



# Sun Fire™ V480 Server Parts Installation and Removal Guide

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# Declaration of Conformity

Compliance Model Number: Cherrystone  
Product Family Name: Sun Fire V480

## EMC

### European Union

This equipment complies with the following requirements of the EMC Directive 89/336/EEC:

EN55022:1998/CISPR22:1997	Class A
EN550024:1998	Required Limits (as applicable):
EN61000-4-2	4 kV (Direct), 8 kV (Air)
EN61000-4-3	3 V/m
EN61000-4-4	1.0 kV Power Lines, 0.5 kV Signal and DC Power Lines
EN61000-4-5	1 kV AC Line-Line and Outdoor Signal Lines 2 kV AC Line-Gnd, 0.5 kV DC Power Lines
EN61000-4-6	3 V
EN61000-4-8	1 A/m
EN61000-4-11	Pass
EN61000-3-2:1995 + A1, A2, A14	Pass
EN61000-3-3:1995	Pass

## Safety

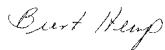
This equipment complies with the following requirements of the Low Voltage Directive 73/23/EEC:

EC Type Examination Certificates:

EN60950:1992, 2nd Edition, Amendments 1, 2, 3, 4, 11	TÜV Rheinland Licence No. S 2171515
IEC 950:1991, 2nd Edition, Amendments 1, 2, 3, 4	CB Scheme Certificate No. Pending Due 12/14/01
Evaluated to all CB Countries	UL Listing: E113363; Vol. 15, 16; Sec. 3, 5

## Supplementary Information


This product was tested and complies with all the requirements for the CE Mark.



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# Regulatory Compliance Statements

Your Sun product is marked to indicate its compliance class:

- Federal Communications Commission (FCC) — USA
- Industry Canada Equipment Standard for Digital Equipment (ICES-003) — Canada
- Voluntary Control Council for Interference (VCCI) — Japan
- Bureau of Standards Metrology and Inspection (BSMI) — Taiwan

Please read the appropriate section that corresponds to the marking on your Sun product before attempting to install the product.

## FCC Class A Notice

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference.
2. This device must accept any interference received, including interference that may cause undesired operation.

**Note:** 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 it is not installed and used in accordance with the instruction manual, it may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his own expense.

**Shielded Cables:** Connections between the workstation and peripherals must be made using shielded cables to comply with FCC radio frequency emission limits. Networking connections can be made using unshielded twisted-pair (UTP) cables.

**Modifications:** Any modifications made to this device that are not approved by Sun Microsystems, Inc. may void the authority granted to the user by the FCC to operate this equipment.

## FCC Class B Notice

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference.
2. This device must accept any interference received, including interference that may cause undesired operation.

**Note:** This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/television technician for help.

**Shielded Cables:** Connections between the workstation and peripherals must be made using shielded cables in order to maintain compliance with FCC radio frequency emission limits. Networking connections can be made using unshielded twisted pair (UTP) cables.

**Modifications:** Any modifications made to this device that are not approved by Sun Microsystems, Inc. may void the authority granted to the user by the FCC to operate this equipment.

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This Class A digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la classe A est conforme à la norme NMB-003 du Canada.

## ICES-003 Class B Notice - Avis NMB-003, Classe B

This Class B digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.


### VCCI 基準について

#### クラス A VCCI 基準について

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# Preface

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The *Sun Fire V480 Server Parts Installation and Removal Guide*, which includes detailed service procedures for the Sun Fire™ V480 server, is intended to be used by technicians, system administrators, qualified Sun™ service providers, and advanced computer system end users who have experience removing and installing server hardware.

For information about the Sun Fire V480 server and detailed instructions for installing, configuring, and administering the server and for diagnosing problems with the server, see your *Sun Fire V480 Server Administration Guide*.

This book does not cover mounting the server in a cabinet or 2-post rack. For those instructions, see the *Sun Fire V480 Server Setup and Rackmounting Guide*. Rackmounting instructions are also printed on labels on the server chassis itself.

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## Before You Read This Book

Follow the instructions for mounting the server in a cabinet or 2-post rack before continuing with the installation and configuration instructions in this manual.

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**Note** – This book does not contain troubleshooting or diagnostics information. For troubleshooting and diagnostics, see your *Sun Fire V480 Server Administration Guide*.

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# How This Book Is Organized

The procedures in this book are organized as follows:

- **Before You Begin**—This section lists the procedures that you must complete before proceeding to the next section. Complete these prerequisite procedures in the sequence in which they are printed.
- **What to Do**—This section contains the current procedure. Complete the steps in the sequence in which they are printed, paying special attention to notes and cautions.
- **What Next**—This section contains the procedures you must complete to return the system to operation. Complete these procedures in the sequence in which they are printed.

This book contains the following chapters and appendixes:

- Chapter 1 illustrates the front panel controls and LED indicators.
- Chapter 2 contains procedures for powering on and powering off the system. In addition, it describes how to prepare the system for service, including the tools required, and how to avoid electrostatic discharge.
- Chapter 3 contains procedures for servicing components on the front panel, including disk drives and power supplies.
- Chapter 4 contains procedures for servicing the CPU-side components, including installing memory.
- Chapter 5 contains procedures for servicing the PCI riser board and associated components, including PCI cards and the RSC card.
- Chapter 6 contains procedures for servicing the centerplane, FC-AL backplane, removable media assembly, and power distribution board.
- Chapter 7 contains procedures for servicing cables, including how to route cables in the system.
- Appendix A describes service procedures for a system installed in a 2-post rack.
- Appendix B is a reference for connector pinouts.
- Appendix C lists physical and environmental specifications.
- Appendix D contains safety information.
- Appendix E is a reference for board connectors.
- Appendix F contains an illustrated parts breakdown, as well as a reference for field-replaceable unit (FRU) numbers.



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# Using UNIX Commands

This document describes how to shut down the system, and how to boot the system. For more detailed information about performing system administration tasks, see one or more of the following:

- *Solaris Handbook for Sun Peripherals*
- AnswerBook2™ online documentation for the Solaris™ operating environment
- Other software documentation that you received with your system

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# Typographic Conventions

Typeface	Meaning	Examples
AaBbCc123	The names of commands, files, and directories; on-screen computer output	Edit your <code>.login</code> file. Use <code>ls -a</code> to list all files. % You have mail.
<b>AaBbCc123</b>	What you type, when contrasted with on-screen computer output	% <b>su</b> Password:
<i>AaBbCc123</i>	Book titles, new words or terms, words to be emphasized	Read Chapter 6 in the <i>User's Guide</i> . These are called <i>class</i> options. You <i>must</i> be superuser to do this.
	Command-line variable; replace with a real name or value	To delete a file, type <code>rm filename</code> .

---

# Shell Prompts

Shell	Prompt
C shell	<i>machine-name%</i>
C shell superuser	<i>machine-name#</i>
Bourne shell and Korn shell	\$
Bourne shell and Korn shell superuser	#

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## Related Documentation

The following table describes the documentation shipped with the Sun Fire V480 server.

Application	Title	Part Number	Format
Rack installation	<i>Sun Fire V480 Server Setup and Rackmounting Guide</i>	816-0902	Printed book
Service	<i>Sun Fire V480 Server Parts Installation and Removal Guide</i>	816-0907	PDF, HTML
Administration, configuration, diagnostics and troubleshooting	<i>Sun Fire V480 Server Administration Guide</i>	816-0904	Printed book, PDF, HTML

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## Accessing Sun Documentation Online

A broad selection of Sun system documentation is located at:

<http://www.sun.com/products-n-solutions/hardware/docs>

A complete set of Solaris documentation and many other titles are located at:

<http://docs.sun.com>

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Please include the part number (816-0907-12) of your document in the subject line of your email.



# Identifying Front and Back Panel Features

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This chapter contains the following sections:

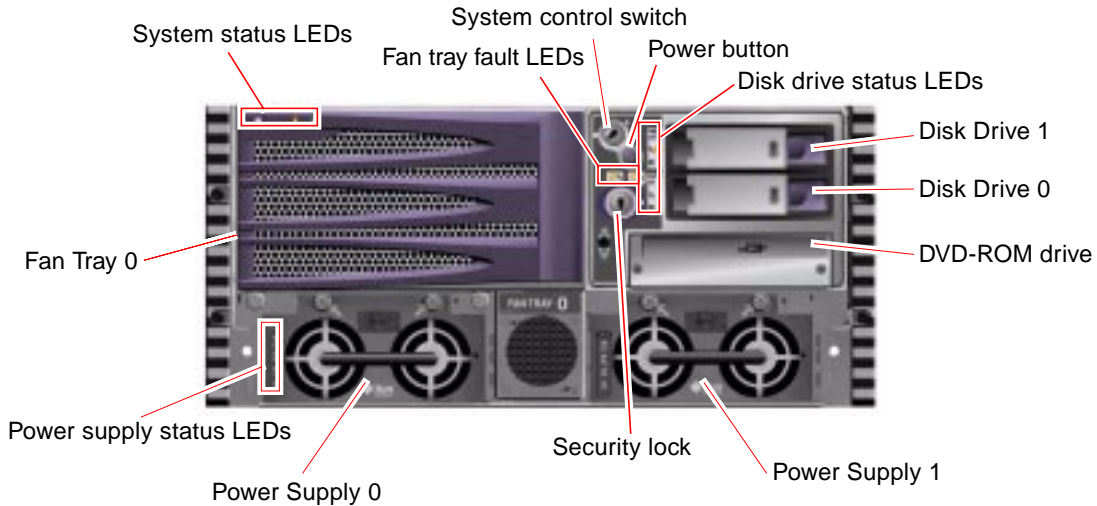
- “Locating Front Panel Features” on page 2
- “Locating Back Panel Features” on page 10

For background information about the Sun Fire V480 server and detailed instructions for installing, configuring, and administering the server and for diagnosing problems with the server, see your *Sun Fire V480 Server Administration Guide*.

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# Locating Front Panel Features

The illustration below shows the system features that you can access from the front panel. In the illustration, the media door and power supply access panel are removed.



For information about front panel controls and LEDs, see “Front Panel LEDs” on page 3.

Two locks control access to the system. The front panel security lock controls access to all front panel components, including the system control switch, Power button, disk drives, power supplies, and Fan Tray 0. The top panel lock controls access to both the CPU access panel and the PCI access panel, and all internal components. These two locks operate independently.

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**Note** – The same key operates the security lock, system control switch, and system top panel lock.

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The standard system is configured with two power supplies, which are accessible from the front of the system. See “Front Panel LEDs” on page 3 for additional details.

## Front Panel LEDs

Several front panel LEDs provide general system status, alert you to system problems, and help you to determine the location of system faults.

During system startup, LEDs are individually toggled on and off to verify that each one is working correctly. Other LEDs located on the front of the system work in conjunction with specific fault LED icons. For example, a fault in the disk subsystem illuminates the disk drive Fault LED next to the affected disk drive. Since all front panel status LEDs are powered by the system's 5-volt standby power source, fault LEDs remain lit for any fault condition that results in a system shutdown.

## System Status LEDs

At the top left of the system as you look at its front are three system status LEDs. The Power/OK LED and the system Fault LED provide a snapshot of the overall system status. The Locator LED helps you to quickly locate a specific system even though it may be one of dozens or even scores of systems in a room. The Locator LED is at the far left in the cluster, and is lit by command from the administrator.




System status LEDs



Each system status LED has a corresponding LED on the back panel.

Listed from left to right, the system status LEDs operate as described in the following table.

**TABLE 1-1** System Status LEDs

Icon	Name	Description
	Locator	This white LED is lit by Solaris command or by Remote System Control (RSC) and Sun Management Center (Sun MC) commands to help locate the system. See the <i>Sun Fire V480 Server Administration Guide</i> for information about turning on the Locator LED.
	Fault	<p>This amber LED lights steadily when a system fault is detected. For example, the system Fault LED lights when a fault occurs in a power supply, disk drive, or cooling fan.</p> <p>In addition to the system Fault LED, other fault LEDs may also be lit, depending on the nature of the fault. If the system Fault LED is lit, check the status of other fault LEDs on the front panel to determine the nature of the fault.</p> <p>During the boot process, this LED <i>flashes</i> for approximately three seconds. If you press the Power button twice within the three seconds, the system will come up with factory-set Safe mode IDROM variable settings, returning the system to the ok firmware prompt. See your <i>Sun Fire V480 Server Administration Guide</i> for more information.</p> <p>See your <i>Sun Fire V480 Server Administration Guide</i> for information about troubleshooting your server.</p>
	Power/OK	This green LED lights continuously when the system power is on.





# Fan Tray Fault LEDs

Each fan tray has a corresponding fault LED, located below the system control switch.



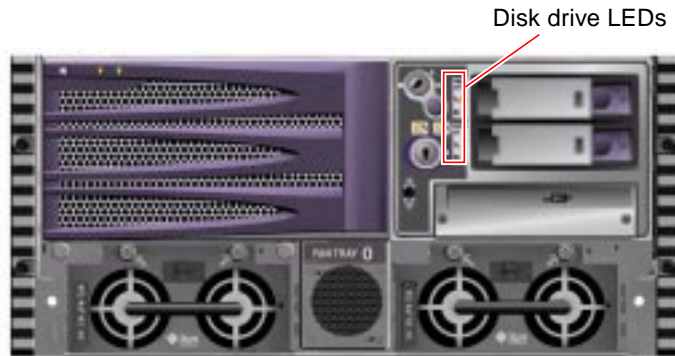
Listed from left to right, the fan tray fault LEDs operate as described in the following table.

**TABLE 1-2** Fan Tray Fault LEDs

Icon	Name	Description
	FT 0 Fault	This amber LED lights to indicate that the system hardware or system software has detected a fault in Fan Tray 0 (CPU fan tray).
	FT 1 Fault	This amber LED lights to indicate that the system hardware or system software has detected a fault in Fan Tray 1 (PCI fan tray).




## Disk Drive Status LEDs

Each disk drive has its own status LEDs.



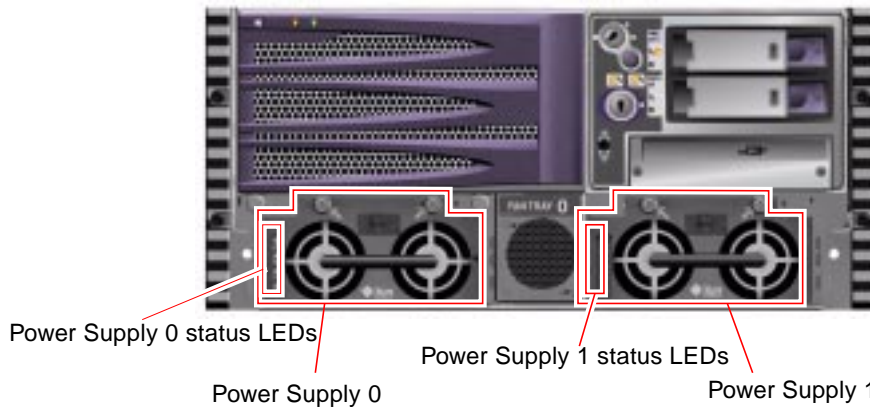
Listed from top to bottom, the disk drive LEDs operate as described in the following table.

**TABLE 1-3** Disk Drive LEDs

Icon	Name	Description
	OK-to-Remove	This blue LED lights when the disk drive has been taken offline and is ready to remove.
	Fault	This amber LED lights to indicate that the system hardware or system software has detected a disk drive fault. If a disk drive Fault LED is lit, the system Fault LED will also be lit.
	Activity	This green LED is lit when the system is on and a disk drive is present, and flashes when the disk drive is reading or writing data.

## Power Supply LEDs

Each power supply has its own status LEDs.



Each power supply LED has a corresponding LED on the back panel.

Listed from top to bottom, the power supply LEDs operate as described in the following table.

**TABLE 1-4** Power Supply LEDs

Icon	Name	Description
	OK-to-Remove	This blue LED lights when the power supply is OK to remove.
	Fault	This amber LED lights to indicate a power supply fault. If a power supply Fault LED is lit, the system Fault LED will also be lit.
	DC Present	This green LED is lit when DC output power is available.
	AC Present	This green LED is lit when AC input power is present. This LED is lit if the corresponding AC cable is plugged in to a power source and the power supply is functioning correctly, regardless of system power status.

# Power Button

The system Power button is recessed to prevent accidentally turning the system on or off. The ability of the Power button to turn the system on or off is controlled by the system control switch.

If the operating system is running, pressing and releasing the Power button initiates a graceful software system shutdown. Pressing and holding in the Power button for five seconds causes an immediate hardware shutdown.



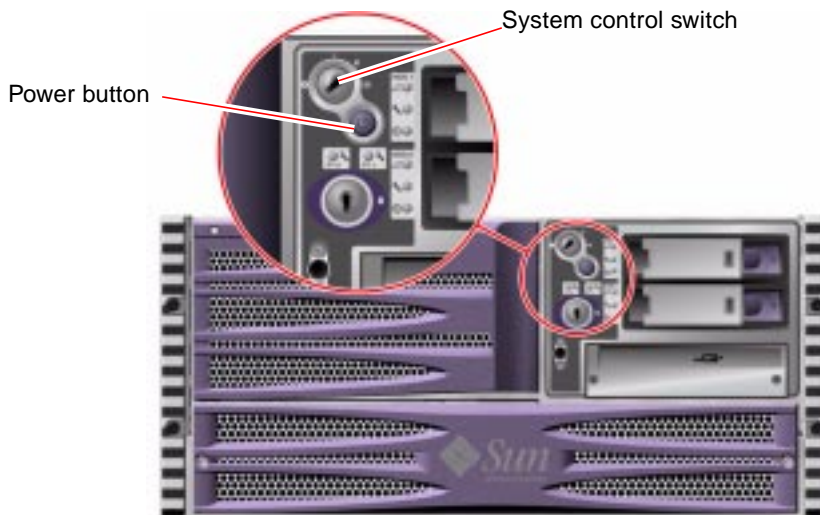
---

**Caution** – Whenever possible, you should use the graceful shutdown method. Forcing an immediate hardware shutdown may cause disk drive corruption and loss of data.

---





## System Control Switch

The four-position system control switch on the system's status and control panel controls the power-on modes of the system and prevents unauthorized users from powering off the system or reprogramming system firmware. In the following illustration, the system control switch is in the Locked position.



The following table describes the function of each system control switch setting.

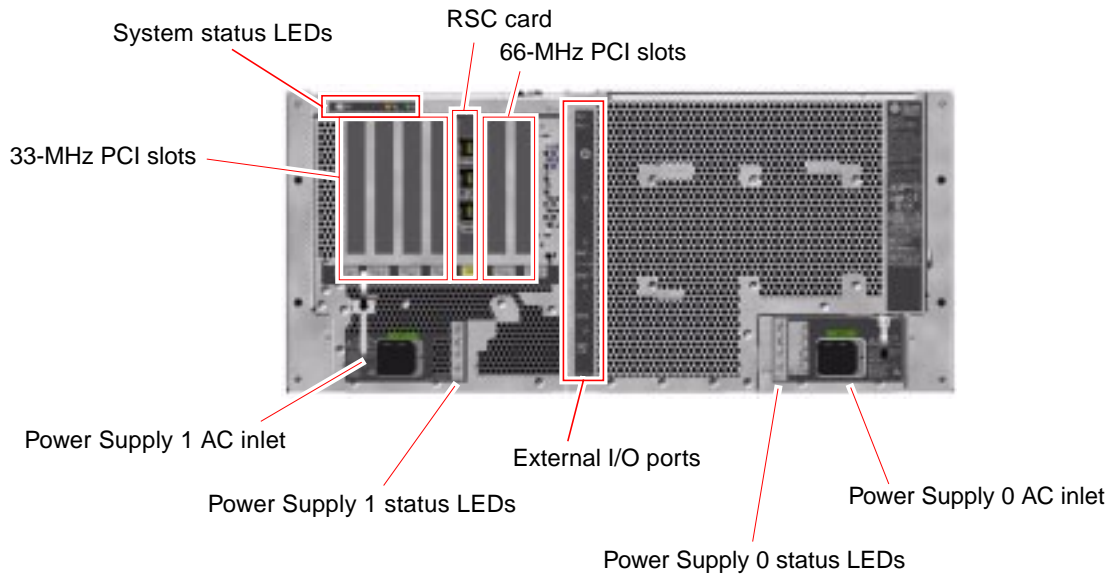
**TABLE 1-5** System Control Switch Settings

Icon	Position	Description
	Normal	This setting enables the system Power button to power the system on or off.
	Locked	<p>This setting disables the system Power button to prevent unauthorized users from powering the system on or off. It also disables the keyboard Stop-A command, terminal Break key command, and ~# tip window command, preventing users from suspending system operation to access the system ok prompt.</p> <p>The Locked setting, used for normal day-to-day operations, also prevents unauthorized programming of the system Boot PROM.</p>
	Diagnostics	This setting forces the power-on self-test (POST) and OpenBoot™ Diagnostics tests to run during system startup and system resets. The Power button functions the same as when the system control switch is in the Normal position.
	Forced Off	<p>This setting forces the system to power off immediately and to enter 5-volt standby mode. It also disables the system Power button. You may want to use this setting when AC power is interrupted and you do not want the system to restart automatically when power is restored. With the system control switch in any other position, if the system were running prior to losing power, it restarts automatically once power is restored.</p> <p>The Forced Off setting also prevents an RSC console from restarting the system. However, the RSC card continues to operate using the system's 5-volt standby power.</p>

---

# Locating Back Panel Features

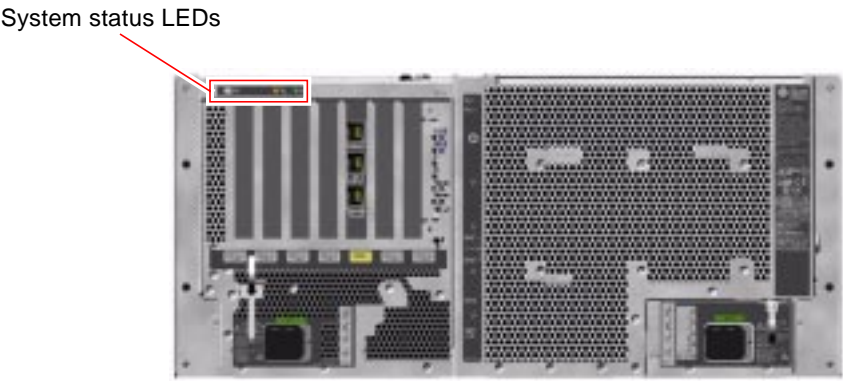
The illustration below shows the system features that are accessible from the back panel.



# Back Panel LEDs

## System Status LEDs

The back panel system status LEDs consist of the Power/OK LED, the system Fault LED, and the Locator LED. These LEDs are located in the top-left corner of the back panel, and operate as described in TABLE 1-1.



## Ethernet Connection LEDs

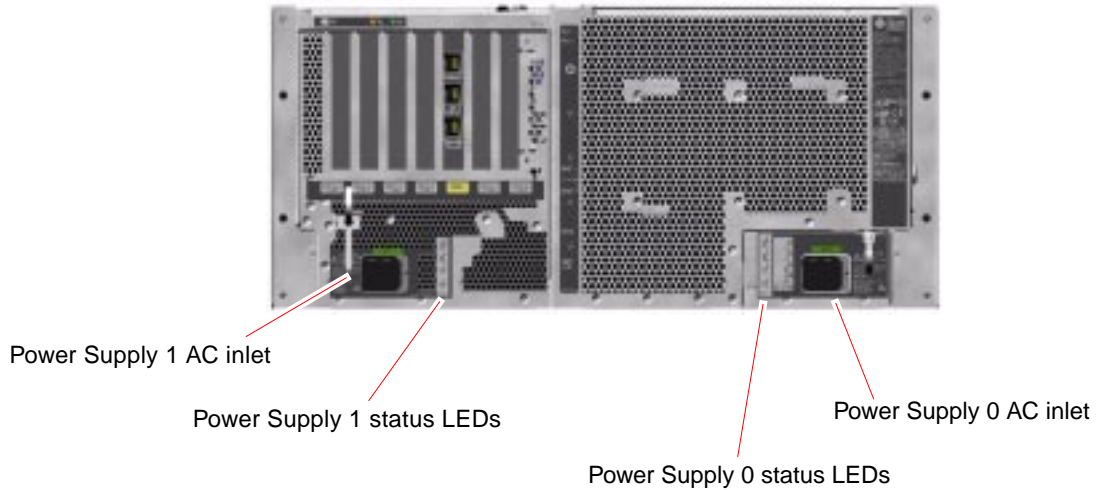
A set of Ethernet connection LEDs is located in each Ethernet port. The Ethernet connection LEDs operate as described in the following table.

**TABLE 1-6** Ethernet Connection LEDs

Name	Description
Link Up	This green LED is lit when an Ethernet connection is present.
Activity	This amber LED flashes whenever an Ethernet connection is active, that is, transmitting or receiving data.

## Power Supply LEDs

Each power supply has a corresponding set of four LEDs.



These LEDs operate as described in TABLE 1-4.

---

**Note** – Power Supply 1 LEDs are located on the left, and Power Supply 0 LEDs are on the right. This is opposite to the arrangement of the power supply status LEDs on the front panel.

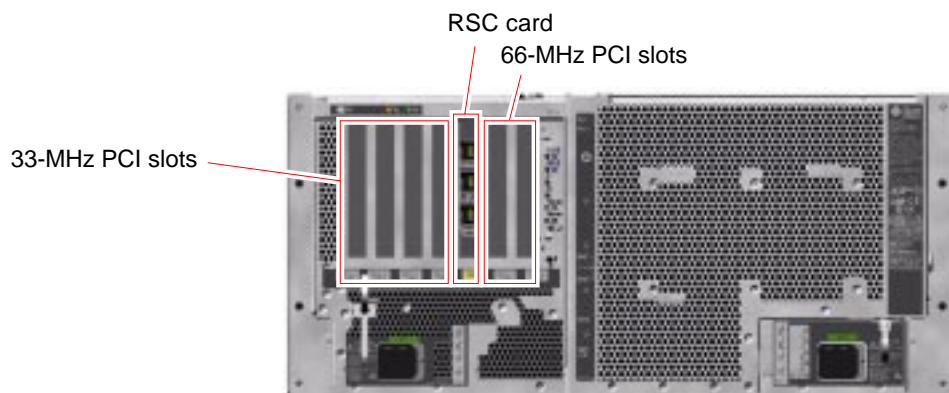
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# Back Panel Slots and Ports

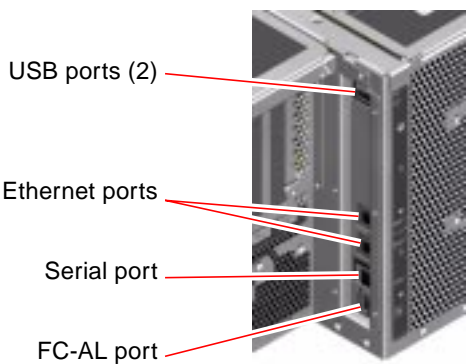
## PCI Slots

The Sun Fire V480 server has four 33-MHz PCI slots and two 66-MHz slots; these are labeled on the back panel. The Remote System Control (RSC) card is located between the low-speed and high-speed slots.







# External Ports

The Sun Fire V480 server has six external data ports on the back panel.



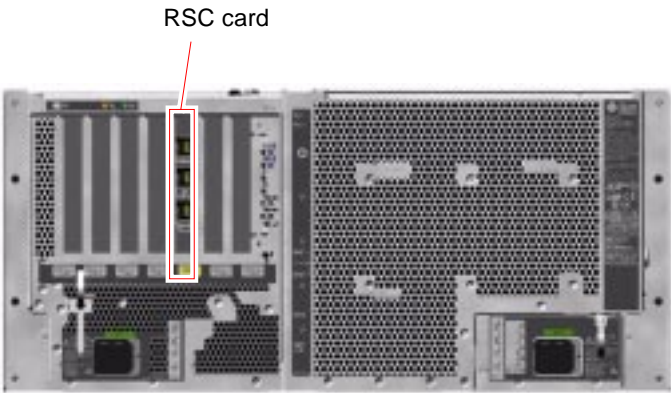
These external ports are described in TABLE 1-7.

**TABLE 1-7** Back Panel External Ports

Icon	Description
	Universal Serial Bus (USB) ports. The Sun Fire V480 has two USB ports.
	Ethernet ports. The system has two Ethernet ports.
	Serial port. The system has one serial port on the back panel, which uses an RJ-45 connector.
	Fibre-Channel Arbitrated-Loop (FC-AL) external loop.



# RSC Ports

The Remote System Control (RSC) card has three connectors.



These RSC connectors are described in TABLE 1-8.

**TABLE 1-8** RSC External Ports

Icon	Description
SERIAL	Serial (RJ-45) port
	Modem (RJ-11) port
	Ethernet port



## Preparing to Service the System

---

This chapter describes service procedures. It contains the following sections:

- “Tools Required for Installation and Service” on page 18
- “How to Power On the System” on page 18
- “How to Power Off the System” on page 22
- “How to Initiate a Reconfiguration Boot” on page 23
- “How to Slide the System Out of the Cabinet” on page 25
- “How to Slide the System Out of a Fully Populated Cabinet” on page 28
- “How to Slide the System Into the Cabinet” on page 30
- “How to Remove the System From the Cabinet” on page 32
- “How to Install the System Into the Cabinet” on page 35
- “How to Avoid Electrostatic Discharge” on page 39

---

**Note** – If you are servicing a system installed in a 2-post rack, see Appendix A.

---

## Guidelines

Be sure to keep the following guidelines in mind:

- Except for removing and installing power supplies and disk drives, this system must be serviced by qualified service providers.
- Power supplies are hot-swappable. For information about hot-swapping, see “About Hot-Swappable and Hot-Pluggable Components” on page 44.
- Internal disk drives are hot-pluggable. For information about hot-plugging, see “About Hot-Swappable and Hot-Pluggable Components” on page 44.
- For servicing any other parts internal to the system, you must first power off the system. See “How to Power Off the System” on page 22.

---

# Tools Required for Installation and Service

The following tools are required to service the system:

- Screwdriver, standard Phillips No. 1
- Screwdriver, standard Phillips No. 2
- Screwdriver, long Phillips No. 2 (shaft at least 8 inches long)
- Needle-nose pliers
- Adjustable wrench
- Electrostatic discharge (ESD) mat, Sun part number 250-1088, or equivalent
- Grounding wrist or foot strap

The latter two items help protect the server against damage due to electrostatic discharge. For more information, see “How to Avoid Electrostatic Discharge” on page 39.

---

## How to Power On the System

### Before You Begin

Do not use this power-on procedure if you have just added any new internal option or external storage device, or if you have removed a storage device without replacing it. To power on the system under those circumstances, see:

- “How to Initiate a Reconfiguration Boot” on page 23



---

**Caution** – Never move the system when the system power is on. Movement can cause catastrophic disk drive failure. Always power off the system before moving it.

---



---

**Caution** – Before you power on the system, make sure that all access panels are properly installed.

---

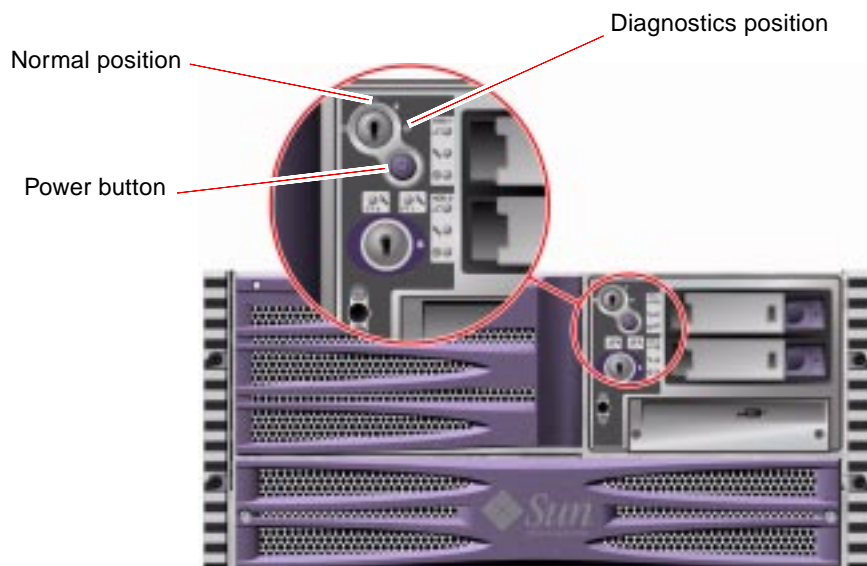
# What to Do

1. **Turn on power to any peripherals and external storage devices.**  
Read the documentation supplied with the device for specific instructions.
2. **Turn on power to the ASCII terminal or local graphics terminal, if present.**
3. **Open the media door.**  
Use the system key to unlock the media door.



4. Insert the system key into the system control switch and turn the system control switch to the Normal or Diagnostics position.

See “Locating Front Panel Features” on page 2 for information about each system control switch setting.



5. Press the Power button that is below the system control switch to power on the system.

---

**Note** – The system may take anywhere from 30 seconds to two minutes before video is displayed on the system monitor or the `ok` prompt appears on an attached terminal. This time depends on the system configuration (number of CPUs, memory modules, PCI cards) and the level of power-on self-test (POST) and OpenBoot™ Diagnostics tests being performed.

---



**6. Turn the system control switch to the Locked position.**

This prevents anyone from accidentally powering off the system.



**7. Remove the system key from the system control switch and keep it in a secure place.**

## What Next

To power off the system, complete this task:

- “How to Power Off the System” on page 22

---

# How to Power Off the System

## Before You Begin

Applications running on the Solaris operating environment can be adversely affected by a poorly executed system shutdown. Make sure you have gracefully shut down any applications before powering off the system.

## What to Do

1. **Notify users that the system will be powered down.**
2. **Back up the system files and data, if necessary.**
3. **Ensure that the system control switch is in the Normal or Diagnostics position.**
4. **Press and release the Power button on the system front panel.**

The system begins a graceful software system shutdown.

---

**Note** – Pressing and releasing the Power button initiates a graceful software system shutdown. Pressing and holding in the Power button for five seconds causes an immediate hardware shutdown. Whenever possible, you should use the graceful shutdown method. Forcing an immediate hardware shutdown may cause disk drive corruption and loss of data. Use that method only as a last resort.

---

5. **Wait for the system Power/OK LED to turn off.**
6. **Turn the system control switch to the Forced Off position.**



---

**Caution** – Be sure to turn the system control switch to the Forced Off position before handling any internal components. Otherwise, it is possible for an operator at a Remote System Control (RSC) console to restart the system while you are working inside it. The Forced Off position is the only system control switch position that prevents an RSC console from restarting the system.

---

7. **Remove the system key from the system control switch and keep it in a secure place.**

## What Next

Continue with your parts removal and installation, as needed.

---

## How to Initiate a Reconfiguration Boot

After installing any new internal option or external storage device, you must perform a reconfiguration boot so that the operating system is able to recognize the newly installed device(s). In addition, if you remove any device and do not install a replacement device prior to rebooting the system, you must perform a reconfiguration boot in order for the operating system to recognize the configuration change. This requirement also applies to any component that is connected to the system's I<sup>2</sup>C bus, including memory modules, CPU/Memory boards, and power supplies.

This requirement *does not* apply to any component that is:

- Installed or removed as part of a hot-plug or hot-swap operation
- Installed or removed before the operating system is installed
- Installed as an identical replacement for a component that is already recognized by the operating system

## Before You Begin



---

**Caution** – Before you power on the system, make sure that the system doors and all panels are properly installed.

---

You need a system ASCII terminal, local graphics terminal, or a `tip` connection to the Sun Fire V480 server in order to issue software commands. See your *Sun Fire V480 Server Administration Guide*.

## What to Do

1. **Turn on power to any peripherals and external storage devices.**  
Read the documentation supplied with the device for specific instructions.
2. **Turn on power to the ASCII terminal or local graphics terminal.**

**3. Insert the system key into the system control switch and turn the system control switch to the Diagnostics position.**

Use the Diagnostics position to run POST and OpenBoot Diagnostics tests to verify that the system functions correctly with the new part(s) you just installed. See “Locating Front Panel Features” on page 2 for information about system control switch settings.

**4. Press the Power button below the system control switch to power on the system.**

**5. When the system banner is displayed on the system console, immediately abort the boot process to access the system `ok` prompt.**

The system banner contains the Ethernet address and host ID. To abort the boot process, use one of the following methods:

- Hold down the Stop key and press A on a Sun keyboard.
- Press the Break key on the terminal keyboard.
- Type `~#` in a `tip` window.

---

**Note** – The system may take anywhere from 30 seconds to two minutes before the system banner appears. This time depends on the system configuration (number of CPUs, memory modules, PCI cards) and the level of power-on self-test (POST) and OpenBoot Diagnostics tests being performed.

---

**6. At the `ok` prompt, type:**

```
ok env-on
Environmental monitor is ON
ok boot -r
```

The `env-on` command reenables the OpenBoot environmental monitor, which may have been disabled as a result of the abort key sequence. Booting the system with the `boot -r` command rebuilds the device tree for the system, incorporating any newly installed options so that the operating system will recognize them.

**7. Turn the system control switch to the Locked position, remove the key, and keep it in a secure place.**

This prevents anyone from accidentally powering off the system.

## What Next

The system’s front panel LED indicators provide power-on status information. For more information about the system LEDs, see:

- “Front Panel LEDs” on page 3

If your system encounters a problem during system startup, and the system control switch is in the Normal position, try restarting the system in Diagnostics mode to determine the source of the problem. Turn the system control switch to the Diagnostics position and power cycle the system. See:

- “How to Power On the System” on page 18

For information about system troubleshooting and diagnostics, see your *Sun Fire V480 Server Administration Guide*.

---

## How to Slide the System Out of the Cabinet

This procedure describes placing the system in position for service by sliding it out of the cabinet without removing it from the rack. All service procedures except removing and replacing the centerplane and power distribution board can be performed while the system is still attached to the cabinet.

---

**Note** – Sliding the system out of the cabinet is not required for servicing disk drives, power supplies, or Fan Tray 0.

---

### Before You Begin



---

**Caution** – Unless the cabinet is bolted to the floor, you must extend the cabinet’s anti-tip legs and adjust their stabilizing feet to the floor. You must level and secure the cabinet to provide a safe working environment. See “Tools Required for Installation and Service” on page 18 for useful tools required for this procedure.

---

### What to Do

1. **Be sure the cabinet is stabilized so that the cabinet cannot move or tip forward.**

If there are feet beneath the cabinet to prevent it from rolling, be sure the feet are fully extended downward to the floor.

Stabilize the cabinet using the stabilizing mechanisms provided with the cabinet. See the instructions provided with the cabinet.

2. Open (or remove) the front and back cabinet doors.
3. Disconnect all external cables attached to the back panel of the system.



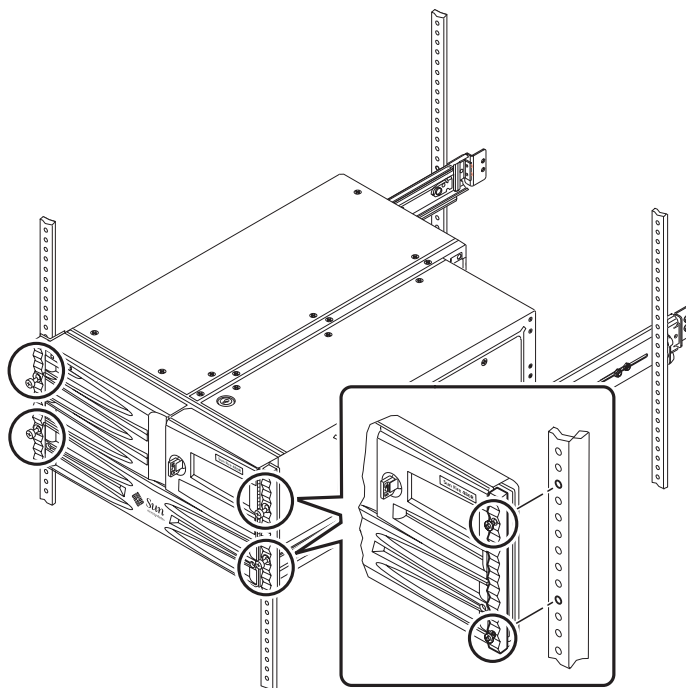
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**Caution** – Do not disconnect the power cord(s) from the system power inlet(s) unless you are installing or replacing the power distribution board, the centerplane, the PCI riser board, or the Remote System Control (RSC) card. The power cord grounds the system.

---

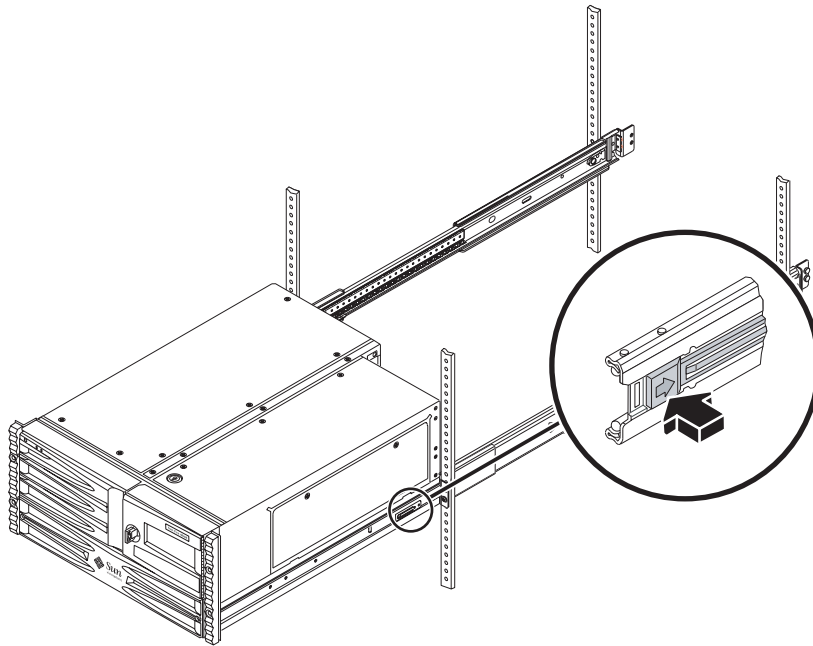
4. Loosen the four captive screws that secure the system to the left and right vertical rails at the front of the rack.

Use a Phillips No. 2 screwdriver to loosen the captive screws, which are in recessed access holes in the decorative panels affixed to the system's front panel.



5. **Slide the system chassis evenly out of the cabinet until the inner glides stop in the slide.**

Pull the system smoothly out of the enclosure. Continue pulling the system until the back of the chassis clears the enclosure and you hear the flat spring catches in the glides engage with an audible clicking sound. The system is then fully extended and secure.



## What Next

To slide the system into the cabinet, see:

- “How to Slide the System Into the Cabinet” on page 30

---

# How to Slide the System Out of a Fully Populated Cabinet

This procedure describes placing the system in position for service by sliding it out of a fully populated cabinet without removing it from the rack. This procedure also describes how to remove the system from the cabinet. All service procedures except removing and replacing the centerplane and power distribution board can be performed while the system is still attached to the cabinet.

---

**Note** – Sliding the system out of the cabinet is not required for servicing disk drives, power supplies, or Fan Tray 0.

---

## Before You Begin



---

**Caution** – Unless the cabinet is bolted to the floor, you must extend the cabinet's anti-tip legs and adjust their stabilizing feet to the floor. You must level and secure the cabinet to provide a safe working environment. See “Tools Required for Installation and Service” on page 18 for useful tools required for this procedure.

---

## What to Do

1. **Be sure the cabinet is stabilized so that the cabinet cannot move or tip forward.**

If there are feet beneath the cabinet to prevent it from rolling, be sure the feet are fully extended downward to the floor.

Stabilize the cabinet using the stabilizing mechanisms provided with the cabinet.

See the instructions provided with the cabinet.

2. **Open (or remove) the front and back cabinet doors.**
3. **Disconnect all external cables attached to the back panel of the system.**





---

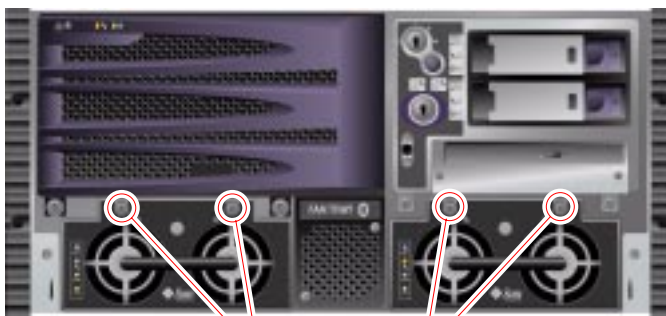
**Caution** – Do not disconnect the power cord(s) from the system power inlet(s) unless you are installing or replacing the power distribution board, the centerplane, the PCI riser board, or the Remote System Control (RSC) card. The power cord grounds the system.

---

**4. Remove the power supply access panel.**

See “How to Remove the Power Supply Access Panel” on page 44.

**5. Make sure that the power supply mounting screws are fully tightened.**



Power supply mounting screws

**6. Loosen the four captive screws that secure the system to the left and right vertical rails at the front of the rack.**

Use a Phillips No. 2 screwdriver to loosen the captive screws, which are in recessed access holes in the decorative panels affixed to the system's front panel.

**7. Slide the system chassis evenly out of the cabinet until the inner glides stop in the slide.**

Pull the system smoothly out of the enclosure, holding the system by the power supply handles. Continue pulling the system until the back of the chassis clears the enclosure and you hear the flat spring catches in the glides engage with an audible clicking sound. The system is then fully extended and secure.

---

**Note** – If you need to remove the server completely from the cabinet, see Step 5 through Step 9 in “How to Remove the System From the Cabinet” on page 32.

---

## What Next

Before sliding the system back into the cabinet, you must install the power supply access panel. See:

- “How to Install the Power Supply Access Panel” on page 46

To slide the system into the cabinet, see:

- “How to Slide the System Into the Cabinet” on page 30

---

## How to Slide the System Into the Cabinet

### Before You Begin

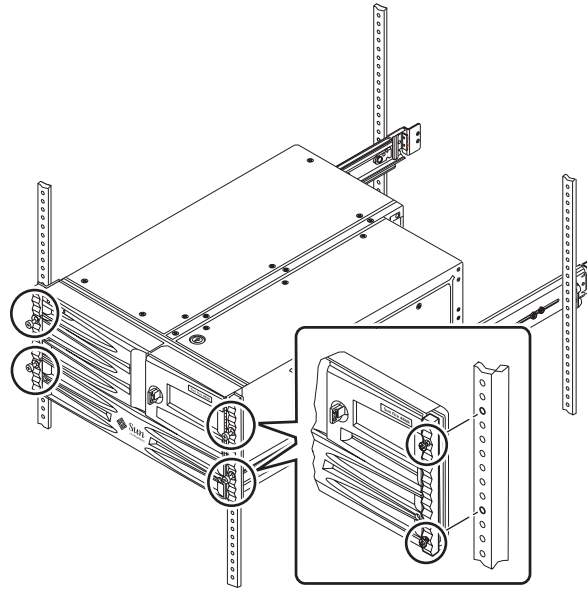
If you have been working inside the system, replace all access panels. See the following sections for more information:

- “How to Install the Power Supply Access Panel” on page 46
- “How to Install the CPU Access Panel” on page 72
- “How to Install the PCI Access Panel” on page 92

## What to Do

1. Slide the system chassis evenly into the cabinet until the system comes to a complete stop.
2. Tighten the four captive screws securing the system to the left and right vertical rails at the front of the rack.

Use a Phillips No. 2 screwdriver to tighten the four captive screws, which are in recessed access holes in the decorative panels affixed to the system's front panel.



3. Connect all external cables that were attached to the back panel of the system.  
Examine each disconnected cable for information indicating the cable's origin and its terminating connection.
4. Replace, close, and lock the cabinet doors, as appropriate.

## What Next

To power on the system, see:

- “How to Power On the System” on page 18

---

# How to Remove the System From the Cabinet

Sun recommends you remove the system from the cabinet when doing the following:

- Removing and installing the centerplane
- Removing and installing the power distribution board
- Removing and installing the system control switch/power button cable

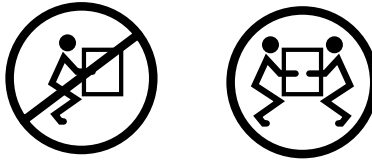
You can perform all other procedures while the system is still attached to the rails extended from the rack. If you want to remove the system from the cabinet for any other reason, follow the instructions in this section.



---

**Caution** – The chassis is heavy. Two persons are required to remove the system from the cabinet in the following procedure.

---



## Before You Begin

Complete these tasks:

- Identify a helper to assist you in removing the system.
- Review the steps in the next section with your helper beforehand and discuss how to coordinate your efforts to ensure your mutual safety.
- Assemble the correct tools for the procedure. See “Tools Required for Installation and Service” on page 18.
- Power off the system. See “How to Power Off the System” on page 22.



---

**Caution** – When completing a two-person procedure, always communicate your intentions clearly before, during, and after each step to minimize confusion.

---

---

**Note** – Make sure the ball-bearing runner on each slide assembly is all the way forward.

---

## What to Do

1. **Be sure the cabinet is stabilized so that the cabinet cannot move or tip forward.**

If there are feet beneath the cabinet to prevent it from rolling, be sure the feet are fully extended downward to the floor.

Stabilize the cabinet using the stabilizing mechanisms provided with the cabinet. See the instructions provided with the cabinet.

2. **Open (or remove) the front and back cabinet doors.**
3. **Disconnect all external cables attached to the back panel of the system.**



---

**Caution** – Do not disconnect the power cord(s) from the system power inlet(s) unless you are installing or replacing the system control switch/power button cable, power distribution board, the centerplane, the PCI riser board, or the Remote System Control (RSC) card. The power cord grounds the system.

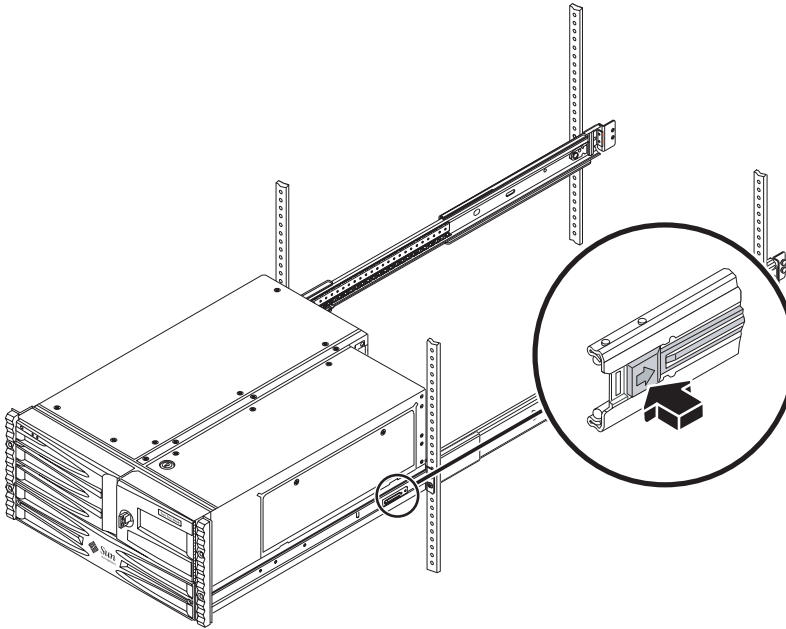
---

4. **Extend the server from the cabinet, and then position one person on each side of the system, facing the system glides.**

When you are both in position, verify that your helper understands what to do with the system after you release the server and remove it. Also agree on a route to follow, and visually inspect it for potential safety hazards (for example, cables on the floor, other people working in the vicinity, and so on).

**5. Locate the flat spring catch shown in the following figure.**

Each person should visually locate one of the two flat spring catches that release the system from the rack glide. One catch is attached to each inner glide, as shown in the following figure.



**6. Prepare to remove the system.**

Each person should place one hand on the flat spring catch and their other hand beneath the chassis, palm up, ready to support the weight of the chassis.



---

**Caution** – The chassis is heavy. Two persons are required to remove the system from the cabinet in the following steps.

---



7. **Simultaneously press in on both flat spring catches to release them, and then slide the system out of the glides.**

Each person presses one spring catch and helps slide the system free of the outer glide, supporting the weight of the system with both hands as the system slides free of the rack.

8. **Set the system on a workbench or other stable surface.**
9. **Reattach, close, and lock the cabinet doors as appropriate.**

## What Next

To place the system into the rack glides, see:

- “How to Install the System Into the Cabinet” on page 35

---

# How to Install the System Into the Cabinet

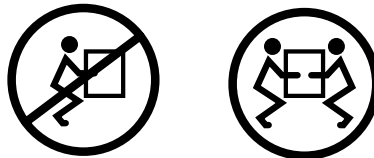
This procedure assumes that the slide assemblies are already installed in the rack. For further information about installing the slide assemblies, see the *Sun Fire V480 Server Setup and Rackmounting Guide*.



---

**Caution** – The chassis is heavy. Two persons are required to place the system into the rack slide assembly in the following procedure.

---



# Before You Begin

Complete these tasks:

- Identify a helper to assist you in installing the system.
- Review the steps in the next section with your helper beforehand and discuss how to coordinate your efforts to ensure your mutual safety.
- Assemble the correct tools for the procedure. See “Tools Required for Installation and Service” on page 18.



---

**Caution** – When completing a two-person procedure, always communicate your intentions clearly before, during, and after each step to minimize confusion.

---

## What to Do

1. **Be sure the cabinet is stabilized so that the cabinet cannot move or tip forward.**

If there are feet beneath the cabinet to prevent it from rolling, be sure the feet are fully extended downward to the floor.

Stabilize the cabinet using the stabilizing mechanisms provided with the cabinet. See the instructions provided with the cabinet.

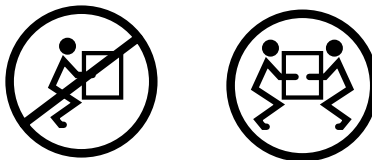
2. **Open (or remove) the cabinet doors.**
3. **Slide the empty rack slides back into their protective outer glides.**
4. **Position one person on each side of the system, facing the inner glides on the system chassis.**



---

**Caution** – The chassis is heavy. Two persons are required to place the system into the rack slide assembly.

---



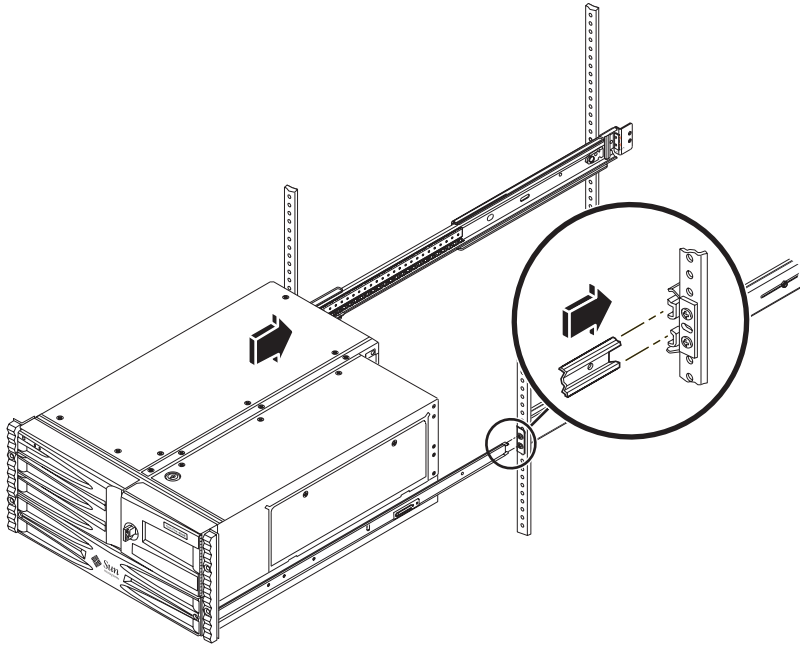
When you are both in position, verify that your helper understands what to do with the system after you lift it. Also agree on a route to follow to the cabinet, and visually inspect the route for potential safety hazards (for example, cables on the floor, other people working in the vicinity, and so on).



**5. Lift the system and carry it to the front of the cabinet.**

Each person should place both hands beneath the chassis and support half the weight of the system.

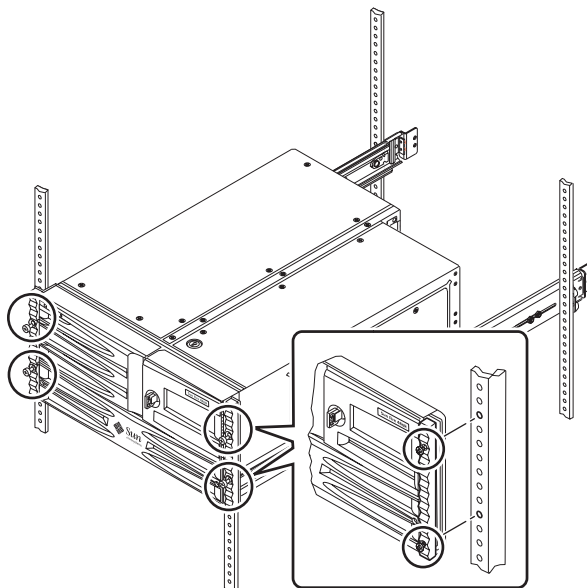
**6. Insert the system glides into the inner slides of the rack glides.**



**7. Slide the system smoothly into the rack slides until it is stopped inside the cabinet.**

**8. Secure the system to the left and right vertical rails at the front of the rack.**

Use a Phillips No. 2 screwdriver to tighten the four captive screws that secure the system in the cabinet. These screws are in recessed access holes in the decorative panels affixed to the system's front panel.



**9. Connect all external cables that were attached to the back panel of the system.**

Examine each disconnected cable for information indicating the cable's origin and its terminating connection.

**10. Replace, close, and lock the cabinet doors, as appropriate.**

## What Next

To power on the system, see:

- “How to Power On the System” on page 18

---

# How to Avoid Electrostatic Discharge

Use the following procedure to prevent static damage whenever you are accessing any of the internal components of the system.

## Before You Begin

Complete these tasks:

- “How to Power Off the System” on page 22
- “How to Slide the System Out of the Cabinet” on page 25

If you are servicing any internal components, remove the relevant access panel. Complete the appropriate task(s):

- “How to Remove the Power Supply Access Panel” on page 44
- “How to Remove the CPU Access Panel” on page 70
- “How to Remove the PCI Access Panel” on page 90

You must have the following items:

- Antistatic wrist or foot strap
- Antistatic mat

## What to Do



---

**Caution** – Printed circuit boards and hard disk drives contain electronic components that are extremely sensitive to static electricity. Ordinary amounts of static from your clothes or the work environment can destroy components. Do not touch the components or any metal parts without taking proper antistatic precautions.

---

### 1. Disconnect the AC power cord(s) from power inlet(s) only when performing the following procedures:

- Removing and installing the power distribution board
- Removing and installing the centerplane
- Removing and installing the PCI riser board
- Removing and installing the Remote System Control (RSC) card
- Removing and installing the system control switch/power button cable

The AC power cord provides a discharge path for static electricity, so it should remain plugged in except when you are servicing the parts noted above.

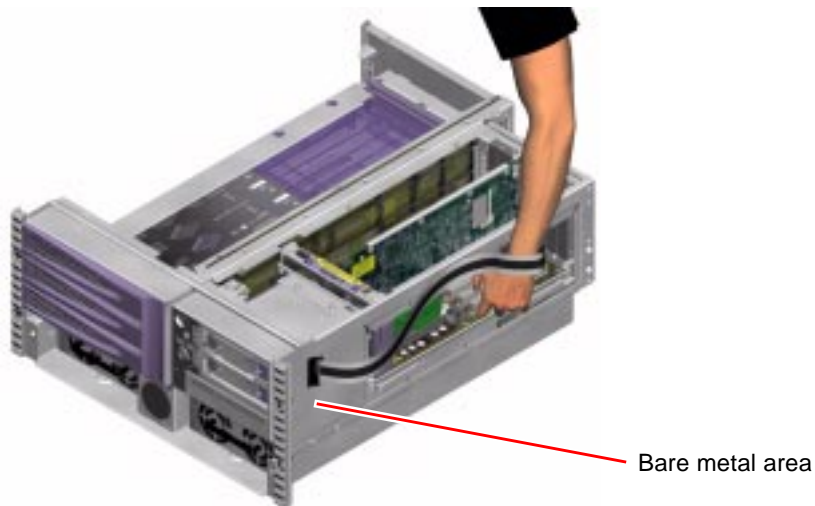
## 2. Use an antistatic mat or similar surface.

When performing any installation or service procedure, place static-sensitive parts, such as boards, cards, and disk drives, on an antistatic surface. The following items can be used as an antistatic surface:

- The bag used to wrap a Sun replacement part
- The shipping container used to package a Sun replacement part
- Sun electrostatic discharge (ESD) mat, Sun part number 250-1088 (available through your Sun sales representatives)
- Disposable ESD mat, shipped with replacement parts or options

## 3. Use an antistatic wrist strap.

Attach the appropriate end to the system chassis sheet metal and attach the other end of the strap to your wrist. Refer to the instructions that come with the strap.



---

**Note** – Make sure that the wrist strap is in direct contact with the metal on the chassis.

---

## 4. Detach both ends of the strap after you have completed the installation or service procedure.

## What Next

To reassemble and power on the system, complete the appropriate task(s):

- “How to Install the Power Supply Access Panel” on page 46
- “How to Install the CPU Access Panel” on page 72
- “How to Install the PCI Access Panel” on page 92
- “How to Power On the System” on page 18



## Servicing the Front Panel Components

---

This chapter contains the following sections:

- “About Hot-Swappable and Hot-Pluggable Components” on page 44
- “How to Remove the Power Supply Access Panel” on page 44
- “How to Install the Power Supply Access Panel” on page 46
- “How to Remove a Power Supply” on page 47
- “How to Install a Power Supply” on page 50
- “How to Remove a Disk Drive” on page 53
- “How to Install a Disk Drive” on page 55
- “How to Remove a Disk Drive Using the Hot-Plug Operation” on page 57
- “How to Install a Disk Drive Using the Hot-Plug Operation” on page 60
- “How to Remove Fan Tray 0” on page 63
- “How to Install Fan Tray 0” on page 65

---

**Note** – To service the system control switch/power button cable assembly, see Chapter 7.

---

---

# About Hot-Swappable and Hot-Pluggable Components

The power supplies are hot-swappable; you can remove and replace a power supply while the system is running, as long as the other power supply is working properly. For more information, see the following:

- “How to Remove a Power Supply” on page 47
- “How to Install a Power Supply” on page 50

The disk drives are hot-pluggable; you must issue special commands before removal. For more information, see the following:

- “How to Remove a Disk Drive Using the Hot-Plug Operation” on page 57
- “How to Install a Disk Drive Using the Hot-Plug Operation” on page 60



---

**Caution** – Fan trays are not hot-swappable, and must be kept installed while the system is running to ensure proper cooling. Do not attempt to remove either fan tray while the system is running.

---

---

## How to Remove the Power Supply Access Panel

### Before You Begin

Complete this task:

- “How to Avoid Electrostatic Discharge” on page 39

### What to Do

1. **Use the system key to unlock the media door.**

The security lock secures the media door, power supply access panel, and Fan Tray 0.



2. Using a Phillips No. 2 screwdriver, loosen the two captive screws securing the power supply access panel to the chassis.



3. Pull out the power supply access panel and set it aside.

## What Next

Complete this task:

- “How to Install the Power Supply Access Panel” on page 46

---

# How to Install the Power Supply Access Panel

## Before You Begin

Complete this task:

- “How to Remove the Power Supply Access Panel” on page 44

## What to Do

1. **Use the system key to unlock the media door.**

The security lock secures the media door, power supply access panel, and Fan Tray 0.

2. **Insert the power supply access panel into the bay.**



3. Using a Phillips No. 2 screwdriver, tighten the two captive screws that secure the power supply access panel to the chassis.
4. Lock the media door.

## What Next

If the system is powered off, complete this task:

- “How to Power On the System” on page 18

---

# How to Remove a Power Supply

## Before You Begin

Power supplies are hot-swappable; it is not necessary to power off the system if you are removing a faulty power supply. For more information, see “About Power Supplies” in your *Sun Fire V480 Server Administration Guide*.

When both power supplies are functioning normally, both power supply’s OK-to-Remove LEDs are lit. If a power supply fails, the system Fault LED and the failed power supply’s Fault LED will light; the other power supply’s OK-to-Remove LED will *be unlit*, assuming the other power supply is still functioning normally. For more information, see “Power Supply LEDs” on page 7.

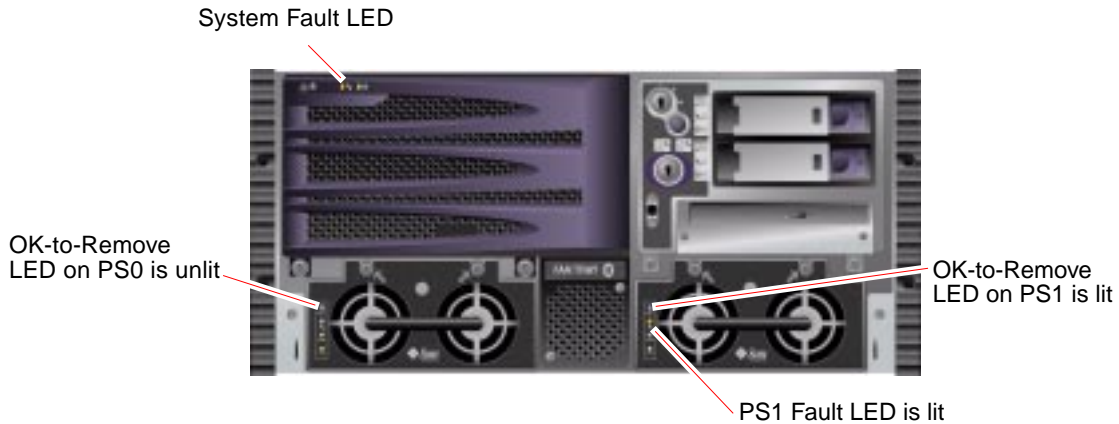


---

**Caution** – Do not remove a power supply from a running system unless the power supply OK-to-Remove LED is lit.

---

The following figure shows a system with a faulty Power Supply 1.



Complete these tasks:

- “How to Avoid Electrostatic Discharge” on page 39
- “How to Remove the Power Supply Access Panel” on page 44

## What to Do

---

**Note** – If a power supply fails, its Fault LED will light, as well as the system Fault LED. For more information about front panel LEDs, see “Front Panel LEDs” on page 3.

---

---

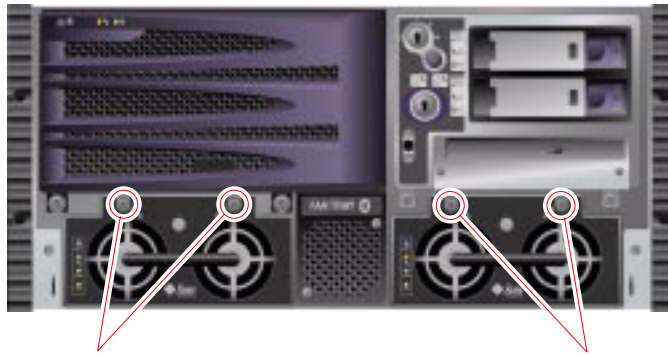
**Note** – If a power supply fails and you do not have a replacement available, leave the failed power supply installed to ensure proper system cooling.

---

### 1. Identify the power supply that you want to remove.

Check the power supply status LEDs to determine which power supply is faulty. Before continuing, make sure that the blue OK-to-Remove LED is lit on the power supply you want to remove. For more information, see “Power Supply LEDs” on page 7.

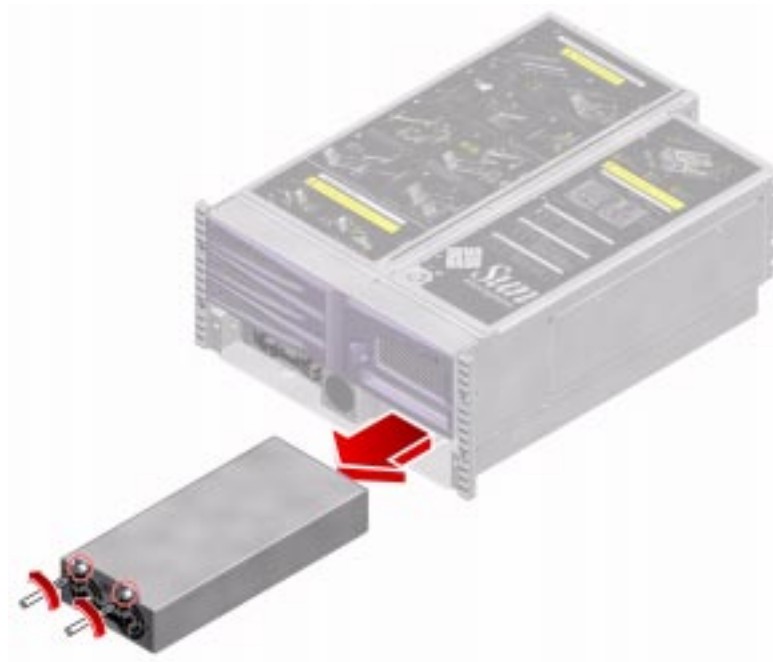
2. Loosen the two captive Phillips No. 2 screws securing the power supply to the chassis.



Power Supply 0 mounting screws

Power Supply 1 mounting screws

3. Pull out the power supply in a smooth motion until it is free of the bay.  
Support the power supply from underneath as you pull the unit out of the bay.





---

**Caution** – When removing a hot-swappable power supply, do not disengage and reengage the power supply in rapid succession. Doing so could damage the system.

---



---

**Caution** – Never insert your hand into the power supply bay while the system is connected to AC power. Doing so could result in serious personal injury.

---

## What Next

Complete these tasks:

- “How to Install a Power Supply” on page 50
- “How to Install the Power Supply Access Panel” on page 46

---

# How to Install a Power Supply

## Before You Begin

If you are installing a redundant power supply, it is not necessary to power off the system. For more information, see “About Power Supplies” in your *Sun Fire V480 Server Administration Guide*.

If you are replacing both power supplies, complete this task:

- “How to Power Off the System” on page 22

Complete these tasks:

- “How to Remove the Power Supply Access Panel” on page 44
- “How to Remove a Power Supply” on page 47

# What to Do

1. Align the new power supply with its bay.

---

**Note** – If you are hot-swapping a power supply, wait until the system displays a console message confirming removal of the old power supply. See your *Sun Fire V480 Server Administration Guide* for more information.

---

2. Slide the new power supply into the power supply bay until the power supply connectors start to engage the connectors on the power distribution board.



3. Push firmly on the front of the power supply to engage the connectors with the power distribution board.

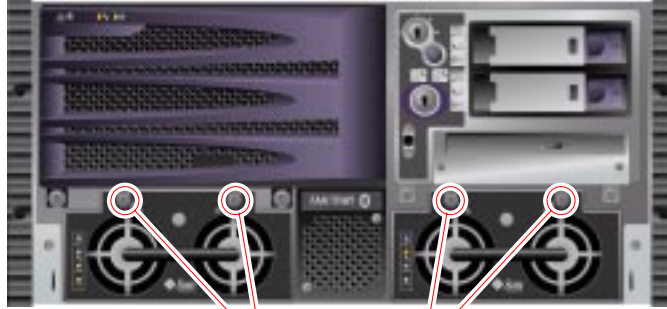


---

**Caution** – If you are hot-swapping a redundant power supply, take care to avoid jarring the system, as some movements could adversely affect the system while it is running.

---

4. Tighten the two captive Phillips No. 2 screws that secure the power supply to the chassis.



Power supply mounting screws

## What Next

Verify correct operation of the power supply by checking the Fault, DC Present, and AC Present LEDs on the power supply. You should hear the power supply fan start spinning and the two green LEDs should light within three seconds of completing a hot-swap installation or after restoring power to the system. For more information about the power supply LEDs, see “Power Supply LEDs” on page 7.

After confirming that the new power supply is operational, complete this task:

- “How to Install the Power Supply Access Panel” on page 46



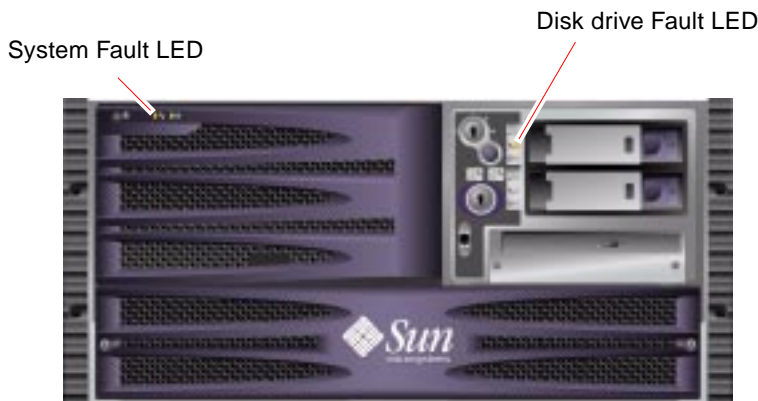
---

# How to Remove a Disk Drive

This procedure describes the physical disk drive removal. The procedure is different if you are removing a drive using a hot-plug operation. If you want to perform a hot-plug removal, see “How to Remove a Disk Drive Using the Hot-Plug Operation” on page 57.

## Before You Begin

If a disk drive fails, the system Fault LED and the disk drive Fault LED will light.



For additional information about the disk drives, see your *Sun Fire V480 Server Administration Guide*.

You must follow antistatic precautions when handling a disk drive. Complete this task:

- “How to Avoid Electrostatic Discharge” on page 39

If you are not performing a hot-plug operation, complete this task:

- “How to Power Off the System” on page 22

# What to Do

## 1. Unlock and open the media door.

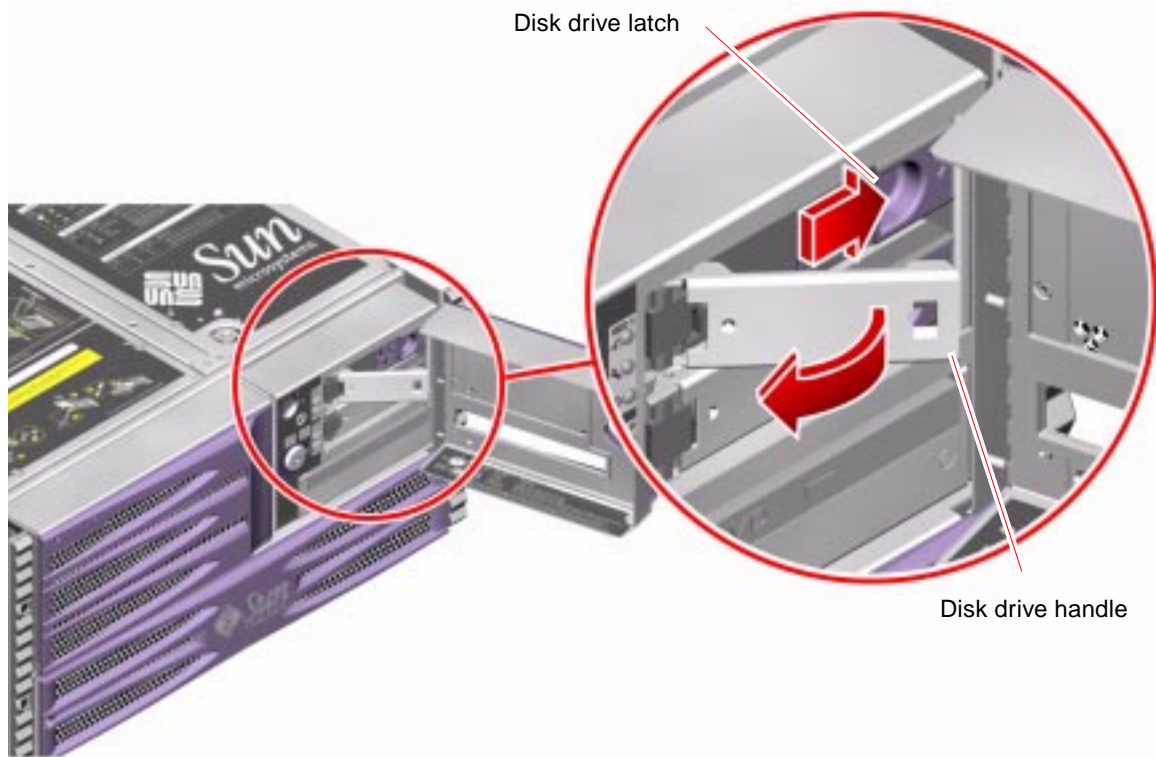
The security lock secures the media door, power supply access panel, and Fan Tray 0.

## 2. Identify the disk drive to be removed and note the bay in which it is installed.

The lower bay is the default system disk location.

## 3. Pinch the disk drive latch sideways to release the disk drive handle.

## 4. Pull the handle away from the disk drive until you feel the disk drive connector disengage from the backplane connector.



5. **Holding the disk drive by the handle, slide the disk drive out of the disk drive bay.**

---

**Note** – When you reinstall the disk drive (or a replacement drive), be sure to install it into the same drive bay as the one from which it was just removed.

---

6. **Place the disk drive on an antistatic mat.**

## What Next

To install a disk drive, complete this task:

- “How to Install a Disk Drive” on page 55

---

## How to Install a Disk Drive

This procedure describes the physical installation of a disk drive. The procedure is different if you are installing a drive using a hot-plug operation. If you want to perform a disk drive hot-plug installation, see “How to Install a Disk Drive Using the Hot-Plug Operation” on page 60.

## Before You Begin

For additional information about internal disk drives and configuring disk drive arrays, see your *Sun Fire V480 Server Administration Guide*.

You must follow antistatic precautions when handling a disk drive. Complete this task:

- “How to Avoid Electrostatic Discharge” on page 39

If you are not performing a hot-plug operation, complete this task:

- “How to Power Off the System” on page 22

# What to Do

---

**Note** – If you are performing a hot-plug operation, you must stop the disk drive and take it offline. See “How to Install a Disk Drive Using the Hot-Plug Operation” on page 60.

---

**1. Unlock and open the media door.**

The security lock secures the media door, power supply access panel, and Fan Tray 0.

**2. Release the disk drive handle on the disk drive.**

Pinch the disk drive latch sideways to open it.

**3. Align the disk drive to its drive bay.**

Orient the disk drive so that the disk drive latch is on the right.

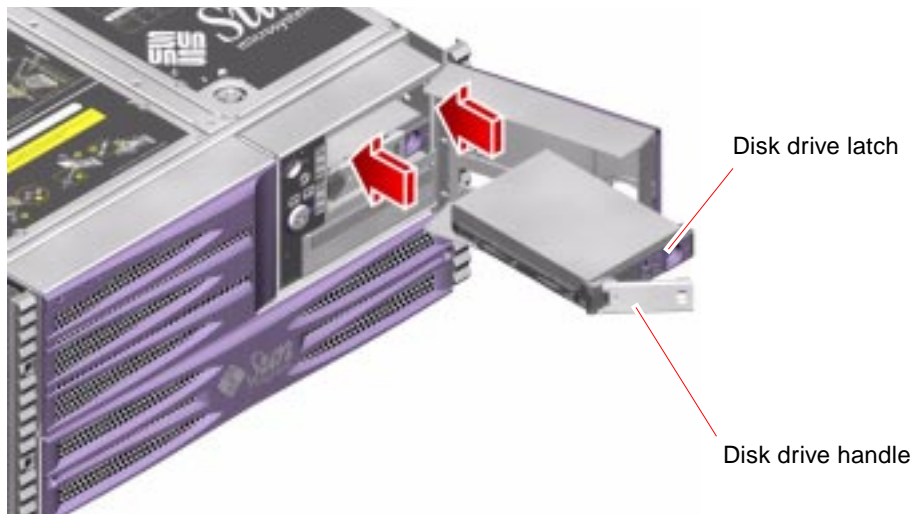
---

**Note** – If you are replacing a drive that you removed previously, be sure to install the disk drive into the same drive bay from which it was removed.

---

**4. Insert the disk drive into the disk drive bay guide rails.**

Slide the disk drive into the bay until it barely contacts the backplane.



**5. Firmly press the center of the disk drive handle toward the disk drive until the latch closes, securing the disk drive in place.**

## What Next

Complete this task:

- “How to Power On the System” on page 18

When you restart the system, be sure to run power-on self-test (POST) and OpenBoot Diagnostics tests to verify that the system functions correctly with the new parts you installed. You do not have to perform a reconfiguration boot with FC-AL drives. For additional information, see your *Sun Fire V480 Server Administration Guide*.

---

## How to Remove a Disk Drive Using the Hot-Plug Operation

The system’s disk hot-plug feature enables you to remove a disk drive without shutting down the operating system or turning off the system power. The way in which you remove a disk drive depends on the application you are using and if you are replacing a drive, adding a new one, or removing a drive permanently.

When you remove a drive using the hot-plug operation, you need to stop the disk drive and take it offline to remove the logical software links to the disk drive, and to reconfigure the file systems so that they now ignore the removed drive. You may also have to reconfigure your application software to operate without the removed drive.

Use the `luxadm` software tool to remove a Sun Fire V480 server’s internal disk drive using the hot-plug operation. The following procedure describes the general steps involved, but your specific device names may be different.



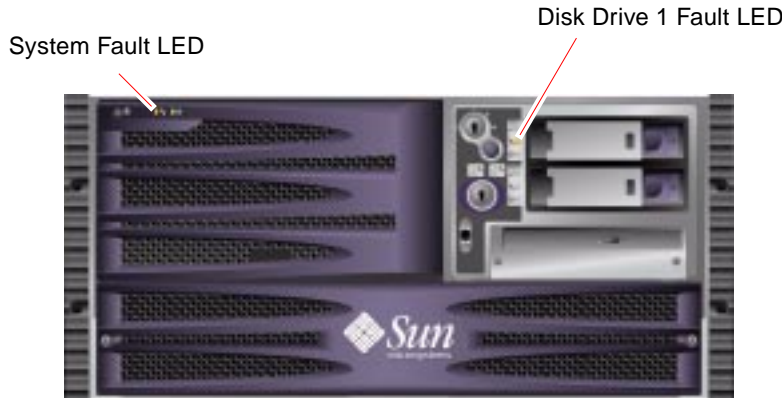
---

**Caution** – Do not hot-plug drives without the correct preparations. The system supports hot-plugging disk drives, but there are software procedures that you must perform before you remove or install any drive.

---

## Before You Begin

If a disk drive fails, the system Fault LED and the disk drive Fault LED will light. In the following figure, the Disk Drive 1 Fault LED is lit.



If you have not configured the system with two boot disks, you cannot hot-plug a single boot disk. You can only hot-plug the boot disk if you have configured a two-disk mirror of the boot disk for hot-plugging. If the system is configured with a boot disk and a data disk, you can hot-plug the data disk, but *not* the boot disk.

Complete these tasks:

- Obtain the logical device name(s) for the device(s) you plan to remove. See your *Sun Fire V480 Server Administration Guide* for more information.
- Select the disk and stop any activity or applications accessing the disk drive.
- Unmount any file systems mounted on the disk drive.

You must follow antistatic precautions when handling a disk drive. Complete this task:

- “How to Avoid Electrostatic Discharge” on page 39

## What to Do

### 1. Become superuser or the root user:

```
% su
Password:
#
```

**2. Type the following `luxadm` command:**

Where `clt1d0s2` is the logical device name for the disk drive. The system dialog follows the command.

```
# luxadm remove_device /dev/rdisk/clt1d0s2
WARNING!!! Please ensure that no file systems are mounted on
these device(s).
All data on these devices should have been backed up.
The list of devices which will be removed is:
1: Device name: /dev/rdisk/clt1d0s2
Node WWN: 20000020371b1f31
Device Type: Disk device
Device Paths:
/dev/ rdsk/ clt1d0s2
```

**3. Type `c` at the prompt to verify the list of devices:**

```
Please verify the above list of devices and
then enter c or <CR> to Continue or q to Quit. [Default: c]:c
stopping: /dev/rdisk/clt1d0s2.... Done
offlining: /dev/rdisk/clt1d0s2.... Done
```

The disk drive is now offline and spun down. The OK-to-Remove LED will light when the disk drive is ready for you to remove it. In the following figure, the Disk Drive 1 OK-to-Remove LED is lit.

Disk Drive 1 OK-to-Remove LED



---

**Note** – It may take up to one minute for the drive to come offline and spin down.

---

#### 4. Physically remove the disk drive and press the Return key.

Follow the instructions in Step 1 through Step 6 of “How to Remove a Disk Drive” on page 53. The system responds with the following message:

```
Hit <Return> after removing the device(s).
date system-name picld[87]: Device DISK1 removed
Logical Nodes being removed under /dev/dsk/ and /dev/rdisk:
    c1t1d0s0
    c1t1d0s1
    c1t1d0s2
    c1t1d0s3
    c1t1d0s4
    c1t1d0s5
    c1t1d0s6
    c1t1d0s7
#
```

The `picld` daemon notifies the system that the disk drive has been removed.

---

**Note** – Screen confirmation may take up to one minute.

---

For more information, refer to the `luxadm` documentation in the *Solaris on Sun Hardware AnswerBook*. This AnswerBook documentation is provided on the Solaris Supplement CD for the Solaris release you are running.

Refer also to the `luxadm(1M)` man page.

## What Next

If you need to install a drive using a hot-plug operation, complete this task:

- “How to Install a Disk Drive Using the Hot-Plug Operation” on page 60

---

## How to Install a Disk Drive Using the Hot-Plug Operation

The system’s disk hot-plug feature enables you to insert a disk drive without shutting down the operating system or turning off the system power. When installing a disk, you must insert the disk drive and wait for it to spin up to



operating speed. Then you create logical software links to the disk drive, and re-create or reconfigure the file systems so that the Solaris environment recognizes the disk drive. Finally you configure your application (if necessary) to operate with this new drive.

Use the `luxadm` software tool to install a Sun Fire V480 server's internal disk drives using the hot-plug operation. The following procedure describes the general steps involved, but your specific device names may be different.



---

**Caution** – Do not hot-plug drives without the correct preparations. The system supports hot-plugging disk drives, but there are software procedures that you must perform before you remove or install any drive.

---

## Before You Begin

If you have not configured the system with two boot disks, you cannot hot-plug a single boot disk. You can only hot-plug the boot disk if you have configured a two-disk mirror of the boot disk for hot-plugging. If the system is configured with a boot disk and a data disk, you can hot-plug the data disk, but *not* the boot disk.

You must follow antistatic precautions when handling a disk drive. Complete this task:

- “How to Avoid Electrostatic Discharge” on page 39

## What to Do

### 1. Become superuser or the root user.

```
% su
Password:
#
```

### 2. Insert the disk drive into its disk drive bay.

Follow Step 1 through Step 5 of “How to Install a Disk Drive” on page 55. The system responds with the following message:

```
#date system-name picld[87]: Device DISK1 inserted
```

3. If you are formatting a new disk drive, or reformatting an existing disk drive, complete the following tasks:



---

**Caution** – Formatting a disk drive destroys any data that is already on the disk drive.

---

- a. Enter the following command:

```
# format
Searching for disks... done
```

The system responds with the disks available for formatting.

- b. Type the number of the disk drive you are formatting:

```
AVAILABLE DISK SELECTIONS:

0. clt0d0 <SUN18G cyl 7506 alt 2 hd 19 sec 248>
   /pci@ 8,600000/ SUNW, qlc@ 4/ fp@ 0,0/ ssd@w210000203760c2fe, 0

1. clt1d0 <SUN9.0G cyl 4924 alt 2 hd 27 sec 133>
   /pci@ 8,600000/ SUNW, qlc@ 4/ fp@ 0,0/ ssd@ w21000020371b1f31,0

Specify disk (enter its number): 1
selecting clt1d0
[disk formatted]
```

4. Repeat Step 2 through Step 3 to hot-plug the other disk drive.

For more information, refer to the `luxadm` documentation in the *Solaris on Sun Hardware AnswerBook*. This AnswerBook documentation is provided on the Solaris Supplement CD for the Solaris release you are running.

Refer also to `luxadm(1M)`, `devfsadm(1M)`, and `format(1M)` man pages.

5. Close and lock the media door.

## What Next

Mount any file systems associated with the disk drive. Restart any applications accessing the disk drive.

If you need to remove a disk drive using the hot-plug operation, see:

- “How to Remove a Disk Drive Using the Hot-Plug Operation” on page 57

---

## How to Remove Fan Tray 0



---

**Caution** – Do not attempt to operate the system without Fan Tray 0 installed. Doing so could seriously damage the system.

---



---

**Caution** – Fan Tray 0 does not include fan guards. Serious injury can result if you attempt to remove it while the system is running.

---

## Before You Begin

If Fan Tray 0 fails, the system Fault LED and FT 0 Fault LED will light.

System Fault LED

FT 0 Fault LED



Complete these tasks:

- “How to Power Off the System” on page 22
- “How to Avoid Electrostatic Discharge” on page 39
- “How to Remove the Power Supply Access Panel” on page 44

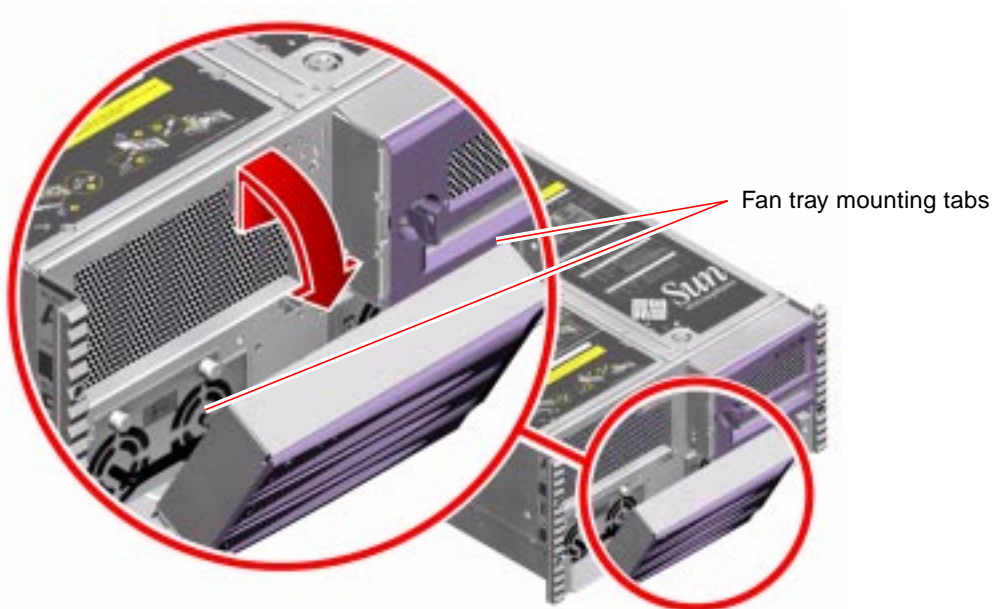
## What to Do

1. Loosen the two captive Phillips No. 2 screws securing Fan Tray 0 to the front of the chassis.



Fan Tray 0 mounting screws

2. Push up on the fan tray and tip it forward. Cradle the fan tray in your hand. Two mounting tabs secure Fan Tray 0 to the chassis.





---

**Caution** – Do not drop the fan tray. The fan tray cable is still connected to the chassis, and can be damaged if the fan tray is pulled too far away from the chassis.

---

3. **With your other hand, disconnect the fan tray cable end and set the fan tray aside.**  
Press the tab to release the cable end, and pull the cable end out of its connector.

## What Next

Complete this task:

- “How to Install Fan Tray 0” on page 65

---

# How to Install Fan Tray 0



---

**Caution** – Do not attempt to operate the system without Fan Tray 0 installed. Doing so could seriously damage the system.

---

## Before You Begin

Complete this task:

- “How to Remove Fan Tray 0” on page 63

## What to Do

1. **With one hand, cradle Fan Tray 0 face down in front of its mounting point on the chassis.**
2. **With your other hand, insert the fan tray cable end into the connector on the front of the chassis.**

Insert the cable end until it clicks into place.

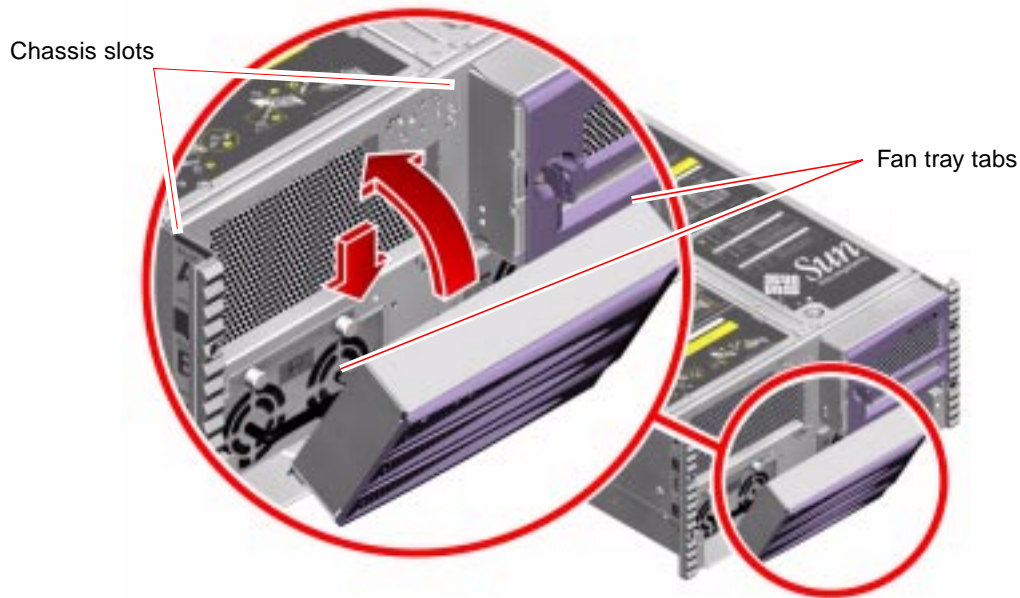


---

**Caution** – Do not drop the fan tray. The fan tray cable can be damaged if the fan tray is pulled too far away from the chassis.

---

3. Insert the two tabs on the fan tray frame into their corresponding slots on the front of the chassis.



- a. Be sure that the cable on the fan tray is tucked in between the fan units and the fan tray frame.
  - b. Insert the left-side tab into its corresponding slot on the front of the chassis, followed by the right side tab into its slot.
4. Tighten the two captive Phillips No. 2 screws that secure Fan Tray 0 to the chassis.



## What Next

Complete these tasks:

- “How to Install the Power Supply Access Panel” on page 46
- “How to Power On the System” on page 18





## Servicing the CPU/Memory Board and Related Components

---

This chapter contains the following sections:

- “How to Remove the CPU Access Panel” on page 70
- “How to Install the CPU Access Panel” on page 72
- “How to Remove a CPU/Memory Board” on page 74
- “How to Install a CPU/Memory Board” on page 76
- “About Memory Modules” on page 79
- “How to Remove a Memory Module” on page 82
- “How to Install a Memory Module” on page 85

---

# How to Remove the CPU Access Panel

## Before You Begin

Complete these tasks:

- “How to Power Off the System” on page 22
- “How to Slide the System Out of the Cabinet” on page 25
- “How to Avoid Electrostatic Discharge” on page 39

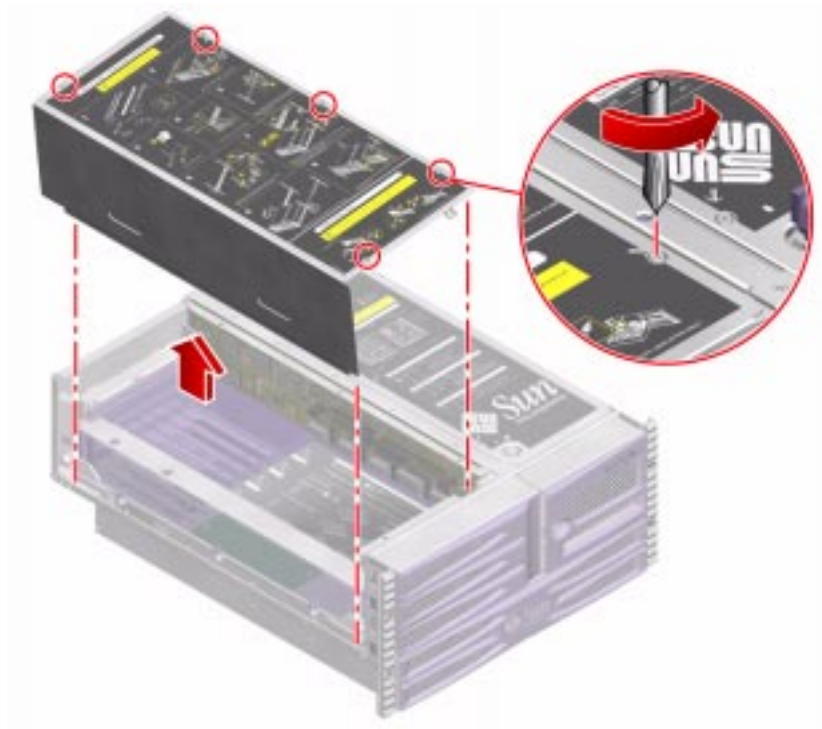
## What to Do

- 1. Rotate the top panel lock to the Unlocked position.**

The top panel lock secures both the CPU access panel and the PCI access panel.



2. Loosen the five Phillips No. 2 captive screws securing the access panel to the chassis.



3. Pull the panel straight up and off the chassis.

## What Next

Complete this task:

- “How to Install the CPU Access Panel” on page 72

---

# How to Install the CPU Access Panel

## Before You Begin

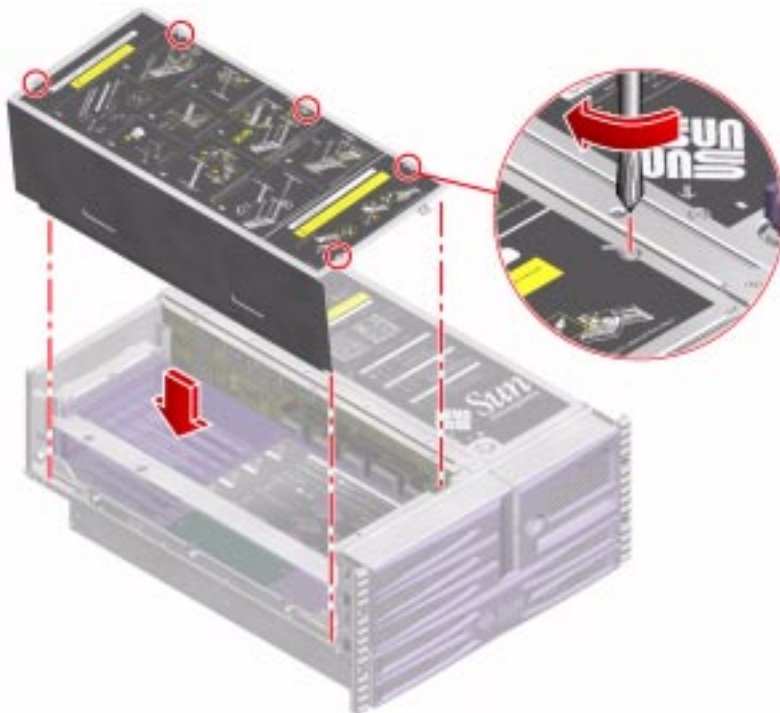
Complete this task:

- “How to Remove the CPU Access Panel” on page 70

## What to Do

1. **Make sure that the top panel lock is in the Unlocked position.**
2. **Position the CPU access panel into its place on the chassis.**

Insert the four tabs along the inside edge of the CPU access panel into their corresponding slots in the chassis lip.



**3. Tighten the five captive Phillips No. 2 screws that secure the access panel to the chassis.**

**4. Secure the top panel lock.**

The top panel lock secures both the CPU access panel and the PCI access panel.



## What Next

Complete these tasks:

- “How to Slide the System Into the Cabinet” on page 30
- “How to Power On the System” on page 18

---

# How to Remove a CPU/Memory Board

---

**Note** – You must remove the CPU/Memory board from the system to service the memory modules.

---

## Before You Begin

Complete these tasks:

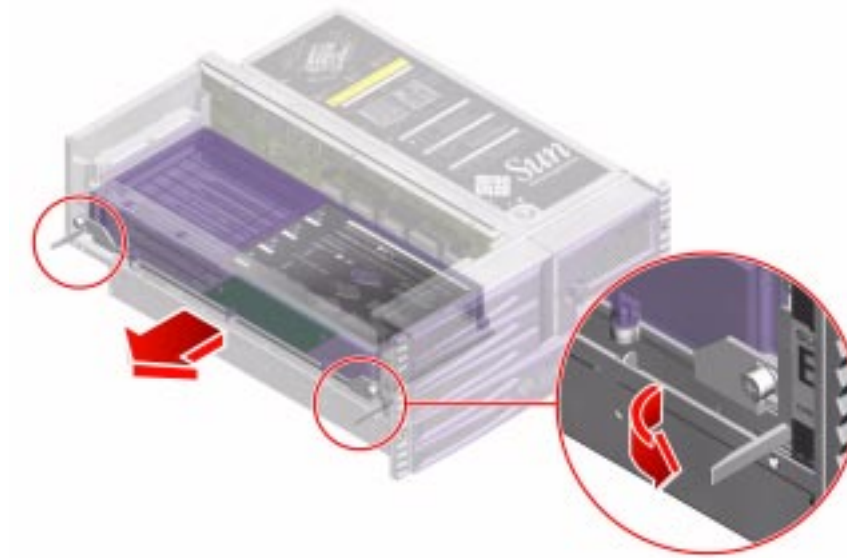
- “How to Power Off the System” on page 22
- “How to Slide the System Out of the Cabinet” on page 25
- “How to Remove the CPU Access Panel” on page 70
- “How to Avoid Electrostatic Discharge” on page 39

## What to Do

1. **Identify the CPU/Memory board to be removed.**
2. **Loosen the two captive Phillips No. 2 screws securing the CPU/Memory board to the chassis.**



3. Rotate the CPU/Memory board ejector levers outward so that the CPU/Memory board connectors disengage from the centerplane.



4. Pull the CPU/Memory board from the chassis and place it on an antistatic mat.



---

**Caution** – The CPU/Memory board is heavy. Be sure to support the CPU/Memory board from underneath as you remove it from the system.

---



---

**Caution** – The CPU/Memory board can be hot. Handle the underside of the CPU/Memory board carefully to avoid injury.

---

---

**Note** – If you are not installing a new CPU/Memory board (i.e., running the system with a vacant CPU/Memory board slot), Sun recommends installing dust cover on the centerplane CPU/Memory board connector. See “Centerplane Connectors” on page 207 for connector location.

---

## What Next

Complete this task:

- “How to Install a CPU/Memory Board” on page 76

---

# How to Install a CPU/Memory Board

---

**Note** – You must use CPU/Memory boards with the same clock speed. For more information, see your *Sun Fire V480 Server Administration Guide*.

---

## Before You Begin

Complete these tasks:

- “How to Power Off the System” on page 22
- “How to Slide the System Out of the Cabinet” on page 25
- “How to Remove the CPU Access Panel” on page 70
- “How to Avoid Electrostatic Discharge” on page 39

If you are replacing an old CPU/Memory board with a new one, you may need to migrate the memory modules from the old CPU/Memory board to the new one. See the following sections for more information about migrating memory modules:

- “About Memory Modules” on page 79
- “How to Remove a Memory Module” on page 82
- “How to Install a Memory Module” on page 85

## What to Do

1. **Locate the CPU/Memory board slot into which you want to install the CPU/Memory board.**

The CPU/Memory board slots are marked on the side of the chassis.

2. **If a CPU/Memory board connector dust cover or connector protector is installed on the centerplane and CPU/Memory board connectors, remove it.**



---

**Caution** – Do not attempt to install the CPU/Memory board before removing the dust cover. Doing so could damage the CPU/Memory board or the centerplane.

---

Keep the dust cover for future use.



3. Make sure that the ejector levers on the CPU/Memory board are rotated out 90 degrees.



---

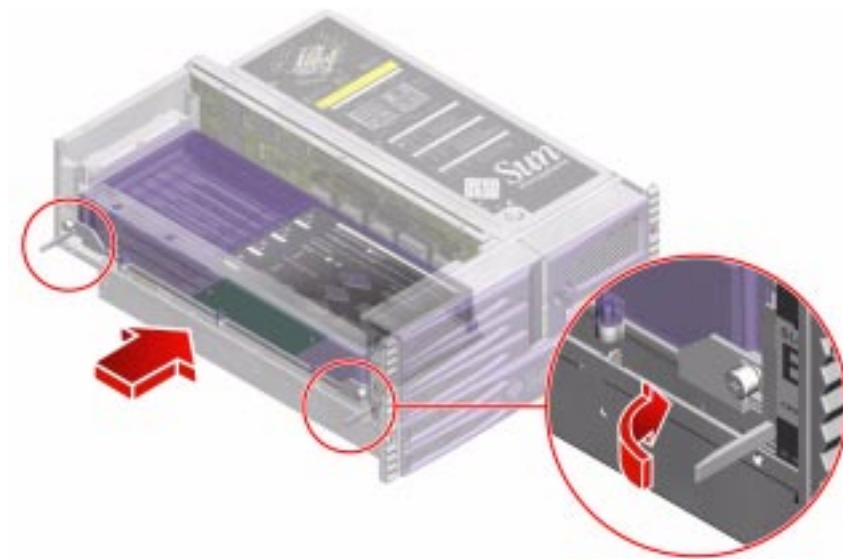
**Caution** – The CPU/Memory board is heavy. Be sure to support the CPU/Memory board from underneath as you remove it from the system.

---

4. Slide the CPU/Memory board into the guides in the chassis.

Slide the board into the system until the connectors on the board begin to engage the sockets on the centerplane and the ejector levers begin to engage the bracket.

5. Push in the two ejector levers until they are completely pressed into their slots.



6. Hand-tighten the two captive screws on the CPU/Memory board.

7. Using a Phillips No. 2 screwdriver, tighten the right-side captive screw (close to the front of the system).



8. Using a Phillips No. 2 screwdriver, tighten the left-side captive screw (close to the back of the system).

## What Next

Complete these tasks:

- “How to Install the CPU Access Panel” on page 72
- “How to Slide the System Into the Cabinet” on page 30
- “How to Power On the System” on page 18
- “How to Initiate a Reconfiguration Boot” on page 23

---

# About Memory Modules

The Sun Fire V480 server uses 3.3V, high-capacity dual inline memory modules (DIMMs). The DIMMs are built with synchronous dynamic random access memory (SDRAM) chips that operate at a 75-MHz clock frequency. The system supports DIMMs with the following capacities:

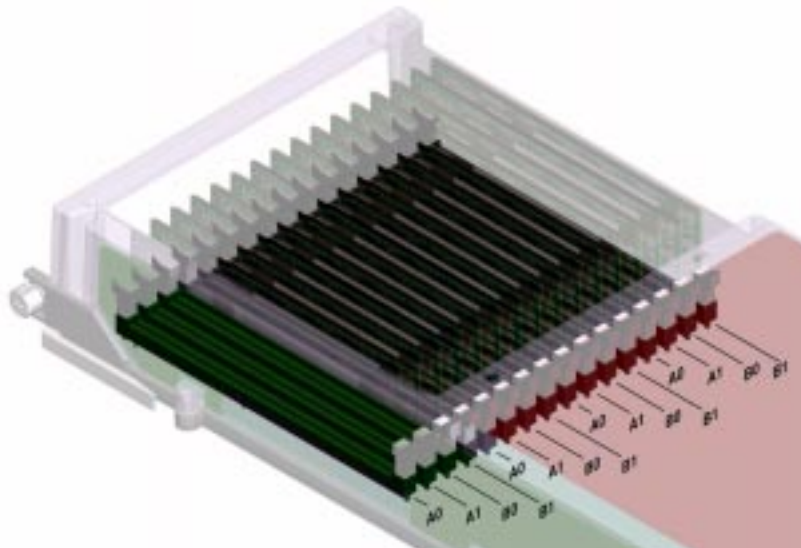
- 256 Mbytes
- 512 Mbytes
- 1 Gbyte

Support for larger capacity DIMMs may be offered as they become available.

Each CPU/Memory board contains slots for 16 DIMMs. Total system memory ranges from a minimum of 2 Gbytes (one CPU/Memory board with eight 256-Mbyte DIMMs) to a maximum of 32 Gbytes (two CPU/Memory boards fully populated with 1-Gbyte DIMMs).

Within each CPU/Memory board, the 16 DIMM slots are organized into groups of four. The system reads from, or writes to, all four DIMMs in a group simultaneously. DIMMs, therefore, must be added in sets of four.

The figure below shows the DIMM slots and DIMM groups on a CPU/Memory board. Every fourth slot belongs to the same DIMM group. The four groups are designated A0, A1, B0, and B1.

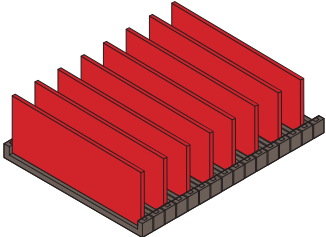
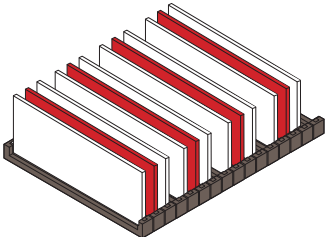
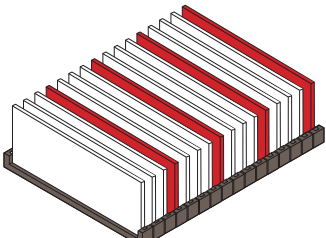


Follow these configuration rules when installing memory:

- DIMMs must be added four at a time within the same group of DIMM slots; every fourth slot belongs to the same DIMM group.
- Each group used must have four identical capacity DIMMs installed (for example, four 256-Mbyte DIMMs, four 512-Mbyte DIMMs, or four 1-Gbyte DIMMs).
- Each CPU/Memory board must be populated with a minimum of eight DIMMs, with at least one A group populated (A0 or A1) and at least one B group populated (B0 or B1).

The following table summarizes the guidelines for installing DIMMs in a CPU/Memory board.

TABLE 4-1 DIMM Installation Guidelines

DIMM Group Installed		Population Sequence	Configuration Rules
First two groups (8 DIMMs)		Install eight DIMMs so that every other slot is occupied. This is the minimum configuration.	Each DIMM group must contain identical modules. See the illustration presented previously for DIMM addresses.  You can populate the groups with DIMMs of two different densities (for example, 512-MB DIMMs in Group A0 and 256-MB DIMMs in Group B0), but each group must be made up of an identical set.
Third group (4 DIMMs)		Install the next four DIMMs into every other empty slot.	The DIMMs in this group must be made up of an identical set (four DIMMs with the same density).
Last group (4 DIMMs)		Fill the last four available slots.	The DIMMs in this group must be made up of an identical set.

For additional information about DIMMs, see your *Sun Fire V480 Server Administration Guide*.

---

# How to Remove a Memory Module

## Before You Begin

Read the section:

- “About Memory Modules” on page 79

Complete these tasks:

- “How to Power Off the System” on page 22
- “How to Slide the System Out of the Cabinet” on page 25
- “How to Remove the CPU Access Panel” on page 70
- “How to Avoid Electrostatic Discharge” on page 39
- “How to Remove a CPU/Memory Board” on page 74

## What to Do



---

**Caution** – DIMMs are made of electronic components that are extremely sensitive to static electricity. Static electricity from your clothes or work environment can destroy the DIMM. Do not remove any DIMM from its antistatic packaging until you are ready to install it. Handle the modules only by their edges. Do not touch the components or any metal parts, including the gold contacts on the bottom edge of the module. Always wear a grounding strap when you handle the modules.

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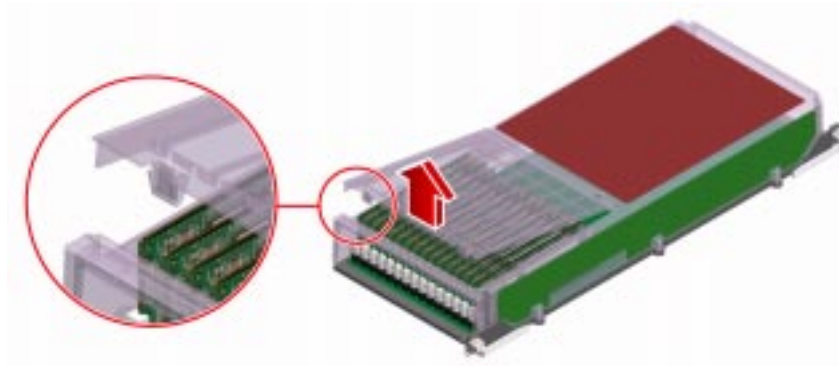
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**Note** – You must remove the CPU/Memory module from the system before removing memory.

---

**1. Remove the DIMM access panel from the CPU/Memory board.**

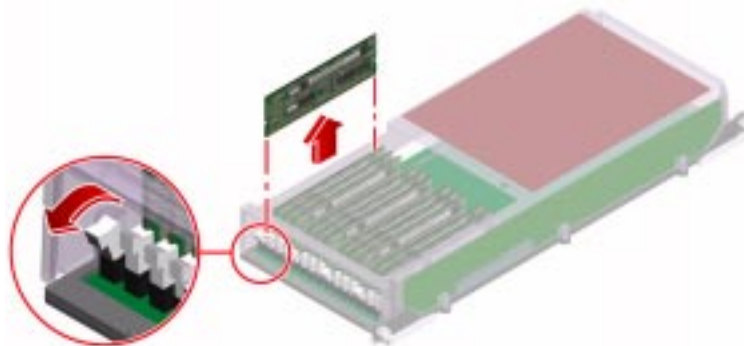
Push both tabs inward until you can lift the access panel free of the CPU/Memory board shroud.



**2. Identify the memory module to be removed.**

**3. Push down on the ejector levers on each end of the memory module until it pops out of its connector.**

Apply even pressure on both levers.



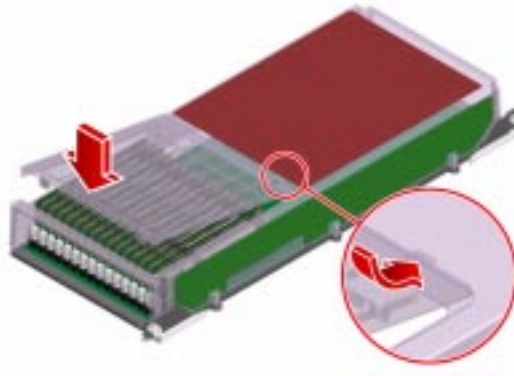
**4. Grasp the top corners of the memory module and pull it up and out of its connector.**

**5. Place the memory module on an antistatic mat.**

**6. Repeat Step 2 through Step 5 for all the DIMMs to be removed.**

**7. Install the DIMM access panel onto the CPU/Memory board.**

To fully engage the tabs on the access panel, push them in until you hear a click.



## What Next

To replace a memory module, complete this task:

- “How to Install a Memory Module” on page 85



---

# How to Install a Memory Module

## Before You Begin

Read the section:

- “About Memory Modules” on page 79

Complete these tasks:

- “How to Power Off the System” on page 22
- “How to Slide the System Out of the Cabinet” on page 25
- “How to Remove the CPU Access Panel” on page 70
- “How to Avoid Electrostatic Discharge” on page 39
- “How to Remove a CPU/Memory Board” on page 74

## What to Do



---

**Caution** – DIMMs are made of electronic components that are extremely sensitive to static electricity. Static electricity from your clothes or work environment can destroy the DIMM. Do not remove any DIMM from its antistatic packaging until you are ready to install it. Handle the modules only by their edges. Do not touch the components or any metal parts, including the gold contacts on the bottom edge of the module. Always wear a grounding strap when you handle the modules.

---

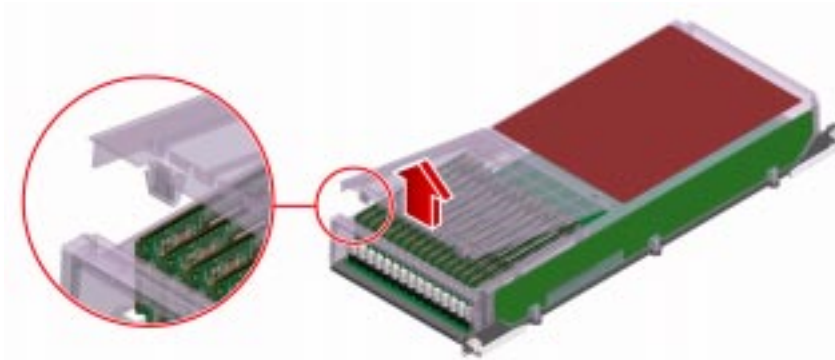
---

**Note** – You must remove the CPU/Memory module before installing memory.

---

**1. Remove the DIMM access panel from the CPU/Memory board.**

Push the tabs inward until you can lift the access panel free of the CPU/Memory board.

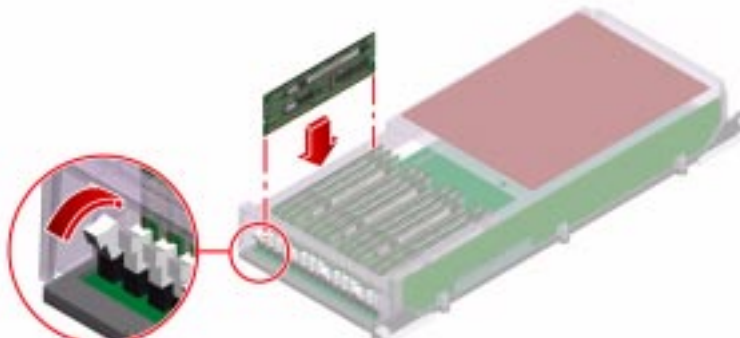


**2. Locate the slot into which you will install the memory module.**

**3. Rotate out the memory module ejector levers for that slot.**

**4. Holding the bottom edge of the module parallel to its slot, carefully align the module so that each of its contacts is centered on a connector pin.**

Be sure the DIMM is correctly oriented. A notch along the bottom of the DIMM corresponds to a tab on the connector.



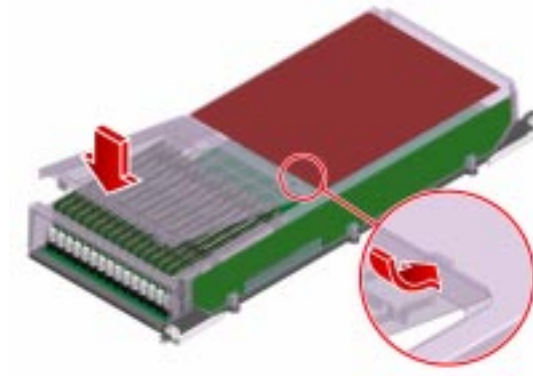
**5. Push firmly and evenly on both ends of the memory module until its bottom edge is firmly seated in the connector. You will hear a click when the ejector levers lock into place.**

Make sure the levers are fully engaged against the DIMMs.

**6. Repeat Step 2 through Step 5 for all DIMMs to be installed.**

**7. Install the DIMM access panel onto the CPU/Memory board.**

To fully engage the tabs on the access panel, push them in until you hear a click.



## What Next

Complete these tasks:

- “How to Install a CPU/Memory Board” on page 76
- “How to Install the CPU Access Panel” on page 72
- “How to Slide the System Into the Cabinet” on page 30
- “How to Power On the System” on page 18



## Servicing the PCI Riser Board and Related Components

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This chapter contains the following sections:

- “How to Remove the PCI Access Panel” on page 90
- “How to Install the PCI Access Panel” on page 92
- “How to Remove Fan Tray 1” on page 93
- “How to Install Fan Tray 1” on page 95
- “How to Remove the RSC Card” on page 97
- “How to Install the RSC Card” on page 99
- “How to Remove a PCI Card” on page 101
- “How to Install a PCI Card” on page 104
- “How to Install a Sun StorEdge PCI Dual Fibre-Channel Host Adapter Card” on page 107
- “How to Remove the PCI Riser Board” on page 112
- “How to Install the PCI Riser Board” on page 115
- “How to Remove the IDPROM Module” on page 118
- “How to Install the IDPROM Module” on page 119

---

# How to Remove the PCI Access Panel

## Before You Begin

Complete these tasks:

- “How to Power Off the System” on page 22
- “How to Slide the System Out of the Cabinet” on page 25
- “How to Avoid Electrostatic Discharge” on page 39

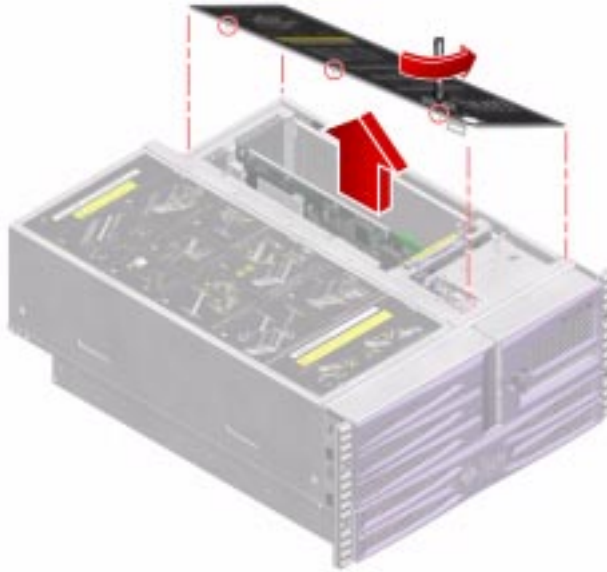
## What to Do

- 1. Rotate the top panel lock to the Unlocked position.**

The top panel lock secures both the CPU access panel and the PCI access panel.



2. Loosen the three captive Phillips No. 2 screws securing the access panel to the chassis.



3. Pull the panel up and off the chassis.

Pull the access panel up from the left-side edge.

## What Next

Complete this task:

- “How to Install the PCI Access Panel” on page 92

---

# How to Install the PCI Access Panel

## Before You Begin

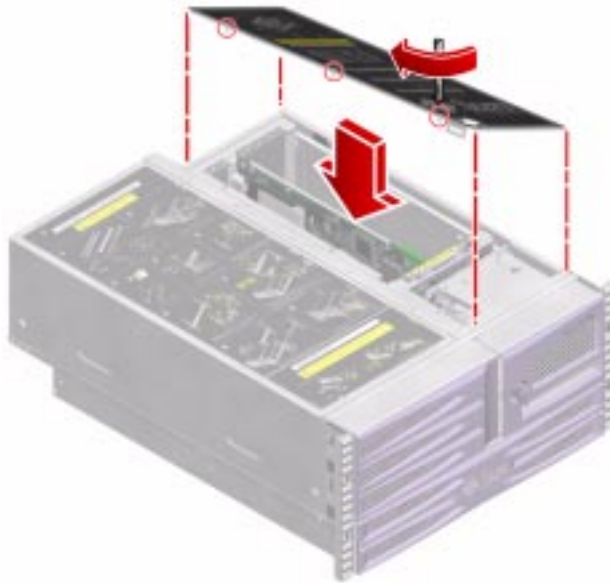
Complete this task:

- “How to Remove the PCI Access Panel” on page 90

## What to Do

1. **Make sure the top panel lock is in the Unlocked position.**
2. **Position the PCI access panel into its place on the chassis.**

Align the lip on the right side of the access panel with the corresponding ridge on the chassis.



3. **Tighten the three captive Phillips No. 2 screws that secure the access panel to the chassis.**



#### 4. Secure the top panel lock.

The top panel lock secures both the CPU access panel and the PCI access panel.



## What Next

Complete these tasks:

- “How to Slide the System Into the Cabinet” on page 30
- “How to Power On the System” on page 18

---

## How to Remove Fan Tray 1



---

**Caution** – Do not power on the system without a functioning Fan Tray 1 installed. Doing so could overheat and seriously damage the system.

---

## Before You Begin

If Fan Tray 1 fails, the system Fault LED and FT 1 Fault LED will light.

System Fault LED

FT 1 Fault LED



Complete these tasks:

- “How to Power Off the System” on page 22
- “How to Slide the System Out of the Cabinet” on page 25
- “How to Avoid Electrostatic Discharge” on page 39
- “How to Remove the PCI Access Panel” on page 90

## What to Do

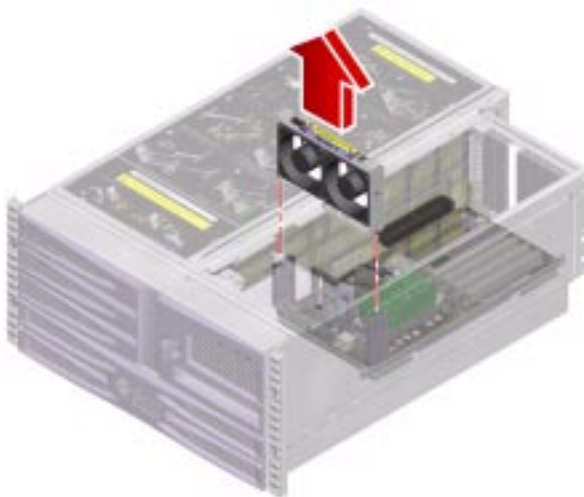


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**Caution** – Fan Tray 1 does not include fan guards. Serious injury can result if you attempt to remove it while the system is running.

---

- Pull the fan tray straight up and out of its bracket on the PCI riser board, and set it aside.



## What Next

Complete this task:

- “How to Install Fan Tray 1” on page 95

---

## How to Install Fan Tray 1



---

**Caution** – Do not power on the system without a functioning Fan Tray 1 installed. Doing so could overheat and seriously damage the system.

---

## Before You Begin

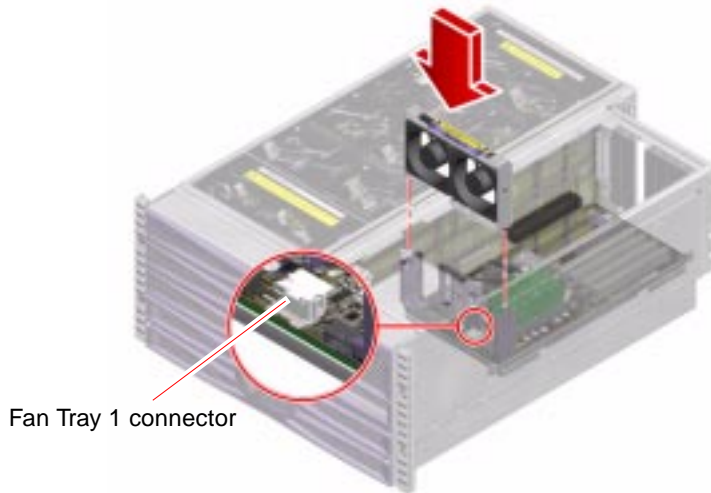
Complete this task:

- “How to Remove Fan Tray 1” on page 93

## What to Do

- **Insert the fan tray into its bracket until the fan tray is firmly seated.**

Make sure that the fan tray connector is oriented to attach to the corresponding connector on the PCI riser board.



## What Next

Complete these tasks:

- “How to Install the PCI Access Panel” on page 92
- “How to Slide the System Into the Cabinet” on page 30
- “How to Power On the System” on page 18

---

# How to Remove the RSC Card

## Before You Begin

Complete these tasks:

- “How to Power Off the System” on page 22
- “How to Slide the System Out of the Cabinet” on page 25
- “How to Remove the PCI Access Panel” on page 90
- “How to Avoid Electrostatic Discharge” on page 39

## What to Do



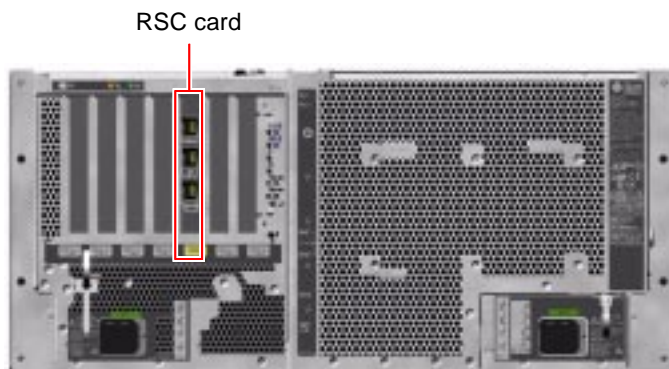
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**Caution** – The system supplies power to the Remote System Control (RSC) card even when the system is powered off. To avoid personal injury or damage to the RSC card, you must disconnect the AC power cord(s) before servicing the RSC card.

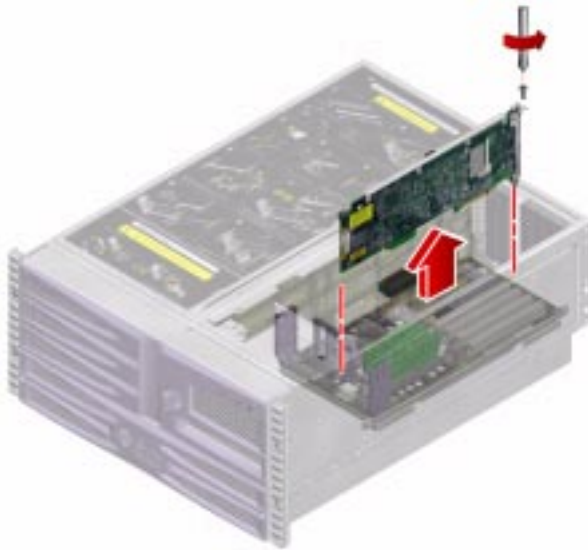
---

1. **Disconnect the AC power cord(s) from the back of the system.**
2. **Locate the RSC card.**

The RSC card is installed in the fifth slot from the edge of the PCI riser board; it is labeled “RSC” on the back panel.



3. **Disconnect any external cable(s) attached to the faceplate of the RSC card.**  
Note and label cable connector locations.
4. **Using a Phillips No. 1 screwdriver, remove the screw securing the card to the chassis back panel.**



---

**Caution** – Be sure the AC power cords have been disconnected from the system before removing the RSC card.

---

5. **Pull the RSC card from its slot on the PCI riser board.**



---

**Caution** – Do not apply excessive force to one end or one side of the card. Doing so could damage the card.

---

Hold the RSC card by the faceplate and its opposite edge, and pull up while rocking the card from end to end until it is freed from its slot.

6. **Place the RSC card on an antistatic mat.**

## What Next

To replace the RSC card, complete this task:

- “How to Install the RSC Card” on page 99

---

# How to Install the RSC Card



---

**Caution** – Before replacing the RSC card, be sure that the AC power cords have been disconnected from the back panel.

---

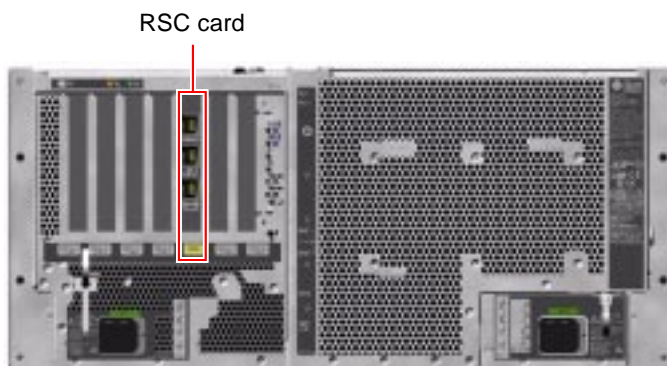
## Before You Begin

Complete this task:

- “How to Remove the RSC Card” on page 97

## What to Do

1. Locate the slot for the RSC card, the fifth slot from the edge of PCI riser board.



---

**Note** – Make sure that you install the RSC card into the RSC slot. Though the RSC card can physically fit into a PCI slot, it will not function if installed there.

---

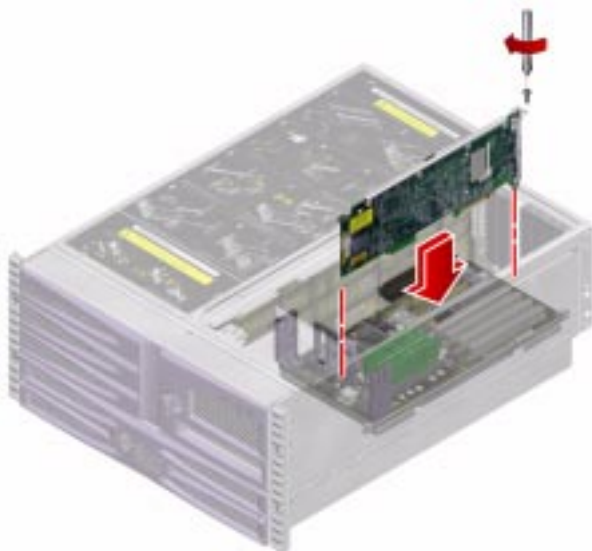


---

**Caution** – Be sure the AC power cords have been disconnected from the system before removing the RSC card.

---

2. **Insert the RSC card into its slot on the PCI riser board.**
  - a. **Insert the faceplate end of the card into the appropriate opening in the back panel.**
  - b. **Insert the opposite end of the card into the appropriate card guide so that the card is aligned evenly with the connectors on the PCI riser board.**



- c. **Push the card into the connectors on the PCI riser board.**  
Apply even pressure along the edge of the card.
3. **Secure the RSC card faceplate to the back panel with the Phillips screw.**
4. **Connect the Ethernet, serial, and/or modem cable(s) to the faceplate of the RSC card.**
5. **Connect the AC power cord(s) to the back of the system.**



## What Next

Complete these tasks:

- “How to Install the PCI Access Panel” on page 92
- “How to Slide the System Into the Cabinet” on page 30
- “How to Power On the System” on page 18

---

## How to Remove a PCI Card

### Before You Begin

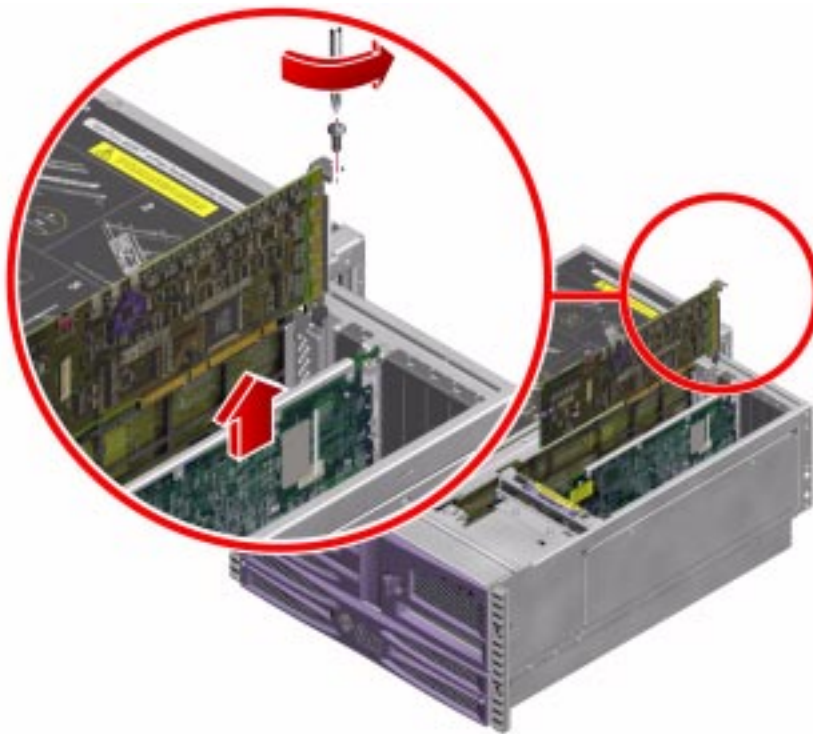
Complete these tasks:

- “How to Power Off the System” on page 22
- “How to Slide the System Out of the Cabinet” on page 25
- “How to Remove the PCI Access Panel” on page 90
- “How to Avoid Electrostatic Discharge” on page 39

### What to Do

1. **Disconnect any external cable(s) attached to the faceplate of the PCI card.**
2. **Disconnect any cables connected to the internal connectors on the PCI card.**

3. Using a Phillips No. 1 screwdriver, remove the screw securing the card to the chassis back panel.



---

**Caution** – Do not apply excessive force to one end or one side of the card. Doing so could damage the card.

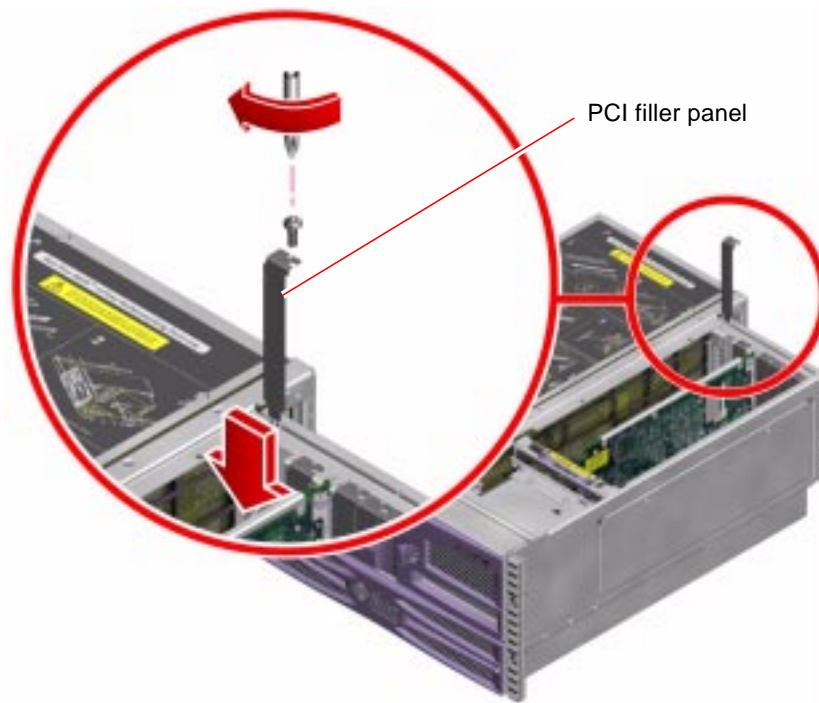
---

4. **Pull the PCI card from its slot.**

Hold the card by the faceplate and its opposite edge, and pull up while rocking the card from end to end until it is freed from its slot.

5. **Place the PCI card on an antistatic mat.**

6. If you are not replacing the PCI card, install a PCI filler panel to prevent dust from entering the system, and to ensure proper cooling.



- a. Slide the filler panel into the appropriate slot.
- b. Replace the Phillips No. 1 screw that secures the filler panel to the chassis back panel.

## What Next

To install a PCI card, complete this task:

- “How to Install a PCI Card” on page 104

To return the system to operation without installing a new PCI card, complete these tasks:

- “How to Install the PCI Access Panel” on page 92
- “How to Slide the System Into the Cabinet” on page 30
- “How to Power On the System” on page 18
- “How to Initiate a Reconfiguration Boot” on page 23

---

# How to Install a PCI Card

## Before You Begin

Complete these tasks:

- “How to Power Off the System” on page 22
- “How to Slide the System Out of the Cabinet” on page 25
- “How to Remove the PCI Access Panel” on page 90
- “How to Avoid Electrostatic Discharge” on page 39

Read the documentation supplied with the PCI card for information about jumper settings, PCI slot requirements, and cable connections.

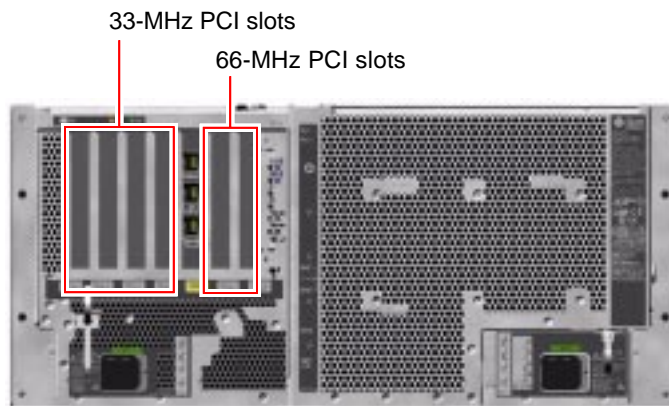
## What to Do

### 1. Locate an unused PCI slot.

---

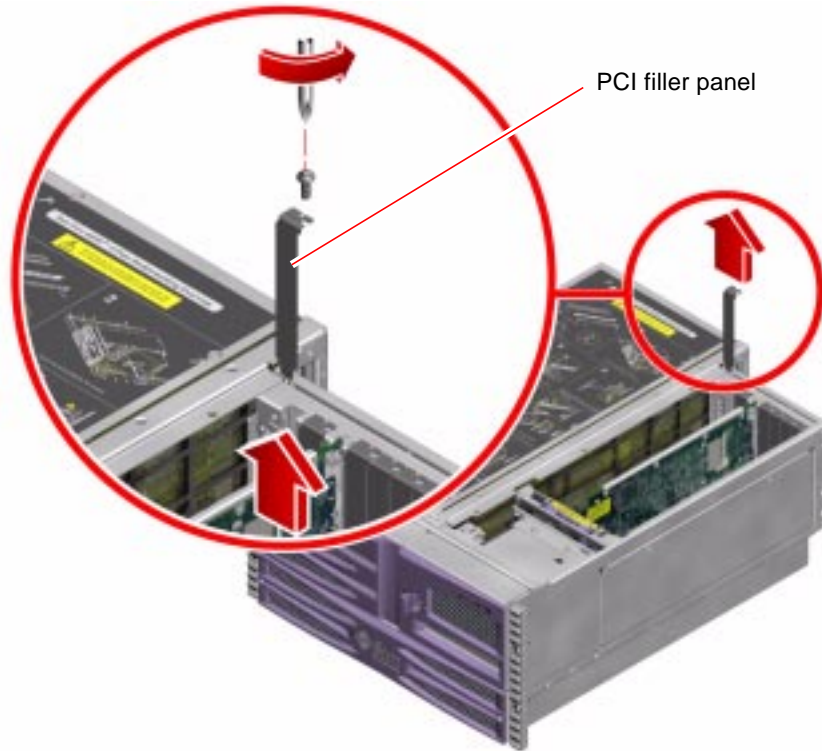
**Note** – PCI slots 0 and 1 are for 66-MHz cards. Installing a 33-MHz card into PCI slot 0 or 1 will cause both slots to operate at 33 MHz.

---



- ### 2. If you are installing a PCI card into an unused slot, remove the corresponding filler panel from the chassis back panel. Otherwise go to Step 3.

- a. Remove the Phillips No. 1 screw securing the PCI filler panel to the chassis back panel.
- b. Lift out the filler panel.



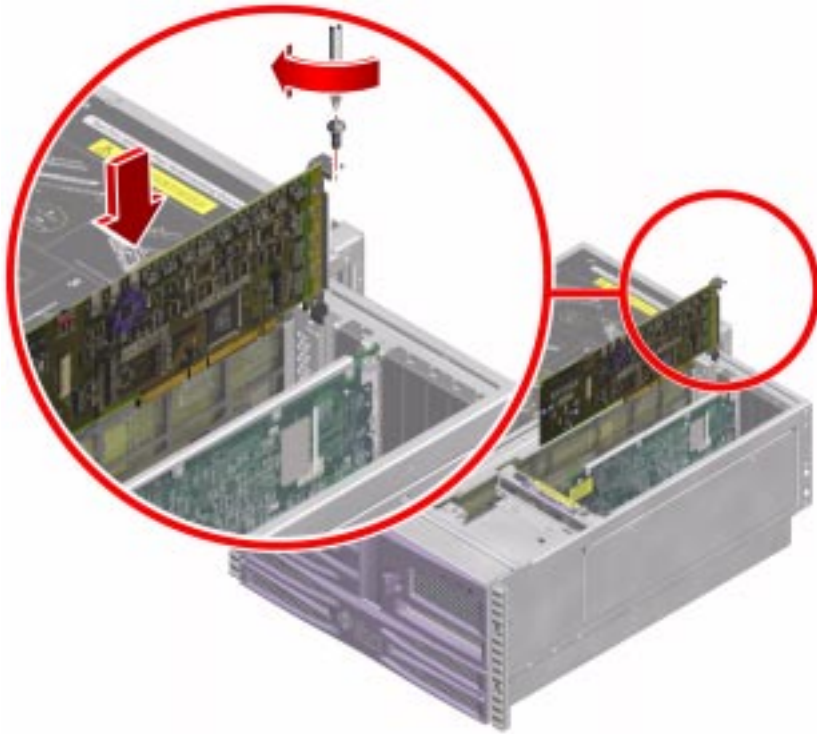
**3. Insert the PCI card into the appropriate slot on the PCI riser board.**

There are six PCI slots on the PCI riser board.

- a. Insert the faceplate end of the card into the appropriate opening in the back panel.

If you are installing a PCI long card, guide the opposite end of the PCI card into the corresponding card runner on the PCI riser board.

- b. Push the card into the corresponding connector on the PCI riser board.**  
Apply even pressure along the edge of the card.



---

**Caution** – Do not apply excessive force to one end or one side of the card. Doing so could damage the card.

---

- 4. Secure the PCI card faceplate to the back panel with the Phillips screw.**
- 5. If necessary, connect any internal cables to the PCI card's internal connectors.**
- 6. If necessary, connect any external cables to the PCI card.**

## What Next

Complete these tasks:

- “How to Install the PCI Access Panel” on page 92
- “How to Slide the System Into the Cabinet” on page 30
- “How to Power On the System” on page 18
- “How to Initiate a Reconfiguration Boot” on page 23

---

## How to Install a Sun StorEdge PCI Dual Fibre-Channel Host Adapter Card

This procedure describes how to install an optional Sun StorEdge PCI Dual Fibre-Channel Host Adapter.

## Before You Begin

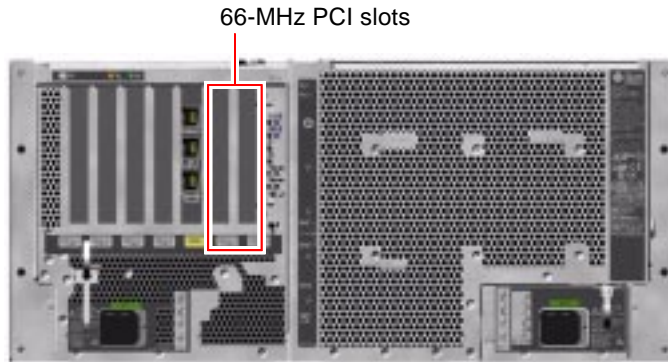
Complete these tasks:

- “How to Power Off the System” on page 22
- “How to Slide the System Out of the Cabinet” on page 25
- “How to Remove the PCI Access Panel” on page 90
- “How to Avoid Electrostatic Discharge” on page 39

Read the documentation supplied with the Sun StorEdge™ PCI Dual Fibre-Channel Host Adapter for information about jumper settings, PCI slot requirements, and cable connections.

# What to Do

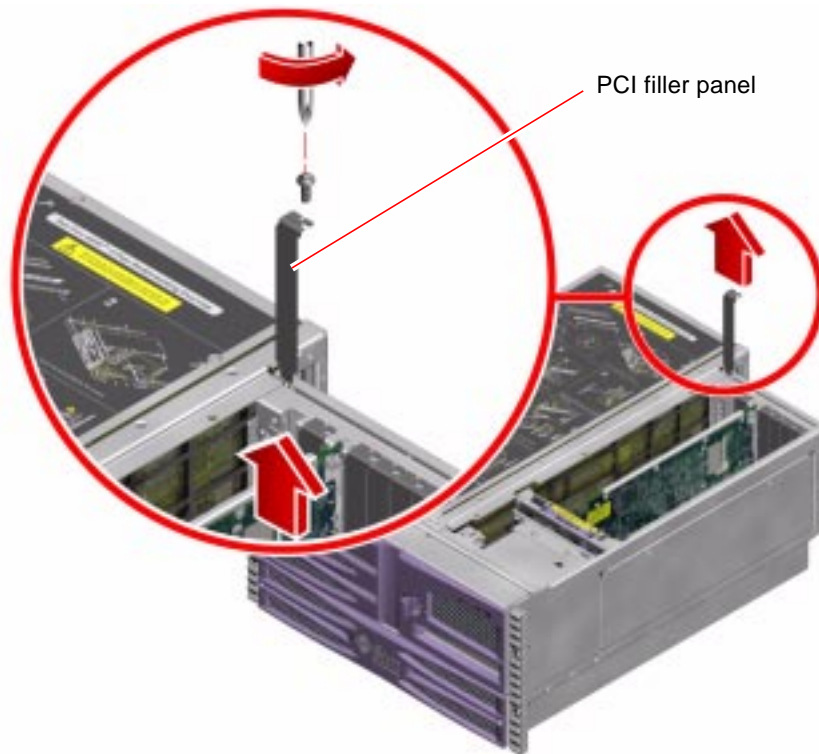
1. **Locate an unused 66-MHz PCI slot, either slot 0 or slot 1.**



2. **If you are installing the Sun StorEdge PCI Dual Fibre-Channel Host Adapter into an unused slot, remove the corresponding filler panel from the chassis back panel. Otherwise go to Step 3.**
  - a. **Remove the Phillips No. 1 screw securing the PCI filler panel to the chassis back panel.**



**b. Lift out the filler panel.**



**3. Insert the Sun StorEdge PCI Dual Fibre-Channel Host Adapter into the appropriate slot on the PCI riser board.**

There are two 66-MHz PCI slots on the PCI riser board.

**a. Insert the faceplate end of the card into the appropriate opening in the back panel.**

**b. Push the card into the corresponding connector on the PCI riser board.**

Apply even pressure along the edge of the card.



---

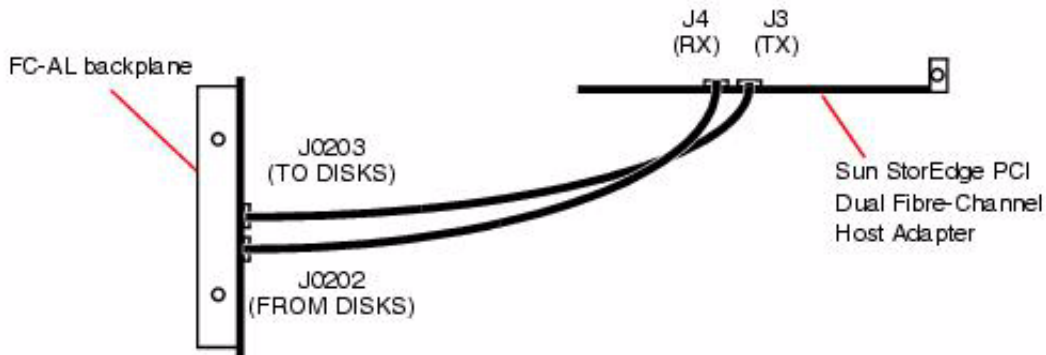
**Caution** – Do not apply excessive force to one end or one side of the card. Doing so could damage the card.

---

**4. Using a Phillips No. 1 screwdriver, secure the card faceplate to the back panel.**

**5. Connect the two internal Loop B cables to the Sun StorEdge PCI Dual Fibre-Channel Host Adapter's internal connectors and the FC-AL backplane.**

The Loop B cable assembly is purchased separately from the Sun StorEdge PCI Dual Fibre-Channel Host Adapter, and is unique to the Sun Fire V480 server. See "System Cables" on page 215 for the correct part number.



---

**Note** – Be sure to connect the cables as shown; Loop B will not function if the cables are connected incorrectly.

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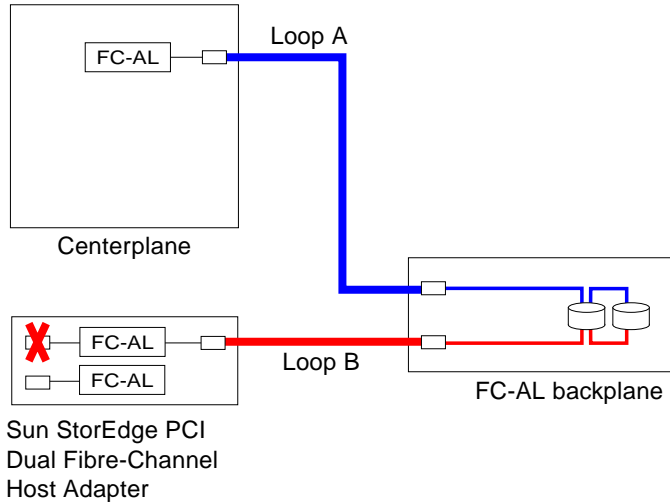
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**Note** – For cable routing information, see "Cable Connections and Routing" on page 152.

---

## 6. Connect any external cables to the PCI card.

Do not use the Sun StorEdge PCI Dual Fibre-Channel Host Adapter's external port 1 when FC-AL Loop B is connected to the FC-AL backplane.



## What Next

Complete these tasks:

- “How to Install the PCI Access Panel” on page 92
- “How to Slide the System Into the Cabinet” on page 30
- “How to Power On the System” on page 18
- “How to Initiate a Reconfiguration Boot” on page 23

---

# How to Remove the PCI Riser Board

## Before You Begin

Depopulate the PCI riser board by completing the following tasks:

- “How to Power Off the System” on page 22
- “How to Slide the System Out of the Cabinet” on page 25
- “How to Remove the PCI Access Panel” on page 90
- “How to Avoid Electrostatic Discharge” on page 39
- “How to Remove Fan Tray 1” on page 93
- “How to Remove the RSC Card” on page 97
- “How to Remove a PCI Card” on page 101

---

**Note** – You must remove all cables and cards from the PCI riser board before removing the PCI riser board from the system.

---

# What to Do

1. **Make sure that the AC power cord(s) are disconnected from the back of the system.**
2. **Remove the PCI riser board access panel.**



- a. **Loosen the two captive Phillips No. 2 screws securing the PCI riser board access panel to the chassis.**
  - b. **Tilt the access panel outward and pull it straight up to remove it from the chassis.**
3. **Disconnect the cables from the PCI riser board.**

- a. **Disconnect the FC-AL power cable from J1901.**

Press the tab to release the cable end from its connector.

---

**Note** – For cable routing information, see “Cable Connections and Routing” on page 152.

---

- b. **Disconnect the system control switch/power button cable from J1401.**

Press the tab to release the cable end from its connector.

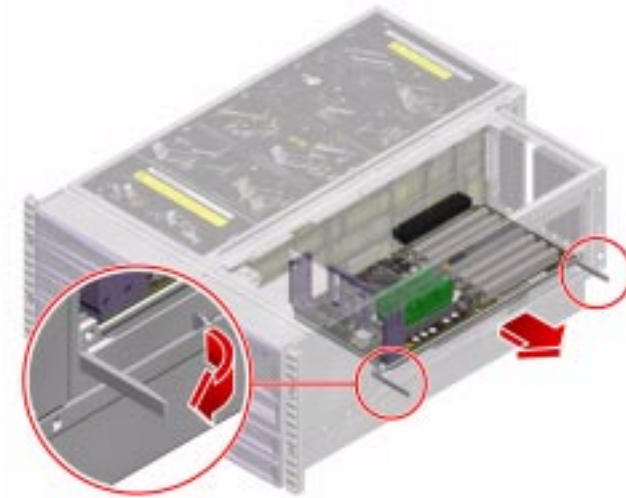
- c. **Disconnect the removable media assembly (RMA) data cable from J1001.**

Pull up the ejector levers until the cable end comes off the connector.

**d. Disconnect the Fan Tray 0 power cable from J2302.**

Press the tab to release the cable end from its connector.

- 4. Remove the two Phillips No. 2 screws securing the PCI riser board to its mounting bracket.**
- 5. Rotate the mounting levers outward to release the PCI riser board from the chassis.**



- 6. Pull the PCI riser board out of the system and place it on an antistatic mat.**  
Support the PCI riser board from underneath as you remove it from the system.

## What Next

---

**Note** – If you are replacing the PCI riser board with a new one and you want to retain the system serial number and media access control (MAC) address, you must migrate the IDPROM module to the new PCI riser board.

---

If you are replacing the PCI riser board with a new one, complete this task:

- “How to Remove the IDPROM Module” on page 118

Complete this task:

- “How to Install the PCI Riser Board” on page 115

---

# How to Install the PCI Riser Board

## Before You Begin

Complete this task:

- “How to Remove the PCI Riser Board” on page 112

If you are replacing the PCI riser board with a new one, complete this task:

- “How to Install the IDPROM Module” on page 119

## What to Do

### 1. Slide the PCI riser board into the system.

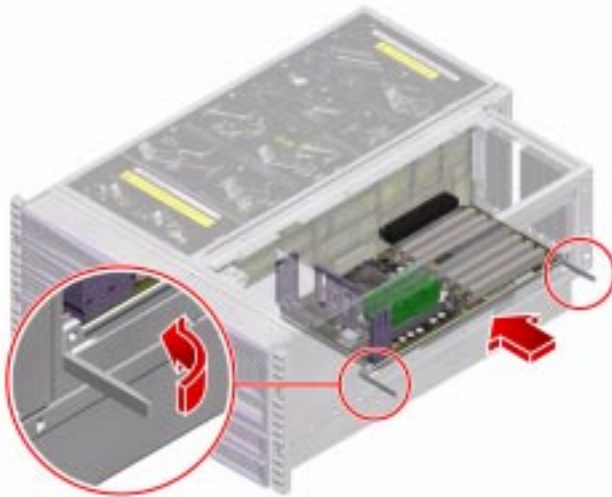
Make sure that the sides of the PCI riser board are inserted properly into their mounting rails, and that the mounting levers are fully extended.

---

**Note** – Be sure to keep all the cables clear of the left side of the PCI riser board as you insert it into the system.

---

2. Push the mounting levers inward to seat the PCI riser board connectors into their corresponding connectors on the centerplane.



3. Using a Phillips No. 2 screwdriver, replace the two screws that secure the PCI riser board to the chassis.
4. Reconnect the cables.
  - a. **Connect the Fan Tray 0 power cable into J2302.**

Push the connector into its socket until it snaps into place.

---

**Note** – For cable routing information, see “Cable Connections and Routing” on page 152.

---

- b. **Connect the RMA cable into J1001.**

Push the connector into its socket until the two levers snap down into place.

- c. **Connect the system control switch/power button cable into J1401.**

Push the connector into its socket until it snaps into place.

- d. **Connect the FC-AL power cable into J1901.**

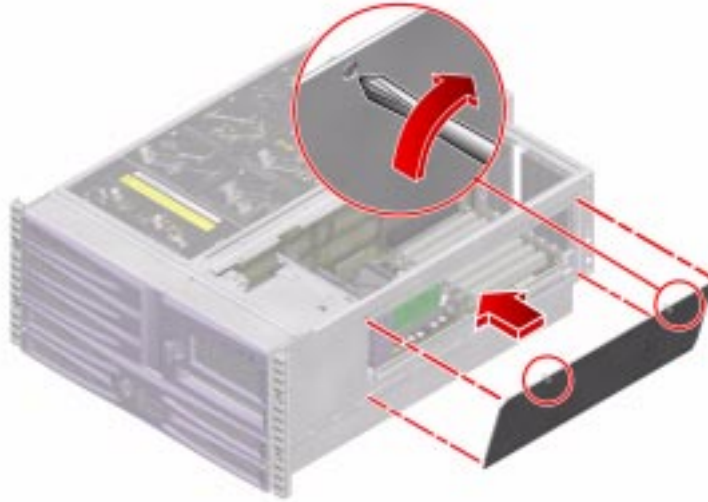
Push the connector into its socket until it snaps into place.

5. Replace the PCI riser board access panel.



- a. **Insert the tabs on the PCI riser board access panel into their corresponding slots on the chassis.**

Insert the bottom edge of the access panel first and rotate the top edge inward. Push outward from the inside of the access panel until the tabs drop into place.



- b. **Tighten the two captive Phillips No. 2 screws that secure the PCI riser board access panel to the chassis.**

## What Next

Complete these tasks:

- “How to Install a PCI Card” on page 104
- “How to Install the RSC Card” on page 99
- “How to Install Fan Tray 1” on page 95
- “How to Install the PCI Access Panel” on page 92
- “How to Slide the System Into the Cabinet” on page 30
- “How to Power On the System” on page 18



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**Caution** – Do not reconnect the AC power cord to the back of the system until after you have installed the RSC card.

---

---

# How to Remove the IDPROM Module

This section explains how to remove a functioning ID programmable read-only memory (IDPROM) module so that you can install it on a new PCI riser board, thereby preserving the system's host ID information. If you are replacing a defective IDPROM module and want to retain the same host ID, consult your authorized Sun sales representative or service provider for assistance with programming the new IDPROM module with the existing host ID and Ethernet address.

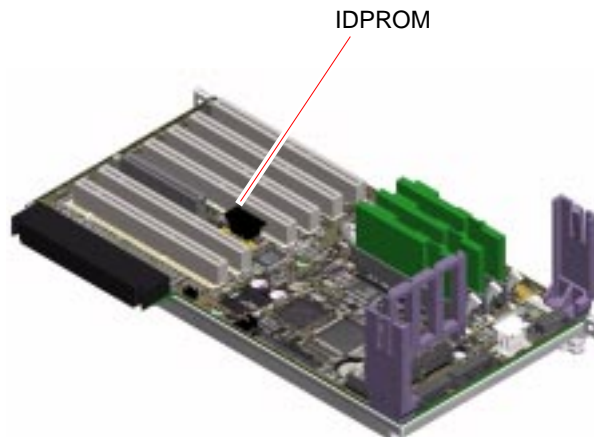
## Before You Begin

Complete these tasks:

- “How to Power Off the System” on page 22
- “How to Slide the System Out of the Cabinet” on page 25
- “How to Avoid Electrostatic Discharge” on page 39
- “How to Remove the PCI Access Panel” on page 90
- “How to Remove Fan Tray 1” on page 93
- “How to Remove the RSC Card” on page 97
- “How to Remove a PCI Card” on page 101
- “How to Remove the PCI Riser Board” on page 112

## What to Do

1. **Locate the IDPROM module on the PCI riser board.**



2. **Grasp the IDPROM module at each end and pull it straight up.**

If necessary, gently rock the IDPROM module from side to side to facilitate removal.

3. **Place the IDPROM module on an antistatic mat.**

## What Next

Complete this task:

- “How to Install the IDPROM Module” on page 119

---

# How to Install the IDPROM Module

---

**Note** – If you are installing a new IDPROM module, it must be programmed by an authorized Sun service representative before your system can resume normal operation. If you are installing a new PCI riser board, remember that you can migrate your former IDPROM module in order to preserve your system’s host ID and Ethernet address.

---

## Before You Begin

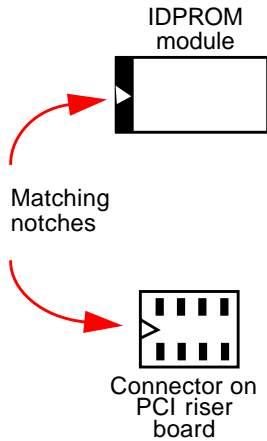
Complete this task:

- “How to Remove the IDPROM Module” on page 118

# What to Do

## 1. Insert the IDPROM module into its socket on the PCI riser board.

Make sure that the notch on the IDPROM module is on the same side as the notch on the connector on the PCI riser board.



## 2. Push down firmly on the IDPROM module until it seats in its socket.

# What Next

Complete these tasks:

- “How to Install the PCI Riser Board” on page 115
- “How to Install a PCI Card” on page 104
- “How to Install the RSC Card” on page 99
- “How to Install Fan Tray 1” on page 95
- “How to Install the PCI Access Panel” on page 92
- “How to Slide the System Into the Cabinet” on page 30
- “How to Power On the System” on page 18
- “How to Initiate a Reconfiguration Boot” on page 23

## Servicing Miscellaneous Components

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This chapter contains the following sections:

- “How to Remove the FC-AL Backplane” on page 122
- “How to Install the FC-AL Backplane” on page 124
- “How to Remove the Removable Media Assembly” on page 125
- “How to Install the Removable Media Assembly” on page 127
- “How to Remove the DVD-ROM Drive” on page 129
- “How to Install the DVD-ROM Drive” on page 130
- “How to Remove the Centerplane” on page 131
- “How to Install the Centerplane” on page 134
- “How to Remove the Power Distribution Board” on page 137
- “How to Install the Power Distribution Board” on page 140
- “How to Remove the Media Door Assembly” on page 143
- “How to Install the Media Door Assembly” on page 147

---

# How to Remove the FC-AL Backplane

## Before You Begin

Complete these tasks:

- “How to Power Off the System” on page 22
- “How to Remove a Disk Drive” on page 53
- “How to Slide the System Out of the Cabinet” on page 25
- “How to Remove the PCI Access Panel” on page 90
- “How to Avoid Electrostatic Discharge” on page 39
- “How to Remove Fan Tray 1” on page 93

## What to Do

1. **Disconnect the Fibre Channel-Arbitrated Loop (FC-AL) power cable from J0201 on the FC-AL backplane.**

Press the tab to unlock the cable and pull the cable out of the connector.

---

**Note** – For cable routing information, see “Cable Connections and Routing” on page 152.

---

2. **Disconnect the FC-AL data cable from J0200 on the FC-AL backplane.**  
Push the ejector levers apart to eject the cable from its connector.
3. **Loosen the two Phillips No. 1 captive screws on the FC-AL backplane mounting bracket.**

4. Pull the FC-AL backplane straight up, off its mounting tabs.



5. Set the FC-AL backplane aside on an antistatic mat.

## What Next

Complete this task:

- “How to Install the FC-AL Backplane” on page 124

---

# How to Install the FC-AL Backplane

## Before You Begin

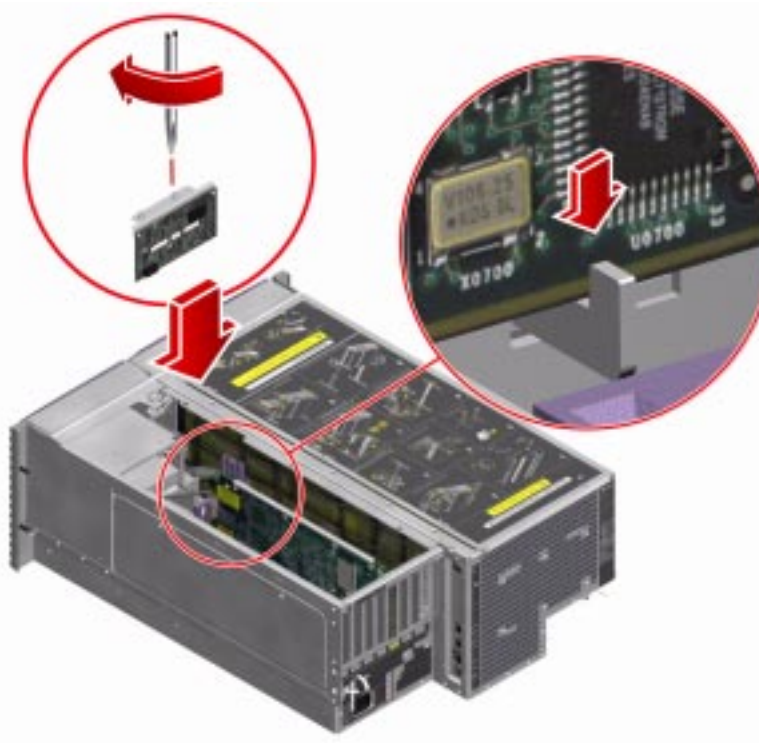
Complete this task:

- “How to Remove the FC-AL Backplane” on page 122

## What to Do

- 1. Attach the FC-AL backplane to its bracket on the chassis.**

Push the FC-AL backplane straight down until it locks into place. Make sure that the slot in the FC-AL backplane and mounting bracket mate with the corresponding tabs on the chassis drive bay.





2. **Tighten the two Phillips No. 1 captive screws on the mounting bracket.**
3. **Connect the FC-AL power cable to the FC-AL backplane at J0201.**  
Push the cable in until it snaps into place.
4. **Connect the FC-AL data cable to the FC-AL backplane at J0200.**  
Push in the cable until the ejector levers snap into place.

## What Next

Complete these tasks:

- “How to Install Fan Tray 1” on page 95
- “How to Install the PCI Access Panel” on page 92
- “How to Slide the System Into the Cabinet” on page 30
- “How to Install a Disk Drive” on page 55
- “How to Power On the System” on page 18

---

# How to Remove the Removable Media Assembly

## Before You Begin

Complete these tasks:

- “How to Power Off the System” on page 22
- “How to Slide the System Out of the Cabinet” on page 25
- “How to Remove the PCI Access Panel” on page 90
- “How to Avoid Electrostatic Discharge” on page 39
- “How to Remove Fan Tray 1” on page 93

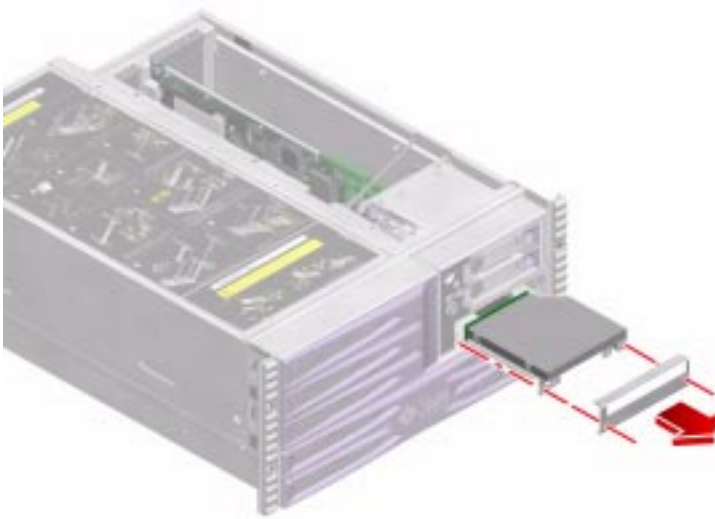
## What to Do

1. **Disconnect the removable media assembly (RMA) cable from J1001 on the PCI riser board.**  
Pull the ejector levers up until the cable unseats from its connector.

**2. Unlock and open the media door.**

**3. Remove the RMA faceplate.**

Remove the two Phillips No. 1 mounting screws and pull off the faceplate.



**4. Reach inside the system and push the RMA forward.**

Be careful not to damage the RMA cable.

**5. With your other hand, cradle the RMA from underneath and pull it out of the RMA bay.**

Thread the RMA and its cable out of the system through the RMA bay.

**6. Place the RMA on an antistatic mat.**

---

**Note** – If you are replacing a failed DVD-ROM drive, you must remove the DVD-ROM drive from the RMA bracket.

---

## What Next

If you are replacing a failed DVD-ROM drive or failed RMA cable, see:

- “How to Remove the Removable Media Assembly Cable” on page 158

Complete this task:

- “How to Install the Removable Media Assembly” on page 127

---

# How to Install the Removable Media Assembly

## Before You Begin

Complete this task:

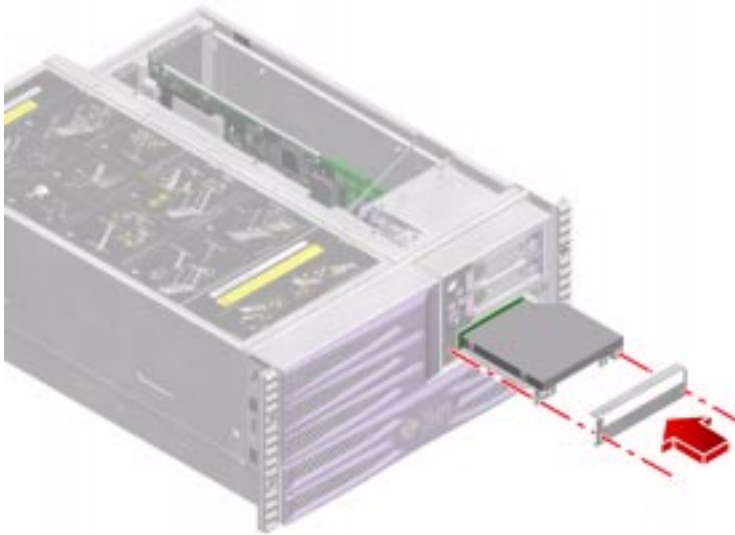
- “How to Remove the Removable Media Assembly” on page 125

## What to Do

1. Thread the RMA cable through the RMA bay.

**2. Insert the RMA partially into the RMA bay.**

Insert the sides of the RMA bracket into their corresponding rails in the chassis. Leave enough clearance to connect the RMA cable to the PCI riser board.



**3. Connect the RMA cable to J1001 on the PCI riser board.**

- a. Make sure that the two ejector levers on either side of the connector on the PCI riser board are rotated up.
- b. Push the cable back toward the rear of the system until the two ejector levers on the PCI riser board snap into place.

**4. Push the RMA all the way into the RMA bay and reattach the RMA faceplate.**

Tighten the two Phillips No. 1 screws that secure the RMA faceplate to the chassis.

## What Next

Complete these tasks:

- “How to Install Fan Tray 1” on page 95
- “How to Install the PCI Access Panel” on page 92
- “How to Slide the System Into the Cabinet” on page 30
- “How to Install a Disk Drive” on page 55
- “How to Power On the System” on page 18

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# How to Remove the DVD-ROM Drive

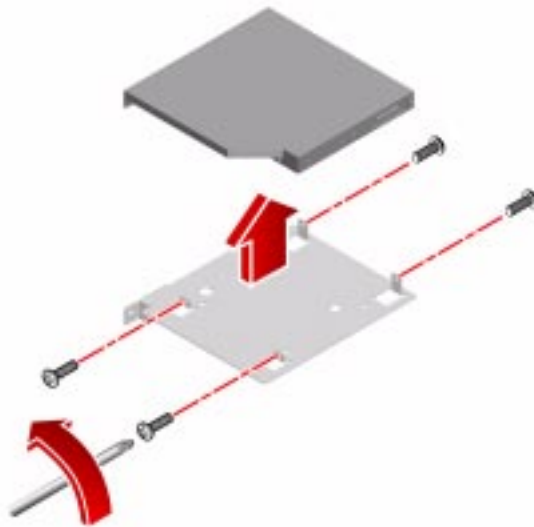
## Before You Begin

Complete these tasks:

- “How to Power Off the System” on page 22
- “How to Slide the System Out of the Cabinet” on page 25
- “How to Remove the PCI Access Panel” on page 90
- “How to Avoid Electrostatic Discharge” on page 39
- “How to Remove Fan Tray 1” on page 93
- “How to Remove the Removable Media Assembly” on page 125
- “How to Remove the Removable Media Assembly Cable” on page 158

## What to Do

1. Using a Phillips No. 1 screwdriver, remove the four mounting screws securing the DVD-ROM drive to the RMA bracket.



2. Slide the DVD-ROM drive off the RMA bracket.

## What Next

Complete this task:

- “How to Install the DVD-ROM Drive” on page 130

---

## How to Install the DVD-ROM Drive

### Before You Begin

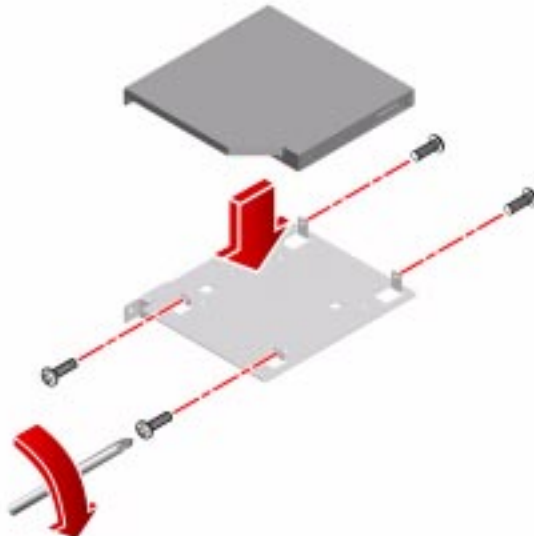
Complete this task:

- “How to Remove the DVD-ROM Drive” on page 129

### What to Do

1. **Slide the DVD-ROM drive onto the RMA bracket.**
2. **Using a Phillips No. 1 screwdriver, attach the DVD-ROM drive to the RMA bracket.**

The DVD-ROM drive is secured with four mounting screws.



## What Next

Complete these tasks:

- “How to Install the Removable Media Assembly Cable” on page 159
  - “How to Install the Removable Media Assembly” on page 127
  - “How to Install Fan Tray 1” on page 95
  - “How to Install the PCI Access Panel” on page 92
  - “How to Slide the System Into the Cabinet” on page 30
  - “How to Install a Disk Drive” on page 55
  - “How to Power On the System” on page 18
- 

## How to Remove the Centerplane

---

**Note** – It is mechanically feasible to service the centerplane with the system installed in the cabinet. However, it is easier to remove the system from the cabinet and perform this procedure on a workbench. To remove the system from the cabinet, see “How to Remove the System From the Cabinet” on page 32.

---

## Before You Begin

Complete these tasks:

- “How to Power Off the System” on page 22
- “How to Slide the System Out of the Cabinet” on page 25
- “How to Avoid Electrostatic Discharge” on page 39
- “How to Remove the PCI Access Panel” on page 90
- “How to Remove Fan Tray 1” on page 93
- “How to Remove the FC-AL Data Cable” on page 156
- “How to Remove the RSC Card” on page 97
- “How to Remove a PCI Card” on page 101
- “How to Remove the PCI Riser Board” on page 112
- “How to Remove the CPU Access Panel” on page 70
- “How to Remove a CPU/Memory Board” on page 74

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**Note** – You must remove all PCI cards and the RSC card from the system before removing the PCI riser board.

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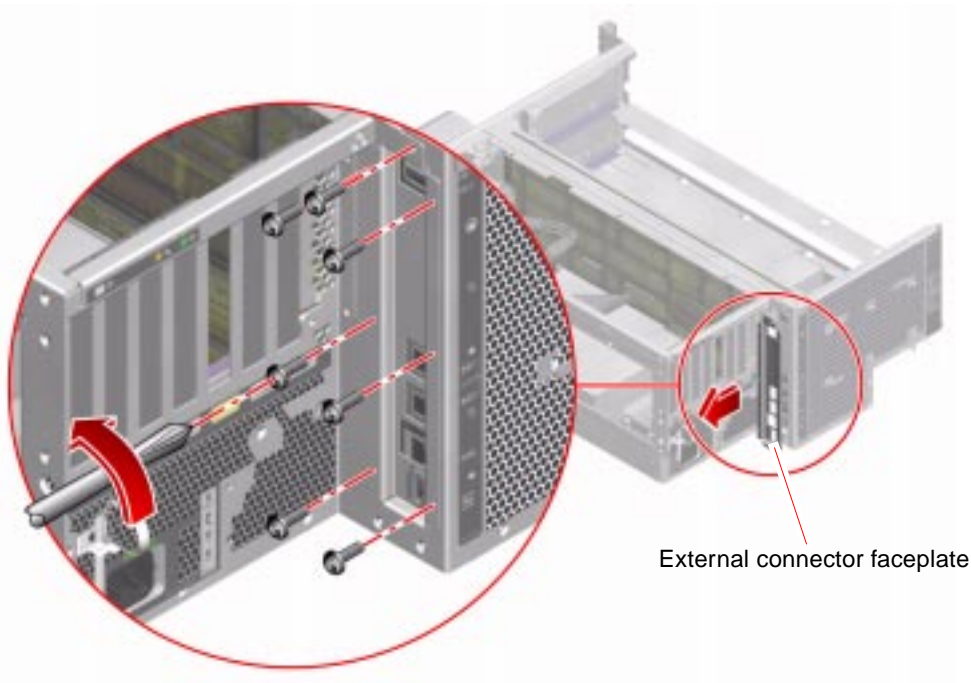
**Note** – If your system is equipped with two CPU/Memory boards, you must remove both of them from the system.

---

## What to Do

1. **Disconnect the AC power cord(s) from the back of the system.**
2. **Using a Phillips No. 2 screwdriver, remove the external connector faceplate on the back panel.**

The faceplate is secured with seven screws.



3. **Using a Phillips No. 2 screwdriver, remove the screw on the centerplane top stiffener closest to the front of the system.**



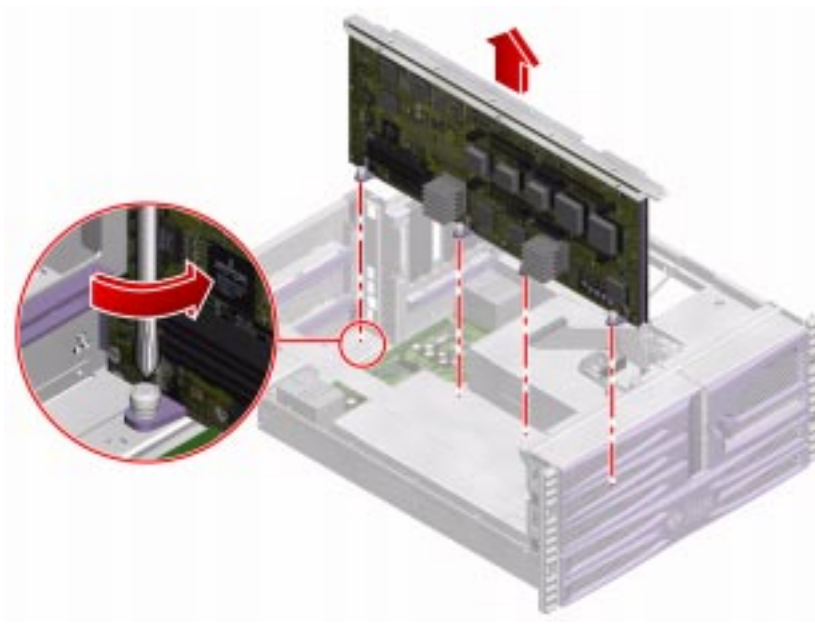


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**Caution** – Make sure that the PCI riser board and its components have been removed before proceeding. Trying to remove the centerplane before removing the PCI riser board can seriously damage both components.

---

4. Using a long-stem Phillips No. 2 screwdriver, loosen the four captive screws securing the centerplane to the bottom of the chassis.



5. Pull the centerplane straight up and out of the system and place the centerplane on an antistatic mat.

Be careful not to damage the connectors securing the centerplane to the power distribution board.

## What Next

Complete this task:

- “How to Install the Centerplane” on page 134

---

# How to Install the Centerplane

---

**Note** – It is mechanically feasible to service the centerplane with the system installed in the cabinet. However, it is easier to remove the system from the cabinet and perform this procedure on a workbench. To remove the system from the cabinet, see “How to Remove the System From the Cabinet” on page 32.

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## Before You Begin

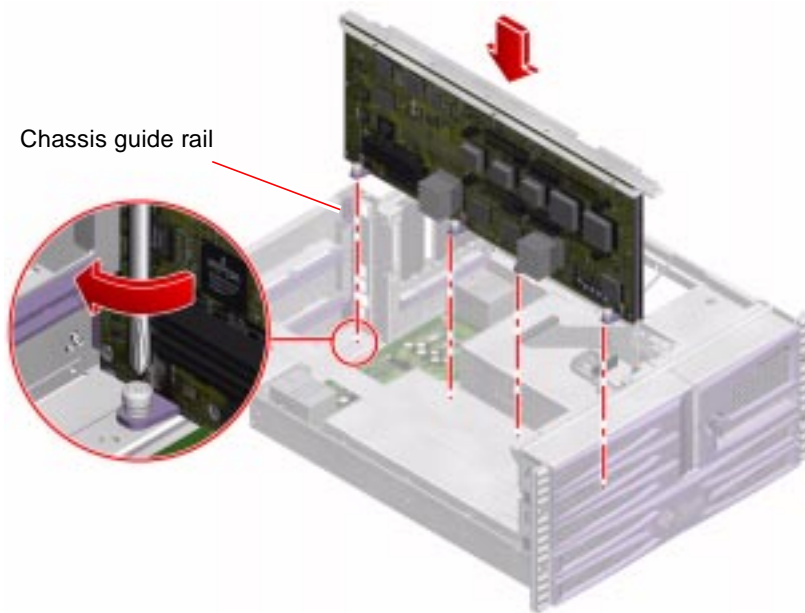
Complete this task:

- “How to Remove the Centerplane” on page 131

## What to Do

1. **If you are replacing the centerplane with a new one, migrate the top stiffener to the new centerplane.**
  - a. **Remove the five remaining Phillips screws securing the top stiffener to the old centerplane.**
  - b. **Attach the top stiffener to the new centerplane using the five center Phillips screws.**

2. Slide the centerplane into its guide rails in the chassis.



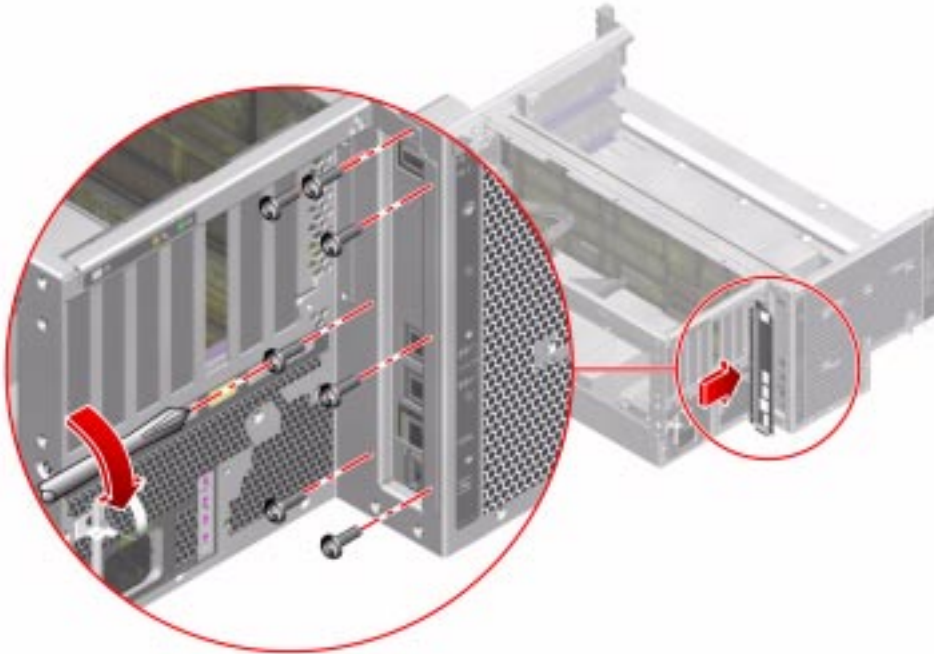
3. Press firmly and evenly to secure the centerplane connectors to the power distribution board.

Make sure that the rear lip on the centerplane top stiffener is on the outside of the chassis.

4. Using a long-stem Phillips No. 2 screwdriver, tighten the four captive screws that secure the centerplane to the chassis.
5. Using a Phillips No. 2 screwdriver, install the screw that secures the centerplane top stiffener to the front of the system.

**6. Using a Phillips No. 2 screwdriver, install the external connector faceplate on the back panel.**

The faceplate is fastened with seven Phillips screws.



**7. Connect the AC power cord(s) to the back of the system.**

## What Next

Complete these tasks:

- “How to Install a CPU/Memory Board” on page 76
- “How to Install the CPU Access Panel” on page 72
- “How to Install the PCI Riser Board” on page 115
- “How to Install a PCI Card” on page 104
- “How to Install the RSC Card” on page 99
- “How to Install the FC-AL Data Cable” on page 156
- “How to Install Fan Tray 1” on page 95
- “How to Install the PCI Access Panel” on page 92
- “How to Slide the System Into the Cabinet” on page 30
- “How to Power On the System” on page 18

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# How to Remove the Power Distribution Board

---

**Note** – It is mechanically feasible to service the power distribution board with the system installed in the cabinet. However, it is easier to remove the system from the cabinet and perform this procedure on a workbench. To remove the system from the cabinet, see “How to Remove the System From the Cabinet” on page 32.

---

## Before You Begin

Complete these tasks:

- “How to Power Off the System” on page 22
- “How to Slide the System Out of the Cabinet” on page 25
- “How to Avoid Electrostatic Discharge” on page 39
- “How to Remove the Power Supply Access Panel” on page 44
- “How to Remove a Power Supply” on page 47
- “How to Remove the PCI Access Panel” on page 90
- “How to Remove Fan Tray 1” on page 93
- “How to Remove the FC-AL Data Cable” on page 156
- “How to Remove the RSC Card” on page 97
- “How to Remove a PCI Card” on page 101
- “How to Remove the PCI Riser Board” on page 112
- “How to Remove the CPU Access Panel” on page 70
- “How to Remove a CPU/Memory Board” on page 74
- “How to Remove the Centerplane” on page 131

---

**Note** – You must remove both power supplies from the system.

---

---

**Note** – You must remove all PCI cards from the system.

---

---

**Note** – If your system is equipped with two CPU/Memory boards, you must remove both of them from the system.

---

# What to Do



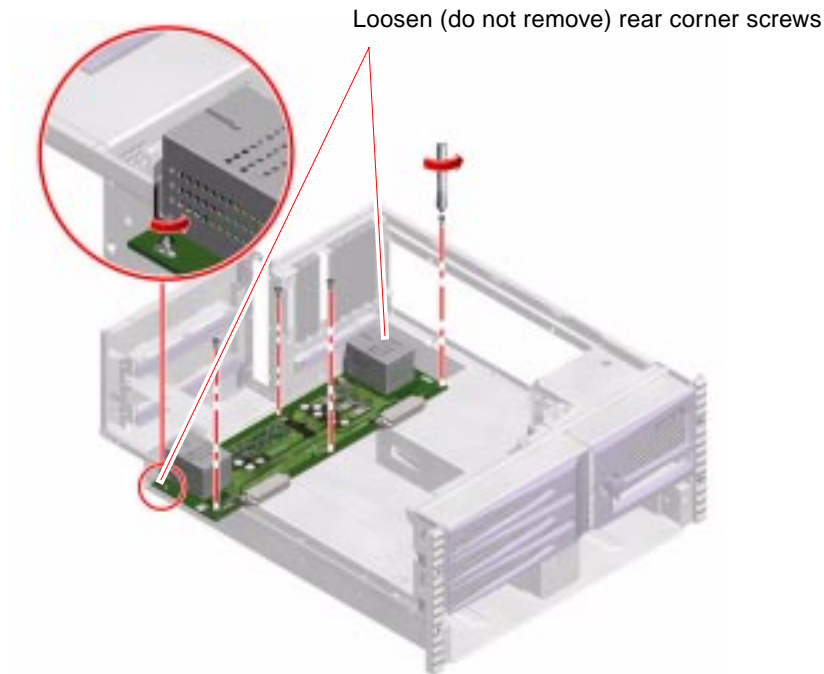
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**Caution** – Disconnect the AC power cords from the back of the system before performing this procedure. Attempting to remove the power distribution board while the AC power cords are connected to a power source can result in serious personal injury.

---

1. **Disconnect the AC power cord(s) from the back of the system.**
2. **Using a long-stem Phillips No. 2 screwdriver, loosen the two screws at the rear corners of the power distribution board.**

Insert your screwdriver through the rear hole in the chassis stiffener to get direct contact with the screw on the CPU-side of the system.



---

**Note** – Do not remove the two rear corner screws.

---

3. Using a long-stem Phillips No. 2 screwdriver, remove the four remaining screws securing the power distribution board to the chassis.

Insert your screwdriver through the hole in the chassis stiffener to get direct contact with the screw on the CPU-side of the system.

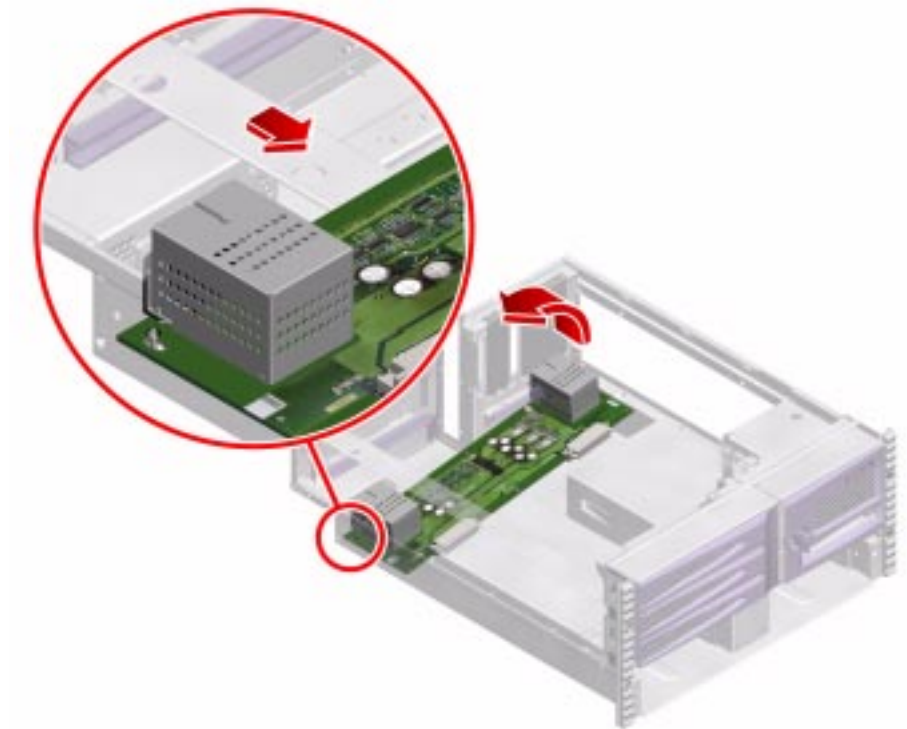
4. Remove the power distribution board from the system.
  - a. Slide the power distribution board toward the front of the system.
  - b. Tilt the power distribution board and remove it from the system through the PCI riser board access bay.



---

**Caution** – Be careful not to damage the light pipes mounted to the rear of the power distribution board.

---



5. Place the power distribution board on an antistatic mat.

## What Next

Complete this task:

- “How to Install the Power Distribution Board” on page 140

---

## How to Install the Power Distribution Board

---

**Note** – It is mechanically feasible to service the power distribution board with the system installed in the cabinet. However, it is easier to remove the system from the cabinet and perform this procedure on a workbench. To remove the system from the cabinet, see “How to Remove the System From the Cabinet” on page 32.

---

## Before You Begin

Complete this task:

- “How to Remove the Power Distribution Board” on page 137



# What to Do

1. Place the power distribution board inside the chassis.

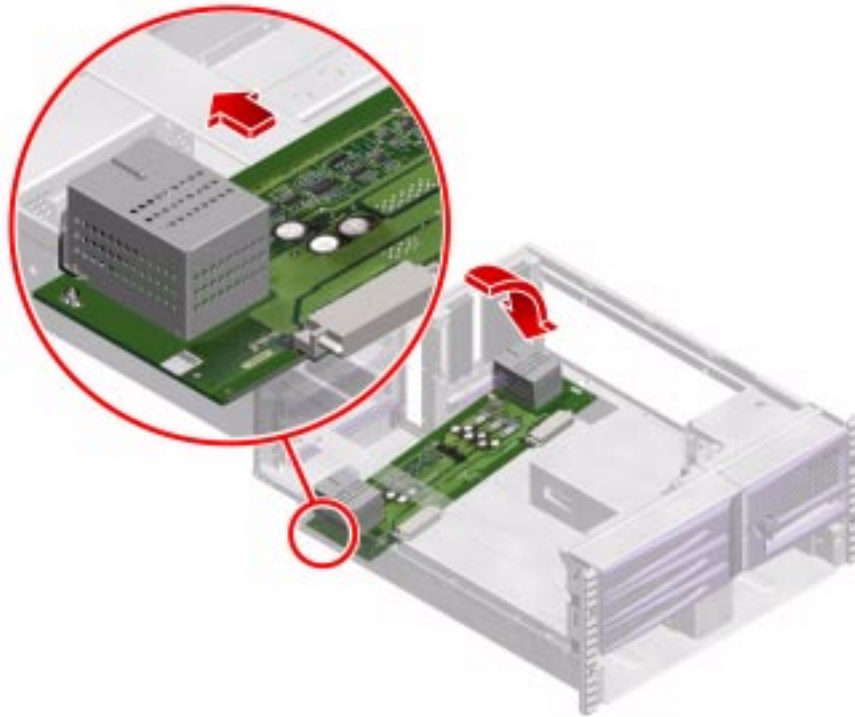


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**Caution** – Be careful not to damage the light pipes mounted to the rear of the power distribution board.

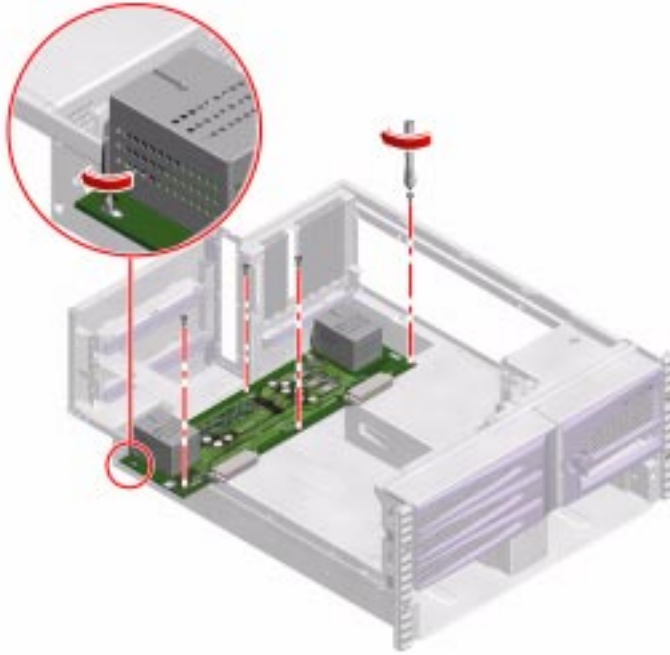
---

2. Slide the power distribution board back under the two rear corner screws.



3. Using a long-stem Phillips No. 2 screwdriver, replace the first four screws that secure the power distribution board to the chassis.

Replace the left-front screw first, then replace the remaining screws.



4. Tighten the remaining two screws.

## What Next

Complete these tasks:

- “How to Install the Centerplane” on page 134
- “How to Install a CPU/Memory Board” on page 76
- “How to Install the CPU Access Panel” on page 72
- “How to Install the PCI Riser Board” on page 115
- “How to Install a PCI Card” on page 104
- “How to Install the RSC Card” on page 99
- “How to Install the FC-AL Backplane” on page 124
- “How to Install Fan Tray 1” on page 95
- “How to Install the PCI Access Panel” on page 92
- “How to Install a Power Supply” on page 50
- “How to Install the Power Supply Access Panel” on page 46
- “How to Slide the System Into the Cabinet” on page 30
- “How to Power On the System” on page 18

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## How to Remove the Media Door Assembly

### Before You Begin

Complete these tasks:

- “How to Power Off the System” on page 22
- “How to Remove the Power Supply Access Panel” on page 44
- “How to Slide the System Out of the Cabinet” on page 25
- “How to Remove the PCI Access Panel” on page 90
- “How to Avoid Electrostatic Discharge” on page 39
- “How to Remove Fan Tray 1” on page 93
- “How to Remove the FC-AL Backplane” on page 122
- “How to Remove the Removable Media Assembly” on page 125

## What to Do

1. **Disconnect the system control switch/power button cable from J1401 on the PCI riser board.**

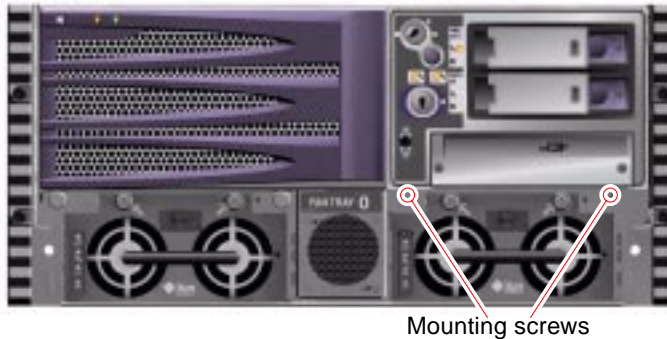
Pull the system control switch/power button cable end out from behind the centerplane-side Fan Tray 1 mounting bracket.

2. **Disconnect the Fan Tray 0 power cable from J2302 on the PCI riser board.**

Pull the cable out from behind the centerplane-side Fan Tray 1 mounting bracket.

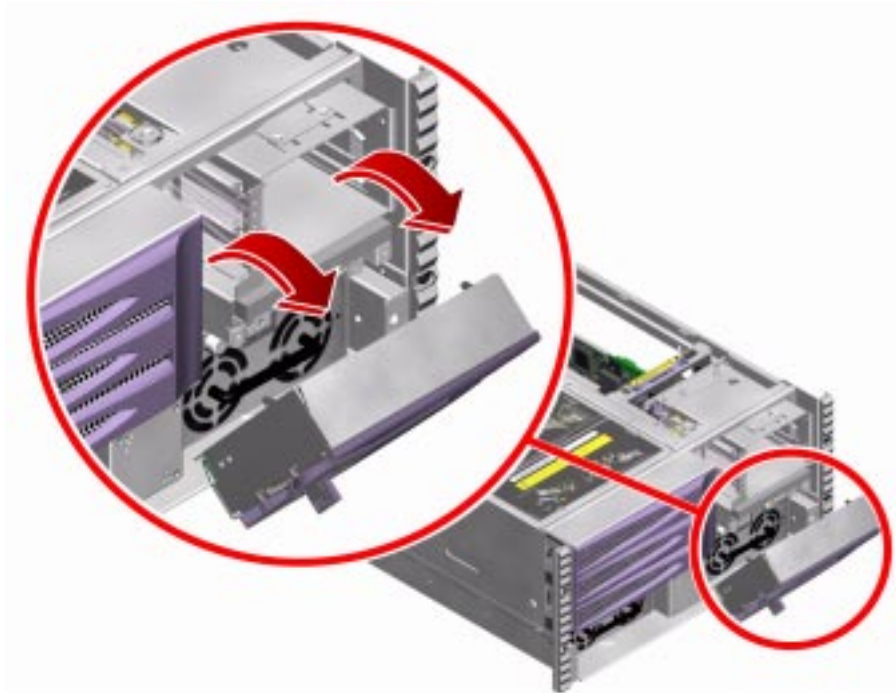
3. **Using a Phillips No. 1 screwdriver, remove the two screws securing the media door assembly to the chassis.**

The screws are located under the media door assembly.



4. Push the media door assembly up and pull it forward to unhook it from the chassis.

The two tabs secure the media door assembly to the chassis.



---

**Note** – You can slide Power Supply 1 halfway out of the chassis and use it to support the media door assembly while you complete the removal procedure.

---

5. Carefully tip the media door assembly forward.



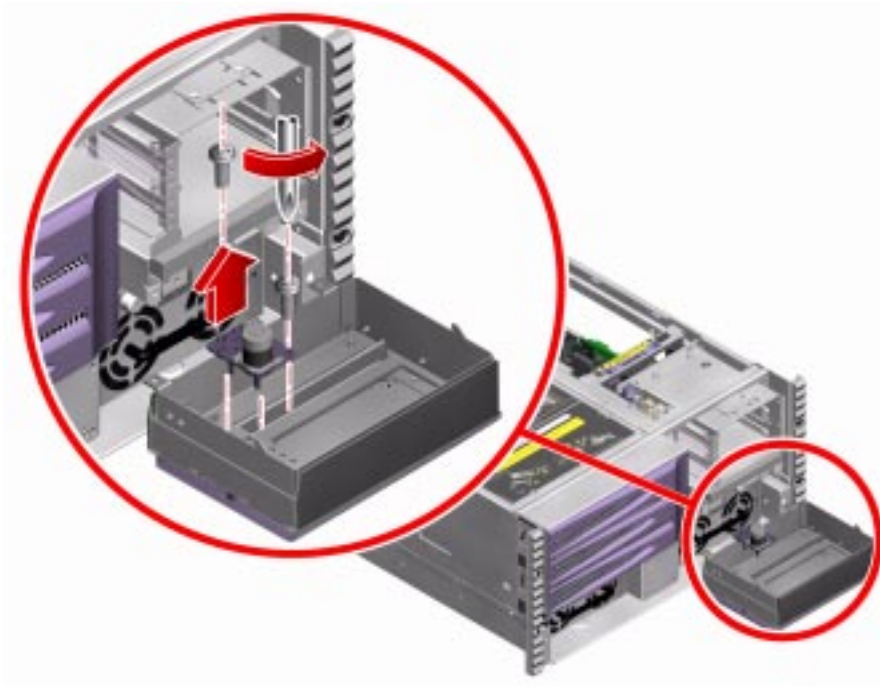
---

**Caution** – Do not drop the media door assembly. The system control switch/power button cable is attached to the media door assembly, and it can be damaged if the media door assembly is pulled too far away from the chassis.

---

**6. Remove the system control switch/power button cable mounting plate from the media door assembly.**

The mounting plate is secured with two Phillips No. 2 screws.



## What Next

Complete this task:

- “How to Install the Media Door Assembly” on page 147

---

# How to Install the Media Door Assembly

## Before You Begin

Complete this task:

- “How to Remove the Media Door Assembly” on page 143

## What to Do

1. **With one hand, cradle the media door assembly facedown in front of the drive bay.**

---

**Note** – You can slide Power Supply 1 halfway out of the chassis and use it to support the media door assembly while you complete the installation procedure.

---

2. **With your other hand, attach the system control switch/power button cable mounting plate to the media door assembly.**

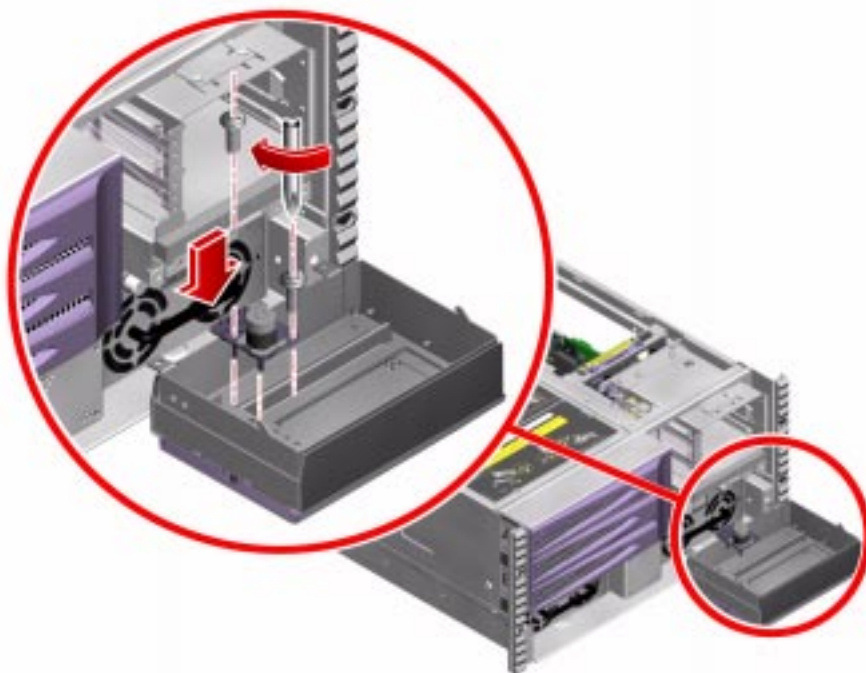
Secure the mounting plate with two Phillips No. 2 screws.



---

**Caution** – Do not drop the media door assembly. The system control switch/power button cable can be damaged if the media door assembly is pulled too far away from the chassis.

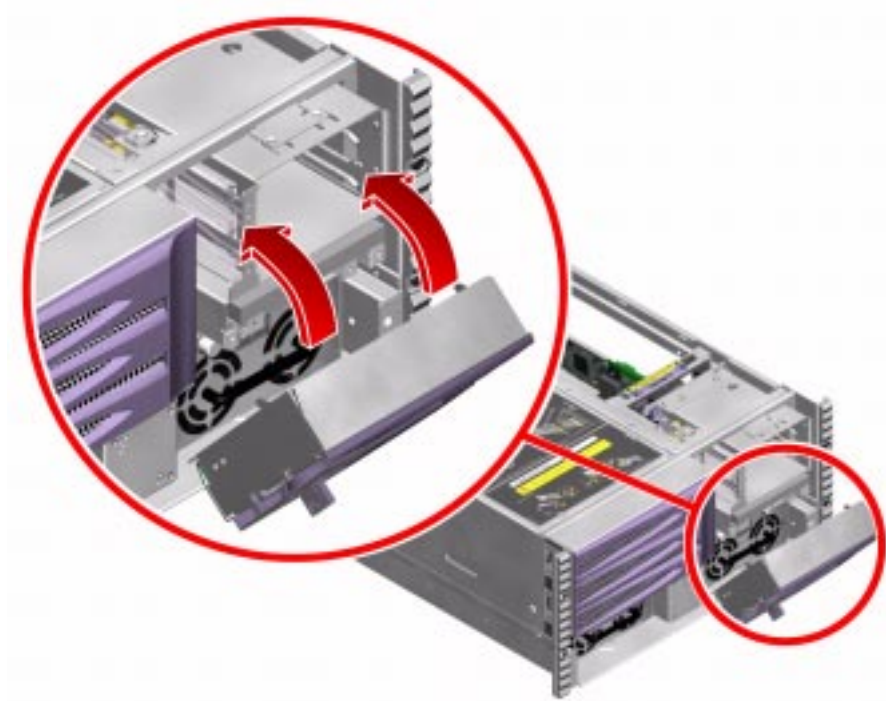
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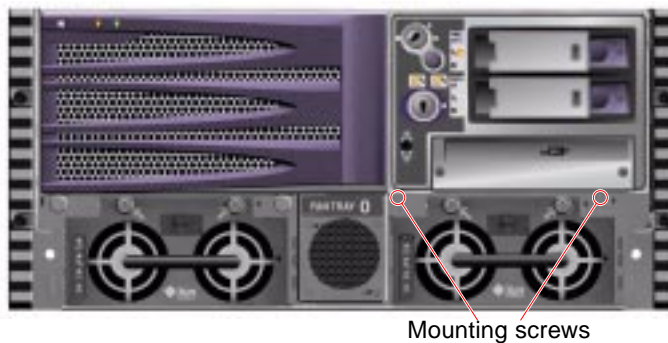


3. Insert the two tabs on the media door assembly frame into their corresponding slots on the front of the chassis.

Be sure that the system control switch/power button cable is routed cleanly back through the chassis, beside the drive bay.



4. Replace the two Phillips No. 1 screws that secure the media door assembly to the chassis.



- 5. Route the Fan Tray 0 cable behind the faceplate, and connect it to J2302 on the PCI riser board.**

Press the cable end into its socket until it snaps into place.

- 6. Route the system control switch/power button cable behind the centerplane-side Fan Tray 1 bracket, and connect it to J1401 on the PCI riser board.**

Press the cable end into its socket until it snaps into place.

## What Next

Complete these tasks:

- “How to Install the Removable Media Assembly” on page 127
- “How to Install the FC-AL Backplane” on page 124
- “How to Install Fan Tray 1” on page 95
- “How to Install the PCI Access Panel” on page 92
- “How to Install the Power Supply Access Panel” on page 46
- “How to Slide the System Into the Cabinet” on page 30
- “How to Install a Disk Drive” on page 55
- “How to Power On the System” on page 18

## Servicing Cables

---

This chapter contains the following sections:

- “Cable Connections and Routing” on page 152
- “How to Remove the FC-AL Power Cable” on page 154
- “How to Install the FC-AL Power Cable” on page 154
- “How to Remove the FC-AL Data Cable” on page 156
- “How to Install the FC-AL Data Cable” on page 156
- “How to Remove the Removable Media Assembly Cable” on page 158
- “How to Install the Removable Media Assembly Cable” on page 159
- “How to Remove the System Control Switch/Power Button Cable” on page 161
- “How to Install the System Control Switch/Power Button Cable” on page 162
- “How to Remove the Back Panel LED Flex Circuit” on page 163
- “How to Install the Back Panel LED Flex Circuit” on page 165
- “How to Remove the Fan Tray 0 Cable” on page 166
- “How to Install the Fan Tray 0 Cable” on page 168



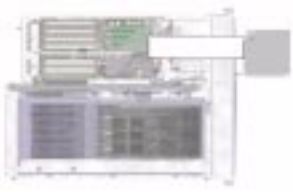
See Appendix E for board connector locations.

---

# Cable Connections and Routing

Use this table as a guide for connecting and routing system cables. Match cable ends (*P* numbers) with the corresponding board connectors (*J* numbers). Following sections describe how to remove and install these cables.

**TABLE 7-1** Cable Connections and Routing

Cable Name and Part Number	Routed From	Routed To	Cable Management Notes
FC-AL power cable (F530-3013)	FC-AL backplane at J0201 (P1)	PCI riser board at J1901 (P2)	Route under Fan Tray 1.
			
FC-AL data cable (F530-3069)	FC-AL backplane at J0200 (P1)	Centerplane at J6502 (P2)	Route above the system control switch/power button cable.
			
Removable media assembly (RMA) cable (F375-3053)	PCI riser board at J1001 (P1)	DVD-ROM drive (P2)	Connect the P2 cable end first; route under the drive bay; tuck any excess cable length under the PCI riser board before installing the RMA.
			

**TABLE 7-1** Cable Connections and Routing *(Continued)*

Cable Name and Part Number	Routed From	Routed To	Cable Management Notes
System control switch/power button cable (F540-5063)	PCI riser board at J1401 (P1)	Media bezel	Route between the drive bay and the centerplane; attach the P2 cable end (using the system control switch/power button mounting plate) before connecting the P1 cable end.
		Back panel LED flex circuit connector (P2)	Route along the top edge of the chassis; use cable management clips.
Back panel LED flex circuit (F370-4388)	N/A	System control switch/power button cable	Route flex circuit through its slot in the chassis back panel.
Fan Tray 0 cable (F540-5064)	PCI riser board at J2302 (P1)	Chassis front panel (P2)	Route between the drive cage and the centerplane, using the cable tie on the side of the drive cage. Push the P2 cable end through its hole in the chassis front panel.
FC-AL Loop B cables (F530-3018)	FC-AL backplane at J0202 ("From Disks")	Sun StorEdge PCI Dual Fibre-Channel Host Adapter at J4 (RX)	Route above Fan Tray 1 and other PCI cards.
	FC-AL backplane at J0203 ("To Disks")	Sun StorEdge PCI Dual Fibre-Channel Host Adapter at J3 (TX)	

---

# How to Remove the FC-AL Power Cable

## Before You Begin

Complete these tasks:

- “How to Power Off the System” on page 22
- “How to Slide the System Out of the Cabinet” on page 25
- “How to Avoid Electrostatic Discharge” on page 39
- “How to Remove the PCI Access Panel” on page 90
- “How to Remove Fan Tray 1” on page 93

## What to Do

1. **Disconnect the FC-AL power cable end at J0201 on the FC-AL backplane.**  
Press the locking tab on the cable end and pull it off its connector.
2. **Disconnect the FC-AL power cable end at J1901 on the PCI riser board.**  
Press the locking tab on the cable end and pull it off its connector.

## What Next

Complete this task:

- “How to Install the FC-AL Power Cable” on page 154

---

# How to Install the FC-AL Power Cable

## Before You Begin

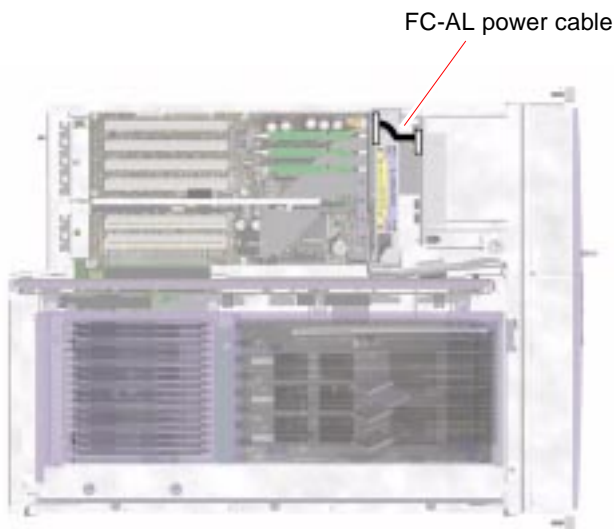
Complete this task:

- “How to Remove the FC-AL Power Cable” on page 154

## What to Do

1. **Connect the FC-AL power cable at J1901 on the PCI riser board.**

Push the cable end into its connector until the tab locks into place.



2. **Connect the FC-AL power cable at J0201 on the FC-AL backplane.**

Push the cable end into its connector until the tab locks into place.

## What Next

Complete these tasks:

- “How to Install Fan Tray 1” on page 95
- “How to Install the PCI Access Panel” on page 92
- “How to Slide the System Into the Cabinet” on page 30
- “How to Power On the System” on page 18

---

# How to Remove the FC-AL Data Cable

## Before You Begin

Complete these tasks:

- “How to Power Off the System” on page 22
- “How to Slide the System Out of the Cabinet” on page 25
- “How to Avoid Electrostatic Discharge” on page 39
- “How to Remove the PCI Access Panel” on page 90

## What to Do

1. **Disconnect the FC-AL data cable end at J6502 on the centerplane.**  
Rotate the ejector levers outward to disconnect the cable end.
2. **Disconnect the FC-AL data cable end at J0200 on the FC-AL backplane.**  
Rotate the ejector levers outward to disconnect the cable end.

## What Next

Complete this task:

- “How to Install the FC-AL Data Cable” on page 156

---

# How to Install the FC-AL Data Cable

## Before You Begin

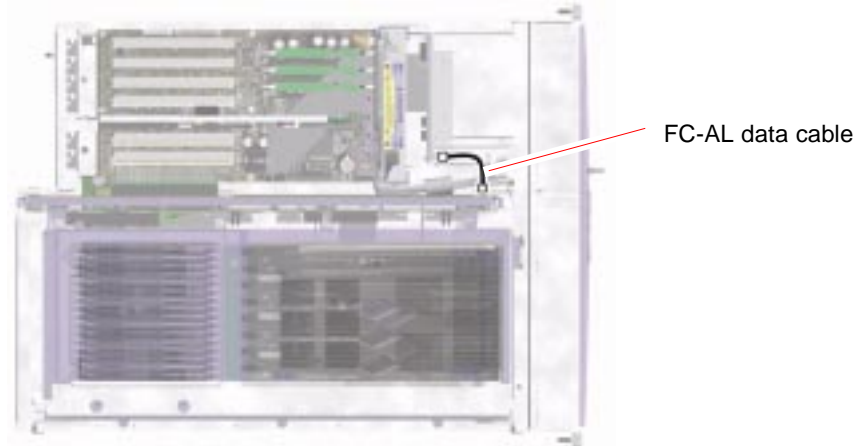
Complete this task:

- “How to Remove the FC-AL Data Cable” on page 156



## What to Do

- 1. Make sure the ejector levers at J0200 on the FC-AL backplane are rotated outward.**  
Push the cable end into its connector until the ejector levers snap into place.
- 2. Connect the P1 cable end to J0200 on the FC-AL backplane.**  
Push the cable end into its connector until the ejector levers snap into place.



- 3. Connect the P2 cable end to J6502 on the centerplane.**

## What Next

Complete these tasks:

- “How to Install the PCI Access Panel” on page 92
- “How to Slide the System Into the Cabinet” on page 30
- “How to Power On the System” on page 18

---

## How to Remove the Removable Media Assembly Cable

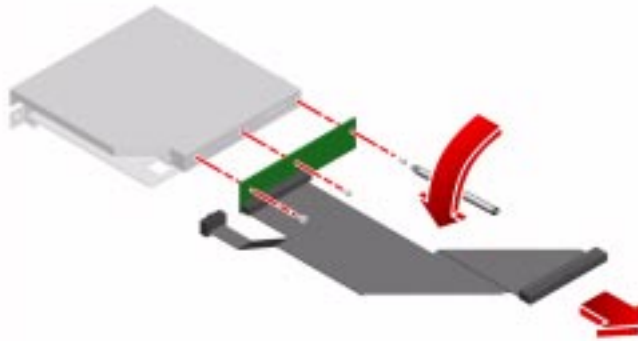
### Before You Begin

Complete these tasks:

- “How to Power Off the System” on page 22
- “How to Slide the System Out of the Cabinet” on page 25
- “How to Avoid Electrostatic Discharge” on page 39
- “How to Remove the PCI Access Panel” on page 90
- “How to Remove Fan Tray 1” on page 93
- “How to Remove the Removable Media Assembly” on page 125

## What to Do

1. Using a Phillips No. 1 screwdriver, remove the three screws securing the RMA cable end to the DVD-ROM drive.



2. Disconnect the RMA cable end from its connector on the DVD-ROM drive.

## What Next

Complete this task:

- “How to Install the Removable Media Assembly Cable” on page 159

---

# How to Install the Removable Media Assembly Cable

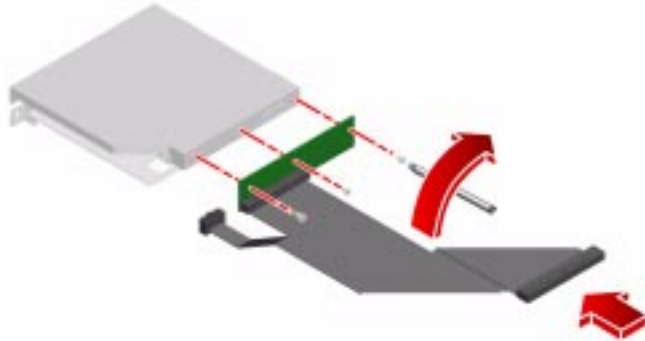
## Before You Begin

Complete this task:

- “How to Remove the Removable Media Assembly Cable” on page 158

## What to Do

1. **Connect the RMA cable end to its corresponding connector on the DVD-ROM drive.**
2. **Using a Phillips No. 1 screwdriver, attach the three screws that secure the RMA cable to the DVD-ROM drive.**



## What Next

Complete these tasks:

- “How to Install the Removable Media Assembly” on page 127
- “How to Install Fan Tray 1” on page 95
- “How to Install the PCI Access Panel” on page 92
- “How to Slide the System Into the Cabinet” on page 30
- “How to Power On the System” on page 18

---

# How to Remove the System Control Switch/Power Button Cable

## Before You Begin

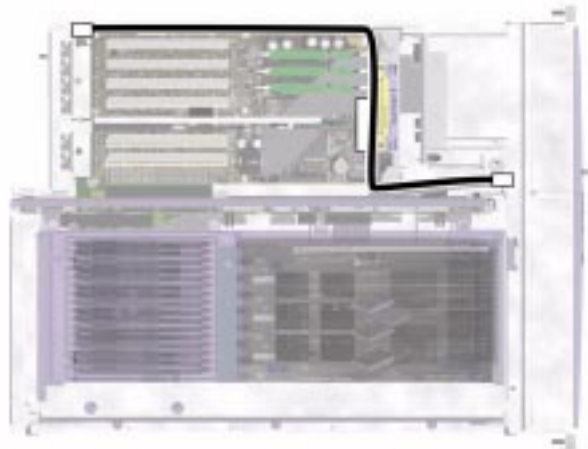
Complete these tasks:

- “How to Power Off the System” on page 22
- “How to Slide the System Out of the Cabinet” on page 25
- “How to Avoid Electrostatic Discharge” on page 39
- “How to Remove the Power Supply Access Panel” on page 44
- “How to Remove the PCI Access Panel” on page 90
- “How to Remove Fan Tray 1” on page 93
- “How to Remove the Removable Media Assembly” on page 125
- “How to Remove the Media Door Assembly” on page 143

## What to Do

1. **Disconnect the P3 cable end from the back panel flex-circuit cable.**

Press the tab to unlock the cable end. Unhook the cable from its clips on the chassis.



2. **Remove the cable assembly from the cable tie on the side of the drive bay.**
3. **Pull the cable assembly up and out of the chassis.**

## What Next

Complete this task:

- “How to Install the System Control Switch/Power Button Cable” on page 162

---

## How to Install the System Control Switch/Power Button Cable

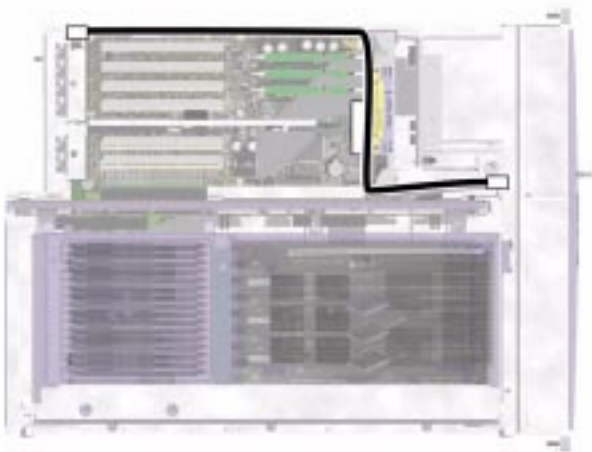
### Before You Begin

Complete this task:

- “How to Remove the System Control Switch/Power Button Cable” on page 161

### What to Do

1. **Route the system control switch/power button cable assembly through to the front of the system, between the centerplane and the drive bay.**



2. **Attach the cable assembly to the cable tie on the side of the drive bay.**
3. **Route the P3 cable end along the top edge of the chassis and connect the cable to its clips on the chassis.**

4. Connect the back panel flex circuit cable end to the P3 cable end on the system control switch/power button cable.

## What Next

Complete these tasks:

- “How to Install the Media Door Assembly” on page 147
- “How to Install the Removable Media Assembly” on page 127
- “How to Install Fan Tray 1” on page 95
- “How to Install the PCI Access Panel” on page 92
- “How to Install the Power Supply Access Panel” on page 46
- “How to Install the System Into the Cabinet” on page 35
- “How to Power On the System” on page 18

---

# How to Remove the Back Panel LED Flex Circuit

## Before You Begin

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**Note** – If you remove the back panel LED flex circuit, you must replace it with a new one.

---

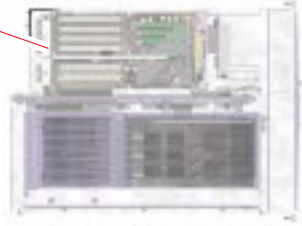
Complete these tasks:

- “How to Power Off the System” on page 22
- “How to Slide the System Out of the Cabinet” on page 25
- “How to Remove the PCI Access Panel” on page 90

## What to Do

1. **Disconnect the P2 cable end on system control switch cable from the back panel LED flex circuit.**

Back panel LED flex circuit



2. **Peel off the flex circuit cable end from the inside of the chassis.**
3. **Peel off the back panel LED flex circuit from the back panel.**

Back panel LED flex circuit



## What Next

- “How to Install the Back Panel LED Flex Circuit” on page 165



---

# How to Install the Back Panel LED Flex Circuit

## Before You Begin

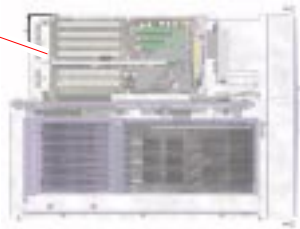
Complete this task:

- “How to Remove the Back Panel LED Flex Circuit” on page 163

## What to Do

1. Peel off the backing paper from the new back panel LED flex circuit.
2. Slide the flex circuit down into its slot in the back panel.

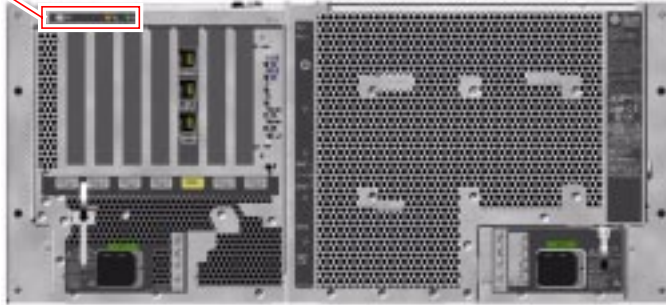
Back panel LED flex circuit



**3. Press the back panel LED flex circuit onto the back panel.**

Be sure the back panel slot is covered with the LED assembly.

Back panel LED flex circuit



**4. Peel off the backing paper from the flex circuit cable end and press it onto the inside of the chassis.**

**5. Connect the P2 cable end of the system control switch to the flex circuit cable end.**

## What Next

Complete these tasks:

- “How to Install the PCI Access Panel” on page 92
- “How to Slide the System Into the Cabinet” on page 30
- “How to Power On the System” on page 18

---

## How to Remove the Fan Tray 0 Cable

### Before You Begin

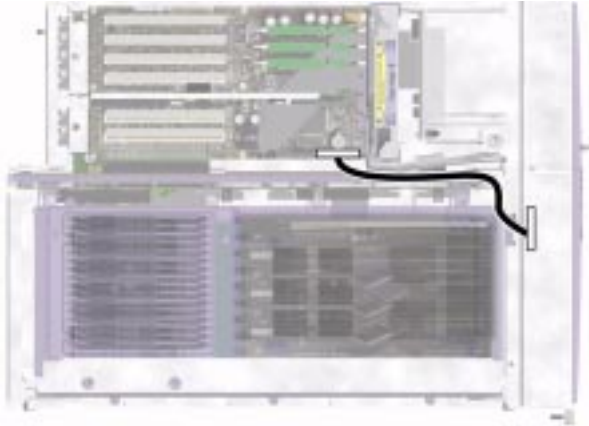
Complete these tasks:

- “How to Power Off the System” on page 22
- “How to Slide the System Out of the Cabinet” on page 25
- “How to Avoid Electrostatic Discharge” on page 39
- “How to Remove the Power Supply Access Panel” on page 44

- “How to Remove Fan Tray 0” on page 63
- “How to Remove the PCI Access Panel” on page 90
- “How to Remove Fan Tray 1” on page 93

## What to Do

1. **Disconnect the Fan Tray 0 cable end at J2302 on the PCI riser board.**



2. **Remove the cable from the cable tie on the side of the drive bay.**
3. **Using a Phillips No. 2 screwdriver, remove the Fan Tray 0 cable mounting bracket from the front of the chassis.**
4. **Pull the cable out through its hole in the front of the chassis.**

---

**Note** – While removing the cable, be careful not to bind the Fan Tray 0 cable end on the system control switch/power button cable assembly.

---

## What Next

Complete this task:

- “How to Install the Fan Tray 0 Cable” on page 168

---

# How to Install the Fan Tray 0 Cable

## Before You Begin

Complete this task:

- “How to Remove the Fan Tray 0 Cable” on page 166

## What to Do

- 1. Push the P1 cable end through its hole in the front of the chassis.**
- 2. Route the cable end between the centerplane and the drive bay.**  
Attach the cable to the cable tie on the side of the disk cage.
- 3. Connect the P1 cable end to J2302 on the PCI riser board.**
- 4. Using a Phillips No. 2 screwdriver, attach the Fan Tray 0 cable mounting bracket to the front of the chassis.**

## What Next

Complete these tasks:

- “How to Install Fan Tray 1” on page 95
- “How to Install the PCI Access Panel” on page 92
- “How to Install Fan Tray 0” on page 65
- “How to Install the Power Supply Access Panel” on page 46
- “How to Slide the System Into the Cabinet” on page 30
- “How to Power On the System” on page 18

## 2-Post Rack Service Requirements

---

This appendix describes service requirements for systems installed in a 2-post rack. It contains the following sections:

- “Servicing a System Installed in a 2-Post Rack” on page 170
- “How to Remove the System From an Empty 2-Post Rack” on page 171
- “How to Install the System Into an Empty 2-Post Rack” on page 173
- “How to Remove the System From a Populated 2-Post Rack” on page 175
- “How to Install the System Into a Populated 2-Post Rack” on page 177

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**Note** – If you are performing a first-time installation, see the documentation supplied with the 2-post bracket kit.

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# Servicing a System Installed in a 2-Post Rack

If your system is installed in a 2-post rack, you must remove it from the rack before servicing the following internal components:

- CPU, memory, and related components—See Chapter 4:

- CPU access panel
- CPU/Memory boards
- Memory modules

- I/O components—See Chapter 5:

- PCI access panel
- Fan Tray 1 (PCI fan tray)
- RSC card
- PCI cards
- DC/DC converters
- IDPROM
- PCI riser board

- Miscellaneous components—See Chapter 6:

- FC-AL backplane
- Removable media assembly (RMA)
- Centerplane
- Power distribution board

- Cables—See Chapter 7:

- FC-AL power cable
- FC-AL data cable
- RMA data cable
- System control switch/power button cable

---

# How to Remove the System From an Empty 2-Post Rack

## Before You Begin

Complete this task:

- “How to Power Off the System” on page 22



---

**Caution** – The chassis is heavy. Two persons are required to remove the system from the rack in the following procedure.

---

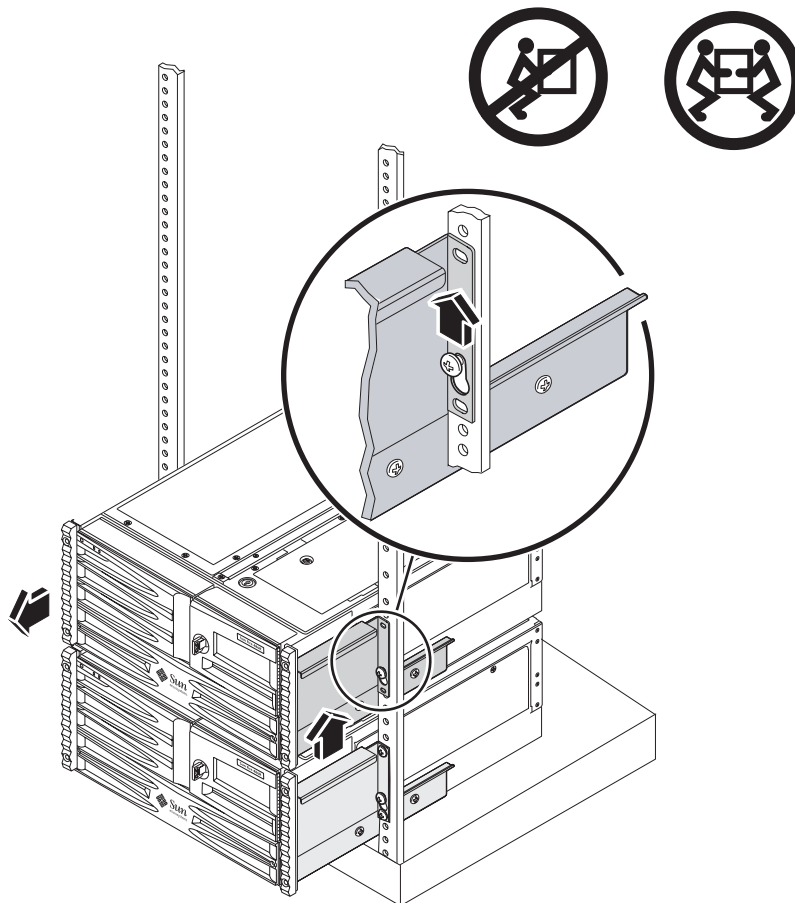


## What to Do

1. **Disconnect all external cables attached to the back panel of the system.**
2. **Using a Phillips No. 2 screwdriver, loosen the middle mounting screw on the left and the right vertical mounting rails.**  
Do not fully remove the mounting screws. Leave a 0.25-inch (0.64-cm) gap between the head of each screw and the mounting bracket.
3. **Remove the top and bottom screws from the left and the right vertical mounting rails.**

Do not remove the middle mounting screws; they support the server.

4. Lift the server up and over the mounting screw on each side of the vertical mounting rail so that the large hole clears the head of the screw.



5. Pull the server out of the rack.

## What Next

Complete this task:

- “How to Install the System Into an Empty 2-Post Rack” on page 173



---

# How to Install the System Into an Empty 2-Post Rack

## Before You Begin

Complete the following task:

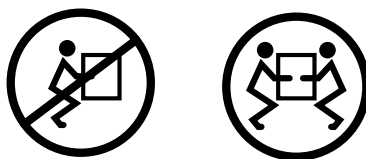
- “How to Remove the System From an Empty 2-Post Rack” on page 171



---

**Caution** – The chassis is heavy. Two persons are required to install the system into the rack in the following procedure.

---

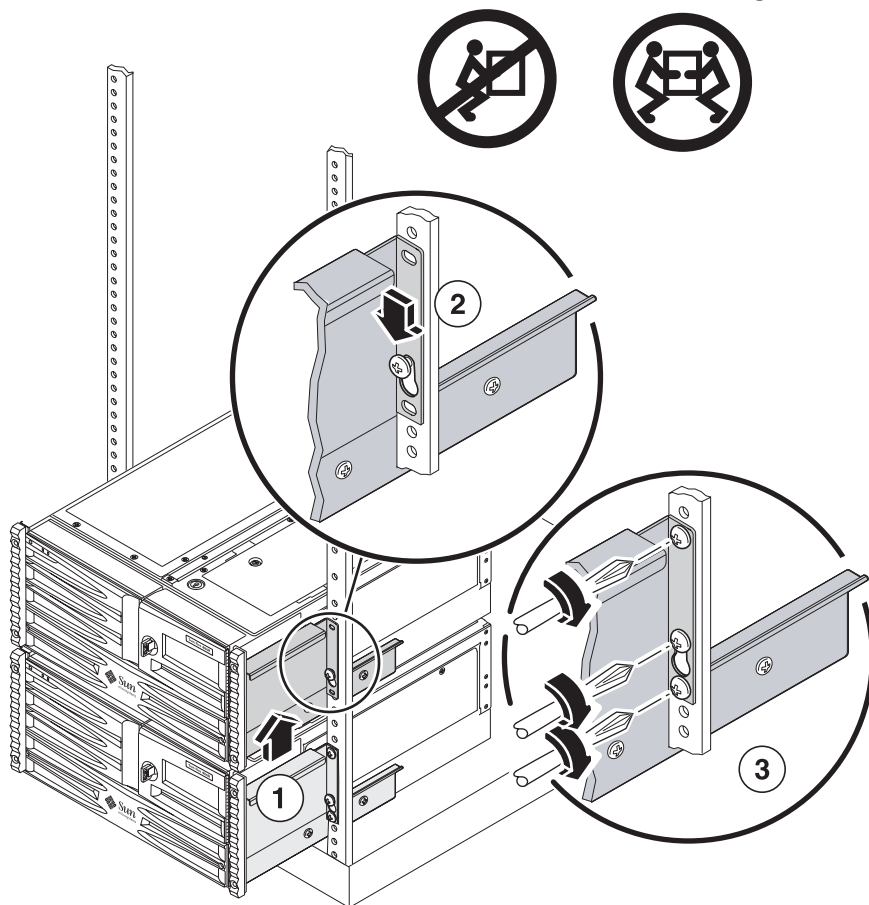


## What to Do

1. Lift the server up and over the mounting screw on each side of the vertical mounting rail so that the large hole clears the head of the screw.
2. Slide the server down so that the server rests on the mounting screws.

- 3. Using a Phillips No. 2 screwdriver, secure the top and bottom screws to the left and the right vertical mounting rails.**

Use M5 screws for a Metric rack and 10-32 screws for an English rack.



- 4. Connect all external cables that were attached to the back panel of the system.**

Examine each disconnected cable for information indicating the cable's origin and its terminating connection.

## What Next

Complete this task:

- “How to Power On the System” on page 18

If you have added or removed a PCI card, CPU/Memory board, or DIMMs, complete this task:

- “How to Initiate a Reconfiguration Boot” on page 23

---

## How to Remove the System From a Populated 2-Post Rack

### Before You Begin

Complete the following task:

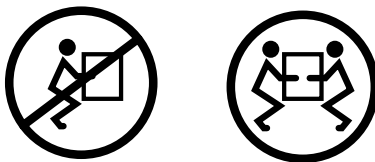
“How to Power Off the System” on page 22



---

**Caution** – The chassis is heavy. Two persons are required to remove the system from the rack in the following procedure.

---



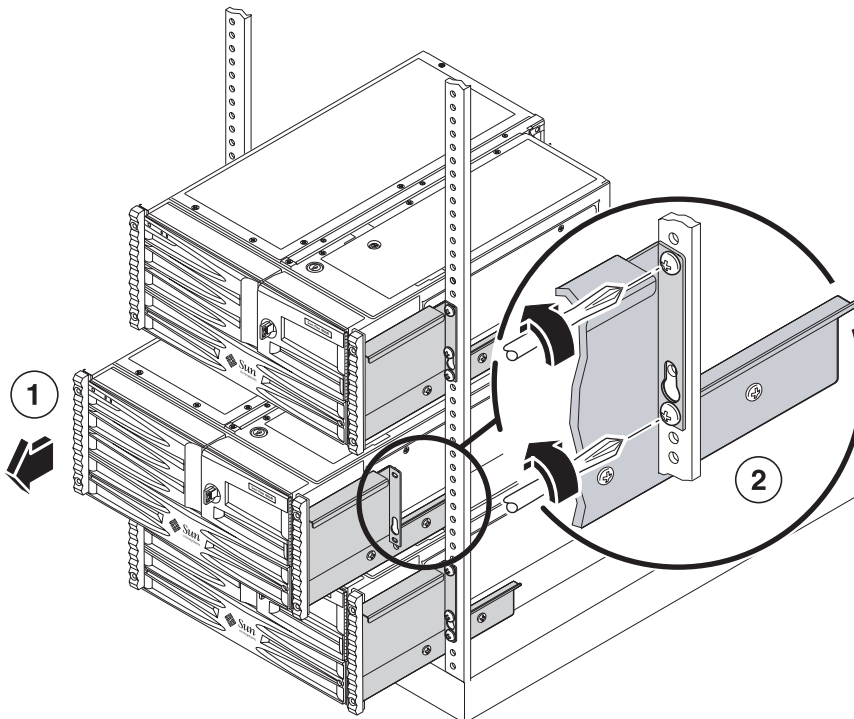
# What to Do

1. Disconnect all external cables attached to the back panel of the system.
2. Using a Phillips No. 2 screwdriver, remove the top and bottom screws from the left and the right vertical mounting rails.



**Caution** – When removing the server from a populated 2-post rack, be sure to support the weight of the server, so you do not damage the component installed below it in the rack.

3. Slide the server out of the rack.



## What Next

Complete this task:

- “How to Install the System Into a Populated 2-Post Rack” on page 177

---

# How to Install the System Into a Populated 2-Post Rack

## Before You Begin

Complete the following task:

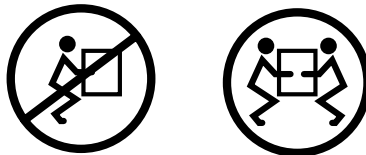
- “How to Remove the System From a Populated 2-Post Rack” on page 175



---

**Caution** – The chassis is heavy. Two persons are required to install the system into the rack in the following procedure.

---

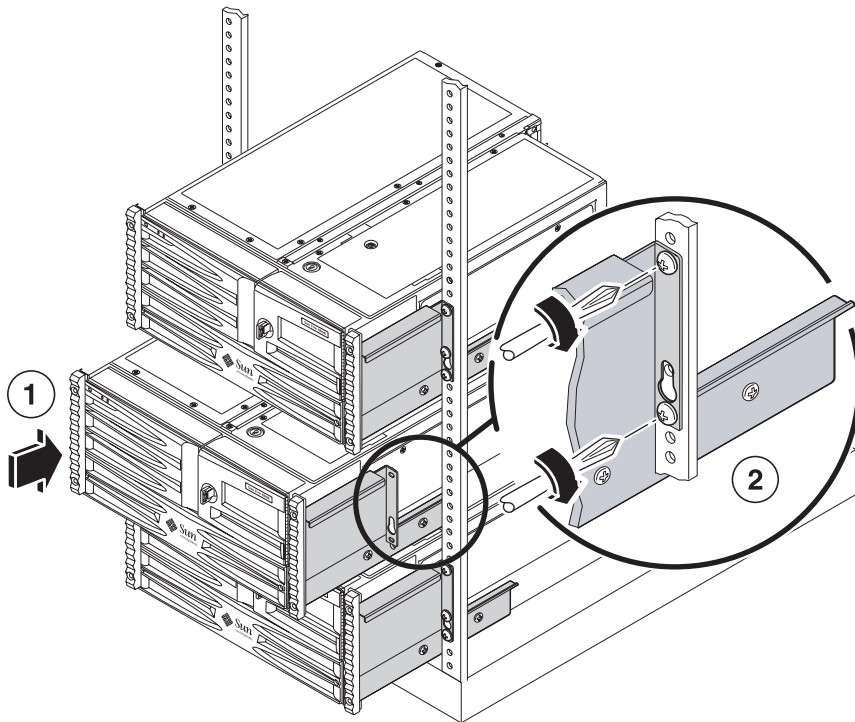


## What to Do

1. Slide the server into the open position in the rack.

- 2. Using a Phillips No. 2 screwdriver, secure the top and bottom screws to the left and the right vertical mounting rails.**

Use M5 screws for a Metric rack and 10-32 screws for an English rack.



# What Next

Complete this task:

- “How to Power On the System” on page 18

If you have added or removed a PCI card, CPU/Memory board, or DIMMs, complete this task:

- “How to Initiate a Reconfiguration Boot” on page 23





## Connector Pinouts

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This appendix gives you reference information about the system's back panel ports and pin assignments.

Topics covered in this appendix include:

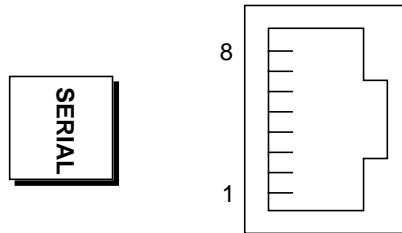
- “Serial Port Connector” on page 182
- “USB Connector” on page 183
- “Twisted-Pair Ethernet Connector” on page 184
- “RSC Ethernet Connector” on page 185
- “RSC Modem Connector” on page 186
- “RSC Serial Connector” on page 187
- “FC-AL Port HSSDC Connector” on page 188

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# Serial Port Connector

The serial port connector is an RJ-45 connector that can be accessed from the back panel.

## Serial Port Connector Diagram



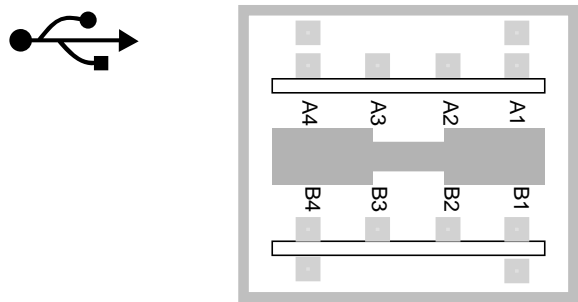
## Serial Port Connector Signals

Pin	Signal Description	Pin	Signal Description
1	Request To Send	5	Ground
2	Data Terminal Ready	6	Receive Data
3	Transmit Data	7	Data Set Ready
4	Ground	8	Clear To Send

# USB Connector

Two Universal Serial Bus (USB) connectors are located on the centerplane and can be accessed from the back panel.

## USB Connector Diagram



## USB Connector Signals

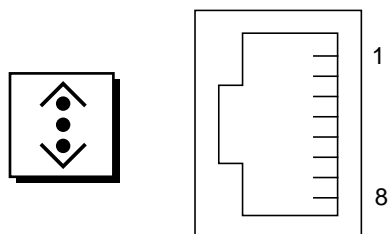
Pin	Signal Description	Pin	Signal Description
A1	+5 VDC	B1	+5 VDC
A2	Port Data0 -	B2	Port Data1 -
A3	Port Data0 +	B3	Port Data1 +
A4	Ground	B4	Ground

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# Twisted-Pair Ethernet Connector

The twisted-pair Ethernet (TPE) connector is an RJ-45 connector located on the system centerplane and can be accessed from the back panel. The Ethernet interface operates at 10 Mbps, 100 Mbps, and 1000 Mbps.

## TPE Connector Diagram



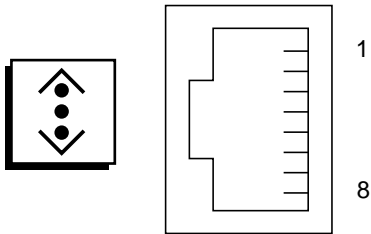
## TPE Connector Signals

Pin	Signal Description	Pin	Signal Description
1	Transmit/Receive Data 0 +	5	Transmit/Receive Data 2 -
2	Transmit/Receive Data 0 -	6	Transmit/Receive Data 1 -
3	Transmit/Receive Data 1 +	7	Transmit/Receive Data 3 +
4	Transmit/Receive Data 2 +	8	Transmit/Receive Data 3 -

# RSC Ethernet Connector

The Remote System Control (RSC) Ethernet connector is an RJ-45 connector located on the RSC card and can be accessed from the back panel.

## RSC Ethernet Connector Diagram



## RSC Ethernet Connector Signals

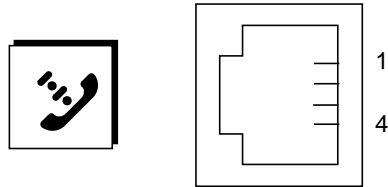
Pin	Signal Description	Pin	Signal Description
1	Transmit/Receive Data0 +	5	Trandmit/Receive Data2 -
2	Transmit/Receive Data0 -	6	Trandmit/Receive Data1 -
3	Trandmit/Receive Data1 +	7	Trandmit/Receive Data3 +
4	Trandmit/Receive Data2 +	8	Trandmit/Receive Data3 -

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## RSC Modem Connector

The Remote System Control (RSC) modem connector is an RJ-11 connector located on the RSC card and can be accessed from the back panel.

### RSC Modem Connector Diagram



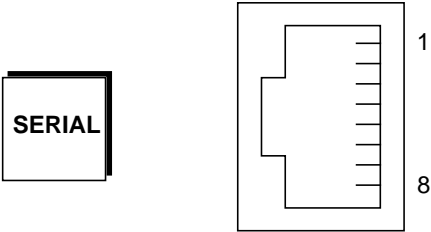
### RSC Modem Connector Signals

Pin	Signal Description	Pin	Signal Description
1	No Connection	3	Tip
2	Ring	4	No Connection

# RSC Serial Connector

The Remote System Control (RSC) serial connector is an RJ-45 connector located on the RSC card and can be accessed from the back panel.

## RSC Serial Connector Diagram



## RSC Serial Connector Signals

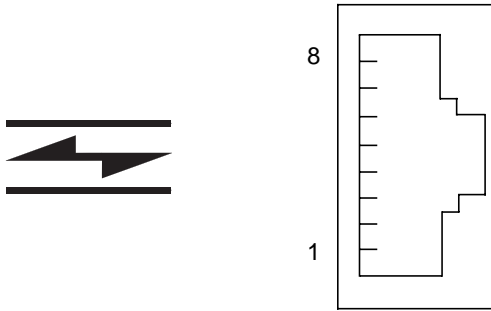
Pin	Signal Description	Pin	Signal Description
1	Request To Send	5	Ground
2	Data Terminal Ready	6	Receive Data
3	Transmit Data	7	Data Set Ready
4	Ground	8	Clear To Send

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## FC-AL Port HSSDC Connector

The Fibre Channel-Arbitrated Loop port high-speed serial data connector is located on the centerplane and can be accessed from the back panel.

### HSSDC Connector Diagram



### HSSDC Connector Signal

Pin	Signal Description	Pin	Signal Description
1	Differential Data Output +	5	Optical Output Disable (optional)
2	Signal Ground (optional)	6	Differential Data Input -
3	Differential Data Output -	7	5V Power (+/-10%) (optional)
4	Mode Fault Detection (optional)	8	Differential Data Input +



# System Specifications

This appendix provides the following specifications for the Sun Fire V480 server:

- “Physical Specifications” on page 189
- “Electrical Specifications” on page 190
- “Environmental Specifications” on page 191
- “Agency Compliance Specifications” on page 192
- “Clearance and Service Access Specifications” on page 192

## Physical Specifications

The dimensions and weight of the system are as follows.

Measurement	U.S	Metric
Height	8.75 in	222 mm
Width	17.5 in	446 mm
Depth	24 in	610 mm
Weight		
Minimum	79 lbs	35.83 kg
Maximum	97 lbs	44 kg
Power Cord	8.2 ft	2.5 m

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# Electrical Specifications

The following table provides the electrical specifications for the system.

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**Note** – All electrical specifications apply to a fully configured system.

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Parameter	Value
Input	
Nominal Frequencies	50-60 Hz
Nominal Voltage Range	Auto Ranging 100-240 VAC
Maximum Current AC RMS	10A @ 100-120 VAC
	5A @ 200-240 VAC
Maximum AC Power Consumption	1100W
Maximum Heat Dissipation	3751 BTU/hr

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# Environmental Specifications

The operating and non-operating environmental specifications for the system are as follows.

Parameter	Value
Operating	
Temperature	5° C to 35°C (41°F to 95°F)—IEC 60068-2-1&2
Humidity	20% to 80% RH noncondensing; 27°C (81°F) wet bulb—IEC 60068-2-3&56
Altitude	0 to 3000 meters (0 to 10,000 feet)—IEC 60068-2-13
Vibration	.0001 (z-axis only) G <sup>2</sup> /Hz, 5-150 Hz, -12db/octave slope, 150-500 Hz— IEC 60068-2-13
Shock	3g peak, 11 milliseconds half-sine pulse—IEC 60068-2-27
Declared Acoustics	72 DbA
Non-Operating	
Temperature	-20°C to 60°C (-4°F to 140°F)—IEC 60068-2-1&2
Humidity	95% RH noncondensing—IEC 60068-2-3&56
Altitude	0 to 12,000 meters (0 to 40,000 feet)—IEC 60068-2-13
Vibration	.001 (z-axis only) G <sup>2</sup> /Hz, 5-150 Hz, -12db/octave slope, 150-500 Hz— IEC 60068-2-13
Shock	10g peak, 11 milliseconds half-sine pulse—IEC 60068-2-27
Handling Drops	25 mm (10 in)
Threshold Impact	1 meter/second

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# Agency Compliance Specifications

The system complies with the following specifications.

Category	Relevant Standards
Safety	UL 1950, CB Scheme IEC 950, CSA C22.2 950 from UL TUV EN 60950
RFI/EMI	47 CFR 15B Class A EN55022 Class A VCCI Class A ICES-003 AS/NZ 3548 CNS 13438
Immunity	EN55024 IEC 61000-4-2 IEC 61000-4-3 IEC 61000-4-4 IEC 61000-4-5 IEC 61000-4-6 IEC 61000-4-8 IEC 61000-4-11

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# Clearance and Service Access Specifications

Minimum clearances needed for servicing the system are as follows.

Blockage	Required Clearance
Front blockage only	36 in (92 cm)
Rear blockage only	36 in (92 cm)
Front and rear blockage	36 in (92 cm)
Front clearance	36 in (92 cm)
Rear clearance	36 in (92 cm)

## Safety Precautions

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This appendix describes safety precautions to follow when servicing the Sun Fire V480 server.

Read this section before beginning any procedure. The following text provides safety precautions to follow when installing a Sun Microsystems product.

Safety Precautions

For your protection, observe the following safety precautions when setting up your equipment:

- Follow all cautions and instructions marked on the equipment.
- Ensure that the voltage and frequency of your power source match the voltage and frequency inscribed on the equipment's electrical rating label.
- Never push objects of any kind through openings in the equipment. Dangerous voltages may be present. Conductive foreign objects could produce a short circuit that could cause fire, electric shock, or damage to your equipment.

Symbols

The following symbols may appear in this book:



**Caution** – There is risk of personal injury and equipment damage. Follow the instructions.



**Caution** – Hot surface. Avoid contact. Surfaces are hot and may cause personal injury if touched.



**Caution** – Hazardous voltages are present. To reduce the risk of electric shock and danger to personal health, follow the instructions.



**On** – Applies AC power to the system.

Depending on the type of power switch your device has, one of the following symbols may be used:



**Off** – Removes AC power from the system.



**Standby** – The On/Standby switch is in the standby position.

Modifications to Equipment

Do not make mechanical or electrical modifications to the equipment. Sun Microsystems is not responsible for regulatory compliance of a modified Sun product.

Placement of a Sun Product



**Caution** – Do not block or cover the openings of your Sun product. Never place a Sun product near a radiator or heat register. Failure to follow these guidelines can cause overheating and affect the reliability of your Sun product.



**Caution** – The workplace-dependent noise level defined in DIN 45 635 Part 1000 must be 70Db(A) or less.

SELV Compliance

Safety status of I/O connections comply to SELV requirements.

## Power Cord Connection



**Caution** – Sun products are designed to work with single-phase power systems having a grounded neutral conductor. To reduce the risk of electric shock, do not plug Sun products into any other type of power system. Contact your facilities manager or a qualified electrician if you are not sure what type of power is supplied to your building.



**Caution** – Not all power cords have the same current ratings. Household extension cords do not have overload protection and are not meant for use with computer systems. Do not use household extension cords with your Sun product.



**Caution** – Your Sun product is shipped with a grounding type (three-wire) power cord. To reduce the risk of electric shock, always plug the cord into a grounded power outlet.

The following caution applies only to devices with a Standby power switch:



**Caution** – The power switch of this product functions as a standby type device only. The power cord serves as the primary disconnect device for the system. Be sure to plug the power cord into a grounded power outlet that is nearby the system and is readily accessible. Do not connect the power cord when the power supply has been removed from the system chassis.

## Lithium Battery



**Caution** – The Sun Fire V480 system PCI riser board and RSC card contain lithium batteries. Batteries are not customer replaceable parts. They may explode if mishandled. Do not dispose of the battery in fire. Do not disassemble it or attempt to recharge it.

## Battery Pack



**Caution** – There is a sealed NiMH battery pack in the Sun Fire V480 systems. There is danger of explosion if the battery pack is mishandled or incorrectly replaced. Replace only with the same type of Sun Microsystems battery pack. Do not disassemble it or attempt to recharge it outside the system. Do not dispose of the battery in fire. Dispose of the battery properly in accordance with local regulations.

## System Unit Access Panels

You must remove the access panels of your Sun Fire V480 to add cards or memory. Be sure to replace and secure the access panels before powering on your system.



**Caution** – Do not operate your system while the access panels are removed. Failure to take this precaution may result in personal injury and system damage.

## Laser Compliance Notice

Sun products that use laser technology comply with Class 1 laser requirements.

Class 1 Laser Product  
Luokan 1 Laserlaitte  
Klasse 1 Laser Apparat  
Laser Klasse 1

## DVD-ROM



**Caution** – Use of controls, adjustments, or the performance of procedures other than those specified herein may result in hazardous radiation exposure.

# Einhaltung sicherheitsbehördlicher Vorschriften

Auf dieser Seite werden Sicherheitsrichtlinien beschrieben, die bei der Installation von Sun-Produkten zu beachten sind.

## Sicherheitsvorkehrungen

Treffen Sie zu Ihrem eigenen Schutz die folgenden Sicherheitsvorkehrungen, wenn Sie Ihr Gerät installieren:

- Beachten Sie alle auf den Geräten angebrachten Warnhinweise und Anweisungen.
- Vergewissern Sie sich, daß Spannung und Frequenz Ihrer Stromquelle mit der Spannung und Frequenz übereinstimmen, die auf dem Etikett mit den elektrischen Nennwerten des Geräts angegeben sind.
- Stecken Sie auf keinen Fall irgendwelche Gegenstände in Öffnungen in den Geräten. Leitfähige Gegenstände könnten aufgrund der möglicherweise vorliegenden gefährlichen Spannungen einen Kurzschluß verursachen, der einen Brand, Stromschlag oder Geräteschaden herbeiführen kann.

## Symbole

Die Symbole in diesem Handbuch haben folgende Bedeutung:



**Achtung** – Gefahr von Verletzung und Geräteschaden. Befolgen Sie die Anweisungen.



**Achtung** – Hohe Temperatur. Nicht berühren, da Verletzungsgefahr durch heiße Oberfläche besteht.



**Achtung** – Gefährliche Spannungen. Anweisungen befolgen, um Stromschläge und Verletzungen zu vermeiden.



**Ein** – Setzt das System unter Wechselstrom.

Je nach Netzschaltertyp an Ihrem Gerät kann eines der folgenden Symbole benutzt werden:



**Aus** – Unterbricht die Wechselstromzufuhr zum Gerät.



**Wartezustand** (Stand-by-Position) - Der Ein-/Wartezustand-Schalter steht auf Wartezustand. Änderungen an Sun-Geräten.

Nehmen Sie keine mechanischen oder elektrischen Änderungen an den Geräten vor. Sun Microsystems, übernimmt bei einem Sun-Produkt, das geändert wurde, keine Verantwortung für die Einhaltung behördlicher Vorschriften

## Aufstellung von Sun-Geräten



**Achtung** – Um den zuverlässigen Betrieb Ihres Sun-Geräts zu gewährleisten und es vor Überhitzung zu schützen, dürfen die Öffnungen im Gerät nicht blockiert oder verdeckt werden. Sun-Produkte sollten niemals in der Nähe von Heizkörpern oder Heizluftklappen aufgestellt werden.



**Achtung** – Der arbeitsplatzbezogene Schalldruckpegel nach DIN 45 635 Teil 1000 beträgt 70Db(A) oder weniger.

## Einhaltung der SELV-Richtlinien

Die Sicherung der I/O-Verbindungen entspricht den Anforderungen der SELV-Spezifikation.



## Anschluß des Netzkabels



**Achtung** – Sun-Produkte sind für den Betrieb an Einphasen-Stromnetzen mit geerdetem Nulleiter vorgesehen. Um die Stromschlaggefahr zu reduzieren, schließen Sie Sun-Produkte nicht an andere Stromquellen an. Ihr Betriebsleiter oder ein qualifizierter Elektriker kann Ihnen die Daten zur Stromversorgung in Ihrem Gebäude geben.



**Achtung** – Nicht alle Netzkabel haben die gleichen Nennwerte. Herkömmliche, im Haushalt verwendete Verlängerungskabel besitzen keinen Überlastungsschutz und sind daher für Computersysteme nicht geeignet.



**Achtung** – Ihr Sun-Gerät wird mit einem dreiadrigen Netzkabel für geerdete Netzsteckdosen geliefert. Um die Gefahr eines Stromschlags zu reduzieren, schließen Sie das Kabel nur an eine fachgerecht verlegte, geerdete Steckdose an.

Die folgende Warnung gilt nur für Geräte mit Wartezustand-Netzschalter:



**Achtung** – Der Ein/Aus-Schalter dieses Geräts schaltet nur auf Wartezustand (Stand-By-Modus). Um die Stromzufuhr zum Gerät vollständig zu unterbrechen, müssen Sie das Netzkabel von der Steckdose abziehen. Schließen Sie den Stecker des Netzkabels an eine in der Nähe befindliche, frei zugängliche, geerdete Netzsteckdose an. Schließen Sie das Netzkabel nicht an, wenn das Netzteil aus der Systemeinheit entfernt wurde.

## Lithiumbatterie



**Achtung** – CPU-Karten von Sun verfügen über eine Echtzeituhr mit integrierter Lithiumbatterie (Teile-Nr. MK48T59Y, MK48TXXB-XX, MK48T18-XXXPCZ, M48T59W-XXXPCZ, oder MK48T08). Diese Batterie darf nur von einem qualifizierten Servicetechniker ausgewechselt werden, da sie bei falscher Handhabung explodieren kann. Werfen Sie die Batterie nicht ins Feuer. Versuchen Sie auf keinen Fall, die Batterie auszubauen oder wiederaufzuladen.

## Batterien



**Achtung** – Die Geräte Sun Fire V480 enthalten auslaufsichere Bleiakkumulatoren. Produkt-Nr. TLC02V50 für portable Stromversorgung. Werden bei der Behandlung oder beim Austausch der Batterie Fehler gemacht, besteht Explosionsgefahr. Batterie nur gegen Batterien gleichen Typs von Sun Microsystems austauschen. Nicht demontieren und nicht versuchen, die Batterie außerhalb des Geräts zu laden. Batterie nicht ins Feuer werfen. Ordnungsgemäß entsprechend den vor Ort geltenden Vorschriften entsorgen.

## Gehäuseabdeckung

Sie müssen die obere Abdeckung Ihres Sun-Systems entfernen, um interne Komponenten wie Karten, Speicherchips oder Massenspeicher hinzuzufügen. Bringen Sie die obere Gehäuseabdeckung wieder an, bevor Sie Ihr System einschalten.



**Achtung** – Bei Betrieb des Systems ohne obere Abdeckung besteht die Gefahr von Stromschlag und Systemschäden.

## Einhaltung der Richtlinien für Laser

Sun-Produkte, die mit Laser-Technologie arbeiten, entsprechen den Anforderungen der Laser Klasse 1.

Class 1 Laser Product  
Luokan 1 Laserlaite  
Klasse 1 Laser Apparat  
Laser Klasse 1

## DVD-ROM



**Warnung** – Die Verwendung von anderen Steuerungen und Einstellungen oder die Durchführung von Prozeduren, die von den hier beschriebenen abweichen, können gefährliche Strahlungen zur Folge haben.

## Conformité aux normes de sécurité

Ce texte traite des mesures de sécurité qu'il convient de prendre pour l'installation d'un produit Sun Microsystems.

### Mesures de sécurité

Pour votre protection, veuillez prendre les précautions suivantes pendant l'installation du matériel :

- Suivre tous les avertissements et toutes les instructions inscrites sur le matériel.
- Vérifier que la tension et la fréquence de la source d'alimentation électrique correspondent à la tension et à la fréquence indiquées sur l'étiquette de classification de l'appareil.
- Ne jamais introduire d'objets quels qu'ils soient dans une des ouvertures de l'appareil. Vous pourriez vous trouver en présence de hautes tensions dangereuses. Tout objet conducteur introduit de la sorte pourrait produire un court-circuit qui entraînerait des flammes, des risques d'électrocution ou des dégâts matériels.

## Symboles

Vous trouverez ci-dessous la signification des différents symboles utilisés :



**Attention:** – risques de blessures corporelles et de dégâts matériels. Veuillez suivre les instructions.



**Attention:** – surface à température élevée. Évitez le contact. La température des surfaces est élevée et leur contact peut provoquer des blessures corporelles.



**Attention:** – présence de tensions dangereuses. Pour éviter les risques d'électrocution et de danger pour la santé physique, veuillez suivre les instructions.



**MARCHE** – Votre système est sous tension (courant alternatif).

Un des symboles suivants sera peut-être utilisé en fonction du type d'interrupteur de votre système:



**ARRÊT** - Votre système est hors tension (courant alternatif).



**VEILLEUSE** – L'interrupteur Marche/Veilleuse est en position « Veilleuse ».

## Modification du matériel

Ne pas apporter de modification mécanique ou électrique au matériel. Sun Microsystems n'est pas responsable de la conformité réglementaire d'un produit Sun qui a été modifié.

## Positionnement d'un produit Sun



**Attention:** – pour assurer le bon fonctionnement de votre produit Sun et pour l'empêcher de surchauffer, il convient de ne pas obstruer ni recouvrir les ouvertures prévues dans l'appareil. Un produit Sun ne doit jamais être placé à proximité d'un radiateur ou d'une source de chaleur.



**Attention:** – Le niveau de pression acoustique au poste de travail s'élève selon la norme DIN 45 635 section 1000, à 70 dB (A) ou moins.

## Conformité SELV

Sécurité : les raccordements E/S sont conformes aux normes SELV.

## Connexion du cordon d'alimentation



**Attention:** – les produits Sun sont conçus pour fonctionner avec des alimentations monophasées munies d'un conducteur neutre mis à la terre. Pour écarter les risques d'électrocution, ne pas brancher de produit Sun dans un autre type d'alimentation secteur. En cas de doute quant au type d'alimentation électrique du local, veuillez vous adresser au directeur de l'exploitation ou à un électricien qualifié.



**Attention:** – tous les cordons d'alimentation n'ont pas forcément la même puissance nominale en matière de courant. Les rallonges d'usage domestique n'offrent pas de protection contre les surcharges et ne sont pas prévues pour les systèmes d'ordinateurs. Ne pas utiliser de rallonge d'usage domestique avec votre produit Sun.



**Attention:** – votre produit Sun a été livré équipé d'un cordon d'alimentation à trois fils (avec prise de terre). Pour écarter tout risque d'électrocution, branchez toujours ce cordon dans une prise mise à la terre.

L'avertissement suivant s'applique uniquement aux systèmes équipés d'un interrupteur VEILLEUSE:



**Attention:** – le commutateur d'alimentation de ce produit fonctionne comme un dispositif de mise en veille uniquement. C'est la prise d'alimentation qui sert à mettre le produit hors tension. Veillez donc à installer le produit à proximité d'une prise murale facilement accessible. Ne connectez pas la prise d'alimentation lorsque le châssis du système n'est plus alimenté.

## Batterie au lithium



**Attention:** – sur les cartes CPU Sun, une batterie au lithium (référence MK48T59Y, MK48TXXB-XX, MK48T18-XXXPCZ, M48T59W-XXXPCZ, ou MK48T08.) a été moulée dans l'horloge temps réel SGS. Les batteries ne sont pas des pièces remplaçables par le client. Elles risquent d'exploser en cas de mauvais traitement. Ne pas jeter la batterie au feu. Ne pas la démonter ni tenter de la recharger.

## Bloc-batterie



**Attention:** – Les unités Sun Fire V480 contiennent une batterie étanche au plomb (produits énergétiques portatifs n°TLC02V50). Il existe un risque d'explosion si ce bloc-batterie est manipulé de façon erronée ou mal mis en place. Ne remplacez ce bloc que par un bloc-batterie Sun Microsystems du même type. Ne le démontez pas et n'essayez pas de le recharger hors du système. Ne faites pas brûler la batterie mais mettez-la au rebut conformément aux réglementations locales en vigueur.

## Couvercle

Pour ajouter des cartes, de la mémoire, ou des unités de stockage internes, vous devrez démonter le couvercle de l'unité système Sun. Ne pas oublier de remettre ce couvercle en place avant de mettre le système sous tension.



**Attention:** – il est dangereux de faire fonctionner un produit Sun sans le couvercle en place. Si l'on néglige cette précaution, on encourt des risques de blessures corporelles et de dégâts matériels.

## Conformité aux certifications Laser

Les produits Sun qui font appel aux technologies lasers sont conformes aux normes de la classe 1 en la matière.

Class 1 Laser Product  
Luokan 1 Laserlaitte  
Klasse 1 Laser Apparat  
Laser Klasse 1

## DVD-ROM



**Attention:** – L'utilisation de contrôles, de réglages ou de performances de procédures autre que celle spécifiée dans le présent document peut provoquer une exposition à des radiations dangereuses.

## Normativas de seguridad

El siguiente texto incluye las medidas de seguridad que se deben seguir cuando se instale algún producto de Sun Microsystems.

### Precauciones de seguridad

Para su protección observe las siguientes medidas de seguridad cuando manipule su equipo:

- Siga todas las avisos e instrucciones marcados en el equipo.
- Asegúrese de que el voltaje y la frecuencia de la red eléctrica concuerdan con las descritas en las etiquetas de especificaciones eléctricas del equipo.
- No introduzca nunca objetos de ningún tipo a través de los orificios del equipo. Pueden haber voltajes peligrosos. Los objetos extraños conductores de la electricidad pueden producir cortocircuitos que provoquen un incendio, descargas eléctricas o daños en el equipo.

## Símbolos

En este libro aparecen los siguientes símbolos:



**Precaución** – Existe el riesgo de lesiones personales y daños al equipo. Siga las instrucciones.



**Precaución** – Superficie caliente. Evite el contacto. Las superficies están calientes y pueden causar daños personales si se tocan.



**Precaución** – Voltaje peligroso presente. Para reducir el riesgo de descarga y daños para la salud siga las instrucciones.



**Encendido** – Aplica la alimentación de CA al sistema.

Según el tipo de interruptor de encendido que su equipo tenga, es posible que se utilice uno de los siguientes símbolos:



**Apagado** - Elimina la alimentación de CA del sistema.



**En espera** – El interruptor de Encendido/En espera se ha colocado en la posición de En espera.

## Modificaciones en el equipo

No realice modificaciones de tipo mecánico o eléctrico en el equipo. Sun Microsystems no se hace responsable del cumplimiento de las normativas de seguridad en los equipos Sun modificados.

## Ubicación de un producto Sun



**Precaución** – Para asegurar la fiabilidad de funcionamiento de su producto Sun y para protegerlo de sobrecalentamientos no deben obstruirse o taparse las rejillas del equipo. Los productos Sun nunca deben situarse cerca de radiadores o de fuentes de calor.



**Precaución** – De acuerdo con la norma DIN 45 635, Parte 1000, se admite un nivel de presión acústica para puestos de trabajo máximo de 70Db(A).

## Cumplimiento de la normativa SELV

El estado de la seguridad de las conexiones de entrada/salida cumple los requisitos de la normativa SELV.

## Conexión del cable de alimentación eléctrica



**Precaución** – Los productos Sun están diseñados para trabajar en una red eléctrica monofásica con toma de tierra. Para reducir el riesgo de descarga eléctrica, no conecte los productos Sun a otro tipo de sistema de alimentación eléctrica. Póngase en contacto con el responsable de mantenimiento o con un electricista cualificado si no está seguro del sistema de alimentación eléctrica del que se dispone en su edificio.



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**Precaución** – No todos los cables de alimentación eléctrica tienen la misma capacidad. Los cables de tipo doméstico no están provistos de protecciones contra sobrecargas y por tanto no son apropiados para su uso con computadores. No utilice alargadores de tipo doméstico para conectar sus productos Sun.

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**Precaución** – Con el producto Sun se proporciona un cable de alimentación con toma de tierra. Para reducir el riesgo de descargas eléctricas conéctelo siempre a un enchufe con toma de tierra.

---

La siguiente advertencia se aplica solamente a equipos con un interruptor de encendido que tenga una posición "En espera":



---

**Precaución** – El interruptor de encendido de este producto funciona exclusivamente como un dispositivo de puesta en espera. El enchufe de la fuente de alimentación está diseñado para ser el elemento primario de desconexión del equipo. El equipo debe instalarse cerca del enchufe de forma que este último pueda ser fácil y rápidamente accesible. No conecte el cable de alimentación cuando se ha retirado la fuente de alimentación del chasis del sistema.

---

## Batería de litio



---

**Precaución** – En las placas de CPU Sun hay una batería de litio insertada en el reloj de tiempo real, tipo SGS Núm. MK48T59Y, MK48TXXB-XX, MK48T18-XXXPCZ, M48T59W-XXXPCZ, o MK48T08. Las baterías no son elementos reemplazables por el propio cliente. Pueden explotar si se manipulan de forma errónea. No arroje las baterías al fuego. No las abra o intente recargarlas.

---

## Paquete de pilas



---

**Precaución** – Las unidades Sun Fire V480 contienen una pila de plomo sellada, Productos de energía portátil nº TLC02V50. Existe riesgo de estallido si el paquete de pilas se maneja sin cuidado o se sustituye de manera indebida. Las pilas sólo deben sustituirse por el mismo tipo de paquete de pilas de Sun Microsystems. No las desmonte ni intente recargarlas fuera del sistema. No arroje las pilas al fuego. Deséchelas siguiendo el método indicado por las disposiciones vigentes.

---

## Tapa de la unidad del sistema

Debe quitar la tapa del sistema cuando sea necesario añadir tarjetas, memoria o dispositivos de almacenamiento internos. Asegúrese de cerrar la tapa superior antes de volver a encender el equipo.



---

**Precaución** – Es peligroso hacer funcionar los productos Sun sin la tapa superior colocada. El hecho de no tener en cuenta esta precaución puede ocasionar daños personales o perjudicar el funcionamiento del equipo.

---

## Aviso de cumplimiento con requisitos de láser

Los productos Sun que utilizan la tecnología de láser cumplen con los requisitos de láser de Clase 1.

Class 1 Laser Product  
Luokan 1 Laserlaitte  
Klasse 1 Laser Apparat  
Laser Klasse 1

## DVD-ROM

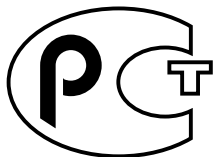


---

**Precaución** – El manejo de los controles, los ajustes o la ejecución de procedimientos distintos a los aquí especificados pueden exponer al usuario a radiaciones peligrosas.

---

## GOST-R Certification Mark



### Nordic Lithium Battery Cautions

#### Norge



---

**ADVARSEL** – Litiumbatteri —  
Eksplosjonsfare. Ved utskifting benyttes kun  
batteri som anbefalt av apparatfabrikanten.  
Brukt batteri returneres apparatleverandøren.

---

#### Sverige



---

**VARNING** – Explosionsfara vid felaktigt  
batteribyte. Använd samma batterityp eller  
en ekvivalent typ som rekommenderas av  
apparatillverkaren. Kassera använt batteri  
enligt fabrikantens instruktion.

---

#### Danmark



---

**ADVARSEL!** – Litiumbatteri —  
Eksplosionsfare ved fejlagtig håndtering.  
Udskiftning må kun ske med batteri af samme  
fabrikat og type. Levér det brugte batteri  
tilbage til leverandøren.

---

#### Suomi



---

**VAROITUS** – Paristo voi räjähtää, jos se on  
virheellisesti asennettu. Vaihda paristo  
ainoastaan laitevalmistajan suosittelemaan  
tyyppiin. Hävitä käytetty paristo valmistajan  
ohjeiden mukaisesti.

---





## Board Connector Locations

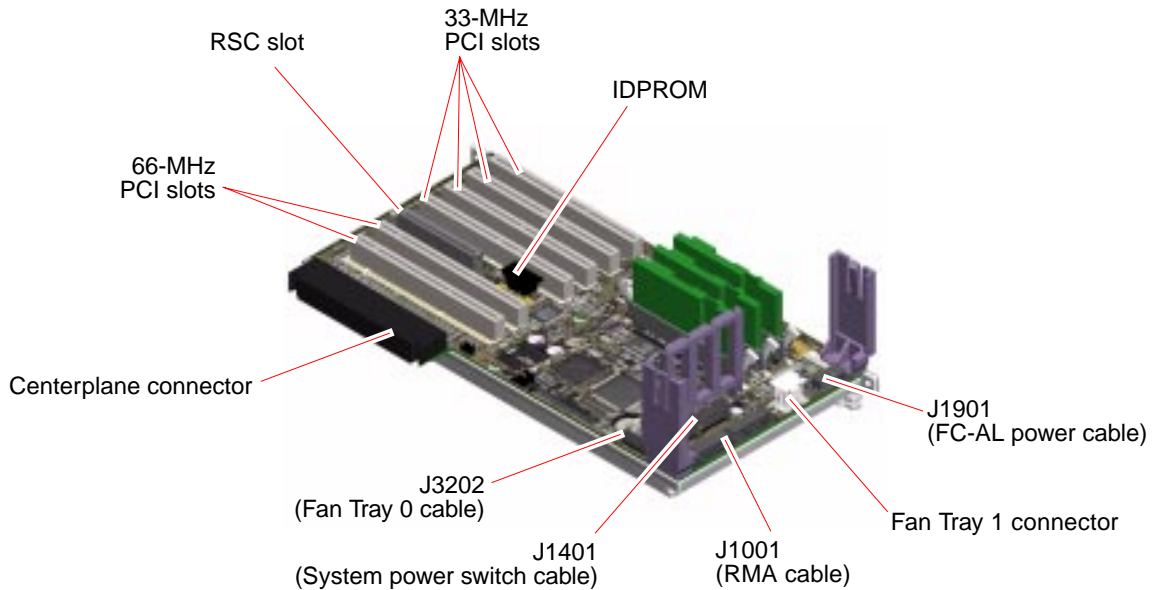
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This appendix illustrates the connector locations on system boards. It contains the following sections:

- “PCI Riser Board Connectors” on page 206
- “FC-AL Backplane Connectors” on page 206
- “Centerplane Connectors” on page 207
- “RSC Connectors” on page 208

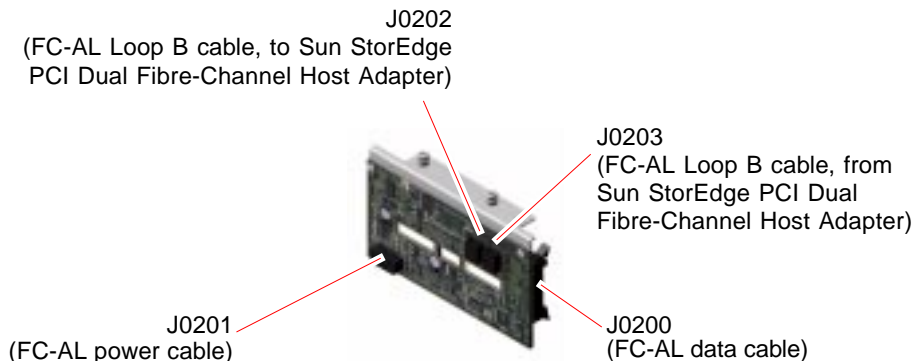
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## PCI Riser Board Connectors



---

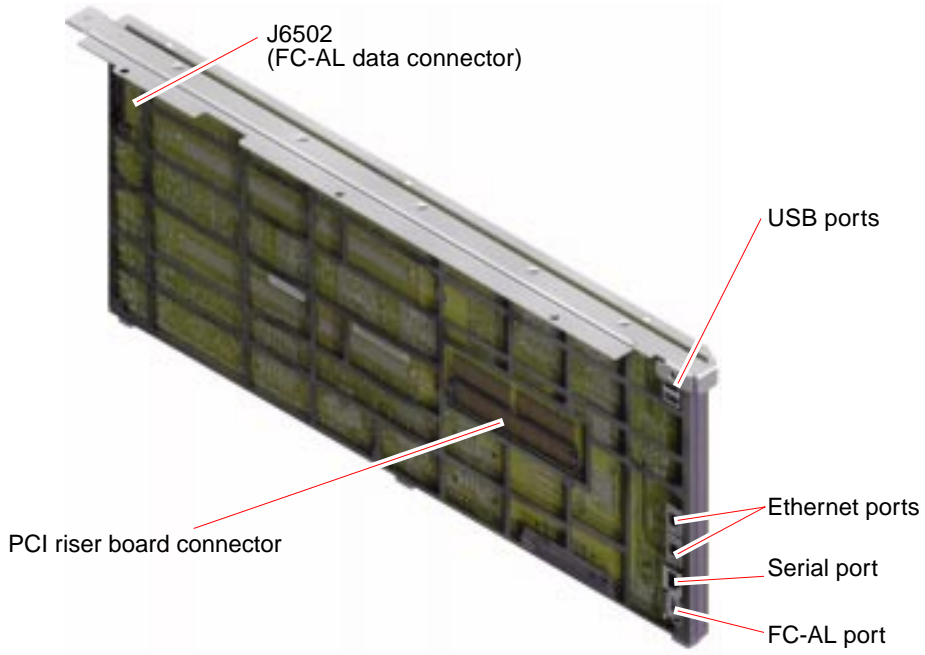
## FC-AL Backplane Connectors



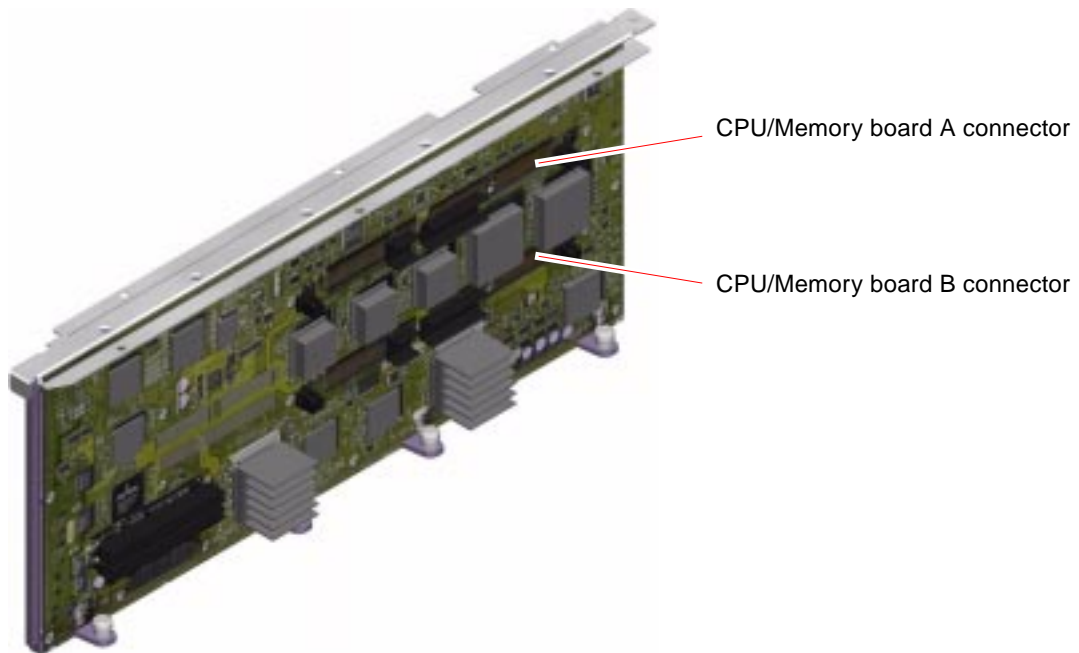
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# Centerplane Connectors

## PCI Riser Board-Side Connectors

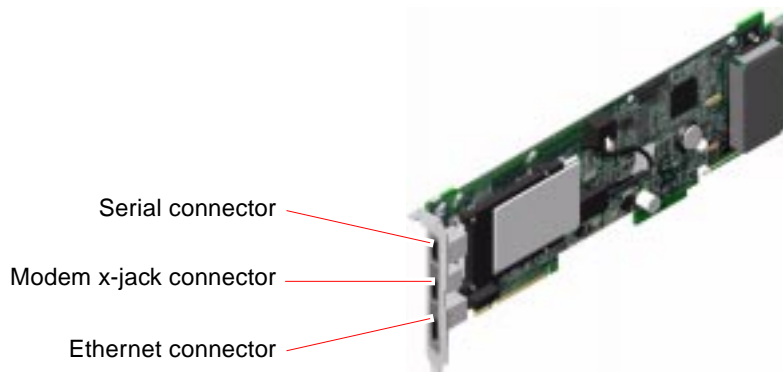


## CPU/Memory Board-Side Connectors



---

## RSC Connectors



## Illustrated Parts Breakdown

---

This appendix consists of a sequence of illustrations that show how the various pieces of the system fit together. Use the accompanying tables as a reference for ordering field-replaceable units (FRUs).

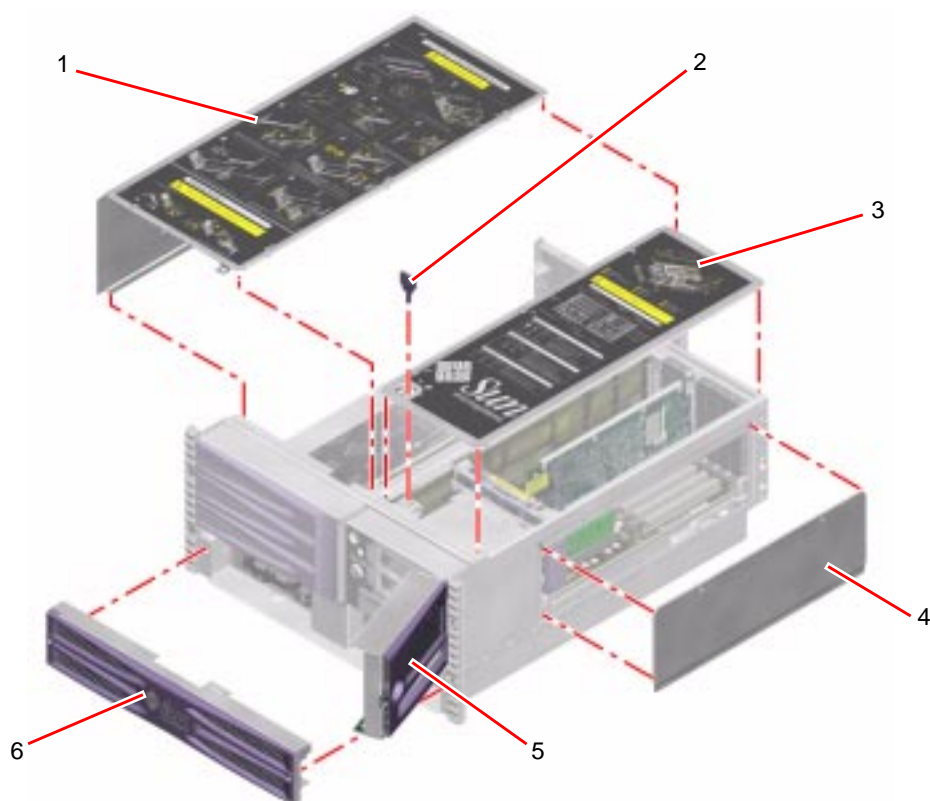
The part numbers listed in the following tables are correct as of the manual publication date but are subject to change without notice. Consult your authorized Sun sales representative or service provider to confirm a part number prior to ordering a replacement part.

This illustrated parts breakdown is divided into the following sections:

- “Chassis Doors and Access Panels” on page 210
- “CPU-Side Components” on page 211
- “PCI-Side Components” on page 212
- “Front Panel Components” on page 213
- “Miscellaneous Components” on page 214
- “System Cables” on page 215

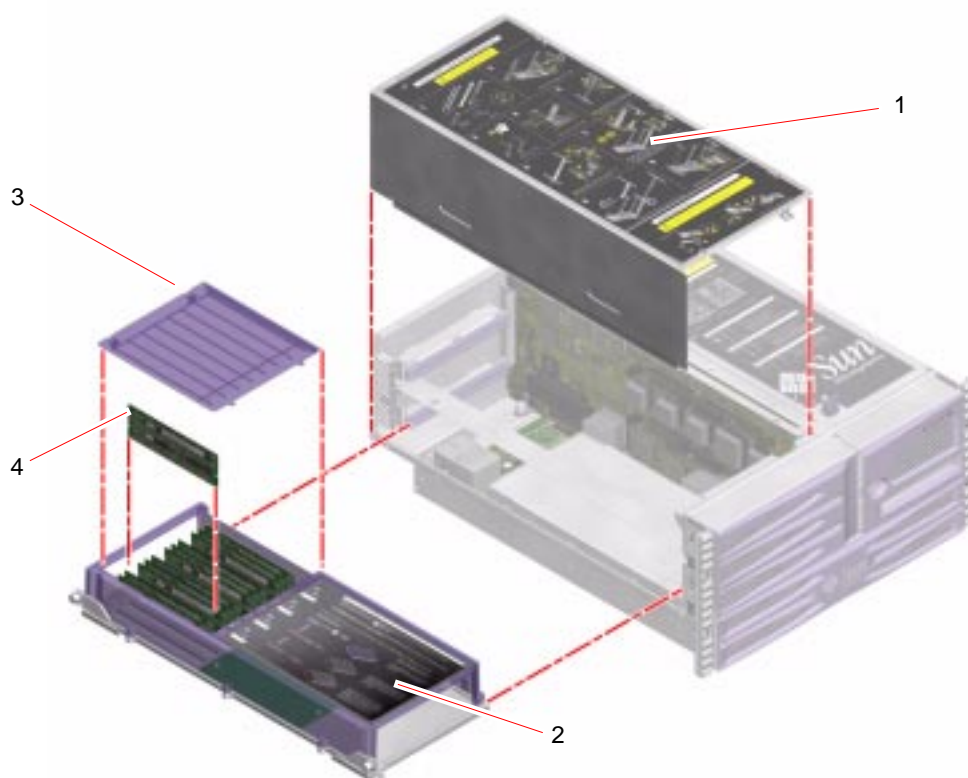
# Chassis Doors and Access Panels

Reference Number	Part	Part Number
1	CPU access panel	540-4713 (Not a FRU)
2	System key	330-2014 (Not a FRU)
3	PCI access panel	540-4714 (Not a FRU)
4	PCI riser board access panel	540-4712 (Not a FRU)
5	Media door	540-4907 (Not a FRU)
6	Power supply access panel	540-4765 (Not a FRU)



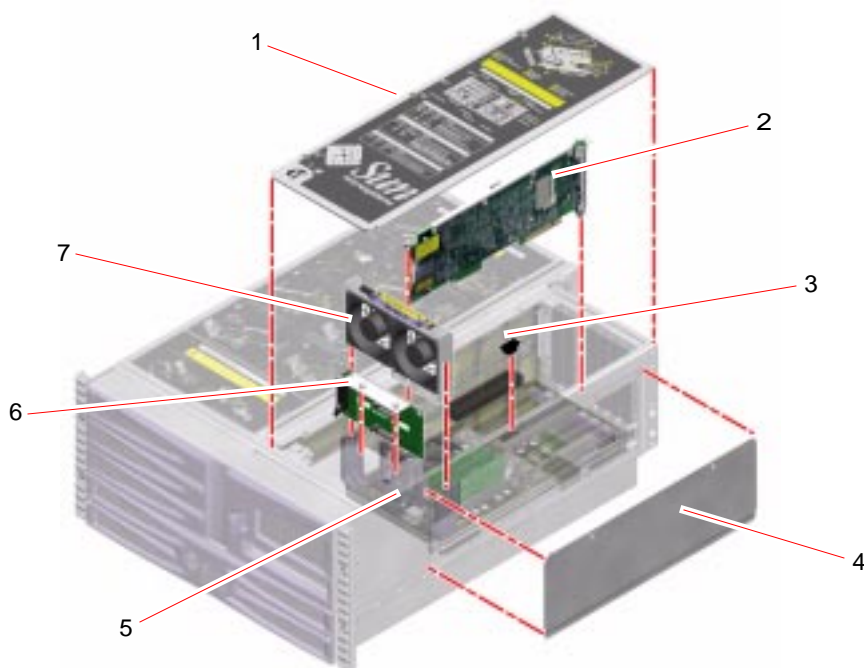
# CPU-Side Components

Reference Number	Part	Part Number
1	CPU access panel	540-4713 (Not a FRU)
2	900 MHz CPU/Memory module	F501-6334
3	DIMM access panel	(Shipped with F501-6334)
4	256 MB DIMM (not shown)	F501-5401
	512 MB DIMM (not shown)	F501-5030
	1 GB DIMM (not shown)	F540-5086



## PCI-Side Components

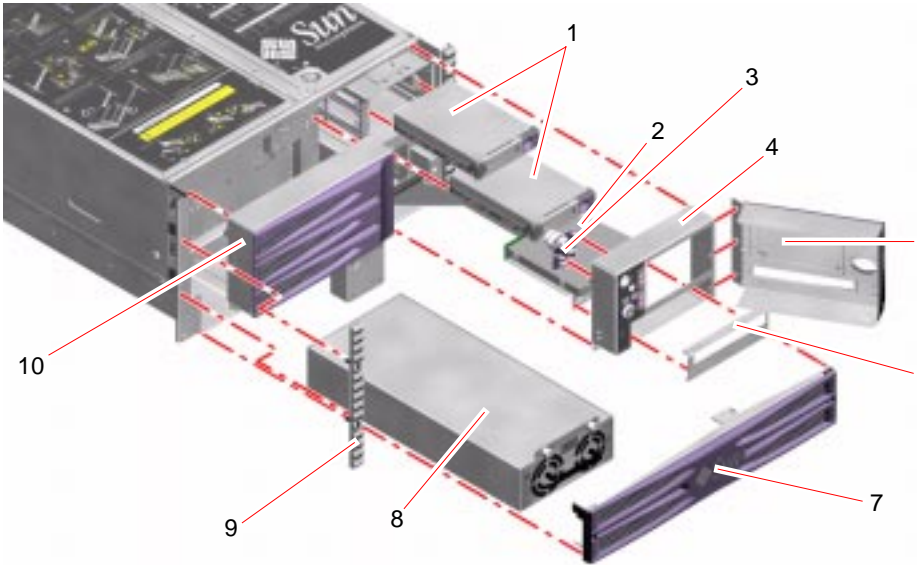
Reference Number	Part	Part Number
1	PCI access panel	540-4714 (Not a FRU)
2	Remote system control (RSC) card	F501-5856
3	IDPROM	(Shipped with F501-5820)
4	PCI riser board access panel	540-4712 (Not a FRU)
5	PCI riser board	F501-5820
6	FC-AL backplane	F501-5822
7	Fan Tray 1	F540-4716





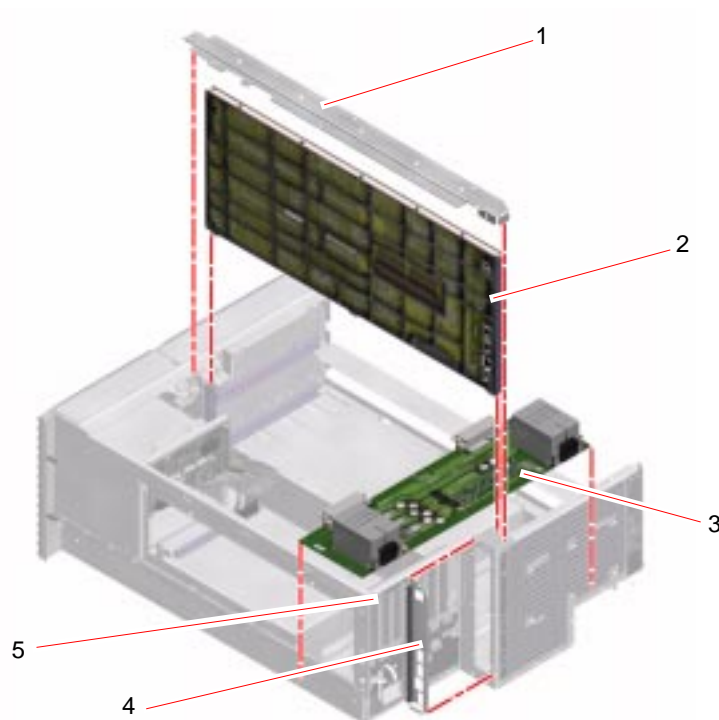
# Front Panel Components

Reference Number	Part	Part Number
1	36 GB FC-AL disk drive	F540-4525
	73 GB FC-AL disk drive (not shown)	F540-4905
2	DVD-ROM drive	F370-4412
3	System control switch/power button cable	F540-5063
4	Front bezel	540-4911 (Not a FRU)
5	Media door	540-4907 (Not a FRU)
6	RMA bezel	(Not a FRU)
7	Power supply access panel	540-4765 (Not a FRU)
8	Power supply	F300-1480
9	Decorative panel	330-3277 (Not a FRU)
10	Fan Tray 0	F540-4715



# Miscellaneous Components

Reference Number	Part	Part Number
1	Centerplane top stiffener	540-4791 (Not a FRU)
2	Centerplane	F501-5819
3	Power distribution board	F375-3006
4	External connector faceplate	540-4835 (Not a FRU)
5	Back panel status LED assembly	F370-4388



---

# System Cables

See TABLE 7-1 for cable connections and routing.

Part	Part Number
System control switch/power button cable	F540-5063
RMA cable	F375-3053
FC-AL power cable	F530-3013
FC-AL data cable	F530-3069
Fan Tray 0 cable	F540-5064
Back panel LED flex circuit	F370-4388
FC-AL Loop B cable (X-option)	F530-3018



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