DWMBB VAXBI
Installation Guide

Order Number EK–DWMBB–IN.001

This manual describes installing the DWMBB-LA VAXBI PIU and the DWMBB-LB upgrade kit into systems with LSB platforms. This includes the VAX 7000 and 10000 systems and their expander cabinets.

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Preface

Intended Audience

This manual is written for Digital customer service engineers and customers installing a DWMBB-LA VAXBI plug-in unit (PIU) or a DWMBB-LB upgrade kit into an H9F00-A system or H9F00-BX expander cabinet used in VAX 7000 and 10000 systems.

Document Structure

This manual uses a structured documentation design. Topics are organized into small sections for efficient on-line and printed 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 and one appendix, as follows:

- **Chapter 1, Preparation,** gives an overview of this book and the available kits. It also gives instructions on preparing the system for installation.

- **Chapter 2, Installing the Enclosures,** gives instructions on how to install and cable the VAXBI PIU assembly.

- **Chapter 3, Installing the DWMBB Adapters,** steps you through placement and cabling of the XMI-to-VAXBI adapter set.

- **Chapter 4, Acceptance and Troubleshooting,** describes the acceptance procedure and troubleshooting hints.

- **Appendix A, VAXBI PIU Ampacities,** lists maximum and typical power requirements for the VAXBI.

Conventions Used in This Document

Book titles. In text, if a book is cited without a product name, that book is part of the hardware documentation. It is listed in Table 1 along with its order number.

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.
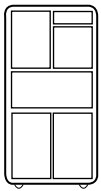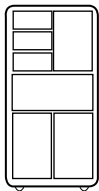
Front   Rear

Documentation Titles

Table 1 lists the books in the hardware documentation set for VAX 7000 and DEC 7000 systems. Table 2 lists other documents that you may find useful.

Table 1   DEC 7000/VAX 7000 Documentation

Title	Order Number
Installation Kit	EK–7000B–DK
Site Preparation Guide	EK–7000B–SP
Installation Guide	EK–700EB–IN
Hardware User Information Kit	EK–7001B–DK
Operations Manual	EK–7000B–OP
Basic Troubleshooting	EK–7000B–TS
Service Information Kit—VAX 7000	EK–7002A–DK
Platform Service Manual	EK–7000A–SV
System Service Manual	EK–7002B–SV
Pocket Service Guide	EK–7000A–PG
Advanced Troubleshooting	EK–7001A–TS
Service Information Kit—DEC 7000	EK–7002B–DK
Platform Service Manual	EK–7000A–SV
System Service Manual	EK–7002B–SV
Pocket Service Guide	EK–7700A–PG
Advanced Troubleshooting	EK–7701A–TS

Table 1 DEC 7000/VAX 7000 Documentation (Continued)

Title	Order Number
Reference Manuals	
Console Reference Manual	EK–70C0B–TM
KA7AA CPU Technical Manual	EK–KA7AA–TM
KN7AA CPU Technical Manual	EK–KN7AA–TM
MS7AA Memory Technical Manual	EK–MS7AA–TM
I/O System Technical Manual	EK–70I0A–TM
Platform Technical Manual	EK–7000A–TM
Upgrade Manuals	
KA7AA CPU Installation Card	EK–KA7AA–IN
KN7AA CPU Installation Card	EK–KN7AA–IN
MS7AA Memory Installation Card	EK–MS7AA–IN
KZMSA Adapter Installation Guide	EK–KXMSX–IN
DWLMA XMI PIU Installation Guide	EK–DWLMA–IN
DWMBB VAXBI PIU Installation Guide	EK–DWMBB–IN
H7237 Battery PIU Installation Guide	EK–H7237–IN
H7263 Power Regulator Installation Card	EK–H7263–IN
BA654 DSSI Disk PIU Installation Guide	EK–BA654–IN
BA655 SCSI Disk and Tape PIU Installation Guide	EK–BA655–IN
Removable Media Installation Guide	EK–TFRRD–IN

Table 2   Related Documentation

Title	Order Number
General Site Preparation	
Site Environmental Preparation Guide	EK–CSEPG–MA
System I/O Options	
BA350 Modular Storage Shelf Subsystem Configuration Guide	EK–BA350–CG
BA350 Modular Storage Shelf Subsystem User's Guide	EK–BA350–UG
BA350-LA Modular Storage Shelf User's Guide	EK–350LA–UG
CIXCD Interface User Guide	EK–CIXCD–UG
DEC FDDIcontroller 400 Installation/Problem Solving	EK–DEMFA–IP
DEC LANcontroller 400 Installation Guide	EK–DEMNA–IN
DEC LANcontroller 400 Technical Manual	EK–DEMNA–TM
DSSI VAXcluster Installation and Troubleshooting Manual	EK–410AA–MG
InfoServer 150 Installation and Owner's Guide	EK–INFSV–OM
KDM70 Controller User Guide	EK–KDM70–UG
KFMSA Module Installation and User Manual	EK–KFMSA–IM
KFMSA Module Service Guide	EK–KFMSA–SV
RRD42 Disc Drive Owner's Manual	EK–RRD42–OM
RF Series Integrated Storage Element User Guide	EK–RF72D–UG
Tx85 Series Cartridge Tape Subsystem Owner's Manual	EK–OTF85–OM
TLZ06 Cassette Tape Drive Owner's Manual	EK–TLZ06–OM

Table 2 Related Documents (Continued)

Title	Order Number
Operating System Manuals	
Alpha Architecture Reference Manual	EY–L520E–DP
DEC OSF/1 Guide to System Administration	AA–PJU7A–TE
DECnet for OpenVMS Network Management Utilities	AA–PQYAA–TK
Guide to Installing DEC OSF/1	AA–PS2DA–TE
OpenVMS Alpha Version 1.0 Upgrade and Installation Manual	AA–PQYSA–TE
VMS Upgrade and Installation Supplement: VAX 7000–600 and VAX 10000–600 Series	AA–PRAHA–TE
VMS Network Control Program Manual	AA–LA50A–TE
VMSclusters and Networking	
HSC Installation Manual	EK–HSCMN–IN
SC008 Star Coupler User's Guide	EK–SC008–UG
VAX Volume Shadowing Manual	AA–PBTVA–TE
Peripherals	
Installing and Using the VT420 Video Terminal	EK–VT420–UG
LA75 Companion Printer Installation and User Guide	EK–LA75X–UG

Chapter 1

Preparation

This chapter describes the DWMBB-LA and DWMBB-LB kits and how to prepare the cabinet for installation. Sections include:

- DWMBB Kits
- VAXBI PIU Placement and Rules
- Get Ready

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1.1 DWMBB Kits

There are two kits. The DWMBB-LA basic kit contains the VAXBI PIU assembly, the two-module DWMBB adapter set, and cables to connect one six-slot VAXBI. The DWMBB-LB upgrade kit contains adapters and cables to connect the second six-slot card cage.

Figure 1-1　　DWMBB Kits

DWMBB-LA VAXBI PIU Kit

Front and Rear Enclosures

DWMBB/B

DWMBB/A

Signal Cables

Cable Shield

DWMBB VAXBI Installation Guide

DWMBB-LB Upgrade Kit

DWMBB/B　　DWMBB/A　　Signal Cables
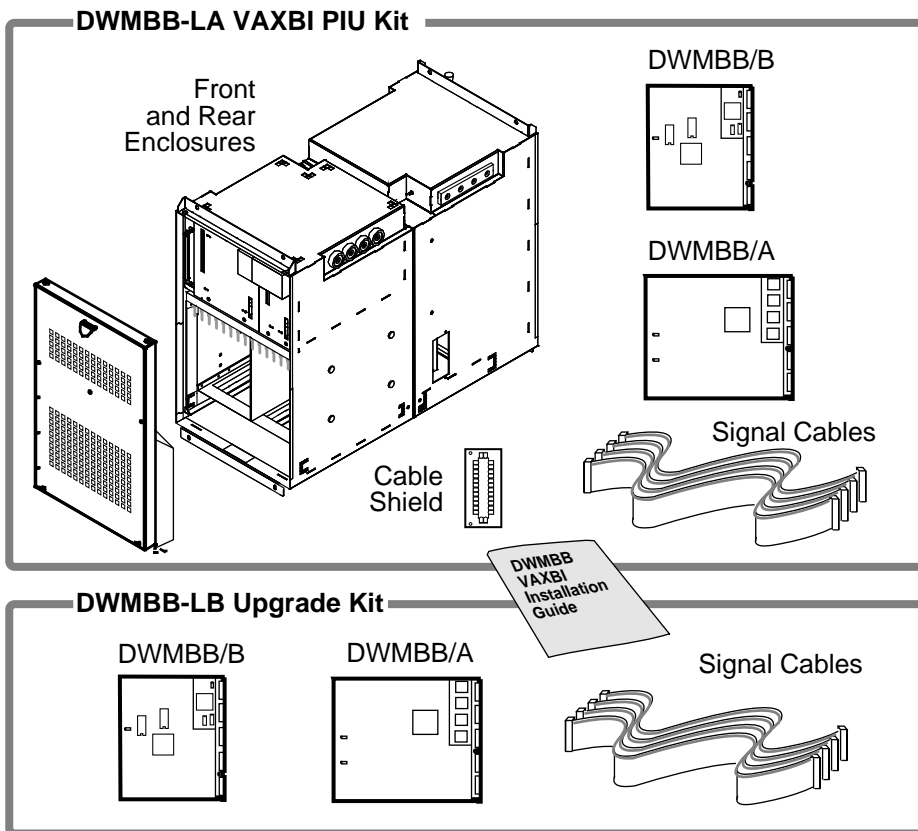
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There are two DWMBB kits described in this manual. Instructions for preparation (Chapter 1) and acceptance (Chapter 4) are the same for both kits. The DWMBB-LB kit requires only the installation instructions in Chapter 3 (installing the adapters), while the DWMBB-LA kit requires the instructions from Chapters 2 and 3 (installting the enclosures and the adapters). Check your kit contents against Table 1-1 and 1-2 and Figure 1-1.

Table 1-1   DWMBB-LA PIU Kit

Part Number	Description
BA652-AA	VAXBI PIU assembly (front and rear enclosures, including VAXBI card cage and power regulators)
T1043	DWMBB/B (VAXBI) module
T2018	DWMBB/A (XMI) module
17-01897-03	0.6m (25 in) XMI-to-VAXBI signal cables, two sets of two cables wrapped together
70-31069-01	EMI cable shield for signal cables routed between card cages
EK-DWMBB-IN	This installation guide

Table 1-2   DWMBB-LB Upgrade Kit

| Part Number	Description
T1043	DWMBB/B (VAXBI) module for second bus
T2018	DWMBB/A (XMI) module for second bus
17-01897-03	0.6m (25 in) XMI-to-VAXBI signal cables, two sets of two cables wrapped together
EK-DWMBB-IN	This installation guide

1.2 VAXBI PIU Placement and Rules

The VAXBI PIU occupies quadrants 3 and 4; it requires an XMI PIU in the same cabinet. The VAXBI PIU can operate as one or two six-slot independent buses.

Figure 1-2   VAXBI PIU Cabinet Placement
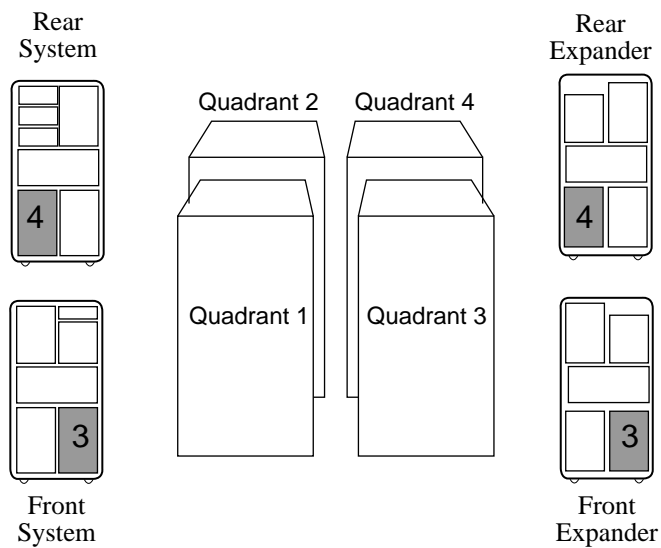
BXB-0044N-93

- The VAXBI PIU is installed in quadrants 3 and 4.
- An XMI PIU is required in the cabinet, in quadrants 1 and 2.

  In both system and expander cabinets, looking at the cabinets from the front, the VAXBI PIU is on the right and the XMI PIU is on the left. If the cabinet does not have an installed XMI PIU, stop here and install one. Then proceed.

- Use the DWMBB-LA PIU kit to install the PIU assembly and connect one six-slot bus. This leaves five slots for other modules. Physically, the VAXBI contains two six-slot card cages.
- Use the DWMBB-LB upgrade kit to connect the second six-slot card cage.   This provides two six-node VAXBI buses operating independently.
- A system can support a maximum of six six-slot VAXBI buses (two in each expander cabinet and two in the system cabinet).

NOTE: When you install a DWMBB-LA or -LB kit, an additional 48V power regulator may be required to supply the DWMBB modules and other VAXBI modules. This depends on system configuration and power requirements. This determination should be made at the time of order (see the current Systems and Options Catalog).

Also, some unusual combinations of VAXBI options may strain the power supply in the VAXBI PIU. Maximum ampacities are listed in Appendix A of this book.

For more information:

Appendix A, VAXBI PIU Ampacities

1.3 Get Ready

Set up your work space, unpack the option kit and check the contents against Table 1-1 or Table 1-2. Prepare the system for shutdown. You will need a Phillips head and a flathead screwdriver.

Figure 1-3   Circuit Breaker

A - Regulator slot A
B - Regulator slot B
C - Regulator slot C
S - Sensor circuit

Breaker
Indicator

C   B   A   S   BXB-0049G-92
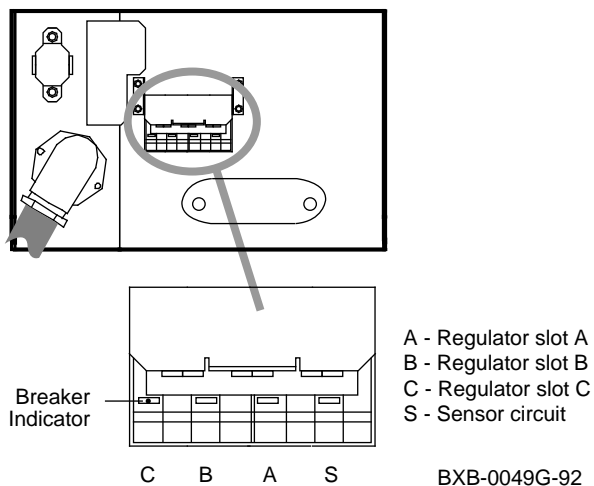
1. Prepare an area near the system where you can place system components during the installation.

2. Perform an orderly shutdown of the system.

3. Turn the keyswitch to Disable.

4. Open the front and rear cabinet doors. As you open the door, grasp the upper metal panel rather than the plastic bezel.

5. Push the AC power circuit breaker handle down to shut off power.

6. Remove the rear cabinet skirt.

Chapter 2

Installing the Enclosures

NOTE: *The DWMBB VAXBI option* **requires** *an XMI PIU in its cabinet to operate. If your system or expander cabinet does not have an XMI PIU installed in quadrants 1 and 2, stop here and install the DWLMA XMI PIU first. Then proceed.*

If you are installing the DWMBB-LA VAXBI PIU kit, follow the instructions in this chapter. If you are installing only the DWMBB-LB kit, skip to Chapter 3.

This chapter describes installing the VAXBI PIU enclosures. The front enclosure houses the power regulators and the VAXBI card cages. The rear enclosure includes the I/O bulkhead door and an EMI cable shield. Sections in this chapter include:

- Remove the Airflow Plates
- Install the Front Card Cage Enclosure
- Install the Rear Cable Enclosure
- Prepare Cable Routing

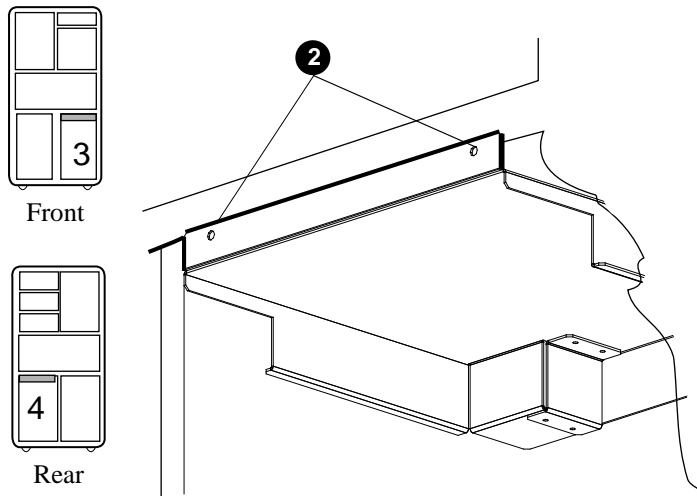**For more information:**

DWLMA XMI PIU Installation Guide

2.1 Remove the Airflow Plates

Remove the front and rear cabinet airflow plates (70-29365-01) located below the blower in quadrants 3 and 4. The plates direct airflow to other components when a quadrant is empty.

Figure 2-1   Airflow Plate

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The DWMBB-LA VAXBI PIU kit includes a front enclosure housing the card cage and power regulators, a rear I/O cable enclosure with bulkhead door, an EMI cable shield, and signal cables. There are two modules in the XMI-to-VAXBI DWMBB adapter set.

Begin installation by removing the airflow plates in quadrants 3 and 4.

1. Using a Phillips screwdriver, remove the two screws that hold the airflow plate to the cabinet frame (see ❷ in Figure 2-1).

2. Save the two screws you remove. You will need these screws for securing the bottom of the enclosures to the frame.

3. Slide the front and rear airflow plates out of the cabinet.

4. Label and save the airflow plates. If a PIU is removed for maintenance or a change in system configuration, these plates must be reinstalled to ensure proper system operation.
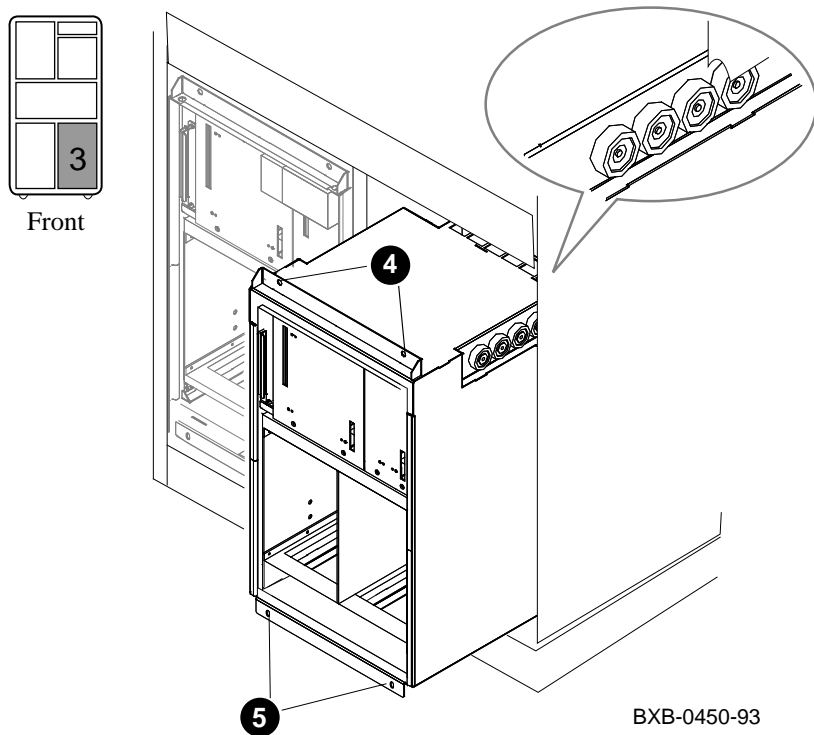
2.2 Install the Front Card Cage Enclosure

The PIU has two halves. First install the enclosure housing the VAXBI card cage and power regulators. Work from the front of the cabinet installing the enclosure in quadrant 3.

Figure 2-2   Installing the Front Enclosure

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The PIU consists of two enclosures: a front enclosure which houses the card cage and power regulators, and a rear enclosure with the I/O bulkhead door. Install the front enclosure first.

1. Holding the front enclosure with two hands, set the bottom into quadrant 3. The front enclosure is heavier than the rear enclosure.

2. Tilt the top of the enclosure up into the quadrant space, aligning the rollers with the slides in the cabinet.

3. Push the enclosure in until it stops.

4. Lightly screw in the two top captive screws of the enclosure to hold it in place (see ❹). Do not tighten them yet. You need some play in the alignment for the next step.

5. Take the two Phillips screws you removed from the airflow plate and screw in the bottom of the enclosure to the cabinet frame (see ❺). Tighten these screws.

6. Tighten the top two captive screws. Tightening these screws compresses the EMI gasket between the front and rear enclosures.

2.3 Install the Rear Cable Enclosure

Working from the rear of the cabinet, install the rear cable enclosure in quadrant 4. Watch the power cables on the backplane of the front enclosure as you install the rear half.

Figure 2-3   Installing the Rear Cable Enclosure

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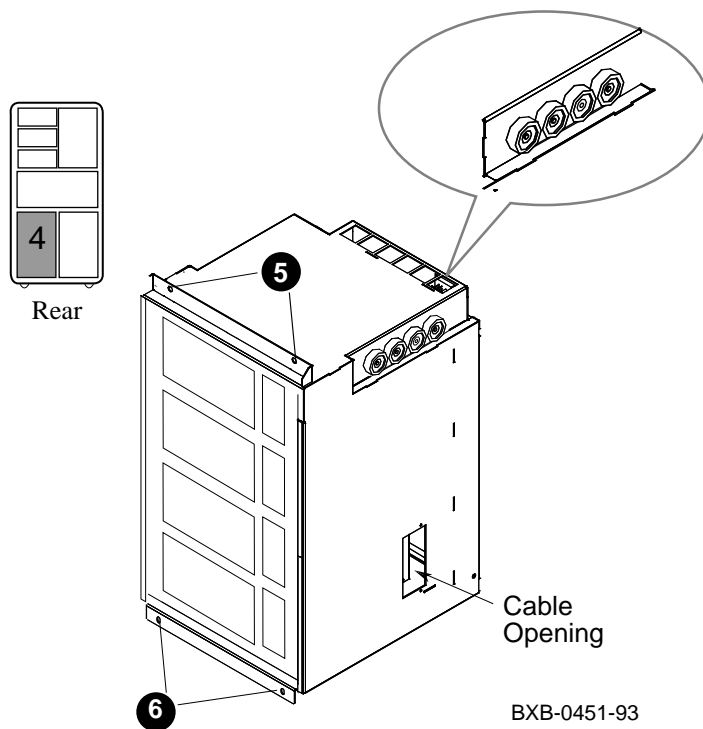
The rear half of the PIU houses the I/O bulkhead door and cables. After you have installed the front enclosure, install the rear enclosure.

NOTE: Take care that the power regulator cables on the rear of the front enclosure do not get jammed between the units. Carefully arrange these cables as you guide the rear enclosure into position.

1. Holding the rear enclosure with two hands, set the bottom into quadrant 4.

2. Tilt the top of the enclosure up into the quadrant space, aligning the rollers on the enclosure with the slides in the cabinet.

3. As you push the unit in, arrange the power regulator cables on the front enclosure so they do not get jammed between the enclosures.

4. Push the rear enclosure in until it stops.

5. Lightly screw in the two top captive screws of the enclosure to hold it in place (see ❺ in Figure 2-3). Do not tighten them yet. You need some play in the alignment for the next step.

6. Take the two Phillips screws you removed from the airflow plate and screw in the bottom of the enclosure to the cabinet frame (see ❻). Tighten these screws.

7. Tighten the top two captive screws. Tightening these screws compresses the EMI gasket between the front and rear enclosures.

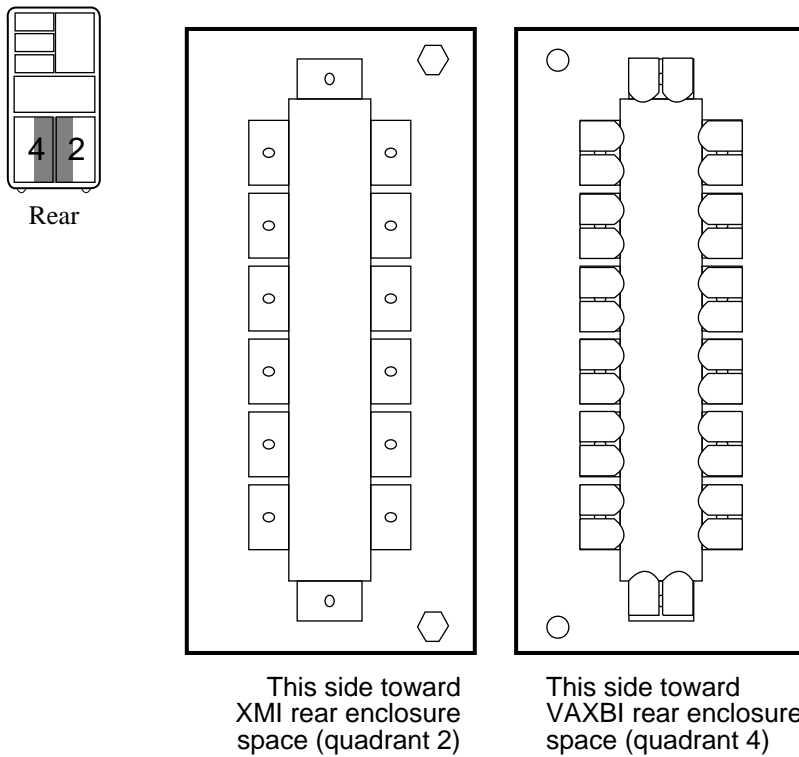## 2.4 Prepare Cable Routing

Remove the dual panel on the center wall inside of the VAXBI and XMI rear enclosures. Install the EMI cable shield, part number 70-31069-01, in the XMI rear enclosure facing toward the VAXBI side.

Figure 2-4   Install the EMI Cable Shield

This side toward
XMI rear enclosure
space (quadrant 2)

This side toward
VAXBI rear enclosure
space (quadrant 4)

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The signal cables connecting the VAXBI and XMI backplanes must route between the rear cable enclosures. On both rear enclosures, remove the dual panel on the side of the enclosures toward the center of the cabinet as follows:

1. Open the I/O bulkhead doors.

2. In the XMI rear enclosure, remove the two small hexnuts from the dual panel on the side toward the VAXBI enclosure. Save these hexnuts; you will use them in step 5.

3. Holding onto the lip of the plate, pull it toward you and then move it up and down until you can release it from the hexnuts. Remove and store the panel.

4. Repeat steps 2 and 3 for the panel inside the VAXBI rear enclosure on the side toward the XMI.

5. Place the EMI cable shield in the XMI enclosure on the mounted screws on the side toward the VAXBI rear enclosure. Place the shield inside the XMI so that the finger stock protrudes through the XMI sidewall and makes contact with the VAXBI enclosure. Replace the hexnuts, top and bottom.

You are ready to route the cables.

Chapter 3

Installing the DWMBB Adapters

If you are installing the DWMBB-LB upgrade kit only, follow the instructions in this chapter. If you are installing the DWMBB-LA PIU kit, complete the instructions in Chapter 2 before proceeding.

This chapter describes configuration placement, installation, and cabling of the two-module DWMBB adapter set. Sections include:

- Cable the Backplanes and Check Node IDs
- Install the DWMBB Adapters

3.1 Cable the Backplanes and Check Node IDs

**Install the DWMBB cables between the XMI and VAXBI card cages.
Check that the VAXBI node ID plugs are securely inserted.**

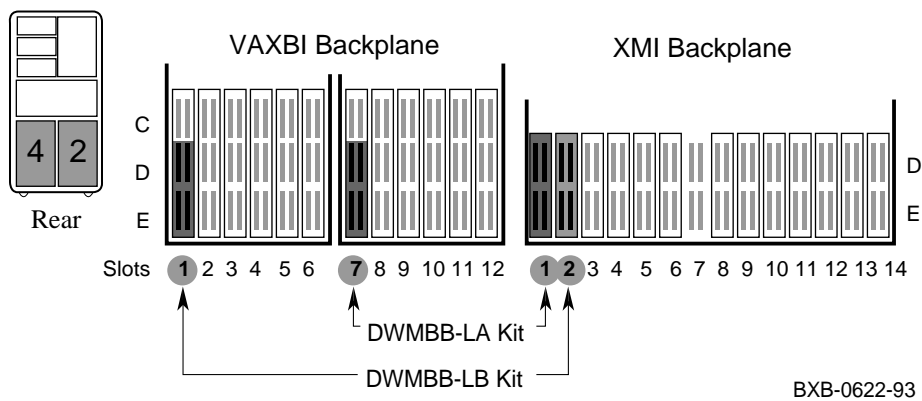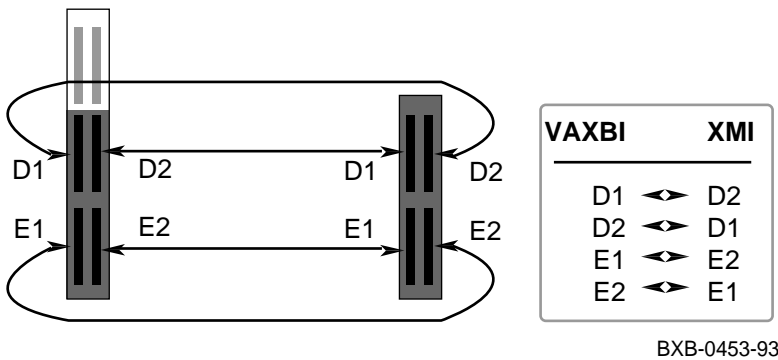Figure 3-1   VAXBI Backplane Cable Connections

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Figure 3-2   VAXBI-to-XMI Cabling

VAXBI		XMI
D1	◄►	D2
D2	◄►	D1
E1	◄►	E2
E2	◄►	E1

BXB-0453-93

For DWMBB-LA Kits:

1. Install the four ends of the signal cable set (17-01897-03) at XMI slot 1, segments D and E, with the red stripe up. If an XMI module is already installed in slot 1, that option must be moved to another slot.

2. Route the cables from XMI card cage slot 1 through the EMI gasket in the I/O enclosure cable openings to VAXBI card cage slot 7.

3. Install the other ends of the cables (17-01897-03) on the VAXBI card cage slot 7, segments D and E with the red stripe up.

For DWMBB-LB Kits:

4. Install another cable set (17-01897-03) at XMI slot 2, as in step 1.

5. Connect the cable set for VAXBI slot 1, segments D and E with the red stripe up.

For Both Kits:

6. Check that a unique node ID is installed for each VAXBI slot and that the node plugs are fully inserted.

   VAXBI node ID plugs are installed at manufacturing and normally assigned in consecutive order, with slot 1 = node ID 1 and slot 12 = node ID 12. You may change the IDs; as long as the node IDs are unique within a bus, the actual values do not matter.
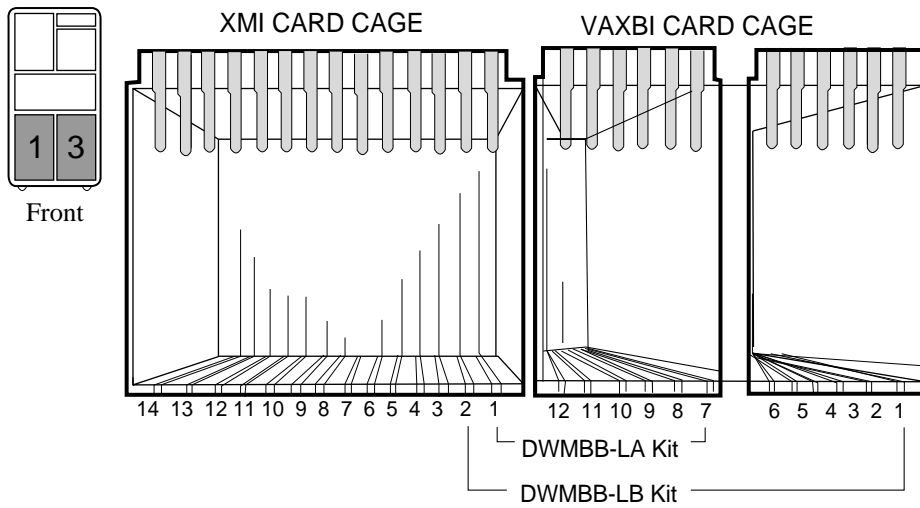
3.2 Install the DWMBB Adapters

Install the two-module DWMBB adapter set. The DWMBB/A module (T2018) is installed in the XMI card cage; the DWMBB/B (T1043) module is installed in the VAXBI card cage.

Figure 3-3   DWMBB Module Installation

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Use the following procedure to install the XMI DWMBB/A and the VAXBI DWMBB/B module:

CAUTION: *You must wear an antistatic wrist strap attached to the cabinet when you handle the DWMBB modules.*

For the DWMBB-LA Basic Kit:

1. Install the DWMBB/A (T2018) module in XMI slot 1 (see Figure 3-3).
2. Install the DWMBB/B module (T1043) in VAXBI slot 7.

For the DWMBB-LB Upgrade Kit:

3. Install a second DWMBB/A (T2018) module in XMI slot 2.
4. Install the second DWMBB/B module (T1043) in VAXBI slot 1.

For Both Kits:

5. Replace the XMI and VAXBI card cage covers.
6. Replace the covers to the front enclosures. Line up the slots at the bottom of the covers with the slots in the frame. Tilt the cover up and into the opening.
7. Push in the captive Phillips screws and turn them a quarter turn to tighten.
8. Proceed to verification and acceptance (see Chapter 4).

Chapter 4

Acceptance and Troubleshooting

This chapter discusses the acceptance procedure and troubleshooting guidelines. See the *Advanced Troubleshooting* manual for more information on troubleshooting. Sections include:

- Restore Power and Check Self-Test Results
- Check DWMBB Module LEDs
- Show Configuration Command
- VAXBI Troubleshooting

4.1 Restore Power and Check Self-Test Results

Power up the system. Check the DWMBB status on the self-test display.

Example 4-1   Sample Self-Test Display

```
F   E   D   C   B   A   9   8   7   6   5   4   3   2   1   0   NODE #
                                A   M   .   .   .   .   .   P   P   TYP
                                o   +   .   .   .   .   .   +   +   ST1
                                .   .   .   .   .   .   .   E   B   BPD
                                o   +   .   .   .   .   .   +   +   ST2
                                .   .   .   .   .   .   .   E   B   BPD
                                +   +   .   .   .   .   .   +   +   ST3
                                .   .   .   .   .   .   .   E   B   BPD

    .   .   .   .   .   .   +   .   .   .   .   +   +   +   .   C0  XMI +
       .   .   .   +   .   .   +   .   .   .   .   .   .          VAXBI 1+
    .   .   .   .   .   .   .   .   .   .   .   +   +       .     VAXBI 2+
    .   .   .   .   .   .   +   .   .   .   .   .   .   +   .   C1  XMI +
    .   .   .   .   .   .   .   .   .   .   .   .   .   .   .   C2
    .   .   .   .   .   .   .   .   .   .   .   .   .   .   .   C3

                    .   A0  .   .   .   .   .   .   .   ILV
                    .  128  .   .   .   .   .   .   .   128Mb

Firmware Rev = V2.5-2755 SROM Rev = V2.0-0   SYS SN = GAO1234567
 P00>>>                                                BXB-0030R-93
```

1. Reinstall rear cabinet skirt.

2. Pull the AC power circuit breaker handle up to turn the circuit breaker on.

3. Close the cabinet doors.

4. Turn the control panel keyswitch to the Enable position; the system powers up and runs self-test.

In Example 4-1:

- Self-test runs at power-up.

- The C0 XMI line gives status on XMI adapters. Because this XMI has two DWMBB/A adapters connecting to VAXBI buses, the next two lines report VAXBI adapter self-test status. Two VAXBI buses is the maximum number allowed in a cabinet.

- The first VAXBI line indicates it is connected by the XMI DWMBB/A adapter installed in XMI slot 1, which is passing self-test. The VAXBI DWMBB/B adapter is in VAXBI node 7 and this bus has node numbers 7 though 12. See ❶ .

- The second VAXBI line indicates it is connected by the DWMBB/A adapter installed in XMI slot 2, which is passing self-test. The VAXBI DWMBB/B adapter is in VAXBI node 1, and this bus has node numbers 1 though 6. See ❷ .
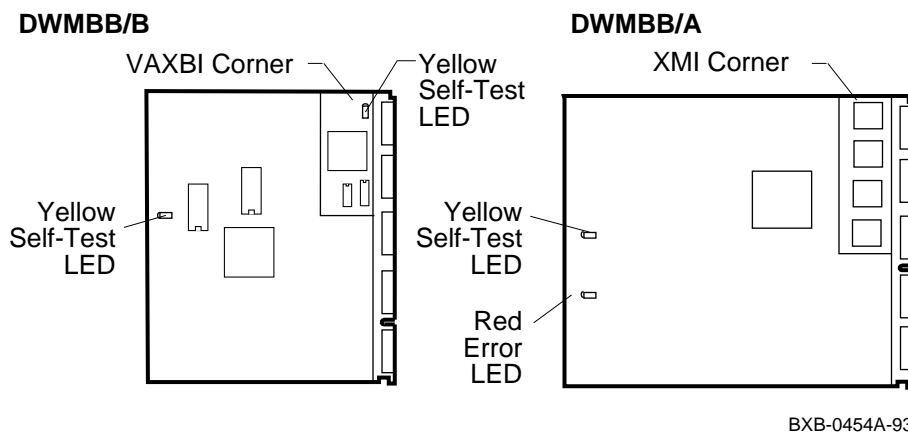
4.2 Check DWMBB Module LEDs

In addition to checking the self-test display, check the DWMBB module LEDs.

Figure 4-1   DWMBB Module LEDs

DWMBB/B
VAXBI Corner
Yellow Self-Test LED
Yellow Self-Test LED

DWMBB/A
XMI Corner
Yellow Self-Test LED
Red Error LED

BXB-0454A-93

Also check the DWMBB module LEDs.

The DWMBB/A XMI module (T2018) has two LEDs: the upper LED is yellow and lights to indicate self-test passed and the lower LED is red and lights when there is an error or self-test failure.

The DWMBB/B VAXBI module (T1043) has a yellow self-test LED visible from the front of the card cage. This LED lights when the module passes self-test. A second yellow self-test LED is on the VAXBI corner, deeper in the cabinet. The DWMBB/A does not have a red error LED.

If you are having intermittent or failing status, check the XMI power regulators LEDs.

For more information:

Advanced Troubleshooting

4.3 Show Configuration Command

After checking self-test, enter a console show configuration command to check XMI DWMBB/A modules.

Example 4-2   Show Configuration Command

```
P00>>> show configuration ❶
       Name      Type     Rev    Mnemonic
  LSB
  0+    KA7AA    (8002)   0000   ka7aa0
  1+    KA7AA    (8002)   0000   ka7aa1
  7+    MS7AA    (4000)   0000   ms7aa0
  8+    IOP      (2000)   0002   iop0
  C0 XMI                         xmi0
  1+    DWMBB    (2002)   0001   dwmbb0 ❷

  2+    DWMBB    (2002)   0001   dwmbb1 ❸

  3+    DEMNA    (0C03)   0802   demna0
  8+    DWLMA    (102A)   0104   dwlma0
  9+    KFMSA    (0810)   A2A6   kfmsa0
P00>>>
```

❶ Enter a **show configuration** command to check module status.

❷ The DWMBB/A XMI adapter in slot 1, dwmbb0, passed self-test.

❸ The DWMBB/A XMI adapter in slot 2, dwmbb1, also passed self-test.

4.4 VAXBI Troubleshooting

Check the items listed in Table 4-1 if the system fails to power up.

Table 4-1   VAXBI Troubleshooting Checklist

Symptom	Possible Cause
No power to PIU	Power regulator LEDs not on (48V and MOD OK LEDs)
	AC circuit breaker not on
	Switch on power regulator not set to Enable position
Intermittent module response	Poor contact at connector
	Loose cabling at backplane
Module is not reported on self-test results	Loose cabling at backplane
	System not configured correctly
	Cables are installed incorrectly (check D and E segments; the red stripe should be on top)
	CPU console code out of revision

At power-up, the yellow LEDs on the T1043 and T2018 modules should be ON. If the red LED on the T2018 module is ON, the module failed self-test.

If you receive intermittent module response, or the module does not show up on self-test as being present, make sure the modules are seated properly, a node ID plug is in place, and the backplane cabling is correct.

Modules may fail self-test because of poor contact at the connector. A thorough cleaning of the gold pads on the module and of the connector in the card cage corrects this contact failure. If the connections seem to be faulty, clean the contact areas of the connector and module. Table 4-2 lists tools and cleaning supplies.

Table 4-2   VAXBI Connector Cleaning Supplies

Item	Part Number	Function
VAXBI tool kit	A2-M1094-10	Maintaining card cages
Paddle wipe handle	47-00116-02	Holding paddle wipes
Paddle wipes	12-26321-01	Cleaning contact area inside ZIF connectors
Gold-wipes™	49-01603-00	Cleaning module connector contact area
Protective goggles	29-16141-10	Eye protection
Nitrile gloves	29-26403-00	Hand protection
™Gold-wipes is a trademark of TEXWIPE.		

Appendix A

VAXBI PIU Ampacities

The VAXBI PIU power supply delivers all standard VAXBI voltages, at the ampacities listed in Table A-1.

Table A-1   VAXBI PIU Power Supply Ampacities

Voltage Output	Maximum/ PIU Total ❶	Maximum/ Card Cage	Maximum/ VAXBI Slot
+ 5.0 V	136.0	50.0	10.0
+ 5.0 VBB	❷	30.0	7.0
− 5.2 V	12.0	15.0	5.0
− 2.0 V	3.6	10.0	3.3
+12.0 V	1.2	3.0	1.0
− 12.0 V	1.0	3.0	1.0

❶   *The maximum PIU current is net, after subtracting the current used by the two sets of VAXBI terminators and the two DWMBB options. Each T1043 module draws 6.0 A of +5.0 V and 0.1 A of −12.0 V.*

❷   *In the VAXBI PIU, the +5 VBB and +5.0V buses are tied together. Both buses are supplied from the same 136.0 A output.*

Current requirements for typical VAXBI options are shown in Table A-2. For other VAXBI options, consult the *VAXBI Options Handbook* (EB-32255-46) or information from the option's vendor.

Table A-2 Typical VAXBI Current Requirements (in Amps)

Voltage Output	DRB32-M	DRB32-E	DRB32-W	DMB32
+ 5.0 V	8.0	9.8	11.8	6.75
+ 5.0 VBB	0.0	0.0	0.0	0.0
− 5.2 V	0.0	0.0	0.0	0.0
− 2.0 V	0.0	0.0	0.0	0.0
+12.0 V	0.0	0.0	0.0	0.29
−12.0 V	0.0	0.0	0.0	0.42

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