

AlphaServer 8200 RM System

Installation/Owner's Guide

Order Number: EK-R8200-IN. A01

September 1995

Digital Equipment Corporation makes no representations that the use of its products in the manner described in this publication will not infringe on existing or future patent rights, nor do the descriptions contained in this publication imply the granting of licenses to make, use, or sell equipment or software in accordance with the description.

FCC NOTICE: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications.

Any changes or modifications made to this equipment may void the user's authority to operate this equipment.

Operation of this equipment in a residential area may cause interference in which case the user at his own expense will be required to take whatever measures may be required to correct the interference.

© Digital Equipment Corporation 1995. All Rights Reserved.
Printed in U.S.A.

The postpaid Reader's Comments form at the end of this document requests your critical evaluation to assist in preparing future documentation.

The following are trademarks of Digital Equipment Corporation: AlphaServer, RRD42, ThinWire, VAX DOCUMENT, and the DIGITAL Logo.

All other trademarks and registered trademarks are the property of their respective holders.

S2874

This document was prepared using VAX DOCUMENT Version 2.1.

Contents

Preface	xi
1 Introduction	
1.1 General	1-1
1.2 TurboLaser System Bus (BA701-AA) Chassis	1-4
1.2.1 TLSB Chassis Card Cage	1-5
1.2.2 TLSB Chassis Control Panel	1-6
1.2.3 TLSB Chassis Power Supply	1-8
1.3 Extended Memory Interface (BA601-AC) Chassis	1-9
1.3.1 XMI Chassis Card Cage	1-10
1.3.2 XMI Chassis Control Panel	1-11
1.3.3 XMI Chassis Power Supply	1-14
1.3.4 XMI Chassis I/O Bulkhead	1-16
1.4 Peripheral Component Interconnect (BA602-AA) Chassis	1-17
1.4.1 PCI Chassis Card Cage	1-18
1.4.2 PCI Chassis I/O Bulkhead and Indicators	1-20
1.4.3 PCI Chassis Power Supply	1-21
1.5 Versa Module Eurocard (2T-VMEWS-AA) Chassis	1-22
1.5.1 VME Chassis Card Cage	1-23
1.5.2 VME Chassis I/O Bulkhead and Indicators	1-23
1.5.3 VME Chassis Power Supply	1-24
1.6 Specifications	1-25
1.6.1 TLSB Chassis Specifications	1-25
1.6.2 XMI Chassis Specifications	1-26
1.6.3 PCI Chassis Specifications	1-27
1.6.4 VME Chassis Specifications	1-28

2 Installation

2.1	Introduction	2-1
2.2	Site Preparation	2-2
2.2.1	Environmental Requirements	2-2
2.2.2	Electrical Requirements	2-2
2.3	Checking the Shipment	2-3
2.4	Installing the TLSB Chassis	2-8
2.4.1	Installing the TLSB Chassis Slides	2-9
2.4.2	Installing the TLSB Chassis on the Slides	2-12
2.5	Installing the XMI Chassis	2-15
2.5.1	Installing the XMI Chassis Slides	2-16
2.5.2	Installing the XMI Chassis on the Slides	2-19
2.6	Installing the PCI Chassis	2-21
2.6.1	Attaching the Rear Slide Mounting Brackets to the Outer Slide Assemblies	2-22
2.6.2	Installing the PCI Left/Right Outer Slide Assemblies	2-23
2.6.3	Attaching the Inner Slide Races to the Chassis	2-25
2.6.4	Securing the PCI Chassis to the Outer Slide Assemblies	2-26
2.7	Installing the VME Chassis	2-28
2.7.1	Attaching the Rear Slide Mounting Brackets to the Outer Slide Assemblies	2-29
2.7.2	Installing the VME Left/Right Outer Slide Assemblies	2-30
2.7.3	Attaching the Inner Slide Races to the Chassis	2-32
2.7.4	Securing the VME Chassis to the Outer Slide Assemblies	2-33
2.8	Cabling	2-35
2.8.1	Connecting the I/O Hose Cable to the XMI Chassis	2-35
2.8.2	Connecting the I/O Hose Cable to the PCI Chassis	2-38
2.8.3	Connecting the Single-Ended SCSI Cable to the KFTIA Module	2-39
2.8.4	Connecting the FWD SCSI Cable to the KFTIA Module	2-39
2.8.5	Connecting an Ethernet Transceiver Cable to the KFTIA Module	2-40
2.8.6	Connecting an FDDI Cable to the KFTIA Module	2-40
2.8.7	Connecting the Console Cable	2-40
2.9	Connecting the Power Cords	2-42
2.9.1	TLSB Chassis Power Cord (PN 17-00083-37)	2-42
2.9.2	PCI Chassis Power Cord (PN 17-00083-04)	2-42

2.9.3	VME Chassis Power Cord	2-42
2.9.4	XMI Chassis Power Cord	2-42

3 Operation

4 Troubleshooting

5 Removal and Replacement

5.1	Introduction	5-1
5.2	TLSB Chassis Components	5-2
5.2.1	Front Bezel	5-2
5.2.2	Extending the TLSB Chassis for Service	5-4
5.2.3	Bottom Cover	5-6
5.2.4	System Clock Module (PN 54-21728-05)	5-8
5.2.5	CPU, Memory, I/O, and Terminator Modules	5-10
5.2.6	Right-Side Cover	5-12
5.2.7	48 Vdc Power Supply (PN 30-39348-02)	5-14
5.2.8	Control Panel (PN 54-21719-01)	5-16
5.2.9	Blower Assembly (PN 12-41009-01)	5-19
5.2.10	48 Vdc Line Filter (PN 12-45448-01)	5-21
5.2.11	AC Input Box (PN 30-39579-01)	5-24
5.3	XMI Chassis Components	5-26
5.3.1	Front Bezel	5-26
5.3.2	Extending the XMI Chassis for Service	5-28
5.3.3	Top Cover	5-30
5.3.4	Bottom Cover	5-32
5.3.5	Control Panel Bezel (PN 70-22117-01)	5-34
5.3.6	Control Panel Module (PN 54-16574-02)	5-36
5.3.7	XTC Timing Module (PN 70-31509-01)	5-38
5.3.8	AC Front End Trays (PN 70-27334-01)	5-40
5.3.9	+5 Vdc Regulator Trays (PN 70-29046-01 and 70-29046-02)	5-44
5.3.10	Sequencer and Auxiliary DC Voltage Regulator Tray (PN 70-29046-03)	5-48
5.3.11	3.3 Vdc/-5.2 Vdc Regulator Tray (PN 70-29046-04) ...	5-50
5.3.12	24 Vdc Fan (PN 12-23374-07)	5-52
5.3.13	Airflow Sensors (PN 12-36060-01)	5-54
5.3.14	AC Input Assembly (PN 70-31008-01)	5-56
5.3.15	TF85 Tape Drive	5-59
5.3.16	TF85 Interface Board	5-60
5.3.17	RRD42 CD-ROM Reader	5-61

5.4	PCI Chassis Components	5-62
5.4.1	Front Bezel	5-62
5.4.2	Extending the PCI Chassis for Service	5-64
5.4.3	Top Cover	5-66
5.4.4	48 Vdc Power Supply (PN 30-46068-01)	5-67
5.4.5	Fans (PN 12-23609-19)	5-70
5.4.6	Power Board (PN 54-23470-01)	5-72
5.4.7	Motherboard (PN 54-23468-01)	5-74
5.5	VME Chassis Components	5-76
5.5.1	Front Bezel	5-76
5.5.2	Extending the VME Chassis for Service	5-78
5.5.3	Front Cover	5-80
5.5.4	Top Cover	5-80

A Option Installation

A.1	XMI Chassis Option Installation	A-1
A.1.1	Installing Option Cards	A-1
A.1.2	Cabling of Options Installed in the XMI Chassis	A-3
A.1.3	Installing the 2T-CIXCD-RA Option	A-5
A.2	PCI Chassis Option Installation	A-9
A.2.1	Installing Option Cards	A-9
A.2.2	Cabling of Options Installed in the PCI Chassis	A-11
A.2.3	Installing the KFE70-CA PCI-to-EISA Adapter Kit	A-12
A.3	VME Chassis Option Installation	A-17
A.3.1	Installing Option Modules	A-17
A.3.2	Cabling of Options Installed in the VME Chassis	A-19
A.3.3	Installing the DWPVC-AA VME-to-PCI Adapter Kit	A-21

B Field Replaceable Units

Figures

1-1	AlphaServer 8200 RM System in an H9A15 Cabinet (Example)	1-3
1-2	TLSB (BA701-AA) Chassis with Side Cover Removed	1-4
1-3	TLSB Chassis Control Panel	1-6
1-4	XMI (BA601-AC) Chassis with Top Cover Removed	1-9
1-5	XMI Chassis Control Panel	1-11

1-6	Power Supply Tray Assemblies (XMI Chassis Bottom View)	1-15
1-7	XMI Chassis I/O Bulkhead	1-16
1-8	PCI (BA602-AA) Chassis with Top Cover Removed . . .	1-17
1-9	PCI Chassis I/O Bulkhead and Indicators	1-20
1-10	VME (2T-VMEWS-AA) Chassis with Top Cover Removed and Front Cover Open	1-22
1-11	VME Chassis I/O Bulkhead	1-23
2-1	Contents of the TLSB Shipping Carton	2-4
2-2	Contents of the XMI Shipping Carton	2-5
2-3	Contents of the PCI Shipping Carton	2-6
2-4	Contents of the VME Shipping Carton	2-7
2-5	TLSB Chassis Slide Mounting Pattern	2-10
2-6	Installing the Equipment Mounting Slides (Rear View of Left Slide with Slide Extended)	2-11
2-7	Installing the TLSB Chassis on the Slides	2-13
2-8	XMI Chassis Slide Mounting Pattern	2-17
2-9	Installing the Equipment Mounting Slides (Rear View of Left Slide with Slide Extended)	2-18
2-10	Installing the XMI Chassis on the Slides	2-20
2-11	Attaching the Rear Slide Mounting Brackets	2-22
2-12	PCI Chassis Slide Mounting Pattern	2-24
2-13	Attaching the Inner Slide Races to the Chassis	2-25
2-14	Installing the PCI Chassis in the Cabinet	2-27
2-15	Attaching the Rear Slide Mounting Brackets	2-29
2-16	VME Chassis Slide Mounting Pattern	2-31
2-17	Attaching the Inner Slide Races to the Chassis	2-32
2-18	Installing the VME Chassis in the Cabinet	2-34
2-19	Connecting the I/O Hose Cable to the KFTIA or KFTHA Module	2-36
2-20	Connecting the I/O Hose Cable to the XMI Bulkhead Connector	2-37
2-21	Connecting the I/O Hose Cable to the PCI Bulkhead Connector	2-38
2-22	Connecting the Console Cable	2-41
5-1	Removing the Front Bezel from the TLSB Chassis . . .	5-3
5-2	Extending the TLSB Chassis	5-5
5-3	Removing the Bottom Cover	5-7

5-4	Removing the System Clock Module	5-9
5-5	Removing CPU, Memory, I/O, and Terminator Modules	5-11
5-6	Removing the Right-Side Cover	5-13
5-7	Removing the 48 Vdc Power Supply	5-15
5-8	Console Cable Connector	5-16
5-9	Removing the Front Panel	5-17
5-10	Removing the Control Panel	5-18
5-11	Removing the Blower Assembly	5-20
5-12	Bottom Connections to the 48 Vdc Line Filter	5-22
5-13	Rear Connections to the 48 Vdc Line Filter	5-23
5-14	Removing the AC Input Box	5-25
5-15	Removing the Front Bezel from the XMI Chassis	5-27
5-16	Extending the XMI Chassis	5-29
5-17	Removing the Top Cover	5-31
5-18	Removing the Bottom Cover	5-33
5-19	Removing the Control Panel Bezel	5-35
5-20	Removing the Control Panel Module	5-37
5-21	Battery and XTC Connections	5-39
5-22	AC Front End Tray	5-40
5-23	Power Supply Top Connectors	5-41
5-24	Power Supply Top Interconnect Diagram	5-42
5-25	Removing the AC Front End Trays	5-43
5-26	+5 Vdc Regulator Trays	5-45
5-27	Removing a Power Supply Tray	5-47
5-28	Sequencer and Auxiliary DC Voltage Regulator Tray	5-48
5-29	3.3 Vdc/-5.2 Vdc Regulator Tray	5-50
5-30	Removing the Fan Assembly	5-53
5-31	Airflow Sensors on Rear of Fan Assembly	5-55
5-32	Removing the AC Input Assembly	5-58
5-33	Removing the Front Bezel from the PCI Chassis	5-63
5-34	Extending the PCI Chassis	5-65
5-35	Removing the Top Cover	5-66
5-36	Disconnecting the Power Supply Connectors	5-68
5-37	Removing the Power Supply	5-69
5-38	Removing the Fans	5-71

5-39	Removing the Power Board	5-73
5-40	Removing the Motherboard	5-75
5-41	Removing the Front Bezel from the VME Chassis	5-77
5-42	Extending the VME Chassis	5-79
5-43	Opening the Front Cover and Removing the Top Cover	5-81
A-1	Top Front View of XMI Card Cage Slot Designations	A-2
A-2	Bottom View of XMI Card Cage Slot Designations	A-4
A-3	2T-CIXCD-RA Option Kit Contents	A-5
A-4	Installing the 2T-CIXCD-RA Connectors and Jumper	A-8
A-5	Rear View of PCI Card Cage Slot Designations	A-10
A-6	KFE70-CA PCI-to-EISA Adapter Kit Contents	A-13
A-7	KFE70-CA PCI-to-EISA Adapter Kit Installation	A-16
A-8	Front View of VME Card Cage Slot Designations	A-18
A-9	VME Chassis I/O Bulkhead	A-20
A-10	DWPVC-AA VME-to-PCI Adapter Kit Contents	A-21

Tables

1-1	TLSB Card Cage Modules	1-5
1-2	TLSB Control Panel Push-Button Switches	1-7
1-3	TLSB Control Panel Status LED Indicators	1-7
1-4	XMI Options and Cabinet Kits	1-10
1-5	Control Panel Keyswitches	1-12
1-6	Restart Switch	1-13
1-7	XMI Control Panel Status LED Indicators	1-13
1-8	XMI Power Supply Tray Assemblies	1-14
1-9	PCI Options	1-18
1-10	PCI/EISA Slot Usage	1-19
1-11	PCI Status LED Indicators	1-21
1-12	TLSB Chassis Specifications	1-25
1-13	XMI Chassis Specifications	1-26
1-14	PCI Chassis Specifications	1-27
1-15	VME Chassis Specifications	1-28
4-1	TLSB Chassis Troubleshooting	4-2

4-2	XMI Chassis Troubleshooting	4-3
4-3	PCI Chassis Troubleshooting	4-5
A-1	PCI/EISA Slot Usage	A-12
B-1	TLSB Chassis Field Replaceable Units	B-1
B-2	XMI Chassis Field Replaceable Units	B-2
B-3	PCI Chassis Field Replaceable Units	B-3

Preface

Overview

The *AlphaServer 8200 RM System Installation/Owner's Guide* provides information to properly trained Digital service personnel and customer maintenance personnel on the installation of the AlphaServer 8200 RM system, and information on the operation and maintenance of the equipment.

Organization

The *AlphaServer 8200 RM System Installation/Owner's Guide* is organized in the following manner:

- **Chapter 1, Introduction** – Provides an overview of the AlphaServer 8200 RM system, and describes the major chassis, control panels, and power supply trays that make up this system. Specifications for the TLSB (BA701-AA) chassis, the XMI (BA601-AC) chassis, the PCI (BA602-AA) chassis, and the VME (2T-VMEWS-AA) chassis are also included.
- **Chapter 2, Installation** – Discusses site preparation; environmental and electrical requirements; checking the shipment; installing the TLSB chassis, XMI chassis, PCI chassis, and the VME chassis; and cabling the chassis and storage shelves that make up the system.
- **Chapter 3, Operation** – Describes how to turn on and turn off the equipment.
- **Chapter 4, Troubleshooting** – Describes the performance of various steps in basic troubleshooting and routine maintenance procedures.
- **Chapter 5, Removal and Replacement** – Describes the removal and replacement procedures for the field replaceable units (FRUs) that are unique to the AlphaServer 8200 RM system.
- **Appendix A, Option Installation** – Contains installation instructions for the options that are available for the XMI, PCI, and VME chassis.

- **Appendix B, Field Replaceable Units** – Lists all FRUs and their part numbers for the TLSB, XMI, and PCI chassis.

Conventions

The following conventions are used in this document:

NOTE A note calls the reader's attention to any item of information that may be of special importance.

CAUTION A caution contains information essential to avoid damage to the equipment.

WARNING A warning contains information essential to the safety of personnel.

The following symbols appear on the chassis. Please review their definitions below:



This Dangerous Voltage warning symbol indicates risk of electric shock and indicates hazards from dangerous voltage.



This Attention symbol is used to alert the reader about specific safety conditions, and to instruct the reader to read separate instructional material.

Related Documentation

For more information on the AlphaServer 8200 RM system, refer to the following documentation:

<i>AlphaServer 8200/8400 Operations Manual</i>	EK-T8030-OP
<i>AlphaServer 8200 Installation Guide</i>	EK-T8230-IN
<i>AlphaServer 8200/8400 Service Manual</i>	EK-T8030-SV
<i>KFTHA System I/O Module Installation Guide</i>	EK-KFTHA-IN
<i>KFTIA Integrated I/O Module Installation Guide</i>	EK-KFTIA-IN
<i>Site Environmental Preparation Guide</i>	EK-CSEPG-MA
<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>VME Workstation Enclosure Installation/Owner's Guide</i>	EK-VMEWS-IN

1

Introduction

1.1 General

The AlphaServer 8200 RM system (see Figure 1–1) consists of a TurboLaser system bus (TLSB) chassis (BA701-AA) and one or more of the following rackmountable options in a 36-inch deep RETMA cabinet.

- BA350 storage shelf (BA35R-SF/SR)
- Extended memory interface (XMI) chassis (BA601-AC)
- Peripheral component interconnect (PCI) chassis (BA602-AA)
- Versa module eurocard (VME) chassis (2T-VMEWS-AA)

The TLSB chassis contains the CPU and memory modules, along with I/O port controller modules. The KFTHA I/O port controller module has four hose connectors to support up to four XMI or PCI I/O chassis. The KFTIA I/O port controller module has one hose connector, three fast wide differential (FWD) SCSI connectors, one single-ended SCSI connector, two Ethernet connectors, and one FDDI connector. The FDDI connector can be either a multimode connector or a twisted-pair copper connector depending on which optional daughtercard is installed in the KFTIA module. The TLSB chassis includes a 48 Vdc power supply and a blower assembly for moving the cooling air. In addition, the TLSB chassis has its own circuit breaker and power cord that requires a single-phase, 200-240 Vac (nominal), 50-60 Hz power source. The TLSB chassis also has a power status indicator as part of the operator control panel.

The XMI chassis mounts above the TLSB chassis in the cabinet and can accept up to 12 XMI technology I/O cards. The XMI chassis also accommodates up to five quad and three dual I/O panels. The XMI chassis includes six power supply modules and fans for moving the cooling air. In addition, the XMI chassis has its own circuit breaker and power cord that requires a single-phase, 200-240 Vac (nominal), 50-60 Hz power source. The XMI chassis also has a power status indicator as part of the control panel.

Introduction

The PCI chassis also mounts above the TLSB chassis in the cabinet and can accept up to 12 PCI or EISA technology I/O cards. The PCI chassis includes a 48 Vdc power supply and fans for moving the cooling air. In addition, the PCI chassis has its own power cord that requires a single-phase, 120/240 Vac (nominal), 50-60 Hz power source.

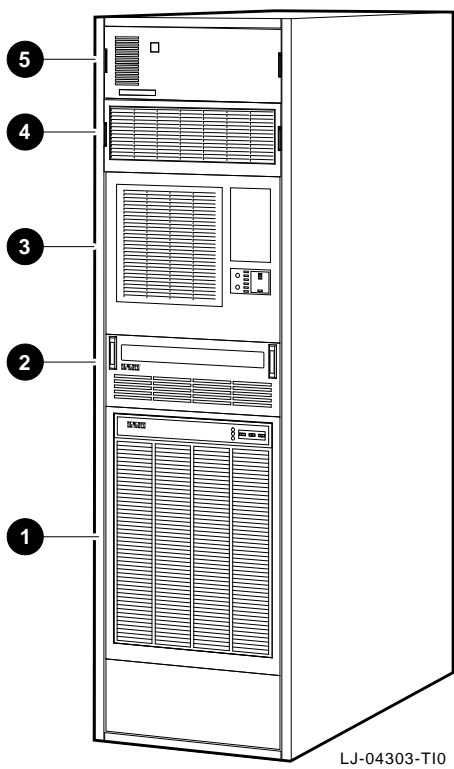
The VME chassis also mounts above the TLSB chassis in the cabinet and can accept up to 7 VME technology I/O modules. The VME chassis includes a 48 Vdc power supply and fans for moving the cooling air. In addition, the VME chassis has its own power cord that requires a single-phase, 90-240 Vac (nominal), 50-60 Hz power source.

Two H7600 power distribution units are mounted in the bottom rear of the H9A15 cabinet to allow the connection of all chassis in the cabinet to an external power source.

The XMI chassis and PCI chassis are interconnected to the TLSB chassis via a flat ribbon cable connected between an I/O port controller module hose connector in the TLSB chassis and the XMI backplane in the XMI chassis or the PCI backplane in the PCI chassis. The VME chassis is interconnected to the TLSB chassis through a PCI chassis.

Introduction

Figure 1–1 AlphaServer 8200 RM System in an H9A15 Cabinet (Example)



- ❶ TLSB chassis
- ❷ BA350 storage shelf
- ❸ XMI chassis

- ❹ PCI chassis
- ❺ VME chassis

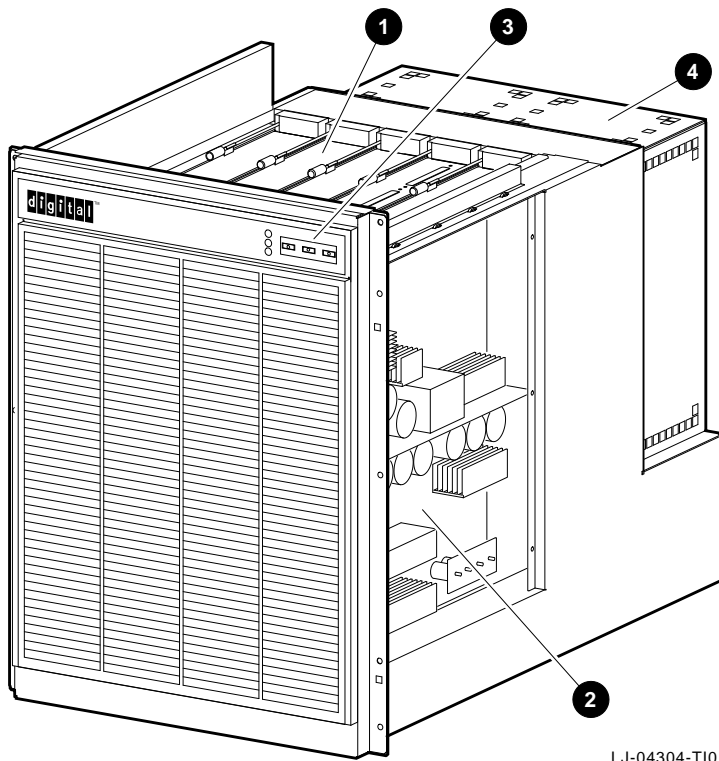
Introduction

1.2 TurboLaser System Bus (BA701-AA) Chassis

The TLSB (BA701-AA) chassis, shown in Figure 1-2, contains a card cage **1**, a 48 Vdc power supply **2**, a control panel **3**, and a blower assembly **4**.

The following sections describe some of the basic components of the TLSB chassis.

Figure 1-2 TLSB (BA701-AA) Chassis with Side Cover Removed



LJ-04304-T10

1.2.1 TLSB Chassis Card Cage

The TLSB chassis card cage contains five slots that are numbered 4 through 8 from right to left as viewed from the front of the chassis. The system must have at least one I/O module (KFTIA or KFTHA), one CPU module, and one memory module in order to function.

The first I/O module *must* be installed in slot 8 with additional I/O modules installed in adjacent slots to the right. The first memory module must be installed in the first slot to the right of the I/O module(s) with additional memory modules installed in adjacent slots to the right. The first CPU module *must* be installed in slot 4 with additional CPU modules installed in adjacent slots to the left. Any slot that does not have an I/O module, memory module, or CPU module installed *must* have a terminator module installed.

The AlphaServer 8200 RM system can range from a single CPU module with three memory modules and an I/O module, to three CPU modules with a single memory module and an I/O module, to three I/O modules with a single CPU module and a single memory module.

Table 1-1 contains a list of the different types of modules that can be installed in the TLSB chassis, and a description of each.

Table 1-1 TLSB Card Cage Modules

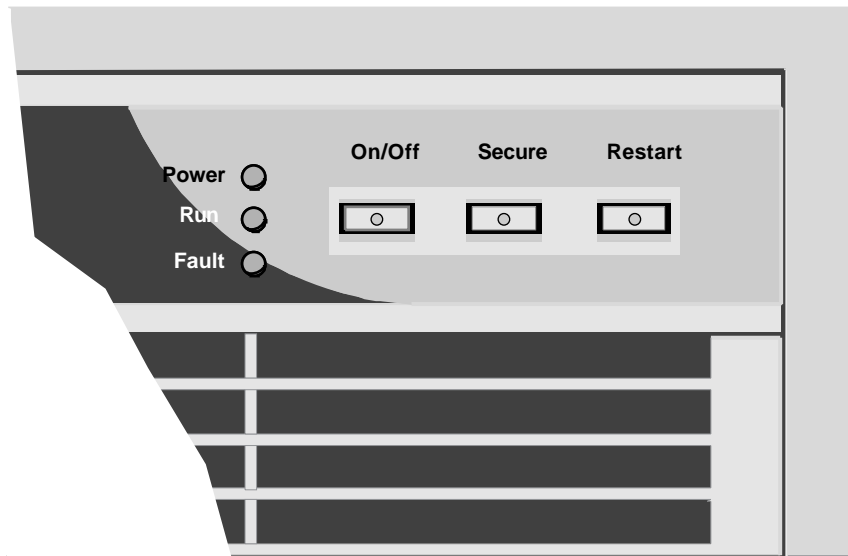
Option No.	Part No.	Description
KFTHA-AA	E2052-AA	4-hose connector I/O module
KFTIA-AA	E2054-AA	1-hose connector I/O module
KN7CC-AA	E2056-CA	Single-processor CPU module
KA7CC-AB	E2056-DA	Dual-processor CPU module
MS7CC-BA	E2035-BA	128-MB memory module
MS7CC-CA	E2035-CA	256-MB memory module
MS7CC-DA	E2035-DA	512-MB memory module
MS7CC-EA	E2035-EA	1-GB memory module
MS7CC-FA	E2036-AA	2-GB memory module

Introduction

1.2.2 TLSB Chassis Control Panel

The AlphaServer 8200 RM systems have a control panel located on the front of the TLSB chassis (see Figure 1-3). The TLSB chassis control panel consists of three push-button switches with integral LED indicators and three separate LED indicators.

Figure 1-3 TLSB Chassis Control Panel



LJ-04305.A14

Introduction

Table 1–2 lists the three push-button switches and describes their functions.

Table 1–2 TLSB Control Panel Push-Button Switches

Switch	Position	LED Status /Color	Description
On/Off	Out	Off	The 48 Vdc power supply is turned off.
	In	On (Green)	The 48 Vdc power supply is turned on and 48 Vdc is present.
Secure	Out	Off	Indicates to the console firmware that certain privileged console commands are allowed.
	In	On (Green)	Indicates to the console firmware that certain privileged console commands are not allowed.
Restart (Momentary switch)	Out	Off	The system restart signal is not being asserted.
	In	On (Red)	The system restart signal is being asserted.

The TLSB control panel also includes three status LED indicators. Table 1–3 lists these LEDs and describes their functions.

Table 1–3 TLSB Control Panel Status LED Indicators

LED Name/Color	Function
Power (Green)	Lit when the 48 Vdc power supply is on and the output is within specifications. If not lit after the On/Off switch is depressed, the power supply has detected an overvoltage or overcurrent condition.
Run (Green)	Lit when console mode is terminated and system program execution begins. Not lit during power sequencing and when in console mode.
Fault (Amber)	Blinks at a slow 2-second rate during the power-up sequence and at a fast .5-second rate during the power-down sequence. After the power-up sequence, it stays lit until all TLSB and I/O modules have passed self-test, and then goes out. Being lit during normal operation indicates a blower failure, a TLSB or I/O module not passing self-test, or a power supply fault.

Introduction

1.2.3 TLSB Chassis Power Supply

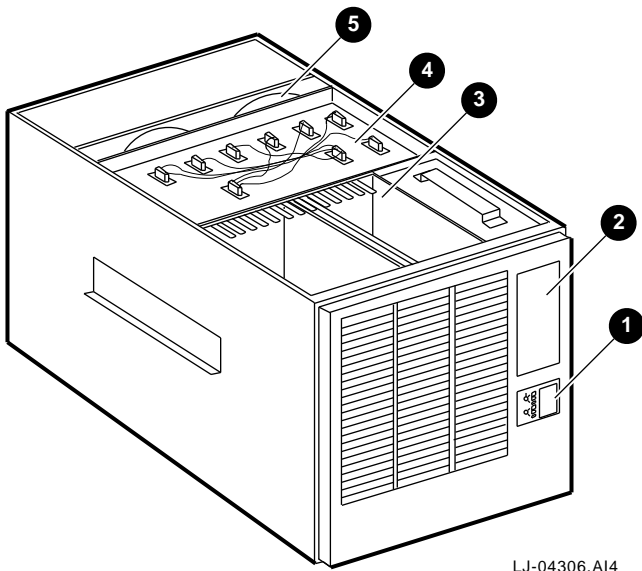
A 48 Vdc power supply is located on the right side of the TLSB chassis. This power supply provides 48 Vdc to the control panel, the TLSB backplane, and the chassis blower.

1.3 Extended Memory Interface (BA601-AC) Chassis

The XMI (BA601-AC) chassis, shown in Figure 1-4, includes a control panel, a single 14-slot card cage, a power supply consisting of 6 tray assemblies, 2 fans, and an I/O bulkhead. The front panel of the XMI chassis also contains an area for installing either an RRD42 CD-ROM reader or a TF85 tape drive. The rear of the chassis contains an interface area for connecting external cables.

The following sections describe the basic components of the XMI chassis.

Figure 1-4 XMI (BA601-AC) Chassis with Top Cover Removed



LJ-04306.A14

- ① Control panel
- ② Space for TF85 or RRD42
- ③ Card cage
- ④ Power supply
- ⑤ Fans

Introduction

1.3.1 XMI Chassis Card Cage

The XMI chassis incorporates a 14-slot card cage that houses the two TLSB I/O interface cards and up to 12 I/O modules. The XMI device adapter boards are housed in this card cage. Other modules are available for installation in the XMI bus, such as: disk controllers, network interfaces, and bus adapters. Table 1–4 lists the options and cabinet kits that are available for installation in the XMI chassis.

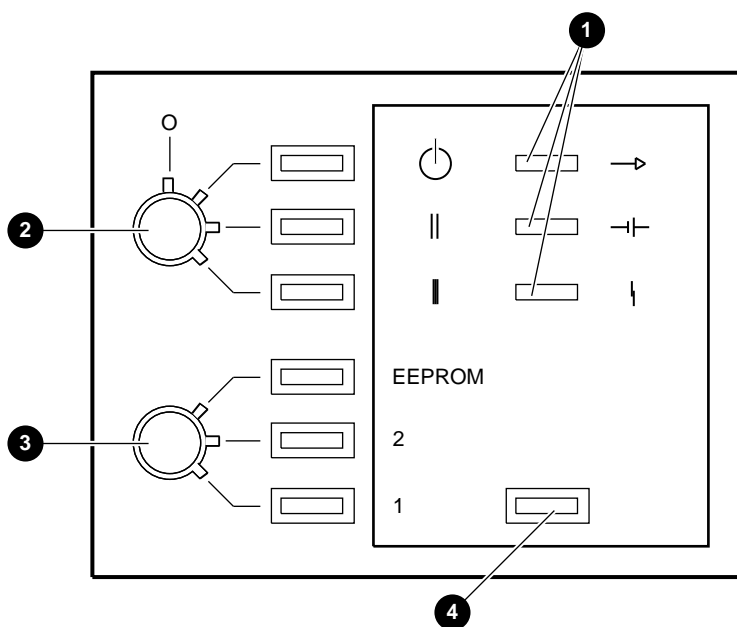
Table 1–4 XMI Options and Cabinet Kits

Interface	Option	BA601 Cabinet Kit	I/O Panel
Ethernet	DEMNA-M	CK-DEMNA-RA	1 Dual
FDDI	2T-DEMFA-RA	Included in option	1 Quad
DSA	KDM70-AA	CK-KDM60-RA	2 Quad
DSSI	KFMSA-BA	CK-KFMSA-RB	1 Quad
SCSI	KZMSA-AB	CK-KZMSA-RB	1 Dual
CI	2T-CIXCD-RA	Included in option	1 Quad

1.3.2 XMI Chassis Control Panel

The AlphaServer 8200 RM systems with an XMI chassis have a secondary control panel located on the front of the XMI chassis (see Figure 1-5). The control panel incorporates three switches and nine LEDs.

Figure 1-5 XMI Chassis Control Panel



LJ-04307.A14


- ① Status LED indicators
- ② Upper keyswitch

- ③ Lower keyswitch
- ④ Restart switch

Introduction

The XMI chassis control panel incorporates two rotary switches (an upper keyswitch and a lower keyswitch) and a push-button restart switch. Table 1–5 lists the upper and lower keyswitches and describes their functions. Table 1–6 describes the functions of the restart switch.

Table 1–5 Control Panel Keyswitches

Symbol	Position	Light/ Color	Effect
Upper Keyswitch			
O	(Off)	No Light	Power to system bus is removed, but ac power and 12 Vdc power is still on.
	Standby	Red	Not used.
	Enable	Yellow	Not used.
	Secure ¹	Green	Indicates that power is applied to the entire system. Used for normal operation. Disables restart switch.
Lower Keyswitch			
EEPROM	Update	Red	Not used.
2	Halt	Yellow	Not used.
1	Auto Start	Green	Not used.

¹Normal position.

Table 1–6 Restart Switch

Upper Keyswitch	Lower Keyswitch	Restart Switch Function
Enable	Update or Halt	Runs self-test, then halts.
Enable	Auto Start	Runs self-test, then reboots the operating system.
Standby or "O" OFF	Any position	Does not function.

The XMI control panel also includes three status LED indicators. Table 1–7 lists these LEDs and describes their functions.

Table 1–7 XMI Control Panel Status LED Indicators

Symbol	Name	State/Color	Indication
→	Run	On (Green)	System is executing operating system instructions on at least one processor.
		Off	System is either in console mode or is turned off.
— —	Battery	NA (Green)	(This function is not implemented on the AlphaServer 8200 RM systems.)
	Fault	On (Red)	Self-test is in progress. If light does not go off, the system has a hardware fault.
		Off	Self-test has completed successfully, or the system is turned off.

Introduction

1.3.3 XMI Chassis Power Supply

The XMI power supply consists of six separate tray assemblies. The system includes two ac-to-dc front-end modules and four dc-to-dc regulator trays. The dc-to-dc regulator trays include a 5 Vdc regulator master, a 5 Vdc regulator booster, a sequencer and auxiliary dc voltage regulator, and a 3.3 Vdc/-5.2 Vdc regulator. Each of these trays contain field replaceable units (FRUs) that are described in Chapter 5.

Table 1–8 lists the six power supply tray assemblies along with the description and location of each. Figure 1–6 shows the location of these six power supply tray assemblies ❶.

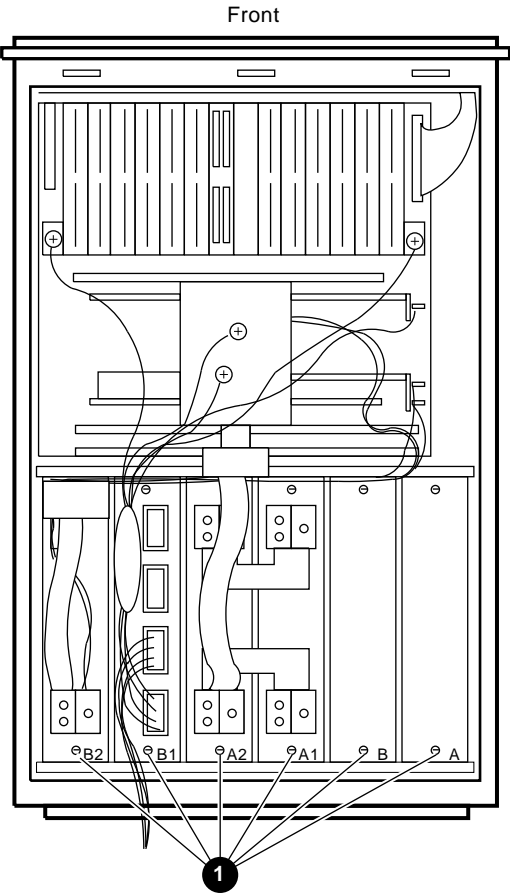
Table 1–8 XMI Power Supply Tray Assemblies

Tray Assembly	Description	Location ¹
ac-to-dc converters (2)	Provides 300 Vdc to feed into regulators	A + B
5 Vdc regulator	+5 Vdc master supply	A1
5 Vdc regulator	+5 Vdc booster supply	A2
Sequencer and auxiliary dc voltage regulator	Consists of: <ul style="list-style-type: none">• Power sequencing logic• +12 Vdc supply• -12 Vdc supply• +24 Vdc supply (fans)• -2 Vdc supply	B1
3.3 Vdc/-5.2 Vdc regulator	Consists of: <ul style="list-style-type: none">• +3.3 Vdc supply (not used for the AlphaServer 8200 RM systems)• -5.2 Vdc supply	B2

¹See Figure 1–6.

Introduction

Figure 1-6 Power Supply Tray Assemblies (XMI Chassis Bottom View)



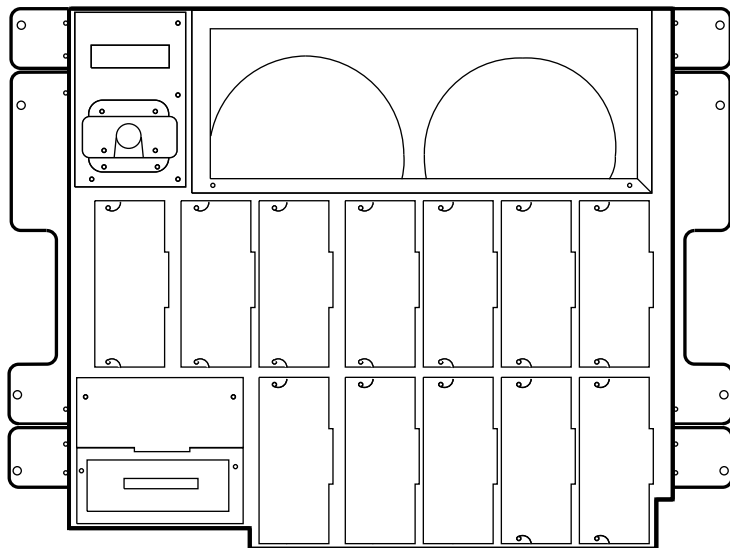
LJ-04308.A14

Introduction

1.3.4 XMI Chassis I/O Bulkhead

The XMI chassis has an I/O bulkhead (see Figure 1-7) located at the rear of the chassis. The I/O bulkhead is used for installing the I/O panels associated with the different I/O option cards that can be installed in the XMI card cage. The I/O bulkhead can accommodate five quad and three dual I/O panels. This allows for connections to external devices.

Figure 1-7 XMI Chassis I/O Bulkhead



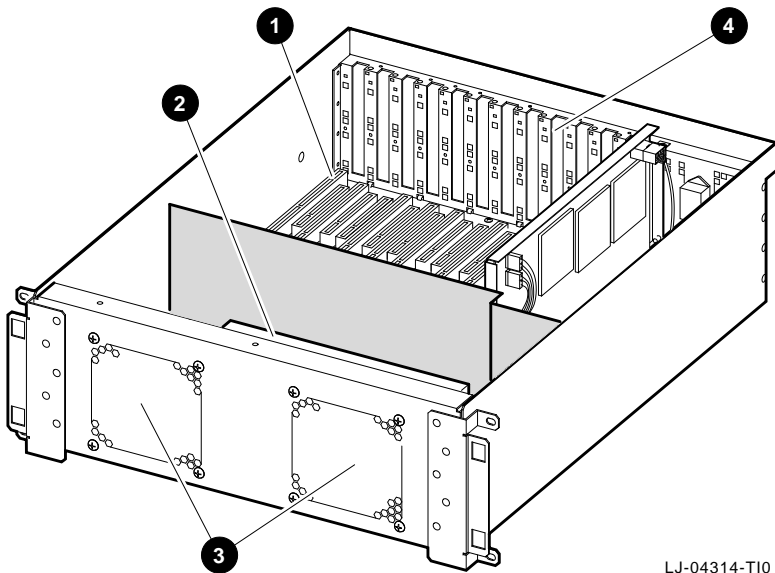
LJ-04309.A14

1.4 Peripheral Component Interconnect (BA602-AA) Chassis

The PCI (BA602-AA) chassis, shown in Figure 1–8, includes a 12-slot card cage, a 48 Vdc power supply, two fans, and an I/O bulkhead. The rear of the chassis contains the interface area for connecting external cables.

The following sections describe the basic components of the PCI chassis.

Figure 1–8 PCI (BA602-AA) Chassis with Top Cover Removed



LJ-04314-T10

- ❶ Card cage
- ❷ 48 Vdc power supply

- ❸ Fans
- ❹ I/O bulkhead

Introduction

1.4.1 PCI Chassis Card Cage

The PCI chassis contains a 12-slot card cage that houses up to 12 PCI options. With the installation of the KFE70-CA PCI-to-EISA adapter kit in slot 0 and 2 of the PCI chassis, ten slots are available for a mixture of PCI and EISA options. Other modules are available for installation in the PCI chassis, such as: disk controllers, network interfaces, and bus adapters. Table 1–9 lists the options that are available for installation in the PCI chassis.

Table 1–9 PCI Options

Interface	Option	Description
Ethernet	DE435-AA	PCI adapter that supports either ThinWire, thickwire, or twisted-pair
	KFE70-CA	PCI-to-EISA adapter kit that consists of a standard I/O module that supports either thickwire or twisted-pair and a connector module
FDDI	DEFPA-AA	PCI FDDI controller with single-attachment multimode fiber connectors
	DEFPA-DA	PCI FDDI controller with dual-attachment multimode fiber connectors
	DEFPA-UA	PCI FDDI controller with a twisted-pair connector
	DEFEA ¹	EISA FDDI controller
DSSI	KFESB-AA ¹	EISA DSSI controller
SCSI	KZPAA	PCI single-ended SCSI adapter
	KZPBA-BB	PCI FWD SCSI adapter
	KZPSA-BB	PCI FWD SCSI adapter

¹Requires installation of the KFE70-CA PCI-to-EISA adapter kit.

Introduction

With the KFE70-CA PCI-to-EISA adapter kit installed in the PCI chassis, Table 1-10 lists how the 12 slots in the chassis are used.

Table 1-10 PCI/EISA Slot Usage

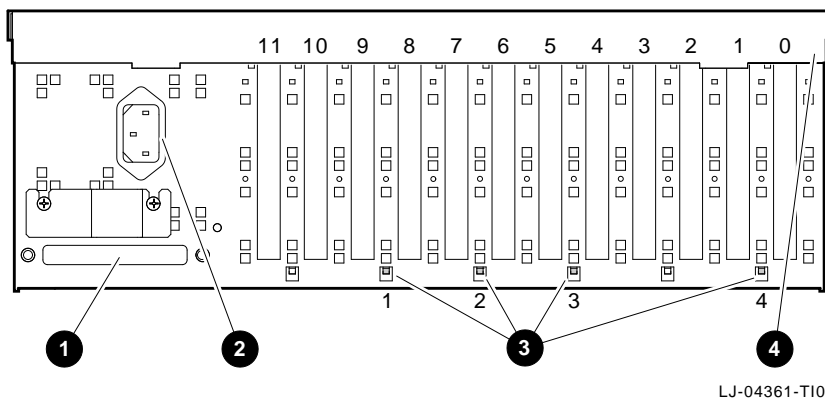
Slot Number	Usage
0	Standard I/O module (part of KFE70-CA adapter kit)
1	EISA option only
2	Connector module (part of KFE70-CA adapter kit)
3	EISA option only
4	PCI or EISA option
5	PCI or EISA option
6	PCI option only
7	PCI or EISA option
8	PCI or EISA option
9	PCI or EISA option
10	PCI option only
11	PCI or EISA option

Introduction

1.4.2 PCI Chassis I/O Bulkhead and Indicators

The PCI chassis has an I/O bulkhead (see Figure 1–9) located at the rear of the chassis. Blank filler panels cover all slot openings that do not have option cards installed. This is where external cables are connected to the option card connectors.

Figure 1–9 PCI Chassis I/O Bulkhead and Indicators



- ❶ Hose connector
- ❷ AC input jack

- ❸ Status LEDs
- ❹ Card cage slot numbers

Introduction

The PCI chassis also has four status LED indicators located at the rear of the chassis (see Figure 1–9). Table 1–11 lists these LEDs and describes their functions.

Table 1–11 PCI Status LED Indicators

LED	Name	State/Color	Indication
1	Internal power system OK	On (Green)	Power is applied to the PCI chassis and the internal power system is functioning properly.
		Off	The fans or the power board have failed.
2	Motherboard self-test OK	On (Green)	The motherboard has passed self-test.
		Off	The motherboard has failed self-test.
3	48 Vdc power OK	On (Green)	The 48 Vdc power supply is functioning properly.
		Off	The 48 Vdc power supply has failed or is improperly connected to the power board.
4	Hose error	On (Green)	The hose cable is improperly connected or has failed.
		Off	The hose cable is connected and functioning properly.

1.4.3 PCI Chassis Power Supply

A 48 Vdc power supply is located inside the PCI chassis attached to the bottom of the chassis behind the fans. This power supply provides 48 Vdc to the power board for distribution to the PCI motherboard and the two fans.

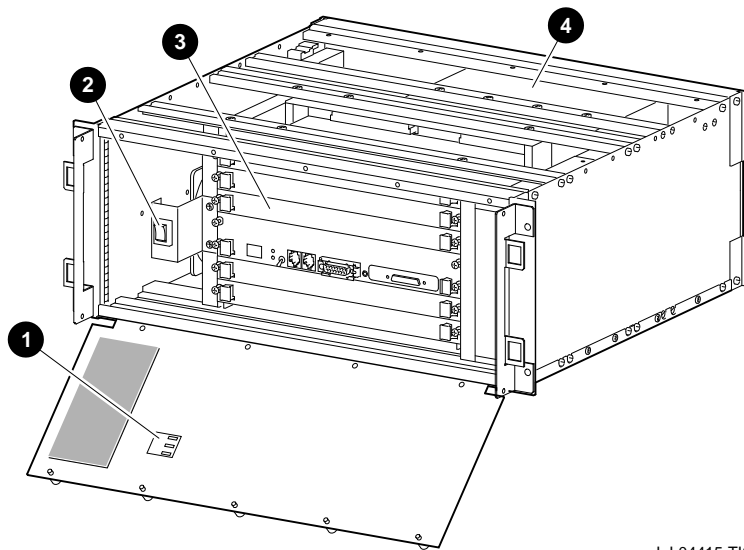
Introduction

1.5 Versa Module Eurocard (2T-VMEWS-AA) Chassis

The VME (2T-VMEWS-AA) chassis, shown in Figure 1–10, includes a 7-slot card cage, a power supply, and an I/O bulkhead. The rear of the chassis contains the I/O bulkhead area for connecting external cables.

The following sections describe the basic components of the VME chassis.

Figure 1–10 VME (2T-VMEWS-AA) Chassis with Top Cover Removed and Front Cover Open



LJ-04415-T10

- ❶ Three LEDs on front cover
- ❷ On/Off power switch
- ❸ Card cage
- ❹ Power supply

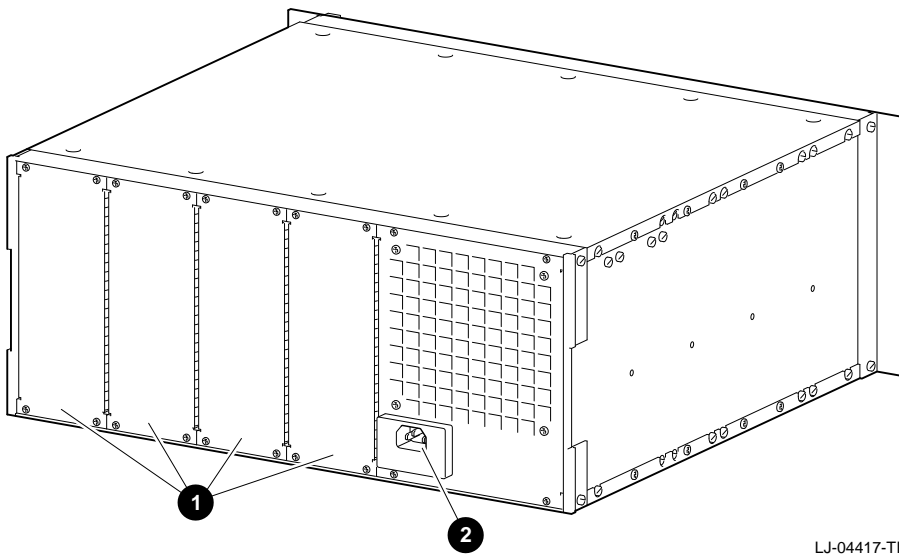
1.5.1 VME Chassis Card Cage

The VME chassis contains a 7-slot card cage that houses up to 7 VME options. Modules are available for installation in the VME chassis, such as: disk controllers, network interfaces, and bus adapters.

1.5.2 VME Chassis I/O Bulkhead and Indicators

The VME chassis has an I/O bulkhead (see Figure 1–11) located at the rear of the chassis. Four blank panels cover the openings that are used to install cable assembly plates. This is where external cables are connected to the connectors on the cable assembly plates.

Figure 1–11 VME Chassis I/O Bulkhead



LJ-04417-T10

- ❶ I/O bulkhead plate covers
- ❷ AC input jack

The VME chassis also has three status LED indicators located on the front cover of the chassis (see Figure 1–10).

These LEDs indicate the status of the +5 Vdc, +12 Vdc, and -12 Vdc output of the power supply. If the LEDs are green, the indicated voltage outputs of the power supply are within specifications. If the LEDs are any other color, the indicated voltage outputs are out of tolerance and the power supply should be checked.

Introduction

1.5.3 VME Chassis Power Supply

A power supply is located in the upper rear of the VME chassis. This power supply provides +5 Vdc, +12 Vdc, and -12 Vdc outputs for the fans and the VME card cage backplane.

1.6 Specifications

The following sections contain the physical, electrical, and environmental specifications for the TLSB (BA701-AA) chassis, XMI (BA601-AC) chassis, PCI (BA602-AA) chassis, and the VME (2T-VMEWS-AA) chassis.

1.6.1 TLSB Chassis Specifications

Table 1–12 lists the TLSB chassis specifications.

Table 1–12 TLSB Chassis Specifications

Physical Characteristics	
Enclosure	Height 62.23 cm (24.50 in.)
	Width 48.26 cm (19.00 in.)
	Depth 78.74 cm (31.00 in.)
	Weight 80.29 kg (177 lb) maximum
Electrical Requirements	
AC Input Voltage	200-240 Vrms nominal single phase
AC Input Current	10 Arms
Line Frequency	50 Hz or 60 Hz nominal
Mating Receptacle	NEMA L6-15R
Environmental Requirements	
Operating Temperature	15°C to 28°C (59°F to 82°F)
Relative Humidity	20% to 80% noncondensing
Storage Temperature	-40°C to 66°C (-40°F to 151°F)
Relative Humidity	10% to 95% noncondensing

Introduction

1.6.2 XMI Chassis Specifications

Table 1–13 lists the XMI chassis specifications.

Table 1–13 XMI Chassis Specifications

Physical Characteristics		
Enclosure	Height	40.00 cm (15.75 in.)
	Width	48.26 cm (19.00 in.)
	Depth	91.44 cm (36.00 in.)
	Weight	55 kg (121 lb) maximum
Electrical Requirements		
AC Input Voltage	200-240 Vrms nominal single phase	
AC Input Current	6 Arms	
Line Frequency	50 Hz or 60 Hz nominal	
Mating Receptacle	NEMA L6-15R	
Environmental Requirements		
Operating Temperature	15°C to 28°C (59°F to 82°F)	
Relative Humidity	20% to 80% noncondensing	
Storage Temperature	-40°C to 66°C (-40°F to 151°F)	
Relative Humidity	10% to 95% noncondensing	

1.6.3 PCI Chassis Specifications

Table 1–14 lists the PCI chassis specifications.

Table 1–14 PCI Chassis Specifications

Physical Characteristics		
Enclosure	Height	17.78 cm (7.00 in.) 22.23 cm (8.75 in.) (with KFE70-CA adapter kit)
	Width	48.26 cm (19.00 in.)
	Depth	55.88 cm (22.00 in.)
	Weight	19.05 kg (42 lb) maximum
Electrical Requirements		
AC Input Voltage	200-240 Vrms nominal single phase	
AC Input Current	2.5 Arms	
Line Frequency	50 Hz or 60 Hz nominal	
Mating Receptacle	NEMA L6-15R	
Environmental Requirements		
Operating Temperature	15°C to 28°C (59°F to 82°F)	
Relative Humidity	20% to 80% noncondensing	
Storage Temperature	-40°C to 66°C (-40°F to 151°F)	
Relative Humidity	10% to 95% noncondensing	

Introduction

1.6.4 VME Chassis Specifications

Table 1–15 lists the VME chassis specifications.

Table 1–15 VME Chassis Specifications

Physical Characteristics		
Enclosure	Height	17.78 cm (7.00 in.)
	Width	48.26 cm (19.00 in.)
	Depth	40.00 cm (15.75 in.)
	Weight	9.07 kg (20 lb) maximum
Electrical Requirements		
AC Input Voltage	200-240 Vrms nominal single phase	
AC Input Current	2 Arms	
Line Frequency	50 Hz or 60 Hz nominal	
Mating Receptacle	NEMA L6-15R	
Environmental Requirements		
Operating Temperature	15°C to 28°C (59°F to 82°F)	
Relative Humidity	20% to 80% noncondensing	
Storage Temperature	-40°C to 66°C (-40°F to 151°F)	
Relative Humidity	10% to 95% noncondensing	

2

Installation

2.1 Introduction

This chapter discusses the installation of the AlphaServer 8200 RM systems. Topics covered in this chapter include:

- Site preparation
- Checking the shipment
- Installing the TLSB (BA701-AA) chassis
- Installing the XMI (BA601-AC) chassis
- Installing the PCI (BA602-AA) chassis
- Installing the VME (2T-VMEWS-AA) chassis
- Cabling
- Connecting the power cords

Installation

2.2 Site Preparation

The following sections describe the environmental and electrical requirements for the AlphaServer 8200 RM systems.

2.2.1 Environmental Requirements

The following list contains the environmental requirements for the AlphaServer 8200 RM systems:

- Keep the environment between 15°C and 28°C (59°F and 82°F).
- Keep the environment between 20% and 80% relative humidity (noncondensing).
- Keep the air around the equipment well circulated to prevent heat from building up and to provide an exhaust space at the rear of the cabinet.
- Keep the equipment away from heaters, photocopiers, and direct sunlight.
- Provide 1.5 m (4.9 ft) front and rear clearance for service access.
- Decrease static electricity buildup by locating the equipment away from busy areas such as office corridors, and keep the environment at the recommended humidity levels. Static electricity can cause the equipment to fail, data to be lost, and other problems to occur.
- Keep the area where the equipment is located clean. Do not place food or liquids on or near the equipment.
- Keep the area where the equipment is located free from dust (dust particles can interfere with chassis cooling and can damage the hardware).

2.2.2 Electrical Requirements

A dedicated 30-ampere (200-240 Vac nominal) 3-wire branch circuit for the two power distribution units is required for the H9A15 cabinet. The circuit must meet national and local standards, provide a good system ground, be stable, and be free from electrical noise. If power disturbances cannot be prevented, add power-conditioning equipment. Consult with Multivendor Customer Service personnel about the electrical requirements for the AlphaServer 8200 RM systems.

The ac power source should allow for system expansion. Do not connect other equipment (such as air conditioners or office copiers) to the circuit dedicated to the AlphaServer 8200 RM systems.

2.3 Checking the Shipment

The AlphaServer 8200 RM system hardware shipment consists of two or more cartons when not factory installed in a cabinet. One carton contains the TLSB (BA701-AA) chassis and the other carton or cartons contain the BA350 storage shelf, the XMI (BA601-AC) chassis, the PCI (BA602-AA) chassis, or the VME (2T-VMEWS-AA) chassis.

Check the shipment to verify that all items shown in Figure 2-1 and Figure 2-2, or Figure 2-3, or Figure 2-4, and listed on the packing slip, have been received. Optional items are not shown.

WARNING

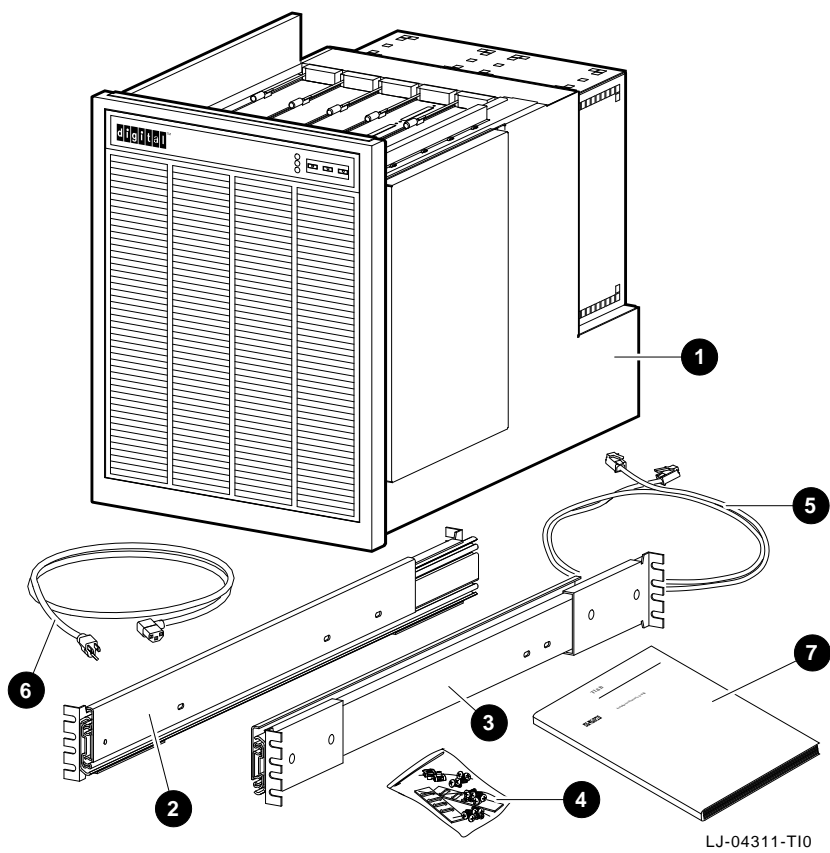
The TLSB chassis weighs approximately 80.29 kg (177 lb), the XMI chassis weighs approximately 55 kg (121 lb), the PCI chassis weighs approximately 19.05 kg (42 lb), and the VME chassis weighs approximately 9.07 kg (20 lb). Use sufficient personnel, or proper lifting equipment, when lifting or moving these chassis.

If the equipment is damaged or if any items are missing, notify the delivery agent and contact the Digital sales representative.

Save all shipping cartons in case the equipment needs to be moved to a new location, or needs to be returned for repair.

Installation

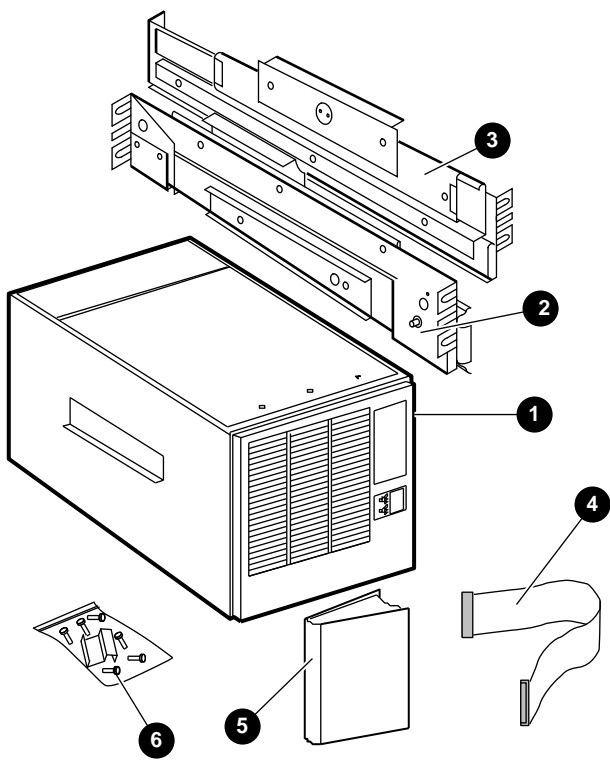
Figure 2-1 Contents of the TLSB Shipping Carton



- ① TLSB chassis
- ② Left TLSB chassis slide
- ③ Right TLSB chassis slide
- ④ Bag of hardware and bar nuts
- ⑤ Console cable
- ⑥ Power cord
- ⑦ *AlphaServer 8200 RM System Installation / Owner's Guide*

Installation

Figure 2-2 Contents of the XMI Shipping Carton

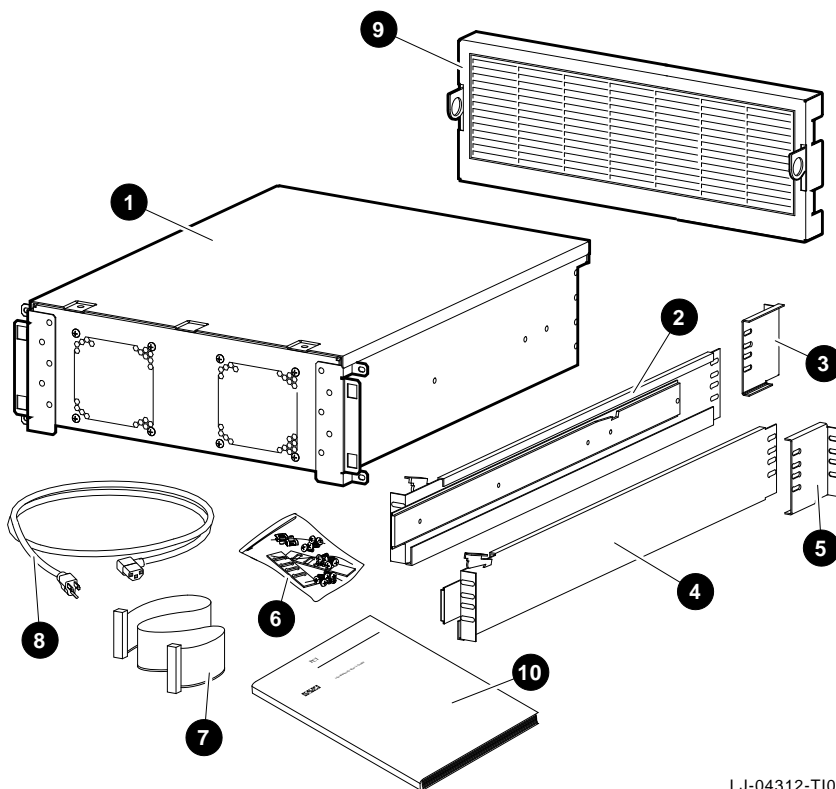


LJ-04310.AI4

- ❶ XMI chassis
- ❷ Left XMI chassis slide
- ❸ Right XMI chassis slide
- ❹ I/O hose cable
- ❺ *AlphaServer 8200 RM System Installation / Owner's Guide*
- ❻ Bag of hardware and bar nuts

Installation

Figure 2-3 Contents of the PCI Shipping Carton

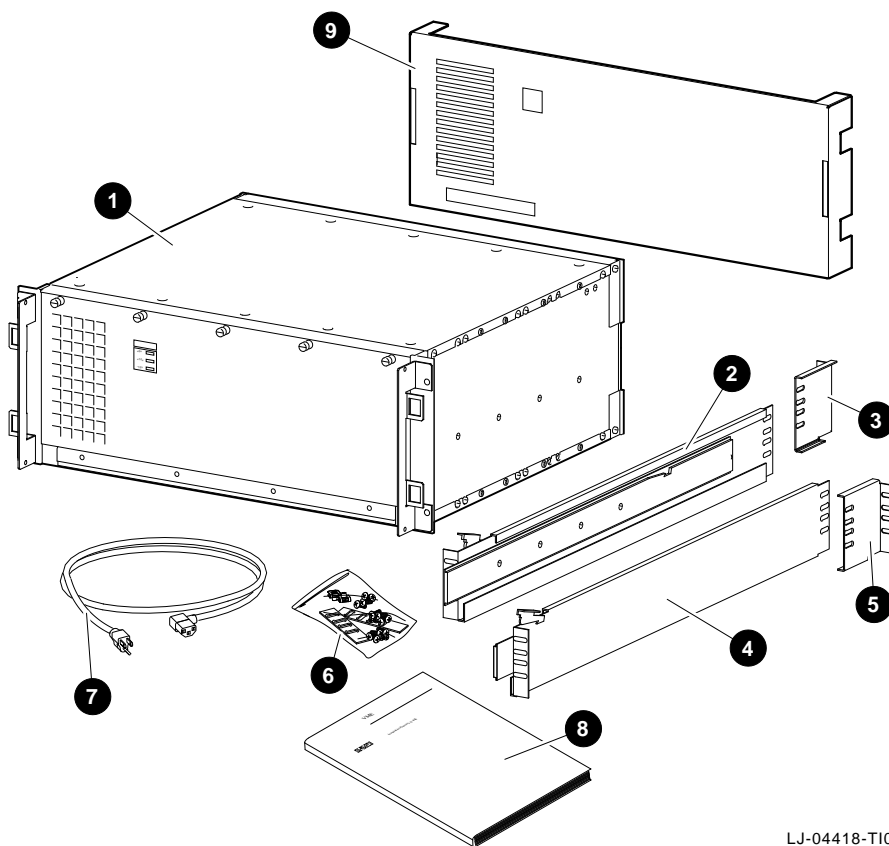


LJ-04312-T10

- | | |
|-------------------------------------|--|
| ❶ PCI chassis | ❺ Bag of hardware and bar nuts |
| ❷ Left PCI chassis slide | ❻ I/O hose cable |
| ❸ Rear left slide mounting bracket | ❼ Power cord |
| ❹ Right PCI chassis slide | ❽ PCI front bezel |
| ❺ Rear right slide mounting bracket | ❿ <i>AlphaServer 8200 RM System Installation / Owner's Guide</i> |

Installation

Figure 2-4 Contents of the VME Shipping Carton



LJ-04418-T10

- ① VME chassis
- ② Left VME chassis slide
- ③ Rear left slide mounting bracket
- ④ Right VME chassis slide
- ⑤ Rear right slide mounting bracket
- ⑥ Bag of hardware and bar nuts
- ⑦ Power cord
- ⑧ *VME Workstation Enclosure Installation / Owner's Guide*
- ⑨ VME front bezel

Installation

2.4 Installing the TLSB Chassis

The following sections discuss the installation of the TLSB (BA701-AA) chassis in a standard RETMA 48.26 cm (19.00 in.) wide equipment cabinet such as Digital's H9A15 cabinet. The TLSB chassis is installed in the *lower* part of the equipment cabinet just above the bottom 17.78 cm (7.00 in.) filler panel. The TLSB chassis occupies 62.23 vertical centimeters (24.50 vertical inches) of space in the equipment cabinet. Open the rear door of the cabinet before installing the chassis.

WARNING

Before attempting to install the equipment into a cabinet or rack, ensure that the cabinet is stable and that all provided stabilizing features have been activated. The stabilizing features for the rack or cabinet are configuration dependent.

The following tools are required for installing the TLSB chassis:

- Medium Phillips screwdriver
- Small Phillips screwdriver
- Small flat-blade screwdriver
- Adjustable wrench

Installation

2.4.1 Installing the TLSB Chassis Slides

The TLSB chassis is shipped with a pair of RETMA chassis slides (see Figure 2-1). There is a right and left slide.

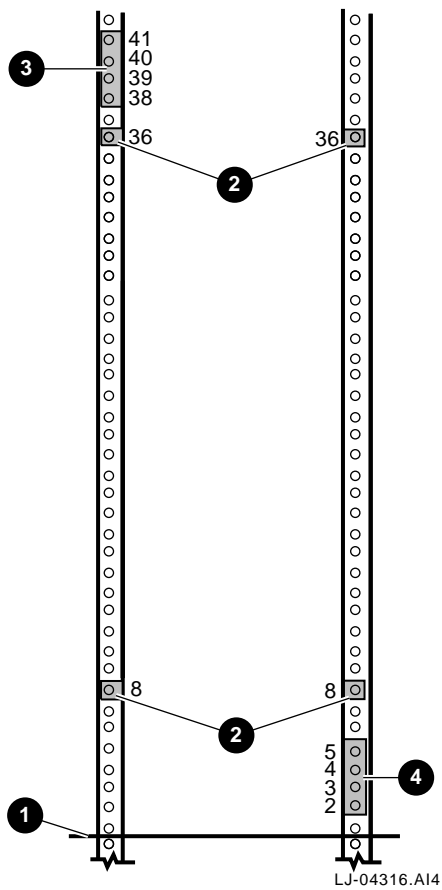
To install the slides, perform the steps in the following procedure:

1. Check each slide for any damage and for smooth operation.
2. Loosen the two screws that secure the rear slide bracket to the slide so that it can be adjusted to fit between the front and rear rails.
3. Identify the TLSB chassis location in the rack and establish a datum line. The datum line serves as a reference to identify the mounting hole positions for the slide brackets and U-nuts. To establish a datum line:
 - a. Determine the area of the rack where the TLSB chassis will be installed. The TLSB chassis is normally installed in the lower part of an equipment cabinet just above the bottom 17.78 cm (7.00 in.) filler panel and requires 62.23 cm (24.50 in.) of height, or 41 contiguous holes.
 - b. Refer to Figure 2-5 and establish a datum line at the base of the area between two holes with 1.3 cm (.5 in.) spacing. The first hole above the datum line is identified as hole 1. This establishes the location of the bottom edge of the TLSB chassis.
4. Install the slides between the front and rear vertical mounting rails from the front of the cabinet as follows:
 - a. Determine the proper mounting holes for the slide brackets using the four-hole pattern in the bar nut. This pattern repeats every 4.45 cm (1.75 in.) along the rails. The proper four-hole pattern for the *right* slide on the front and rear rails is the 2nd, 3rd, 4th, and 5th holes up from the datum line (see Figure 2-5).

The proper four-hole pattern for the *left* slide on the front and rear rails is the 38th, 39th, 40th, and 41st holes up from the datum line (see Figure 2-5).
 - b. Position a bar nut for each slide bracket in the correct position on the inside of the front and rear RETMA rails and start the two middle screws (the 3rd and 4th holes up from the datum line for the right slide and the 39th and 40th holes up from the datum line for the left slide), then slide the front and back slide support bracket on the inside of the rails between the bar nut and the rail (see Figure 2-6).

Installation

Figure 2-5 TLSB Chassis Slide Mounting Pattern



① Datum line

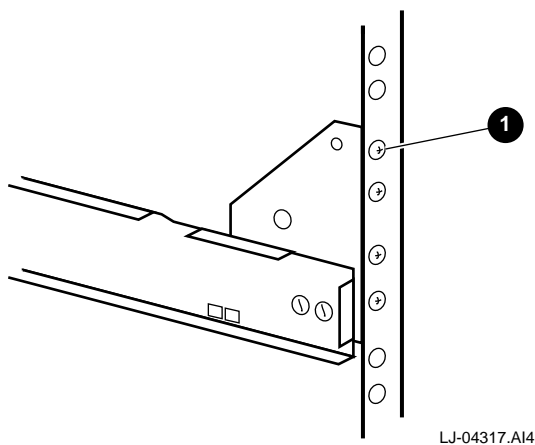
② U-nuts

③ Left slide bracket

④ Right slide bracket

Installation

Figure 2-6 Installing the Equipment Mounting Slides (Rear View of Left Slide with Slide Extended)



- ① Bar nut positioned behind bracket
- c. Install the other two screws in the top and bottom holes of each slide support bracket at each end of the slide.
- d. Tighten all eight screws to secure each slide.

NOTE

Pull the slide upward when securing it to the rails. Also, ensure that the slide is level.

- 5. Tighten the two screws that secure the rear slide bracket to the slide.
- 6. Install two U-nuts on each front rail over the 8th and 36th holes up from the datum line by sliding them over the edge of the rail and aligning them with the holes (see Figure 2-5). These are used for securing the TLSB chassis, in the closed position, to the rails.

Installation

2.4.2 Installing the TLSB Chassis on the Slides

To install the TLSB (BA701-AA) chassis on the slides, perform the steps in the following procedure:

1. Extend the stabilizing legs at the front of the cabinet (if stabilizing legs are provided).

WARNING

Before attempting to install the equipment into a cabinet or rack, ensure that the cabinet is stable and that all provided stabilizing features have been activated. The stabilizing features for the rack or cabinet are configuration dependent.

2. Extend both of the equipment slides from the cabinet. The slide locking levers lock automatically when the slides are fully extended.

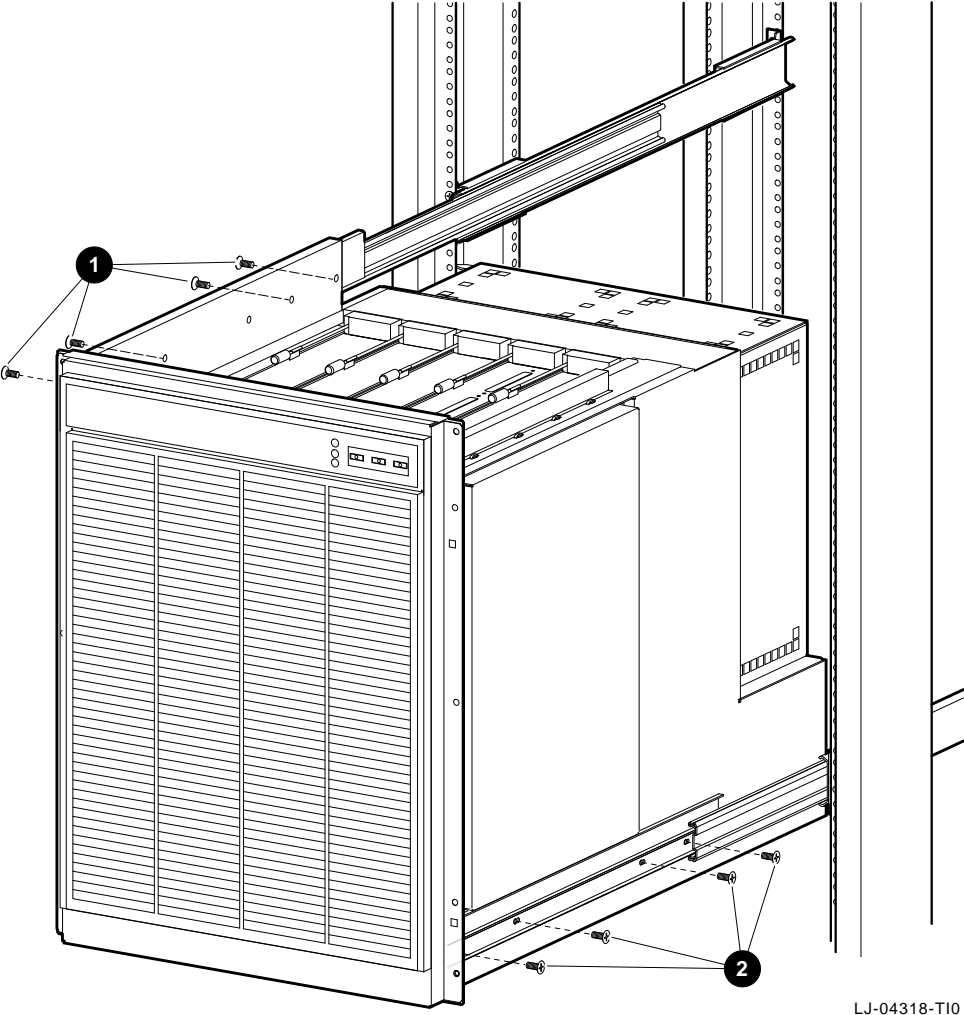
WARNING

The TLSB (BA701-AA) chassis weighs approximately 80.29 kg (177 lb). Use sufficient personnel, or proper lifting equipment, when lifting or moving this chassis.

3. Remove the front bezel from the TLSB chassis by grasping both sides of the bezel and pulling straight out.
4. Lift the TLSB chassis until the chassis mounting plates are just above the slides, and then move the chassis back and onto the equipment slides.
5. Carefully position the chassis until the four mounting holes in the side of the chassis line up with the four mounting holes in the side of the slide (see Figure 2-7).
6. Secure the TLSB chassis to the slides by installing four screws for each slide, supplied with the hardware kit, through the slides and into the chassis mounting holes (see Figure 2-7).

Installation

Figure 2-7 Installing the TLSB Chassis on the Slides



LJ-04318-T10

1 Left slide/chassis mounting screws

2 Right slide/chassis mounting screws

Installation

7. Release the slide locking levers on both slides and carefully slide the TLSB chassis into the cabinet. Ensure that the chassis is level, can clear all other equipment in the cabinet, and that the slides operate smoothly.
8. Secure the chassis to the equipment rails by tightening the four screws into the U-nuts that were placed on the front RETMA rails during installation of the slides.
9. Replace the front bezel on the TLSB chassis by grasping both sides of the bezel and pushing it onto the front of the chassis.

2.5 Installing the XMI Chassis

The following sections discuss the installation of the XMI (BA601-AC) chassis in a standard RETMA 48.26 cm (19.00 in.) wide equipment cabinet such as Digital's H9A15 cabinet. The XMI chassis occupies 40.00 vertical centimeters (15.75 vertical inches) of space in the equipment cabinet and is installed in the space *above* the previously installed chassis *above* the TLSB chassis. Open the rear door of the cabinet before installing the chassis.

WARNING

Before attempting to install the equipment into a cabinet or rack, ensure that the cabinet is stable and that all provided stabilizing features have been activated. The stabilizing features for the rack or cabinet are configuration dependent.

The following tools are required for installing the XMI chassis:

- Medium Phillips screwdriver
- Small Phillips screwdriver
- Small flat-blade screwdriver
- Adjustable wrench

Installation

2.5.1 Installing the XMI Chassis Slides

Each XMI chassis is shipped with a pair of RETMA chassis slides (see Figure 2-2). There is a right and left slide.

To install the slides, perform the steps in the following procedure:

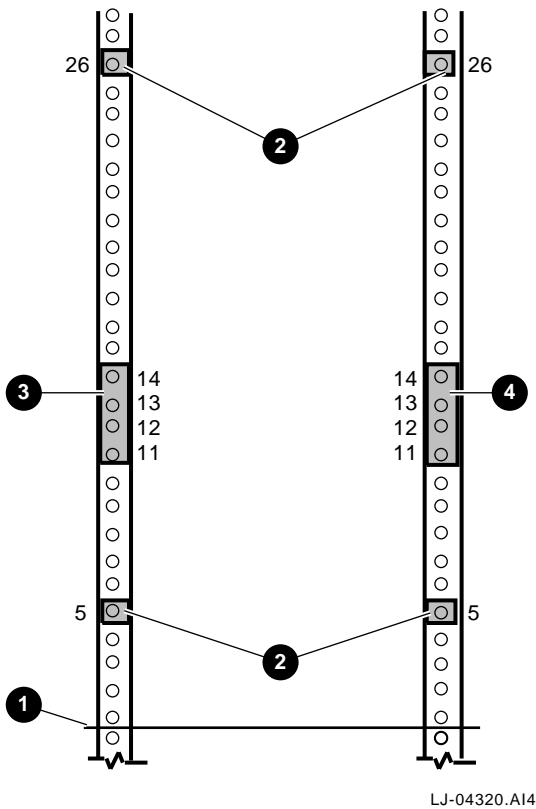
1. Check each slide for any damage and for smooth operation.
2. Loosen the two screws that secure the rear slide bracket to the slide so that it can be adjusted to fit between the front and rear rails.
3. Identify the XMI chassis location in the rack and establish a datum line. The datum line serves as a reference to identify the mounting hole positions for the slide brackets and U-nuts. To establish a datum line:
 - a. Determine the area of the rack where the XMI chassis will be installed. The XMI chassis is installed in the space of an equipment cabinet located above the TLSB chassis and requires 40.00 cm (15.75 in.) of height, or 27 contiguous holes.
 - b. Refer to Figure 2-8 and establish a datum line at the base of the area between two holes with 1.3 cm (.5 in.) spacing. The first hole above the datum line is identified as hole 1. This establishes the location of the bottom edge of the XMI chassis.
4. Install the slides between the front and rear vertical mounting rails from the front of the cabinet as follows:
 - a. Determine the proper mounting holes for the slide brackets using the four-hole pattern in the bar nut. This pattern repeats every 4.45 cm (1.75 in.) along the rails. The proper four-hole pattern for the slide on the front and rear rails is the 11th, 12th, 13th, and 14th holes up from the datum line (see Figure 2-8).
 - b. Position each bar nut in the correct position on the inside of the front and rear RETMA rails and start the two middle screws (the 12th and 13th holes up from the datum line), then slide the front and back slide support bracket between the rail and the screw heads (see Figure 2-9).
 - c. Install the other two screws in the top and bottom holes of each slide support bracket at each end of the slide.
 - d. Tighten all eight screws to secure each slide.

Installation

NOTE

Pull the slide upward when securing it to the rails. Also, ensure that the slide is level and that the slides are at the same height within the cabinet.

Figure 2-8 XMI Chassis Slide Mounting Pattern



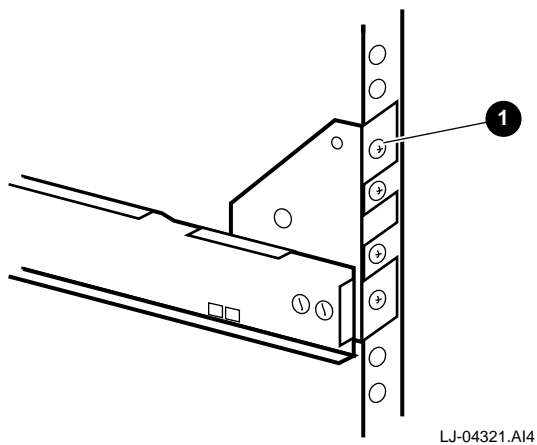
- ① Datum line
- ② U-nuts
- ③ Left slide bracket
- ④ Right slide bracket

5. Tighten the two screws that secure the rear slide bracket to the slide.
6. Repeat steps 1 through 5 for the other slide.

Installation

7. Install two U-nuts on each front rail over the 5th and 26th holes up from the datum line by sliding them over the edge of the rail and aligning them with the holes (see Figure 2-8). These are used for securing the XMI chassis, in the closed position, to the rails.

Figure 2-9 Installing the Equipment Mounting Slides (Rear View of Left Slide with Slide Extended)



- 1 Bar nut positioned behind rail

2.5.2 Installing the XMI Chassis on the Slides

To install the XMI (BA601-AC) chassis on the slides, perform the steps in the following procedure:

1. Extend the stabilizing legs at the front of the cabinet (if stabilizing legs are provided).

WARNING

Before attempting to install the equipment into a cabinet or rack, ensure that the cabinet is stable and that all provided stabilizing features have been activated. The stabilizing features for the rack or cabinet are configuration dependent.

2. Extend both of the equipment slides from the cabinet. The slide locking levers lock automatically when the slides are fully extended.

WARNING

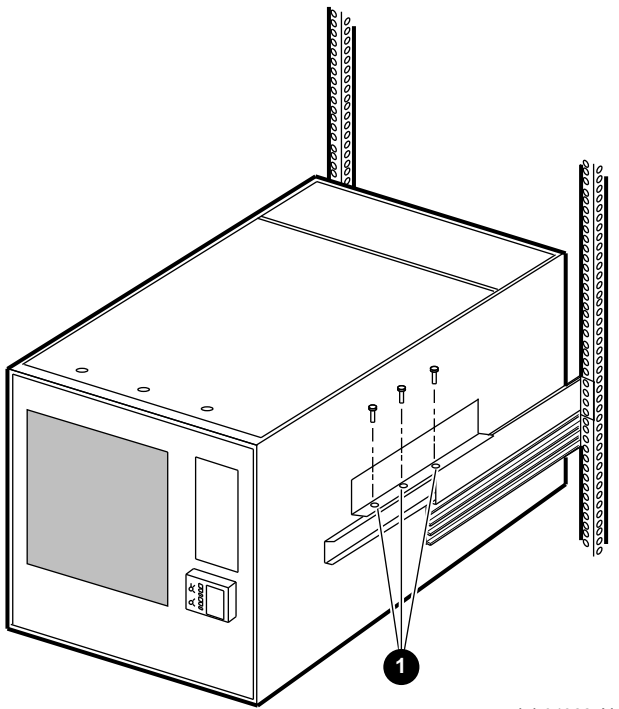
The XMI (BA601-AC) chassis weighs approximately 55 kg (121 lb). Use sufficient personnel, or proper lifting equipment, when lifting or moving this chassis.

3. Remove the front bezel from the XMI chassis by grasping both sides of the bezel and pulling straight out.
4. Lift the XMI chassis onto the equipment slides and carefully position the chassis mounting plate over the three mounting holes in the slide (see Figure 2-10).
5. Secure the XMI chassis to both slides by installing three 8-32 screws through the chassis mounting plates and into the equipment slides (see Figure 2-10).
6. Release the slide locking levers on both slides and carefully slide the XMI chassis into the cabinet. Ensure that the chassis is level, can clear all other equipment in the cabinet, and that the slides operate smoothly.
7. Secure the chassis to the equipment rails by tightening the four screws into the U-nuts that were placed on the front RETMA rails during installation of the slides.

Installation

8. Replace the front bezel on the XMI chassis by grasping both sides of the bezel and pushing it onto the front of the chassis.

Figure 2-10 Installing the XMI Chassis on the Slides



LJ-04322.AI4

- 1 Chassis mounting screws

2.6 Installing the PCI Chassis

The following sections discuss the installation of the PCI (BA602-AA) chassis in a standard RETMA 48.26 cm (19.00 in.) wide equipment cabinet such as Digital's H9A15 cabinet. The PCI chassis occupies 17.78 vertical centimeters (7.00 vertical inches) of space in the equipment cabinet and is installed in the space *above* the previously installed chassis *above* the TLSB chassis. Open the rear door of the cabinet before installing the chassis.

NOTE

The PCI chassis with the KFE70-CA PCI-to-EISA adapter kit installed occupies 22.23 vertical centimeters (8.75 vertical inches) of space in the equipment cabinet.

WARNING

Before attempting to install the equipment into a cabinet or rack, ensure that the cabinet is stable and that all provided stabilizing features have been activated. The stabilizing features for the rack or cabinet are configuration dependent.

The following tools are required for installing the PCI chassis:

- Medium Phillips screwdriver
- Small Phillips screwdriver
- Small flat-blade screwdriver
- Adjustable wrench

Installation

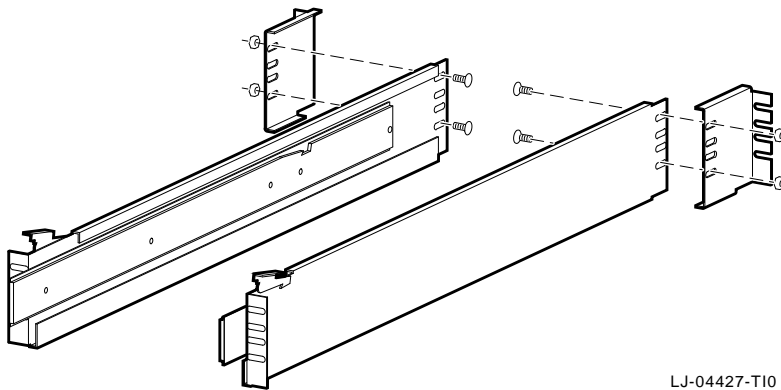
2.6.1 Attaching the Rear Slide Mounting Brackets to the Outer Slide Assemblies

Each PCI chassis is shipped with a pair of RETMA chassis slides and two rear slide mounting brackets (see Figure 2-3 and Figure 2-11).

To attach the rear slide mounting brackets to the outer slides, refer to Figure 2-11 and perform the following procedure:

1. Attach the left rear slide mounting bracket to the rear of the *left* outer slide using two 8-32 pan-head screws, two split lockwashers, two flat washers, and two nuts, but *do not* tighten.
2. Adjust the rear slide mounting bracket so that the left outer slide fits between the front and rear vertical mounting rails. Now tighten the hardware installed in step 1.
3. Repeat steps 1 and 2 to attach and adjust the right rear slide mounting bracket on the *right* outer slide.

Figure 2-11 Attaching the Rear Slide Mounting Brackets



LJ-04427-T10

2.6.2 Installing the PCI Left/Right Outer Slide Assemblies

To install the left/right outer slide assemblies, perform the steps in the following procedure:

1. Check each slide for any damage and for smooth operation.
2. Identify the PCI chassis location in the rack and establish a datum line. The datum line serves as a reference to identify the mounting hole positions for the slide brackets and U-nuts. To establish a datum line:
 - a. Determine the area of the rack where the PCI chassis will be installed. The PCI chassis is installed in the space of an equipment cabinet located above the TLSB chassis and requires 17.78 cm (7.00 in.) of height, or 12 contiguous holes.

NOTE

The PCI chassis with the KFE70-CA PCI-to-EISA adapter kit installed requires 22.23 cm (8.75 in.) of height.

- b. Refer to Figure 2–12 and establish a datum line at the base of the area between two holes with 1.3 cm (.5 in.) spacing. The first hole above the datum line is identified as hole 1. This establishes the location of the bottom edge of the PCI chassis.

NOTE

For a PCI chassis with the KFE70-CA PCI-to-EISA adapter kit installed, measure up 4.45 cm (1.75 in.) from the first two holes with 1.3 cm (.5 in.) spacing above the previously installed chassis and mark this as the datum line.

3. Install the outer slide assemblies between the front and rear vertical mounting rails from the front of the cabinet as follows:
 - a. Determine the proper mounting holes for the slide brackets using the four-hole pattern in the bar nut. This pattern repeats every 4.45 cm (1.75 in.) along the rails. The proper four-hole pattern for the slide on the front and rear rails is the 5th, 6th, 7th, and 8th holes up from the datum line (see Figure 2–12).

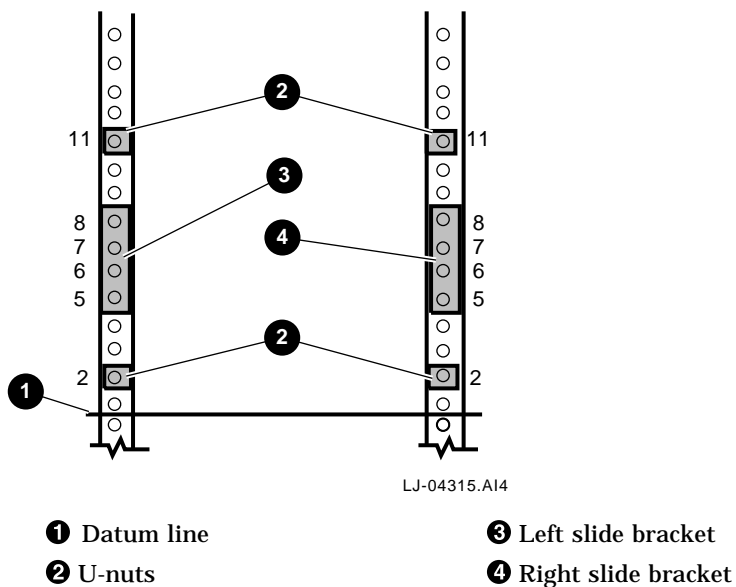
Installation

- b. Position a bar nut in the correct position on the inside of the rear RETMA rail and start the four screws (the 5th, 6th, 7th, and 8th holes up from the datum line), then from the front, slide the rear slide mounting bracket between the rail and the bar nut.
- c. Position the front slide mounting bracket and a bar nut in the correct position on the inside of the front RETMA rail and start the four screws (the 5th, 6th, 7th, and 8th holes up from the datum line).
- d. Tighten all eight screws to secure each slide.

NOTE

Pull the slide upward when securing it to the rails. Also, ensure that the slide is level and that the slides are at the same height within the cabinet.

Figure 2-12 PCI Chassis Slide Mounting Pattern



Installation

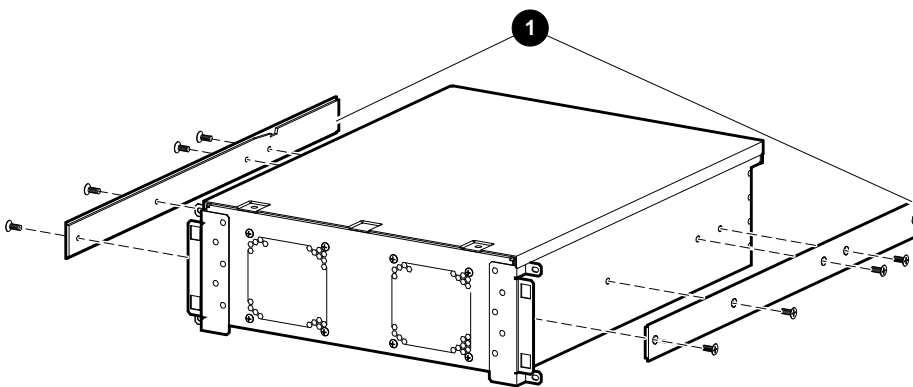
4. Install two U-nuts on each front rail over the 2nd and 11th holes up from the datum line by sliding them over the edge of the rail and aligning them with the holes (see Figure 2-12). These are used for securing the PCI chassis, in the closed position, to the rails.

2.6.3 Attaching the Inner Slide Races to the Chassis

To attach the inner slide races to the PCI chassis, refer to Figure 2-13 and perform the following procedure:

1. Remove the right inner slide race from the right slide assembly by extending it forward as far as it will go, then push the slide lock down and continue extending the right inner slide race until it is completely free from the right slide assembly.
2. Attach the right inner slide race to the right side of the chassis using four pan-head screws.
3. Repeat steps 1 and 2 to remove the left inner slide race from the left slide assembly and attach it to the left side of the chassis.

Figure 2-13 Attaching the Inner Slide Races to the Chassis



LJ-04363-T10

- 1 Right and left inner slide races

Installation

2.6.4 Securing the PCI Chassis to the Outer Slide Assemblies

To secure the PCI chassis to the outer slide assemblies, refer to Figure 2-14 and perform the following procedure:

1. Extend the stabilizing legs at the front of the cabinet (if stabilizing legs are provided).

WARNING

Before attempting to install the equipment into a cabinet or rack, ensure that the cabinet is stable and that all provided stabilizing features have been activated. The stabilizing features for the rack or cabinet are configuration dependent.

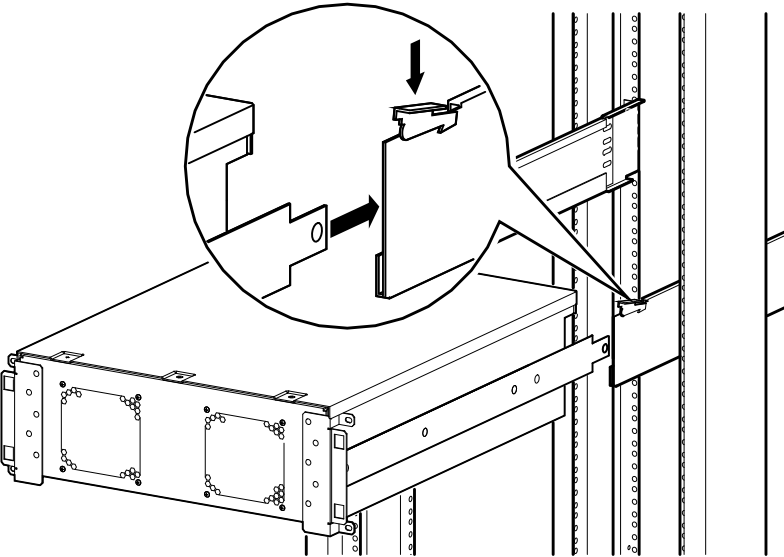
WARNING

The PCI (BA602-AA) chassis weighs approximately 19.05 kg (42 lb). Use sufficient personnel, or proper lifting equipment, when lifting or moving this chassis.

2. Use **sufficient personnel or proper lifting equipment** to lift the PCI chassis and position it so that the left and right inner slide races attached to the chassis align with the outer slide assemblies that are attached to the cabinet rails.
3. Move the PCI chassis into the cabinet while ensuring that the inner slide races slide into the outer slide assemblies.
4. Release the slide locking levers on both slides and carefully slide the PCI chassis into the cabinet. Ensure that the chassis is level, can clear all other equipment in the cabinet, and that the slides operate smoothly.
5. Secure the chassis to the equipment rails by tightening the four screws into the U-nuts that were placed on the front RETMA rails during installation of the outer slide assemblies.
6. Install the front bezel on the PCI chassis by grasping both sides of the bezel and pushing it onto the front of the chassis.

Installation

Figure 2-14 Installing the PCI Chassis in the Cabinet



LJ-04364-T10

Installation

2.7 Installing the VME Chassis

The following sections discuss the installation of the VME (2T-VMEWS-AA) chassis in a standard RETMA 48.26 cm (19.00 in.) wide equipment cabinet such as Digital's H9A15 cabinet. The VME chassis occupies 17.78 vertical centimeters (7.00 vertical inches) of space in the equipment cabinet and is installed in the space *above* the previously installed chassis *above* the TLSB chassis. Open the rear door of the cabinet before installing the chassis.

WARNING

Before attempting to install the equipment into a cabinet or rack, ensure that the cabinet is stable and that all provided stabilizing features have been activated. The stabilizing features for the rack or cabinet are configuration dependent.

The following tools are required for installing the VME chassis:

- Medium Phillips screwdriver
- Small Phillips screwdriver
- Small flat-blade screwdriver
- Adjustable wrench

Installation

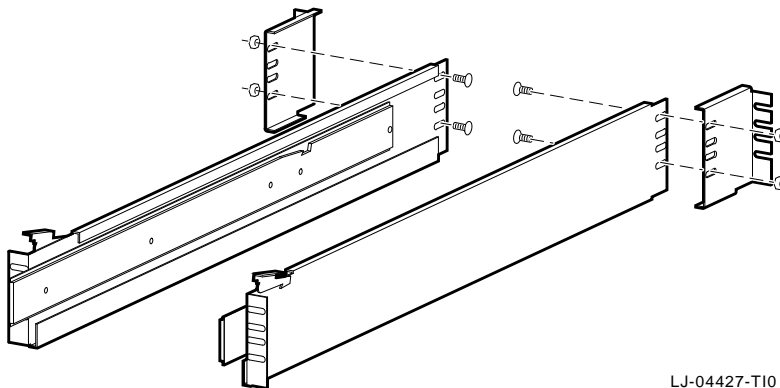
2.7.1 Attaching the Rear Slide Mounting Brackets to the Outer Slide Assemblies

Each VME chassis is shipped with a pair of RETMA chassis slides and two rear slide mounting brackets (see Figure 2-4 and Figure 2-15).

To attach the rear slide mounting brackets to the outer slides, refer to Figure 2-15 and perform the following procedure:

1. Attach the left rear slide mounting bracket to the rear of the *left* outer slide using two 8-32 pan-head screws, two split lockwashers, two flat washers, and two nuts, but *do not* tighten.
2. Adjust the rear slide mounting bracket so that the left outer slide fits between the front and rear vertical mounting rails. Now tighten the hardware installed in step 1.
3. Repeat steps 1 and 2 to attach and adjust the right rear slide mounting bracket on the *right* outer slide.

Figure 2-15 Attaching the Rear Slide Mounting Brackets



LJ-04427-T10

Installation

2.7.2 Installing the VME Left/Right Outer Slide Assemblies

To install the left/right outer slide assemblies, perform the steps in the following procedure:

1. Check each slide for any damage and for smooth operation.
2. Identify the VME chassis location in the rack and establish a datum line. The datum line serves as a reference to identify the mounting hole positions for the slide brackets and U-nuts. To establish a datum line:
 - a. Determine the area of the rack where the VME chassis will be installed. The VME chassis is installed in the space of an equipment cabinet located above the TLSB chassis and requires 17.78 cm (7.00 in.) of height, or 12 contiguous holes.
 - b. Refer to Figure 2–16 and establish a datum line at the base of the area between two holes with 1.3 cm (.5 in.) spacing. The first hole above the datum line is identified as hole 1. This establishes the location of the bottom edge of the VME chassis.
3. Install the outer slide assemblies between the front and rear vertical mounting rails from the front of the cabinet as follows:
 - a. Determine the proper mounting holes for the slide brackets using the four-hole pattern in the bar nut. This pattern repeats every 4.45 cm (1.75 in.) along the rails. The proper four-hole pattern for the slide on the front and rear rails is the 5th, 6th, 7th, and 8th holes up from the datum line (see Figure 2–16).
 - b. Position a bar nut in the correct position on the inside of the rear RETMA rail and start the four screws (the 5th, 6th, 7th, and 8th holes up from the datum line), then from the front, slide the rear slide mounting bracket between the rail and the bar nut.
 - c. Position the front slide mounting bracket and a bar nut in the correct position on the inside of the front RETMA rail and start the four screws (the 5th, 6th, 7th, and 8th holes up from the datum line).
 - d. Tighten all eight screws to secure each slide.

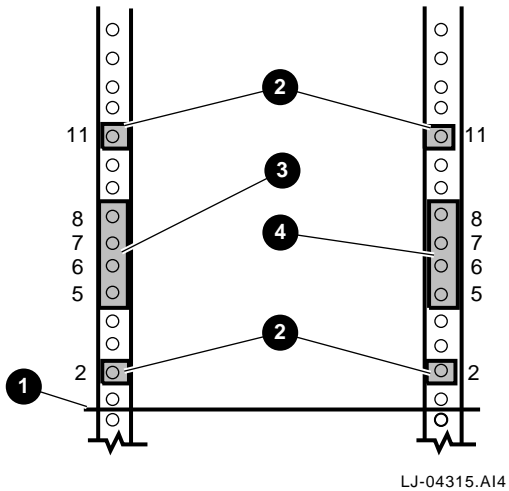
NOTE

Pull the slide upward when securing it to the rails. Also, ensure that the slide is level and that the slides are at the same height within the cabinet.

Installation

4. Install two U-nuts on each front rail over the 2nd and 11th holes up from the datum line by sliding them over the edge of the rail and aligning them with the holes (see Figure 2-16). These are used for securing the VME chassis, in the closed position, to the rails.

Figure 2-16 VME Chassis Slide Mounting Pattern



- | | |
|--------------|-----------------------|
| 1 Datum line | 3 Left slide bracket |
| 2 U-nuts | 4 Right slide bracket |

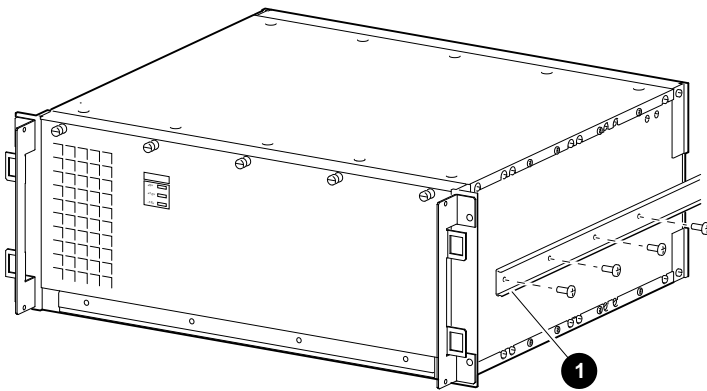
Installation

2.7.3 Attaching the Inner Slide Races to the Chassis

To attach the inner slide races to the VME chassis, refer to Figure 2–17 and perform the following procedure:

1. Remove the right inner slide race from the right slide assembly by extending it forward as far as it will go, then push the slide lock down and continue extending the right inner slide race until it is completely free from the right slide assembly.
2. Attach the right inner slide race ❶ to the right side of the chassis using four pan-head screws.
3. Repeat steps 1 and 2 to remove the left inner slide race from the left slide assembly and attach it to the left side of the chassis.

Figure 2–17 Attaching the Inner Slide Races to the Chassis



LJ-04422-T10

2.7.4 Securing the VME Chassis to the Outer Slide Assemblies

To secure the VME chassis to the outer slide assemblies, refer to Figure 2–18 and perform the following procedure:

1. Extend the stabilizing legs at the front of the cabinet (if stabilizing legs are provided).

WARNING

Before attempting to install the equipment into a cabinet or rack, ensure that the cabinet is stable and that all provided stabilizing features have been activated. The stabilizing features for the rack or cabinet are configuration dependent.

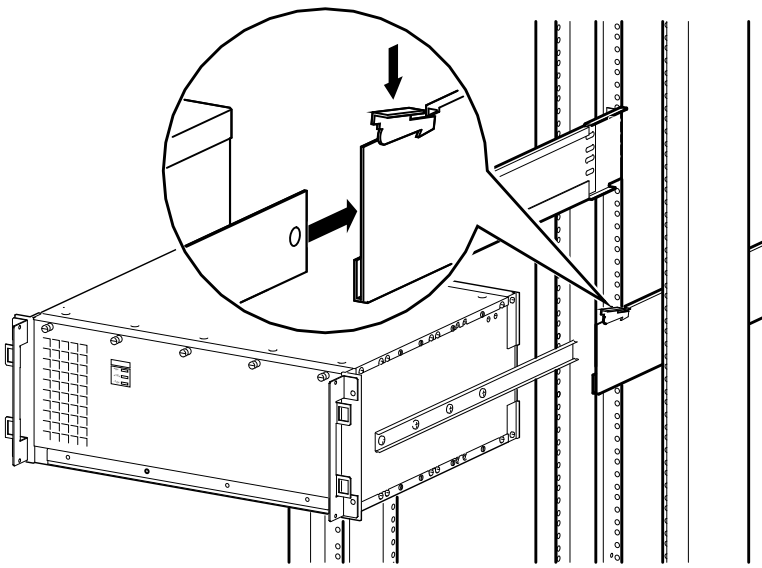
WARNING

The VME (2T-VMEWS-AA) chassis weighs approximately 9.07 kg (20 lb). Use sufficient personnel, or proper lifting equipment, when lifting or moving this chassis.

2. Use **sufficient personnel or proper lifting equipment** to lift the VME chassis and position it so that the left and right inner slide races attached to the chassis align with the outer slide assemblies that are attached to the cabinet rails.
3. Move the VME chassis into the cabinet while ensuring that the inner slide races slide into the outer slide assemblies.
4. Release the slide locking levers on both slides and carefully slide the VME chassis into the cabinet. Ensure that the chassis is level, can clear all other equipment in the cabinet, and that the slides operate smoothly.
5. Secure the chassis to the equipment rails by tightening the four screws into the U-nuts that were placed on the front RETMA rails during installation of the outer slide assemblies.
6. Install the front bezel on the VME chassis by grasping both sides of the bezel and pushing it onto the front of the chassis.

Installation

Figure 2-18 Installing the VME Chassis in the Cabinet



LJ-04421-T10

2.8 Cabling

The following sections contain the procedures for connecting the I/O hose cable(s), the single-ended SCSI cable, the FWD SCSI cables, the Ethernet cables, the FDDI cables, and the console cable.

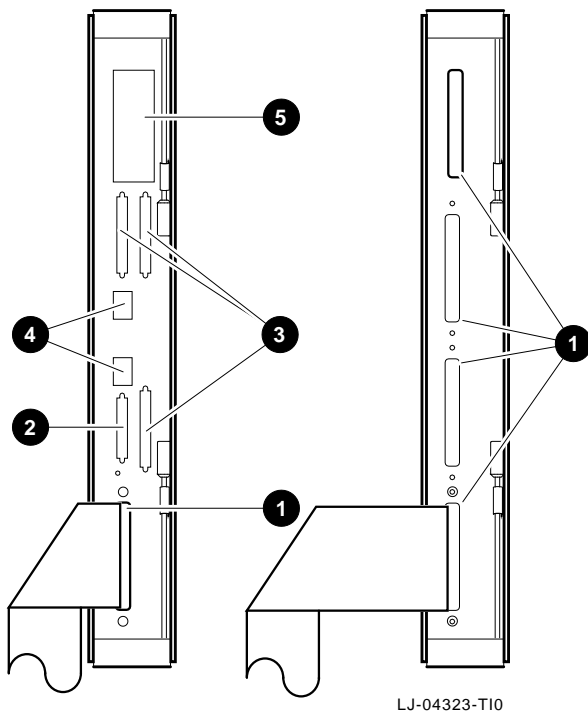
2.8.1 Connecting the I/O Hose Cable to the XMI Chassis

Use the following procedure to connect the I/O hose cable from the KFTIA or KFTHA I/O module in the TLSB chassis to the I/O bulkhead connector on the XMI chassis.

1. Extend the TLSB chassis for service (see Section 5.2.2).
2. Remove the cover plate and connect the TLSB end of the I/O hose cable to the rear-most available connector of the four hose connectors on the KFTHA module or to the single hose connector on the KFTIA module, and alternately tighten the two slotted captive screws to secure it in place (see Figure 2-19).
3. Replace the cover plate over any unused hose connectors on the KFTHA module.
4. Route the I/O hose cable toward the rear of the TLSB chassis.
5. Open the rear door on the equipment cabinet.
6. Connect the other end of the I/O hose cable to the I/O connector on the rear bulkhead of the XMI chassis, and tighten the two slotted captive screws to secure it in place (see Figure 2-20).

Installation

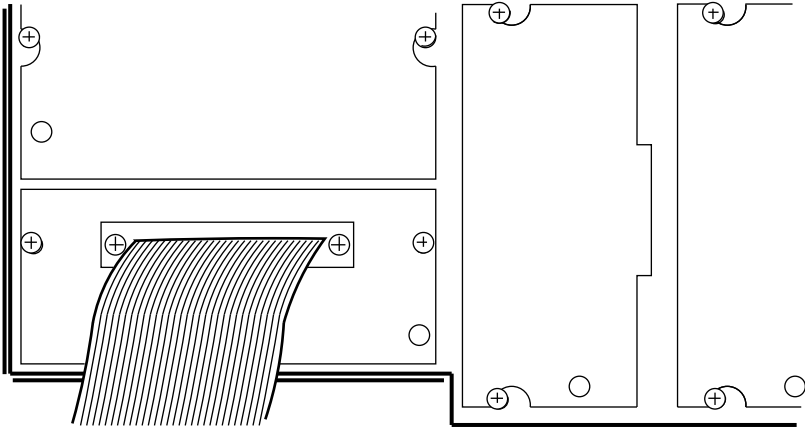
Figure 2-19 Connecting the I/O Hose Cable to the KFTIA or KFTHA Module



- ❶ Hose connectors
- ❷ Single-ended SCSI connector
- ❸ FWD SCSI connectors
- ❹ Ethernet connectors
- ❺ FDDI connectors

Installation

Figure 2-20 Connecting the I/O Hose Cable to the XMI Bulkhead Connector



LJ-04324.A14

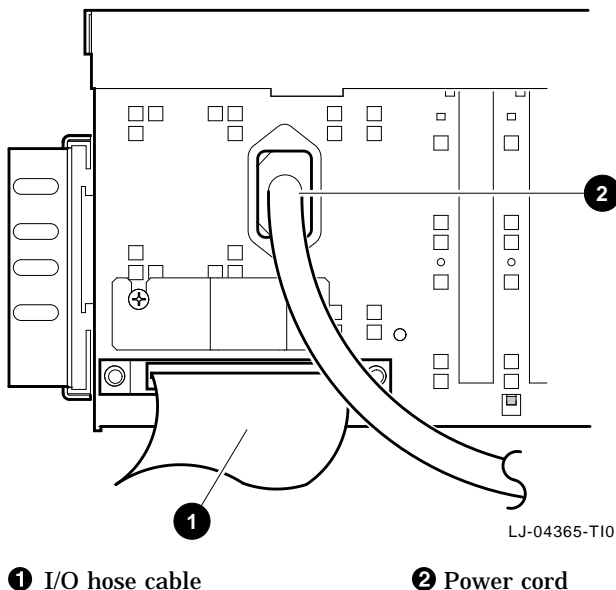
Installation

2.8.2 Connecting the I/O Hose Cable to the PCI Chassis

Use the following procedure to connect the I/O hose cable from the KFTIA or KFTHA I/O module in the TLSB chassis to the I/O bulkhead connector on the PCI chassis.

1. Extend the TLSB chassis for service (see Section 5.2.2).
2. Remove the cover plate and connect the TLSB end of the I/O hose cable to the rear-most available connector of the four hose connectors on the KFTHA module or to the single hose connector on the KFTIA module, and alternately tighten the two slotted captive screws to secure it in place (see Figure 2–19).
3. Replace the cover plate over any unused hose connectors on the KFTHA module.
4. Route the I/O hose cable toward the rear of the TLSB chassis.
5. Open the rear door on the equipment cabinet.
6. Connect the other end of the I/O hose cable to the I/O connector on the rear bulkhead of the PCI chassis, and tighten the two slotted captive screws to secure it in place (see Figure 2–21).

Figure 2–21 Connecting the I/O Hose Cable to the PCI Bulkhead Connector



2.8.3 Connecting the Single-Ended SCSI Cable to the KFTIA Module

Use the following procedure to connect a single-ended SCSI cable from a single-ended SCSI device or a single-ended SCSI BA350 storage shelf, to the single-ended SCSI connector on the KFTIA I/O module in the TLSB chassis.

1. Extend the TLSB chassis for service (see Section 5.2.2).
2. Connect one end of the SCSI cable to the single-ended SCSI connector on the KFTIA I/O module (see Figure 2–19).
3. Connect the other end of the SCSI cable to the single-ended SCSI device or the single-ended SCSI BA350 storage shelf.

Note

All SCSI buses *must* be terminated at both ends.

2.8.4 Connecting the FWD SCSI Cable to the KFTIA Module

Use the following procedure to connect an FWD SCSI cable from an FWD SCSI device or an FWD SCSI BA350 storage shelf, to an FWD SCSI connector on the KFTIA I/O module in the TLSB chassis.

1. Extend the TLSB chassis for service (see Section 5.2.2).
2. Connect a BN21W-0B Y cable to an FWD SCSI connector on the KFTIA module (see Figure 2–19).
3. Connect one end of the SCSI cable going to the FWD SCSI device or the FWD SCSI BA350 storage shelf to this Y cable.
4. Connect the other end of the SCSI cable to the FWD SCSI device or the FWD SCSI BA350 storage shelf.

Note

All SCSI buses *must* be terminated at both ends.

Installation

2.8.5 Connecting an Ethernet Transceiver Cable to the KFTIA Module

Use the following procedure to connect an Ethernet transceiver cable to an Ethernet connector on the KFTIA I/O module in the TLSB chassis.

1. Extend the TLSB chassis for service (see Section 5.2.2).
2. Connect the transceiver cable (BN25G-xx [unshielded] or BN26M-xx [shielded]) to an Ethernet connector on the KFTIA I/O module (see Figure 2–19).
3. Connect the other end of the transceiver cable to an Ethernet transceiver or an appropriate conversion box.

2.8.6 Connecting an FDDI Cable to the KFTIA Module

Use the following procedure to connect an FDDI cable to an optional FDDI daughtercard connector on the KFTIA I/O module in the TLSB chassis.

1. Extend the TLSB chassis for service (see Section 5.2.2).
2. Connect the appropriate FDDI cable (multimode fiber or twisted-pair) to the FDDI connector on the KFTIA I/O module (see Figure 2–19).
3. Connect the other end of the FDDI cable to the FDDI network.

2.8.7 Connecting the Console Cable

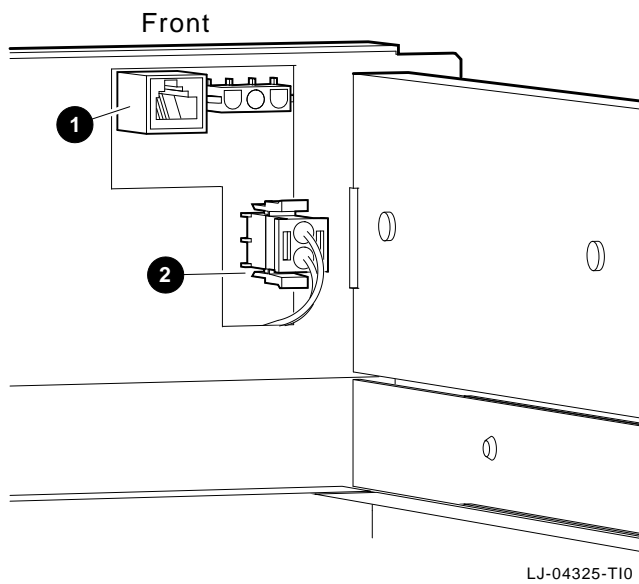
Use the following procedure to connect the console cable from the TLSB chassis to the console terminal.

1. Extend the TLSB chassis for service (see Section 5.2.2).
2. Connect one end of the console cable to the console cable connector located behind the top left edge of the TLSB front panel, and connect the ground wire to the ground stud (see Figure 2–22).
3. Route the console cable toward the rear of the TLSB chassis.
4. Open the rear door on the equipment cabinet.
5. Route the console cable through the cable egress area of the equipment cabinet.
6. Connect the other end of the console cable to the console terminal.
7. Release the slide locking levers on both slides and carefully slide the TLSB chassis into the cabinet.

Installation

8. Secure the TLSB chassis to the equipment rails by tightening the four screws and replacing the front bezel on the TLSB chassis (see Section 5.2.2).

Figure 2–22 Connecting the Console Cable



❶ Console cable connector

❷ Blower connector

Installation

2.9 Connecting the Power Cords

The TLSB chassis, the PCI chassis, and the VME chassis have a removable power cord. The XMI chassis has its own permanently attached power cord. These power cords are connected to the two power distribution units located in the bottom rear of the H9A15 cabinet.

The power distribution units are connected to an external source of 200-240 Vac (nominal), single-phase power.

2.9.1 TLSB Chassis Power Cord (PN 17-00083-37)

Use the following procedure to connect the TLSB chassis power cord:

1. Connect one end of the TLSB power cord to the ac input jack on the rear of the TLSB chassis.
2. Connect the other end to a receptacle on one of the power distribution units.

2.9.2 PCI Chassis Power Cord (PN 17-00083-04)

Use the following procedure to connect the PCI chassis power cord:

1. Connect one end of the PCI power cord to the ac input jack on the rear of the PCI chassis.
2. Connect the other end to a receptacle on one of the power distribution units.

2.9.3 VME Chassis Power Cord

Use the following procedure to connect the VME chassis power cord:

1. Connect one end of the VME power cord to the ac input jack on the rear of the VME chassis.
2. Connect the other end to a receptacle on one of the power distribution units.

2.9.4 XMI Chassis Power Cord

Use the following step to connect the permanently attached XMI chassis power cord.

Using any adapters that are necessary, connect the unattached end of the XMI power cord to a receptacle on one of the power distribution units.

3

Operation

Operation of the AlphaServer 8200 RM system begins with connecting the TLSB chassis power cord to a receptacle on one of the power distribution units. The power cords for the other chassis (BA350, XMI, PCI, and/or VME) are also connected to receptacles on the power distribution units. Place the circuit breakers on the rear of the chassis to the ON position.

WARNING

The only way to remove all power from a chassis is to place the circuit breaker in the OFF position and disconnect the power cord from the receptacle on the power distribution unit.

Refer to Section 1.2.2 for the TLSB chassis controls and indicators.

Refer to Section 1.3.2 for the XMI chassis controls and indicators.

Refer to Section 1.4.2 for the PCI chassis indicators.

Refer to Figure 1–10 and Section 1.5.2 for the VME chassis controls and indicators.

For information on booting the system, the console user interface, and the console commands, refer to the *AlphaServer 8200/8400 Operations Manual*.

4

Troubleshooting

This chapter discusses basic troubleshooting and diagnostic testing information and aids in troubleshooting the TLSB, XMI, and PCI chassis.

For more information on the system operation, testing, and troubleshooting, refer to the *AlphaServer 8200/8400 Service Manual* and the *AlphaServer 8200/8400 Operations Manual*.

Troubleshooting

Table 4–1 lists indications of possible hardware problems that may occur in the TLSB chassis and the corrective action to take for each problem.

Table 4–1 TLSB Chassis Troubleshooting

Indication	Possible Cause	Corrective Action
No LEDs light when On/Off push button is pushed in.	Power cord is not plugged in.	Plug in the power cord.
	Circuit breaker is not on.	Place the circuit breaker in the ON position.
	Cable between the power supply and the control panel module is loose or not connected.	Check the cable between the power supply and the control panel module.
	48 Vdc power supply is out of tolerance or has failed.	Replace the 48 Vdc power supply.
Fault LED goes out after powerup, but no self-test display	Control panel module has failed.	Replace the control panel module.
	Console terminal is not powered up and online.	Power up the terminal and set it online (at proper terminal settings).
	Console cable is not properly connected between the TLSB chassis and the console.	Check the console cable connections on the TLSB chassis and the console.
Fault LED fails to blink during the power-up sequence	Improper baud rate.	Set to the correct baud rate.
	Blower has failed.	Check the blower to see if it is rotating. If not, replace the blower.
Fault LED stays lit after power-up self-test	Blower status cable to the control panel module is loose or disconnected.	Check the blower status cable connection to the control panel module.
	A memory module, CPU module, or one of the I/O modules in the TLSB chassis has failed self-test.	Check the self-test display on the console and replace the failed module.

Troubleshooting

Table 4–2 lists indications of possible hardware problems that may occur in the XMI chassis and the corrective action to take for each problem.

Table 4–2 XMI Chassis Troubleshooting

Indication	Possible Cause	Corrective Action
No LEDs light	Power cord is not plugged in.	Plug in the power cord.
	Circuit breaker is not on.	Place the circuit breaker in the ON position.
	Upper switch is not on.	Place the upper control panel switch in the ENABLE or SECURE position.
No fans, unit shuts down after one minute	Fan cable is loose or not connected.	Check the fan cable or reconnect the cable.
	No 24 Vdc.	Check the cables. Replace the 24 Vdc miniconverter (E2) on the sequencer and auxiliary dc voltage regulator tray, or replace the tray itself.
	Airflow problem.	Check the position of the detector, or the fan operation itself.
Fans OK, but no LEDs light	Cable connection problem between XMI backplane, XTC card, and console panel.	Ensure that the connectors are on securely.
Fault LED goes out, but no self-test display	Console terminal is not powered up and online.	Power up the terminal and set it online (at proper terminal settings).
	Front console switch, S1, is in the SECURE position.	Place S1 in the ENABLE position.
	Improper baud rate.	Set to the correct baud rate.
	Not all necessary voltages are applied.	Check the backplane for all the necessary voltage supplies.
Module does not appear on self-test results	Loose cabling on the backplane.	Check and secure all the cables on the backplane.
	Firmware needs updating.	Boot and run the LFU utility.

(continued on next page)

Troubleshooting

Table 4–2 (Cont.) XMI Chassis Troubleshooting

Indication	Possible Cause	Corrective Action
Intermittent module response	Bad module.	Replace the module.
	Loose cabling on the backplane.	Check and secure all the cables on the backplane and the I/O bulkheads.
Front panel LEDs flash on, and then remain off when the system is turned on	Poor contact on the module connectors.	Clean the module connectors.
	+5 Vdc is not coming up.	Replace the 5 Vdc master and/or 5 Vdc booster power regulator trays.
No -5.2 Vdc	3.3 Vdc/-5.2 Vdc tray is bad.	Replace the 3.3 Vdc/-5.2 Vdc modules (E2, E4, E10) on the regulator tray, or replace the tray itself.

Troubleshooting

Table 4–3 lists indications of possible hardware problems that may occur in the PCI chassis and the corrective action to take for each problem.

Table 4–3 PCI Chassis Troubleshooting

Indication	Possible Cause	Corrective Action
48 Vdc power OK LED (LED 3) is not lit	Power cord is not plugged in.	Plug in the power cord.
	48 Vdc power supply ac input connector or dc output connector are improperly connected.	Ensure that the ac input connector and the dc output connector are properly connected to the 48 Vdc power supply.
	Power board dc input connector is improperly connected.	Ensure that the dc input connector is properly connected to the power board.
48 Vdc power OK LED (LED 3) is lit, but the internal power system OK LED (LED 1) is not lit	48 Vdc power supply has failed.	Replace the 48 Vdc power supply.
	Fans are improperly connected to the power board.	Ensure that the fans are properly connected to the power board.
	A fan has failed.	If a fan is not running, replace the fan.
Motherboard self-test OK LED (LED 2) is not lit	The power board has failed.	Replace the power board.
	The motherboard has failed.	Replace the motherboard.
Hose error LED (LED 4) is lit	Hose cable is improperly connected.	Ensure that the hose cable is properly connected to the KFTHA or KFTIA module in the TLSB chassis and to the PCI chassis.
	Hose cable has failed.	Replace the hose cable.
	Motherboard has failed.	Replace the motherboard.
	KFTHA or KFTIA module in the TLSB chassis has failed.	Replace the KFTHA or KFTIA module in the TLSB chassis.

5

Removal and Replacement

5.1 Introduction

This chapter contains the procedures for removing and replacing the components that are unique in the AlphaServer 8200 RM systems TLSB (BA701-AA), XMI (BA601-AC), PCI (BA602-AA), and VME (2T-VMEWS-AA) chassis.

The following tools are required for servicing the TLSB, XMI, PCI, and VME chassis:

- Medium Phillips screwdriver
- Small Phillips screwdriver
- Small flat blade screwdriver
- Adjustable wrench
- DVM meter and probes

Removal and Replacement

5.2 TLSB Chassis Components

The following sections contain the removal and replacement procedures for the components that are unique to the TLSB chassis in the AlphaServer 8200 RM systems.

WARNING

Before servicing the TLSB chassis, ensure that the circuit breaker is in the OFF position at the rear of the TLSB chassis and that the power cord is unplugged from the receptacle on the power distribution unit.

5.2.1 Front Bezel

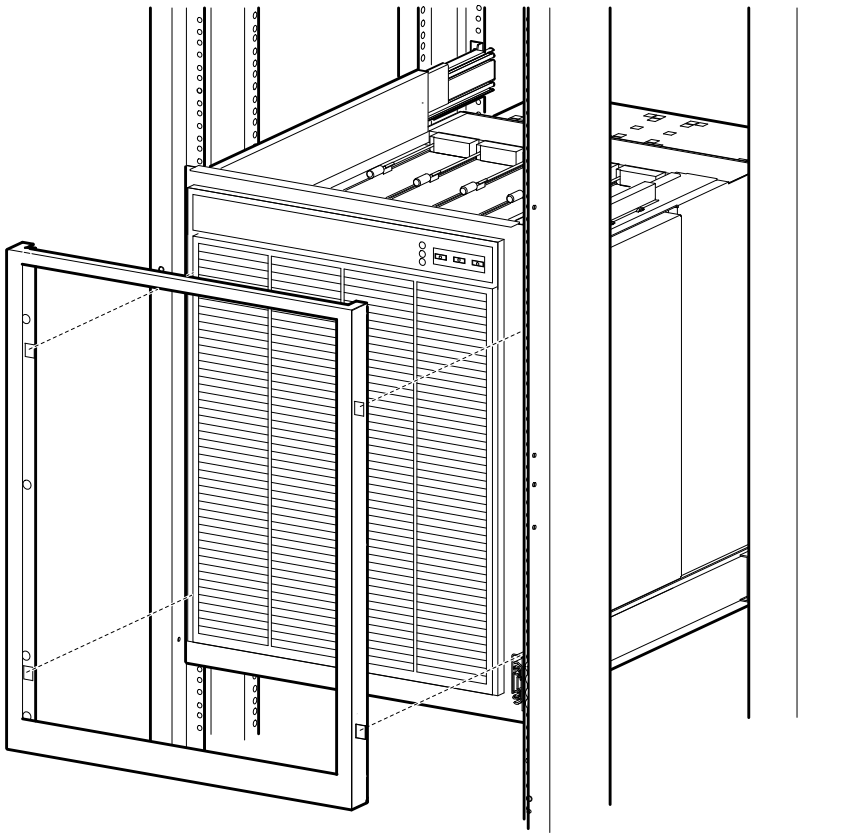
Perform the following procedure to remove the front bezel from the TLSB chassis:

1. Grasp the front bezel on each side.
2. Pull straight out until the bezel unsnaps from the catches (see Figure 5-1).

To replace the front bezel, push it onto the front of the chassis until it snaps into place.

Removal and Replacement

Figure 5-1 Removing the Front Bezel from the TLSB Chassis



LJ-04328-T10

Removal and Replacement

5.2.2 Extending the TLSB Chassis for Service

WARNING

Before extending the TLSB chassis for service, ensure that the cabinet is stable and that all provided stabilizing features have been activated. The stabilizing features for the rack or cabinet are configuration dependent.

Perform the following procedure to extend the TLSB chassis for service:

1. Extend the stabilizing legs at the front of the cabinet (if stabilizing legs are provided).
2. Remove the TLSB front bezel (see Section 5.2.1).
3. Remove the four retaining screws that secure the chassis to the front rails (see Figure 5-2).

CAUTION

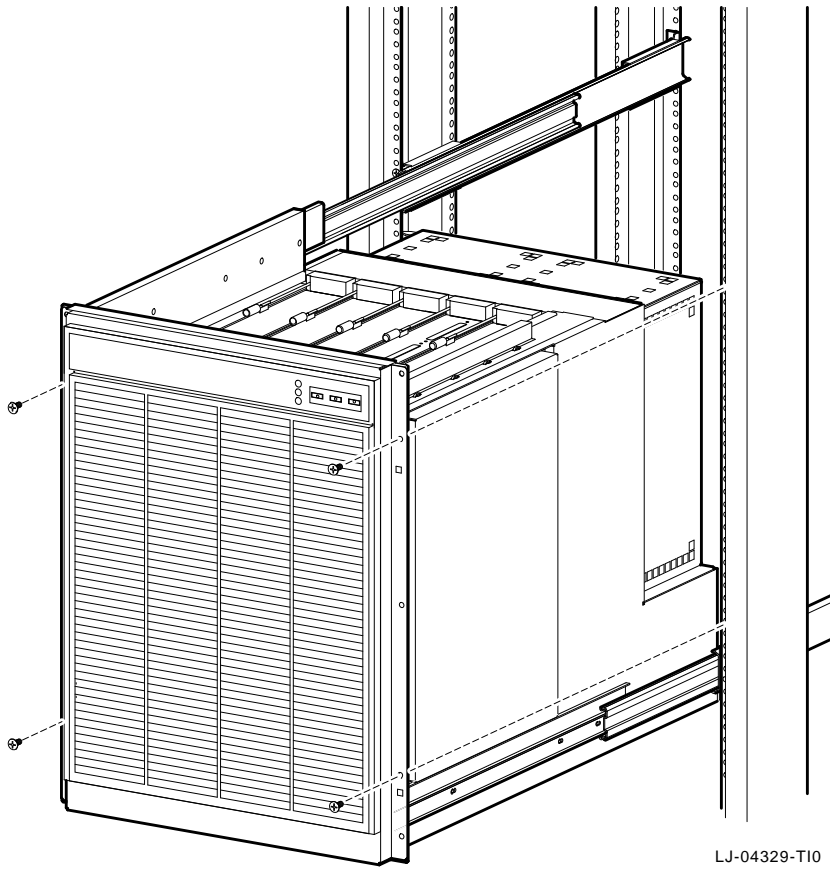
Check and ensure that all cables are free to follow the chassis before extending the chassis.

4. Carefully pull the TLSB chassis forward until the slides lock in the extended position.

To secure the chassis in the cabinet, press in on the left and right slide locks and reverse steps 1 through 4.

Removal and Replacement

Figure 5-2 Extending the TLSB Chassis



LJ-04329-T10

Removal and Replacement

5.2.3 Bottom Cover

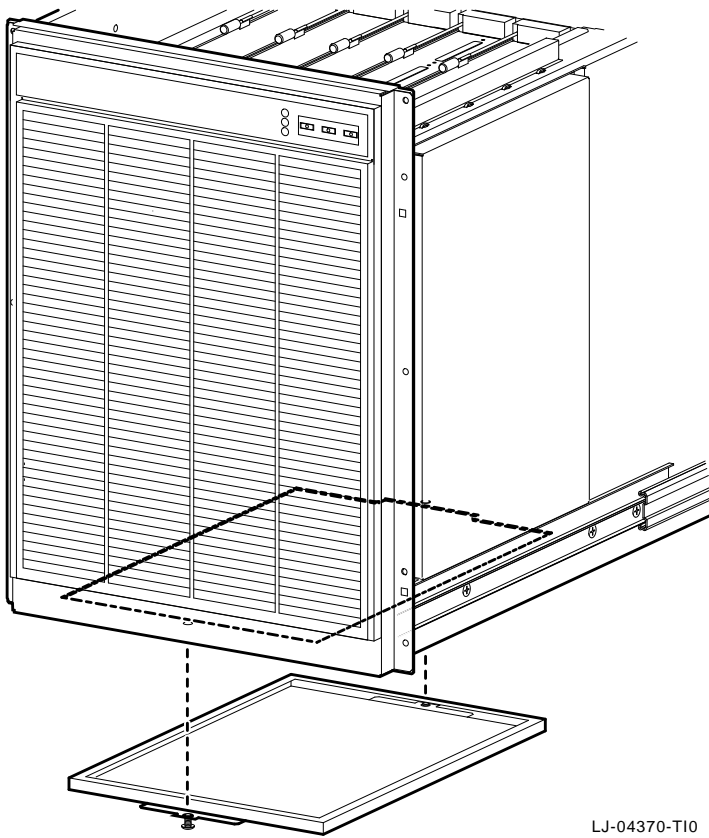
Perform the following procedure to remove the bottom cover:

1. Extend the TLSB chassis for service (see Section 5.2.2).
2. Loosen the two quarter-turn fasteners that secure the bottom cover (see Figure 5-3).
3. Grasp the bottom cover handles and pull down until the cover is free (see Figure 5-3).

To replace the bottom cover, push the bottom cover back into place and tighten the two quarter-turn fasteners that secure the bottom cover.

Removal and Replacement

Figure 5-3 Removing the Bottom Cover



LJ-04370-T10

Removal and Replacement

5.2.4 System Clock Module (PN 54-21728-05)

Perform the following procedure to remove the system clock module:

WARNING

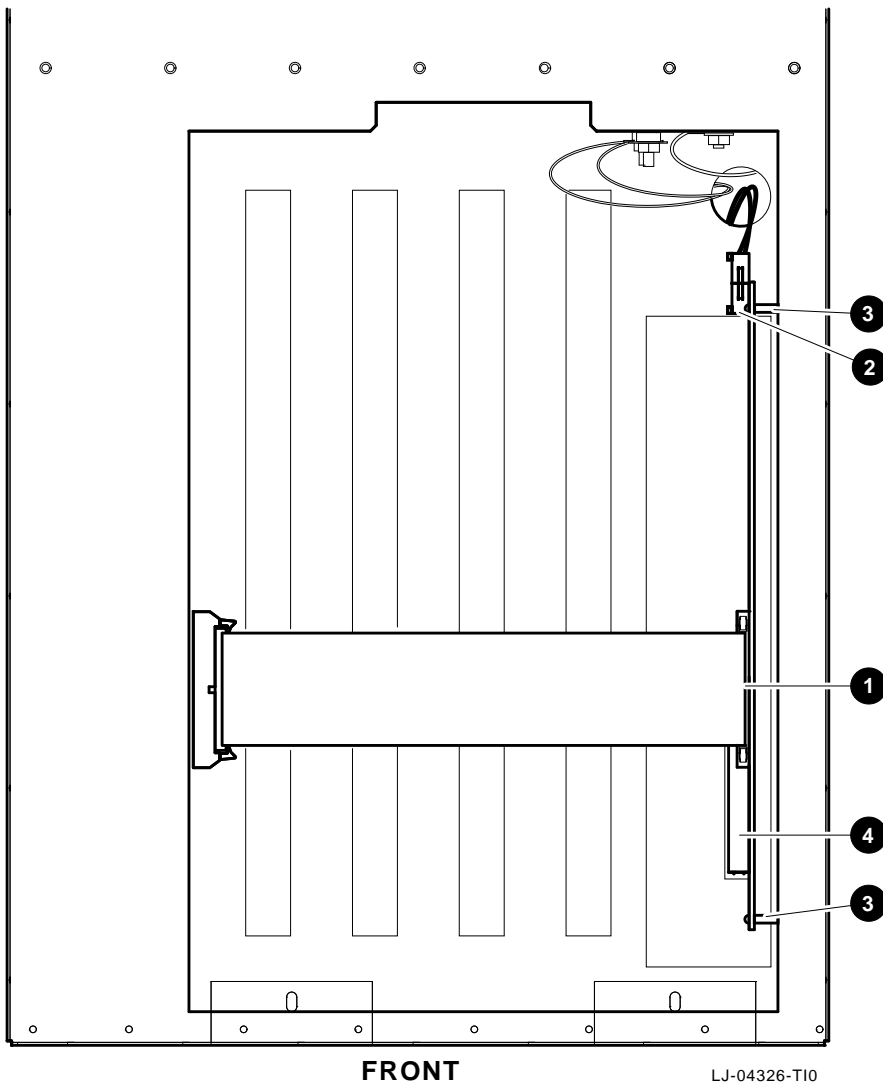
Before performing the following removal and replacement procedures, ensure that the circuit breaker is in the OFF position at the rear of the TLSB chassis and that the power cord is unplugged from the receptacle on the power distribution unit.

1. Extend the TLSB chassis for service (see Section 5.2.2).
2. Remove the bottom cover (see Section 5.2.3).
3. Disconnect the ribbon cable from J3 ❶ on the clock module (see Figure 5-4).
4. Disconnect the power cable from J4 ❷ on the clock module (see Figure 5-4).
5. Remove the two Phillips screws ❸ that secure the clock module to the card cage (see Figure 5-4).
6. Pull the clock module down to unplug it from its connector ❹ and remove.

To replace the system clock module, reverse steps 1 through 6.

Removal and Replacement

Figure 5-4 Removing the System Clock Module



Removal and Replacement

5.2.5 CPU, Memory, I/O, and Terminator Modules

Perform the following procedure to remove CPU, memory, I/O, or terminator modules:

WARNING

Before performing the following removal and replacement procedures, ensure that the circuit breaker is in the OFF position at the rear of the TLSB chassis and that the power cord is unplugged from the receptacle on the power distribution unit.

1. Extend the TLSB chassis for service (see Section 5.2.2).
2. Put on an antistatic wriststrap.

CAUTION

An antistatic wriststrap must be worn when handling any module to prevent damage to the module.

Note

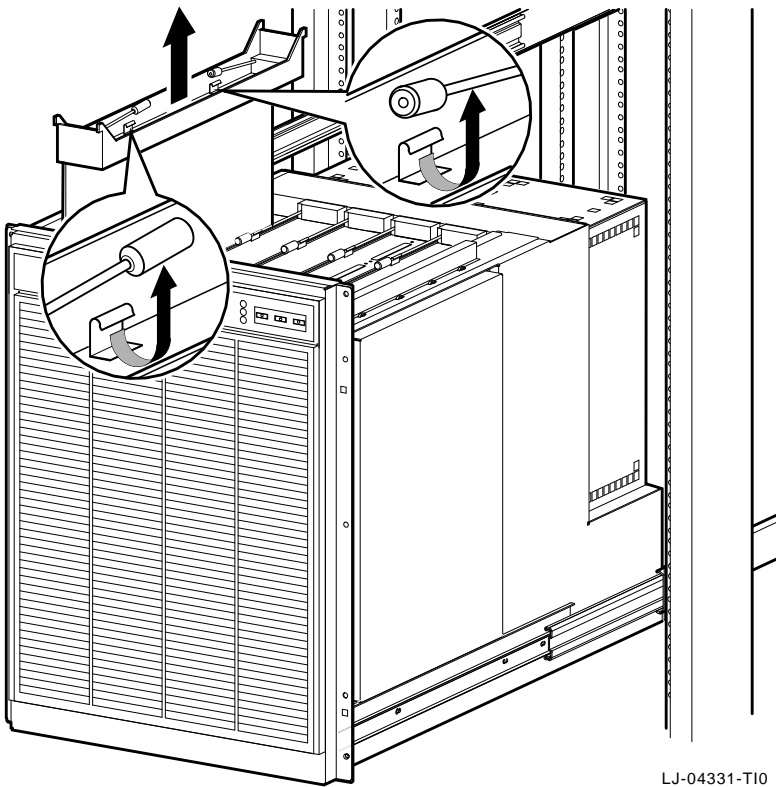
If an I/O module is being replaced, disconnect all I/O cables from the module *before* proceeding with this procedure.

3. On the module being removed, push the two levers down and to the right to release them from the locking stops (see Figure 5-5).
4. Pull both levers up at the same time until they are perpendicular to the top of the module (see Figure 5-5). This frees the module from the backplane.
5. Holding the levers, pull up on the module until it is out far enough to be able to hold it underneath as it is being removed.
6. When the module is free of the card cage, place it on an ESD pad in a safe area, or pack it in the box that the new module was shipped in.

To replace a CPU, memory, I/O, or terminator module, align the tracks of the module with the tracks in the card cage slot and reverse steps 1 through 6.

Removal and Replacement

Figure 5-5 Removing CPU, Memory, I/O, and Terminator Modules



LJ-04331-T10

Removal and Replacement

5.2.6 Right-Side Cover

Perform the following procedure to remove the right-side cover:

WARNING

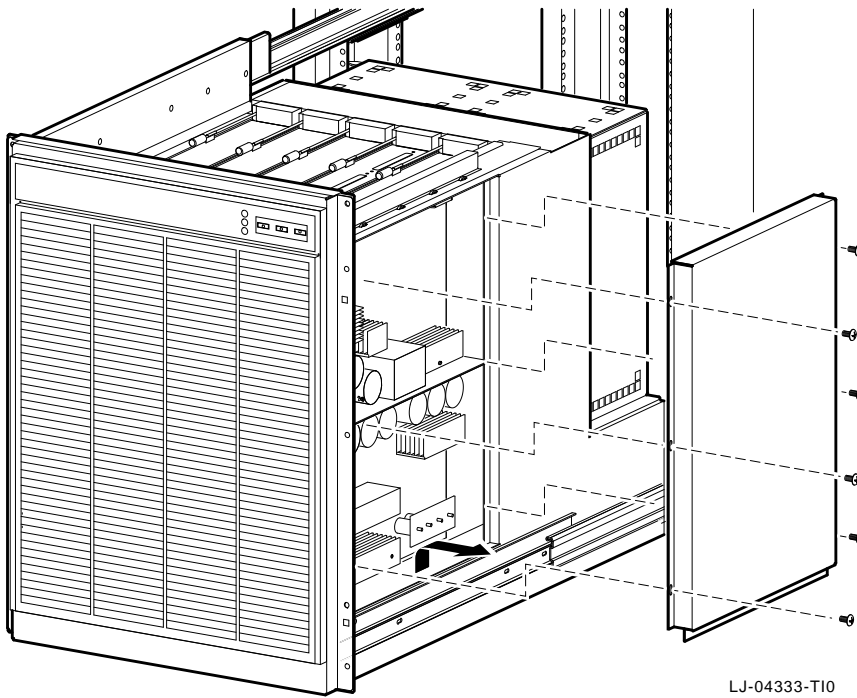
Before performing the following removal and replacement procedures, ensure that the circuit breaker is in the OFF position at the rear of the TLSB chassis and that the power cord is unplugged from the receptacle on the power distribution unit.

1. Extend the TLSB chassis for service (see Section 5.2.2).
2. Remove the six screws that secure the right-side cover to the chassis (see Figure 5-6).
3. Pull the right-side cover straight out until it clears the top and bottom lips of the chassis (see Figure 5-6).

To replace the right-side cover, place the cover back into position and install the six screws that secure it in place.

Removal and Replacement

Figure 5-6 Removing the Right-Side Cover



LJ-04333-T10

Removal and Replacement

5.2.7 48 Vdc Power Supply (PN 30-39348-02)

Perform the following procedure to remove the 48 Vdc power supply:

WARNING

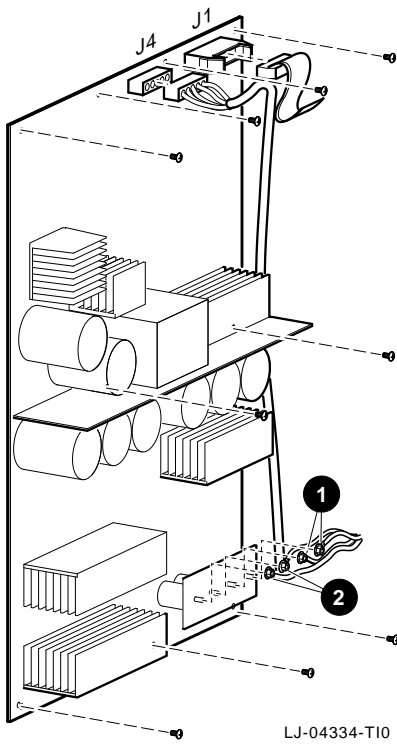
Before performing the following removal and replacement procedures, ensure that the circuit breaker is in the OFF position at the rear of the TLSB chassis and that the power cord is unplugged from the receptacle on the power distribution unit.

1. Extend the TLSB chassis for service (see Section 5.2.2).
2. Remove the right-side cover (see Section 5.2.6).
3. Disconnect the connectors from J1 and J4 on the power supply (see Figure 5-7).
4. Use an adjustable wrench to remove the nuts from the POS ❷ and RTN ❶ terminals on the power supply (see Figure 5-7).
5. Remove the wires from the POS and RTN terminals and ensure that they are properly labeled for reconnection (see Figure 5-7).
6. Remove the nine screws that secure the power supply to the chassis and lift the power supply out of the chassis (see Figure 5-7).

To replace the 48 Vdc power supply, reverse steps 1 through 6.

Removal and Replacement

Figure 5-7 Removing the 48 Vdc Power Supply



Removal and Replacement

5.2.8 Control Panel (PN 54-21719-01)

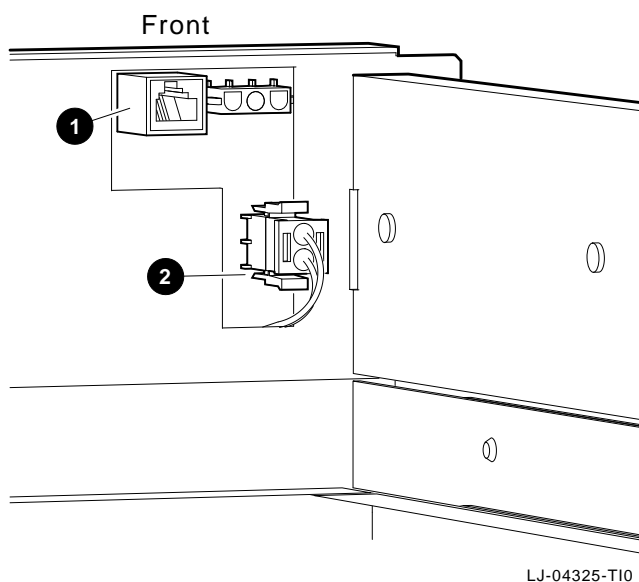
Perform the following procedure to remove the control panel:

WARNING

Before performing the following removal and replacement procedures, ensure that the circuit breaker is OFF at the rear of the TLSB chassis and that the power cord is unplugged from the receptacle on the power distribution unit.

1. Extend the TLSB chassis for service (see Section 5.2.2).
2. Disconnect the console cable from the connector **1** located behind the top left edge of the front panel (see Figure 5-8).
3. Use a wrench to remove the six nuts **1** that secure the front panel to the TLSB chassis (see Figure 5-9).

Figure 5-8 Console Cable Connector

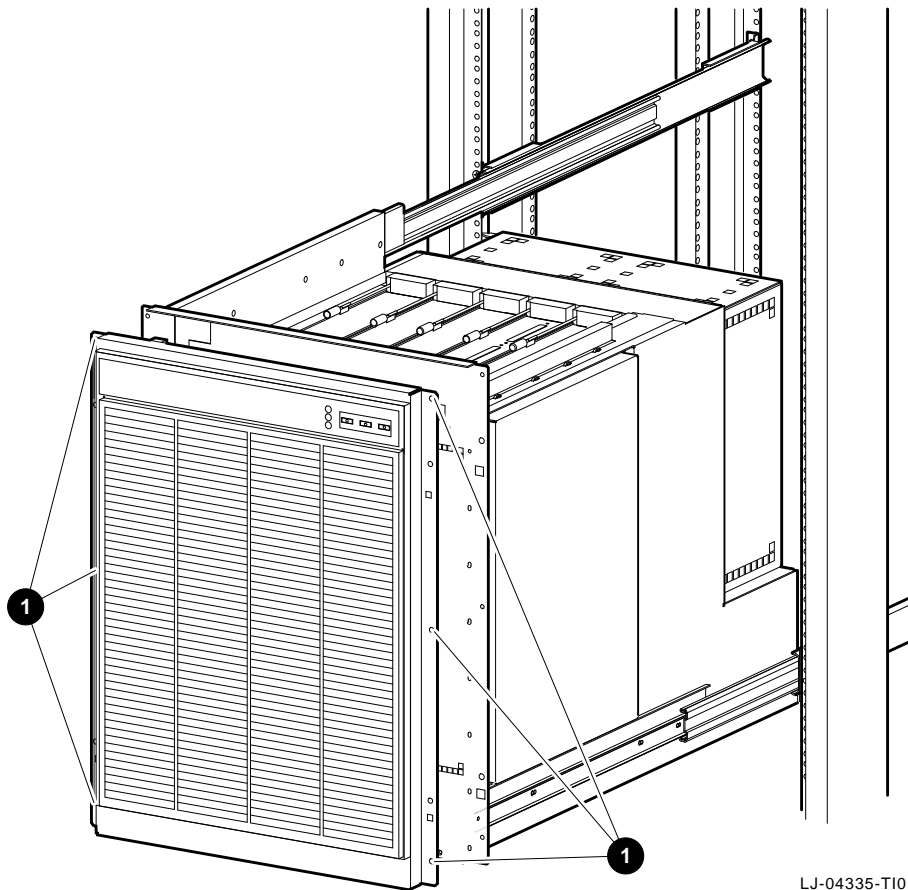


1 Console cable connector

2 Blower connector

Removal and Replacement

Figure 5-9 Removing the Front Panel



LJ-04335-T10

4. Pull the front panel straight out until it clears the posts, then swing the left edge to the right to allow access to the connectors (see Figure 5-10).

CAUTION

The front panel must be supported while completing the remaining steps.

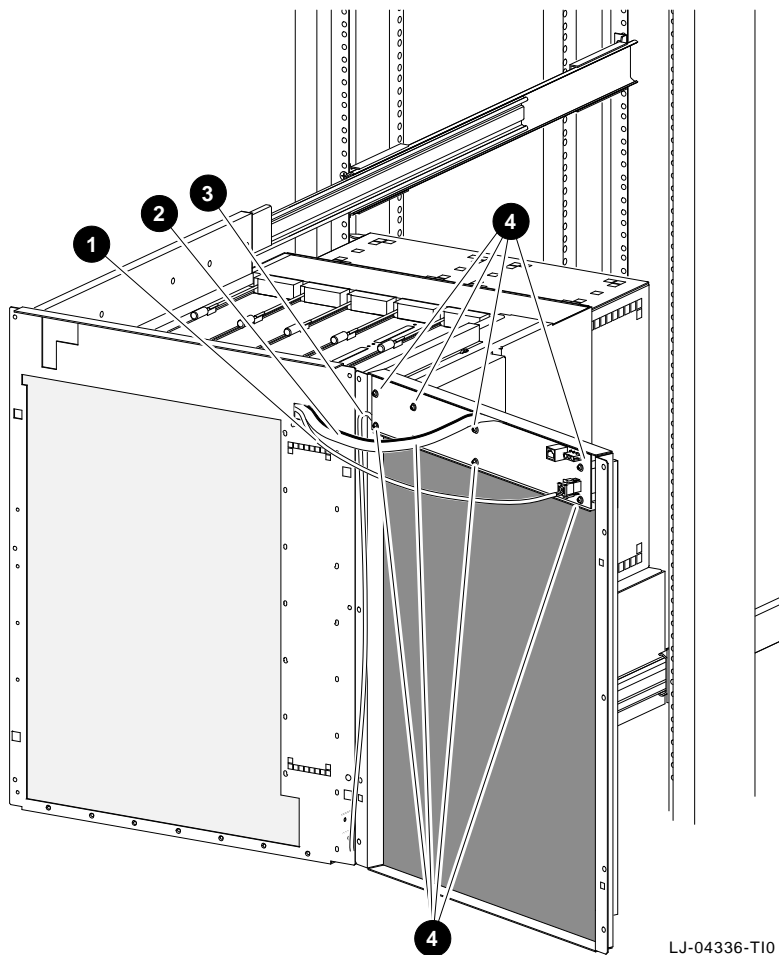
5. Disconnect the two-conductor blower cable ❶ from the back of the control panel (see Figure 5-10).

Removal and Replacement

6. Remove the eight screws **4** that secure the control panel to the front panel and lay the front panel aside (see Figure 5-10).
7. Disconnect the 50-pin and 10-pin connectors (**2** and **3**) from the control panel (see Figure 5-10).

To replace the control panel, reverse steps 1 through 7.

Figure 5-10 Removing the Control Panel



LJ-04336-T10

Removal and Replacement

5.2.9 Blower Assembly (PN 12-41009-01)

The blower assembly is accessed from the rear of the equipment cabinet *without* extending the TLSB chassis for service.

Perform the following procedure to remove the blower assembly:

WARNING

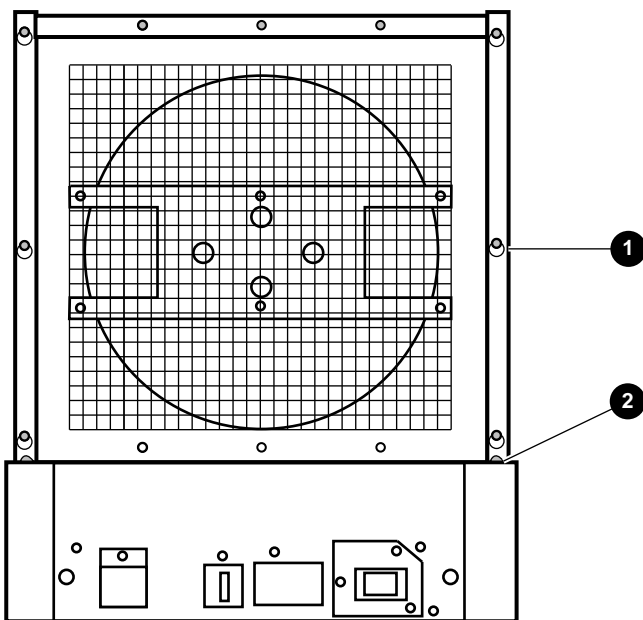
Before performing the following removal and replacement procedures, ensure that the circuit breaker is in the OFF position at the rear of the TLSB chassis and that the power cord is unplugged from the receptacle on the power distribution unit.

1. Open the rear door of the equipment cabinet.
2. Remove the 13 screws that secure the blower assembly to the bottom and back of the TLSB chassis (see Figure 5–11).
3. Slide the blower assembly toward the back of the cabinet and reach between the blower assembly and the chassis to disconnect the blower assembly power cable.

To replace the blower assembly, reverse steps 1 through 3.

Removal and Replacement

Figure 5-11 Removing the Blower Assembly



LJ-04337.A14

❶ Blower assembly screws (13)

❷ Two screws on each side of the bottom flange are not shown

Removal and Replacement

5.2.10 48 Vdc Line Filter (PN 12-45448-01)

The 48 Vdc line filter is accessed through the bottom cover and by removing the blower assembly.

Perform the following procedure to remove the 48 Vdc line filter:

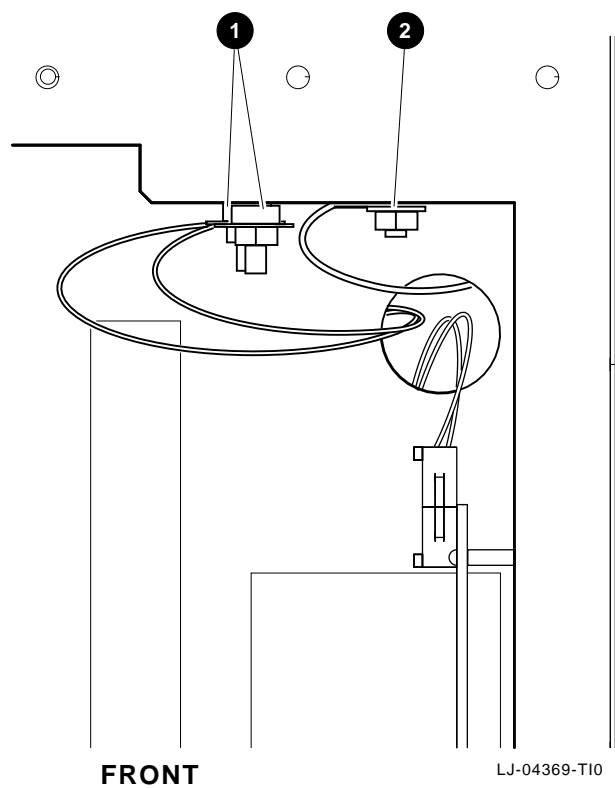
WARNING

Before performing the following removal and replacement procedures, ensure that the circuit breaker is in the OFF position at the rear of the TLSB chassis and that the power cord is unplugged from the receptacle on the power distribution unit.

1. Extend the TLSB chassis for service (see Section 5.2.2).
2. Remove the bottom cover (see Section 5.2.3).
3. Remove the two nuts ❶ from the two 48 Vdc line filter studs and remove the wires from these studs (see Figure 5-12). Carefully label these wires for reconnection.
4. Remove the nut ❷ from the 48 Vdc line filter ground stud and remove the wire from this stud (see Figure 5-12). Carefully label this wire for reconnection.

Removal and Replacement

Figure 5–12 Bottom Connections to the 48 Vdc Line Filter

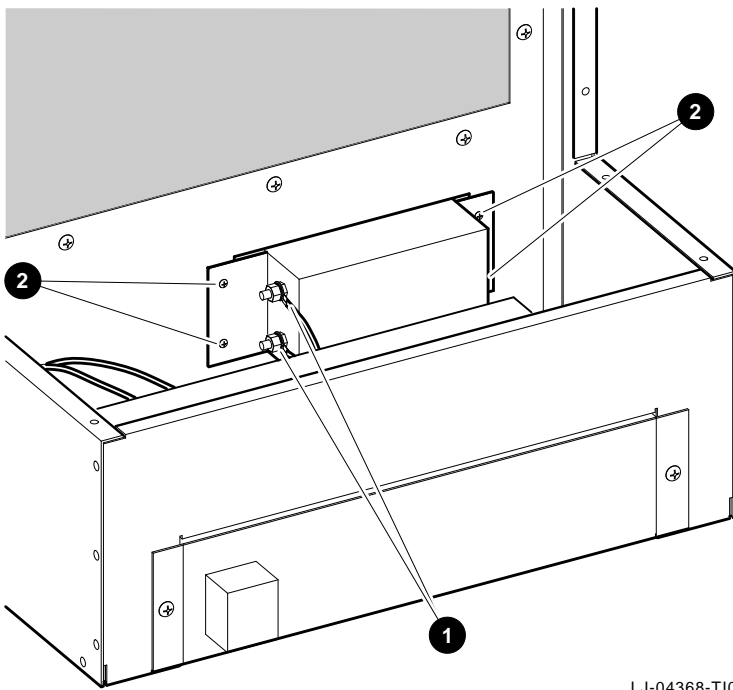


5. Slide the TLSB chassis back into the equipment cabinet.
6. Open the rear door of the equipment cabinet.
7. Remove the blower assembly (see Section 5.2.9).
8. Remove the two nuts ❶ from the two 48 Vdc line filter studs and remove the wires from these studs (see Figure 5–13). Carefully label these wires for reconnection.
9. Remove the four screws ❷ that secure the 48 Vdc line filter to the chassis (see Figure 5–13).
10. Lift the 48 Vdc line filter out of the chassis.

To replace the 48 Vdc line filter, reverse steps 1 through 10.

Removal and Replacement

Figure 5-13 Rear Connections to the 48 Vdc Line Filter



LJ-04368-T10

Removal and Replacement

5.2.11 AC Input Box (PN 30-39579-01)

The ac input box is accessed from the rear of the equipment cabinet *without* extending the TLSB chassis for service.

Perform the following procedure to remove the ac input box:

WARNING

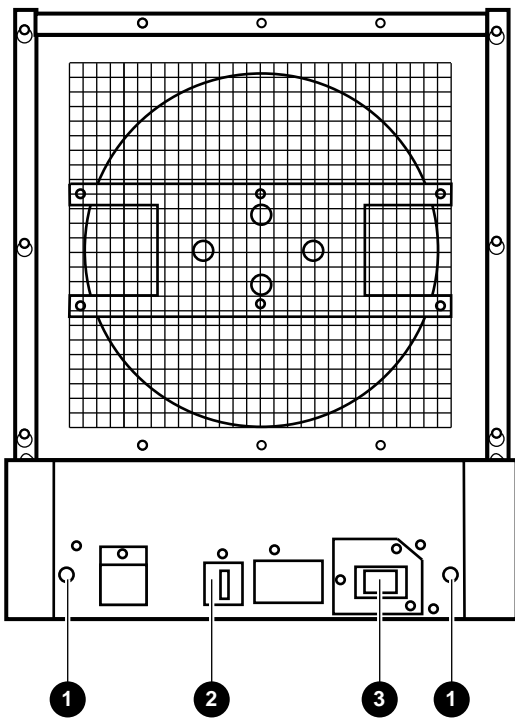
Before performing the following removal and replacement procedures, ensure that the circuit breaker is in the OFF position at the rear of the TLSB chassis and that the power cord is unplugged from the receptacle on the power distribution unit.

1. Open the rear door of the equipment cabinet.
2. Disconnect the power cord from the ac input jack on the ac input box (see Figure 5-14).
3. Loosen the two captive screws that secure the ac input box to the TLSB chassis (see Figure 5-14).
4. Slide the ac input box toward the back of the cabinet and reach between the ac input box and the chassis to disconnect the ac input box power cable.

To replace the ac input box, reverse steps 1 through 4.

Removal and Replacement

Figure 5-14 Removing the AC Input Box



LJ-04338.A14

- ❶ Captive screws
- ❷ Circuit breaker

- ❸ AC input jack

Removal and Replacement

5.3 XMI Chassis Components

The following sections contain the removal and replacement procedures for the components that are unique to the XMI chassis in the AlphaServer 8200 RM systems.

WARNING

Before servicing the XMI chassis, switch off the circuit breakers on the back of the XMI chassis and unplug the XMI chassis from the receptacle on the power distribution unit.

5.3.1 Front Bezel

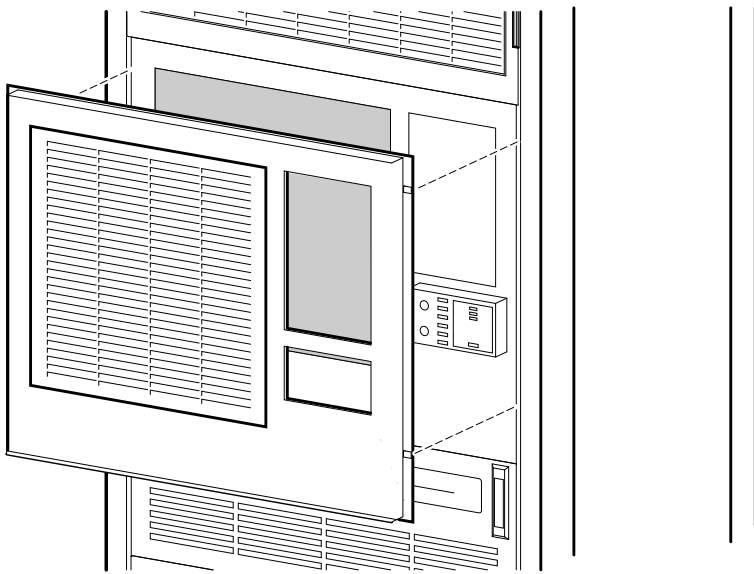
Perform the following procedure to remove the front bezel from the XMI chassis:

1. Grasp the front bezel on each side.
2. Pull straight out until the bezel unsnaps from the catches (see Figure 5–15).

To replace the front bezel, push it onto the front of the chassis until it snaps into place.

Removal and Replacement

Figure 5-15 Removing the Front Bezel from the XMI Chassis



LJ-04339-T10

Removal and Replacement

5.3.2 Extending the XMI Chassis for Service

WARNING

Before extending the XMI chassis for service, ensure that the cabinet is stable and that all provided stabilizing features have been activated. The stabilizing features for the rack or cabinet are configuration dependent.

Perform the following procedure to extend the XMI chassis for service:

1. Extend the stabilizing legs at the front of the cabinet (if stabilizing legs are provided).
2. Remove the XMI front bezel (see Section 5.3.1).
3. Remove the four retaining screws ❶ that secure the chassis to the front rails (see Figure 5-16).

CAUTION

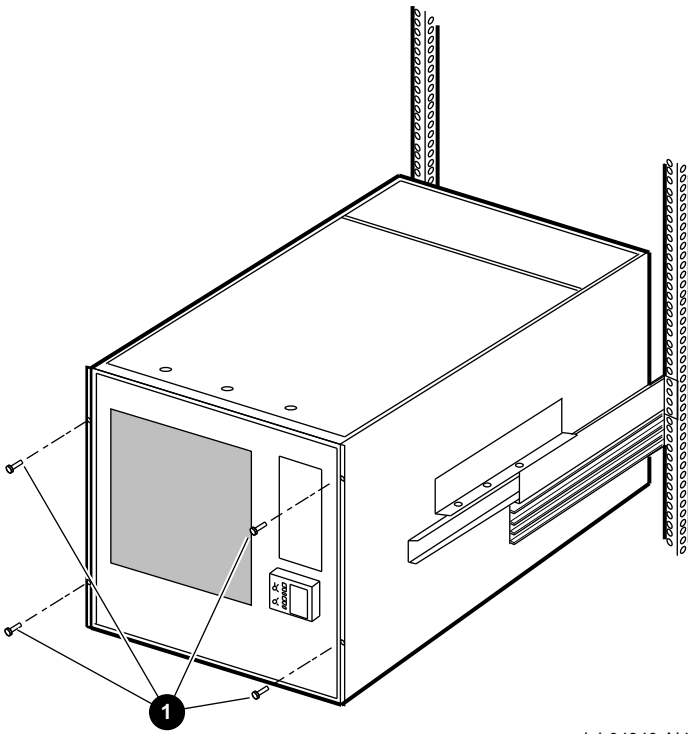
Check and ensure that all cables are free to follow the chassis before extending the chassis.

4. Carefully pull the XMI chassis forward until the slides lock in the extended position.

To secure the chassis in the cabinet, press in on the left and right slide locks and reverse steps 1 through 4.

Removal and Replacement

Figure 5-16 Extending the XMI Chassis



LJ-04340.A14

Removal and Replacement

5.3.3 Top Cover

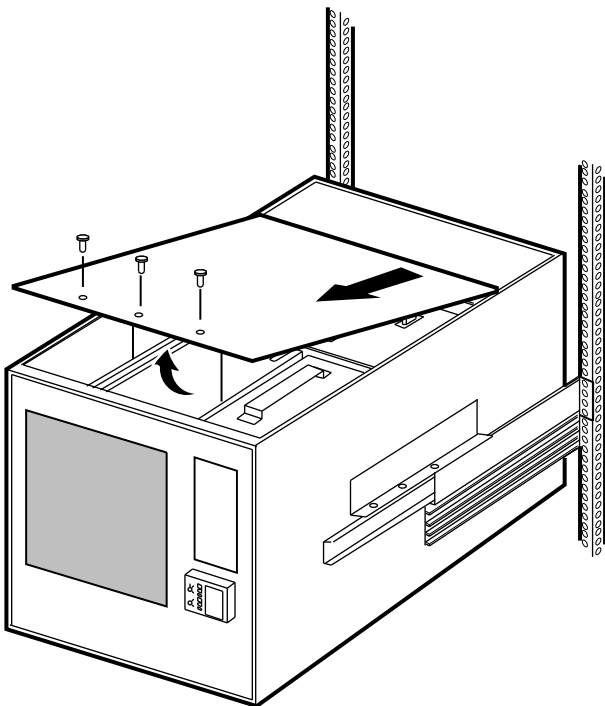
Perform the following procedure to remove the top cover:

1. Extend the XMI chassis for service (see Section 5.3.2).
2. Remove the three screws along the top front edge of the chassis that secure the top cover (see Figure 5-17).
3. Lift up on the front edge of the top cover and pull forward until the back edge slides out from under the retaining lip (see Figure 5-17).

To replace the top cover, slide the back edge of the cover under the retaining lip and install the three screws along the top front edge of the chassis that secure the top cover.

Removal and Replacement

Figure 5-17 Removing the Top Cover



LJ-04341.A14

Removal and Replacement

5.3.4 Bottom Cover

Perform the following procedure to remove the bottom cover:

NOTE

Components that require access from the bottom of the XMI chassis may be more conveniently accessed by removing the XMI chassis from the slides and using a workbench area for service.

1. Extend the XMI chassis for service (see Section 5.3.2).
2. Remove the four screws along the bottom front edge of the chassis that secure the bottom cover (see Figure 5-18).

WARNING

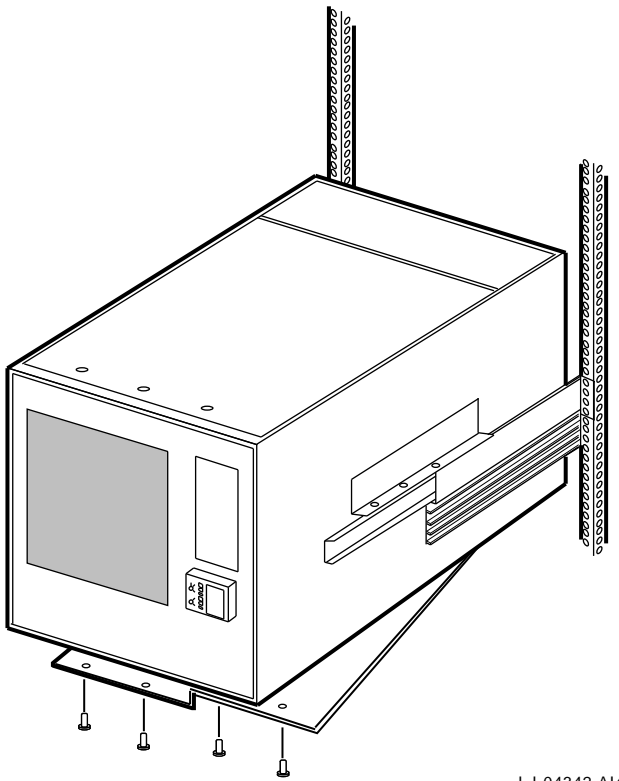
Hold the cover in place while removing the last screw to prevent the cover from falling.

3. Let the front edge of the bottom cover down and pull forward until the back edge slides out from under the retaining lip (see Figure 5-18).

To replace the bottom cover, slide the back edge of the cover under the retaining lip and install the four screws along the bottom front edge of the chassis that secure the bottom cover.

Removal and Replacement

Figure 5-18 Removing the Bottom Cover



LJ-04342.A14

Removal and Replacement

5.3.5 Control Panel Bezel (PN 70-22117-01)

Perform the following procedure to remove the control panel bezel:

WARNING

Before performing the following removal and replacement procedures, switch off the circuit breakers on the back of the XMI chassis and unplug the XMI chassis from the receptacle on the power distribution unit.

1. Extend the XMI chassis for service (see Section 5.3.2).
2. Remove the two 4-40 screws securing the control panel bezel to the front of the chassis using a small Phillips screwdriver (see Figure 5-19).
3. Carefully lift the control panel bezel off.

NOTE

Be careful not to lose the small free-floating push-button restart switch inside the control panel.

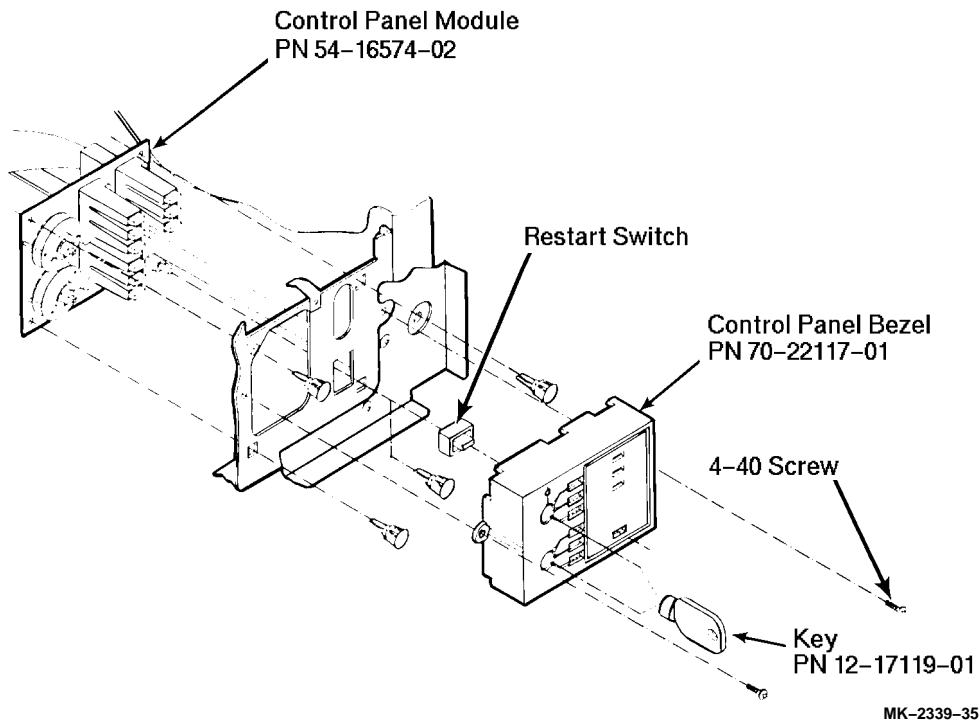
To replace the control panel bezel, reverse steps 1 through 3.

NOTE

When replacing the control panel bezel, ensure that the key slots inside the control panel bezel align with the switches on the control panel printed circuit board.

Removal and Replacement

Figure 5-19 Removing the Control Panel Bezel



Removal and Replacement

5.3.6 Control Panel Module (PN 54-16574-02)

Perform the following procedure to remove the control panel module:

WARNING

Before performing the following removal and replacement procedures, switch off the circuit breakers on the back of the XMI chassis and unplug the XMI chassis from the receptacle on the power distribution unit.

1. Extend the XMI chassis for service (see Section 5.3.2).
2. Remove the control panel bezel (see Section 5.3.5).
3. Remove the top cover (see Section 5.3.3).
4. Remove the four screws that secure the RRD42/TF85 option cage to the right side of the chassis and lift the cage out.

NOTE

If a TF85 tape drive or an RRD42 CD-ROM reader is installed in the option cage, remove the option cage by following the procedure in Section 5.3.15 or Section 5.3.17.

CAUTION

You must wear an antistatic wriststrap attached to the chassis when handling any modules.

5. Put on the antistatic wriststrap. This strap is contained in the plastic pouch located on top of the power supply modules.
6. Disconnect the control panel cable connector from the XTC timing module (see Figure 5-20).

NOTE

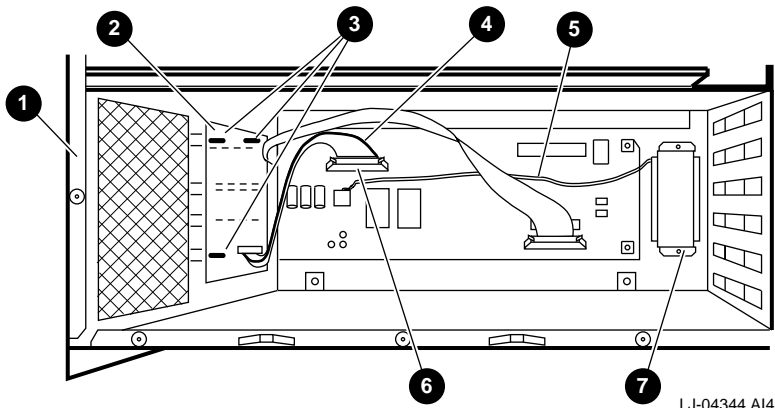
When replacing the control panel module, ensure that the cable connector is connected with the red stripe on the cable oriented as shown in Figure 5-20.

Removal and Replacement

7. Squeeze the ends of the four standoffs holding the module to the chassis, and pull the module past the locking tab on each standoff (see Figure 5–20).
8. Remove the module.

To replace the control panel module, reverse steps 1 through 8.

Figure 5–20 Removing the Control Panel Module



- | | |
|------------------------|---------------------------------|
| ❶ Front panel | ❺ XTC timing module |
| ❷ Control panel module | ❻ Control panel cable connector |
| ❸ Module standoffs | ❼ Battery |
| ❹ Red stripe | |

Removal and Replacement

5.3.7 XTC Timing Module (PN 70-31509-01)

Perform the following procedure to remove the XTC timing module:

WARNING

Before performing the following removal and replacement procedures, switch off the circuit breakers on the back of the XMI chassis and unplug the XMI chassis from the receptacle on the power distribution unit.

1. Extend the XMI chassis for service (see Section 5.3.2).
2. Remove the top cover (see Section 5.3.3).
3. Remove the four screws that secure the RRD42/TF85 option cage to the right side of the chassis and lift the cage out.

NOTE

If a TF85 tape drive or an RRD42 CD-ROM reader is installed in the option cage, remove the option cage by following the procedure in Section 5.3.15 or Section 5.3.17.

CAUTION

You must wear an antistatic wriststrap attached to the chassis when handling any modules.

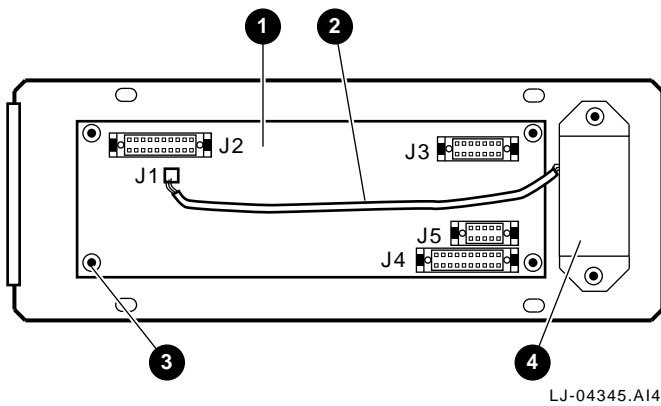
4. Put on the antistatic wriststrap. This strap is contained in the plastic pouch located on top of the power supply modules.
5. Reach down through the area where the option cage was installed and disconnect the three ribbon-style cable connectors (J2, J3, and J4) and the battery connector (J1) on the XTC timing module (see Figure 5-21). Note the orientation of the module for later replacement.
6. Remove the four 6-32 screws securing the XTC timing module to the chassis using a Phillips screwdriver (see Figure 5-21).

Removal and Replacement

7. Remove the XTC timing module by lifting it out through the top of the chassis.

To replace the XTC timing module, reverse steps 1 through 7.

Figure 5–21 Battery and XTC Connections



❶ XTC timing module

❷ Battery cable

❸ 6-32 screws (4)

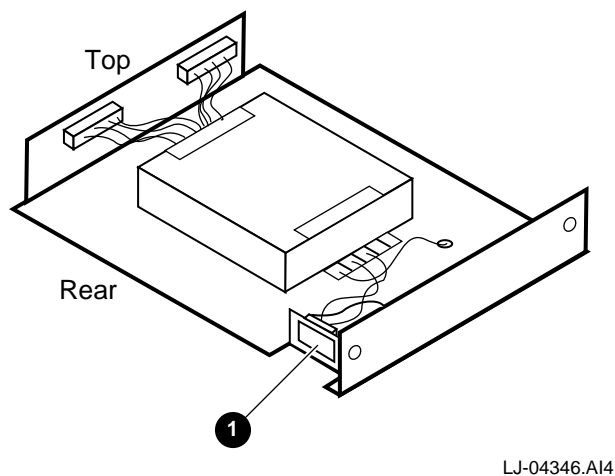
❹ Battery retaining bracket

Removal and Replacement

5.3.8 AC Front End Trays (PN 70-27334-01)

The XMI chassis power supply incorporates two identical ac front end tray assemblies that provide power for the dc regulator inputs (see Figure 5–22). Each of these two trays converts the 200-240 Vac input from the electrical service into a 300 Vdc output. Each ac front end tray provides 300 Vdc to a pair of dc-to-dc converter trays through its own power cable assemblies. One ac front end tray feeds (300 Vdc) to the 5 Vdc master and the 5 Vdc booster regulator trays. The other ac front end tray feeds (300 Vdc) to the sequencer and auxiliary dc voltage and the 3.3 Vdc/-5.2 Vdc regulator trays. The ac front end trays are located in positions A and B in Figure 5–23 through Figure 5–25.

Figure 5–22 AC Front End Tray



❶ AC input connector

Perform the following procedure to remove the ac front end trays:

WARNING

Before performing the following removal and replacement procedures, switch off the circuit breakers on the back of the XMI chassis and unplug the XMI chassis from the receptacle on the power distribution unit.

Removal and Replacement

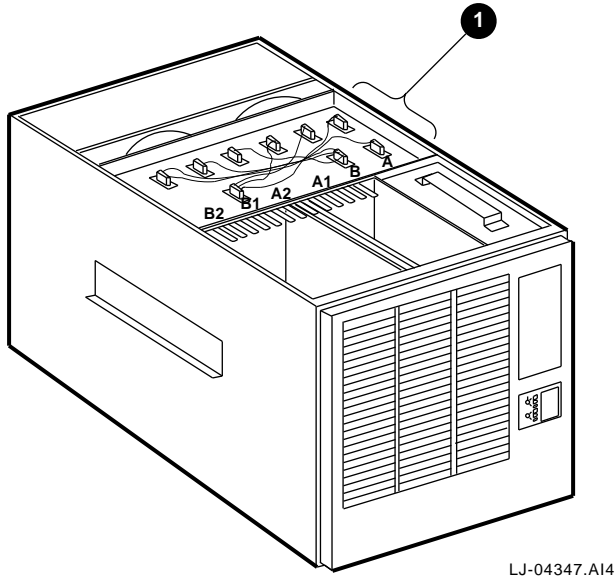
1. Extend the XMI chassis for service (see Section 5.3.2).
2. Remove the top cover (see Section 5.3.3).

WARNING

High voltage is present on the ac front end tray connectors for about 30 seconds after the XMI circuit breaker is turned off.

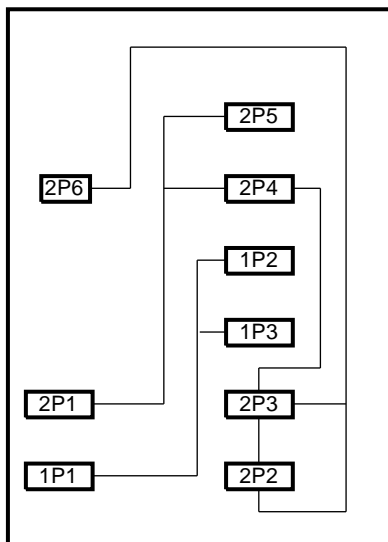
3. Disconnect the power supply connectors **1** from the appropriate ac front end tray to be replaced (see Figure 5-23 and Figure 5-24).

Figure 5-23 Power Supply Top Connectors



Removal and Replacement

Figure 5–24 Power Supply Top Interconnect Diagram



LJ-04360.A14

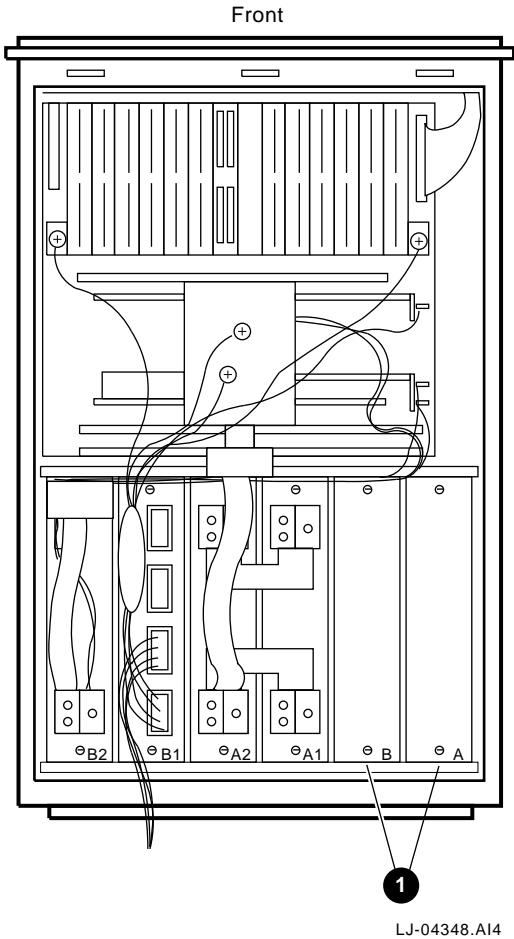
2P5	3.3 Vdc/-5.2 Vdc tray (B2)
2P6 and 2P4	Sequencer/auxiliary tray (B1)
1P2	5 Vdc booster tray (A2)
1P3	5 Vdc master tray (A1)
2P1 and 2P3	AC front end tray (B)
1P1 and 2P2	AC front end tray (A)

4. Remove the bottom cover (see Section 5.3.4).
5. Remove the input connector on the rear side of the tray from the bottom (between the tray and the fans).
6. Remove the two screws securing the ac front end tray in the power supply assembly (see Figure 5–25).
7. Remove the ac front end tray from the power supply assembly.

To replace the ac front end trays, reverse steps 1 through 7.

Removal and Replacement

Figure 5-25 Removing the AC Front End Trays



1 AC front end trays

Removal and Replacement

5.3.9 +5 Vdc Regulator Trays (PN 70-29046-01 and 70-29046-02)

The XMI chassis contains two +5 Vdc regulator trays, a master unit (PN 70-29046-01) and a booster unit (PN 70-29046-02). These two trays provide the +5 Vdc power for the system. Their outputs are strapped together so that they supply a single distribution rail in the system backplane. See Figure 5-27 for location.

The +5 Vdc master ❶ and +5 Vdc booster ❷ regulator trays (see Figure 5-26) include the following as field replaceable units (FRUs):

- One 5 Vdc master converter module ❸ (PN 20-34928-01) on the -01 board
- Five 5 Vdc booster converter modules (PN 20-34929-01) (two on the -01 board and three on the -02 board)

Perform the following procedure to remove the +5 Vdc regulator trays:

WARNING

Before performing the following removal and replacement procedures, switch off the circuit breakers on the back of the XMI chassis and unplug the XMI chassis from the receptacle on the power distribution unit.

1. Extend the XMI chassis for service (see Section 5.3.2).
2. Remove the top cover (see Section 5.3.3).

WARNING

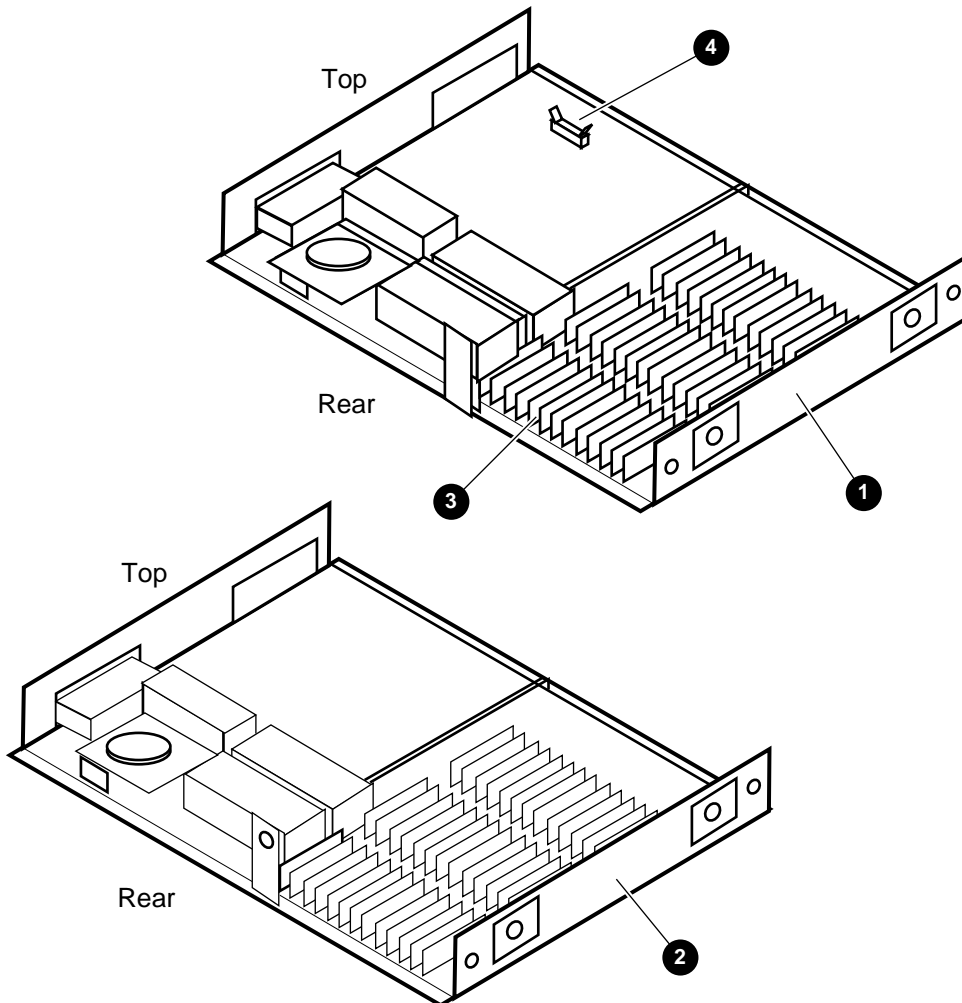
High voltage is present on the power supply connectors for about 30 seconds after the XMI circuit breaker is turned off.

3. Disconnect the power supply connectors from the appropriate +5 Vdc regulator tray to be replaced (see Figure 5-23 and Figure 5-24).
4. Remove the bottom cover (see Section 5.3.4).
5. Remove the two 8-32 KEP nuts from the (-) bus bar on each of the +5 Vdc regulator trays (see Figure 5-27).
6. Lift the bus bar off of the mounting posts and carefully bend the (-) bus bar down and back out of the way so that the tray will clear the bus bar when the tray is removed (see Figure 5-27).

Removal and Replacement

7. Remove the horseshoe shaped bus bar.

Figure 5–26 +5 Vdc Regulator Trays



LJ-04349.A14

① Master tray
② Booster tray

③ 5 Vdc master converter module
④ Connector J6

Removal and Replacement

8. Remove the two 8-32 KEP nuts from the (+) bus bar on each of the +5 Vdc regulator trays (see Figure 5-27).
9. Remove the horseshoe shaped bus bar.
10. Lift the bus bar off of the mounting posts and carefully bend the (+) bus bar down and back out of the way so that the tray will clear the bus bar when the tray is removed (see Figure 5-27).

NOTE

It is not necessary to bend the bus bar out of the way to remove the master regulator tray.

11. Remove the two screws securing the +5 Vdc regulator tray in the power supply assembly (see Figure 5-27).

NOTE

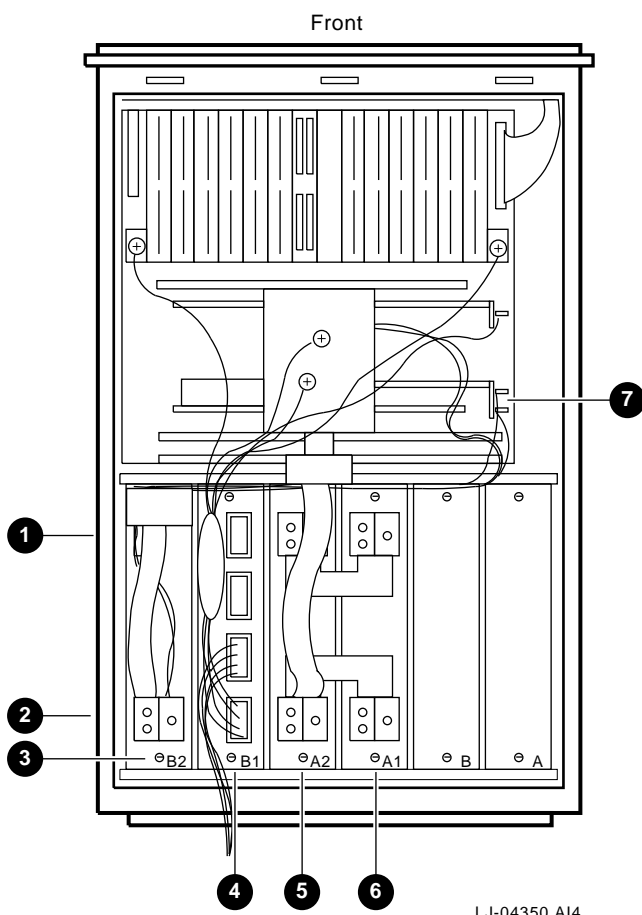
If the tray to be replaced is the 5 Vdc master module, you must disconnect the ribbon cable from connector J6 before completely removing the tray (see Figure 5-26).

12. Remove the +5 Vdc regulator tray from the power supply assembly.

To replace the +5 Vdc regulator trays, reverse steps 1 through 12.

Removal and Replacement

Figure 5-27 Removing a Power Supply Tray



- 1 (+) bus bars
- 2 (-) bus bars
- 3 3.3 Vdc/-5.2 Vdc regulator
- 4 Sequencer and auxiliary dc voltage regulator
- 5 5 Vdc booster
- 6 5 Vdc master
- 7 -5.2 Vdc lead

Removal and Replacement

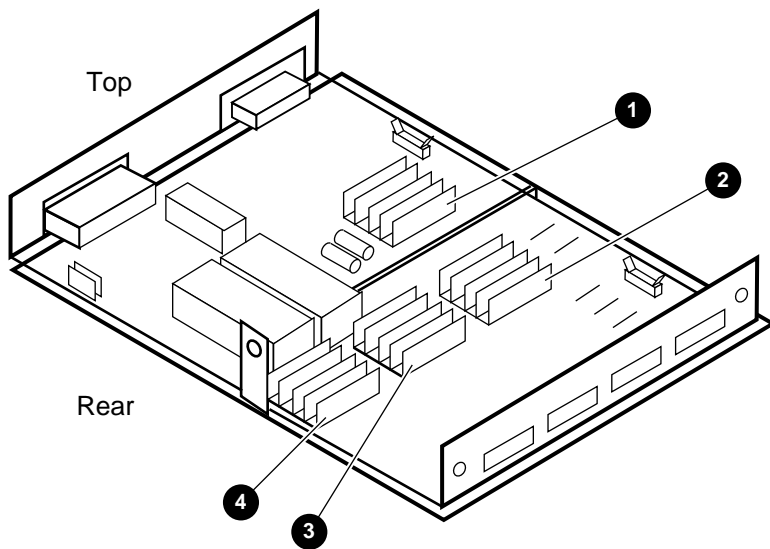
5.3.10 Sequencer and Auxiliary DC Voltage Regulator Tray (PN 70-29046-03)

The sequencer and auxiliary dc voltage regulator tray provides +12 Vdc to the airflow sensors located at the rear of the fan assembly. The -12 Vdc is used to power up the two Ethernet adapters. It also provides ± 12 Vdc to the XMI cage and to the XTC module to drive the serial port. +24 Vdc is provided for the two cooling air fans in the XMI chassis. In addition, (-2 Vdc) is provided to the XMI chassis. The power system sequencing circuitry is also resident on this tray. See Figure 5-27 for location.

FRUs on this tray (see Figure 5-28) include:

- Two 12 Vdc miniconverters (PN 20-34930-01) (❶ and ❷)
- One 24 Vdc miniconverter (PN 20-34930-02) (❸)
- One 5 Vdc miniconverter (PN 20-34930-03) (❹)

Figure 5-28 Sequencer and Auxiliary DC Voltage Regulator Tray



LJ-04351.A14

Removal and Replacement

Perform the following procedure to remove the sequencer and auxiliary dc voltage regulator tray:

WARNING

Before performing the following removal and replacement procedures, switch off the circuit breakers on the back of the XMI chassis and unplug the XMI chassis from the receptacle on the power distribution unit.

1. Extend the XMI chassis for service (see Section 5.3.2).
2. Remove the top cover (see Section 5.3.3).

WARNING

High voltage is present on the power supply connectors for about 30 seconds after the XMI circuit breaker is turned off.

3. Disconnect the power supply connectors from the tray (see Figure 5-23 and Figure 5-24).
4. Remove the bottom cover (see Section 5.3.4).
5. Remove the two power distribution cables by unplugging the connectors and pushing the cables back out of the way (see Figure 5-27).
6. Remove the CK-DEMNA Ethernet connections, if used.
7. Remove the two screws securing the sequencer and auxiliary dc voltage regulator tray in the power supply assembly (see Figure 5-27).

NOTE

There are two cables connected to the sequencer and auxiliary dc voltage regulator tray that must be disconnected. Disconnect these cables as the tray is being slid out of the chassis.

8. Remove the sequencer and auxiliary dc voltage regulator tray from the power supply assembly.

To replace the sequencer and auxiliary dc voltage regulator tray, reverse steps 1 through 8.

Removal and Replacement

5.3.11 3.3 Vdc/-5.2 Vdc Regulator Tray (PN 70-29046-04)

The 3.3 Vdc/-5.2 Vdc regulator tray, (see Figure 5-29), provides +3.3 Vdc and -5.2 Vdc to the system backplane. See Figure 5-27 for location.

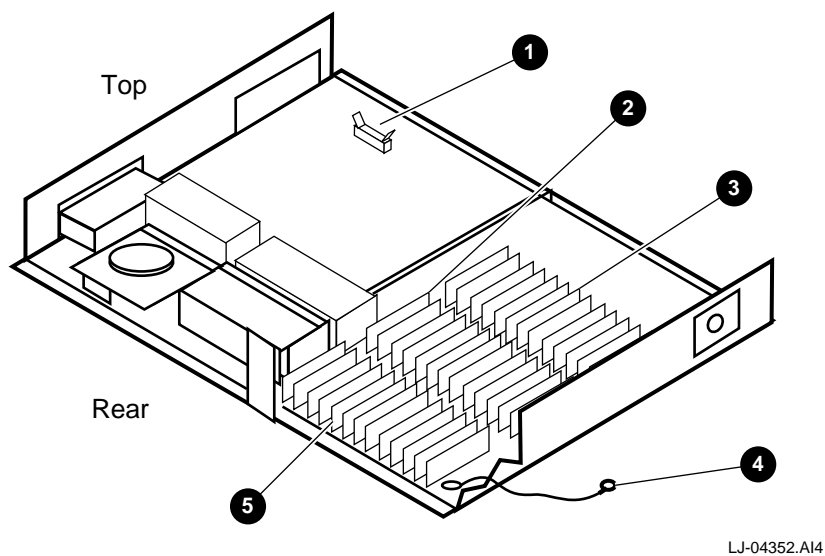
NOTE

The +3.3 Vdc is not used by the AlphaServer 8200 RM systems.

FRUs on this tray (see Figure 5-29) include:

- Two 5 Vdc master converter modules (PN 20-34928-01) (②, ⑤)
- One 5 Vdc booster converter module (PN 20-34929-01) (③)

Figure 5-29 3.3 Vdc/-5.2 Vdc Regulator Tray



- | | |
|----------------------------------|---------------------------------|
| ① Connector J6 | ④ Ring terminal |
| ② 5 Vdc master converter module | ⑤ 5 Vdc master converter module |
| ③ 5 Vdc booster converter module | |

Removal and Replacement

Perform the following procedure to remove the 3.3 Vdc/-5.2 Vdc regulator tray:

WARNING

Before performing the following removal and replacement procedures, switch off the circuit breakers on the back of the XMI chassis and unplug the XMI chassis from the receptacle on the power distribution unit.

1. Extend the XMI chassis for service (see Section 5.3.2).
2. Remove the top cover (see Section 5.3.3).

WARNING

High voltage is present on the power supply connectors for about 30 seconds after the XMI circuit breaker is turned off.

3. Disconnect the power supply connectors from the tray (see Figure 5-23 and Figure 5-24).
4. Remove the bottom cover (see Section 5.3.4).
5. Remove the -5.2 Vdc lead (white wire) from the stud on the backplane (see Figure 5-27 ⑦).
6. Remove the two 8-32 KEP nuts from the (-) bus bar on the 3.3 Vdc/-5.2 Vdc regulator tray (see Figure 5-27).
7. Bend back the (-) bus bar.
8. Remove the two screws securing the 3.3 Vdc/-5.2 Vdc regulator tray in the power supply assembly (see Figure 5-27).

NOTE

Disconnect the ribbon cable from connector J6 before completely removing the tray (see Figure 5-29 ①).

9. Remove the 3.3 Vdc/-5.2 Vdc regulator tray from the power supply assembly.
- To replace the 3.3 Vdc/-5.2 Vdc regulator tray, reverse steps 1 through 9.

Removal and Replacement

5.3.12 24 Vdc Fan (PN 12-23374-07)

The XMI chassis contains two 24 Vdc fans located toward the rear of the chassis. Perform the following procedure to remove the fan assembly:

WARNING

Before performing the following removal and replacement procedures, switch off the circuit breakers on the back of the XMI chassis and unplug the XMI chassis from the receptacle on the power distribution unit.

1. Extend the XMI chassis for service (see Section 5.3.2).
2. Remove the top cover (see Section 5.3.3).
3. Disconnect the two power cables ②, one from each fan (see Figure 5–30).
4. Loosen the two screws ① that secure the fan assembly to the top frame of the chassis (see Figure 5–30).
5. Tilt the fan assembly toward the front of the chassis and remove through the top opening.
6. Replace the inoperative fan by removing the finger guards and removing the fan from the fan assembly.

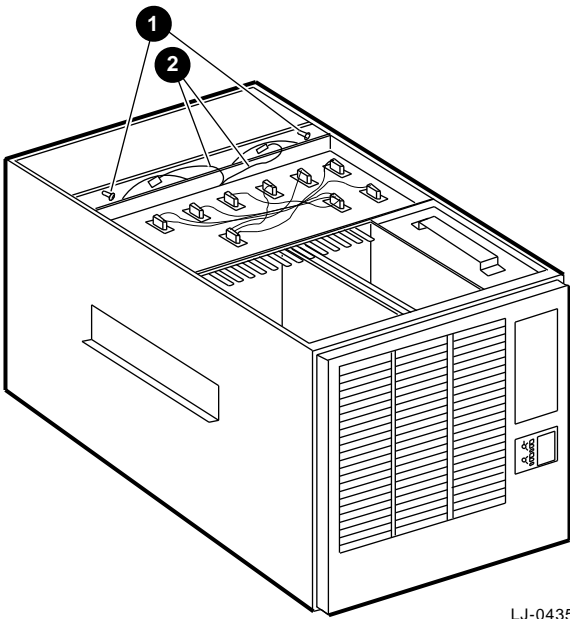
NOTE

Retain the spring clips and finger guard screws for installing the new fan. Note the orientation of the airflow and rotation indicators when installing the new fan.

To replace the fan assembly, reverse steps 1 through 6.

Removal and Replacement

Figure 5-30 Removing the Fan Assembly



LJ-04353.A14

Removal and Replacement

5.3.13 Airflow Sensors (PN 12-36060-01)

The XMI chassis contains two airflow sensors located at the rear of the fan assembly.

Perform the following procedure to remove the airflow sensors:

WARNING

Before performing the following removal and replacement procedures, switch off the circuit breakers on the back of the XMI chassis and unplug the XMI chassis from the receptacle on the power distribution unit.

1. Extend the XMI chassis for service (see Section 5.3.2).
2. Remove the bottom cover (see Section 5.3.4).
3. Disconnect the airflow sensor cable connector ❶ that is located between the card cage and the fan assembly (see Figure 5-31).
4. Remove the fan assembly (see Section 5.3.12).

NOTE

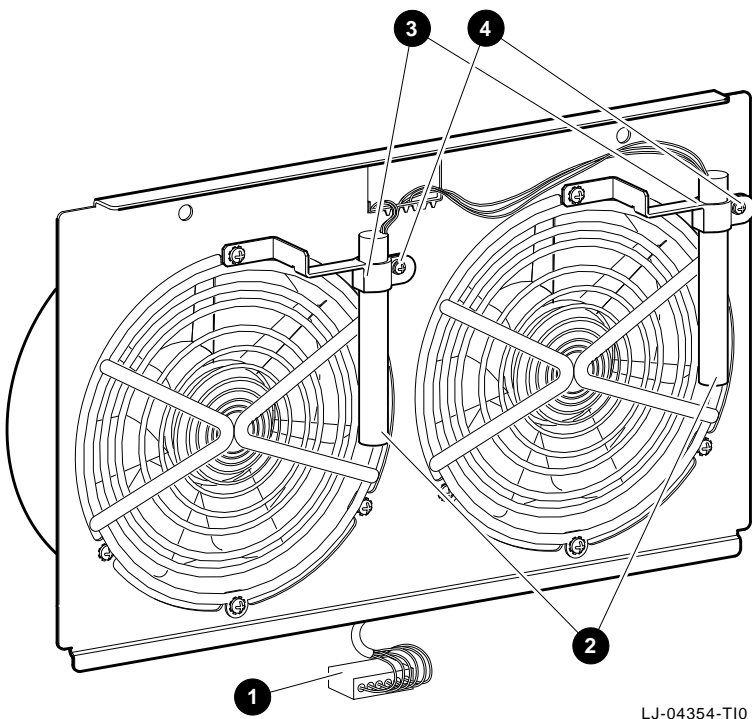
Note the position of the airflow sensor and the orientation of the sensor hole in respect to the fan assembly before removing the old unit. Replace this with a new unit positioned in exactly the same configuration as the original unit.

5. Carefully note the position and orientation of the sensors in relation to the fan assembly.
6. Loosen the screws ❷ that secure the airflow sensors ❸ in their brackets ❹ (see Figure 5-31).
7. Slide the airflow sensors ❸ from the brackets ❹ that secure them to the rear of the fan assembly (see Figure 5-31).
8. Pull the airflow sensor cables and connector through the opening at the top of the fan assembly.

To replace the airflow sensors, reverse steps 1 through 8.

Removal and Replacement

Figure 5-31 Airflow Sensors on Rear of Fan Assembly



LJ-04354-T10

Removal and Replacement

5.3.14 AC Input Assembly (PN 70-31008-01)

The ac input assembly is located at the rear of the XMI chassis.

Perform the following procedure to remove the ac input assembly:

WARNING

Before performing the following removal and replacement procedures, switch off the circuit breakers on the back of the XMI chassis and unplug the XMI chassis from the receptacle on the power distribution unit.

1. Extend the XMI chassis for service (see Section 5.3.2).
2. Remove the bottom cover (see Section 5.3.4).

WARNING

High voltage is present on the ac front end tray connectors for about 30 seconds after the XMI circuit breaker is turned off.

3. Disconnect the ac input connectors from the rear side of the ac front end trays, between the trays and the fans.
4. Slide the XMI chassis back into the equipment cabinet.
5. Open the rear door of the equipment cabinet.
6. Remove the six screws that secure the exhaust grill ⑤ to the XMI chassis and remove the exhaust grill (see Figure 5-32).
7. Reach through the exhaust grill opening and disconnect the red and white wires (spade lug leads) from the circuit breaker.
8. Reach through the exhaust grill opening and remove the *outside* nut from the ground stud and disconnect the two ground wires (green/yellow) coming from the ac front end tray connectors.
9. Reach through the exhaust grill opening and remove the *inside* nut from the ground stud and disconnect the ground wire (green/yellow) coming from the ac input line filter.
10. Remove the 8 screws (3 on the side ①, 1 on the top ②, and 4 on the rear ④) that secure the ac input assembly ③ in the chassis (see Figure 5-32).

Removal and Replacement

11. Remove the ac input assembly while carefully guiding the cables to the ac front end trays through the opening below the assembly.

NOTE

It may be helpful to remove the I/O bulkhead plate cover below the ac input assembly to help guide the ac front end tray cables through the opening below the assembly.

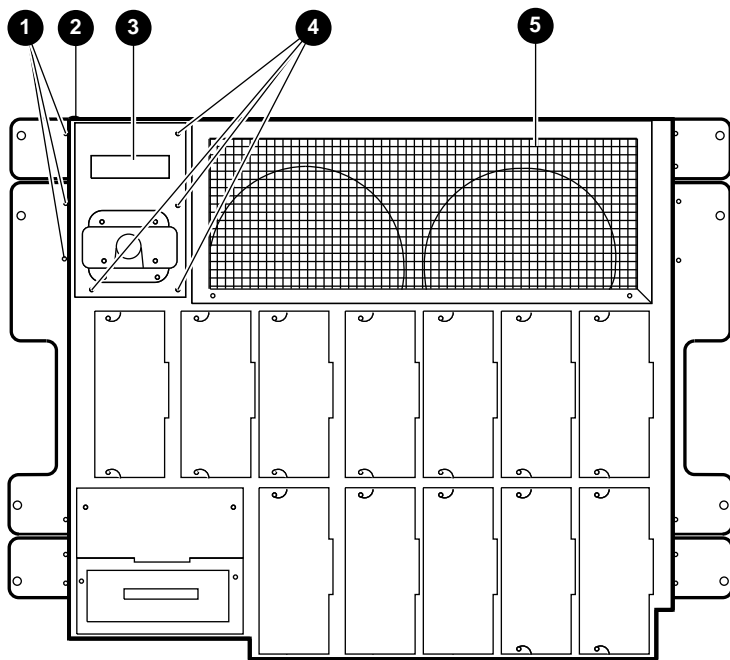
To replace the ac input assembly, reverse steps 1 through 11.

WARNING

When reconnecting the green/yellow ground wires, ensure that the ground wire from the ac input line filter is secured against the chassis wall with a separate nut before reconnecting the two ground wires from the ac front end tray connectors.

Removal and Replacement

Figure 5-32 Removing the AC Input Assembly



LJ-04355.A14

Removal and Replacement

5.3.15 TF85 Tape Drive

Perform the following procedure to remove the TF85 tape drive:

WARNING

Before performing the following removal and replacement procedures, switch off the circuit breakers on the back of the XMI chassis and unplug the XMI chassis from the receptacle on the power distribution unit.

1. Extend the XMI chassis for service (see Section 5.3.2).
2. Remove the top cover (see Section 5.3.3).
3. Remove the four screws that secure the RRD42/TF85 option cage to the right side of the chassis.
4. Tilt the rear of the RRD42/TF85 option cage upward and disconnect the two connectors from the back of the TF85.
5. Push the two connectors from the back of the TF85 back through the access slot located on the rear of the RRD42/TF85 option cage.
6. Tilt the RRD42/TF85 option cage upward at the rear and lift the cage out.
7. Remove the four screws (two at the top and two at the bottom) that secure the TF85 tape drive in the option cage.
8. Slide the TF85 tape drive out of the option cage.

To replace the TF85 tape drive, reverse steps 1 through 8.

Removal and Replacement

5.3.16 TF85 Interface Board

Perform the following procedure to remove the TF85 interface board:

WARNING

Before performing the following removal and replacement procedures, switch off the circuit breakers on the back of the XMI chassis and unplug the XMI chassis from the receptacle on the power distribution unit.

1. Extend the XMI chassis for service (see Section 5.3.2).
2. Remove the top cover (see Section 5.3.3).
3. Remove the bottom cover (see Section 5.3.4).
4. Disconnect the power supply connector harnesses from the top of the power supply trays and ensure that they are properly labeled for reconnection.
5. Remove the six screws securing the cover over the power supply trays and remove the cover.

CAUTION

You must wear an antistatic wriststrap attached to the chassis when handling any modules.

6. Put on the antistatic wriststrap. This strap is contained in the plastic pouch located on top of the power supply modules.
7. Disconnect the three cables from the TF85 interface board(s) that is mounted inside the right side of the chassis, behind the RRD42/TF85 option cage.
8. Squeeze the ends of the four standoffs securing the board(s) to the chassis (access two from the top and two from the bottom), and move the board past the locking tab on each standoff.
9. Lift the board out through the top of the chassis.

To replace the TF85 interface board, reverse steps 1 through 9.

Removal and Replacement

5.3.17 RRD42 CD-ROM Reader

Perform the following procedure to remove the RRD42 CD-ROM reader:

WARNING

Before performing the following removal and replacement procedures, switch off the circuit breakers on the back of the XMI chassis and unplug the XMI chassis from the receptacle on the power distribution unit.

1. Extend the XMI chassis for service (see Section 5.3.2).
2. Remove the top cover (see Section 5.3.3).
3. Remove the four screws that secure the RRD42/TF85 option cage to the right side of the chassis.
4. Tilt the rear of the RRD42/TF85 option cage upward and disconnect the two connectors from the back of the RRD42.
5. Push the two connectors from the back of the RRD42 back through the access slot located on the rear of the RRD42/TF85 option cage.
6. Tilt the RRD42/TF85 option cage upward at the rear and lift the cage out.
7. Remove the four screws (two at the top and two at the bottom) that secure the RRD42 CD-ROM reader in the option cage.
8. Slide the RRD42 CD-ROM reader out of the option cage.

To replace the RRD42 CD-ROM reader, reverse steps 1 through 8.

Removal and Replacement

5.4 PCI Chassis Components

The following sections contain the removal and replacement procedures for the components that are unique to the PCI chassis in the AlphaServer 8200 RM systems.

WARNING

Before servicing the PCI chassis, ensure that the power cord is unplugged from the receptacle on the power distribution unit.

5.4.1 Front Bezel

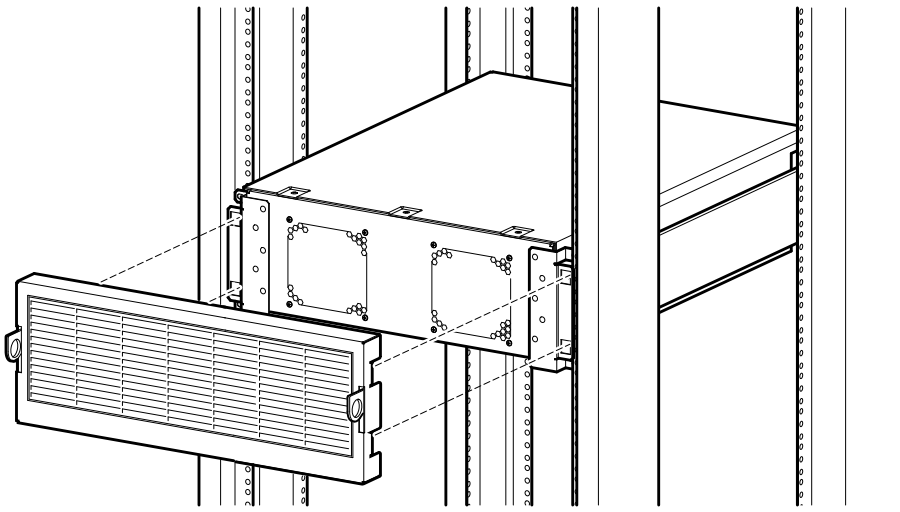
Perform the following procedure to remove the front bezel from the PCI chassis:

1. Grasp the front bezel by the flip-up pull tabs or by each side.
2. Pull straight out until the bezel unsnaps from the catches (see Figure 5–33).

To replace the front bezel, push it onto the front of the chassis until it snaps into place.

Removal and Replacement

Figure 5-33 Removing the Front Bezel from the PCI Chassis



LJ-04371-T10

Removal and Replacement

5.4.2 Extending the PCI Chassis for Service

WARNING

Before extending the PCI chassis for service, ensure that the cabinet is stable and that all provided stabilizing features have been activated. The stabilizing features for the rack or cabinet are configuration dependent.

Perform the following procedure to extend the PCI chassis for service:

1. Extend the stabilizing legs at the front of the cabinet (if stabilizing legs are provided).
2. Remove the PCI front bezel (see Section 5.4.1).
3. Remove the four retaining screws that secure the chassis to the front rails (see Figure 5-34).

CAUTION

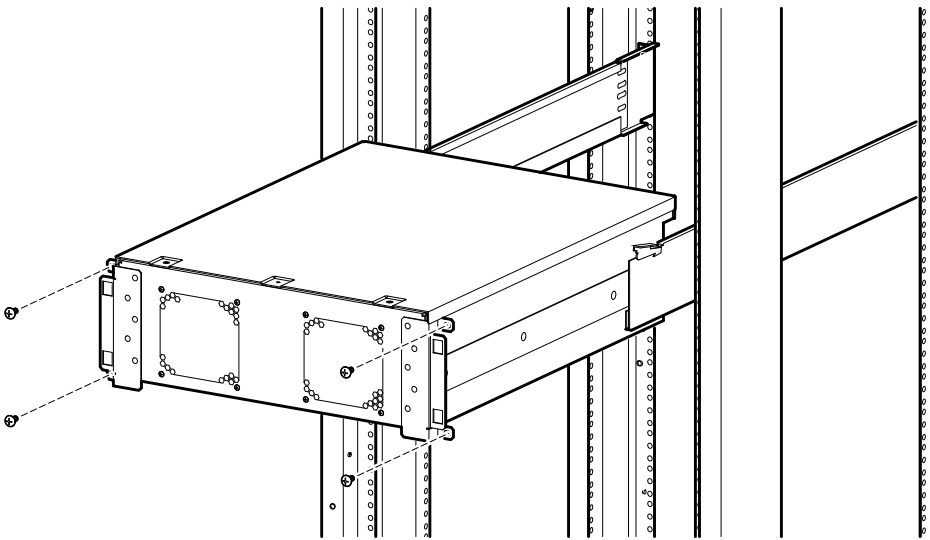
Check and ensure that all cables are free to follow the chassis before extending the chassis.

4. Carefully pull the PCI chassis forward until the slides lock in the extended position.

To secure the chassis in the cabinet, press down on the left and right slide locks and reverse steps 1 through 4.

Removal and Replacement

Figure 5-34 Extending the PCI Chassis



LJ-04372-T10

Removal and Replacement

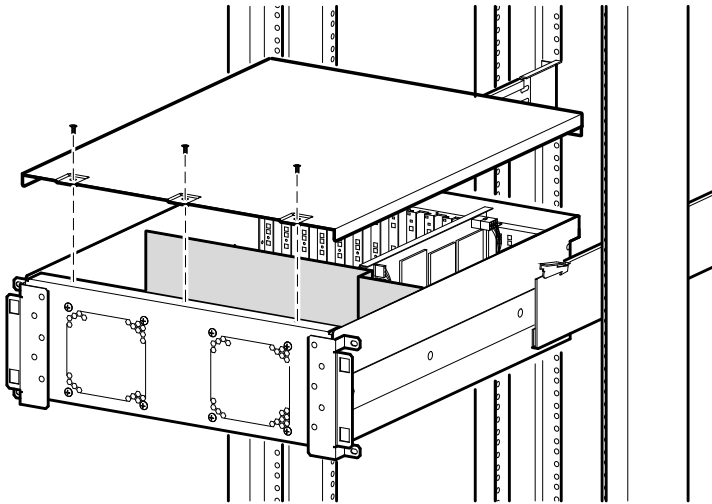
5.4.3 Top Cover

Perform the following procedure to remove the top cover:

1. Extend the PCI chassis for service (see Section 5.4.2).
2. Remove the three screws along the top front edge of the chassis that secure the top cover (see Figure 5–35).
3. Lift up on the front edge of the top cover and push toward the rear until the tabs on the rear of the cover slide out of the retaining slots (see Figure 5–35).
4. Lift the top cover off of the chassis.

To replace the top cover, reverse steps 1 through 4.

Figure 5–35 Removing the Top Cover



LJ-04373-T10

Removal and Replacement

5.4.4 48 Vdc Power Supply (PN 30-46068-01)

Perform the following procedure to remove the 48 Vdc power supply:

WARNING

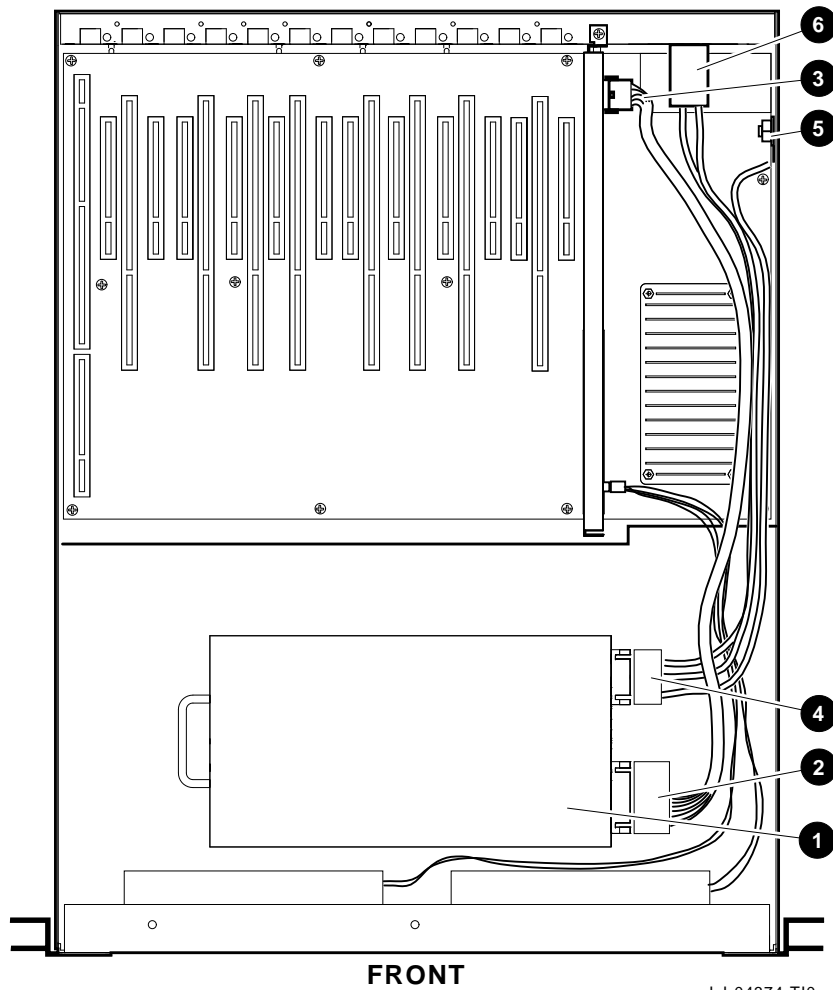
Before performing the following removal and replacement procedures, ensure that the power cord is unplugged from the receptacle on the power distribution unit.

1. Extend the PCI chassis for service (see Section 5.4.2).
2. Remove the top cover (see Section 5.4.3).
3. Disconnect the ac input connector ④ from the power supply (see Figure 5-36).
4. Disconnect the dc output connector ② from the power supply (see Figure 5-36).
5. From the bottom of the chassis, remove the four screws that secure the power supply (see Figure 5-37).
6. From the top, lift the power supply from the chassis.

To replace the power supply, reverse steps 1 through 6.

Removal and Replacement

Figure 5-36 Disconnecting the Power Supply Connectors

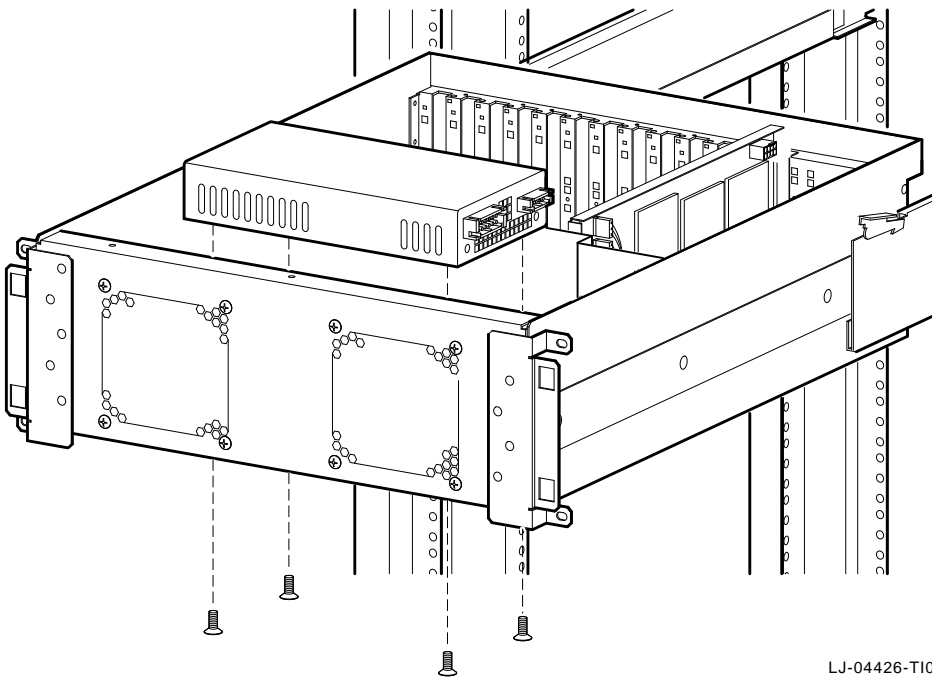


- ❶ 48 Vdc power supply
- ❷ DC output connector
- ❸ DC input connector to power board

- ❹ AC input connector
- ❺ Ground stud
- ❻ AC input filter

Removal and Replacement

Figure 5-37 Removing the Power Supply



Removal and Replacement

5.4.5 Fans (PN 12-23609-19)

Perform the following procedure to remove the fans:

WARNING

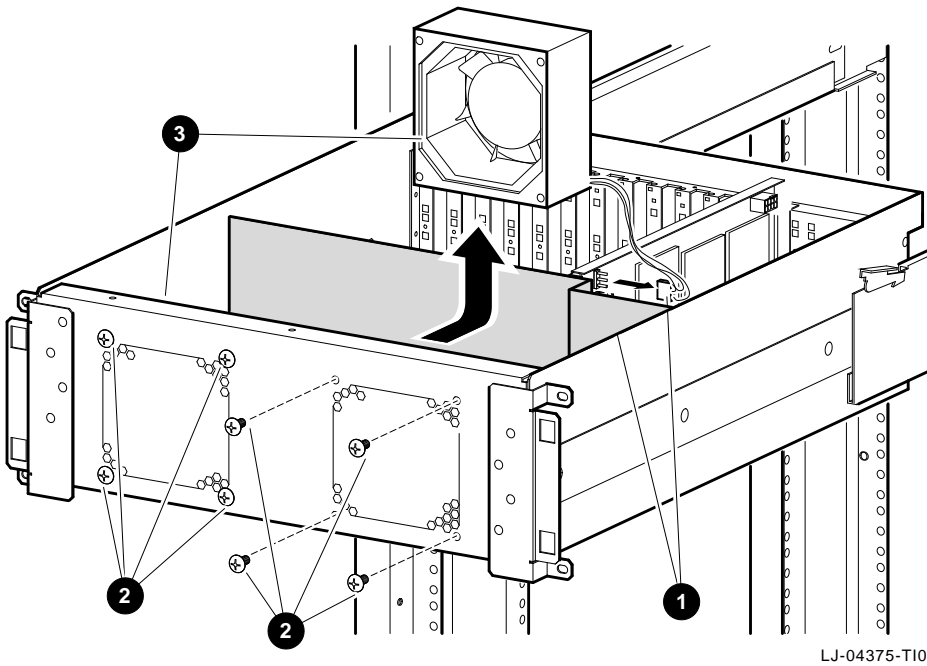
Before performing the following removal and replacement procedures, ensure that the power cord is unplugged from the receptacle on the power distribution unit.

1. Extend the PCI chassis for service (see Section 5.4.2).
2. Remove the top cover (see Section 5.4.3).
3. Disconnect the failing fan's power cable ❶ from the power board (see Figure 5-38).
4. Remove the four screws ❷ that secure the failing fan to the chassis (see Figure 5-38).
5. Lift the failing fan ❸ from the chassis.

To replace the fans, reverse steps 1 through 5.

Removal and Replacement

Figure 5-38 Removing the Fans



LJ-04375-T10

Removal and Replacement

5.4.6 Power Board (PN 54-23470-01)

Perform the following procedure to remove the power board:

WARNING

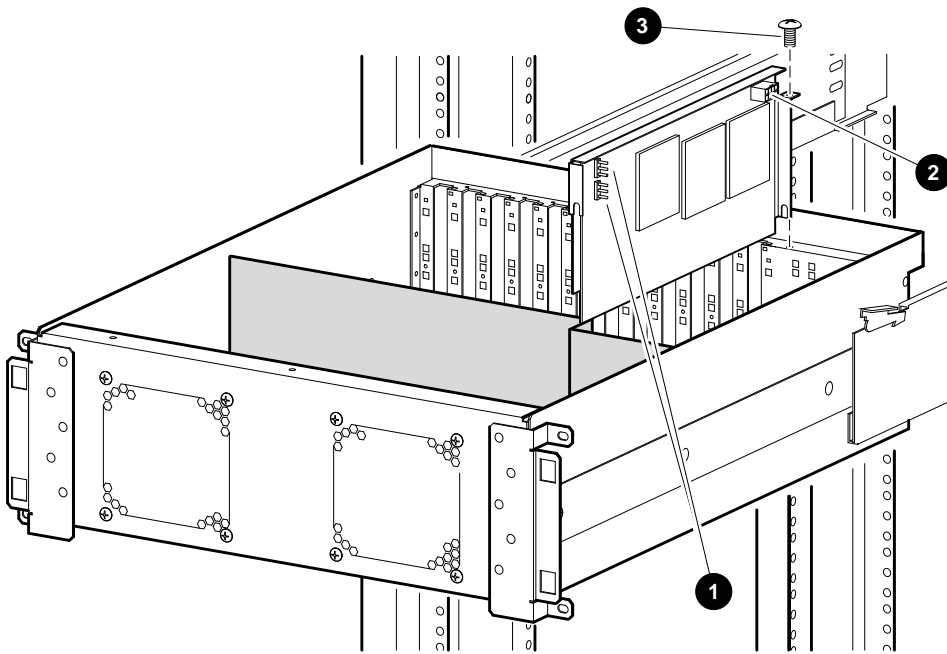
Before performing the following removal and replacement procedures, ensure that the power cord is unplugged from the receptacle on the power distribution unit.

1. Extend the PCI chassis for service (see Section 5.4.2).
2. Remove the top cover (see Section 5.4.3).
3. Disconnect the two fan power cables ❶ from the power board (see Figure 5-39).
4. Disconnect the power supply cable ❷ from the power board (see Figure 5-39).
5. Remove the screw ❸ that secures the power board in place (see Figure 5-39).
6. Lift the power board from the chassis.

To replace the power board, reverse steps 1 through 6.

Removal and Replacement

Figure 5-39 Removing the Power Board



LJ-04376-T10

Removal and Replacement

5.4.7 Motherboard (PN 54-23468-01)

Perform the following procedure to remove the motherboard:

WARNING

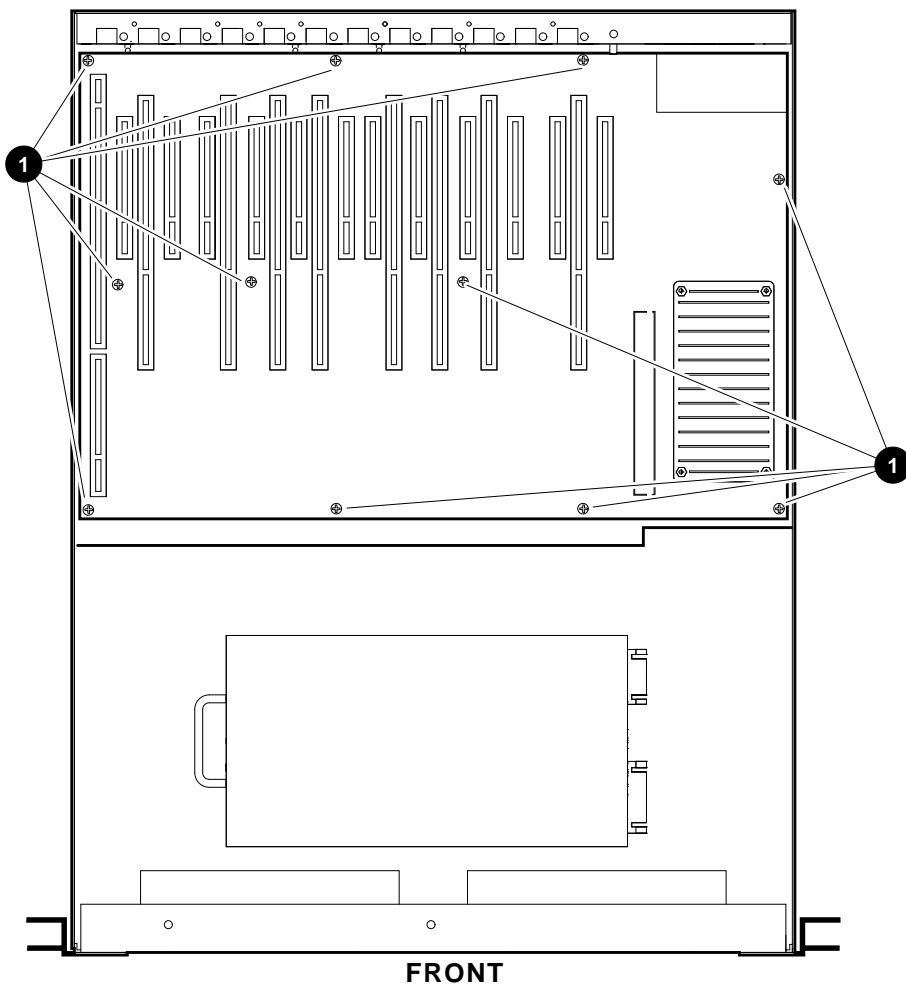
Before performing the following removal and replacement procedures, ensure that the power cord is unplugged from the receptacle on the power distribution unit.

1. From the rear of the cabinet, disconnect all of the cables that are connected to the PCI option cards. Ensure that the cables are properly labeled for reconnection.
2. Extend the PCI chassis for service (see Section 5.4.2).
3. Remove the top cover (see Section 5.4.3).
4. Remove all of the PCI option cards that are installed in the chassis. Ensure that they are properly labeled for replacement into the same slot from which they were removed.
5. Remove the power board (see Section 5.4.6).
6. Remove the 11 screws **1** that secure the motherboard to the chassis (see Figure 5-40).
7. Lift the motherboard from the chassis.

To replace the motherboard, reverse steps 1 through 7.

Removal and Replacement

Figure 5-40 Removing the Motherboard



LJ-04377-T10

Removal and Replacement

5.5 VME Chassis Components

The following sections contain the removal and replacement procedures for the components that are unique to the VME chassis in the AlphaServer 8200 RM systems.

WARNING

Before servicing the VME chassis, switch off the On/Off switch inside the front cover of the VME chassis and unplug the VME chassis from the receptacle on the power distribution unit.

5.5.1 Front Bezel

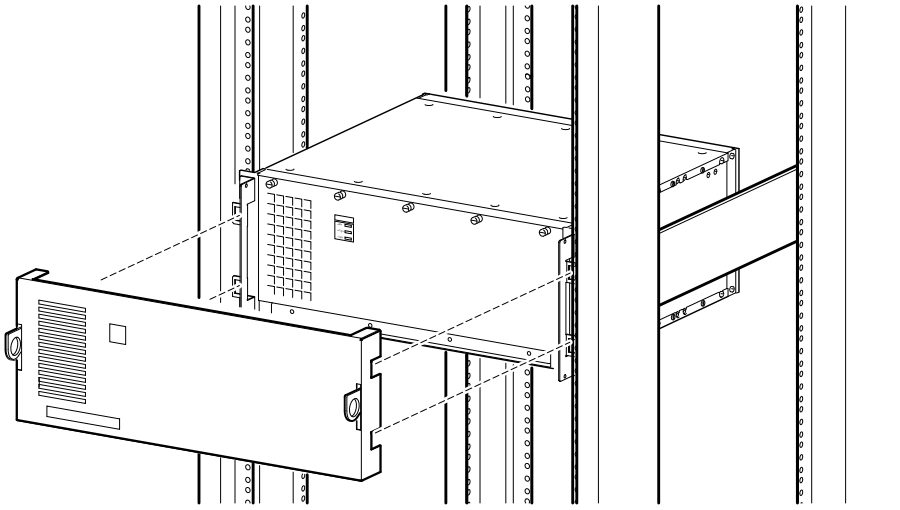
Perform the following procedure to remove the front bezel from the VME chassis:

1. Grasp the front bezel on each side.
2. Pull straight out until the bezel unsnaps from the catches (see Figure 5-41).

To replace the front bezel, push it onto the front of the chassis until it snaps into place.

Removal and Replacement

Figure 5-41 Removing the Front Bezel from the VME Chassis



LJ-04423-T10

Removal and Replacement

5.5.2 Extending the VME Chassis for Service

WARNING

Before extending the VME chassis for service, ensure that the cabinet is stable and that all provided stabilizing features have been activated. The stabilizing features for the rack or cabinet are configuration dependent.

Perform the following procedure to extend the VME chassis for service:

1. Extend the stabilizing legs at the front of the cabinet (if stabilizing legs are provided).
2. Remove the VME front bezel (see Section 5.5.1).
3. Remove the four retaining screws that secure the chassis to the front rails (see Figure 5-42).

CAUTION

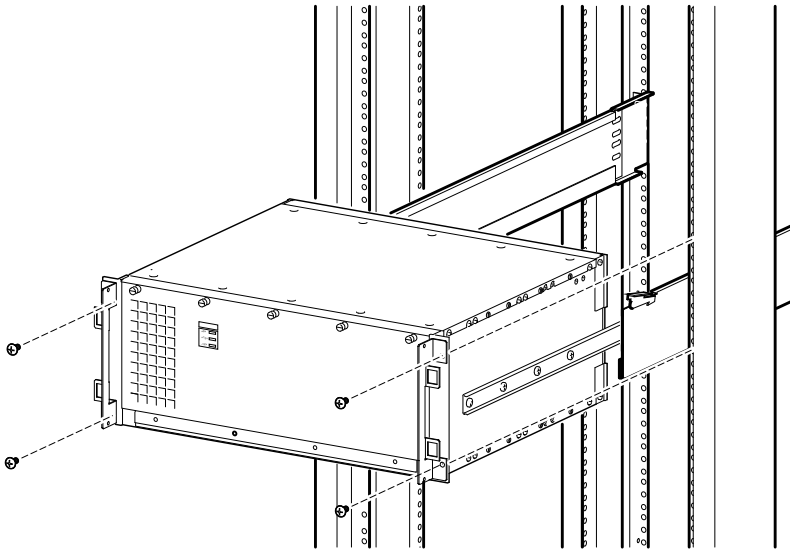
Check and ensure that all cables are free to follow the chassis before extending the chassis.

4. Carefully pull the VME chassis forward until the slides lock in the extended position.

To secure the chassis in the cabinet, press in on the left and right slide locks and reverse steps 1 through 4.

Removal and Replacement

Figure 5-42 Extending the VME Chassis



LJ-04424-T10

Removal and Replacement

5.5.3 Front Cover

Perform the following procedure to open the front cover:

1. Remove the front bezel (see Section 5.5.1).
2. Loosen the five captive screws ❷ along the top edge of the front cover (see Figure 5-43).
3. Swing the front cover down (see Figure 5-43).

To close the front cover, reverse steps 1 through 3.

5.5.4 Top Cover

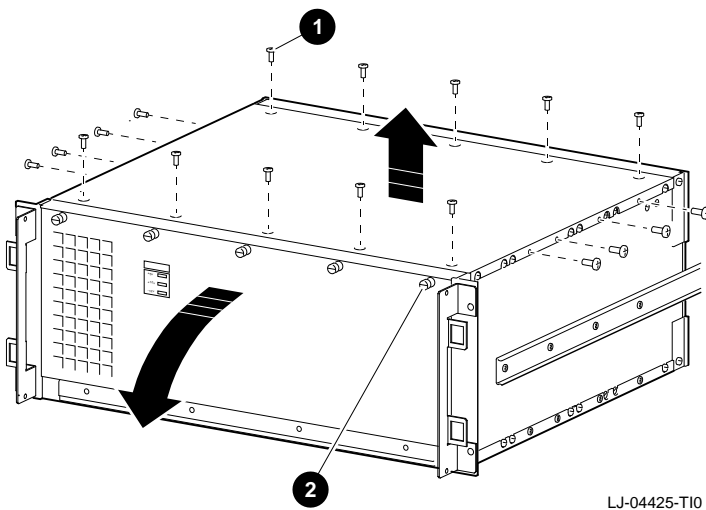
Perform the following procedure to remove the top cover:

1. Extend the VME chassis for service (see Section 5.5.2).
2. Remove the 18 screws ❶ (ten screws on the top and four screws on each side of the chassis) that secure the top cover (see Figure 5-43).
3. Lift the top cover off of the chassis (see Figure 5-43).

To replace the top cover, reverse steps 1 through 3.

Removal and Replacement

Figure 5-43 Opening the Front Cover and Removing the Top Cover



LJ-04425-T10

A

Option Installation

This appendix contains instructions for installing options in the XMI, PCI, and VME chassis.

A.1 XMI Chassis Option Installation

The following sections contain general instructions for installing options in the XMI chassis and the specific installation instructions for installing the 2T-CIXCD-RA option.

A.1.1 Installing Option Cards

Perform the following procedure to access the XMI card cage and install an option card:

WARNING

Before performing this procedure, switch off the circuit breakers on the back of the XMI chassis and unplug the XMI chassis from the receptacle on the power distribution unit.

1. Extend the stabilizing legs at the front of the cabinet (if stabilizing legs are provided).

WARNING

Before extending the XMI chassis for service, ensure that the rack or cabinet is stable and that all provided stabilizing features have been activated. The stabilizing features for the rack or cabinet are configuration dependent.

2. Extend the XMI chassis for service (see Section 5.3.2).

Option Installation

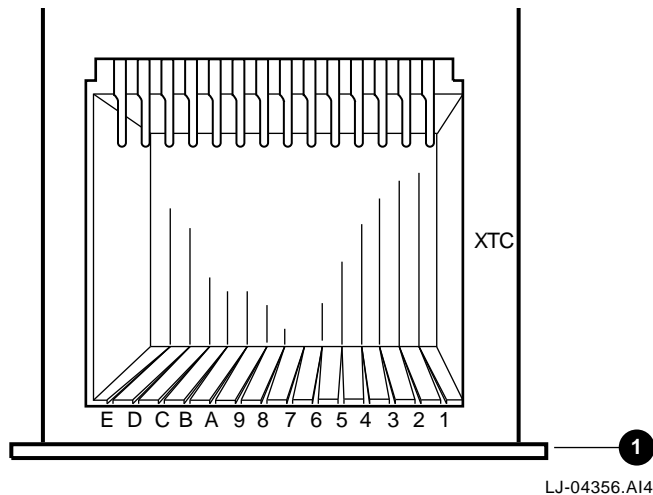
3. Remove the top cover (see Section 5.3.3).

CAUTION

You must wear an antistatic wriststrap attached to the chassis when handling any cards or modules.

4. Put on the antistatic wriststrap. This strap is contained in the plastic pouch located on top of the power supply modules.
5. Select the slot where the option card is to be installed and lift the lever to open the chosen slot. Figure A-1 shows the slot designations of the XMI card cage as viewed from the top front of the chassis.
6. Align the option card with the chosen slot and slide the option card down into the slot until it stops.
7. Lower the lever to lock the option card into the slot.
8. Replace the top cover.
9. Proceed to Section A.1.2 and perform the cabling of the option.

Figure A-1 Top Front View of XMI Card Cage Slot Designations



❶ Front bezel

Option Installation

A.1.2 Cabling of Options Installed in the XMI Chassis

Perform the following procedure to access the XMI chassis card cage backplane area to install the option cables:

WARNING

Before performing this procedure, switch off the circuit breakers on the back of the XMI chassis and unplug the XMI chassis from the receptacle on the power distribution unit.

1. Extend the stabilizing legs at the front of the cabinet (if stabilizing legs are provided).

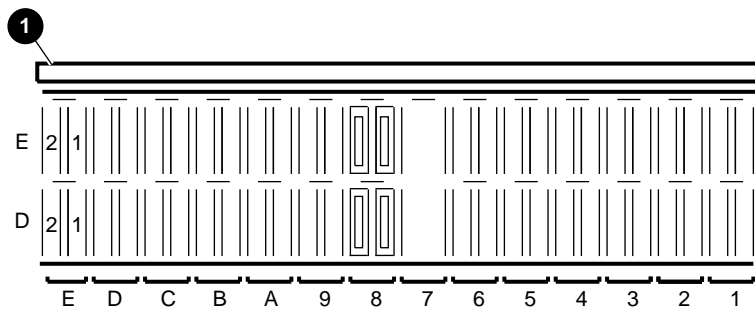
WARNING

Before extending the XMI chassis for service, ensure that the rack or cabinet is stable and that all provided stabilizing features have been activated. The stabilizing features for the rack or cabinet are configuration dependent.

2. Extend the XMI chassis for service (see Section 5.3.2).
3. Remove the bottom cover (see Section 5.3.4).
4. Press in on the left and right slide locks and slide the XMI chassis back into the equipment cabinet.
5. Access the I/O bulkhead at the rear of the XMI chassis.
6. Remove the number of plate covers from the I/O bulkhead that are required for the installation of the option's cable assembly plate.
7. Feed the option's cables through the opening in the I/O bulkhead.
8. Attach the cable assembly plate to the I/O bulkhead by using the proper number of screws.
9. Extend the XMI chassis and route the option cables through the bottom of the XMI chassis to the card cage backplane.
10. Connect the option cables to the backplane slot that the option is installed in by following the installation instructions provided with the option being installed in the chassis (Figure A-2).

Option Installation

Figure A-2 Bottom View of XMI Card Cage Slot Designations



LJ-04357.A14

1 Front bezel

11. Replace the bottom cover.
12. Press in on the left and right slide locks and slide the XMI chassis into the cabinet.
13. Secure the chassis to the front rails with the four retaining screws.
14. Replace the front bezel.

Option Installation

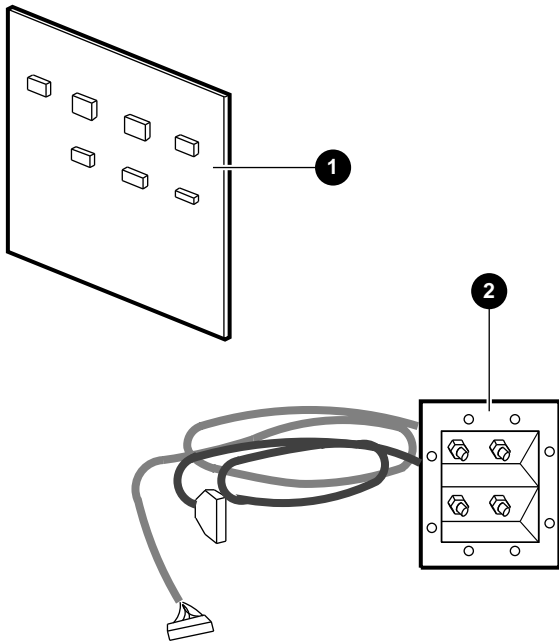
A.1.3 Installing the 2T-CIXCD-RA Option

The 2T-CIXCD-RA option provides the interface between the AlphaServer 8200 RM systems high-speed XMI bus and the CI bus.

The 2T-CIXCD-RA option kit consists of the following (see Figure A-3):

- T2080-YA module ❶
- CK-CIXCD-RA cabinet kit ❷

Figure A-3 2T-CIXCD-RA Option Kit Contents



LJ-04358.A14

Option Installation

Perform the following procedure to install the 2T-CIXCD-RA option:

WARNING

Before performing this procedure, switch off the circuit breakers on the back of the XMI chassis and unplug the XMI chassis from the receptacle on the power distribution unit.

1. Extend the stabilizing legs at the front of the cabinet (if stabilizing legs are provided).

WARNING

Before extending the XMI chassis for service, ensure that the rack or cabinet is stable and that all provided stabilizing features have been activated. The stabilizing features for the rack or cabinet are configuration dependent.

2. Extend the XMI chassis for service (see Section 5.3.2).
3. Remove the top cover (see Section 5.3.3).

CAUTION

You must wear an antistatic wriststrap attached to the chassis when handling any cards or modules.

4. Put on the antistatic wriststrap. This strap is contained in the plastic pouch located on top of the power supply modules.
5. Select the slot where the T2080-YA module is to be installed and lift the lever to open the chosen slot. Figure A-1 shows the slot designations of the XMI card cage as viewed from the top front of the chassis.
6. Align the T2080-YA module with the chosen slot, with the components facing to the right of the card cage, and slide the module down into the slot until it stops.
7. Lower the lever to lock the module into the slot.
8. Replace the top cover.

Option Installation

9. Remove the bottom cover (see Section 5.3.4).
10. Press in on the left and right slide locks and slide the XMI chassis back into the equipment cabinet.
11. Access the I/O bulkhead at the rear of the XMI chassis.
12. Remove the plate covers from a quad position on the I/O bulkhead for the installation of the cable assembly plate.
13. Feed the connectors from both cables through the opening in the I/O bulkhead.
14. Attach the cable assembly plate to the I/O bulkhead by using the four screws.
15. Extend the XMI chassis and route the connectors from both cables through the bottom of the XMI chassis to the card cage backplane.
16. Connect the cables to the backplane slot that the T2080-YA module is installed in. Refer to Figure A-2 for backplane slot locations.
17. Connect the 30-pin (keyed) RaRb cable connector ❶ of the Receive coaxial cable into the T2080-YA slot, Section E1, of the backplane (see Figure A-4).
18. Connect the 30-pin (unkeyed) TaTb cable connector ❷ of the Transmit coaxial cable into the T2080-YA slot, Section D1, of the backplane (see Figure A-4).

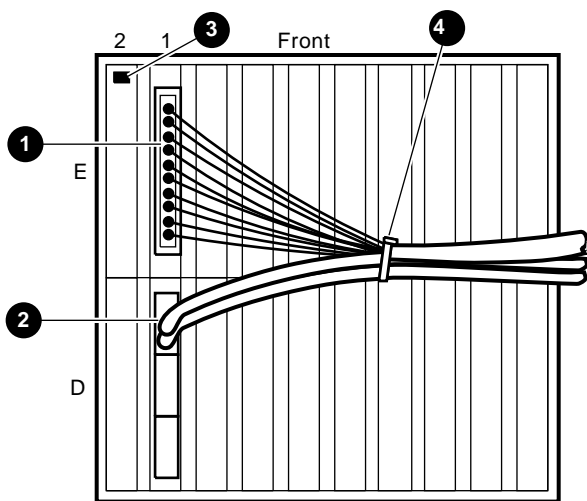
NOTE

The cable exiting this connector must face towards the front of the chassis when installed.

19. Install the +5 Vdc jumper ❸ in the T2080-YA slot, Section E2, of the backplane at pin location 45-15 for CIXCD setting (see Figure A-4).
20. Refer to the *CIXCD Interface User Guide* for instructions on setting cluster size (T2080-YA slot, Section D2).
21. Dress the cables with a tie wrap ❹ as shown in Figure A-4.

Option Installation

Figure A-4 Installing the 2T-CIXCD-RA Connectors and Jumper



LJ-04359.A14

22. Replace the bottom cover.
23. Press in on the left and right slide locks and slide the XMI chassis into the cabinet.
24. Secure the chassis to the front rails with the four retaining screws.
25. Replace the front bezel.

A.2 PCI Chassis Option Installation

The following sections contain general instructions for installing options in the PCI chassis and the specific installation instructions for installing the KFE70-CA PCI-to-EISA adapter kit.

A.2.1 Installing Option Cards

Perform the following procedure to access the PCI card cage and install an option card:

WARNING

Before performing this procedure, unplug the PCI chassis from the receptacle on the power distribution unit.

1. Extend the stabilizing legs at the front of the cabinet (if stabilizing legs are provided).

WARNING

Before extending the PCI chassis for service, ensure that the rack or cabinet is stable and that all provided stabilizing features have been activated. The stabilizing features for the rack or cabinet are configuration dependent.

2. Extend the PCI chassis for service (see Section 5.4.2).
3. Remove the top cover (see Section 5.4.3).

CAUTION

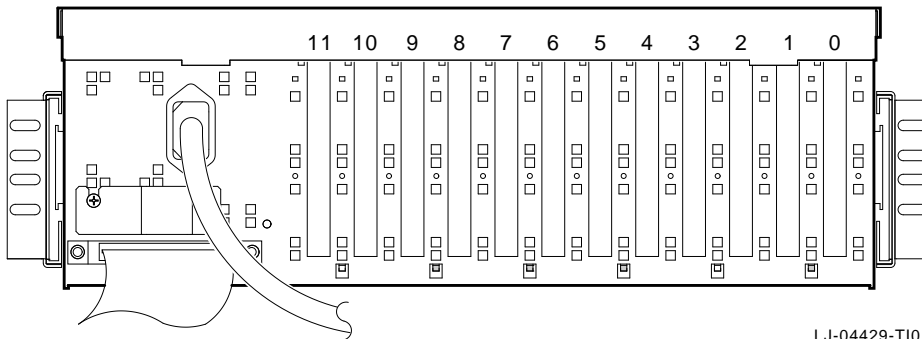
You must wear an antistatic wriststrap attached to the chassis when handling any cards or modules.

4. Put on the antistatic wriststrap.
5. Select the slot where the option card is to be installed and remove the blank filler panel from the selected slot (save the filler panel screw for securing the option card in place). Figure A-5 shows the slot designations of the PCI card cage as viewed from the rear of the chassis.

Option Installation

6. Align the option card with the chosen slot and slide the option card down into the slot until it is seated properly.
7. Secure the option card in place with the filler panel screw that was saved in step 5.
8. Replace the top cover.
9. Proceed to Section A.2.2 and perform the cabling of the option.

Figure A-5 Rear View of PCI Card Cage Slot Designations



LJ-04429-T10

Option Installation

A.2.2 Cabling of Options Installed in the PCI Chassis

Perform the following procedure to access the rear of the PCI chassis to install the option cables:

WARNING

Before performing this procedure, unplug the PCI chassis from the receptacle on the power distribution unit.

1. Open the rear door on the cabinet.
2. Connect the cables to the connector(s) on the rear of the option card.

Option Installation

A.2.3 Installing the KFE70-CA PCI-to-EISA Adapter Kit

The PCI chassis contains a 12-slot card cage that houses up to 12 PCI options. With the installation of the KFE70-CA PCI-to-EISA adapter kit in slot 0 and 2 of the PCI chassis, 10 slots are available for a mixture of PCI and EISA options. With the KFE70-CA PCI-to-EISA adapter kit installed in the PCI chassis, Table A-1 lists how the 12 slots in the chassis are used.

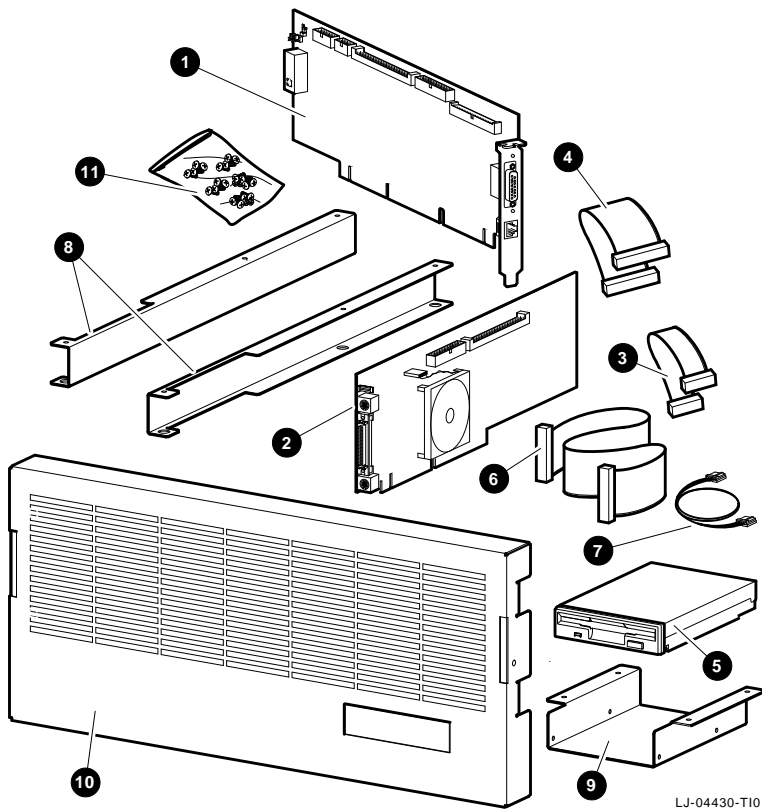
Table A-1 PCI/EISA Slot Usage

Slot Number	Usage
0	Standard I/O module (part of KFE70-CA adapter kit)
1	EISA option only
2	Connector module (part of KFE70-CA adapter kit)
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

Option Installation

Figure A-6 shows the contents of the KFE70-CA PCI-to-EISA adapter kit.

Figure A-6 KFE70-CA PCI-to-EISA Adapter Kit Contents



- | | |
|--------------------------------------|-----------------------------------|
| ❶ B2110-AA standard I/O card | ❷ RX26 power cable |
| ❸ Connector card | ❸ PCI chassis extension brackets |
| ❹ 34-pin ribbon cable | ❹ Diskette drive bracket |
| ❺ 60-pin ribbon cable | ❺ 22.23 cm (8.75 in.) front bezel |
| ❻ RX26-AA 2.8 MB 3.5" diskette drive | ❻ Bag of hardware |
| ❼ RX26 signal cable | |

Option Installation

Refer to Figure A-7 and perform the following procedure to install the KFE70-CA PCI-to-EISA adapter kit:

WARNING

Before performing this procedure, unplug the PCI chassis from the receptacle on the power distribution unit.

1. Extend the stabilizing legs at the front of the cabinet (if stabilizing legs are provided).

WARNING

Before extending the PCI chassis for service, ensure that the rack or cabinet is stable and that all provided stabilizing features have been activated. The stabilizing features for the rack or cabinet are configuration dependent.

2. Extend the PCI chassis for service (see Section 5.4.2).
3. Remove the top cover (see Section 5.4.3).

CAUTION

You must wear an antistatic wriststrap attached to the chassis when handling any cards or modules.

4. Remove the blank filler panel from slot 0 (save the filler panel screw for securing the installed card in place).
5. Align the B2110-AA standard I/O card ⑦ with slot 0 and slide the card down into the slot until it is seated properly.
6. Secure the B2110-AA standard I/O card in place with the filler panel screw that was saved in step 4.
7. Remove the blank filler panel from slot 2 (save the filler panel screw for securing the installed card in place).
8. Align the connector card ⑥ with slot 2 and slide the card down into the slot until it is seated properly.

Option Installation

9. Secure the connector card in place with the filler panel screw that was saved in step 7.

IMPORTANT

If an option card is going to be installed in slot 1, install the option card now before proceeding with this procedure.

10. Connect the 34-pin ribbon cable between the B2110-AA standard I/O card and the connector card.
11. Connect the 60-pin ribbon cable between the B2110-AA standard I/O card and the connector card.
12. Replace the top cover.
13. Install the PCI chassis extension brackets ❶ on the bottom left and right edges of the chassis with three screws ❷ each.
14. Install the diskette drive bracket ❸ on the bottom right front of the chassis (viewed from the front) with four screws ❹. DO NOT tighten these screws at this time.
15. Set the mode switch on the diskette drive to 1. The mode switch is located on the right side of the drive at the back corner.

IMPORTANT

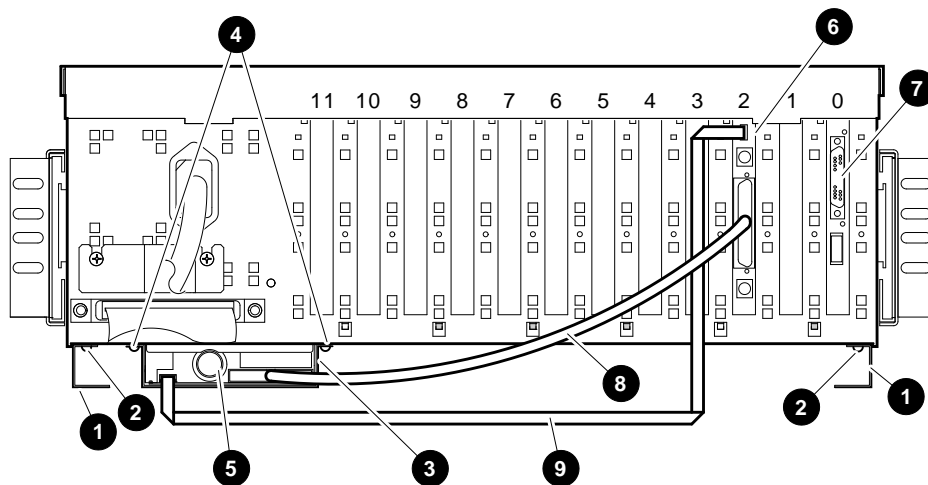
Ensure that the mode switch is set to 1 before performing the next step, since the diskette drive bracket covers the switch.

16. Slide the diskette drive ❺ into the diskette drive bracket with the front of the drive facing the front of the chassis.
17. Tighten the four diskette drive bracket screws.
18. Connect one end of the RX26 signal cable ❻ to the signal connector on the rear of the diskette drive.
19. Connect the other end of the RX26 signal cable to the signal connector on the connector card.
20. Connect one end of the RX26 power cable ❼ to the power connector on the rear of the diskette drive.
21. Connect the other end of the RX26 power cable to the power connector on the connector card.

Option Installation

22. Release the slide locking levers and push the chassis into the cabinet.
23. Secure the chassis to the front rails with the four retaining screws.
24. Install the 22.23 cm (8.75 in.) front bezel that comes with the kit on the chassis.

Figure A-7 KFE70-CA PCI-to-EISA Adapter Kit Installation



LJ-04428-T10

A.3 VME Chassis Option Installation

The following sections contain general instructions for installing options in the VME chassis and the specific installation instructions for installing the DWPVC-AA VME-to-PCI adapter kit.

A.3.1 Installing Option Modules

Perform the following procedure to access the VME card cage and install an option module:

WARNING

Before performing this procedure, switch off the On/Off switch inside the front cover of the VME chassis and unplug the VME chassis from the receptacle on the power distribution unit.

1. Extend the stabilizing legs at the front of the cabinet (if stabilizing legs are provided).

WARNING

Before extending the VME chassis for service, ensure that the rack or cabinet is stable and that all provided stabilizing features have been activated. The stabilizing features for the rack or cabinet are configuration dependent.

2. Extend the VME chassis for service (see Section 5.5.2).
3. Open the VME chassis front cover (see Section 5.5.3).

CAUTION

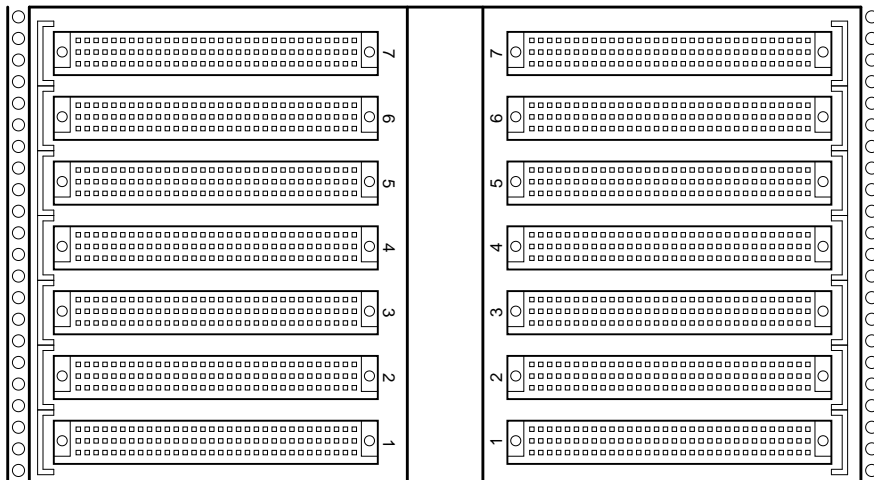
You must wear an antistatic wriststrap attached to the chassis when handling any cards or modules.

4. Put on the antistatic wriststrap.
5. Select the slot where the option module is to be installed and remove the blank module from the chosen slot (save the blank module screws for securing the option module in place). Figure A-8 shows the slot designations of the VME card cage as viewed from the front of the chassis.

Option Installation

6. Align the option module with the chosen slot and slide the option module into the slot until it is properly seated.
7. Secure the option module into the slot with the screws that were saved in step 5.
8. Proceed to Section A.3.2 and perform the cabling of the option.

Figure A-8 Front View of VME Card Cage Slot Designations



LJ-04431-T10

Option Installation

A.3.2 Cabling of Options Installed in the VME Chassis

Perform the following procedure to access the VME chassis card cage backplane area to install the option cables:

WARNING

Before performing this procedure, switch off the On/Off switch inside the front cover of the VME chassis and unplug the VME chassis from the receptacle on the power distribution unit.

1. Extend the stabilizing legs at the front of the cabinet (if stabilizing legs are provided).

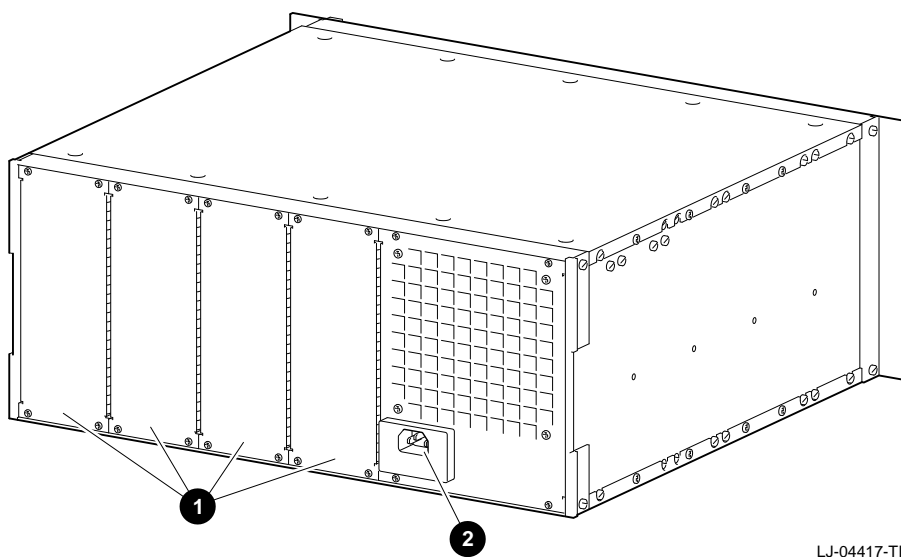
WARNING

Before extending the VME chassis for service, ensure that the rack or cabinet is stable and that all provided stabilizing features have been activated. The stabilizing features for the rack or cabinet are configuration dependent.

2. Extend the VME chassis for service (see Section 5.5.2).
3. Remove the top cover (see Section 5.5.4).
4. Press in on the left and right slide locks and slide the VME chassis back into the equipment cabinet.
5. Access the I/O bulkhead at the rear of the VME chassis (see Figure A-9).
6. Remove the number of plate covers from the I/O bulkhead that are required for the installation of the option's cable assembly plate (save four screws for securing the option's cable assembly plate).
7. Feed the option's cables through the opening in the I/O bulkhead.
8. Attach the cable assembly plate to the I/O bulkhead by using four screws from the plate covers that were removed in step 6.
9. Extend the VME chassis and route the option cables below the power supply and to the left of the card cage (as viewed from the front).
10. Connect the option cables to the connector(s) on the option module that is installed by following the installation instructions provided with the option being installed in the chassis.

Option Installation

Figure A-9 VME Chassis I/O Bulkhead



LJ-04417-T10

❶ I/O bulkhead plate covers

❷ AC input jack

11. Replace the top cover.
12. Press in on the left and right slide locks and slide the VME chassis into the cabinet.
13. Secure the chassis to the front rails with the four retaining screws.
14. Close the front cover.

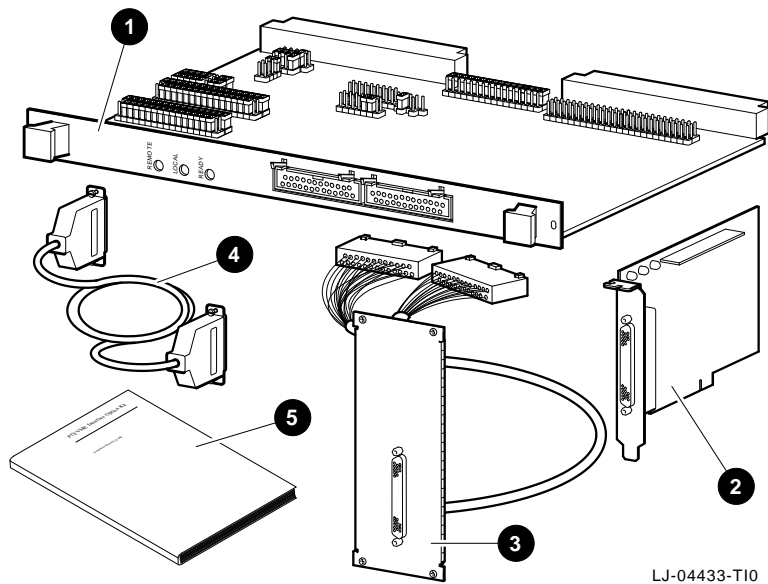
Option Installation

A.3.3 Installing the DWPVC-AA VME-to-PCI Adapter Kit

The DWPVC-AA adapter kit provides the interface between the VME chassis and the PCI chassis.

Figure A-10 shows the contents of the DWPVC-AA VME-to-PCI adapter kit.

Figure A-10 DWPVC-AA VME-to-PCI Adapter Kit Contents



- | | |
|------------------------|----------------------|
| ❶ VME module | ❷ PCI card |
| ❸ Cable assembly plate | ❹ Interconnect cable |
| | ❺ Option manual |

Perform the following procedure to install the DWPVC-AA VME-to-PCI adapter kit:

WARNING

Before performing this procedure, unplug the PCI chassis and the VME chassis from the receptacles on the power distribution unit.

1. Extend the stabilizing legs at the front of the cabinet (if stabilizing legs are provided).

Option Installation

WARNING

Before extending the PCI or VME chassis for service, ensure that the rack or cabinet is stable and that all provided stabilizing features have been activated. The stabilizing features for the rack or cabinet are configuration dependent.

2. Extend the PCI chassis for service (see Section 5.4.2).
3. Remove the top cover (see Section 5.4.3).

CAUTION

You must wear an antistatic wriststrap attached to the chassis when handling any cards or modules.

4. Put on the antistatic wriststrap.
5. Select the slot where the PCI card is to be installed and remove the blank filler panel from the selected slot (save the filler panel screw for securing the option card in place). Figure A-5 shows the slot designations of the PCI card cage as viewed from the rear of the chassis.
6. Align the PCI card with the chosen slot and slide the option card down into the slot until it is seated properly.
7. Secure the PCI card in place with the filler panel screw that was saved in step 5.
8. Replace the top cover.
9. Release the slide locking levers and push the PCI chassis into the cabinet.
10. Secure the PCI chassis to the front rails with the four retaining screws.
11. Replace the front bezel on the PCI chassis.
12. Extend the VME chassis for service (see Section 5.5.2).
13. Open the VME chassis front cover (see Section 5.5.3).

CAUTION

You must wear an antistatic wriststrap attached to the chassis when handling any cards or modules.

Option Installation

14. Put on the antistatic wriststrap.
15. Remove the blank module from slot 1 of the VME card cage (save the blank module screws for securing the option module in place). Figure A-8 shows the slot designations of the VME card cage as viewed from the front of the chassis.
16. Align the VME module with slot 1 and slide the option module into the slot until it is seated properly.
17. Secure the VME module into the slot with the screws that were saved in step 15.
18. Remove the VME chassis top cover (see Section 5.5.4).
19. Release the slide locking levers and push the VME chassis into the cabinet.
20. Access the I/O bulkhead at the rear of the VME chassis (see Figure A-9).
21. Remove one of the plate covers from the I/O bulkhead for installing the DWPVC-AA VME-to-PCI adapter kit's cable assembly plate (save the four screws for securing the kit's cable assembly plate).
22. Feed the cable assembly plate cable through the opening in the I/O bulkhead.
23. Attach the cable assembly plate to the I/O bulkhead by using the four screws from the plate cover that was removed in step 21.
24. Extend the VME chassis and route the cable assembly plate cable below the power supply and to the left of the card cage (as viewed from the front).
25. Connect the A cable connector to the A connector on the front of the VME module.
26. Connect the B cable connector to the B connector on the front of the VME module.
27. Replace the VME chassis top cover.
28. Release the slide locking levers and push the VME chassis into the cabinet.
29. Secure the VME chassis to the front rails with the four retaining screws.
30. Close the front cover.
31. From the rear of the equipment cabinet, connect one end of the interconnect cable to the connector on the PCI card at the rear of the PCI chassis.
32. Connect the other end of the interconnect cable to the connector on the cable assembly plate at the rear of the VME chassis.

B

Field Replaceable Units

This appendix lists the major field replaceable units (FRUs) for the TLSB (BA701-AA), the XMI (BA601-AC), and the PCI (BA602-AA) chassis.

Table B-1 lists the major field replaceable units (FRUs) and part numbers for the TLSB (BA701-AA) chassis.

Table B-1 TLSB Chassis Field Replaceable Units

Part Description	Part Number
48 Vdc Power Supply	30-39348-02
Control Panel	54-21719-01
Blower Assembly	12-41009-01
AC Input Box	30-39579-01
KFTHA-AA I/O Module	E2052-AA
KFTIA-AA I/O Module	E2054-AA
Single Processor CPU Module	E2056-CA
Dual Processor CPU Module	E2056-DA
128-MB Memory Module	E2035-BA
256-MB Memory Module	E2035-CA
512-MB Memory Module	E2035-DA
1-GB Memory Module	E2035-EA
2-GB Memory Module	E2036-AA
Terminator Module	E2034-AB
System Clock Module	54-21728-05
48 Vdc Line Filter	12-45448-01
Power Cord	17-00083-37
Console Cable	17-01364-02

Field Replaceable Units

Table B-2 lists the major field replaceable units (FRUs) and part numbers for the XMI (BA601-AC) chassis.

Table B-2 XMI Chassis Field Replaceable Units

Part Description	Part Number
Control Panel Bezel	70-22117-01
Control Panel Module	54-16574-02
XTC Timing Module	70-31509-01
AC Front End Tray Assembly	70-27334-01
+5 Vdc Master Regulator Tray	70-29046-01
+5 Vdc Booster Regulator Tray	70-29046-02
5 Vdc Master Converter Module	20-34928-01
5 Vdc Booster Converter Module	20-34929-01
Sequencer and Auxiliary DC Voltage Regulator Tray	70-29046-03
12 Vdc Miniconverter	20-34930-01
24 Vdc Miniconverter	20-34930-02
5 Vdc Miniconverter	20-34930-03
3.3 Vdc/-5.2 Vdc Regulator Tray	70-29046-04
5 Vdc Master Converter Module	20-34928-01
5 Vdc Booster Converter Module	20-34929-01
24 Vdc Fan	12-23374-07
Airflow Sensor	12-36060-01
AC Input Assembly	70-31008-01
I/O Cable [135 cm (53.15 in.)]	17-03085-02
I/O Cable [290 cm (114.18 in.)]	17-03085-01
Twist-lock Adapter Cord	70-31504-01

Field Replaceable Units

Table B-3 lists the major field replaceable units (FRUs) and part numbers for the PCI (BA602-AA) chassis.

Table B-3 PCI Chassis Field Replaceable Units

Part Description	Part Number
Front Bezel Assembly [17.78 cm (7.00 in.)]	70-32515-01
Front Bezel Assembly [22.23 cm (8.75 in.)]	70-32515-02
48 Vdc Power Supply	30-46068-01
Fan	12-23609-19
Power Board	54-23470-01
Motherboard	54-23468-01
Power Cord	17-00083-04

Reader's Comments

AlphaServer 8200 RM System
Installation/Owner's Guide
EK-R8200-IN. A01

Your comments and suggestions help us improve the quality of our publications.

Thank you for your assistance.

I rate this manual's:	Excellent	Good	Fair	Poor
Accuracy (product works as manual says)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Completeness (enough information)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Clarity (easy to understand)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Organization (structure of subject matter)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Figures (useful)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Examples (useful)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Index (ability to find topic)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Page layout (easy to find information)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

I would like to see more/less _____

What I like best about this manual is _____

What I like least about this manual is _____

I found the following errors in this manual:

Page	Description
_____	_____
_____	_____
_____	_____

Additional comments or suggestions to improve this manual:

For software manuals, please indicate which version of the software you are using: _____

Name/Title _____ Dept. _____

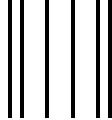
Company _____ Date _____

Mailing Address _____

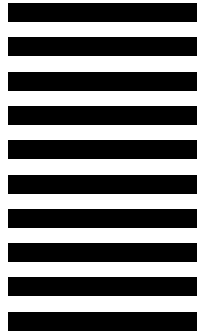
Phone _____

Do Not Tear - Fold Here and Tape

digital™



No Postage
Necessary
If Mailed
in the
United States



BUSINESS REPLY MAIL
FIRST CLASS PERMIT NO. 33 MAYNARD MASS.

POSTAGE WILL BE PAID BY ADDRESSEE

DIGITAL EQUIPMENT CORPORATION
Shared Engineering Services
DIGITAL DRIVE MKO1-2/E12
PO BOX 9501
MERRIMACK, NH 03054-9982



Do Not Tear - Fold Here