cable (from floppy to drive panel plate)
17-04178-01	1	Power cable, connector module to floppy
74-48833-01	1	Drive panel plate
74-48125-02	1	Control panel
36-42868-01	1	Label, U.S.A.
36-42868-02	1	Label, Europe
16-25105-14	1	Ferrite sleeve
90-10556-04	2	Screw, machine M3 pan 6 mm (floppy to drive panel plate)
12-41427-01	2	Screw, machine 4-40 pan 0.25 (signal cable to drive panel plate)
QC-01YAA-HC	1	Software EISA configuration kit

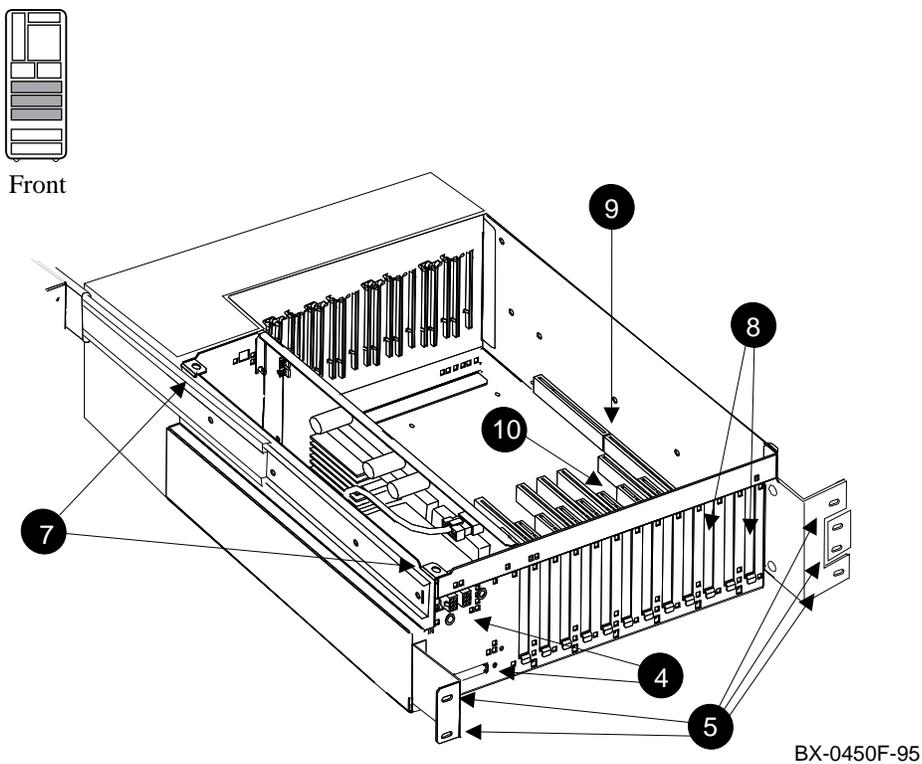
## 3.2 Install KFE70 Modules

---

**Two modules need to be installed in the PCI I/O subsystem, the PCI-to-EISA bridge and the connector module.**

---

Figure 3-2 KFE70 Module Installation



*NOTE: When installing either PCI or EISA modules, be sure the option bulkheads mate with the EMI gasket on the PCI card cage.*

To install the two KFE70 modules:

1. Perform an orderly shutdown of the system and turn the system off by pushing the On/Off button on the control panel to Off.
2. The KFE70 must be placed in the system cabinet.
3. Open the circuit breakers on the power supplies.
4. Disconnect the power cables, ④ in Figure 3-2, the I/O hose, and any other cables that prevent the PCI shelf from being pulled out.
5. Remove the five Phillips head screws that hold the card cage and the cable management rack to the frame (see ⑤).
6. Pull the shelf out fully.
7. Remove the top cover by loosening the two quarter-turn screws, lifting the top of the cover away from the card cage, and then pulling the cover to the right and off (see ⑦).
8. Remove the face plates from slots 0 and 2 and any other slots you plan to use for PCI or EISA options (see ⑧). The face plates are held in place by a Phillips head screw on the inside top edge of the card cage. See Table 1-1 for slot usage rules.
9. Install the B2110-AA module in slot 0 (see ⑨). Secure the module to the card cage with a screw removed in step 8.
10. Install the connector module in PCI slot 2 (see ⑩). (The reason PCI slot 2 is used is to allow the use of EISA slot 1.) Secure the module to the card cage with a screw removed in step 8.
11. If you have an EISA option to go in slot 1, place it there now.
12. Connect the two ribbon cables, 17-04115-01 and 17-04116-01, between the B2110-AA and the connector module. The two cables, one a 34 pin and the other a 60 pin, are keyed to the connectors on the modules.
13. If you have other EISA or PCI options, install them in the shelf now. Secure the module to the card cage with a screw removed in step 8.
14. Place the cover back on the card cage and tighten the two quarter-turn screws.
15. Push the shelf back into the cabinet.
16. Replace the cable management rack and secure the shelf and cable management rack to the frame.
17. Replace the power cables to the shelf.
18. Replace any other cables removed in step 4.

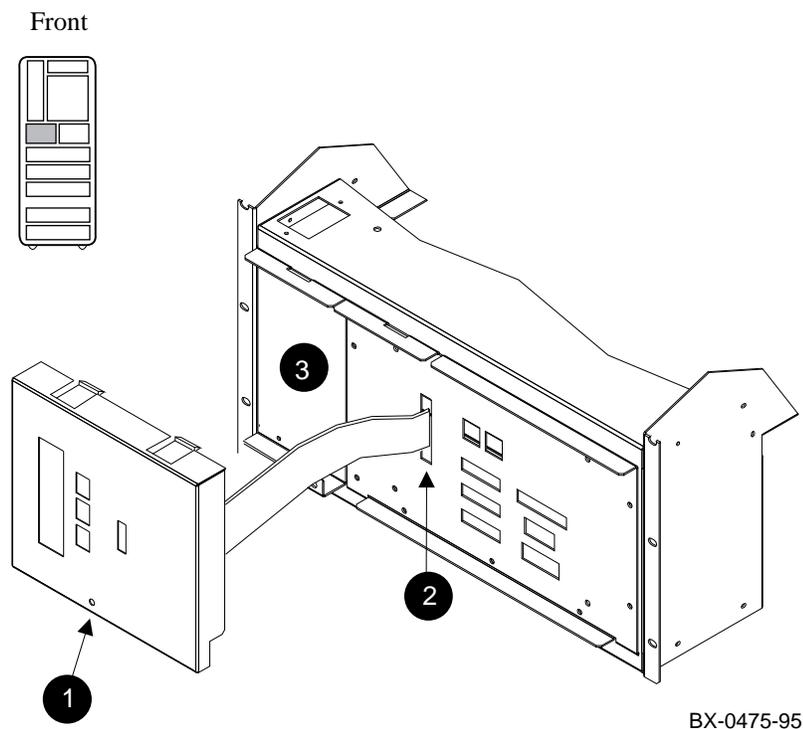
### 3.3 Remove the Control Panel and Cover Plate

---

**The floppy drive is installed behind the control panel.**

---

Figure 3-3 Control Panel Removal



To remove the control panel:

1. Pull the black plunger on the control panel (see ❶ in Figure 3-3) and gently tilt the bottom of the bezel away from the cabinet releasing the push tabs holding the top of the bezel in place.
2. Disconnect the 17-04046-01 cable from the CCL (see ❷). Put the control panel aside.
3. Remove the cover plate (❸) by removing the four Phillips head screws. Save the screws for installing the floppy.

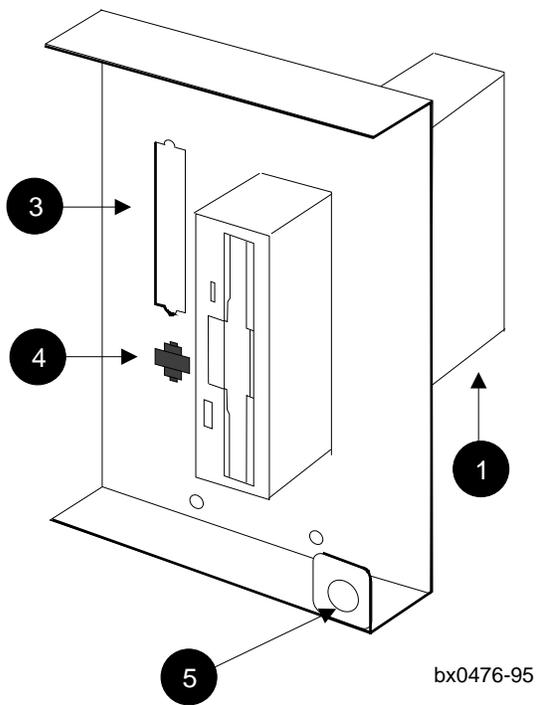
### 3.4 Install the Floppy Drive

---

**Install the floppy drive in the drive plate, install the cables, and place the assembly into the system.**

---

Figure 3-4 Floppy Drive Installation



To install the floppy drive:

1. Set the mode on the floppy drive. The mode switch on the Sony drive is located on the lower edge of the drive at the back corner. See ❶ in Figure 3-4. Set it to 1. On the Mitsubishi drive, the mode is set by a jumper at the back of the drive. Put the jumper on the middle pins.
2. Place the floppy drive in the drive plate (74-48833-01) as shown in Figure 3-4 and secure it to the plate with the two 6 mm screws (90-10556-04) provided in the kit. Be sure to orient the drive correctly to the bracket.
3. Insert the connector end of the signal cable (17-04100-01) into the back of the floppy drive; mount the other end to the drive plate using the two mounting screws (12-41427-01) (see ❸).
4. Insert the connector end of the twisted-pair power cable (17-04101-01) into the back of the floppy drive; snap the other end into the drive plate (see ❹).
5. Place the floppy drive and drive plate into the system in place of the cover plate you removed and secure using the four Phillips head screws you removed. Orient the drive and plate so that the hole used to secure the control panel (❺) is down and to the right.

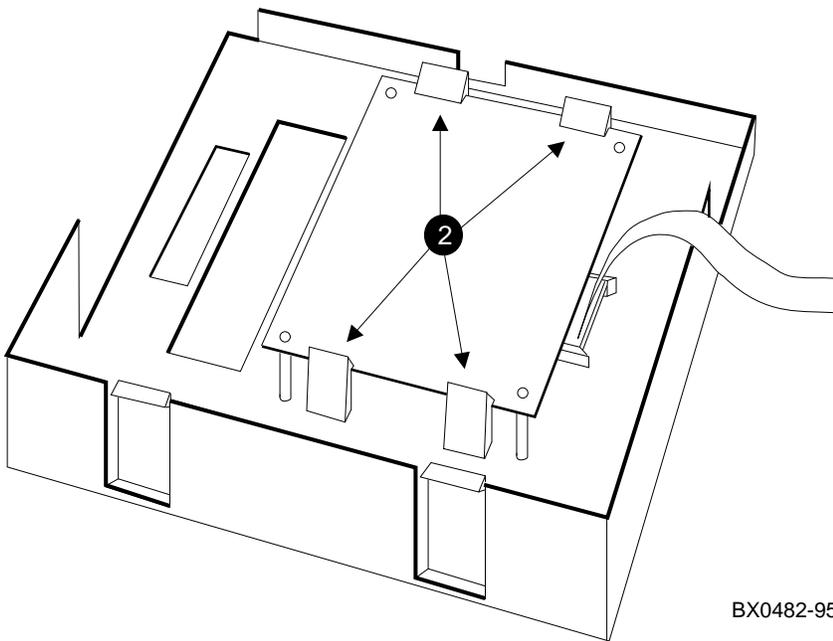
### 3.5 Change the Control Panel Bezel

---

**A new control panel bezel is needed when a floppy is installed. Remove the circuit board from the old bezel and put it on the new one.**

---

Figure 3-5 Control Panel Preparation



BX0482-95

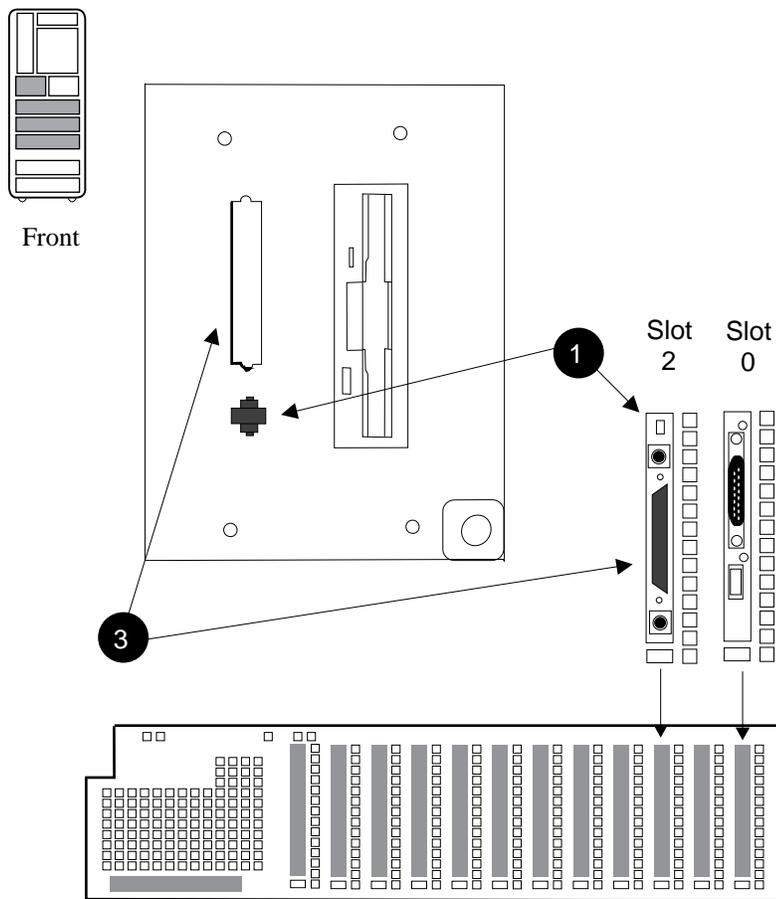
To prepare the control panel:

1. Remove the circuit board from the control panel you removed in Section 3.3.
2. Place the circuit board on the new control panel (74-48125-02) as shown in Figure 3-5 (see ②). The plastic tabs hold the board in place.
3. Place either the U.S. label or the International label on the front of the control panel bezel.

### 3.6 Install Cables and Control Panel

**Install cables between the floppy and the connector module in the PCI shelf. Install the control panel.**

Figure 3-6 Cable Installation



BX-0473B-95

To complete the installation:

1. Install the power cable (17-04178-01) from the connector module to the drive plate. See ❶ in Figure 3-6. Route the twisted-pair cable along the left side frame. At the connector module end, orient the connector so that the black ground wire is up.
2. Install the new control panel. Connect the signal cable from the circuit board on the control panel bezel to the connector on the CCL and then place the panel onto the cabinet.
3. Install the signal cable (BN21H-1E) from the connector module to the connector on the drive plate (see ❸). The connector passes through the hole to the left of the floppy drive in the control panel bezel.
4. Close the circuit breaker and power up the system.

## 3.7 Run the EISA Configuration Utility

---

**Since you just installed a KFE70, the PCI-to-EISA bridge, you probably installed an EISA option or two. You will need to run the EISA Configuration Utility to configure the EISA bus. The console will tell you if this is necessary. ECU comes on a floppy in the kit.**

---

### Example 3-1 Running ECU

Power on the system ②

[console display appears]

AlphaServer 8200 Console V1.0, SR0M V1.0, Apr 1 1995 00:00:00

EISA Configuration Error - run the EISA Configuration Utility. ③

P08>>> set arc\_enable on ④

P08>>> initialize ⑤

[console display appears]

P08>>> runecu ⑥

The EISA Configuration Utility comes on a floppy, has online help, and configures the EISA bus. The **arc\_enable** environment variable must be on and in effect for ECU to run. There are two versions of the utility, one that runs on a graphics terminal, and another that runs on character cell terminals. Both versions are on the floppy, and the console determines what kind of terminal is on the system and chooses the correct ECU version to run. Example 3-1 shows how to run ECU.

- ❶ Place the EISA Configuration Utility floppy (QC-01YAA-HC) in the floppy drive.
- ❷ Power on the system or initialize.
- ❸ After self-test, the console displays the message shown here.
- ❹ Enter the **set** command to turn on the **arc\_enable** environment variable.
- ❺ **Initialize** the system to make the **set** command take effect.
- ❻ After self-test enter **runecu**, the console command to invoke ECU. The console loads ECU from the floppy drive and passes control to it.

If ECU is not run and OpenVMS is on the system and booted, OpenVMS prints the following message:

```
%SYSTEM-I-NOCONFIGDATA, IRQ Configuration data for EISA  
slot xxx was not found, please run the ECU and reboot.
```

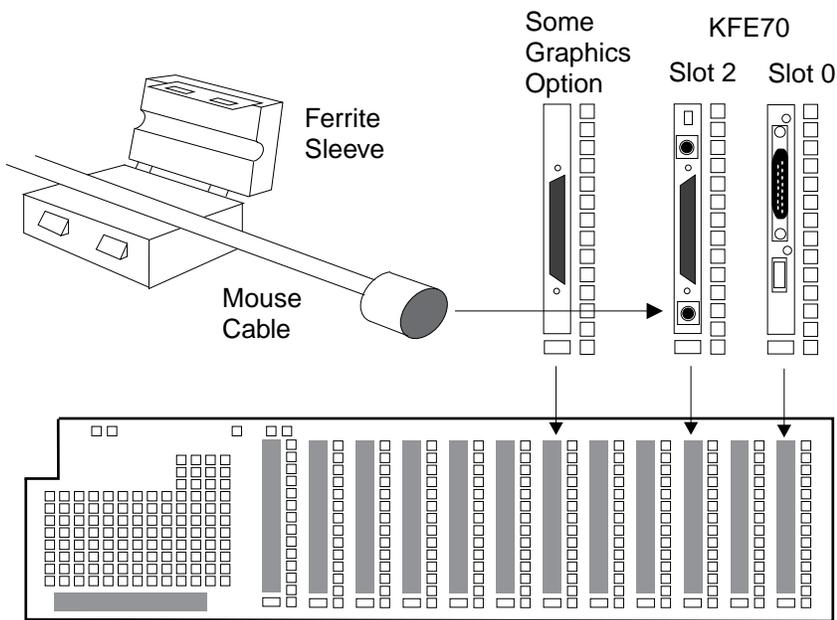
OpenVMS continues to boot after this message and will run without EISA as a system resource.

If ECU is not run and UNIX is on the system and booted, no information messages are printed. The operating system boots but does not use any EISA resources.

### 3.8 Ferrite Sleeve Installation

**A ferrite sleeve is provided with each KFE70 installation in case a graphics option is installed in the PCI shelf. If such an option is present, the ferrite sleeve is installed on the mouse cable.**

Figure 3-7 Ferrite Sleeve Installation



BX-0447G-95

To install the ferrite sleeve:

1. The mouse cable attaches to the connector module in slot 2 of the PCI. See Figure 3-7.
2. Place the sleeve on the mouse cable 10 to 15 cm. (4 to 6 in.) from the connection to the connector module and snap the sleeve shut over the cable.



## Chapter 4

---

# Verification Procedure

This chapter describes general verification procedures for the options installed.

Sections include:

- Run System Self-Test
- Show Commands for Installation
- Verify SCSI Devices
- If Necessary, Run the RAID Configuration Utility

## 4.1 Run System Self-Test

---

**Self-test runs at power-up and the display should show the devices you just installed. Example 4-1 shows a PCI shelf with a KFE70 connected to a KFTIA.**

---

### Example 4-1 Self-Test Display

```

F  E  D  C  B  A  9  8  7  6  5  4  3  2  1  0  NODE #
                                A  M  .  .  P  .  .  .  .  TYP
                                O  +  .  .  ++ .  .  .  .  ST1
                                .  .  .  .  EB .  .  .  .  BPD
                                O  +  .  .  ++ .  .  .  .  ST2
                                .  .  .  .  EB .  .  .  .  BPD
                                +  +  .  .  ++ .  .  .  .  ST3
                                .  .  .  .  EB .  .  .  .  BPD
                                .  .  .  .  +  +  +  +  C0 PCI + ❶
                                +  +  .  +  .  +  +  .  .  .  +  C1 PCI + ❶
                                .  .  .  .  .  +  .  .  .  .  EISA +
                                .  A0  .  .  .  .  .  .  .  ILV
                                .512  .  .  .  .  .  .  .  512MB
AlphaServer 8200 Console V1.0, SROM V1.0, Apr 1 1995 00:00:00

```

- ❶ Check the C0 through Cx lines to determine which modules on the PCI I/O subsystem passed self-test. The example shows two PCIs, one internal to the KFTIA in slot 8 and the other connected to the KFTIA through a hose.

*NOTE: If any module is badly broken on any bus, the console may not get a response or be able to read whether a device passed self-test. Under such conditions, self-test does not indicate a failure but instead indicates that the slot is empty.*

## 4.2 Show Commands for Installation

---

**Use show commands to verify installation of the options you put into the system.**

---

### Example 4-2 Show Configuration

P08>>> show configuration ❶

	Name	Type	Rev	Mnemonic
TLSB				
4++	KN7CC-AB	8014	0000	kn7cc-ab0
7+	MS7CC	5000	0000	ms7cc0
8+	KFTIA	2020	0000	kftia0
C0 Internal PCI connected to kftia0				
0+	ISP1020	10201077	0001	isp0
1+	ISP1020	10201077	0001	isp1
2+	DECchip 21040-AA	21011	0023	tulip0
4+	ISP1020	10201077	0001	isp2
5+	ISP1020	10201077	0001	isp3
6+	DECchip 21040-AA	21011	0023	tulip1
7+	PCI NVRAM	71011	0000	pci_nvram0
C1 PCI connected to kftia0				
0+	SIO	4828086	0003	sio0
5+	KZPSA	81011	0000	kzpsa0
6+	DECchip 21040-AA	21011	0023	tulip3
8+	ISP1020	10201077	0001	isp4
A+	DAC960	11069	0000	dac0
B+	DEC PCI FDDI	F1011	0000	pfi0
Controllers on SIO				
0+	DECchip 21040-AA	21011	0023	tulip2
1+	FLOPPY	2	0000	floppy0
2+	KBD	3	0000	kdb0
3+	MOUSE	4	0000	mouse0
EISA connected to pci1 through sio0				
3+	KFESA	2EA310	0000	kfesa0

### Example 4-3 Show Device

```
P08>>> show device ②
polling for units on isp0, slot 0, bus 0, hose0...
dka200.2.0.0.0      DKA200      RZ26L  440C
dka400.4.0.0.0      DKA400      RZ26L  440C
polling for units on isp1, slot 1, bus 0, hose0...
dkb300.3.0.1.0      DKB300      RZ26L  440C
dkb500.5.0.1.0      DKB500      RZ26L  440C
dkb600.6.0.1.0      DKB600      RZ26L  440C
polling for units on isp2, slot 4, bus 0, hose0...
dkc100.1.0.4.0      DKC100      RZ26L  440C
dkc200.2.0.4.0      DKC200      RZ26L  440C
dkc300.3.0.4.0      DKC300      RZ26L  440C
polling for units on isp3, slot 5, bus 0, hose0...
dkd400.4.0.5.0      DKD400      RRD44  0000
dkd500.5.0.5.0      DKD500      RZ26L  440C
```

- ① Use the **show configuration** command to verify that the system sees the modules you just installed. This command shows the module TLSB and PCI slot number, module name, module type, revision, mnemonic, and if self-test passed.
- ② The **show device** command displays information about each I/O device. Polling checks all I/O buses for device configurations. The next line contains the console device name, the name of the device given by the device controller, and the device type. Example 4-3 shows polling of the internal bus of the KFTIA. Example 4-4 shows polling devices off a controller in a PCI shelf.
- ③ The **show network** command, not shown in the example, displays information about network connections. If you are installing a network controller, you will want to verify that the controller is seen.

Using these commands (**show configuration**, **show device**, and **show network**), make sure all devices and system resources are present and "seen" by the console. If something is missing, it is likely broken, or needs reseating.

## 4.3 Verify SCSI Devices

### 4.3.1 Check SCSI Devices Using Console Commands

---

**To verify SCSI devices, issue the console command `show device`. Check the output against the devices you installed. Nodes are defined by the physical position of the SBB (storage building blocks) and do not have to be set.**

---

#### Example 4-4 Checking SCSI Devices

```
Initializing... ❶
      :
      :
      . + + + . + + + C0 PCI +
      . . . . . . + . . . + . C1 PCI +
      . A0 . . . . . . . ILV
      . 512 . . . . . . . 512MB

AlphaServer 8200 Console V1.0 SR0M V1.0 Apr 1 1995 00:00:00
P08>>> show device ❷
polling for units on isp0, slot 0, bus 0, hose0...
polling for units on ispl, slot 1, bus 0, hose0...
polling for units on isp2, slot 4, bus 0, hose0...
polling for units on isp3, slot 5, bus 0, hose0...
dkd400.4.0.5.0 DKD400RRD44 0064
dkd500.5.0.5.0 DKD500RZ26L 440C
polling for units on kzpsa0, slot 5, bus 0, hoses1...
kzpsa0.7.0.5.1 dke TPwr 1 Fast 1 Bus ID 7 C01 A05
dke100.1.0.5.1 DKE100 RZ26L 440C
dke200.2.0.5.1 DKE200 RZ26L 440C
dke300.3.0.5.1 DKE300 RZ26L 440C ❸
dke400.4.0.5.1 DKE400 RZ26L 440C
dke500.5.0.5.1 DKE500 RZ26L 440C
dke600.6.0.5.1 DKE600 RZ26L 440C
```

**Basics:**

- There are four ways to attach to SCSI devices:
  - KZPAA, a PCI adapter with a single-ended SCSI port
  - KZPSA, a PCI adapter with a SCSI port
  - KZPSC, the RAID adapter with one to three FWD SCSI ports
  - ISP1020, a PCI chipset on the KFTIA; each KFTIA has three FWD (fast wide differential) SCSI ports and one single-ended SCSI port.
- Each port has a maximum of eight nodes per bus, including the initiator or host.
- Each modular storage shelf (BA350) has a power supply and can hold seven 3.5" SBBs (such as RZ26s or TLZ06s), two 5.25" SBBs (such as the RZ73 drives), or a combination of these.
- SCSI configurations vary depending upon the particular adapter being used. Read the manuals associated with each adapter to learn the configuration rules.

To check the configuration, check self-test and issue a **show device** console command:

- ❶ The system goes through self-test. Check that the KFTIA, the KZPAA, the KZPSA, and/or the KZPSC adapters passed self-test.
- ❷ Issue a **show device** command. In this example, the SCSI ports on the KFTIA are polled first; only two devices are found on the single-ended port ips3. A KZPSA in slot 5 of the PCI that is connected to the KFTIA through hose1 is polled and shows the adapter at node 7 and six RZ26L disks at nodes 1 through 6.
- ❸ Each port connects to a shelf housing up to seven RZxx drives on one bus (see Figure 4-1). All devices in this example are reporting to the console and are working. When a DWZZA or DWZZB is used, it occupies a StorageWorks shelf slot, but it is not a node nor is it "seen" by the console.

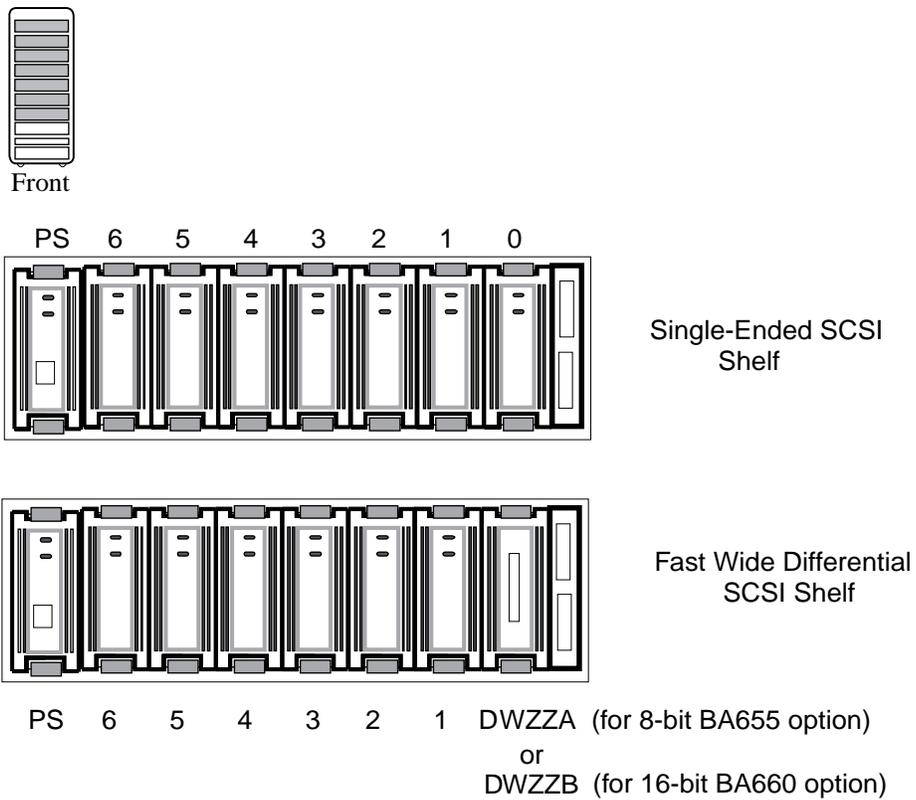
### 4.3.2 Check Console Output Against Physical Devices

---

**Next check the output from the show device command against the physical SBBs in the cabinet(s).**

---

Figure 4-1 SCSI Disks in StorageWorks Shelves



BX-0451-95

Check the output from the **show device** command against the physical SBBs. There should be a one-to-one correspondence between SBBs reporting to the console and the physical devices mounted. Note that the node number reported by the console corresponds to the physical position of an SBB within a shelf; the slots and nodes are numbered 0 to 6, from right to left (see Figure 4-1).

Figure 4-1 shows two storage shelves: one with a DWZZA or DWZZB and one without. A DWZZA is an 8-bit bidirectional bus converter that converts differential signals to single-ended signals and converts single-ended signals to differential signals. A DWZZB performs the same function as the DWZZA except for a 16-bit bus. Figure 4-1 is not exhaustive; other devices fit into StorageWorks shelves and look very different from the configuration shown.

Each SBB has two LEDs. The green LED on the top lights when the SBB is mounted and is being accessed. For a complete discussion of StorageWorks LED status, see the *StorageWorks Solutions Configuration Guide* (EK-BA350-CG).

If you have problems seeing devices, reseal the SBBs and reissue **show device**. If you need further testing, use the **test** command. Refer to BA350 documentation if you need to reconfigure the buses.

## 4.4 If Necessary, Run the RAID Configuration Utility

---

**If you put a KZPSC in the system (it shows up in the console display as the DAC960), you need to run RCU. Example 4-5 shows how to run RCU. See the KZPSC documentation for detailed information on configuring the devices. The RCU software is on a floppy and requires a KFE70.**

---

### Example 4-5 Running RCU

```
P08>>> set arc_enable on ❶  
P08>>> initialize ❷
```

[Console display appears]

```
P08>>> run rcu -p 1  
❸ ❹
```

The RAID Configuration Utility (RCU) need only be run if a KZPSC controller is in the system. The controller comes with its own documentation describing the utility. The controller can operate in several different modes, and the customer should determine how to customize the disk farm. RCU enables these choices. Prior to running the utility, you should read the documentation and discuss which mode the customer wishes. Example 4-5 shows how to run RCU.

Place the RCU floppy in the floppy drive.

- ❶ Use the **set** command to turn on the **arc\_enable** environment variable.
- ❷ **Initialize** the system to make the **set** command take effect.
- ❸ After self-test completes, enter **run rcu** to identify what program to run. The **run** command defaults to the floppy as the source of the program for execution so no device need be specified.
- ❹ **-p 1** specifies that PCI1 is to be configured. See Example 4-2 for the PCI number containing the KZPSC (shown by the console as the DAC960). (In this case it is connected to a KFTIA hose.)



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---

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