

Sun Fire X4800 Server Rack Mounting and Shipping Bracket User's Guide



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Preface

This preface describes related documentation and the process for submitting feedback. It also includes a document change history.

- “Product Information Web Site” on page 5
- “Related Books” on page 5
- “About This Documentation (PDF and HTML)” on page 7
- “Documentation Comments” on page 7
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Product Information Web Site

For information about the Sun Fire X4800 server, go to the Sun Fire X4800 Server product site:

<http://www.oracle.com/goto/x4800>

At that site, you can find links to the following information and downloads:

- Product information and specifications
- Supported operating systems
- Software and firmware downloads
- Supported option cards
- External storage options

Related Books

The following is a list of documents related to your Oracle Sun Fire X4800 Server. These and additional support documents are available on the web at:

<http://www.oracle.com/goto/x4800>

Document Group	Document	Description
Sun X4800 Server-Specific Documentation	Sun Fire X4800 Server Product Documentation	Integrated HTML version of all starred (*) documents, including Search and Index.
	<i>Sun Fire X4800 Server Getting Started Guide</i>	Pictorial setup quick reference.
	<i>Sun Fire X4800 Server Installation Guide</i>	How to install, rack, and configure the server up to initial power-on.
	<i>Sun Fire X4800 Server Product Notes</i>	Important late-breaking information about your server.
	<i>Sun Installation Assistant 2.3 through 2.4 User's Guide for x64 Servers</i>	A Sun tool used to perform an assisted installation of a supported Windows or Linux OS, upgrade firmware, and other tasks.
	<i>Sun Fire X4800 Server Installation Guide for Oracle Solaris Operating Systems</i>	How to install the Oracle Solaris OS on your server.
	<i>Sun Fire X4800 Server Installation Guide for Linux Operating Systems</i>	How to install a supported Linux OS on your server.
	<i>Sun Fire X4800 Server Installation Guide for Windows Operating Systems</i>	How to install supported versions of Microsoft Windows on your server.
	<i>Sun Fire X4800 Server Diagnostics Guide</i>	How to diagnose problems with your server.
	<i>Sun Fire X4800 Server Service Manual</i>	How to service and maintain your server.
	<i>Sun Fire X4800 Server Safety and Compliance Guide</i>	Safety and compliance information about your server.
	<i>Oracle Integrated Lights Out Manager (ILOM) 3.0 Supplement for the Sun Fire X4800 Server</i>	Version-specific supplemental information for your server's Integrated Lights Out Manager.
	<i>Sun x64 Server Utilities Reference Manual</i>	How to use the available utilities included with your server.
	Service labels	Copies of the service labels that appear on the chassis and CPU modules.
Sun Integrated Controller Disk Management	<i>Sun x64 Server Disk Management Overview</i>	Information about managing your server's storage.

Document Group	Document	Description
x86 Servers Applications and Utilities Reference Documentation	<i>Sun x64 Server Utilities Reference Manual</i>	How to use the available utilities included with your server.
Oracle Integrated Lights Out Manager (ILOM) 3.0 Documentation (Formerly Sun Integrated Lights Out Manager (ILOM) 3.0 Documentation)	<i>Sun Integrated Lights Out Manager (ILOM) 3.0 Feature Updates and Release Notes</i>	Information about new ILOM features.
	<i>Oracle Integrated Lights Out Manager (ILOM) 3.0 Getting Started Guide</i>	Overview of ILOM 3.0.
	<i>Oracle Integrated Lights Out Manager (ILOM) 3.0 Concepts Guide</i>	Conceptual information on ILOM 3.0.
	<i>Oracle Integrated Lights Out Manager (ILOM) 3.0 Web Interface Procedures Guide</i>	How to use ILOM through the web interface.
	<i>Oracle Integrated Lights Out Manager (ILOM) 3.0 CLI Procedures Guide</i>	How to use ILOM through commands.
	<i>Sun Integrated Lights Out Manager (ILOM) 3.0 Management Protocols Reference Guide</i>	Information about management protocols.

About This Documentation (PDF and HTML)

This documentation set is available in both PDF and HTML. The information is presented in topic-based format (similar to online help) and therefore does not include chapters, appendixes, or section numbering.

Documentation Comments

We are interested in improving the product documentation and welcome your comments and suggestions. You can submit comments by navigating to:

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

Include the title and part number of your document with your feedback.

Change History

The following changes have been made to the documentation set.

- April 2010 – Installation Guide released.
- June 2010 – Installation Guide and Getting Started Guide re-released.
- July 2010 – Initial release of other documents.

Installing the Server Hardware

- “Contents of the Box” on page 9
- “Location of the Rack Mounting Kit and the Shipping Bracket Kit” on page 10
- “Installing Optional Equipment” on page 11
- “Tools and Staff Required” on page 11
- “Compatible Racks” on page 12
- “Installing the Server In a Rack” on page 14
- “How to Remove Components to Reduce Weight” on page 14
- “How to Install the Rack Mounting Hardware in the Rack” on page 18
- “How to Insert the Server Into the Rack” on page 23
- “Removing and Installing Shipping Brackets” on page 26

If your server is shipped already installed in a rack, skip to [“How to Remove Shipping Brackets” on page 26](#).

If you are going to *ship* the server in a rack, you must install the shipping brackets as described in [“How to Install the Shipping Brackets” on page 28](#).

Contents of the Box

Your box should contain the following items:

- Server
- Rack mount kit and shipping bracket kit
- Antistatic wrist strap
- *Getting Started Guide*
- Legal and safety documents
- Multiport cable for attaching management I/O to the SP
- RJ-45 to DB-9 crossover adapter (540-2345)
- RJ-45 to DB-25 crossover adapter (540-3456)
- Two Ethernet cables (540-7890)
- Four power cords

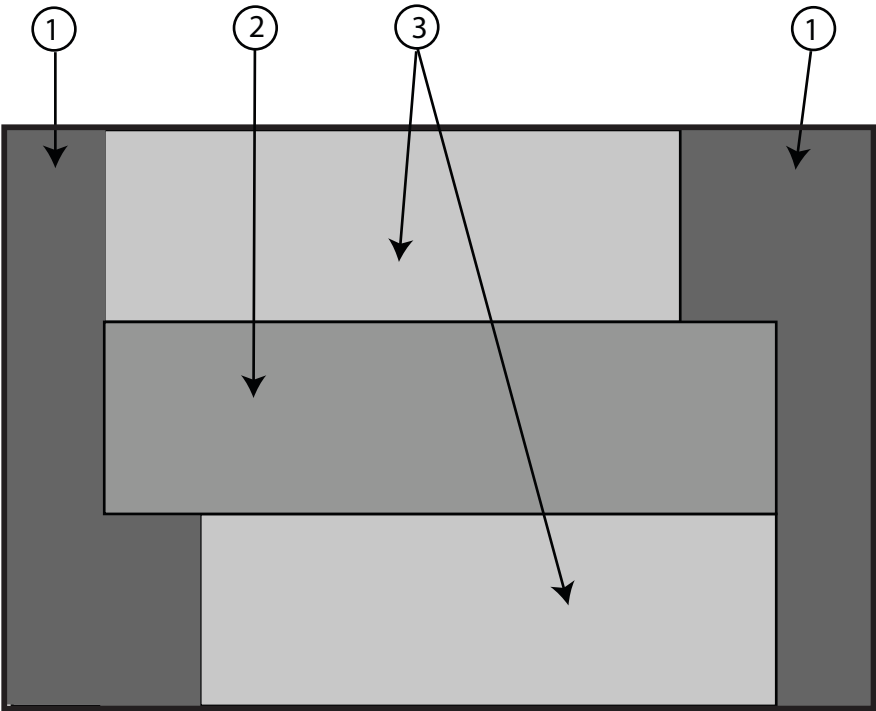
You can *optionally* order a documentation media kit that includes the following:

Item	Description
<i>Installation Guide</i>	Printed version of this manual.
Tools and Drivers CD/DVD	Includes BIOS, SP, and LSI firmware as well as OS drivers.
Sun Installation Assistant CD/DVD	Software application to update firmware (regardless of OS) and to assist in installing Windows and Linux OSs.
SunVTS CD/DVD	Sun Validation Test Suite tests and validates Sun hardware by verifying the configuration and functionality of hardware controllers, devices, and platforms.

Location of the Rack Mounting Kit and the Shipping Bracket Kit

The box that contains the rack mounting kit also contains the shipping bracket kit.

The following figure shows the location of the contents in the box:



Legend	Description
1	Foam packaging material
2	Rack mounting hardware
3	Shipping bracket hardware

Installing Optional Equipment

For information about how to install options such as DIMMs, PCIe EMs, and NEMs, power supplies, and CPU modules, refer to the [Sun Fire X4800 Server Service Manual](#).

For information about issues and known workarounds, refer to the [Sun Fire X4800 Server Product Notes](#).

Tools and Staff Required



Caution – The server weighs about 180 pounds (100 kg) when fully loaded with components. To reduce the risk of serious personal injury or equipment damage, use a mechanical lift to install the server into the rack. If a lift is not available, remove components as described in [“How to Remove Components to Reduce Weight” on page 14](#). This reduces the weight of the server to 80 pounds (45 kg).

Always load equipment into a rack from the bottom up so that it does not become top-heavy and tip over. Deploy your rack’s anti-tilt bar to prevent the rack from tipping during equipment installation.

Before installing the server into a rack, gather the tools, equipment, and staff required.

Tools, Equipment, and Staffing Required	Notes
Two trained staff	Two people are needed to install the server and operate the lift.
No. 2 10-inch Phillips screwdriver (magnetic tip recommended)	
Mechanical lift	Strongly recommended. If not available, reduce the weight of the server. See “How to Remove Components to Reduce Weight” on page 14 .
Compatible rack	See “Compatible Racks” on page 12 .
Rack mounting kit	See “Installing the Server In a Rack” on page 14 .

Tools, Equipment, and Staffing Required	Notes
Shipping bracket kit	See “ Removing and Installing Shipping Brackets ” on page 26. <ul style="list-style-type: none">■ You must remove these brackets if your server was shipped in a rack.■ You must install these brackets if you plan to ship your server in a rack.

Compatible Racks

The rack mounting hardware is compatible with a wide range of equipment racks that meet the following standards:

- Four-post rack (mounting at both front and rear).

Note – Two-post racks are not compatible.

- Rack *must* have 5RU space available.
- Rack should have a horizontal opening and unit vertical pitch conforming to ANSI/EIA 310-D-1992 or IEC 60927 standards.
- Distance between front and rear mounting planes between approximately 26 and 34.5 inches (660.4 mm and 876.3 mm).
- Minimum clearance depth (to front cabinet door) in front of front rack mounting plane: 1 inch (25.4 mm).
- Minimum clearance depth (to rear cabinet door) behind front rack mounting plane: 27.5 inches (700 mm).
- Minimum clearance width (between structural supports and cable troughs) between front and rear mounting planes: 18 inches (456 mm).

Rack Mounting Kit

The rack mounting kit comes with the following hardware:

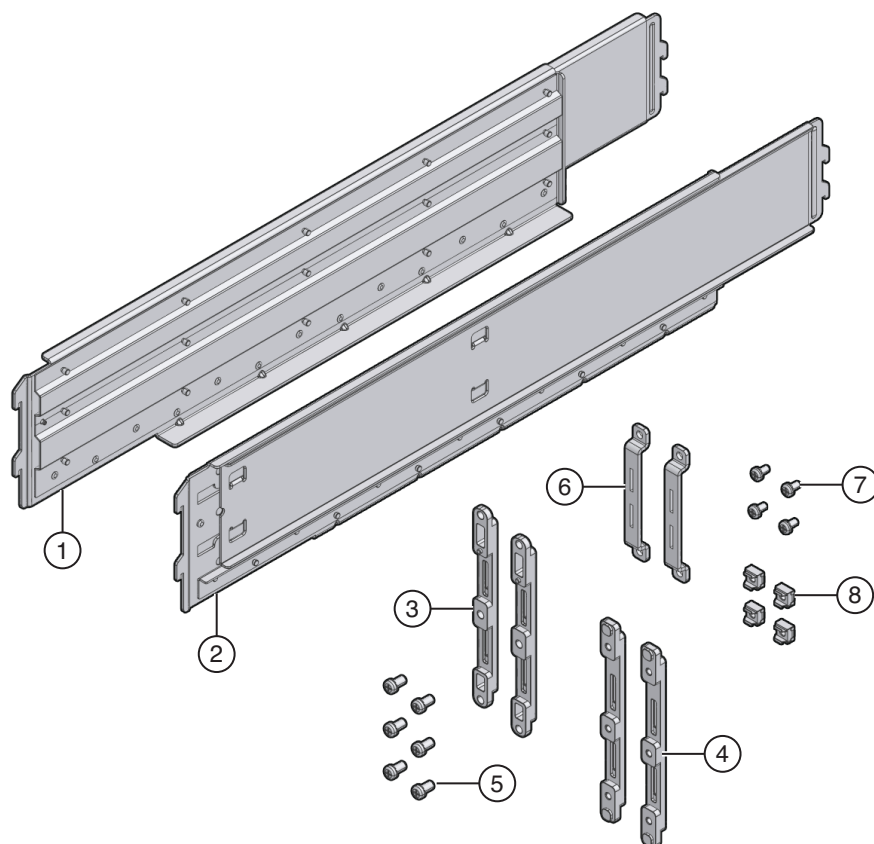


Figure Legend

1, 2	Left (1) and right (2) shelf rails	<p>Once the front and rear mounting brackets are installed on the rack, the shelf rails drop into place. The flanges on the rails hook into the pins on the brackets.</p> <p>The shelf rails expand to match the depth of the rack.</p> <p>These are <i>not</i> slide rails. Once the server is mounted in the chassis, it does not move.</p>
3, 4	Front mounting brackets (2 pair)	<p>These attach to the rack and support the shelf rails.</p> <p>There are two types of front mounting brackets; one for round-hole racks (3), and another for square-hole racks (4). Use the one that matches your rack.</p>
5 and 7	An assortment of M6 and 10-32 screws	<p>Oracle provides extra screws to support different configurations. Unused hardware can be discarded or recycled when you have completed the installation.</p>

Figure Legend		
6	Rear mounting brackets (1 pair)	These attach to the rack and support the shelf rails.
8	M6 cage nuts	Used to adapt the rear mounting bracket to the back of square-hole racks.

Installing the Server In a Rack

This section provides instructions for installing your server in a rack. It includes:

- [“How to Remove Components to Reduce Weight” on page 14](#)
- [“How to Install the Rack Mounting Hardware in the Rack” on page 18](#)
- [“How to Insert the Server Into the Rack” on page 23](#)

The rack mounting kit does *not* include slide rails. Once the server is installed, it does not slide in or out of the rack.

The rack mounting kit shares a box with the shipping bracket kit.

- See [“Removing and Installing Shipping Brackets” on page 26](#)for information about the shipping brackets.
- See [“Rack Mounting Kit” on page 12](#)for a description of the contents of the rack mounting kit.

▼ How to Remove Components to Reduce Weight

This procedure describes how to remove components from your server so that two persons can lift it into the rack. If you are going to use a mechanical lift, you do not need to perform this procedure.

Before You Begin

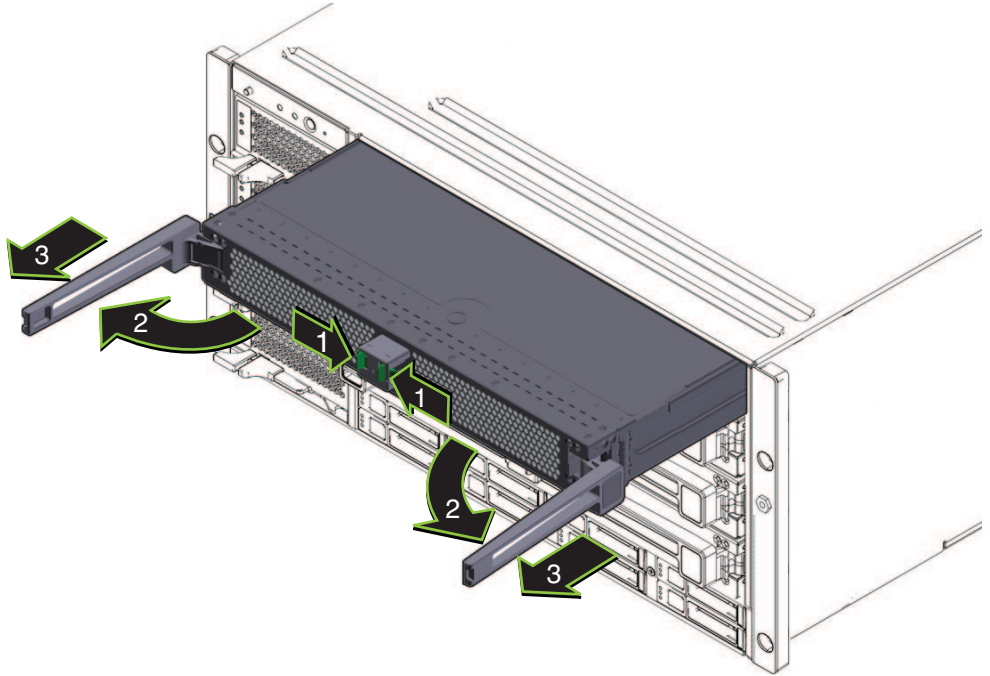


Caution – Circuit boards and hard drives contain electronic components that are extremely sensitive to static electricity. Ordinary amounts of static electricity from clothing or the work environment can destroy the components located on these devices. Do not touch the components without antistatic precautions, especially along the connector edges. For more information, refer to [“Antistatic Precautions and Procedures” in Sun Fire X4800 Server Service Manual](#).

Note – This procedure assumes that the server is powered off and all cables are disconnected.

- 1 Remove the CPU modules from the front of the chassis.**
The chassis contains four CPU module slots; each must have a CPU module or a filler panel.

Note – Because of their light weight, there is no need to remove filler panels.



Caution – To prevent system failure, you must return CPU module slots to their original locations. Mark CPU module slot locations carefully before removing them from the chassis.

For each CPU module:

- a. Pinch the green tabs to release the ejectors (1).
- b. Pull both ejectors out to release the module (2).



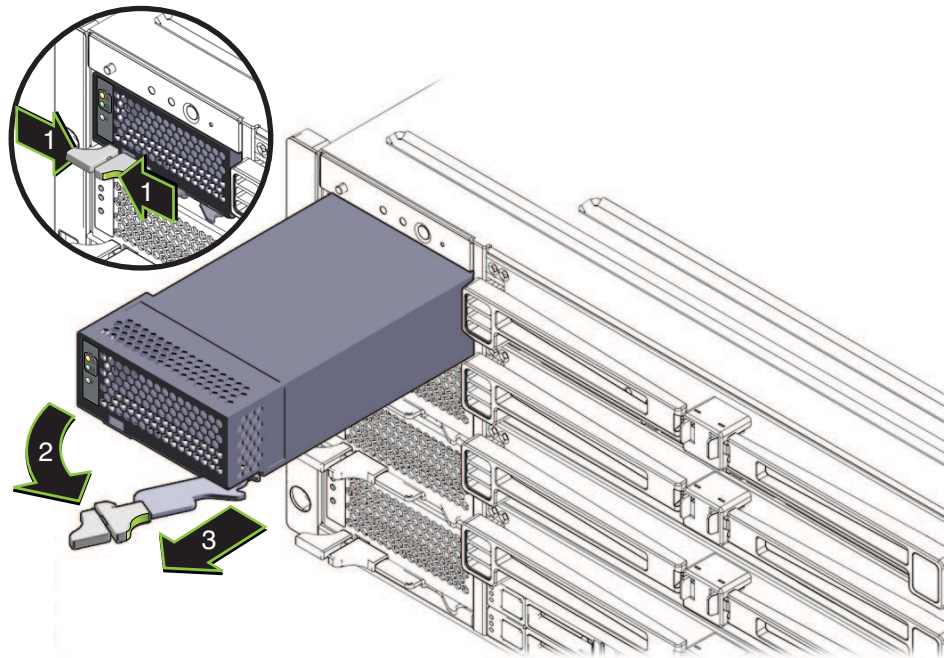
Caution – When the module is partway out of the chassis, close the ejectors, and grasp the module. Do not handle the module by the ejectors.

- c. Gently slide the module forward until it is clear of the chassis (3).



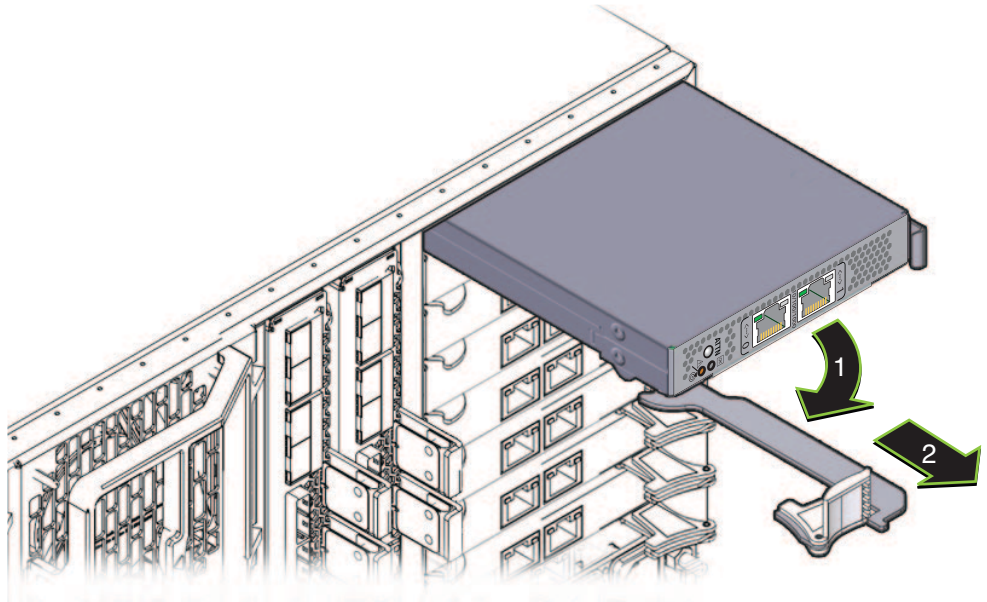
Caution – The CPU module is heavy. Use two hands.

- d. Place the CPU module on an antistatic mat.
- 2 Remove the four power supplies from the front of the chassis.
 - a. Pinch the handle to release the lever (1).
 - b. Pull the lever (2) to release the power supply.
 - c. Slide the power supply out of the chassis (3).



3 Remove the PCIe express modules from the back of the chassis.

The upper bays can be used as a hand hold when moving the chassis.



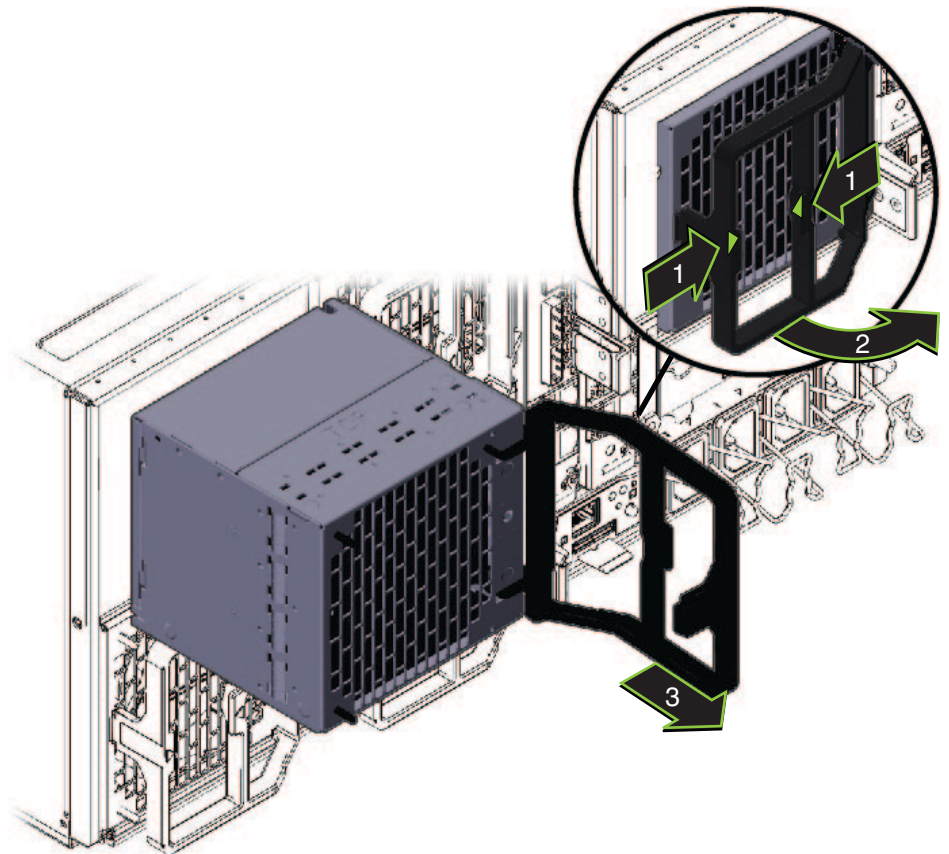
a. Rotate the lever (1) to release the module.

b. Slide the module out of the chassis (2).

4 Remove the upper left fan module (FM2) if necessary.

Squeeze the clamp (1) to release the fan module (2), then pull it from the chassis (3).

You can use the recess as a hand-hold when moving the chassis.



- 5 Reverse these steps to reassemble the server after it is installed in the rack.

▼ How to Install the Rack Mounting Hardware in the Rack

The rack mounting hardware consists of front and rear mounting brackets with cage nuts, screws, and shelf rails.



Caution – The server weighs about 180 pounds (100 kg) when fully loaded with components. To reduce the risk of serious personal injury or equipment damage, use a mechanical lift to install the server into the rack. If a lift is not available, remove components as described in [“How to Remove Components to Reduce Weight”](#) on page 14. This reduces the weight of the server to 80 pounds (45 kg).

Always load equipment into a rack from the bottom up so that it does not become top-heavy and tip over. Deploy your rack’s anti-tilt bar to prevent the rack from tipping during equipment installation.

1 Verify that you have a 5RU space in your rack.

2 Select the two front mounting brackets that match your rack.

The server ships with two sets of front mounting brackets: one (1) for racks with round holes and one (2) for racks with square holes. Select the brackets that match your rack.

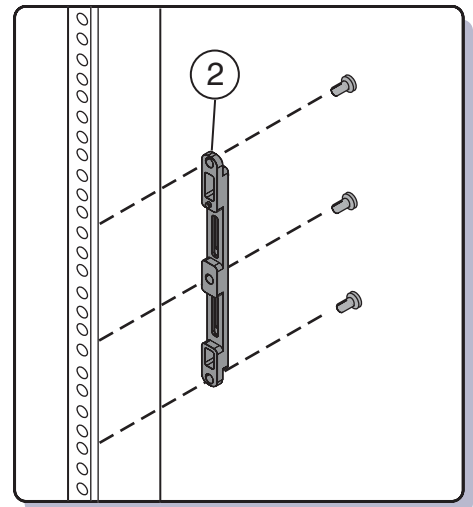
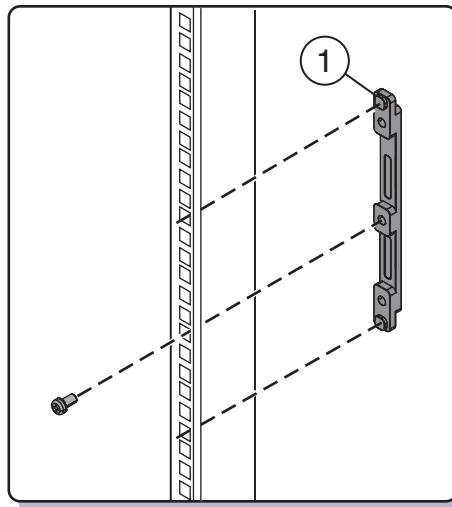
3 Attach the front brackets to the rack.

Make sure you orient the brackets correctly, with the arrow pointing up.

Select the screws that match your rack.

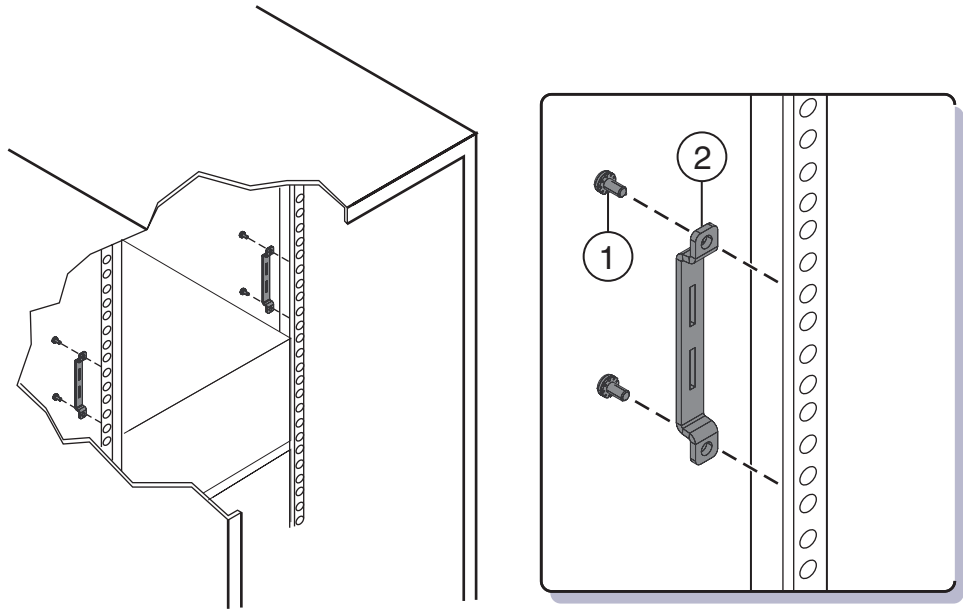
- Use one M6 per side for a square-hole rack.
- Use three M6 or three 10-32 per side for a threaded round-hole rack.

The following figure shows the front brackets being attached to a square-hole rack (1) and a round-hole rack (2).



- 4 If your rack has round holes, use the screws (1) to fasten the two rear mounting brackets (2) to the rack.**

If your rack has square holes, skip this step.



- 5 If your rack has square holes:**

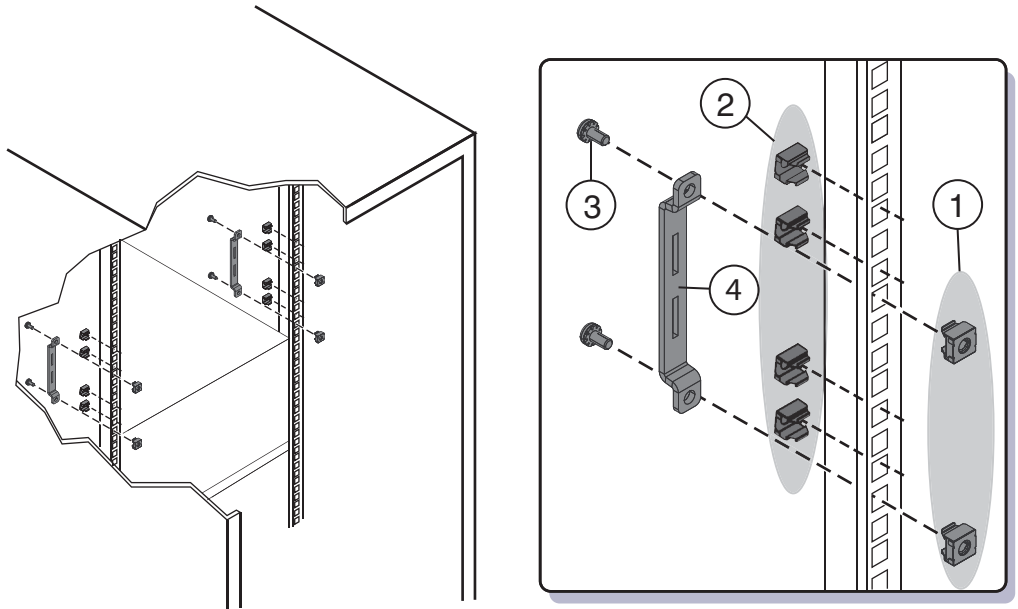
- a. Insert the cage nuts (1) for the rear mounting brackets in the holes on the rack.
- b. If you are going to install shipping brackets, insert the cage nuts for the shipping brackets (2) in the holes in the rear of the rack.

Note the orientation of the cage nuts for the shipping bracket.

- They face outside the rack, in the opposite direction of the cage nuts for the mounting brackets.
- They are located in the first and third holes above the cage nuts for the mounting brackets.

Note – If you are going to install shipping brackets so you can ship your system in a rack, and your system has a square-hole rack, you must install the rear cage nuts for the shipping bracket on the rack now, *before* installing the rear mounting bracket. You cannot add the cage nuts for the rear shipping bracket when the rear mounting brackets are in place. See [“Removing and Installing Shipping Brackets” on page 26](#) for instructions to install the shipping brackets.

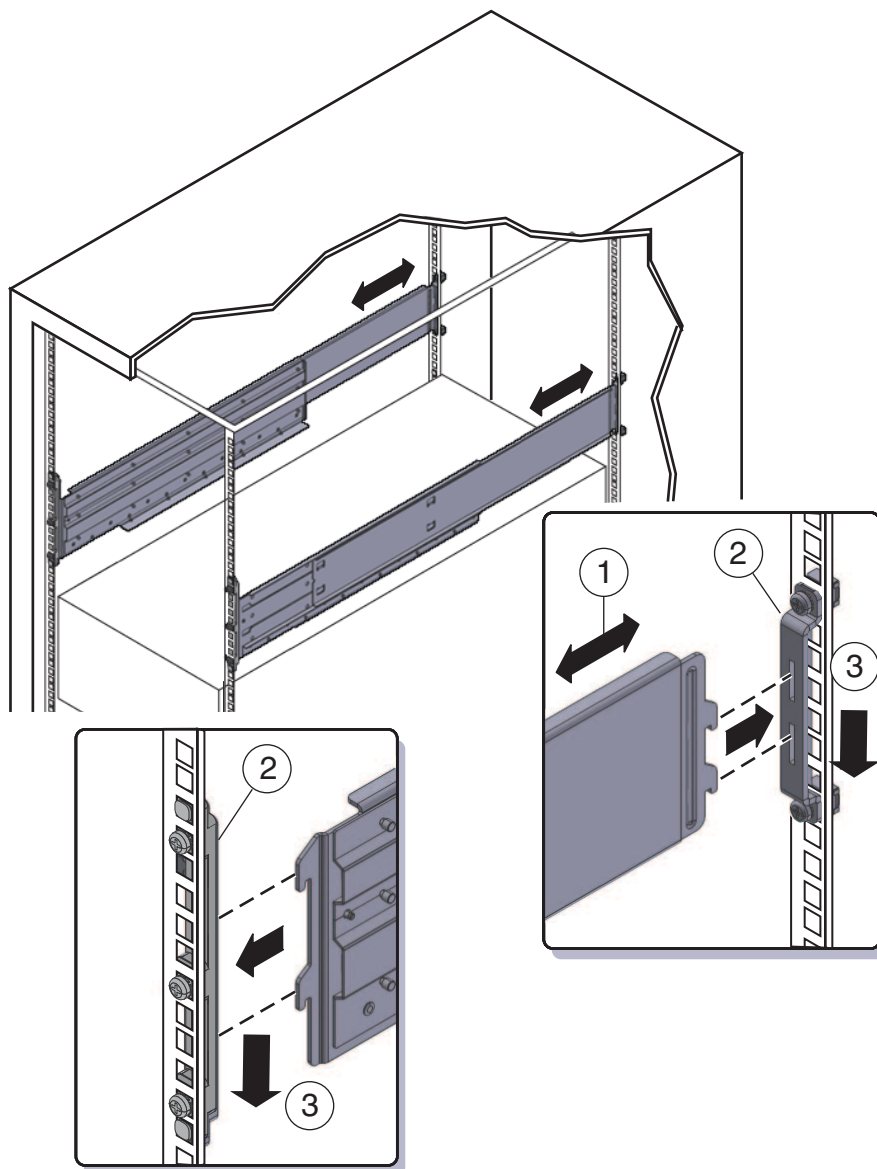
- c. Use two screws (3) to fasten each rear bracket (4) to the rack.



6 Place the shelf rails into the rack.

The shelf rails expand (1) to fit the rack, then slip into the slots on the mounting brackets (2), and drop into place (3).

Be certain to place the shelf rails in the proper orientation, with the shelf facing inward and the gap towards the front of the rack.



Next Steps [“How to Insert the Server Into the Rack” on page 23](#)

▼ How to Insert the Server Into the Rack

The following procedure explains how to insert the server into the rack and on to the shelf rail assemblies on the rack.

Before You Begin Perform the steps in [“How to Install the Rack Mounting Hardware in the Rack” on page 18.](#)

1 Lift the server to its position on the rack.

The use of a lift is recommended.

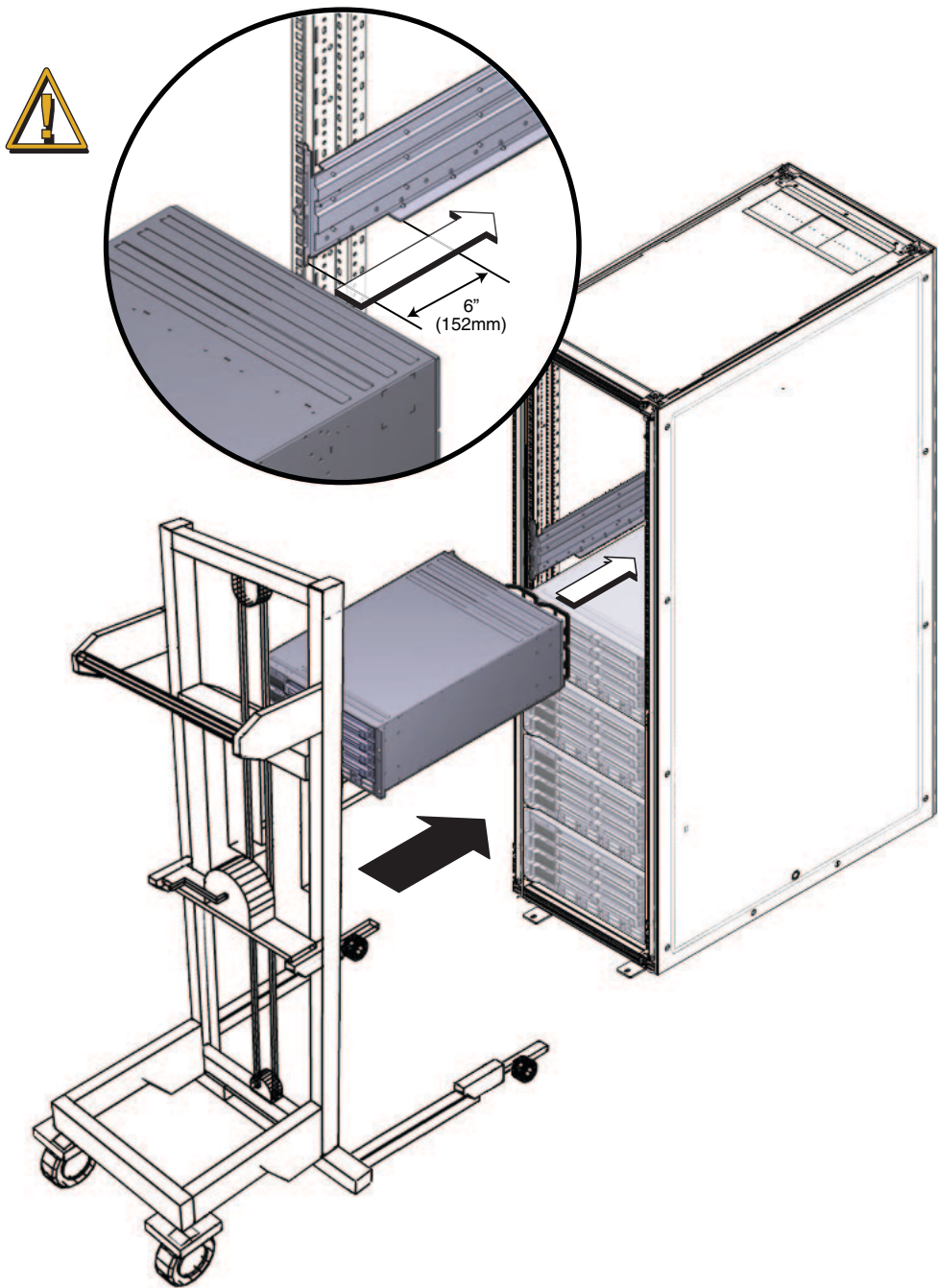


Caution – The server weighs 180 pounds (82 kg). To reduce the risk of serious personal injury or equipment damage, use a mechanical lift to install the server into the rack. If a lift is not available, remove components as instructed in [“How to Remove Components to Reduce Weight” on page 14](#) and use two persons to lift the server into place.

2 Slide the server onto the shelf rails.



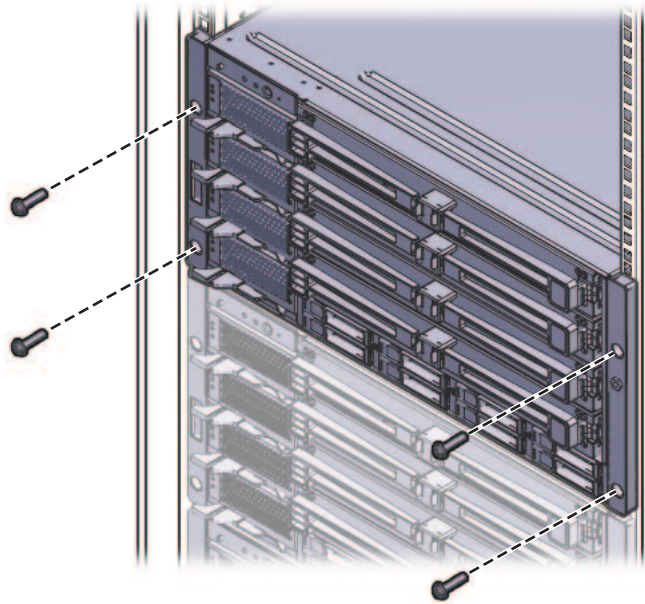
Caution – Drop Hazard! Do not release the server until it is *more* than 6 inches (152 mm) into the rack, and is firmly supported by the shelf rails. The shelf rails will not support the server until it is *more* than 6 inches (152 mm) inside the rack.



3 Use four screws to attach the front of the server to the front of the rack.

Use either the M6 x 25, or the 10-32 x 1 screws.

- On a threaded rack, use four M6 x 25, or four 10-32 x 1 screws.
- On a square-hole rack, use four M6 x 25 screws.



4 If you removed components from the server, replace them after it is mounted in the rack. See [“How to Remove Components to Reduce Weight” on page 14](#).

- See Also**
- [“How to Remove the Server From the Rack” in *Sun Fire X4800 Server Installation Guide*](#)
 - [“Cabling and Power” in *Sun Fire X4800 Server Installation Guide*](#)
 - [“How to Remove Components to Reduce Weight” on page 14](#)

Removing and Installing Shipping Brackets

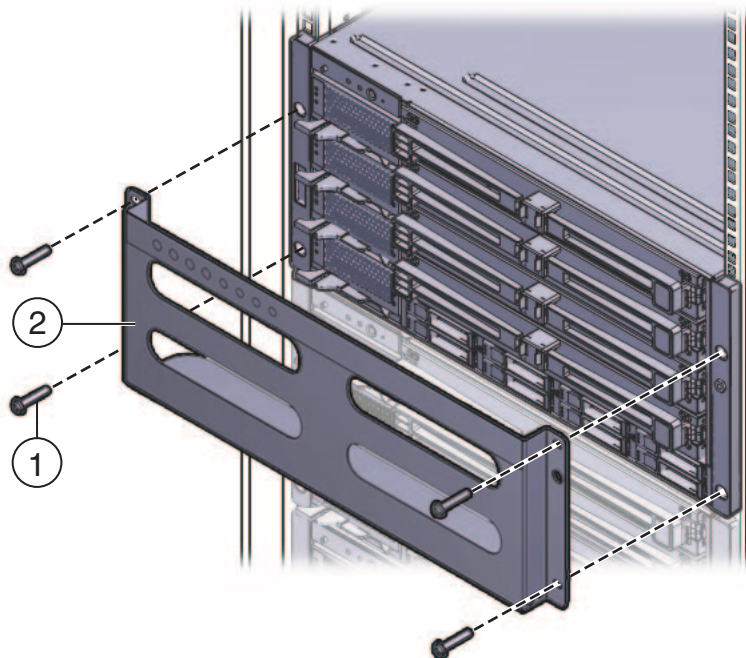
If the server is shipped in a rack, it must be supported by shipping brackets.

- If the server is shipped to you in a rack, you must remove the brackets before placing it in service. See [“How to Remove Shipping Brackets” on page 26](#).
- If you plan to ship the server in a rack, see [“How to Install the Shipping Brackets” on page 28](#).

▼ How to Remove Shipping Brackets

The shipping bracket kit consists of a front bracket, a rear bottom bracket, a rear top bracket, screws to connect them to the rack, and cage nuts to be used with the rear brackets on racks with square holes. These appear in [“How to Install the Shipping Brackets” on page 28](#).

- 1 Remove the four screws (1) that fasten the front bracket (2) to the front of the server and remove it.



- 2 The front shipping bracket contains eight threaded holes used for storing unused screws (four M6 and four 10–32). Remove the screws that match the threads on your rack and use them to secure the server to the rack.

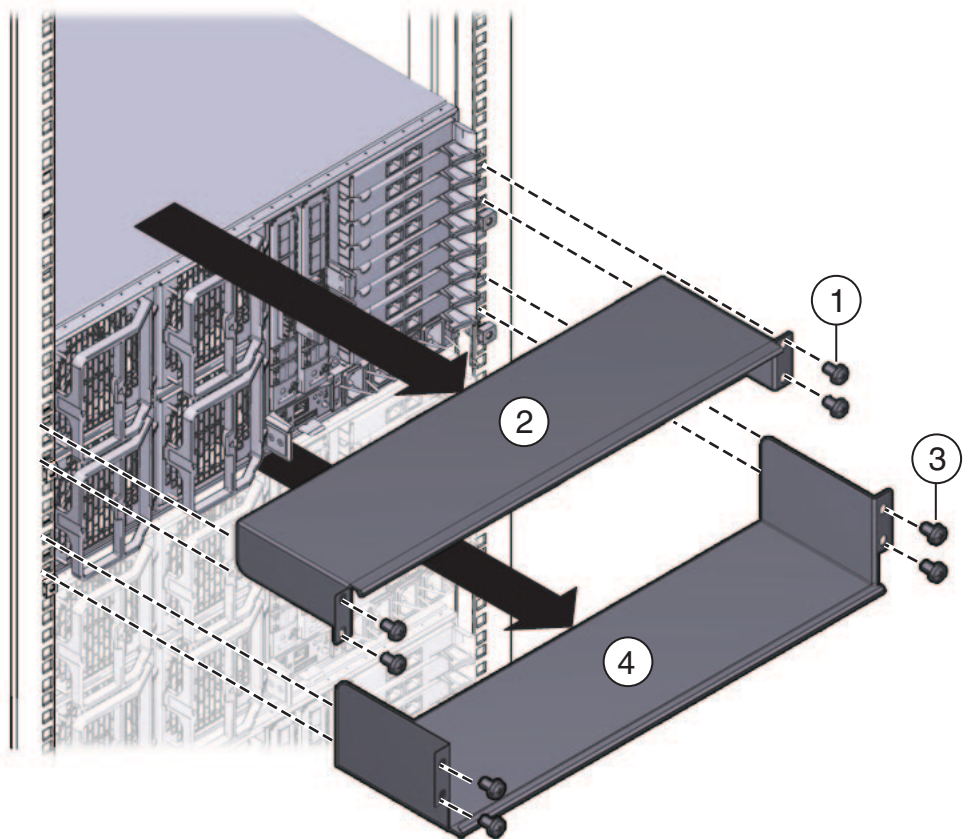
There might be two sets of screws stored on the front of the shipping bracket. Use the set that matches the threading on your rack.

- 3 Thread the long screws that you removed in Step 1 into the four empty holes on the shipping bracket.

They will be stored there in case you need to reinstall the shipping bracket.

- 4 Remove the four screws (1) that fasten the rear top bracket (2) over the back of the server and remove it.

- 5 Remove the four screws (3) that fasten the rear bottom bracket (4) under the back of the server and remove it.



▼ How to Install the Shipping Brackets

The shipping bracket kit contains the following parts:

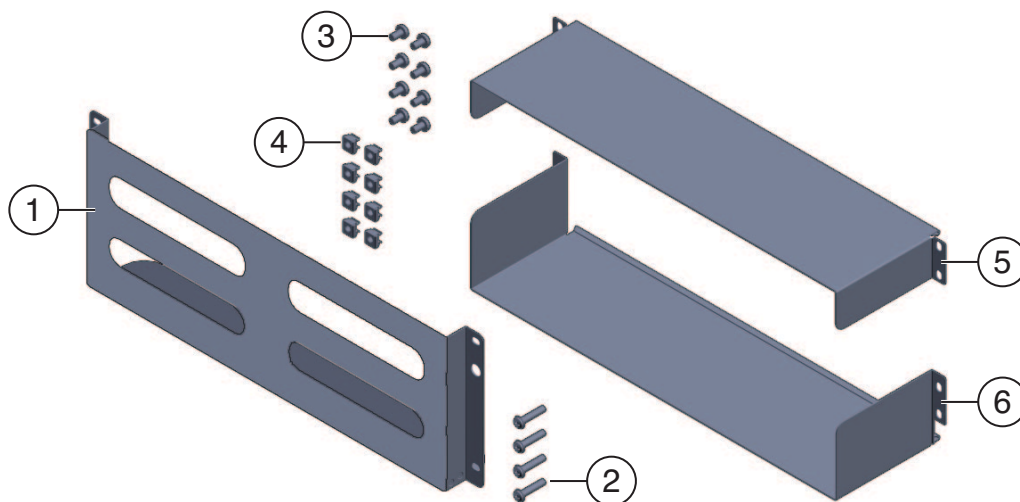
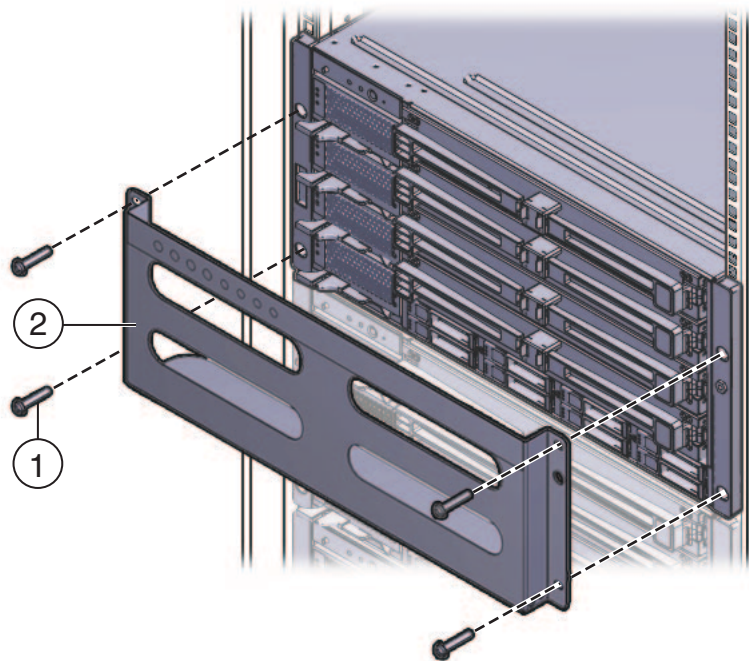


Figure Legend

1	Front shipping bracket
2, 3	Two sets of screws (M6 and 10-32). Each set contains four screws for the front shipping bracket (2) and eight screws for the rear shipping brackets (5 and 6)
4	Eight M6 cage nuts for rear shipping bracket in square-hole racks
5	Top rear shipping bracket
6	Bottom rear shipping bracket

- 1 Remove the four (short) screws that fasten the front of the server to the rack.
- 2 Insert the front bracket (1) into the front of the server with the supporting flange underneath the server.
- 3 The front shipping bracket contains eight threaded holes used for storing unused screws (four M6 and four 10-32). Remove the long screws that match the threads on your rack.

- 4 Use the four long screws (M6 or 10–32) (1) to fasten the shipping bracket (2) to the front of the server.



- 5 Insert the short screws into the four empty storage holes on the shipping bracket. They will be stored there to be used when you remove the shipping bracket.
- 6 If you are installing the shipping brackets in a rack with square holes, check to ensure that the cage nuts are installed in the rear.

Note the orientation and location of the cage nuts for the shipping bracket.

 - There are four cage nuts per side (eight total).
 - They are installed on the inside of the rack, facing outward. This is the opposite direction from the cage nuts for the shelf mounting brackets.
 - For each shelf bracket cage nut, there should be two shipping bracket cage nuts; one in the hole directly above the shelf bracket cage nut, and one in the third hole above the shelf bracket cage nut.

If the cage nuts are not in place, you must:

- a. Remove the server and the mounting hardware from the rack, as described in [“Removing the Server From the Rack”](#) in *Sun Fire X4800 Server Installation Guide*.

- b. Reinstall the mounting brackets and the server, and install the rear shipping bracket cage nuts as you install the rear mounting brackets. This is included in the rack mounting procedure.**

See [“How to Install the Rack Mounting Hardware in the Rack” on page 18.](#)

- 7 Insert the rear top bracket (1) over the back of the server with the side panels facing down.**
Use four screws (2) to fasten it to the rack (4).
- 8 Insert the rear bottom bracket (3) under the back of the server with the side panels facing up.**
Use four screws (4) to fasten it to the rack.

