



# Sun Fire™ V480 Server Setup and Rackmounting Guide

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# Preface

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This guide provides instructions for installing the Sun Fire™ server into a 4-post Sun™ expansion cabinet or other EIA-compliant 19-inch (48.26-cm) wide cabinet and into a 2-post rack. This guide also provides instructions for installing a cable management arm, connecting power cords, and connecting an Ethernet cable.

When you have completed the procedures in this guide, you are ready to set up a system console, power on the server, install the Solaris™ operating environment, and install the online documentation. See the *Sun Fire V480 Server Quick Start Guide* or Part One of the *Sun Fire V480 Server Administration Guide* for information about these procedures.

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## How This Book Is Organized

This book is organized into chapters.

Chapter 1 provides instructions for installing the server into a 4-post cabinet.

Chapter 2 provides instructions for installing the server into a 2-post rack.

Chapter 3 provides instructions for installing a cable management arm, connecting power cords, and connecting an Ethernet cable.

Appendix A describes 4-post cabinet requirements.

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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  Command-line variable; replace with a real name or value	Read Chapter 2 in the <i>Sun Fire V480 Setup and Rackmounting Guide</i> .  To delete a file, type <code>rm filename</code> .

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## Related Documentation

Application	Title	Part Number
Late-breaking information	<i>Sun Fire V480 Server Product Notes</i>	816-0905
Initial installation	<i>Sun Fire V480 Server Quick Start Guide</i>	816-3313
Rackmounting	<i>Sun Fire V480 Server 4-Post Rackmounting Overview</i>	816-0903
	<i>Sun Fire V480 Server Setup and Rackmounting Guide</i>	816-0902
Service	<i>Sun Fire V480 Server Parts Installation and Removal Guide</i>	816-0907
Administration, configuration, diagnostics, and troubleshooting	<i>Sun Fire V480 Server Administration Guide</i>	816-0904

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# Installing a Sun Fire V480 Server Into a 4-Post Cabinet

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This chapter shows you how to install a Sun Fire™ server into a 4-post Sun™ expansion cabinet or other EIA-compliant 19-inch (48.26-cm) wide cabinet. If you are installing a Sun Fire V480 server into a 2-post rack, see Chapter 2.

The *4-Post Rackmounting Overview* included with your documentation set and the service label affixed to the top of the server chassis illustrate the rackmounting steps in a convenient graphical overview.

This chapter contains the following procedures and information:

- “Checklist of 4-Post Rackmounting and Setup Tasks” on page 2
- “Unpack the Server” on page 3
- “Attach the Inner Glides to the Chassis” on page 6
- “Prepare the Cabinet” on page 7
- “Locate the Mounting Holes” on page 8
- “Install the Slide Assemblies” on page 10
- “Install the Server Into the Cabinet” on page 14

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# Checklist of 4-Post Rackmounting and Setup Tasks

**TABLE 1-1** Overview of 4-Post Rackmounting and Setup Steps

Step	Task	Refer to:
1	Unpack the server, the ship kit, and the rackmounting kit.	"Unpack the Server" on page 3
2	Check that you have the required parts for rackmounting.	"Inventory for 4-Post Rackmounting" on page 4
3	Install the inner glides on the chassis.	"Attach the Inner Glides to the Chassis" on page 6
4	Prepare the cabinet.	"Prepare the Cabinet" on page 7
5	Locate the mounting holes.	"Locate the Mounting Holes" on page 8
6	Install the slide assemblies into the cabinet.	"Install the Slide Assemblies" on page 10
7	Install the server into the cabinet.	"Install the Server Into the Cabinet" on page 14
8	Install the cable management arm.	"Install the Cable Management Arm" on page 30
9	Connect the power cords.	"Connect the Power Cords" on page 34
10	Connect a twisted-pair Ethernet (TPE) cable.	"Connect a Twisted-Pair Ethernet Cable" on page 37
11	Restore the cabinet.	"Restore the Cabinet" on page 39

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# Unpack the Server

Inspect all shipping cartons for evidence of physical damage. If a shipping carton is damaged, request that the carrier's agent be present when the carton is opened. Keep all contents and packing material for the agent's inspections.

Check that you have received all of the parts you ordered. Peripherals that are not factory installed are shipped separately. Contact Sun Microsystems or your distributor or reseller if you are missing anything.

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**Note** – With the exception of internal disk drives and power supplies, all component part installation or replacement must be performed by a qualified service provider. If your server options are not fully installed, see the *Sun Fire V480 Server Parts Installation and Removal Guide* for installation instructions or contact a qualified service provider.

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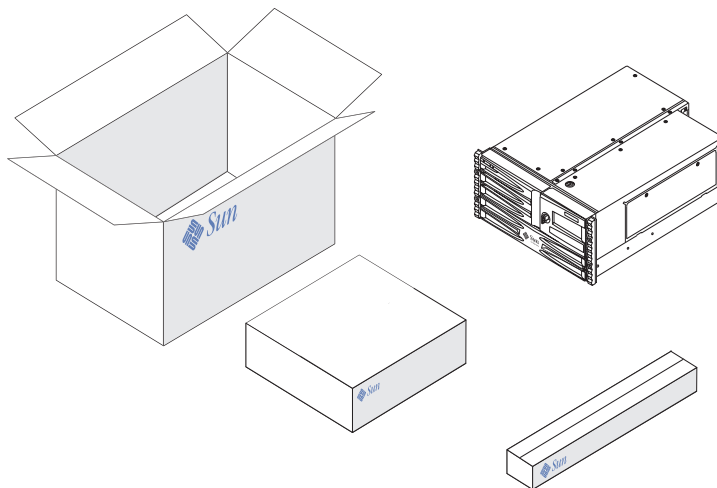
The shipping carton contains a tray with documentation and the following components:

- Sun Fire V480 server
- Sun Fire V480 ship kit box
- 4-post rackmounting kit box

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**Note** – 2-post rackmounting kits are shipped separately.

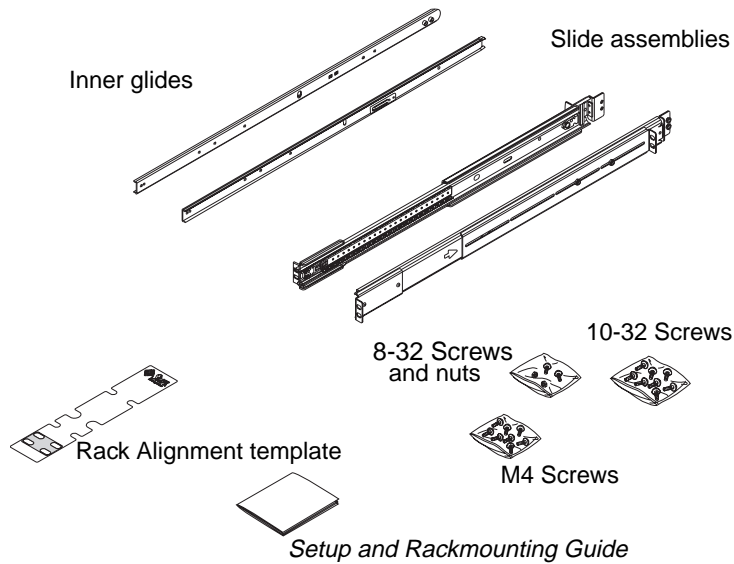
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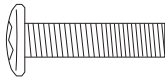
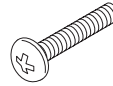
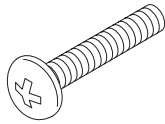
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# Inventory for 4-Post Rackmounting

You need one 4-post rackmounting kit for each Sun Fire V480 server you intend to install into a cabinet. You also need this document and the Rack Alignment template from the ship kit.



The plastic bags of hardware contain screws and nuts that are shown below in actual size.



10-32 Screws (8)

M4 Screws (8)

8-32 Screws (2)

8-32 Nuts (2)

Any screws not used for rackmounting are spares.

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**Note** – Bar nuts are required (but not included) for non-threaded cabinets. See the instructions provided with your cabinet for more information.

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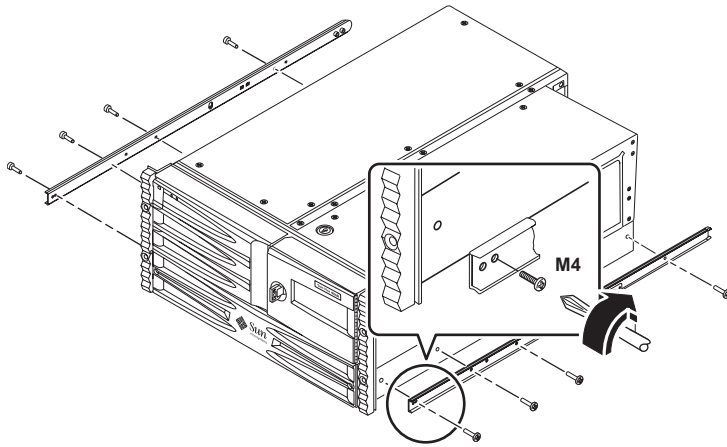
## Tools Required

- Phillips No. 2 screwdriver
- Set of appropriate Allen wrenches to remove the side panels on some cabinets
- Adjustable wrench to tighten the nuts on the mounting brackets

---

## Attach the Inner Glides to the Chassis

- **Attach the inner glides to the chassis using four M4 screws for each inner glide.** Position the straight end of each inner glide toward the front of the system. Align the second hole on the inner glide with the first hole on the chassis.



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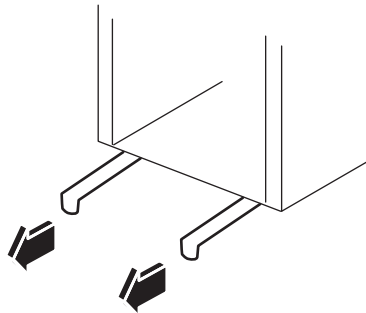
# Prepare the Cabinet

- 1. Open, and remove if applicable, the front and back doors of the cabinet.**

See the instructions provided with your cabinet.

- 2. Stabilize the cabinet by extending its anti-tip legs or bolting the cabinet securely to the floor.**

See the instructions provided with your cabinet and read “4-Post Cabinet Requirements” on page 41.



- 3. Remove the side panels from the cabinet, if applicable.**

See the instructions provided with your cabinet. Removing the side panels can improve access to the nuts and screws that you install when securing the server in the cabinet.

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# Locate the Mounting Holes

- **Locate and mark the rack rail holes that you will use to attach each slide assembly.**

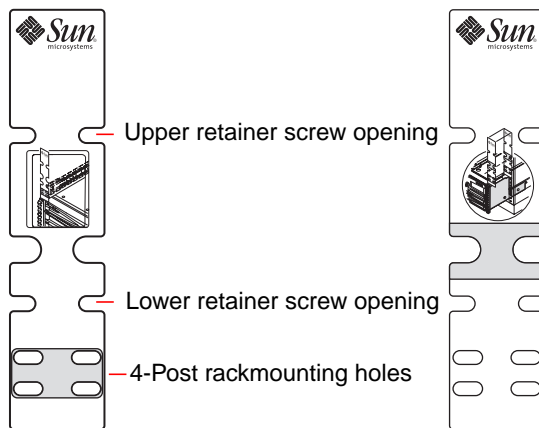
You can either count the holes on the vertical rack rails or use the Rack Alignment template included with your documentation set. Make sure that each slide assembly is installed at the same height front-to-back and side-to-side in the rack.

The Rack Alignment template is five rack units (8.75 in/22.22 cm) tall. Because the holes on a standard rack rail are arranged in sets of three holes spaced  $\frac{5}{8}$ ths,  $\frac{5}{8}$ ths, and  $\frac{1}{2}$  of an inch apart, which *two holes* you use for attaching a slide assembly varies depending on exactly where in the rack the server is located.

One side of the Rack Alignment template is for 2-post rackmounting, the other side is for 4-post rackmounting. For 2-post rackmounting instructions, see Chapter 2.

The 4-post mounting holes on the Rack Alignment template are for mounting the slide bracket to the vertical rack rail. The upper and lower retainer screw openings in the template locate the server retainer screws that hold the server in the rack after it is installed.

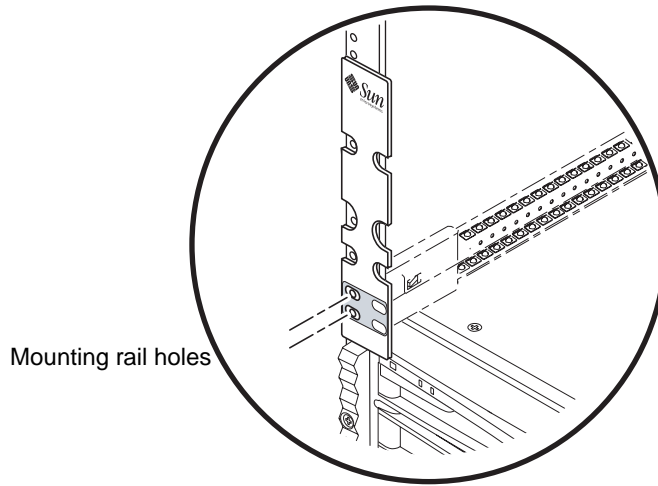
The following figure shows both sides of the Rack Alignment template.





To use the Rack Alignment template, complete these steps:

- a. Place the Rack Alignment template over the left front vertical rack rail, then move the bottom of the template to the location on the rack rail where the bottom of the server will be located.



- b. Adjust the Rack Alignment template until the lower retainer screw opening is centered on a hole in the rail.
- c. Looking through the two slide bracket mounting holes on the Rack Alignment template, locate and mark the *two* holes on the vertical rack rail that are most visible through the template.  
Use these two mounting holes to attach the slide assembly to the front rail. Mark the corresponding holes on the right front vertical rack rail.

## Guidelines for Installing Slide Assemblies



**Caution** – Stabilize the cabinet by extending its anti-tip legs or bolting the cabinet securely to the floor.

- If this is the first server you are installing into the cabinet, use holes 9 and 10 or 11 (this assumes that an AC power sequencer occupies holes 1 through 6 in the bottom of the cabinet).
- Install the slide assemblies into the lowest available position.
- Install additional servers from the base up in the cabinet.

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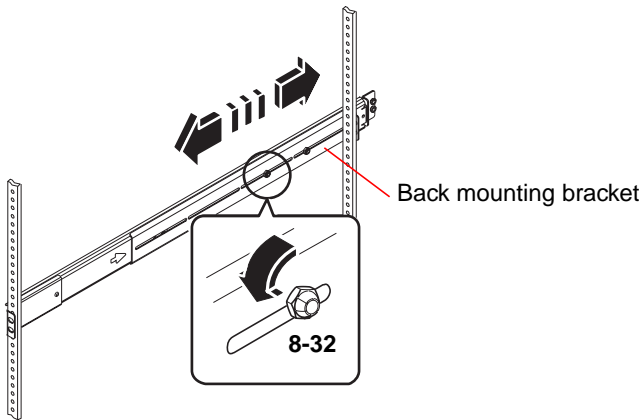
# Install the Slide Assemblies

1. Use the Rack Alignment template to locate and mark mounting holes on the vertical rack rails.

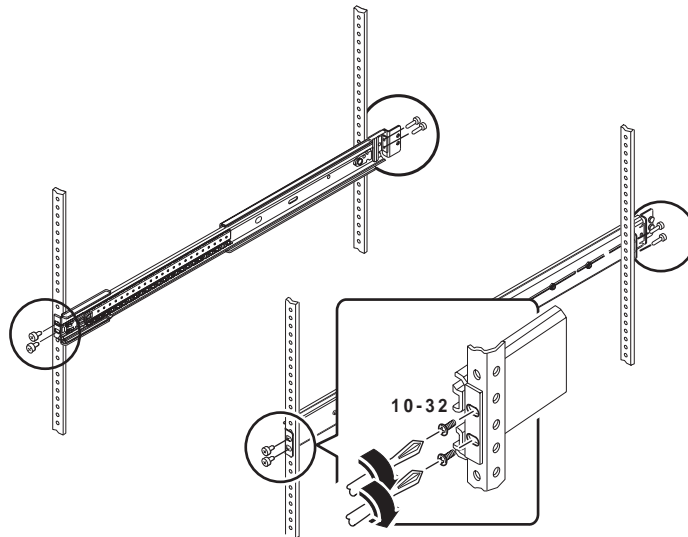
See “Locate the Mounting Holes” on page 8.

2. Adjust the back mounting bracket to accommodate the depth of the rack.

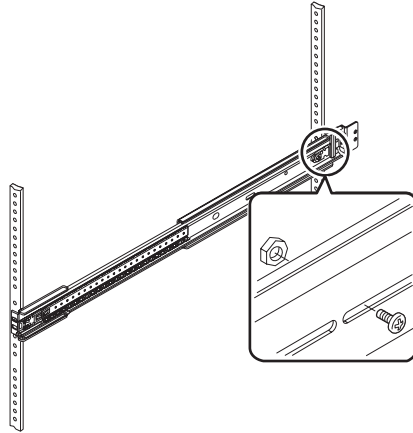
- Loosen, or if necessary, remove the 8-32 lock nuts on the back mounting bracket.
- Adjust the back mounting bracket forward or backward on each slide assembly to accommodate the depth of the rack.



3. With the help of an assistant, install a slide assembly on the front and back vertical rails on each side of the rack.
  - a. Use the holes you marked in Step 1.
  - b. Position one slide assembly on the inside of the cabinet with the front (short) mounting bracket at the front of the rack.
  - c. Using two Phillips 10-32 panhead screws for each bracket, attach the front mounting bracket to the front rail of the cabinet and attach the back (long) mounting bracket of the same slide assembly to the back rail of the cabinet (count the rack rail holes to ensure that you are matching the holes used on the front rail).
  - d. Repeat these steps for the other slide assembly.



4. If the depth of the rack is greater than 27.25 inches (69.21 cm), install a Phillips 8-32 screw and an 8-32 lock nut on each back mounting bracket as shown in the illustration.

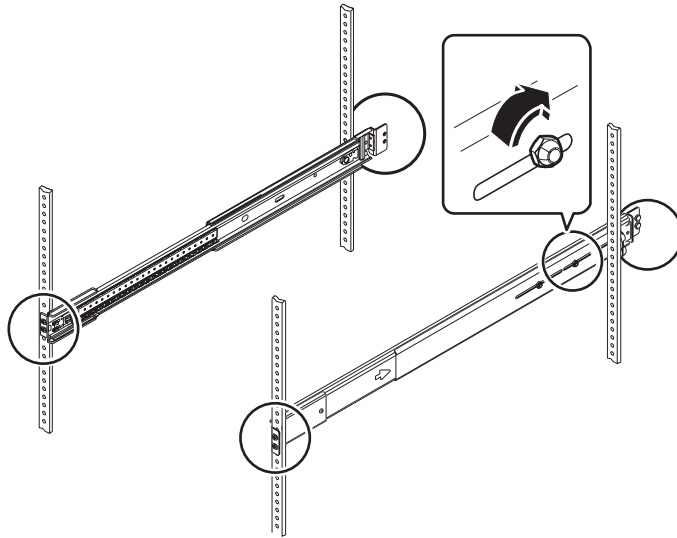


5. Completely tighten all of the rackmounting screws.
  - a. Make sure that the slide assemblies are level front-to-back and left-to-right.
  - b. Tighten the eight 10-32 screws that secure the slide assemblies to the vertical mounting rails.

- 6. Tighten the 8-32 lock nuts that secure the back mounting brackets to the slide assemblies as shown in the illustration.**

Ensure that the back mounting brackets are securely attached to each vertical mounting rail.

- 7. Make sure that each slide assembly is fully retracted into the cabinet as shown in the illustration.**



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# Install the Server Into the Cabinet



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**Caution** – Before you install or remove the server from the cabinet, be sure the cabinet is stabilized so that it cannot move or tip forward. See the cabinet documentation for information about stabilizing the cabinet.

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**Caution** – The server is heavy. Two persons are required to move the server.

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**Note** – Make sure that each slide assembly is fully retracted into the cabinet and check that the ball-bearing runner on each slide assembly is all the way forward.

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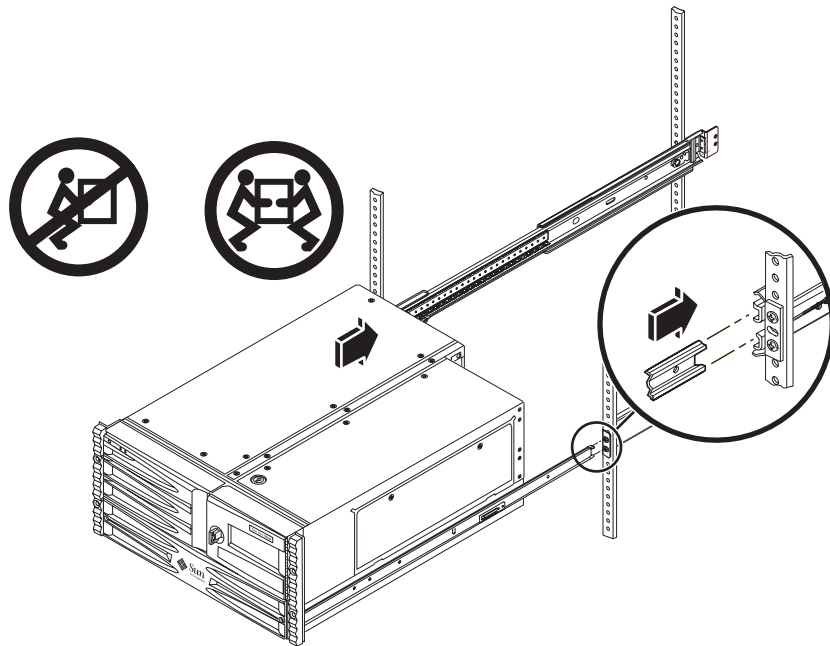
1. **Lift the server (one person on each side of the server) and approach the cabinet with the back of the server facing the front of the cabinet.**
2. **Align the rounded ends of the inner glides on the server with the slide assemblies in the cabinet.**

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**Note** – Make sure that the inner glides attached to the server are inserted within the ball-bearing runners.

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3. Holding the server level, slide it evenly all the way into the cabinet.



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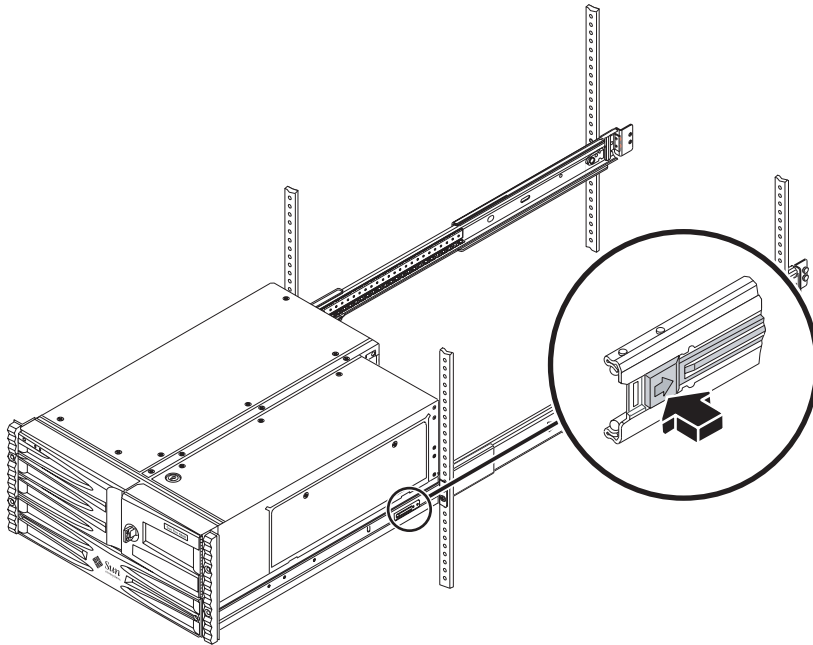
**Tip** – Slide the server in and out of the cabinet slowly and carefully to ensure that the slide assemblies are working correctly and are free from obstructions.

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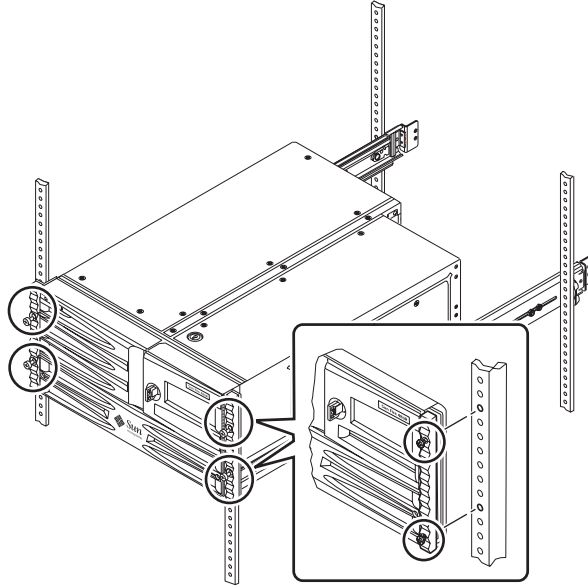
**Note** – If you have fully extended the server out of the cabinet, you will need to press the catch on each inner glide in order to slide the server all the way back into the cabinet. See the next figure.

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4. Secure the server to the front vertical mounting rails using the four captive screws on the trim panel.



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## What Next

The next step is to connect the power cords and an Ethernet cable. See Chapter 3.



## Installing a Sun Fire V480 Server Into a 2-Post Rack

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This chapter provides step-by-step instructions for installing a Sun Fire V480 server into a 2-post rack.

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**Note** – When a Sun Fire V480 server is installed in a 2-post rack, only the disk drives and power supplies are serviceable in the rack. You need to remove the server from the rack to service any other component. See the *Sun Fire V480 Server Parts Installation and Removal Guide* for more information.

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This chapter contains the following procedures and information:

- “Checklist of 2-Post Rackmounting and Setup Tasks” on page 20
- “Inventory for 2-Post Rackmounting” on page 21
- “Attach the Mounting Brackets to the Chassis” on page 22
- “Locate the Mounting Holes” on page 23
- “Install the Mounting Screws” on page 24
- “Install the Server Into the Rack” on page 25
- “Install the Server Into a Populated Rack” on page 26

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# Checklist of 2-Post Rackmounting and Setup Tasks

TABLE 2-1 Overview of 2-Post Rackmounting and Setup Steps

Step	Task	Refer to:
1	Unpack the rackmounting kit and verify the contents.	“Inventory for 2-Post Rackmounting” on page 21
2	Attach the brackets to the server.	“Attach the Mounting Brackets to the Chassis” on page 22
3	Locate the mounting holes.	“Locate the Mounting Holes” on page 23
4	Install the mounting screws.	“Install the Mounting Screws” on page 24
5	Install the server into the rack.	“Install the Server Into the Rack” on page 25
6	Install the cable management arm.	“Install the Cable Management Arm” on page 30
7	Connect the power cords.	“Connect the Power Cords” on page 34
8	Connect a twisted-pair Ethernet (TPE) cable	“Connect a Twisted-Pair Ethernet Cable” on page 37

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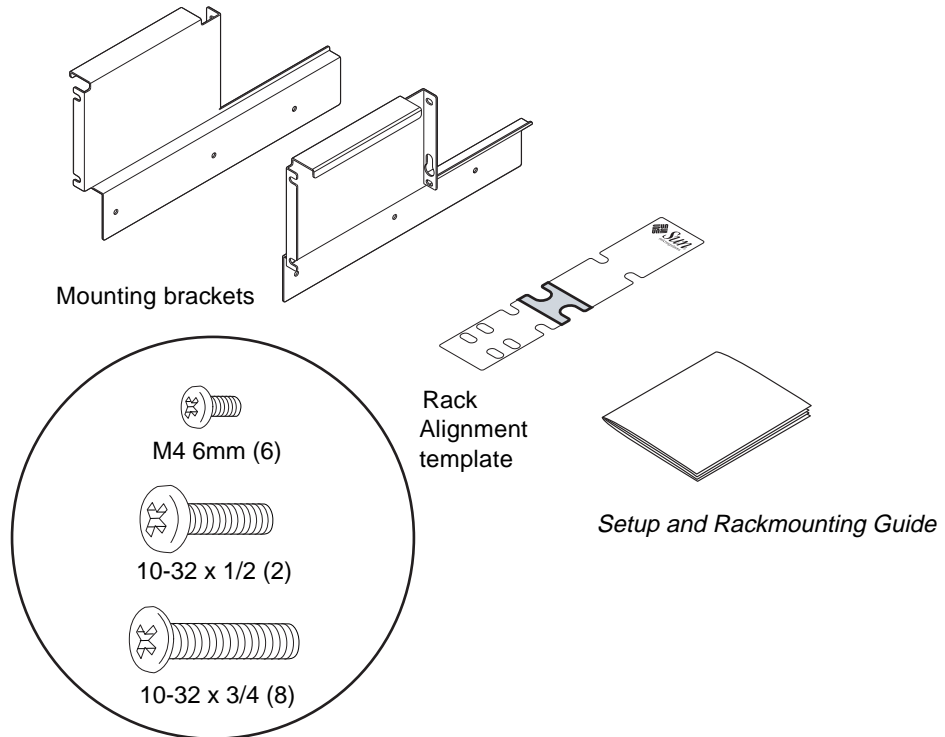
**Note** – The steps are different if you are installing the server into a populated rack. See “Install the Server Into a Populated Rack” on page 26 for instructions.

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# Inventory for 2-Post Rackmounting

You need one 2-post rackmounting kit for each Sun Fire V480 server you intend to install into a rack. You also need the *Sun Fire V480 Server Setup and Rackmounting Guide* and the Rack Alignment template from the ship kit.



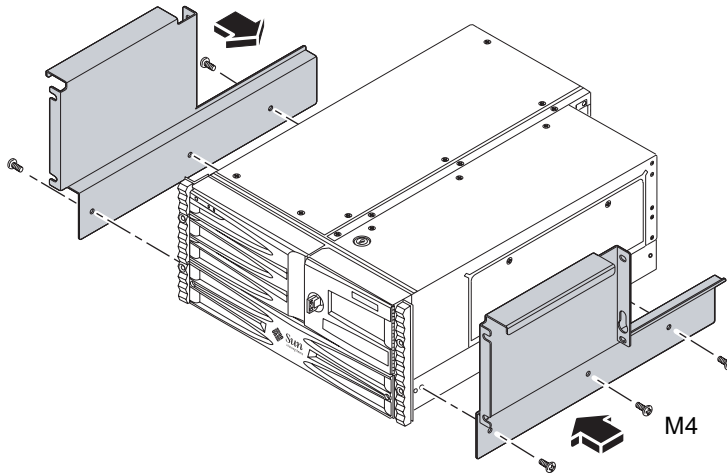
## Tool Required

- Screwdriver, long Phillips No. 2

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# Attach the Mounting Brackets to the Chassis

- Attach the mounting brackets to the chassis using three M4 screws for each bracket.



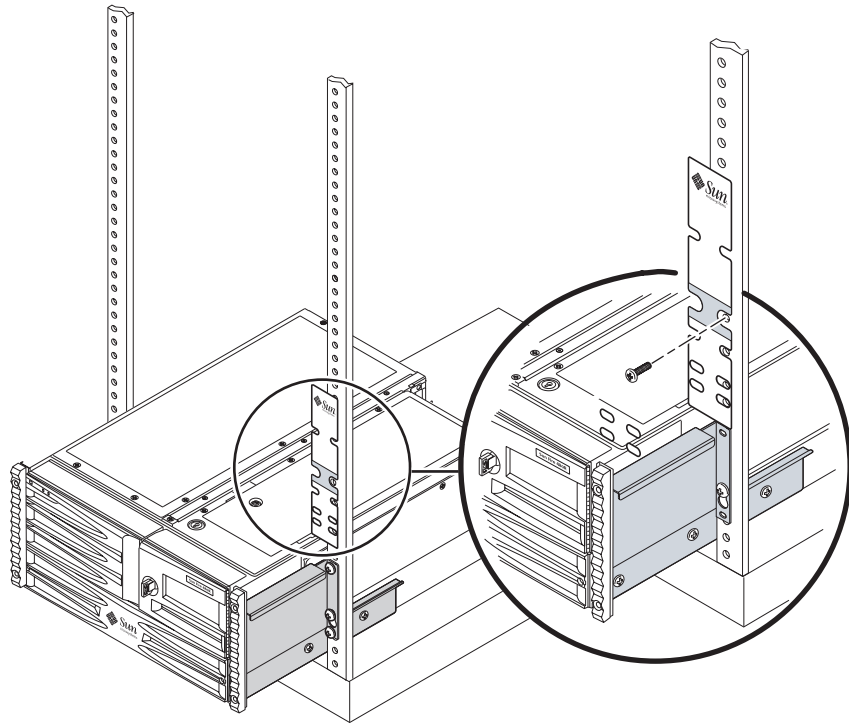
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## Locate the Mounting Holes

- Use the Rack Alignment template to locate and mark the holes for the mounting screws on each vertical rack rail. Allow six rack unit spaces (10.5 in/26.67 cm) per server.

To use the Rack Alignment template, complete these steps:

- a. Place the Rack Alignment template over the vertical rack rail, with the side marked for 2-post rack installation facing out.
- b. Rest the Rack Alignment template in the space where the server will be installed, lining up the bottom of the Rack Alignment template with the top of the server below. See next figure.
- c. Adjust the Rack Alignment template so that the mounting hole is centered on a rack rail hole and mark that rail hole.



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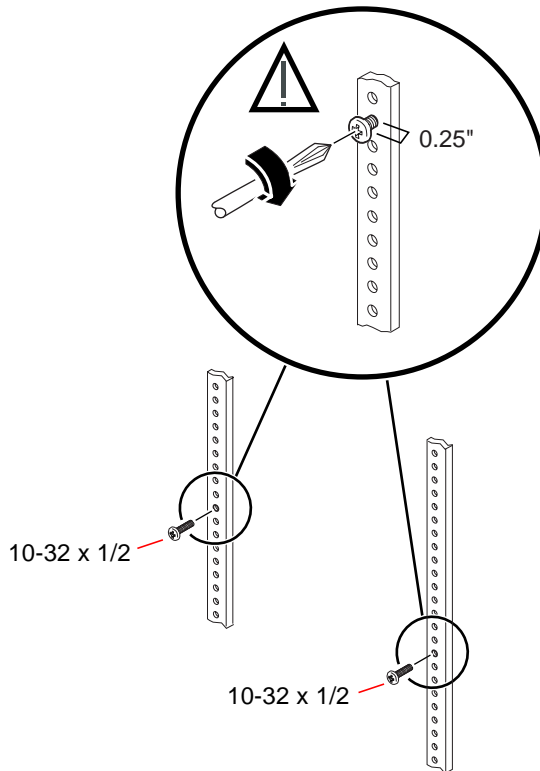
**Note** – If you are installing the server into a space less than seven rack units, you do not need to locate mounting holes or install mounting screws. You are ready to install the server into the rack. See “Install the Server Into a Populated Rack” on page 26.

---

## Install the Mounting Screws

- **Install one 10-32 x 1/2 screw on the left and one 10-32 x 1/2 screw on the right vertical mounting rails.**

Use the holes you marked in the previous step. Do not fully tighten the screws until after you install the server. Leave a 0.25-inch (0.64-cm) gap between the head of each screw and the mounting rail.





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# Install the Server Into the Rack



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**Caution** – Before you install or remove the server from the rack, be sure the rack is stabilized so that it cannot move or tip forward. See the rack documentation for information about stabilizing the rack.

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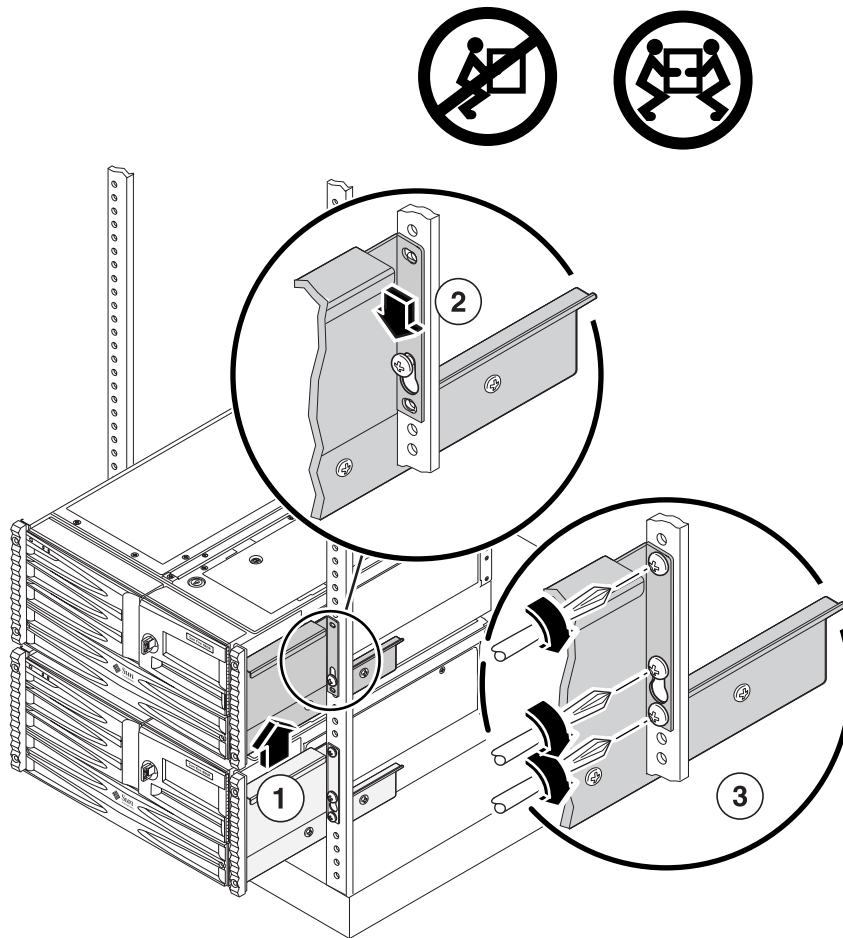
**Caution** – The server is heavy. Two persons are required to move the server.

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1. **Lift the server (one person on each side of the server) and approach the rack with the back of the server facing the front of the rack.**
2. **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.**

Slide the server down so that the server rests on the mounting screws.

3. Use six 10-32 screws, two screws and the mounting screw on each side, to secure the server to the vertical mounting rails.



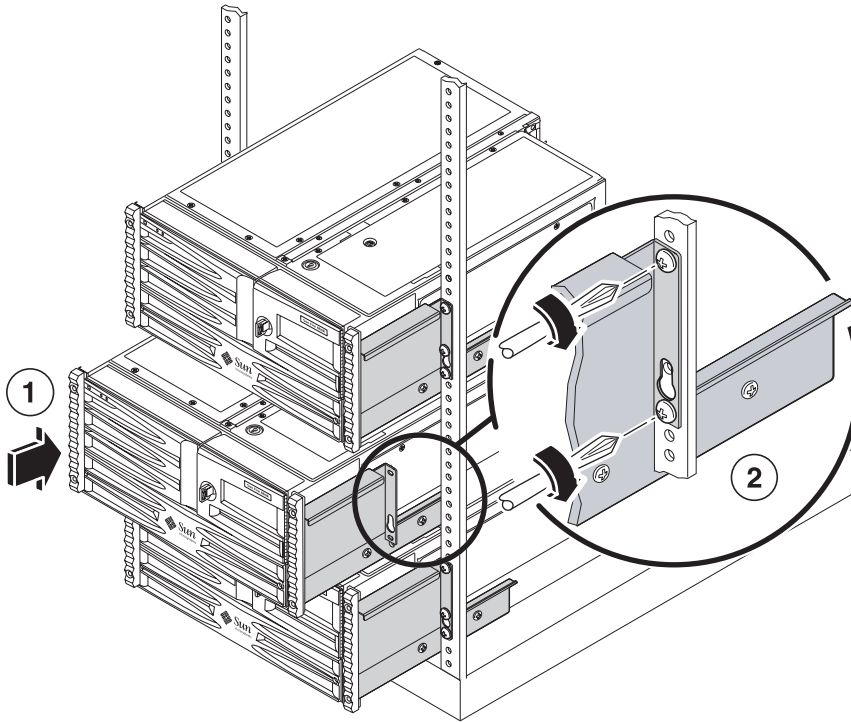
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## Install the Server Into a Populated Rack

Attach the mounting brackets to the chassis using three M4 screws for each bracket. See “Attach the Mounting Brackets to the Chassis” on page 22 for instructions.

1. **Slide the server into the open position in the rack.**  
Allow six rack unit spaces (10.5 in/26.67 cm) per server.

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



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**Caution** – When installing or 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.

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## What Next

The next step is to connect the power cords and an Ethernet cable. See Chapter 3.

## Setup Procedures

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This chapter tells you how to install the cable management arm, and connect the power cords and an Ethernet cable.

When you have completed the procedures in this chapter, you are ready to set up a system console, power on the server, install the Solaris operating environment, and install the online documentation. See the *Sun Fire V480 Server Quick Start Guide* or Part One of the *Sun Fire V480 Server Administration Guide* for information about these procedures. Make sure that you have installed the Sun Fire V480 server into a 4-post cabinet or 2-post rack (see Chapters 1 and 2) before following the instructions in this chapter.

This chapter contains the following procedures and information:

- “Inventory for Setup Procedures” on page 30
- “Install the Cable Management Arm” on page 30
- “Connect the Power Cords” on page 34
- “Connect a Twisted-Pair Ethernet Cable” on page 37
- “Restore the Cabinet” on page 39

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# Inventory for Setup Procedures

You need the following components from the ship kit and the rackmounting kit to install the cable management arm and connect the cords and cables:

- Cable management arm
- Power cords
- Ethernet cable

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## Install the Cable Management Arm

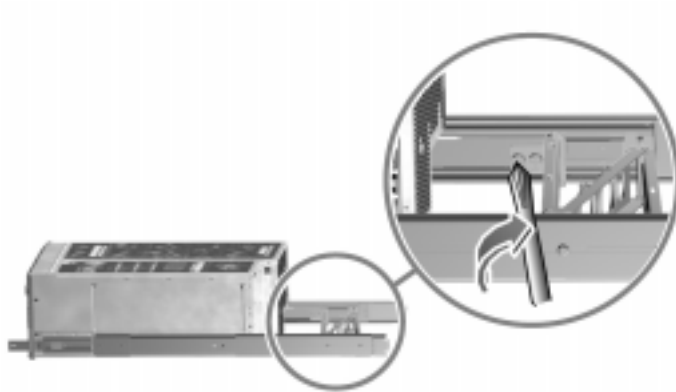
This procedure describes how to attach the cable management arm to a server that is already installed in a cabinet or a 2-post rack. For instructions on installing the server into a cabinet, see Chapter 1. For instructions on installing the server into a 2-post rack, see Chapter 2.

- 1. Locate the two horizontal mounting holes on the back of the inner glide.**

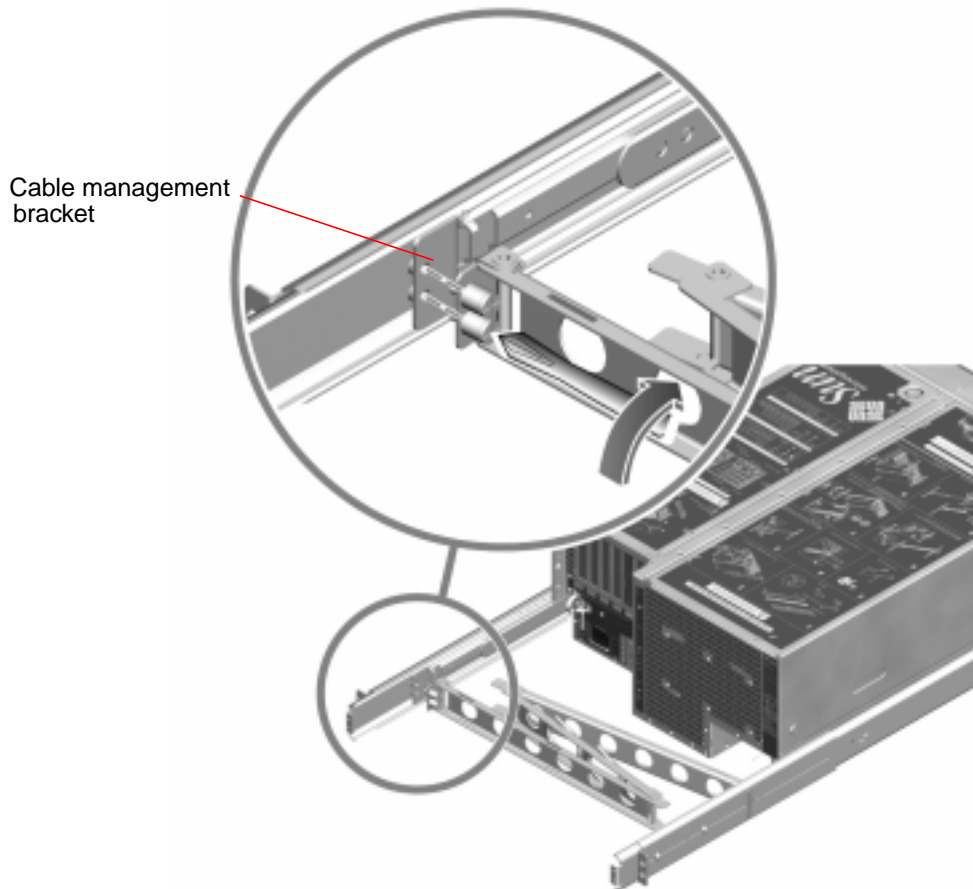
The cable management arm can be installed on either side of the server.

- 2. Align the horizontal captive screws of the cable management arm with the corresponding mounting holes in the inner glide.**

3. Tighten the two horizontal captive screws of the cable management arm to the inner glide using a Phillips No. 2 screwdriver.



4. Locate the cable management bracket on the opposite set of rails.
5. Align the vertical captive screws of the cable management arm with the corresponding holes in the cable management bracket.
6. Tighten the two captive screws of the cable management arm to the cable management bracket using a Phillips No. 2 screwdriver.



7. Secure cables to the cable management bracket using the provided velcro straps. Leave enough slack in the cables so that the server can easily slide in and out of the cabinet.



# Connect the Cords and Cables

- Connect the cords and cables to the server as shown in the illustration.

TABLE 3-1 describes the ports shown in the illustration.

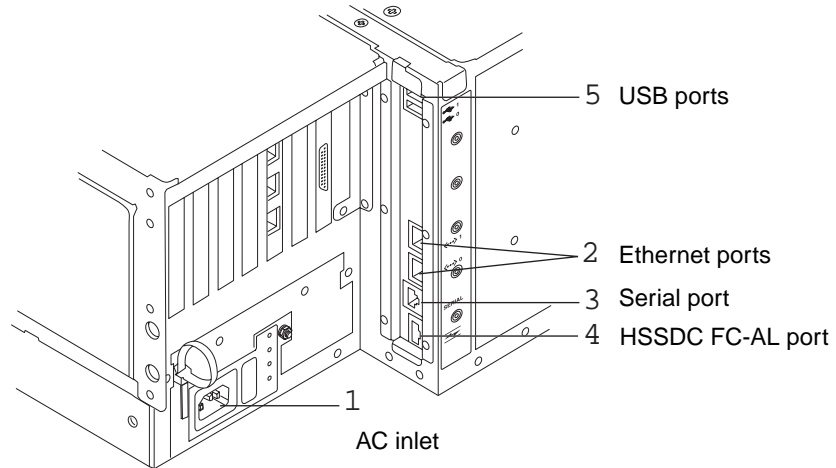


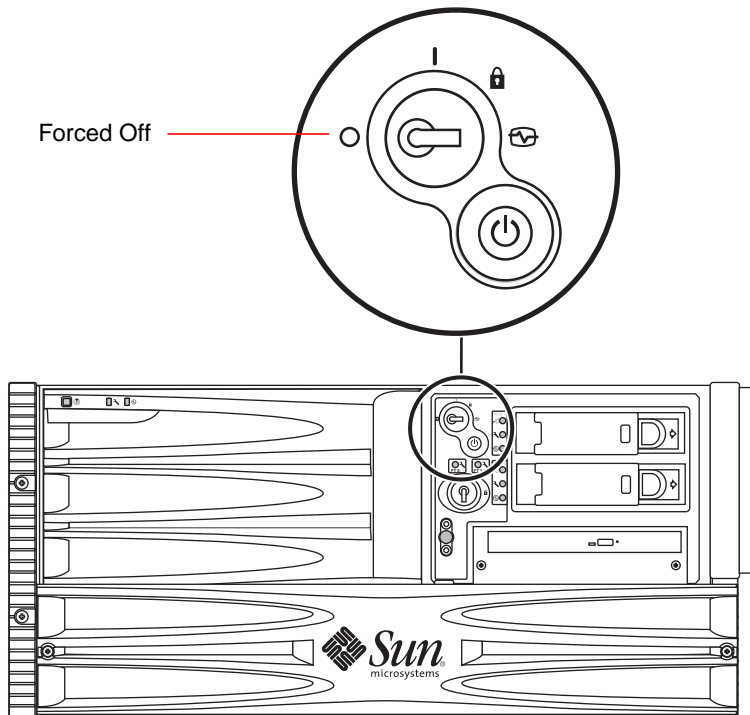
TABLE 3-1 Back Panel Ports

Back Panel Port	Information
1 One of two AC inlets for power cords	Connect a power cord to each AC inlet. See “Connect the Power Cords” on page 34.
2 Ethernet ports	Connect a TPE cable to at least one Ethernet port. See “Connect a Twisted-Pair Ethernet Cable” on page 37.
3 Serial port	Use this port to set up a tip connection or to connect an ASCII terminal. See the <i>Sun Fire V480 Server Administration Guide</i> for instructions. If you are connecting to an ASCII terminal, use an RJ-45 cable and the DB-25 adapter (Sun Part Number 530-2889-03) included in the ship kit.
4 HSSDC FC-AL port	See the <i>Sun Fire V480 Server Administration Guide</i> for information about the devices you can connect to this port.
5 USB ports	See the <i>Sun Fire V480 Server Administration Guide</i> for information about the devices you can connect to these ports.

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# Connect the Power Cords

1. **Unlock and open the media door on the front panel.**
2. **Insert the system key into the system control switch on the front panel.**
3. **Turn the system control switch to the Forced Off position.**



4. Connect an AC power cord to each AC inlet at the back of the server. Connect the other end of each power cord to the power sequencer in the cabinet, or to a grounded AC power outlet.

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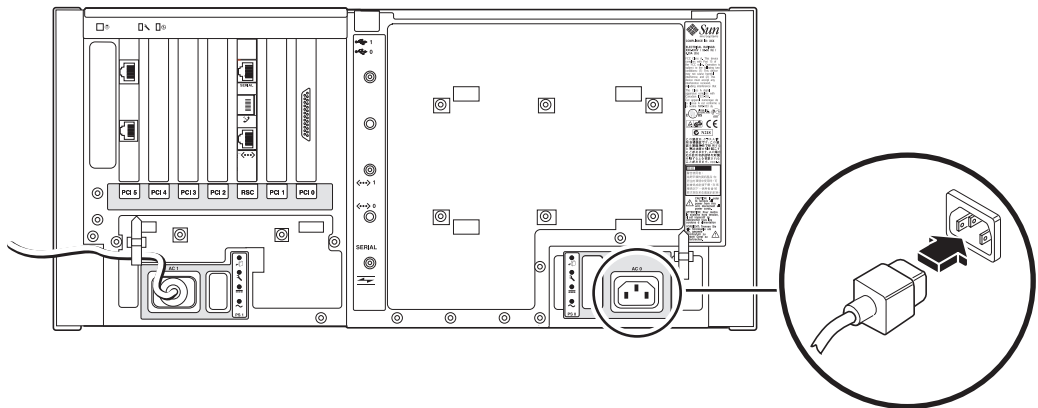
**Note** – Each outlet must connect the server to a 15A circuit for North America and Japan, and to a 10A circuit for Europe. Consult your local electrical codes for any additional requirements. See the instructions provided with your cabinet for information about the power sequencer.

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**Note** – For increased server redundancy, connect the power cords to separate circuits.

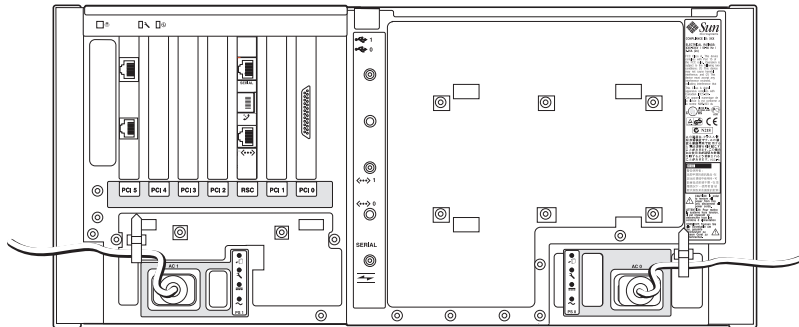
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## 5. Attach a strain relief to each AC power cord.

Use the strain relief to prevent accidental or inadvertent removal of an AC power cord from its inlet. The strain relief is a plastic tie-wrap and pedestal that is inserted into the back panel of the server. Use these reliefs to manage the power cords after you have installed the cords into the AC inlets in the server.

**To use a strain relief**, press the tab to release the tie-wrap. Wrap the loose end of the tie-wrap around the AC power cord and thread the tie-wrap through the opening in the relief pedestal. Pull the end of the tie-wrap to tighten it.



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# Connect a Twisted-Pair Ethernet Cable

Connect the twisted-pair Ethernet (TPE) cable to one of the Ethernet ports on the back panel. Each network interface configures itself automatically for either 10-Mbps, 100-Mbps, or 1000-Mbps operation depending on network characteristics.

1. Choose a network port, using the following table as a guide.

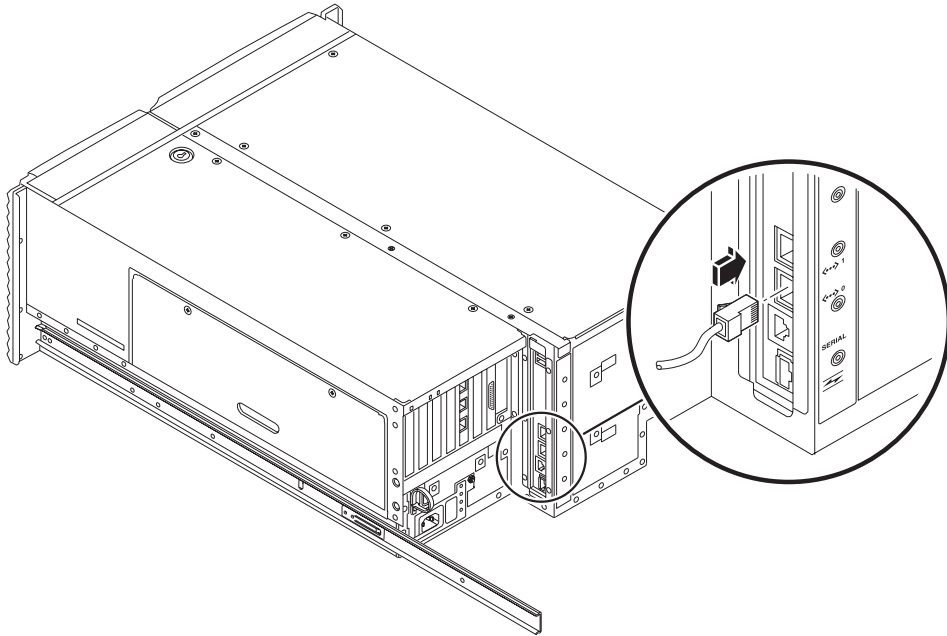
Ethernet Port	PCI Bus/Clock Rate	OBP Devalias	Device Path
1	PCI C/66 MHz	net1	pci@9, 600000/network@1
0	PCI D/33 MHz	net0	pci@9, 700000/network@2

Select the correct TPE connector for the interface you are installing. The server comes with two TPE connectors on the back panel and one on the RSC card.

Your server may also include one or more TPE connectors provided via PCI Ethernet interface cards.

**2. Plug in a Category-5 unshielded twisted-pair (UTP) cable to the appropriate RJ-45 connector.**

You should hear the connector tab snap into place. The UTP cable length must not exceed 328 feet (100 meters).



**3. Plug in the other end of the TPE cable to the RJ-45 outlet to your Ethernet network.**



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**Caution** – Ensure that you plug this connector into the TPE RJ-45 port and *not* a phone port. You can damage your TPE equipment if you use the incorrect port. You should hear the connector tab snap into place when it is inserted into the correct port.

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See your network administrator if you need more information about how to connect to your network.

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## Restore the Cabinet

See the instructions provided with your cabinet to complete these steps.

1. **Route and manage the AC cables and other cables using the cable management arm.**
2. **Retract the cabinet's anti-tip legs, if applicable.**
3. **Replace the side panels, if applicable.**
4. **Replace the front and back doors, if applicable.**

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## What Next

The next step is to set up a system console, power on the server, and install the Solaris operating environment. See Part One of the *Sun Fire V480 Server Administration Guide* or the *Sun Fire V480 Server Quick Start Guide* to continue the installation procedure.





## 4-Post Cabinet Requirements

The server is designed so that you can install it into a 72-inch (184-cm) tall Sun expansion cabinet or other EIA-compliant industry-standard cabinet that meets the requirements listed in the table below. You need a Sun rackmounting kit for each server that you rackmount.

**Note** – The system is fully serviceable in a 4-post cabinet when it is extended on its slide assemblies.

**TABLE A-1** 4-Post Rack Requirements

Cabinet Feature	Requirement
Load bearing capacity	The rack must firmly support the weight of as many Sun Fire V480 servers as you are installing into the cabinet (each server weighs up to 97 lb/44 kg), plus the weight of the rackmounting hardware, and the weight of any other installed devices.
Vertical space requirements	Each server requires five rack units (8.75 in/22.22 cm) of vertical space for rack installation. A 72-inch (184-cm) Sun cabinet ships with a power sequencer so it can hold up to seven servers (with a power sequencer there are 36 rack units of usable space).
Doors and panels	If you are using a Sun expansion cabinet, you can remove the front and back doors and the side panels to increase access to the system. Otherwise, see the instructions provided with the cabinet.
Anti-tip protection	The cabinet must be bolted securely to the floor or equipped with two sturdy and extendable anti-tip legs. You must prevent the cabinet from tilting forward when one or more systems or devices are fully extended out the front of the cabinet.

**TABLE A-1** 4-Post Rack Requirements (*Continued*)

<b>Cabinet Feature</b>	<b>Requirement</b>
Airflow	<p>The system operating airflow is 200 cfm, regardless of ambient air and altitude. This airflow is designed to provide appropriate cooling up to 95° F (35° C) and 10,000 feet (3.0480 meters.)</p> <p>For proper ventilation of the server, the front and back doors must comply with the following minimum open area requirements.</p> <ul style="list-style-type: none"><li>• 60 percent of the area of the front door that is directly in front of the server must be open.</li><li>• 63 percent of the area of the back door that is directly behind the server must be open.</li><li>• Maintain a minimum of 1.5 inches (3.8 cm) clearance between the system and any front or back doors.</li></ul> <p>If the doors of the cabinet do not meet the open area requirements, remove the door or doors that do not comply.</p>
Vertical mounting rails	<p>The cabinet must have two pairs of vertical mounting rails (one pair in front, one pair in back) that conform to the EIA (RETMA) standard for mounting hole spacing.</p> <p>Left-side-to-right-side rail spacing (mounting hole center to mounting hole center) for front and back rails must be 18.3 inches (46.5 cm).</p> <p>Front-to-back rail spacing must be at least 23 inches (58.42 cm) and not more than 34.5 inches (87.63 cm) from the outside face of the front rail to the outside face of the back rail.</p> <p>Front and back vertical rail mounting faces must be parallel with each other and with the front plane of the rack.</p>
EMI shielding	<p>Electromagnetic interference (EMI) shielding requirements are met by the system chassis and metal side panels, which remain in place when the unit is rackmounted.</p>
Minimum service access	<p>An area not less than 3 feet (1 meter) deep and 6 feet (2 meters) wide must be available in front of the cabinet, for installation and service access.</p>
Fire containment	<p>The cabinet must meet Underwriters Laboratories, Inc. and TUV Rheinland of N.A. requirements for fire containment.</p>