

Netra SPARC T3-1 Server

Installation Guide



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Using This Documentation

This installation guide provides instructions, background information, and reference material to help you install Oracle's Netra SPARC T3-1 server.

- [“Related Documentation” on page vii](#)
- [“Documentation, Support, and Training” on page viii](#)

Related Documentation

The Netra SPARC T3-1 server documents listed as online are available at:

<http://www.oracle.com/pls/topic/lookup?ctx=E20689-01&id=homepage>

Application	Title	Format	Location
Installation, administration, service	<i>Netra SPARC T3-1 Server Topic Set</i>	HTML	Online
Late-breaking information	<i>Netra SPARC T3-1 Server Product Notes</i>	PDF	Online
Getting started	<i>Netra Rack Server Getting Started Guide</i>	Printed	Ships with server
Installation and planning	<i>Netra SPARC T3-1 Server Installation Guide</i>	PDF	Online
Administration	<i>Netra SPARC T3-1 Server Administration Guide</i>	PDF	Online
Service	<i>Netra SPARC T3-1 Server Service Manual</i>	PDF	Online
Safety and compliance	<i>Netra SPARC T3-1 Server Safety and Compliance Guide</i>	PDF	Online

The Oracle Integrated Lights Out Manager (ILOM) 3.0 documentation is online at:

<http://www.oracle.com/pls/topic/lookup?ctx=ilom30&id=homepage>

Application	Title	Location
Late-breaking news and issues	<i>Oracle Integrated Lights Out Manager (ILOM) 3.0 Features Updates and Release Notes</i>	Online
Installation and configuration	<i>Oracle Integrated Lights Out Manager (ILOM) 3.0 Getting Started Guide</i>	Online
Conceptual information	<i>Oracle Integrated Lights Out Manager (ILOM) 3.0 Concepts Guide</i>	Online
Browser interface procedures	<i>Oracle Integrated Lights Out Manager (ILOM) 3.0 Web Interface Procedures Guide</i>	Online
CLI procedures	<i>Oracle Integrated Lights Out Manager (ILOM) 3.0 CLI Procedures Guide</i>	Online
SNMP and IPMI procedures	<i>Oracle Integrated Lights Out Manager (ILOM) 3.0 Management Protocols Reference Guide: SNMP, IPMI, WS-Man, CIM</i>	Online

Documentation, Support, and Training

These web sites provide additional resources:

- Documentation (<http://www.oracle.com/technetwork/indexes/documentation/index.html>)
- Support (<https://support.oracle.com>)
- Training (<https://education.oracle.com>)

Preparing for Installation

These topics provide background information needed to install the Netra SPARC T3-1 server.

- [“Installation Task Overview” on page 1](#)
- [“Server Overview” on page 2](#)
- [“Confirming Server Specifications” on page 5](#)
- [“Shipping Kit Inventory List” on page 12](#)
- [“Front Panel Components” on page 13](#)
- [“Back Panel Components” on page 14](#)
- [“Server Handling Precautions” on page 15](#)
- [“ESD Precautions” on page 16](#)
- [“Tools Needed for Installation” on page 16](#)
- [“Optional Component Installation” on page 17](#)

Related Information

- [“Installing the Server” on page 19](#)

Installation Task Overview

Perform the following tasks to install and configure the server.

Step	Description	Links
1.	Review the <i>Server Product Notes</i> for any late-breaking news about the server.	Server Product Notes
2.	Review the server features, specifications, and site requirements.	“Server Overview” on page 2 “Confirming Server Specifications” on page 5
3.	Confirm you received all of the items you ordered.	“Shipping Kit Inventory List” on page 12

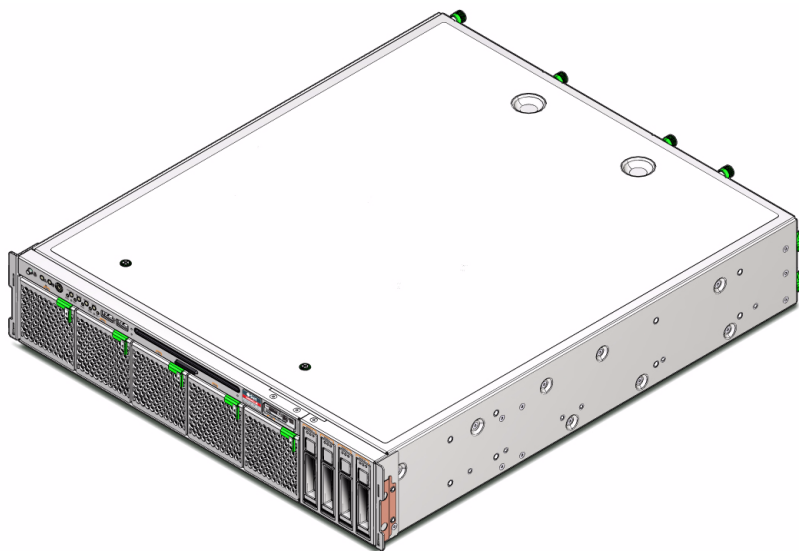
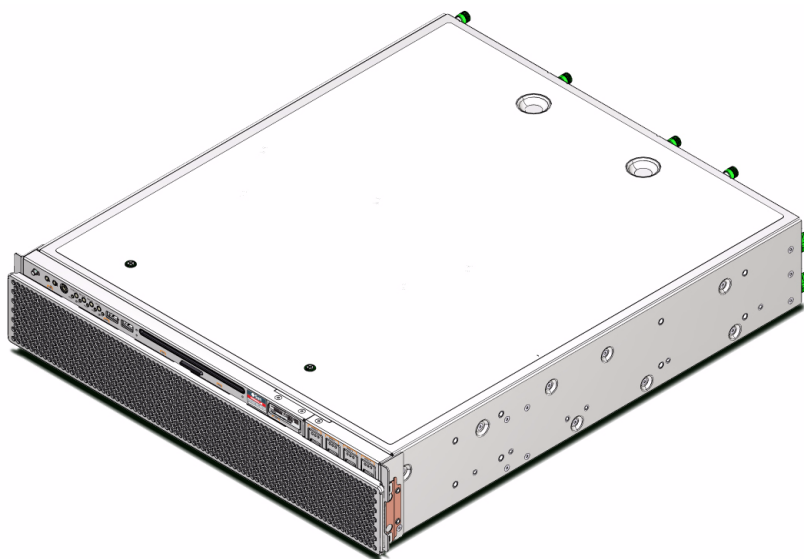
Step	Description	Links
4.	Familiarize yourself with the server features, controls, and LEDs required for installation.	“Front Panel Components” on page 13 “Back Panel Components” on page 14
5.	Review the input power information, assemble the required tools, and take ESD and safety precautions.	“Input Power Information” on page 7 “Tools Needed for Installation” on page 16 “ESD Precautions” on page 16
6.	Install any optional component into the server.	“Optional Component Installation” on page 17
7.	Install the server into either a 4-post or 2-post rack.	“Stabilize the Rack for Installation” on page 21 “Mounting the Server Into a 4-Post Rack” on page 22 “Mounting the Server Into a 2-Post Rack” on page 42
8.	Attach data and management cables to the server.	“Connecting the Server Cables” on page 65
9.	Connect the power cords to the server, configure the ILOM service processor, power on the server for the first time, and boot the operating system.	“Powering On the Server for the First Time” on page 77 “Preparing for Installation” on page 1

Related Information

- *Netra SPARC T3-1 Server Product Notes*
- *Netra SPARC T3-1 Server Safety and Compliance Guide*
- *Netra SPARC T3-1 Server Service Manual*

Server Overview

This topic describes the main components and capabilities of the server. The first illustration shows the server with the air filter. The second illustration shows the server without the air filter.



Component	Description
CPU	SPARC T3, single socket 16-core, 1.6 GHz
Memory	DDR3 1066 MHz registered DIMMs with ECC 4 GB and 8 GB DIMM capacities supported Total x16 DIMMs
Removable mass storage	Four SFF (2.5 in.) SAS drives One SATA DVD drive
Service processor	ASPEED AST2200 BMC running Oracle ILOM 3.x. service processor firmware with provision for: <ul style="list-style-type: none"> • 2D graphics (HD-15 VGA Connector) • 128 MB SDRAM • Serial management (RJ-45) • Network management (10/100Base-T Ethernet RJ-45) • Complete host remote management including remote KVMS over Ethernet
TPM support	TCG TPM v1.2 functionality support with an Infineon SLB 9635
Front I/O ports	Two USB 2.0 port (Type A)
Rear I/O ports	From the motherboard: <ul style="list-style-type: none"> • Four 10/100/1000Base-T Ethernet (RJ-45) with integrated link/speed LEDs • SER MGT (TIA/EIA-232 serial via RJ-45: Sun/Cisco standard) • NET MGT 10/100Base-T Ethernet (RJ-45) • Two USB 2.0 ports (Type A) • VGA video port (HD-15) • Optional 10Gb dual ports with XAUI cards From the PCI mezzanine board: <ul style="list-style-type: none"> • DCA relay connection (DB-15)
Front panel indicators and switches	Provision for the following indicator and switches: <ul style="list-style-type: none"> • Power button switch • Locate button switch with integrated white LED • System OK LED (Green) • System fault LED (Amber) • Alarm LEDs - Critical (Red), Major (Red), Minor (Amber), User (Amber) • Fan Module Fault LEDs
Expansion slots	PCI-Express Generation 2: <ul style="list-style-type: none"> • Two full-height / half-length PCI2 2.0 x8 electrical / x16 mechanical slots with tool-less mechanical fillers • Three PCIe 2.0 x8 electrical / x8 mechanical low-profile, or one PCIe 2.0 x8 electrical / x8 mechanical low-profile and two XAUI cards (fiber or copper versions)

Related Information

- [“Confirming Server Specifications” on page 5](#)
- [“Installation Task Overview” on page 1](#)



Confirming Server Specifications

Prior to installing the server, review the server specifications and prepare the installation site.

- [“Physical Specifications” on page 5](#)
- [“Electrical Specifications” on page 6](#)
- [“Input Power Information” on page 7](#)
- [“Overcurrent Protection Requirements” on page 8](#)
- [“DC Power Source, Power Connection, and Grounding Requirements” on page 8](#)
- [“AC and DC Server Environmental Requirements” on page 10](#)
- [“Acoustic Noise Emissions” on page 10](#)
- [“Cooling Zones and Airflow Clearance” on page 11](#)

Related Information

- [“Server Overview” on page 2](#)

Physical Specifications

Note – To enable safe installation and servicing, provide 36 in. (91 cm) clearance in the front and rear of the server.

Dimension	Value
Height	3.43 in. (87.1 mm)
Width	17.52 in. (445 mm)
Depth	20.71 in. (526 mm) maximum (measured from bezel to PSU handles).
Weight (server only)	41 lbs (18.6 kg) minimum

Related Information

- [“Minimum Clearance for Service Access” on page 6](#)
- [“Electrical Specifications” on page 6](#)
- [“Input Power Information” on page 7](#)
- [“Overcurrent Protection Requirements” on page 8](#)
- [“DC Power Source, Power Connection, and Grounding Requirements” on page 8](#)
- [“AC and DC Server Environmental Requirements” on page 10](#)
- [“Acoustic Noise Emissions” on page 10](#)
- [“Cooling Zones and Airflow Clearance” on page 11](#)

Minimum Clearance for Service Access

Description	Specification
Clearance, front of server	36 inches (91 cm)
Clearance, rear of server	36 inches (91 cm)

Related Information

- [“Physical Specifications” on page 5](#)
- *Netra SPARC T3-1 Server Service Manual*

Electrical Specifications

Note – The values in this table are the power supply specifications.

Parameter	AC	DC
Voltage (nominal)	100 to 127 or 200 to 240 VAC (90 to 140 or 180 to 264 VAC ranges)	-48 or -60 VDC (-40 to -75 VDC range)
Input current (maximum)	9.4 A @ 100 VAC or 4.7 A @ 200 VAC (940 VA)	19.58 A -48 VDC (940 VA)
Frequency (nominal)	50/60 Hz (47 to 63 Hz range)	N/A
DC input treatment	N/A	Isolated DC Return (DC-I)



Caution – The ports of this equipment or subassembly are suitable for connection to intra-building or unexposed wiring or cabling only. The intra-building port(s) of the equipment or subassembly must not be metallically connected to interfaces that connect to the outside plant wiring. These interfaces are designed for use as intra-building interfaces only (Type 2 or Type 4 ports as described in GR-1089-CORE, Issue 4) and require isolation from the exposed outside plant cabling. The addition of primary protectors is not sufficient protection in order to connect these interfaces metallically to outside plant wiring.

Related Information

- [“Input Power Information” on page 7](#)
- [“Overcurrent Protection Requirements” on page 8](#)
- [“DC Power Source, Power Connection, and Grounding Requirements” on page 8](#)

Input Power Information

The total input power for the server is divided equally among the power supplies in operation. Reversing the positive and negative inputs to the power supplies of a DC input server will not cause damage. However, the power supplies with reversed input will not operate.

The inputs to a power supply are isolated from the server chassis and the other power supply inputs. The AC or DC power inputs might be at different voltages within the acceptable range and might have different offset voltages relative to the server chassis.

Note – The server does not require an additional surge protector for the AC or DC power configurations if the facility has a surge protector that limits voltage surges to less than 2000 volts. You can, however, install a surge protector if your site requires an additional protector.



Caution – Safety agency requirements prohibit Oracle Corporation from changing a product from AC input to DC input or from DC input to AC input after the product has been removed from the agency approved manufacturing site.

Related Information

- [“Electrical Specifications” on page 6](#)

- [“Overcurrent Protection Requirements” on page 8](#)
- [“DC Power Source, Power Connection, and Grounding Requirements” on page 8](#)

Overcurrent Protection Requirements

This product does not provide branch circuit overcurrent protection as defined by the U.S. NEC. To comply with the U.S. NEC, you must install this product on branch circuits that have overcurrent protection as defined by Article 240 of the U.S. NEC.

- Product power inputs with a current ratings of 16A or less must have a branch circuit, or a supplementary overcurrent protection device, rated at no more than 20A.
- Product power inputs with current ratings of more than 16A must have a branch circuit, or a supplementary overcurrent protection device, rated at no more than 160% of the product input current rating.
- Other national or local electrical codes might apply to the installation of this product.

As a general guideline, overcurrent protection devices should be rated at a minimum of 125% of the product input current rating in order to provide reliable power under high temperature and transient voltage disturbance conditions. However, you must consider the characteristics of the protection device and the applicable electrical codes when selecting the rating of a protection device for the product installation.

Note – Overcurrent protection devices must meet applicable national and local electrical safety codes, and be approved for the intended application.

Related Information

- [“Electrical Specifications” on page 6](#)
- [“Input Power Information” on page 7](#)
- [“DC Power Source, Power Connection, and Grounding Requirements” on page 8](#)

DC Power Source, Power Connection, and Grounding Requirements

The server power source and connections must meet the following requirements:



Caution – The DC power source must be reliably grounded. The server chassis must be grounded with the power supply ground pins or with the chassis ground studs. It is acceptable to have both grounds connected.

Note – The DC version of the server must be installed in a restricted-access location. According to the intent of the U.S. NEC, National Electrical Code, a restricted-access location is an area intended for qualified or trained personnel only and has access controlled by a locking mechanism, such as a key lock or an access card system.



Caution – You must restrict the connection of the server to the DC power source to minimize the possibility that transient energy will appear on the main input to the equipment. The DC battery power source must be in the same premises as the server. The server cannot be in one building with the power source in another building.

- Suitable conductor material: Use copper conductors only.
- Power supply connections through the input connector: 8 AWG (between the server and the source). There are three conductors:
 - -48V or -60V (negative terminal, might be marked with a minus (-) symbol).
 - Chassis ground connection (optional if chassis ground wire is connected).
 - -48V or -60V return (positive terminal, might be marked with a plus (+) symbol).
- Server chassis ground 8 AWG conductor (optional if power supply grounds are connected).
- Cable insulation rating: Minimum of 75°C (167°F). (Low smoke fume (LSF), flame retardant insulation might be required in some installations.)
- Use mating connectors, Wago part number 51204745, for proper connection to the product DC inputs. Connectors are included in the server's shipping kit.
- Branch circuit cable insulation color: According to applicable national electrical codes.
- Grounding cable insulation color: Green/yellow.
- DC power source must meet TNV-2 requirements as defined by UL 60950-1 and IEC 60950-1.

Related Information

- [“Electrical Specifications” on page 6](#)
- [“Input Power Information” on page 7](#)
- [“Overcurrent Protection Requirements” on page 8](#)

- [“Assembling and Connecting DC Power Cords” on page 71](#)

AC and DC Server Environmental Requirements



Caution – Netra rack mounted servers are certified to meet these worst-case operating conditions only when using an approved rackmount kit. You must strictly follow the rackmounting instructions in order to meet these environmental specification.

Specification	Operating	Nonoperating
Ambient temperature*	Maximum: 41°F to 104°F (5°C to 40°C) up to 6000 feet (1829 meters) [†] Optimal: 69.8°F to 73.4°F (21°C to 23°C) Short term maximum: 23°F to 131°F (-5°C to 55°C)	-40°F to 158°F (-40°C to 70°C)
Relative humidity	Operating: 5% to 85% noncondensing, 85° (27°C) maximum wet bulb	5% to 93% noncondensing 100.4° (37.7°C) maximum wet bulb
Elevation (Company requirement)	Maximum 9840 feet (3000 meters) at 104°F (40°C)	Maximum 39370 feet (12000 meters)
Elevation (NEBS requirement)	-200 feet to 5900 feet (-60 meters to 1800 meters) at 104°F (40°C) 5900 feet to 13100 feet (1800 meters to 4000 meters) at 86°F (30°C)	

* Does not apply to removable media devices.

† Maximum ambient operating temperature is derated by 1 degree C per 500m elevation.

Related Information

- [“Acoustic Noise Emissions” on page 10](#)
- [“Cooling Zones and Airflow Clearance” on page 11](#)

Acoustic Noise Emissions

The declared noise emissions for the server are in accordance with ISO 9296 standards.

Parameter	Operating Noise Emissions
Acoustic power LWA (dBA)	70.8 dBA (AC server)
	70.8 dBA (DC server)

Related Information

- *Netra SPARC T3-1 Server Safety and Compliance Guide*

Cooling Zones and Airflow Clearance

Note – Proper airflow into and out of the server is essential for keeping the server’s internal temperatures within a safe operating range.

The server draws cool air from the front of the server and expels hot air out the rear. To avoid overheating the server:

- Ensure that inlet air enters at the front of the server and exits from the back.
- Ensure unobstructed airflow through the server.
- Do not direct warm air toward the front air intake of the server.
- Prevent recirculation of exhaust air within a rack or cabinet.
- Manage cables to minimize interfering with the server exhaust vent.
- Ensure that the server ventilation openings used for intake and outflow of air provide an open area that is at least 60% of the open area perforations across the front and rear of the server.
- Allow a minimum of 5 mm (0.2 in.) clearance at the front of the system and 80 mm (3.1 in.) at the rear of the server when mounted. These clearance values are based on the preceding inlet and exhaust impedance (available open area) and assume a uniform distribution of the open area across the inlet and exhaust areas. Clearance values greater than these are recommended for improved cooling performance.

Note – Be mindful that the combination of inlet and exhaust restrictions, such as cabinet doors and the spacing of the server from the doors, can affect the cooling performance of the server.

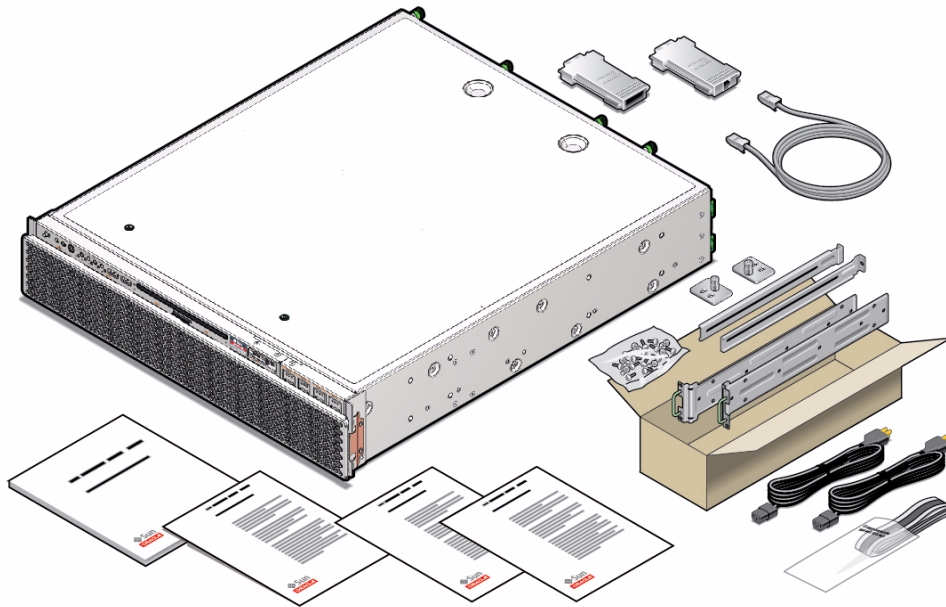
Related Information

- [“Physical Specifications” on page 5](#)

- “Minimum Clearance for Service Access” on page 6

Shipping Kit Inventory List

Note – When you receive your server, place it in the environment where you will install it. Leave the server in its shipping crate at its final destination for 24 hours. This resting period prevents thermal shock and condensation.



Verify that you have received all of the components that ship with your server.

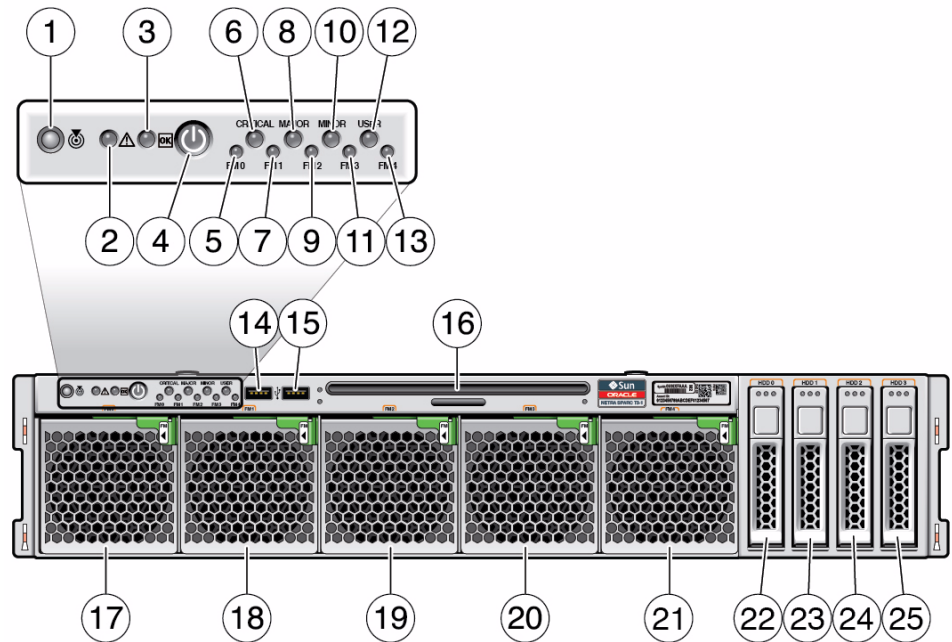
- Netra SPARC T3-1 server
- 2 AC power cords (if ordered)
- RJ-45 to DB-9 serial adapter
- RJ-45 to DB-25 analog to digital video adapter
- Antistatic wrist strap
- 19-inch, 4-post rackmount kit
- *Netra Rack Server Getting Started Guide* with license and safety documents

- Optional components (for example, PCIe cards) that are packaged separately from the other items unless they are installed at the factory as part of the system.

Related Information

- [“Server Handling Precautions” on page 15](#)
- [“ESD Precautions” on page 16](#)

Front Panel Components



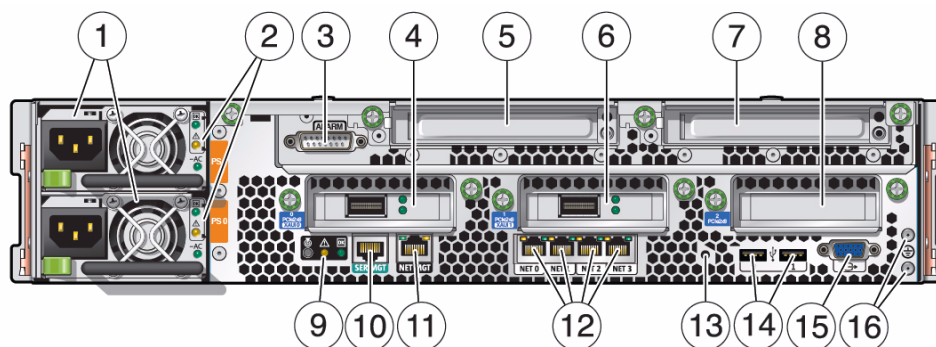
1	Locator LED/Locator button: white	14	USB 2.0 port (USB 3)
2	Service Action Required LED: amber	15	USB 2.0 port (USB 4)
3	Main Power/OK LED: green	16	DVD drive
4	Power button	17	Fan module (FM0)
5	Fan Fault (FM 0) LED: green (normal), amber (fault)	18	Fan module (FM1)

6	Critical Alarm LED: red	19	Fan module (FM2)
7	Fan Fault LED (FM 1): green (normal), amber (fault)	20	Fan module (FM3)
8	Major Alarm LED: red	21	Fan module (FM4)
9	Fan Fault LED (FM 2): green (normal), amber (fault)	22	Hard drive (HDD0)
10	Minor Alarm LED: amber	23	Hard drive (HDD1)
11	Fan Fault LED (FM 3): green (normal), amber (fault)	24	Hard drive (HDD2)
12	User Alarm LED: amber	25	Hard drive (HDD3)
13	Fan Fault LED (FM 4): green (normal), amber (fault)		Fan module (FM 5) (internal - not shown)

Related Information

- [“Back Panel Components” on page 14](#)

Back Panel Components



1	Power supplies (PS1 - PS0 top to bottom) (AC supplies shown)	9	Service LEDs:- Locator LED/Locator button (white)- Service Action Required LED (amber)- Main Power/OK LED (green)
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2	Power supply status LEDs: - OK (output): (green) - Service Action Required: (amber) - AC or DC (input power): (green)	10	SER MGT RJ-45 serial port
3	Alarm port	11	NET MGT RJ-45 network port
4	Expansion slot 0 (PCIe 2.0 x8 or XAUI)	12	Network 10/100/1000 ports (NET0 to NET3) for host
5	Expansion slot 3 (PCIe 2.0 x8)	13	Physical Presence button access hole
6	Expansion slot 1 (PCIe 2.0 x8 or XAUI)	14	USB 2.0 ports (USB 0, USB 1)
7	Expansion slot 4 (PCIe 2.0 x8)	15	Video connector (HD-15)
8	Expansion slot 2 (PCIe 2.0 x8)	16	Grounding studs

Related Information

- [“Front Panel Components” on page 13](#)

Server Handling Precautions



Caution – Deploy the antitilt bar on the equipment rack before beginning an installation.



Caution – The server weighs approximately 55 lb (25 kg). Two people are required to lift and mount this 2U server into a rack enclosure when using the procedures in this document.





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

Related Information

- [“Physical Specifications” on page 5](#)
- [“Minimum Clearance for Service Access” on page 6](#)
- [“ESD Precautions” on page 16](#)

ESD Precautions

Electronic equipment is susceptible to damage by static electricity. Use a grounded antistatic wrist strap, foot strap, or equivalent safety equipment to prevent ESD when you install or service the server.



Caution – To protect electronic components from electrostatic damage, which can permanently disable the server or require repair by service technicians, place components on an antistatic surface, such as an antistatic discharge mat, an antistatic bag, or a disposable antistatic mat. Wear an antistatic grounding strap connected to a metal surface on the chassis when you work on server components.

Related Information

- [“Installing the Server” on page 19](#)

Tools Needed for Installation

To install the system, you must have the following tools:

- No. 2 Phillips screwdriver
- ESD mat and grounding strap

In addition, you must provide a system console device, such as one of the following:

- ASCII terminal

- Workstation
- Terminal server
- Patch panel connected to a terminal server

Related Information

- [“Optional Component Installation” on page 17](#)
- [“ESD Precautions” on page 16](#)

Optional Component Installation

The standard components of the server are installed at the factory. However, if you ordered options such as additional memory or PCIe cards, these options will be shipped separately. If possible, install these components prior to installing the server in a rack. Optional components (for example, PCIe cards) ordered as part of the system are installed in the server at the factory.

If you ordered any options that are not factory-installed, see *Netra SPARC T3-1 Server Service Manual* and the component’s documentation for installation instructions.

Note – The list of optional components can be updated without notice. See the product web pages for the most current list of components supported in the server.

Related Information

- Optional component documentation
- *Netra SPARC T3-1 Server Service Manual*

Installing the Server

These topics describe how to install the server into an equipment rack using a rackmount kit.

Note – In this guide, the term *rack* means either an open rack or a closed cabinet.

- [“Rack Compatibility” on page 19](#)
- [“Rack Cautions” on page 20](#)
- [“Stabilize the Rack for Installation” on page 21](#)
- [“Mounting the Server Into a 4-Post Rack” on page 22](#)
- [“Mounting the Server Into a 2-Post Rack” on page 42](#)

Related Information

- [“Preparing for Installation” on page 1](#)

Rack Compatibility

Check that your rack is compatible with the slide rail options. The optional slide rails are compatible with equipment racks that meet the following standards.

Item	Requirement
Structure	Four-post rack (mounting at both front and rear). Two-post racks are not compatible.
Rack horizontal opening and unit vertical pitch	Conforms to ANSI/EIA 310-D-1992 or IEC 60927 standards. Only M6 tapped or 9.5 mm square are supported.
Distance between front and rear mounting planes	Minimum 622 mm and maximum 895 mm (24.5 in. to 35.25 in.).

Item	Requirement
Clearance depth in front of front mounting plane	Distance to front cabinet door is at least 27 mm (1.06 in.).
Clearance depth behind front mounting plane	Distance to rear cabinet door is at least 900 mm (35.5 in.) with the CMA, or 770 mm (30.4 in.) without the CMA.
Clearance width between front and rear mounting planes	Distance between structural supports and cable troughs is at least 456 mm (18 in.).
Server dimensions	Depth (not including PS handle): 732 mm (28.82 in.). Width (not including ears): 436.5 mm (17.19 in.). Height: 129.85 mm (5.11 in.).

Related Information

- [“Rack Cautions” on page 20](#)

Rack Cautions



Caution – Equipment Loading. Always load equipment into a rack from the bottom up so that the rack will not become top-heavy and tip over. Deploy your rack’s antitip bar to prevent the rack from tipping during equipment installation.



Caution – Elevated Operating Ambient Temperature. If the server is installed in a closed or multi-unit rack assembly, the operating ambient temperature of the rack environment might be greater than room ambient temperature. Therefore, install the equipment only in an environment compatible with the maximum ambient temperature (T_{ma}) specified for the server.



Caution – Reduced Air Flow. Install the equipment in a rack so that the amount of air flow is adequate for the safe operation of the equipment.



Caution – Mechanical Loading. Mount the equipment in the rack so that the weight is distributed evenly. A hazardous condition can exist with uneven mechanical loading.



Caution – Circuit Overloading. Do not overload the power supply circuits. Before connecting the server to the supply circuit, review the equipment nameplate power ratings and consider the effect that circuit overloading might have on overcurrent protection and supply wiring.



Caution – Reliable Grounding. Maintain reliable grounding of rackmounted equipment. Give particular attention to supply connections other than direct connections to the branch circuit (for example, use of power strips).



Caution – Do not use slide rail mounted equipment as a shelf or a work space.

Related Information

- [“Stabilize the Rack for Installation” on page 21](#)

▼ Stabilize the Rack for Installation



Caution – To reduce the risk of personal injury, stabilize the expansion rack cabinet and extend all antitilt devices before installing the server.

Refer to your rack documentation for detailed instructions for the following steps.

1. Open and remove the front and rear doors from the rack cabinet.
2. To prevent the rack cabinet from tipping during the installation, stabilize the cabinet using all antitilt mechanisms provided.
3. If there are leveling feet beneath the rack cabinet to prevent it from rolling, extend these leveling feet fully downward to the floor.
4. Fully extend the rack cabinet's antitilt legs or antitilt bar, which are located at the bottom front of the rack cabinet.

Related Information

- [“Rack Cautions” on page 20](#)
- Documentation for your rack cabinet

Mounting the Server Into a 4-Post Rack

These topics provide installation instructions for the 4-post rackmount kits. The server ships with a 19-inch, 4-post hardmount rackmount kit. You can order two optional rackmount kits for your specific 4-post rack.

Note – References to *left* and *right* are from your viewpoint as you face either the front or rear of the equipment.



Caution – The server is heavy. Two people are required to lift and mount the server into a rack enclosure when following these procedures.



Caution – You *must* install the server into a rack following these instructions. If you deviate from these instructions when installing the server, your installation will not be supported.

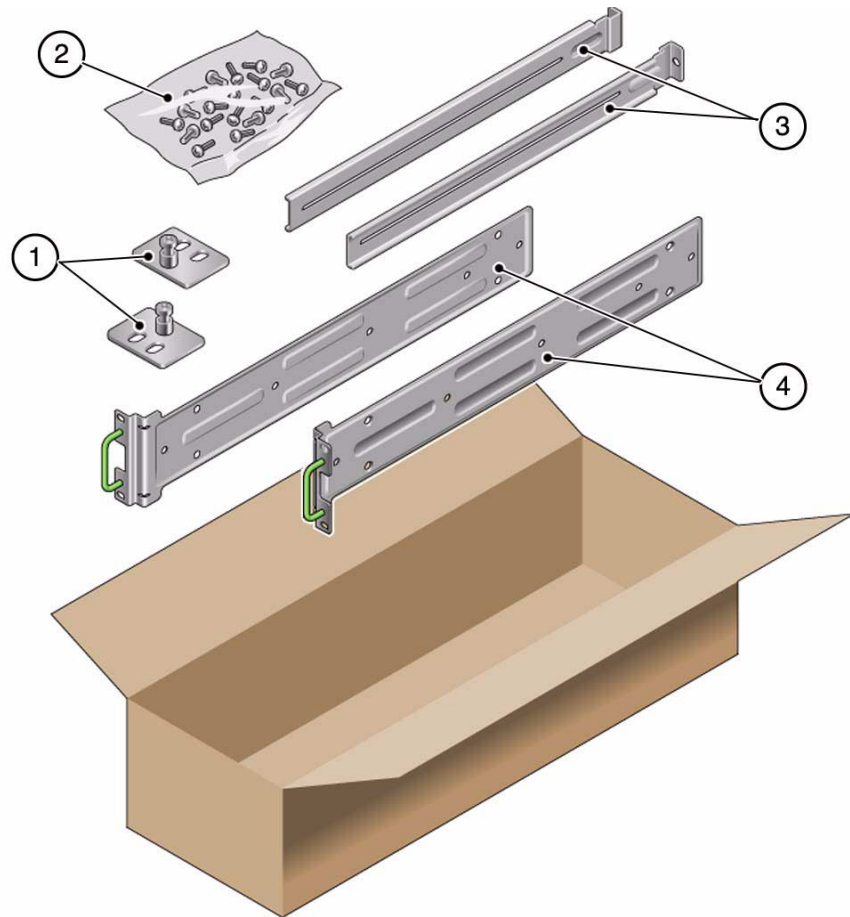
Description	Links
Mount the server using a 19-inch, 4-post hardmount rackmount kit (included with the server).	“19-Inch, 4-Post Hardmount Rackmount Kit” on page 23 “Install the Server (19-Inch, 4-Post Hardmount Rackmount Kit)” on page 24
Mount the server using an optional 19-inch, 4-post slide rackmount kit for 600–800 mm cabinet depths.	“19-Inch, 4-Post Sliding Rail Rackmount Kit” on page 27 “Install the Server (19-Inch, 4-Post Sliding Rail Rackmount Kit)” on page 28
Mount the server using an optional 600 mm x 600 mm rackmount kit.	“600-mm, 4-Post Hardmount Rackmount Kit” on page 34 “Install the Server (600-mm, 4-Post Hardmount Rackmount Kit)” on page 35

Related Information

- [“Preparing for Installation” on page 1](#)

- “Rack Cautions” on page 20
- “Stabilize the Rack for Installation” on page 21

19-Inch, 4-Post Hardmount Rackmount Kit



1	Rear mount flanges (2)	3	Rear mount support brackets (2)
2	Screws (see following table)	4	Hardmount brackets (2)

TABLE: 19-inch, 4-Post Rackmount Screw Kit Contents

No.	Description	Where Used
10	M5 x 4.5 mm Phillips flathead screws	8 for hardmount brackets, 2 extra
10	M4 x 0.5 mm x 5 mm Phillips panhead screws	4-6 for rear mount brackets, 6-4 extra
10	M5 x 12.7 mm screws	10 for rack, if appropriate
10	M6 x 13 mm screws	10 for rack, if appropriate
9	M6 square clip nuts	9 for rack, if appropriate
12	10-32 x 0.5 in. combo head screws	12 for rack, if appropriate
12	12-24 x 0.5 in. combo head screws	12 for rack, if appropriate

Related Information

- [“Install the Server \(19-Inch, 4-Post Hardmount Rackmount Kit\)” on page 24](#)

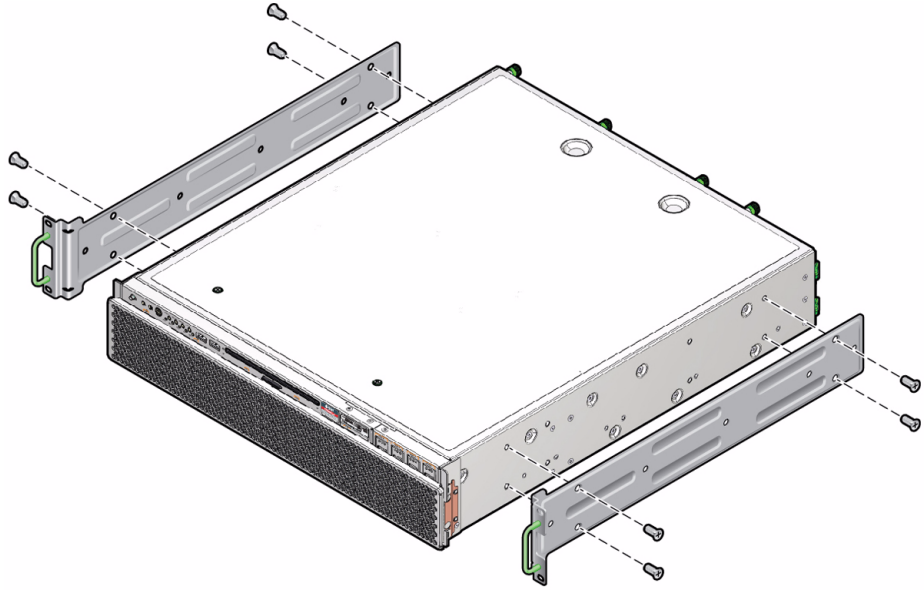
▼ Install the Server (19-Inch, 4-Post Hardmount Rackmount Kit)

Note – The front-to-back rail spacing must be at least 460 mm (18.11 in.) and not more than 715 mm (28.15 in.) from the outside face of the front rail to the outside face of the back rail.

1. Read the Cautions for racks.

See [“Rack Cautions” on page 20](#).

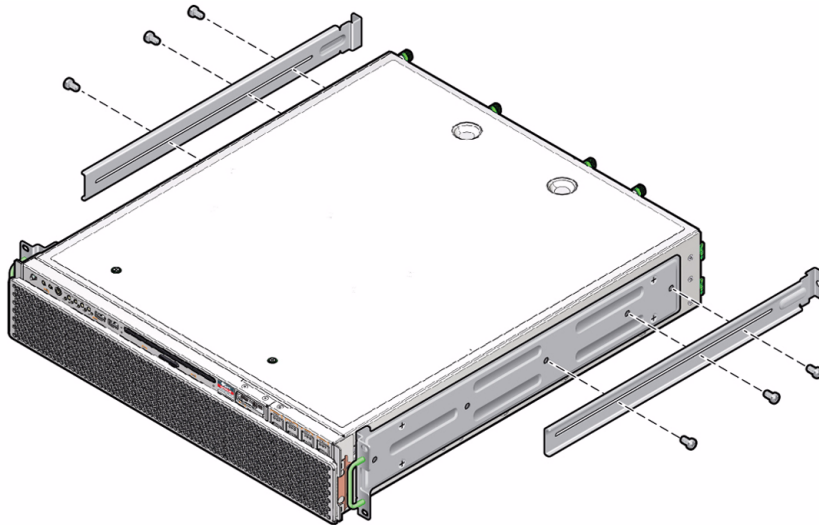
2. Use four of the supplied M5 x 4.5-mm flathead Phillips screws to secure each of the hardmount brackets to the sides of the server.



3. Measure the depth of the rack.

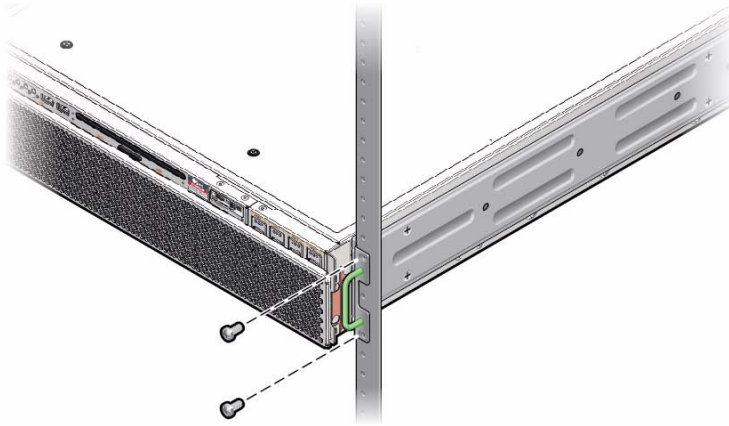
4. Install the rear mount support brackets at the rear of the server, extending the rear mount support brackets to the measured depth of the rack.

Use two to three of the supplied M4 x 0.5 x 5 mm panhead Phillips screws for each bracket, depending on the rack depth.

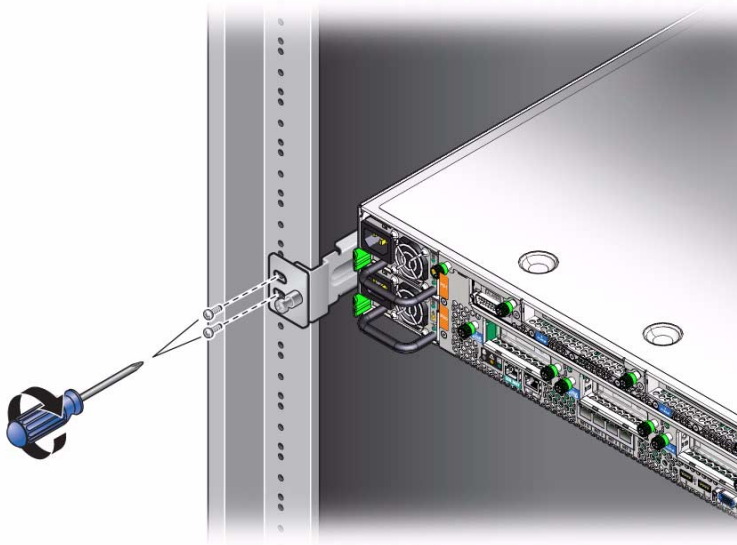


5. Lift the server to the desired location in the rack.

6. Using two screws per side, secure the front of the hardmount brackets attached to the sides of the server to the front of the rack.



7. Get the two rear mount flanges from the rackmount kit.
8. Using two screws for each rear mount support bracket, secure the rear mount support brackets to the rear of the rack.



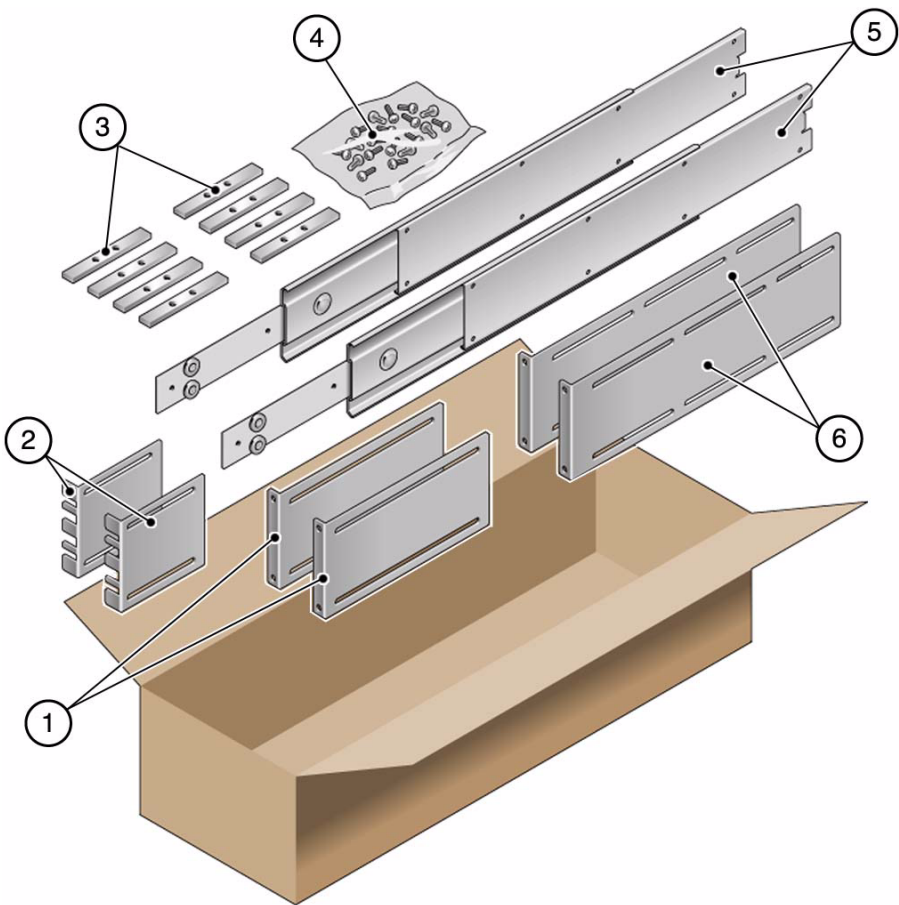
Related Information

- [“Stabilize the Rack for Installation” on page 21](#)
- [“19-Inch, 4-Post Hardmount Rackmount Kit” on page 23](#)

19-Inch, 4-Post Sliding Rail Rackmount Kit

After installing the server using this optional 19-inch, 4-post sliding rail rackmount kit, you can extend the server out of the rack for servicing.

You also need the hardmount brackets from the standard rackmount kit that came with the server.



1	Short brackets (2)	4	Screws (see following table)
2	Extension brackets (2)	5	Telco slide assemblies (2)
3	Threaded strips – M6 (4) 10-32 (4)	6	Long brackets (2)

TABLE: 19-Inch, 4-Post Sliding Rail Mount Screw Kit Contents

No.	Description	Where Used
10	M4 x 0.5 mm x 5 mm Phillips panhead screws	8 for glides, 2 extra
10	M6 brass collar screws	4 for short brackets, 4 for long brackets, 2 extra
8	M5 panhead screws, nuts, plain washers and star washers	8 for slides
10	M5 x 12.7 mm screws	10 for rack, if appropriate
12	M6 x 13 mm screws	10 for rack, if appropriate
9	M6 square clip nuts	9 for rack, if appropriate
10	10–32 collar screws 4 short, 4 long, 2 extra	8 for racks with 10 to 32 holes, if appropriate
12	10-32 x 0.5 in. combo head screws	12 for rack, if appropriate
12	12-24 x 0.5 in. combo head screws	12 for rack, if appropriate

Related Information

- [“Install the Server \(19-Inch, 4-Post Sliding Rail Rackmount Kit\)” on page 28](#)

▼ Install the Server (19-Inch, 4-Post Sliding Rail Rackmount Kit)

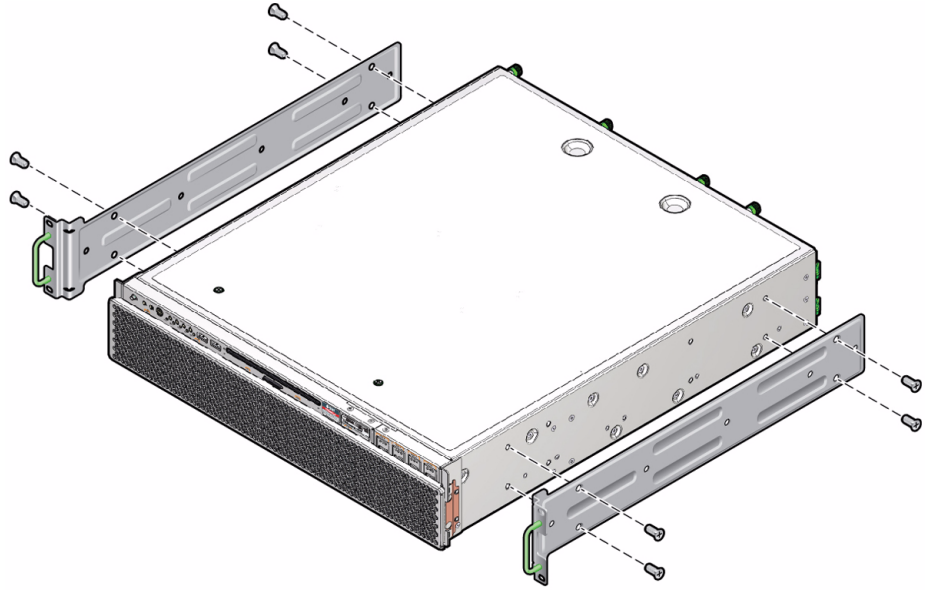
Note – The front-to-back rail spacing must be at least 392 mm (15.43 in.) and not more than 863.6 mm (34 in.) from the outside face of the front rail to the outside face of the back rail.

1. Read the Cautions for racks.

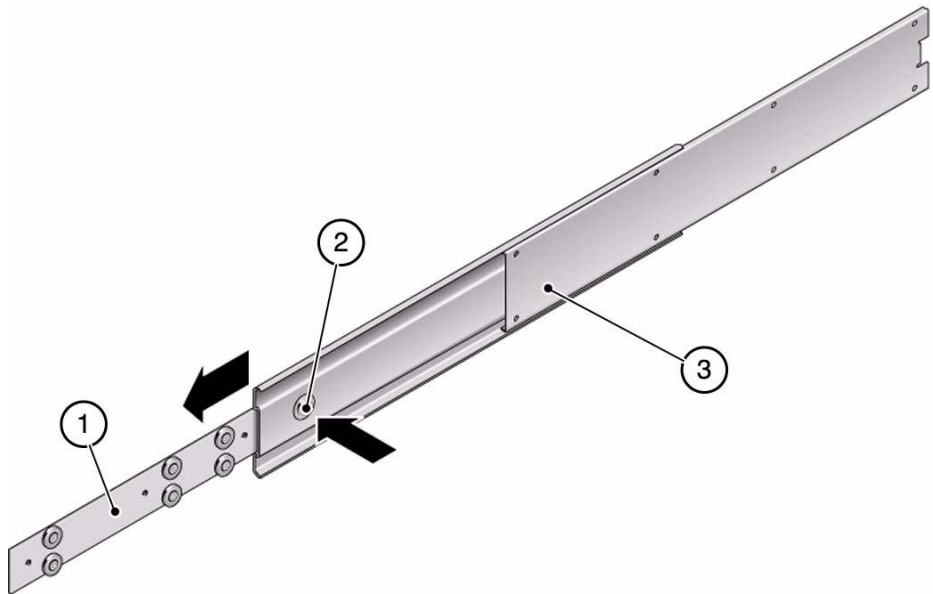
See [“Rack Cautions” on page 20](#).

2. Use four of the supplied M5 x 4.5 mm flathead Phillips screws to secure each of the hardmount brackets to the sides of the server.

These hardmount brackets and screws are shipped with the standard server ship kit, not as part of the sliding rail 19-inch, 4-post rackmount kit.



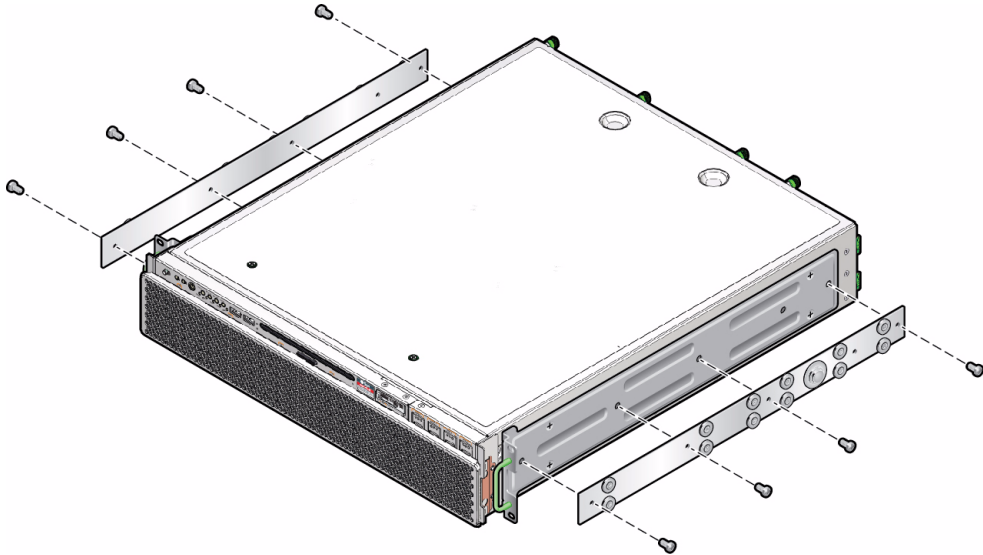
3. Press in the button on each slide assembly and pull the glide completely out of the slide.



1 Glide

3 Slide (in two parts)

4. Using eight of the M4 x 0.5 x 5 mm panhead Phillips screws from the rackmount kit (four for each side), screw each glide to the side of the server chassis.

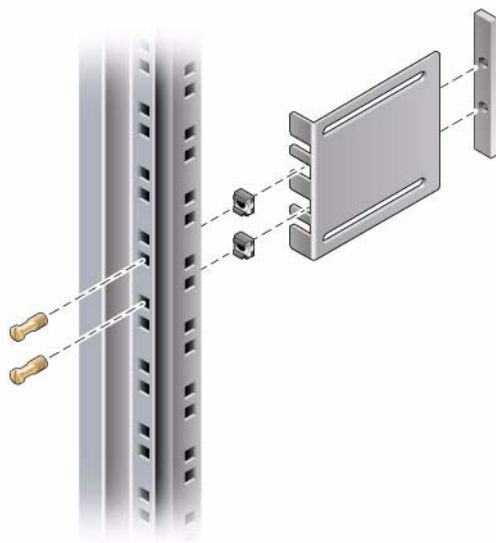


5. Lift each short bracket to the desired position at the *front* of the rack and attach a short bracket to each of the front rack uprights.

Use two of the brass M6 collar screws and M6 cage nuts (if required), and one threaded strip, to secure each bracket.

6. Lift each long bracket to the desired position at the *rear* of the rack and attach a long bracket to each of the rear rack uprights.

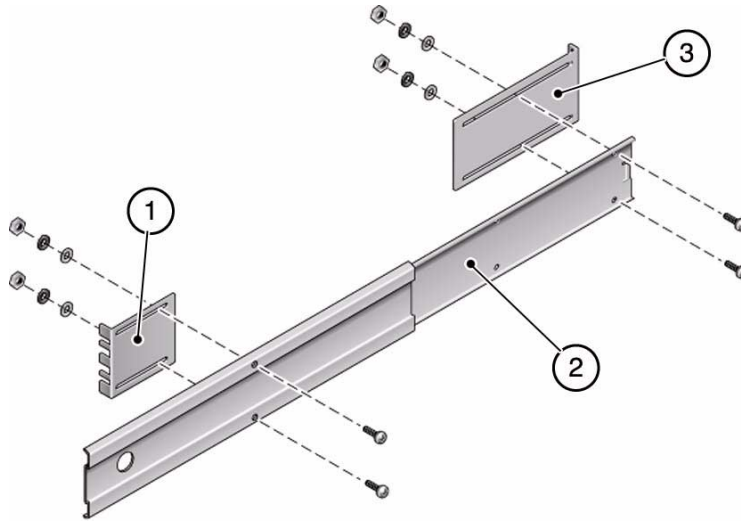
To secure each bracket, use two of the brass M6 collar screws and M6 cage nuts (if required) and one threaded strip, exactly as you did for the front rack uprights in the previous step.



Note – If your rack has 10–32 holes, use the 10–32 collar screws and 10–32 threaded strips.

7. Extend a slide to line up the access holes with the front screw holes.
8. Secure the slide onto the short and long brackets at the front and rear of the rack.

Use the M5 panhead screws from the inside. Use the M5 nuts, plain washers, and star washers from the outside. Use extension brackets instead of the long brackets if the dimension is greater than 665 mm.



-
- | | |
|---|---------------|
| 1 | Short bracket |
| 2 | Slide |
| 3 | Long bracket |
-

9. Mount the slide on the other side of the rack.

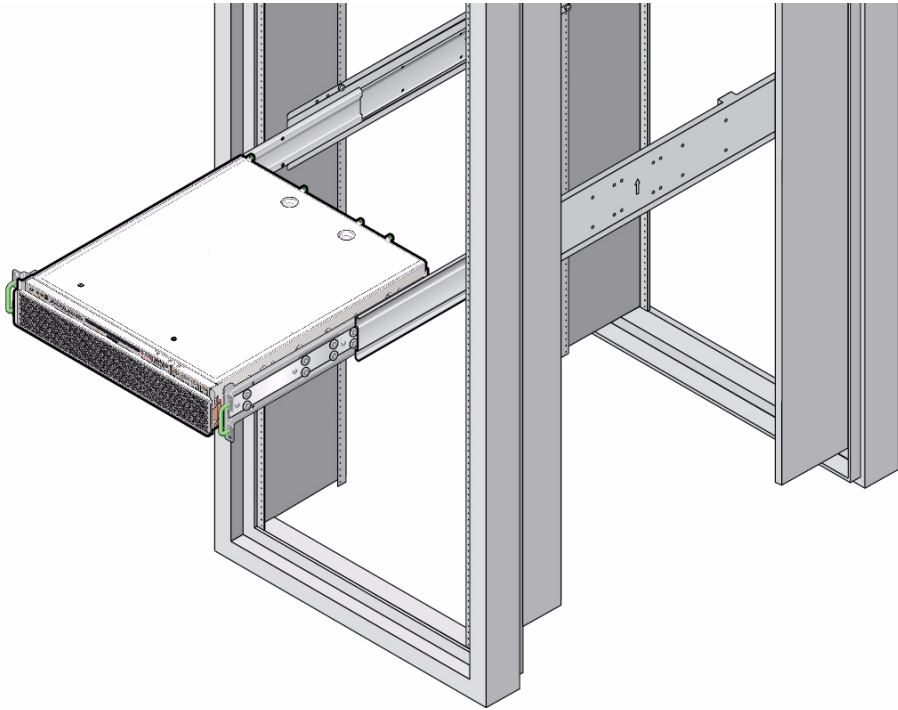
Repeat [Step 7](#) and [Step 8](#).

10. Push the slides completely into the assembly on each side of the rack and release the stop catches.

11. Align the glides attached to the server with the slide assemblies in the rack.

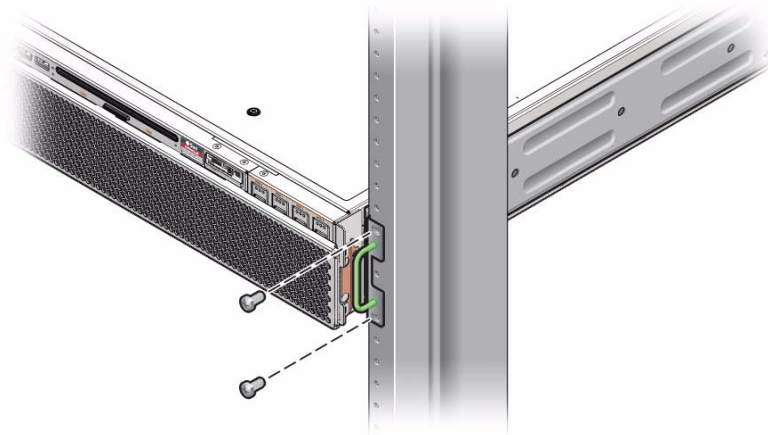
You might find that there is too much or too little room between the two slides mounted in the rack. Consequently, the glides attached to the server might not align correctly with the slides in the rack. If either situation occurs, loosen the M6 collar screws and cage nuts on the long and short brackets ([Step 5](#) and [Step 6](#)), move the brackets inward or outward to the appropriate points, then tighten the screws and cage nuts again.

12. Push in the slide buttons and slide the server all the way into the rack enclosure.



13. Using two screws per side, secure the front of the hardmount brackets that are attached to the sides of the server to the front of the rack.

The size of the screws varies, depending on your particular rack.

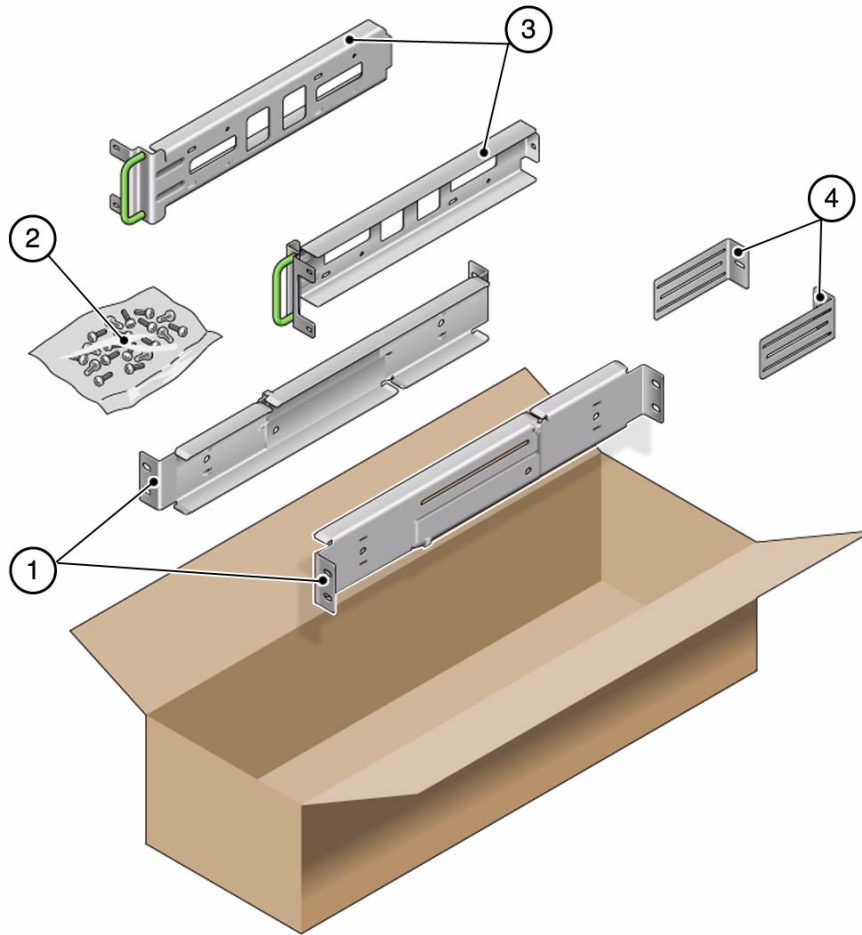


Related Information

- [“Stabilize the Rack for Installation” on page 21](#)

- “19-Inch, 4-Post Sliding Rail Rackmount Kit” on page 27

600-mm, 4-Post Hardmount Rackmount Kit



1	Adjustable rails (2)	3	Side rails (2)
2	Screws (see following table)	4	Rear flanges (2)

TABLE: 600-mm, 4-Post Hardmount Screw Kit Contents

No.	Description	Where Used
12	M5 x 7 SEM screws	8 for side rails, 4 for rear flanges
10	M5 x 12.7 mm screws	10 for rack, if appropriate
10	M6 x 13 mm screws	10 for rack, if appropriate
9	M6 square clip nuts	9 for rack, if appropriate
12	10-32 x 0.5 in. combo head screws	12 for rack, if appropriate
12	12-24 x 0.5 in. combo head screws	12 for rack, if appropriate

Related Information

- [“Install the Server \(600-mm, 4-Post Hardmount Rackmount Kit\)” on page 35](#)

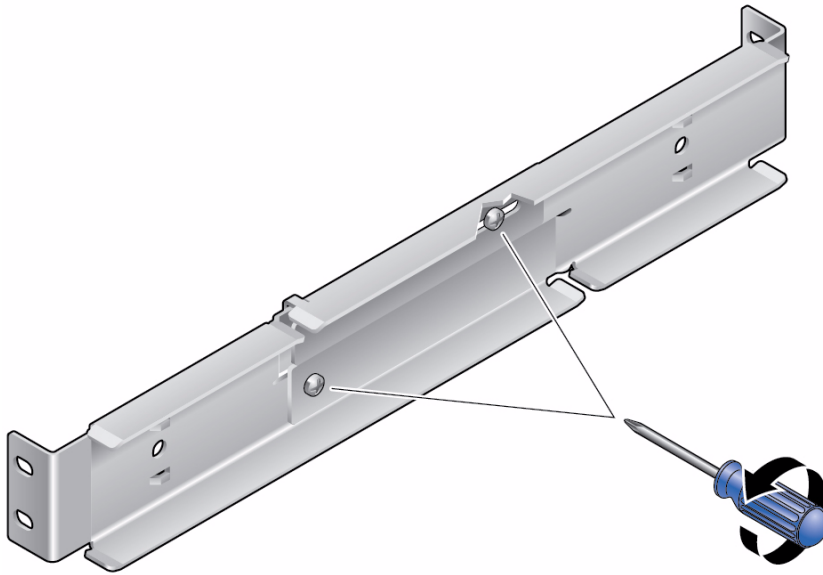
▼ Install the Server (600-mm, 4-Post Hardmount Rackmount Kit)

Note – The front-to-back rail spacing must be at least 392 mm (15.43 in.) and not more than 504 mm (19.84 in.) from the outside face of the front rail to the outside face of the back rail.

1. Read the Cautions for racks.

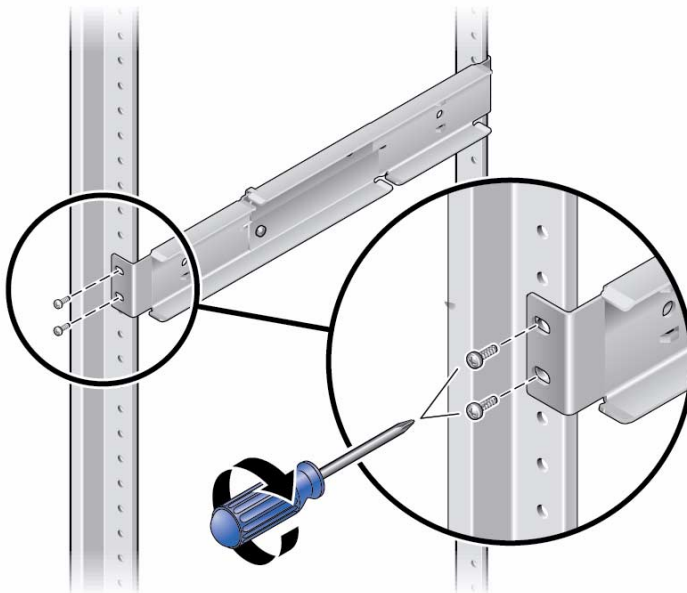
See [“Rack Cautions” on page 20](#).

2. Loosen the two screws at the middle of each adjustable rail so that you can extend the adjustable rail.



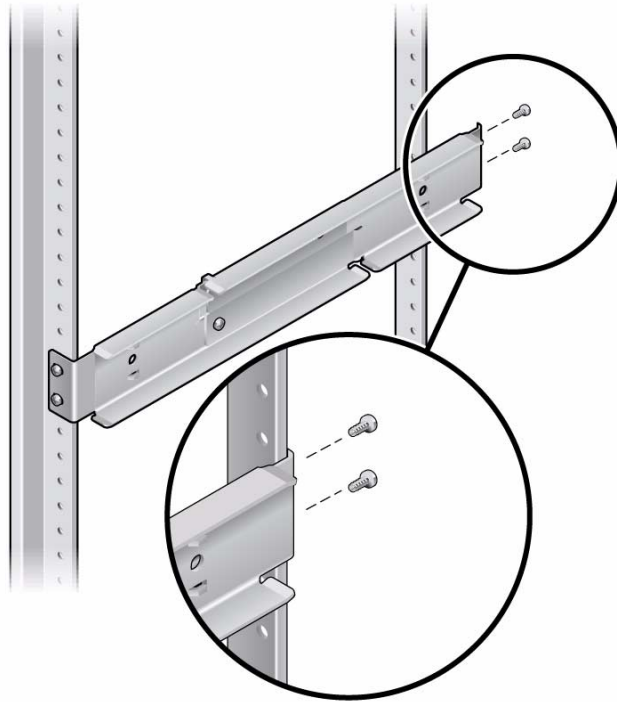
3. Lift one of the adjustable rails to the desired location in the rack.

Using two screws, secure the front of the rail in the rack. The size of the screws varies, depending on your particular rack.



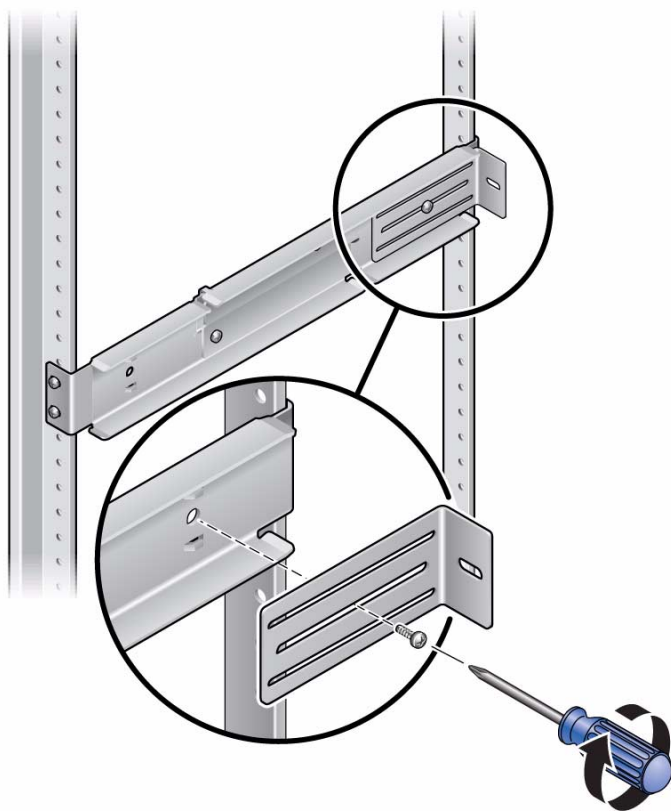
4. **At the rear of the rack, use two screws to secure the rear of the adjustable rails to the rack.**

The size of the screws varies, depending on your particular rack.



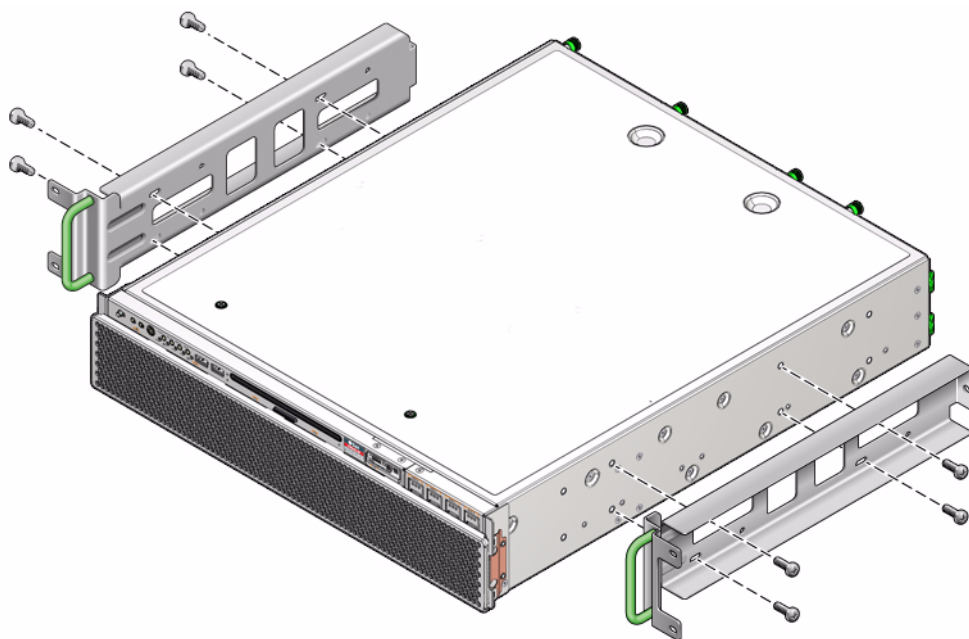
5. **Tighten the two screws at the middle of each adjustable rail.**
6. **Mount the other adjustable rail into the rack.**
Repeat [Step 3](#) through [Step 5](#).
7. **Using one M5 x 7 SEM screw for each rear flange, loosely install the rear flange onto the rear of each of the adjustable rails.**

Do not completely secure the rear flanges to the adjustable rails. You will use these flanges to set the rack depth for the server in a later step.

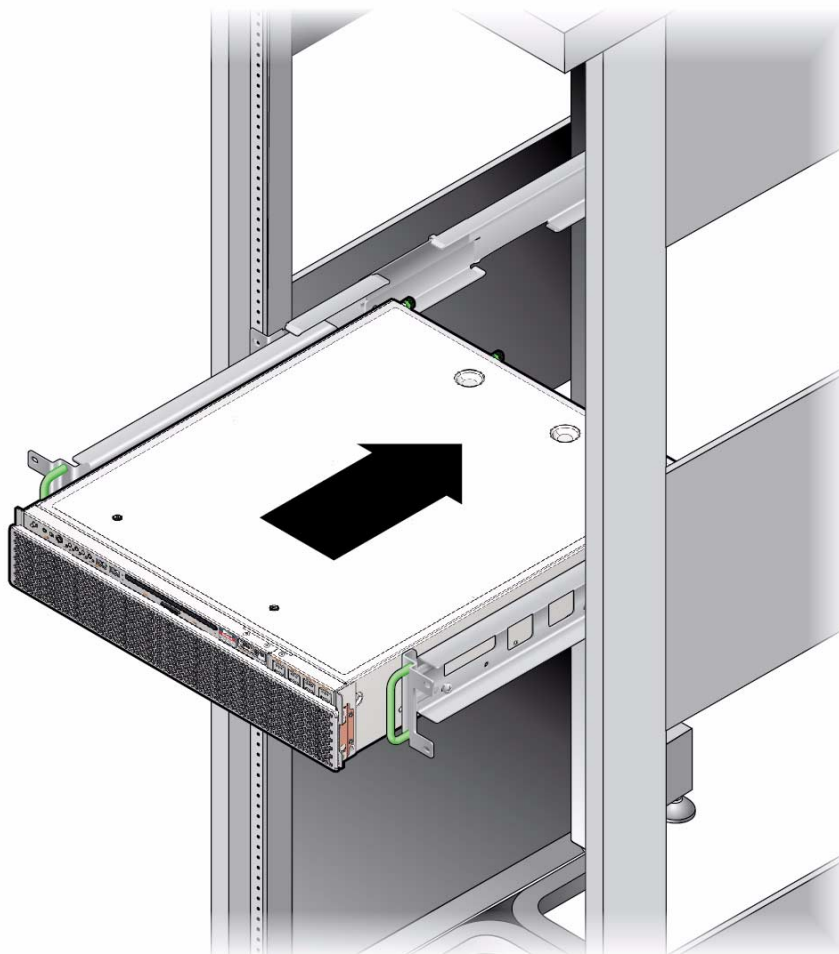


- 8. Using eight of the M5 x 7 SEM screws (four for each side rail), secure the side rails to the sides of the server.**

The side rails can accommodate rack rail setbacks (the distance from the front of the rack to the rack rail) of 50 mm, 75 mm, or 100 mm, depending on the type of rack you are installing the server into.



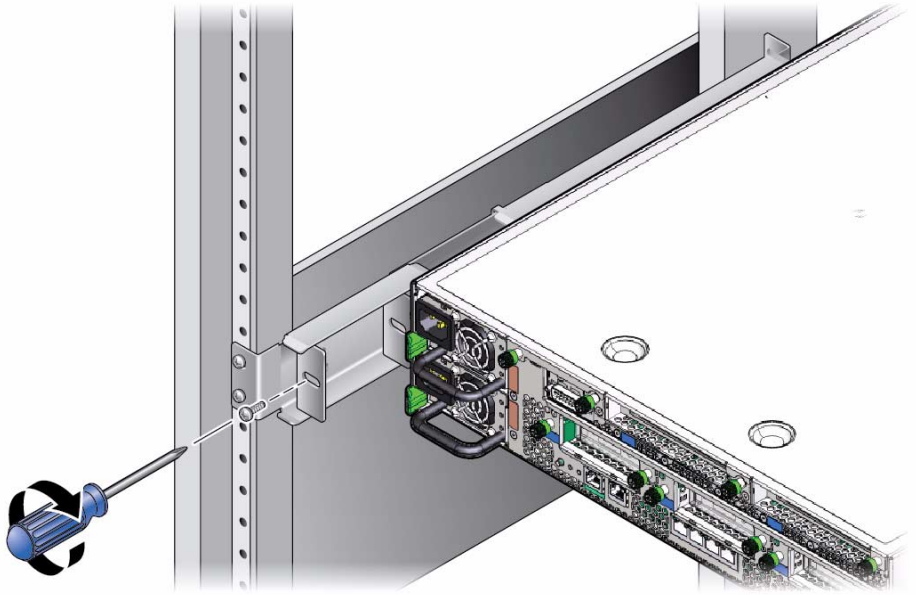
9. Lift the server into the rack and slide the server onto the adjustable rails.



10. Push the server to the desired depth in the rack, then go to the rear of the server and push the rear flanges flush against the back of the server.

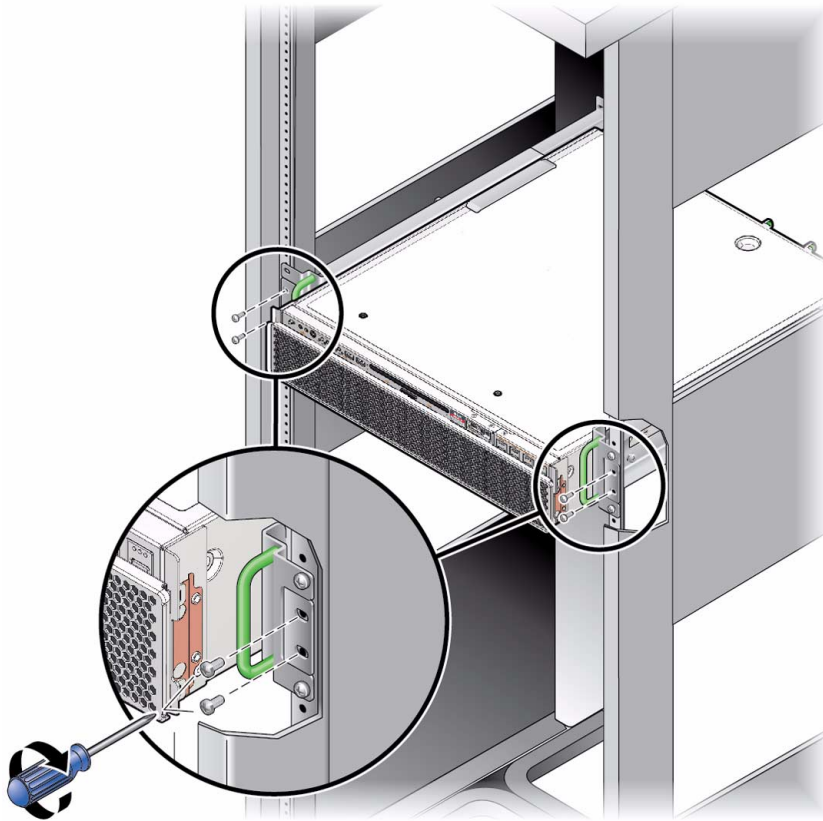
If the rack is especially shallow, you can flip the rear flanges around so that they rest flush against the rear of the server.

11. Lift the server out of the rack.
12. Set the rear flanges to the desired depth in the rack, then tighten the single M5 x 7 SEM screw on each of the flanges to secure them to the adjustable rails.
13. Lift the server into the rack and slide it onto the adjustable rails.
14. Push the server backward until it rests flush against the rear flanges, then use one M5 x 7 SEM screw for each rear flange to secure the rear of the server to the rear flanges.



15. At the front of the rack, use two screws per side to secure the side rails that are attached to the server to the front of the rack.

The size of the screws varies, depending on your particular rack.



Related Information

- [“Stabilize the Rack for Installation” on page 21](#)
- [“600-mm, 4-Post Hardmount Rackmount Kit” on page 34](#)

Mounting the Server Into a 2-Post Rack

The server ships with a 19-inch, 4-post hardmount rackmount kit, but you can order optional rackmount kits for 2-post racks.

Note – References to *left* and *right* are from your viewpoint as you face either the front or rear of the equipment.



Caution – The server is heavy. Two people are required to lift and mount the server into a rack enclosure when following these procedures.



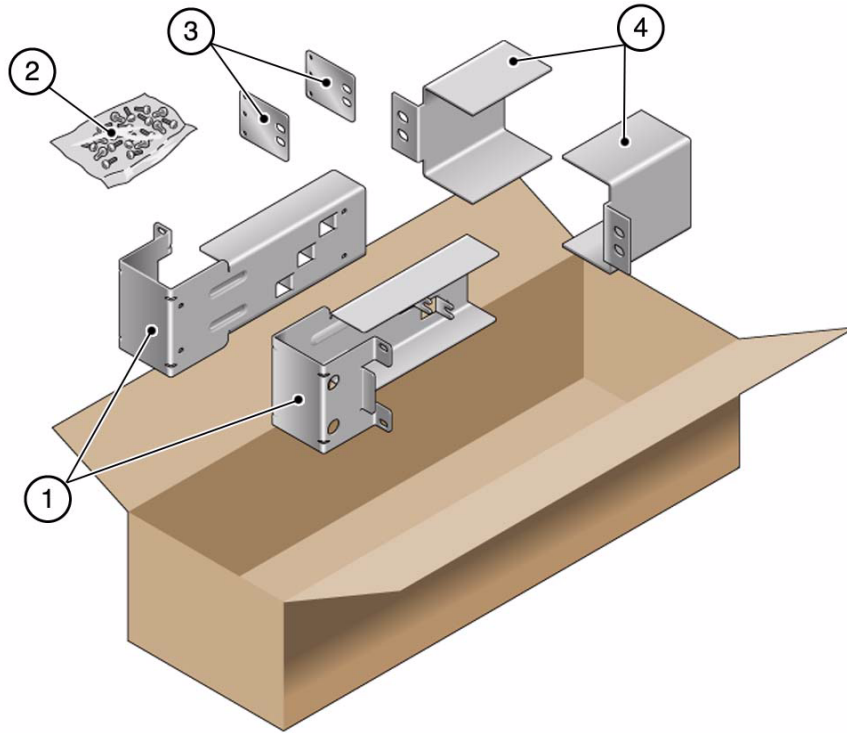
Caution – You *must* install the server into a rack following these instructions. If you deviate from these instructions when installing the server, your installation will not be supported.

Description	Links
Install the server using a 23-inch 2-post rackmount kit.	“23-Inch, 2-Post Hardmount Rackmount Kit” on page 44 “Install the Server (23-Inch, 2-Post Hardmount Rackmount Kit)” on page 45
Install the server using a 19-inch 2-post rackmount kit.	“19-Inch, 2-Post Hardmount Rackmount Kit” on page 50 “Install the Server (19-Inch, 2-Post Hardmount Rackmount Kit)” on page 51
Install the server using a 19-inch 2-post sliding rail rackmount kit.	“19-Inch, 2-Post Rack Sliding Rail Rackmount Kit” on page 56 “Install a Server (19-Inch, 2-Post Sliding Rail Rackmount Kit)” on page 57

Related Information

- [“Mounting the Server Into a 4-Post Rack” on page 22](#)
- [“Preparing for Installation” on page 1](#)

23-Inch, 2-Post Hardmount Rackmount Kit



1	Side brackets (2)	3	Rear plates (2)
2	Screws (see following table)	4	Rail guides (2)

TABLE: 23-Inch, 2-Post Rackmount Screw Kit Contents

No.	Description	Where Used
10	M5 x 7 SEM screws	8 for side brackets, 2 for rear plates
10	M5 x 12.7 mm screws	10 for rack, if appropriate
10	M6 x 13 mm screws	10 for rack, if appropriate
9	M6 square clip nuts	9 for rack, if appropriate
12	10-32 x 0.5 in. combo head screws	12 for rack, if appropriate
12	12-24 x 0.5 in. combo head screws	12 for rack, if appropriate

Related Information

- [“Install the Server \(23-Inch, 2-Post Hardmount Rackmount Kit\)” on page 45](#)

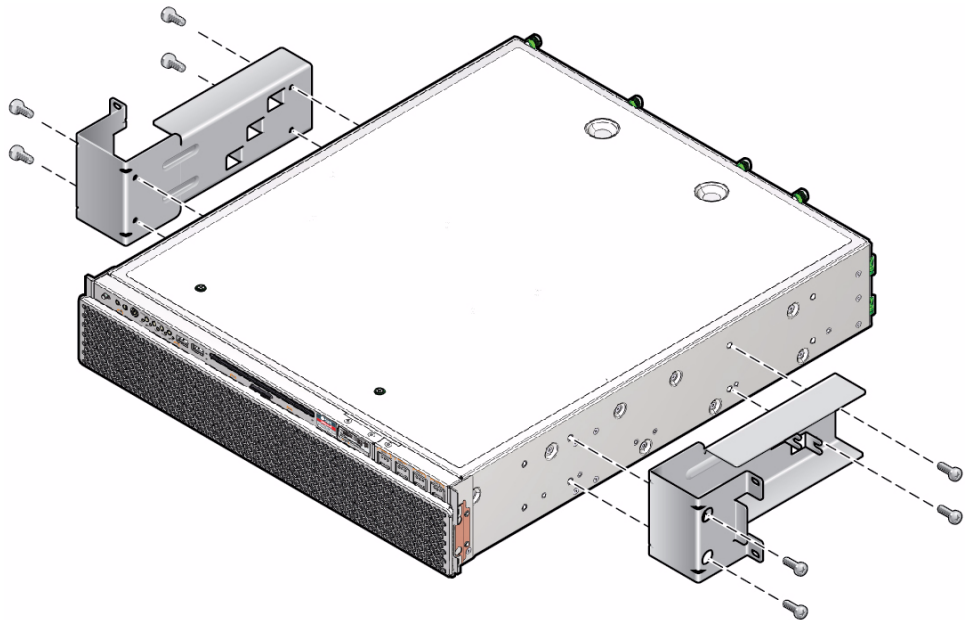
▼ Install the Server (23-Inch, 2-Post Hardmount Rackmount Kit)

Note – The 23-inch, 2-post rackmount kit supports rack web thicknesses (the width of the rack post) of 76.20 mm (3 in.), 101.6 mm (4 in.), and 127 mm (5 in.).

1. Read the Cautions for racks.

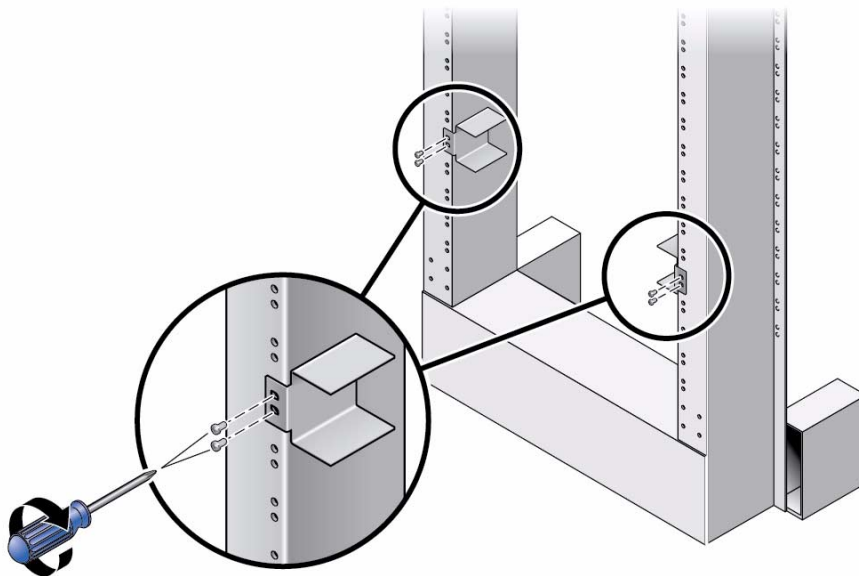
See [“Rack Cautions” on page 20](#).

2. Using eight of the M5 x 7 SEM screws (four for each side bracket), secure the side brackets to the sides of the server.

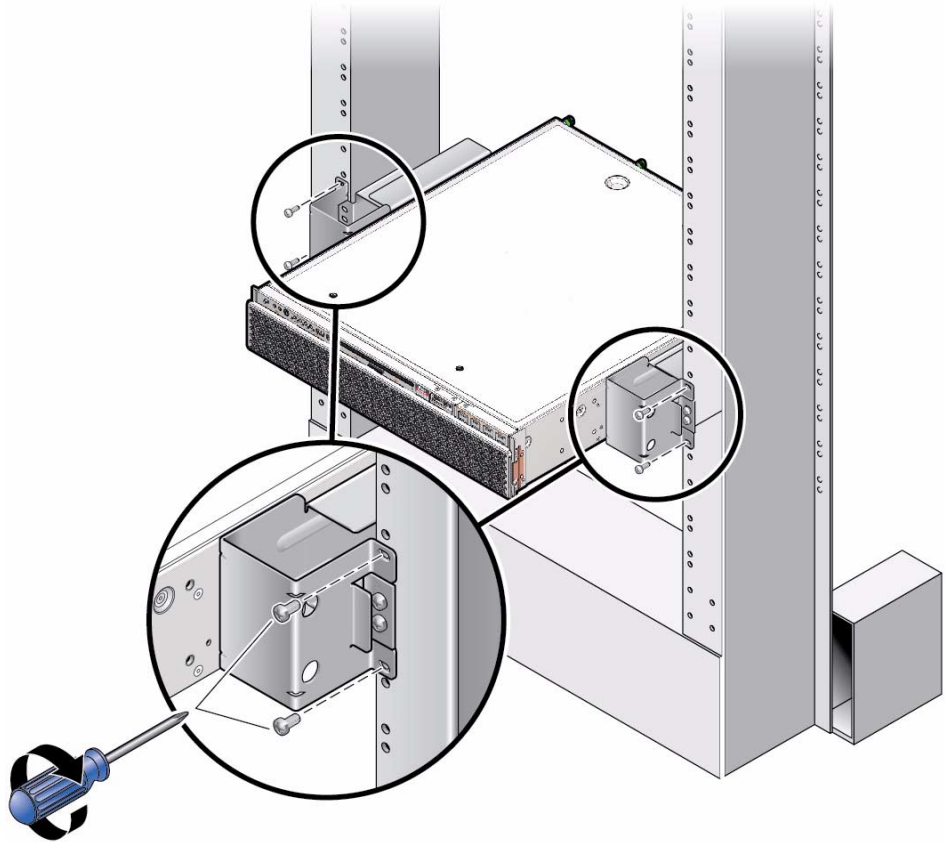


3. Lift the rail guides to the desired height in the rack and, using two screws each, secure both rail guides to the rack.

The size of the screws varies, depending on your particular rack.



4. Lift the server into the rack, and slide the server onto the rail guides.



5. Using two screws on each side, secure each side bracket on the server to the front of the rack.

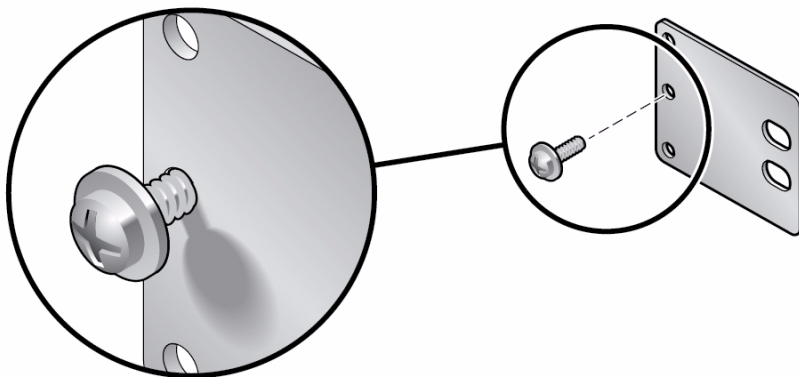
The size of the screws varies, depending on your particular rack.

6. (Optional) If your environment contains especially high vibrations, install the rear plates to further secure the server to the rack.

The rear plates attach to the rear of the post and to one of the three eyelets on each side bracket, depending on the thickness of the post.

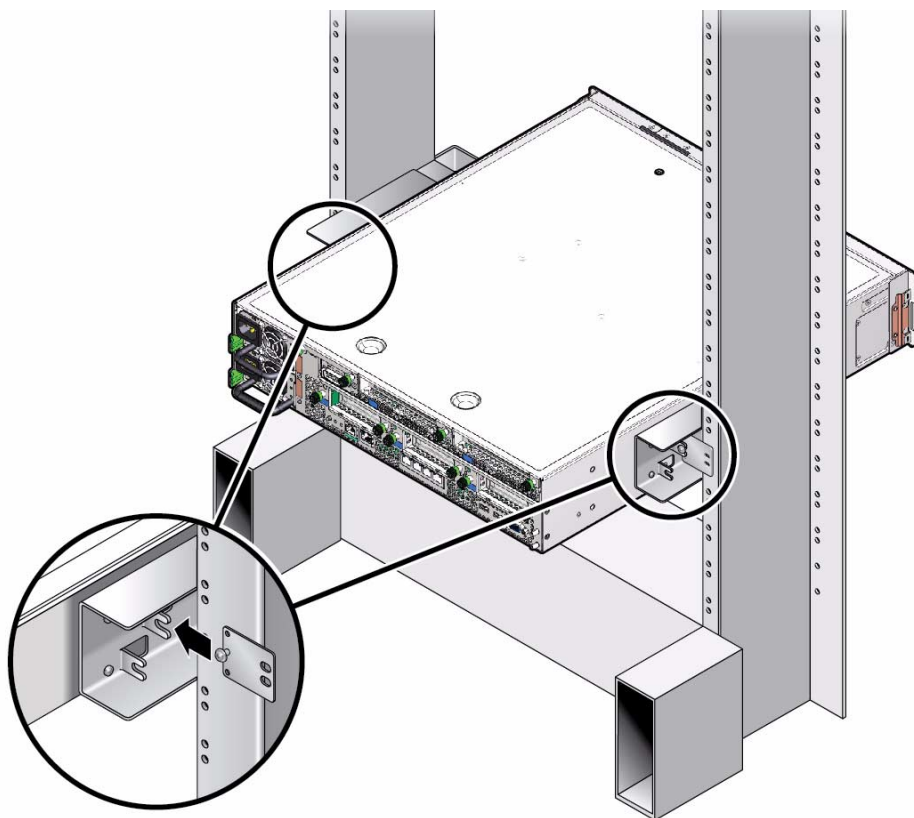
- a. Using one M5 x 7 SEM screw for each rear plate, loosely install the screw in one of the three positions on the rear plate.

The position varies depending on the thickness of the rail in the rack. For example, the following figure shows where you would install the screw for the middle rack position on the rear plate.

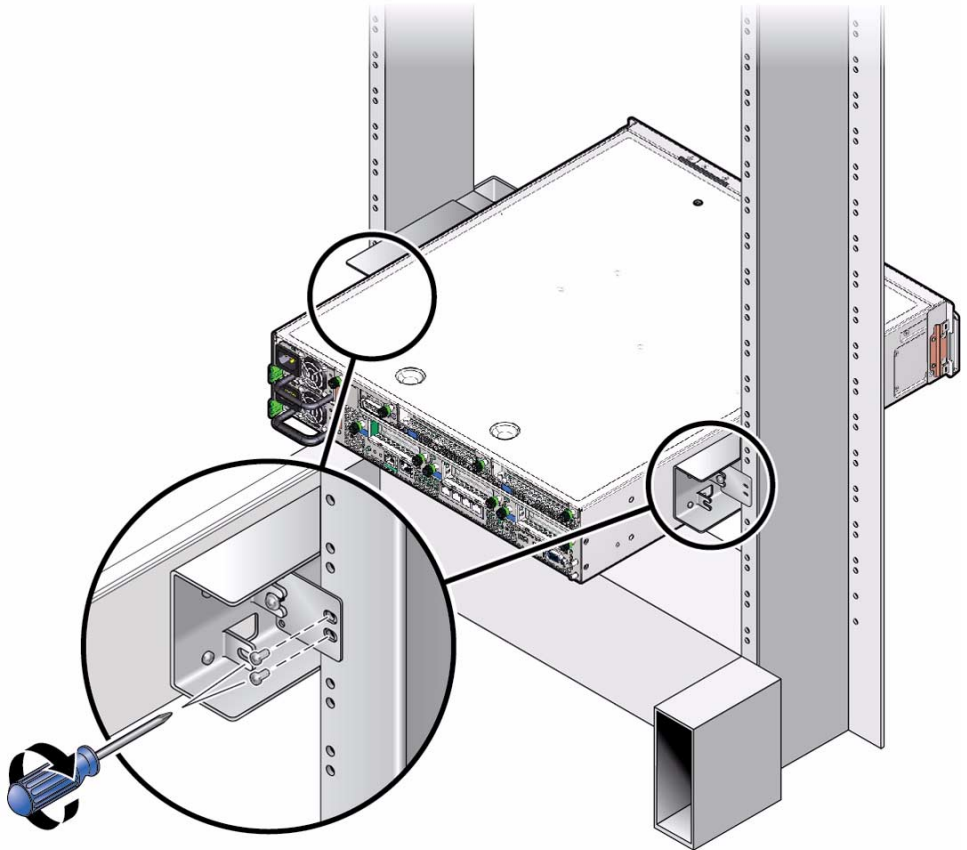


- b. Slide the rear plate in so that the screw slides into position into one of the eyelets.**

The screw head should be facing the rear of the server. The other side of the rear plate should be in front of the rack post.



- c. Tighten the screw to secure the rear plate to the eyelet on the side bracket.
- d. Using two screws, secure the other side of the rear plate to the back of the post.



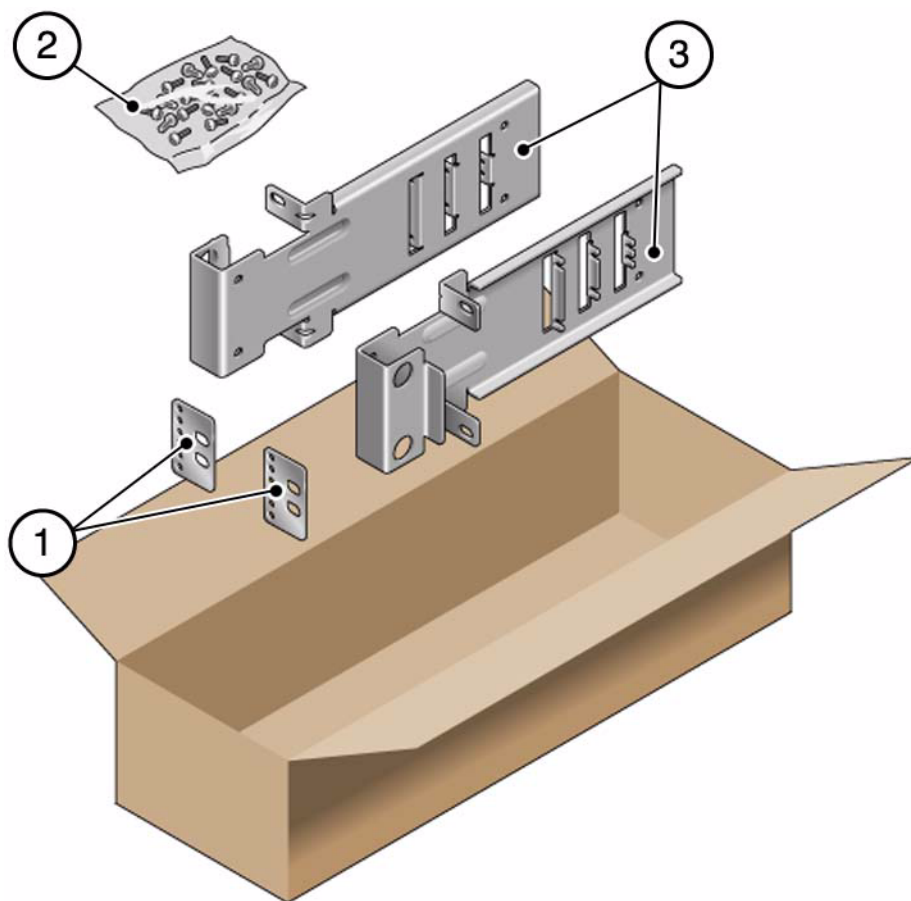
The size of the screws varies, depending on your rack.

- e. Secure the rear plate on the other post.
Repeat [Step a](#) through [Step d](#).

Related Information

- [“Stabilize the Rack for Installation”](#) on page 21
- [“23-Inch, 2-Post Hardmount Rackmount Kit”](#) on page 44

19-Inch, 2-Post Hardmount Rackmount Kit



-
- | | |
|---|------------------------------|
| 1 | Rear plates (2) |
| 2 | Screws (see following table) |
| 3 | Side brackets (2) |
-

TABLE: 19-Inch, 2-Post Hardmount Rack Screw Kit Contents

No.	Description	Where Used
10	M5 x 7 SEM screws	8 for side brackets, 2 extra
6	M3 x 8 SEM screws	4 for rear plates, 2 extra
10	M5 x 12.7 mm screws	10 for rack, if appropriate
10	M6 x 13 mm screws	10 for rack, if appropriate
9	M6 square clip nuts	9 for rack, if appropriate
12	10-32 x 0.5 in. combo head screws	12 for rack, if appropriate
12	12-24 x 0.5 in. combo head screws	12 for rack, if appropriate

Related Information

- [“Install the Server \(19-Inch, 2-Post Hardmount Rackmount Kit\)” on page 51](#)

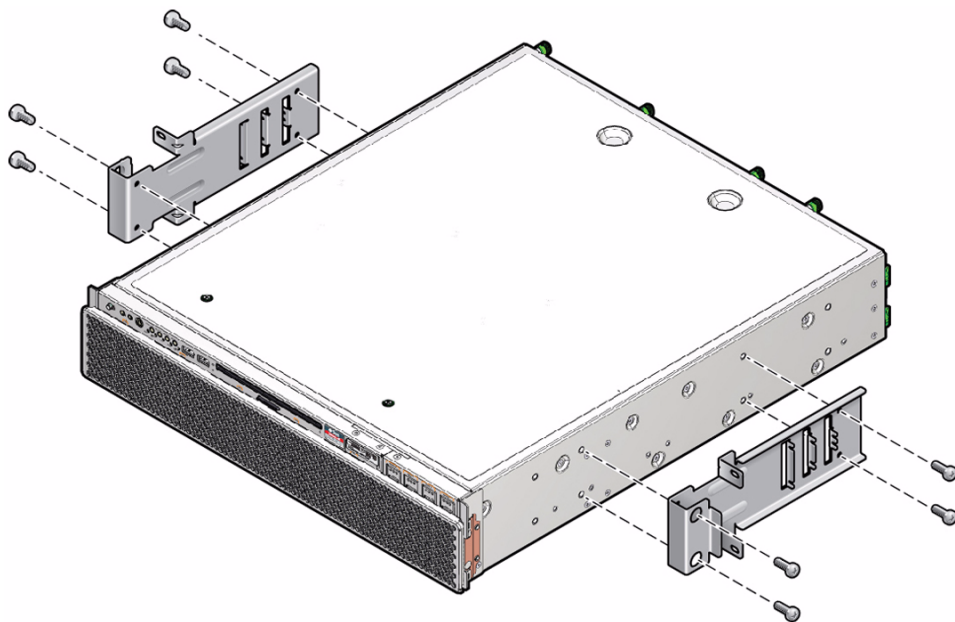
▼ Install the Server (19-Inch, 2-Post Hardmount Rackmount Kit)

Note – The 19-inch, 2-post rackmount kit supports rack web thicknesses (the width of the rack post) of 76.20 mm (3 in.), 101.6 mm (4 in.), and 127 mm (5 in.).

1. Read the Cautions for racks.

See [“Rack Cautions” on page 20.](#)

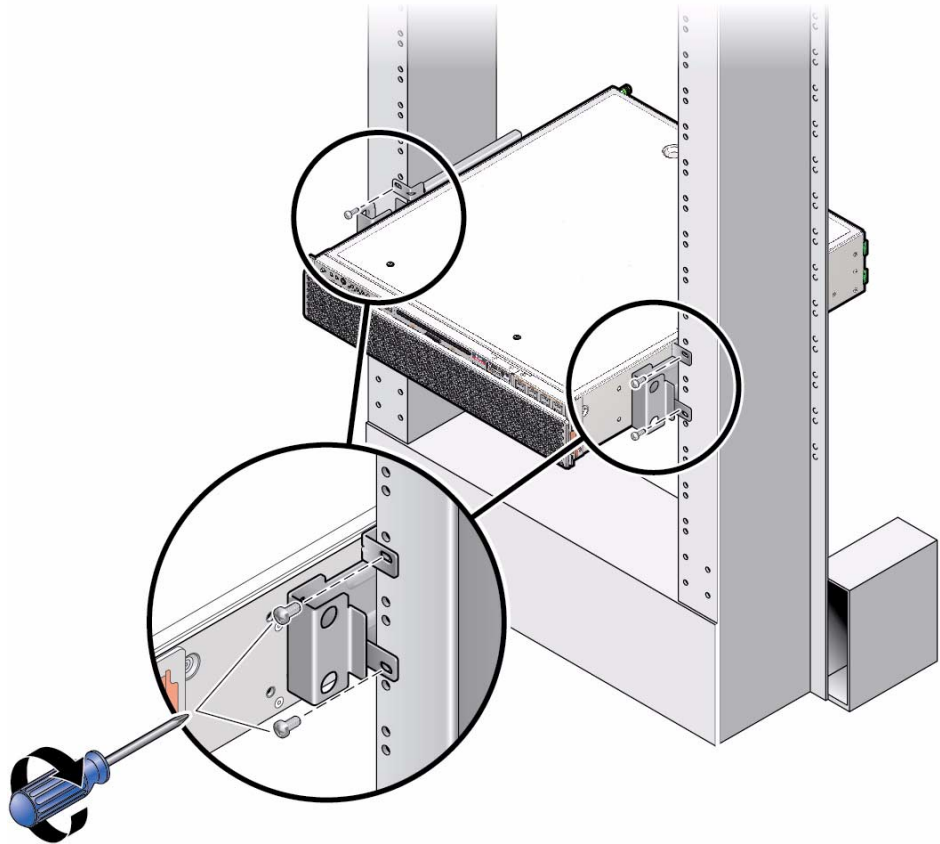
2. Using four of the M5 x 7 SEM screws for each side bracket, secure the side brackets to the sides of the server.



3. Lift the server into the rack.

4. Using two screws for each bracket, secure the front of the server to the front of the rack.

The size of the screws varies, depending on your rack.

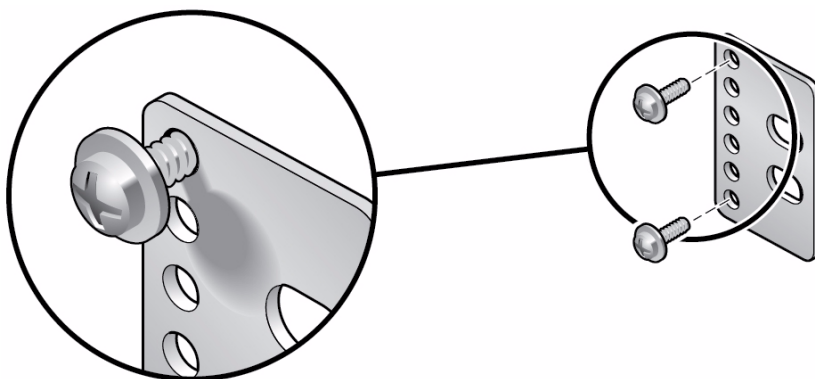


5. (Optional) If your environment contains especially high vibrations, install the rear plates to further secure the server to the rack.

The rear plates attach to the rear of the post and to one of the three sets of eyelets on each side bracket, depending on the thickness of the post.

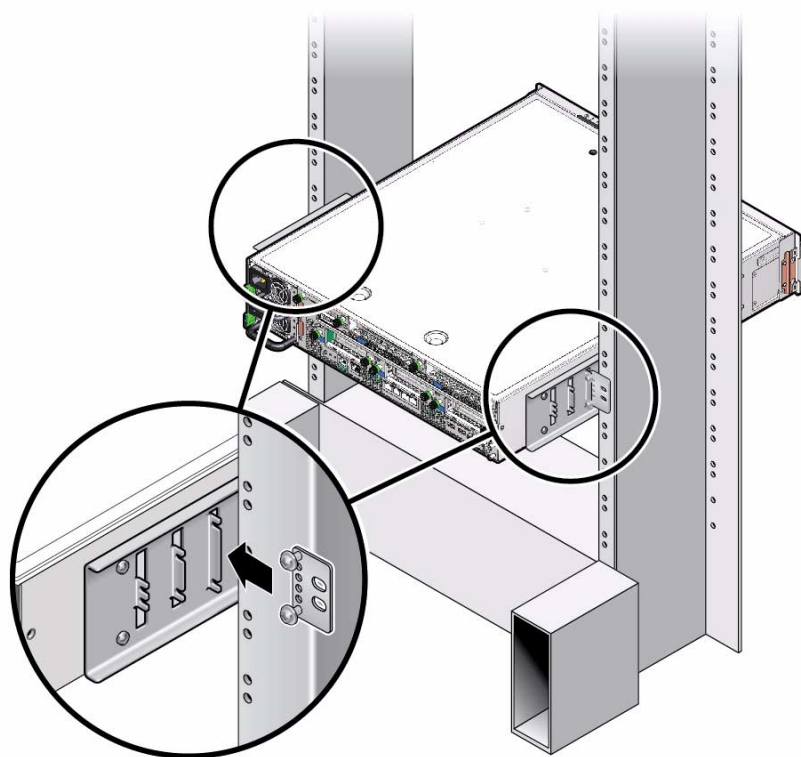
- a. Using two of the M3 x 8 SEM screws for each rear plate, loosely install the screws in one of the six positions on the rear plate.

The position varies depending on the thickness of the rail in the rack. For example, the following figure shows where you would install the screws for the optimum rack position on the rear plate.



- b. Slide the rear plate in so that the screws slide into position into one set of the eyelets.**

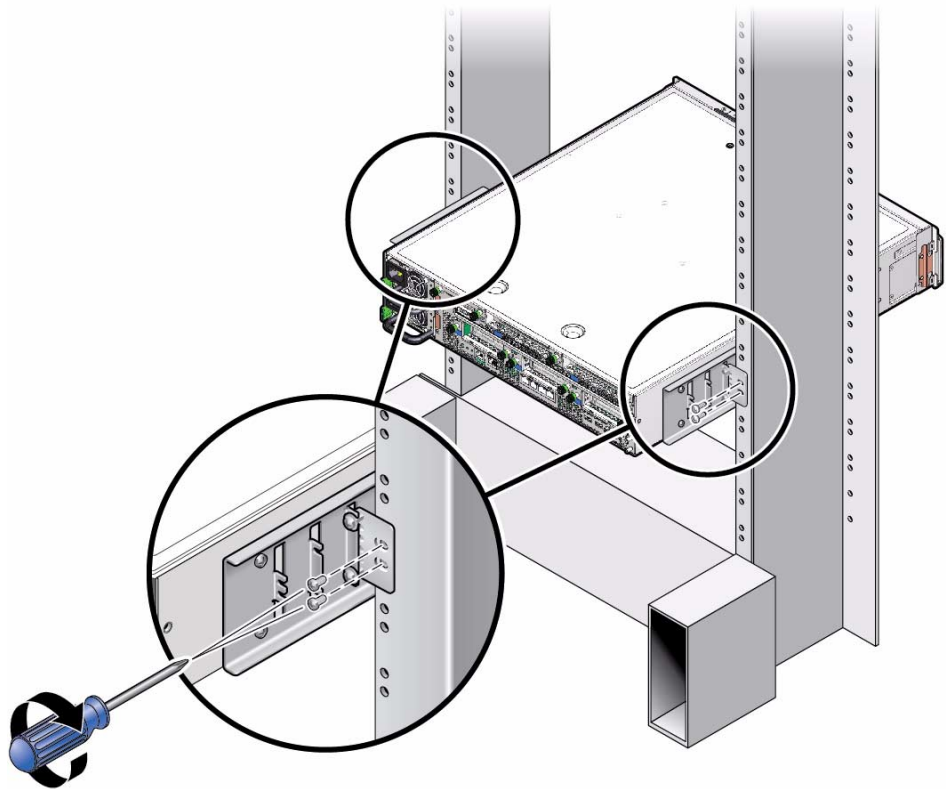
The screw heads should be facing the rear of the server. The other side of the rear plate should be in front of the rack post.



- c. Tighten the screws to secure the rear plate to the set of eyelets on the side bracket.**

- d. Using two screws, secure the other side of the rear plate to the back of the post.

The size of the screws varies, depending on your rack.



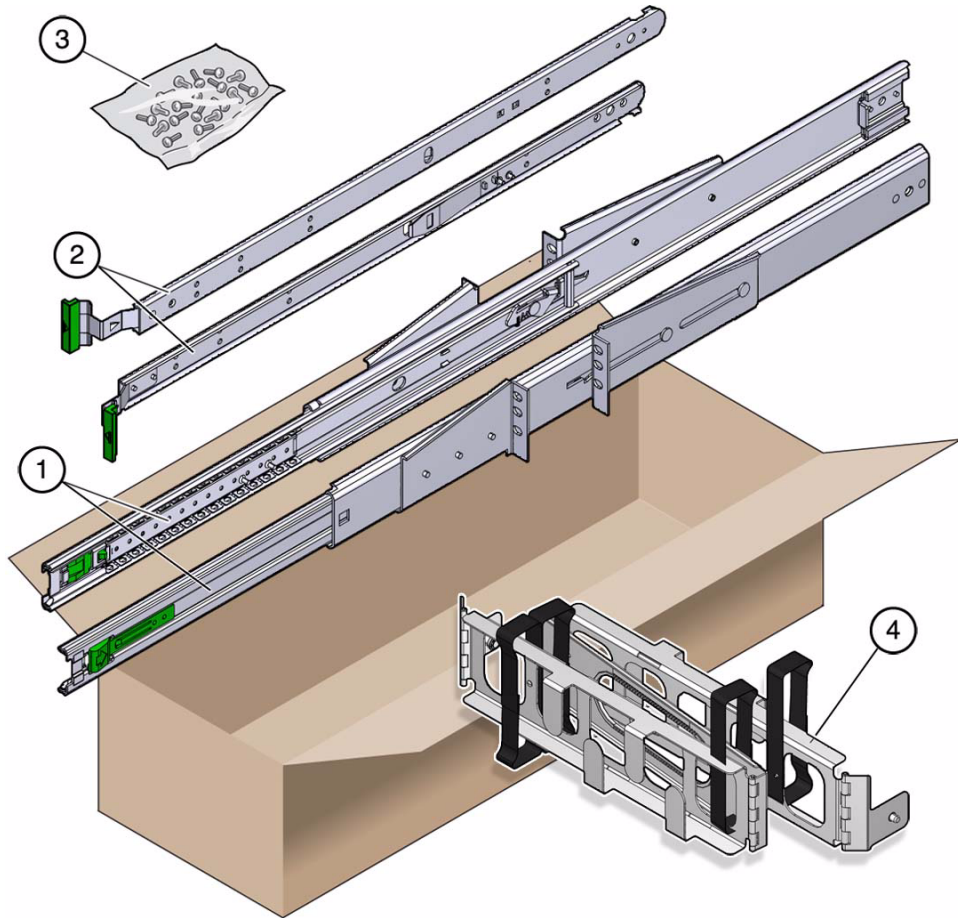
- e. Secure the rear plate on the other post.

Repeat [Step a](#) through [Step d](#).

Related Information

- [“Stabilize the Rack for Installation” on page 21](#)
- [“19-Inch, 2-Post Hardmount Rackmount Kit” on page 50](#)

19-Inch, 2-Post Rack Sliding Rail Rackmount Kit



1	Slide assemblies (2)	4	Cable management arm
2	Inside glides (2)		Threaded strips – M6 (4) 10-32 (4) (not pictured)
3	Screws (see following table)		

TABLE: 19-Inch, 2-Post Sliding Rail Mount Screw Kit Contents

No.	Description	Where Used
10	M4 x 0.5 mm x 5 mm Phillips panhead screws	8 for glides, 2 extra
10	M5 x 12.7 mm screws	10 for rack, if appropriate
12	M6 x 13 mm screws	10 for rack, 2 extra
9	M6 square clip nuts	9 for rack, if appropriate
10	10–32 collar screws, 4 short, 4 long, 2 extra	8 for racks with 10-32 holes, if appropriate
12	10–32 x 0.5 in. combo head screws	12 for rack, if appropriate
12	12–24 x 0.5 in. combo head screws	12 for rack, if appropriate

Related Information

- [“Install a Server \(19-Inch, 2-Post Sliding Rail Rackmount Kit\)” on page 57](#)

▼ Install a Server (19-Inch, 2-Post Sliding Rail Rackmount Kit)

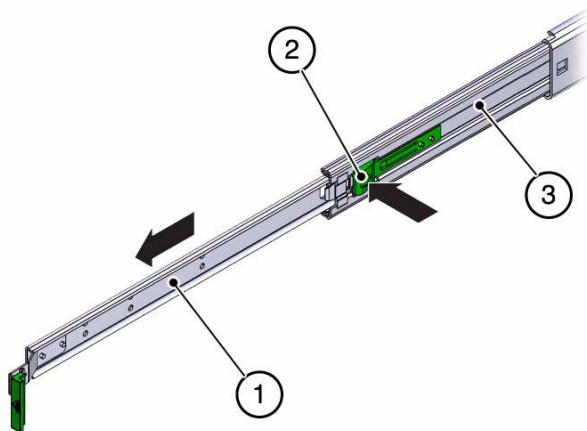
Note – The 19-inch, 2-post sliding rail rackmount kit supports rack web thicknesses (the width of the rack post) of 76.20 mm (3 in.), 101.6 mm (4 in.), and 127 mm (5 in.).

Note – The front-to-back rail spacing must be at least 392 mm (15.43 in.) and not more than 863.6 mm (34 in.) from the outside face of the front rail to the outside face of the back rail.

1. Read the Cautions for racks.

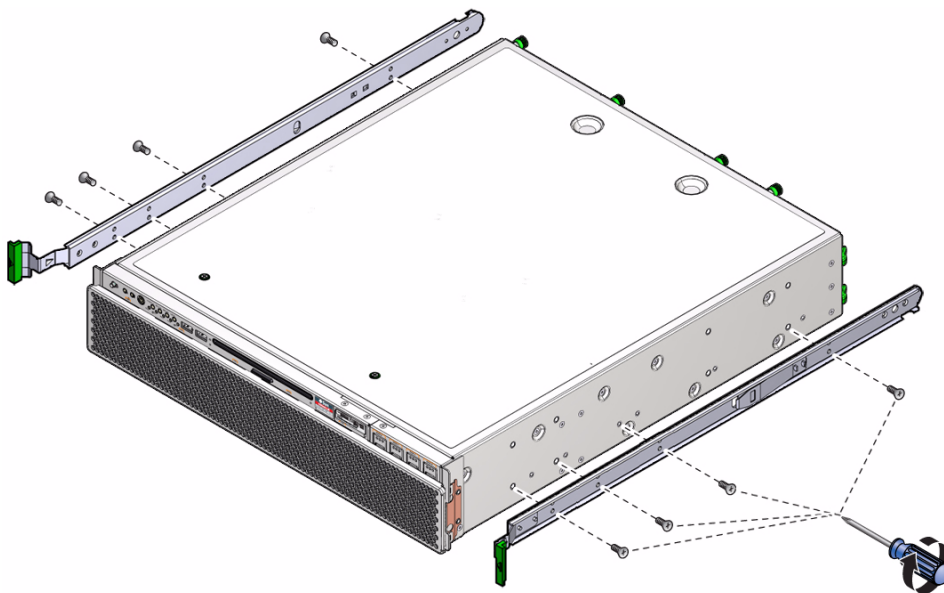
See [“Rack Cautions” on page 20](#).

2. Press in the green button on each slide assembly, and pull the right side and left side inner glides completely out of the slides.



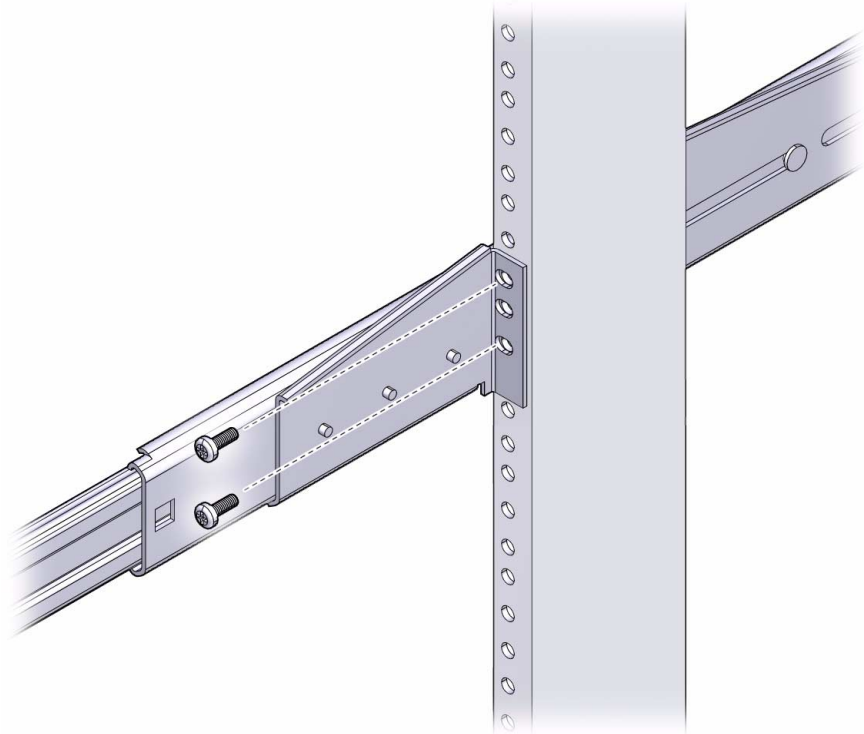
-
- | | |
|---|----------------------|
| 1 | Glide |
| 2 | Button |
| 3 | Slide (in two parts) |
-

3. Using eight of the M4 x 0.5 x 5 mm Phillips panhead screws from the rackmount kit (four for each side), attach each glide to the side of the server chassis.



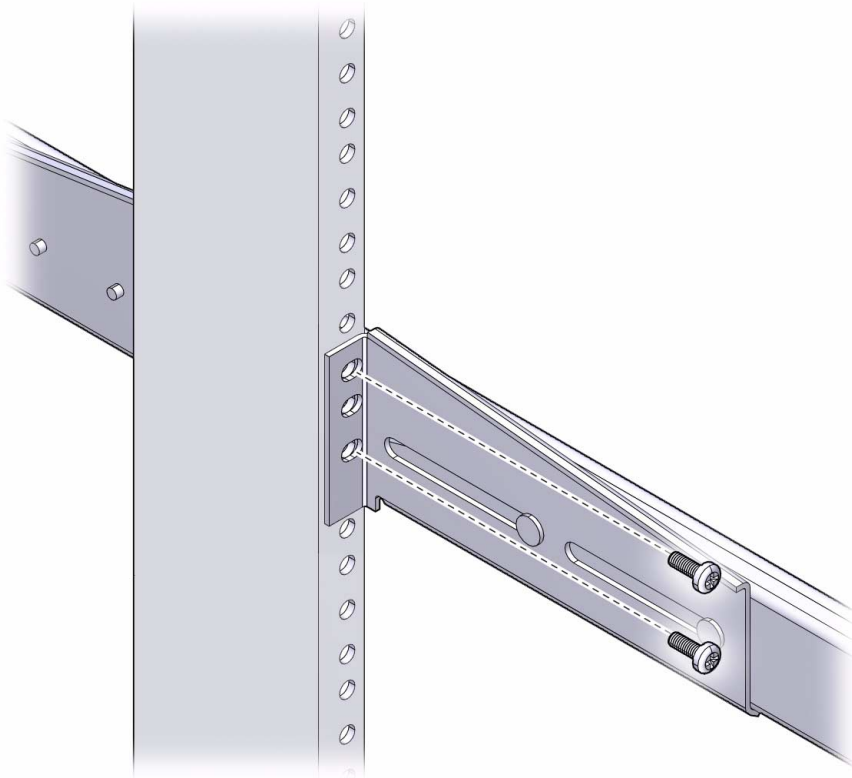
4. Lift each front bracket to the desired position at the *front* of the rack and attach a front bracket to each of the front rack posts.

To secure each bracket, use two of the M5 x 12.7 mm screws or two of the M6 x 13 mm screws. Tighten the screws enough to secure the brackets, but leave them loose enough for adjustment later.



5. Lift each rear bracket to the desired position at the *rear* of the rack and attach a rear bracket to each of the rear rack posts.

To secure each bracket, use two of the M5 x 12.7 mm screws or two of the M6 x 13 mm screws, as you did in [Step 4](#). Tighten the screws enough to secure the brackets, but leave them loose enough for adjustment later.

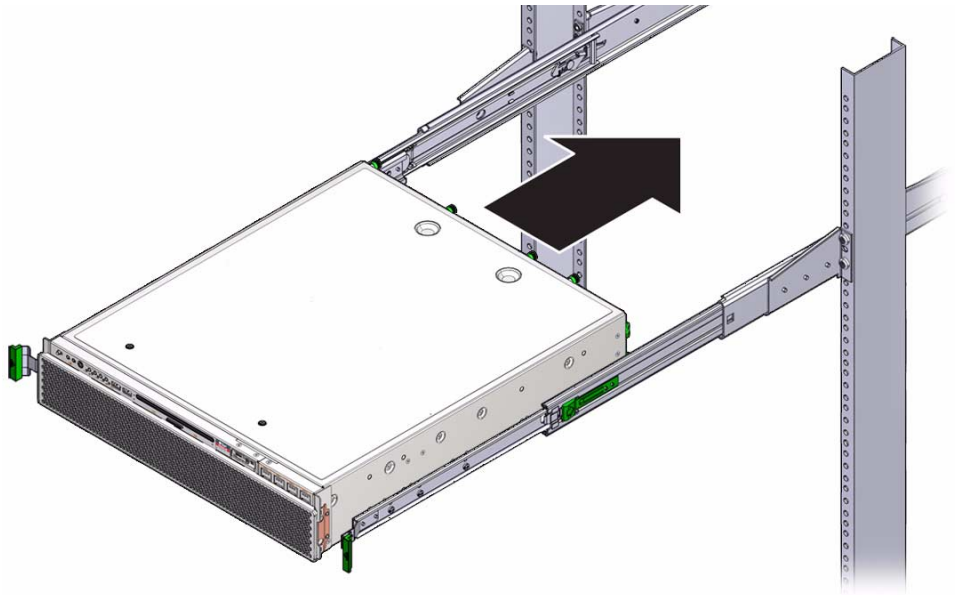


Note – If your rack has 10–32 holes, use the 10–32 collar screws and 10–32 threaded strips.

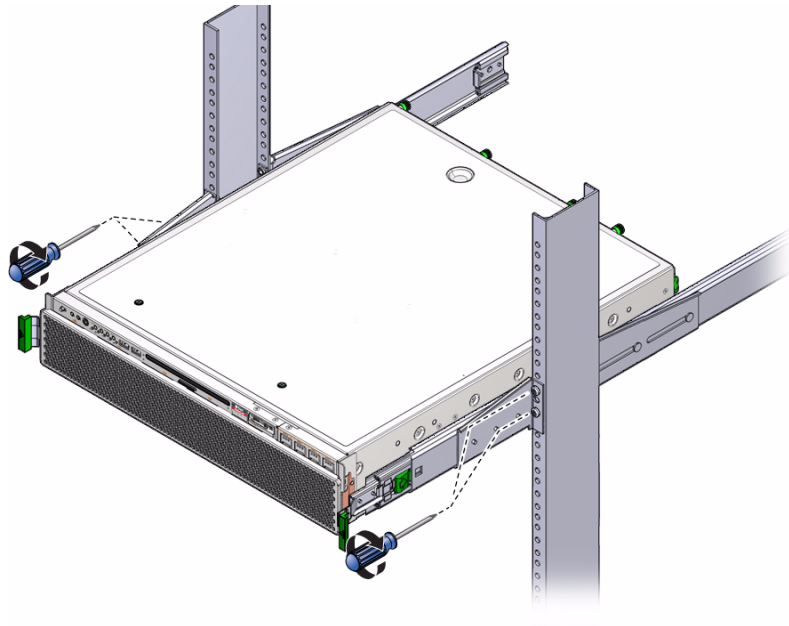
6. Align the glides attached to the server with the slide assemblies in the rack.

You might find that there is too much or too little room between the two slides mounted in the rack. Consequently the glides attached to the server might not align correctly with the slides in the rack. If either situation occurs, loosen the screws on the front and back brackets ([Step 4](#) and [Step 5](#)), move the brackets inward or outward to the appropriate points, then tighten the brackets again.

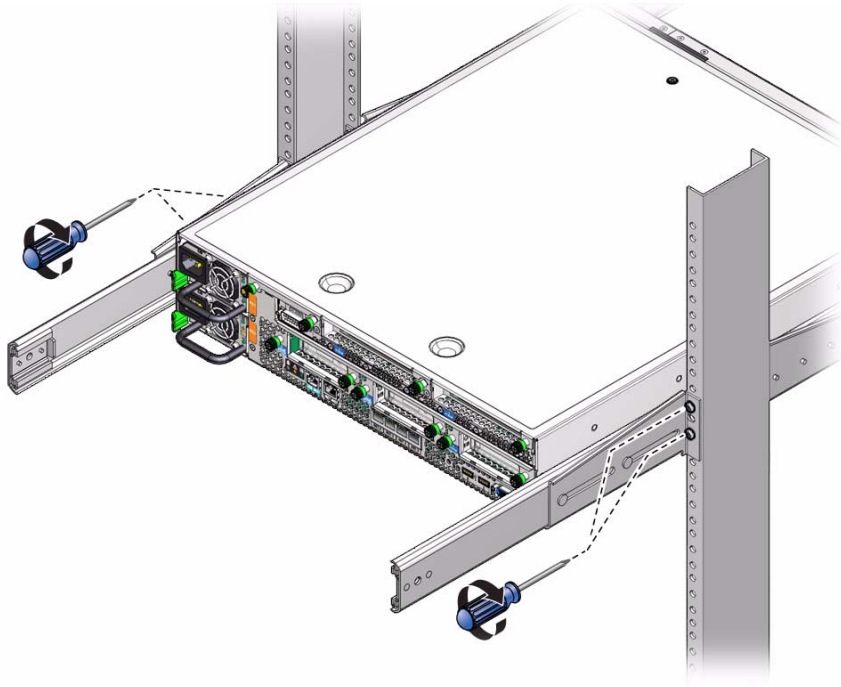
7. Push in the slide buttons and slide the server all the way into the rack enclosure.



8. Fully tighten the screws on the front brackets.

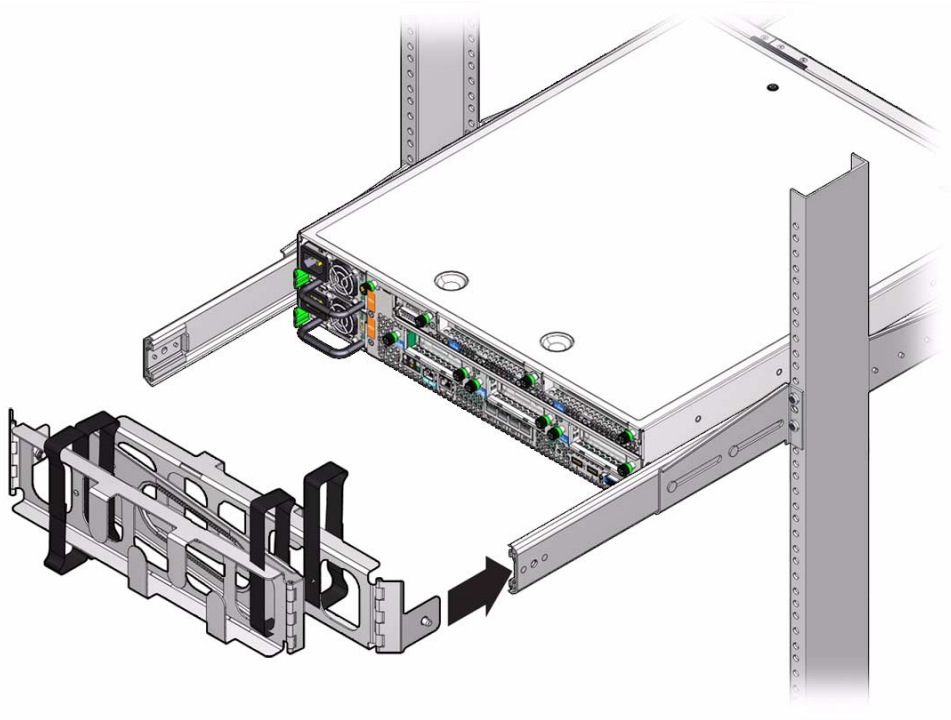


9. Fully tighten the screws on the rear brackets.



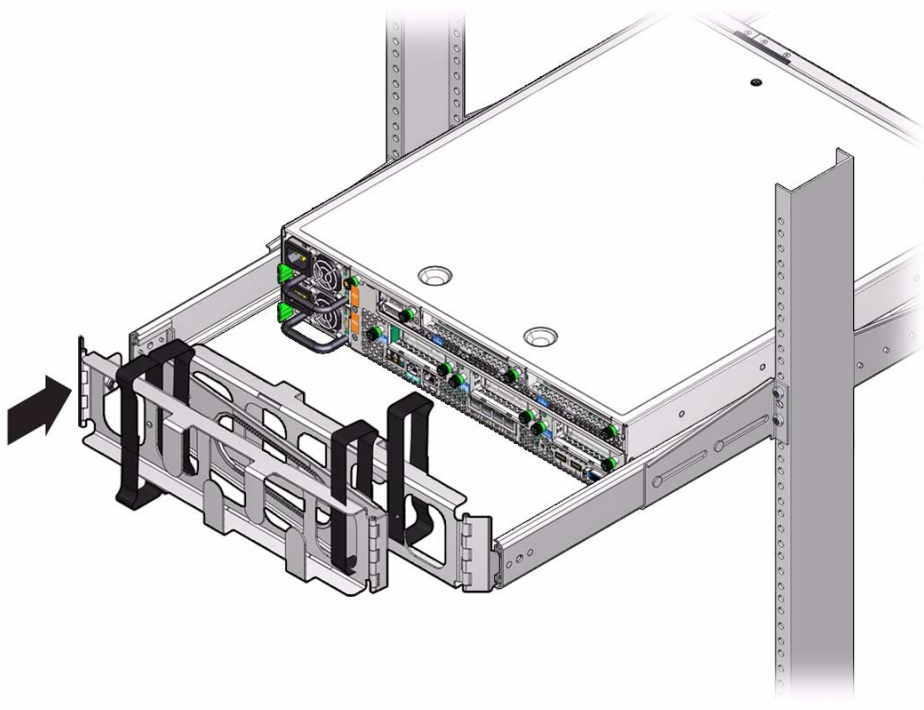
10. Attach the CMA to the right rail on the right side.

There are labels on both the rails and the CMA. The CMA side that has an arrow attaches to the right inner glide. The other side of the CMA attaches to the outer member.



11. Attach the CMA to the left rail.

There are labels on both the rails and the CMA. The CMA side that has an arrow attaches to the left inner glide. The other side of the CMA attaches to the outer member.



Related Information

- [“Stabilize the Rack for Installation” on page 21](#)
- [“19-Inch, 2-Post Rack Sliding Rail Rackmount Kit” on page 56](#)

Connecting the Server Cables

Connect and configure the network and serial ports before you attempt to boot the server.

- [“Cabling Requirements” on page 65](#)
- [“Back Panel Connectors and Ports” on page 66](#)
- [“Connect the SER MGT Cable” on page 67](#)
- [“Connect the NET MGT Cable” on page 68](#)
- [“Connect the Ethernet Network Cables” on page 69](#)
- [“Connect Other Data Cables” on page 69](#)
- [“Prepare the Power Cords” on page 70](#)

Related Information

- [“Back Panel Components” on page 14](#)

Cabling Requirements

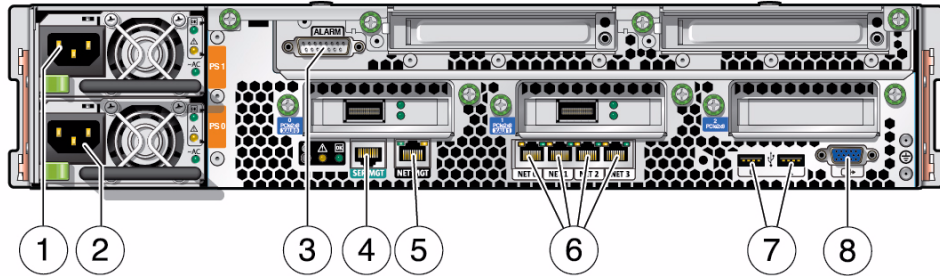
Prior to cabling and powering-on the server, gather the following network information:

- Netmask
- IP address for the service processor
- Gateway IP address

At a minimum, you must connect cables to these ports before powering on the server for the first time:

- SER MGT port
- NET MGT port
- At least one system on-board Ethernet network port
- Power cables to the power supply inlet ports

Back Panel Connectors and Ports



No.	Connectors and Ports	Description
1	Power supply 0 (AC version shown)	Use the supplied or supported AC power cords... For DC power cords see “Assembling and Connecting DC Power Cords” on page 71. Note - Before attaching power cords to the power supplies, connect the data cables and connect the server to a serial terminal or a terminal emulator (PC or workstation).
2	Power supply 1 (AC version shown) inlet	
3	Alarm port	This port provides a connection for a Telco Dry Alarm Relay cable. The port accepts a DB-15 socket connector.
4	SER MGT port	The serial management port uses an RJ-45 cable and is always available. This port is the default connection to the ILOM system controller.
5	NET MGT Ethernet port	The network management port is the optional connection to the ILOM SP. The service processor network management port uses an RJ-45 cable for a 10/100BASE-T connection. If your network does not use a DHCP server, this port will not be available until you configure network settings through the SER MGT port. Note - This port does not support connections to Gigabit networks.
6	Network 10/100/1000 ports (NET0, NET1, NET2, and NET3)	The four Gigabit Ethernet ports enable you to connect the server to the network. Note - Using the ILOM sideband management feature, you can access the SP using one of these ports. Refer to <i>Netra SPARC T3-1 Server Administration Guide</i> for instructions.

No.	Connectors and Ports	Description
7	USB ports (USB 0, USB 1)	<p>The two USB ports support hot-plugging. You can connect and disconnect USB cables and peripheral devices while the server is running, without affecting server operations.</p> <p>Note - The maximum USB cable length for connecting to the server's USB ports is 5 mm.</p> <p>Note - You can connect up to 126 devices to each of the four USB controllers (two ports in front, two ports in back), for a total of 504 USB devices per server.</p>
8	HDB-15 video port	<p>Use a HDB-15 video cable to connect to a video device.</p> <p>Note - The cable length used to connect between monitor and the VGA port should not be over 6 meters.</p>

Related Information

- [“Identifying the Server Ports” on page 89](#)
- [“Back Panel Components” on page 14](#)

▼ Connect the SER MGT Cable

The service processor serial management port is labeled SER MGT. Use the SER MGT port *only* for server management.



Caution – Do not attach a modem to this port.

- **Connect a Category 5 (or better) cable from the SER MGT to a terminal device.**
When connecting a DB-9 cable, use an adapter to perform the crossovers given for each connector.



Related Information

- [“Prepare the Power Cords” on page 70](#)
- [“Connect the NET MGT Cable” on page 68](#)
- [“Connect the Ethernet Network Cables” on page 69](#)
- [“Connect Other Data Cables” on page 69](#)

▼ Connect the NET MGT Cable

The service processor network management port is labeled NET MGT. After the initial server configuration, you can connect to the service processor over an Ethernet network using this NET MGT port.

If your network uses a DHCP server to assign IP addresses, the DHCP server will assign an IP address to this NET MGT port. With this IP address, you can connect to the service processor using an SSH connection. If your network does not use DHCP, this NET MGT port will not be accessible until you configure the network settings through the SER MGT port. For instructions, see [“Assign a Static IP to the NET MGT Port” on page 85](#)

- **Connect a Category 5 (or better) cable from the NET MGT port to your network switch or hub.**



Related Information

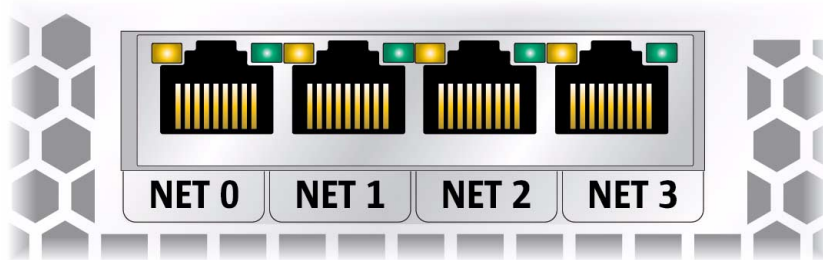
- [“Connect the Ethernet Network Cables” on page 69](#)
- [“Connect the SER MGT Cable” on page 67](#)
- [“Connect Other Data Cables” on page 69](#)

▼ Connect the Ethernet Network Cables

The server has four Gigabit Ethernet network connectors, marked NET0, NET1, NET2, and NET3. Use these ports to connect the server to the network. The Ethernet interfaces operate at 10 Mbps, 100 Mbps, and 1000 Mbps.

Note – The ILOM sideband management feature enables you to access the SP using one of these Ethernet ports. Refer to *Netra SPARC T3-1 Server Administration Guide* for instructions.

1. Connect a Category 5 (or better) cable from your network switch or hub to Ethernet Port 0 (NET0) on the rear of the chassis.



2. Connect Category 5 (or better) cables from your network switch or hub to the remaining Ethernet ports (NET1, NET2, NET3), as needed.

Related Information

- [“Powering On the Server for the First Time” on page 77](#)

▼ Connect Other Data Cables

If your server includes optional PCIe cards, connect the appropriate I/O cables to their connectors.

- If your server configuration includes optional PCIe cards, connect the appropriate I/O cables to their connectors.

Refer to the PCIe card documentation for specific instructions.

Related Information

- PCIe card documentation

▼ Prepare the Power Cords

Prepare the power cords by routing them from the power source to the server.



Caution – Do not attach power cables to the power supplies until you have first connect the server to a serial terminal or a terminal emulator (PC or workstation).

Note – The server goes into Standby mode and the ILOM service processor initializes as soon as a power cable connects a power supply to an external power source. System messages might be lost after 60 seconds if a terminal or terminal emulator is not connected to the SER MGT port before power is applied.

Note – ILOM will signal a fault if both power supplies are not cabled at the same time, since that situation will be a nonredundant condition.

1. Ensure that the +circuit breakers are off on the AC power source or that the DC input cables are de-energized with no DC power present.
2. Route the power cords from the power source to the rear of the server and secure the cables with nylon tie wraps.

Related Information

- AC power source documentation

Assembling and Connecting DC Power Cords

These topics provide the power requirements for the DC-powered version of the server, as well as instructions on how to assemble and connect DC power cords to the server.

Description	Link
Review requirements for the DC power source, chassis ground, the DC connectors, and the overcurrent protection.	“Electrical Specifications” on page 6 “DC Power Source, Power Connection, and Grounding Requirements” on page 8 “Input Power Information” on page 7 “Overcurrent Protection Requirements” on page 8
Assemble the DC input power cables.	“Assemble the DC Input Power Cables” on page 71
Connect the DC input power cables to the server.	“Connect the DC Input Power Cords to the Server” on page 74

Related Information

- [“Electrical Specifications” on page 6](#)
- [“Prepare the Power Cords” on page 70](#)

▼ Assemble the DC Input Power Cables

The following procedure describes how to assemble the DC input power cables.

Assemble one cable for each DC power supply in your server.

Before you begin the installation procedure, verify that the required conditions described in the following table have been satisfied.

Prerequisite Condition	Responsible Party
Install a DC power source that meets the server's input power specifications.	Customer
Secure DC power cables that meet the server's power cabling specifications.	Customer
Attach the DC input plug to the DC input power cables. The input plug is provided in the server's shipping kit.	Customer

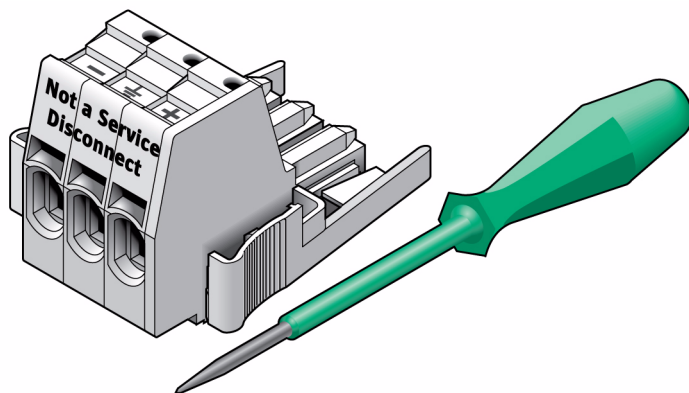
1. Turn off power from the DC power source using the circuit breakers.



Caution – Before proceeding with these instructions, turn off the power from the DC power source through the circuit breakers.

2. Identify the parts that you will use to assemble the DC input power cables.

For each cable, you need a DC input plug, cage clamp tool, or small screwdriver. These items are provided in the shipping kit that came with your server (DC models only).



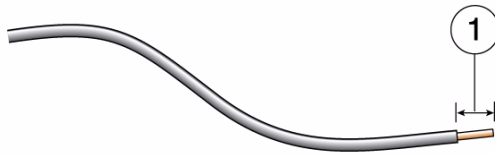
3. Locate the three wires coming from your DC power source that will be used in the connection to your unit:

- -48V or -60V (negative terminal)
- Chassis ground
- -48V or -60V Return (positive terminal)

Note – Depending on the DC power source, the -48V or -60V (negative terminal) might be marked with a minus (-) symbol. The -48V or -60V Return (positive terminal) might be marked with a positive (+) symbol.

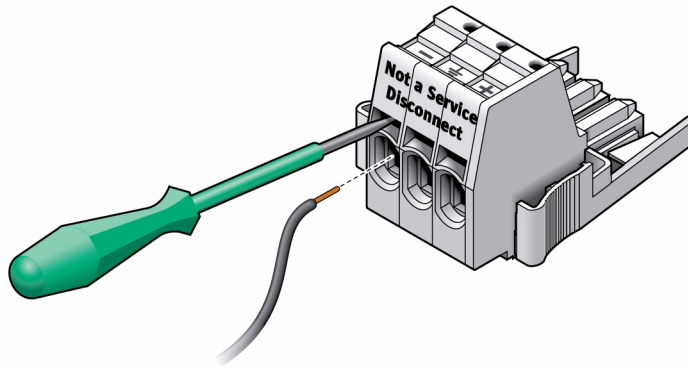
4. Strip 1/2 in. (13 mm) of insulation from each of the wires coming from the DC power source.

Do not strip more than 1/2 in. (13 mm) from each wire. Doing so leaves uninsulated wire exposed from the DC connector after the assembly is complete.

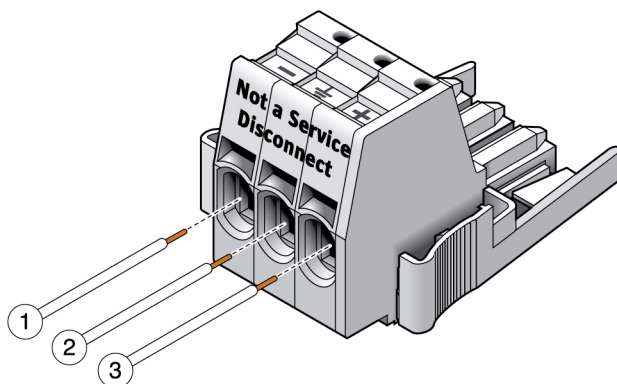


1 1/2 in. (13 mm)

5. Open the cage clamp by inserting the cage clamp tool (or small screwdriver) into the rectangular hole directly above the hole in the DC input plug where you want to insert the first wire, and push in to open the cage clamp.



6. Feed the exposed section of the appropriate wire into the round plug hole in the DC input plug.



-
- | | |
|---|------------------------------------|
| 1 | From -48V or -60V |
| 2 | From Chassis ground (green/yellow) |
| 3 | From -48V or -60V Return |
-

Note – If you need to remove a wire from the DC input plug, insert the cage clamp operating tool or a small screwdriver into the slot directly above the wire and push in. Pull the wire from the DC input plug.

7. Remove the cage clamp tool to secure the wire.
8. Repeat the procedures for the other two wires to complete the assembly of the DC input power cable.
9. Repeat this procedure to create as many DC input power cables as you need for your unit.

Related Information

- [“Connect the DC Input Power Cords to the Server” on page 74](#)

▼ Connect the DC Input Power Cords to the Server

1. Ensure that the circuit breaker to your power source is turned off.



Caution – Before proceeding with these instructions, turn off the power from the DC power source through the circuit breakers.

2. Route the power cables in the rack and secure the cables with nylon tie wraps.
3. Connect the chassis ground wire to the facility ground and ensure that this connection has proper bonding.
4. Connect the -48V or -60V Return to the -48V or -60V wires to the circuit breaker.
5. Connect the power wiring to the server by plugging each power cable into the server power supply units.
6. When you are ready to power up the server, close the circuit breaker and follow the booting procedure.

See [“Powering On the Server for the First Time”](#) on page 77.

Related Information

- [“Powering On the Server for the First Time”](#) on page 77

Powering On the Server for the First Time

These topics include instructions for powering on the server for the first time, booting the server, and configuring the Oracle Solaris OS.

- [“Power On Task Overview” on page 77](#)
- [“Oracle ILOM System Console Overview” on page 78](#)
- [“Connect a Terminal or Emulator to the SER MGT Port” on page 79](#)
- [“Power On the Server for the First Time” on page 79](#)
- [“Oracle Solaris OS Configuration Parameters” on page 82](#)
- [“Assigning a Static IP Address to the Service Processor” on page 83](#)

Related Information

- [“Preparing for Installation” on page 1](#)
- [“Installing the Server” on page 19](#)
- [“Connecting the Server Cables” on page 65](#)

Power On Task Overview

These topics provide an overview and instructions for powering on your server for the first time.

Step	Description	Links
1	Connect a serial terminal device or terminal server to the SER MGT port.	“Connect a Terminal or Emulator to the SER MGT Port” on page 79
2	Power on the server for the first time.	“Power On the Server for the First Time” on page 79
3	Set Oracle Solaris OS configuration parameters.	“Oracle Solaris OS Configuration Parameters” on page 82
4 (Optional)	Configure the NET MGT port to use a static IP address.	“Assigning a Static IP Address to the Service Processor” on page 83

Related Information

- [“Preparing for Installation” on page 1](#)
- *Netra SPARC T3-1 Server Administration Guide*

Oracle ILOM System Console Overview

When you power on the server, the boot process begins under the control of the Oracle ILOM system console. The ILOM system console displays status and error messages generated by firmware-based tests during server startup.

By default, ILOM system console messages are directed to the NET MGT port. The NET MGT port uses DHCP and allows connections using SSH.

Note – If you are unable to use DHCP on your network, you must connect to the ILOM service processor using the serial management port to configure the network management port for your network. See [“Assign a Static IP to the NET MGT Port” on page 85](#).

Related Information

- [“Assigning a Static IP Address to the Service Processor” on page 83](#)
- *Netra SPARC T3-1 Server Administration Guide*

▼ Connect a Terminal or Emulator to the SER MGT Port

- **Connect a terminal or a terminal emulator (PC or workstation) to the service processor serial management port.**

Configure the terminal or terminal emulator with these settings:

- 9600 baud
- 8 bits
- No parity
- 1 Stop bit
- No handshake

A null modem configuration is needed, meaning the transmit and receive signals are reversed (crossed over) for DTE to DTE communications. You can use the supplied RJ-45 crossover adapters with a standard RJ-45 cable to achieve the null modem configuration.

Note – When you power on the server for the first time and you do not have a terminal or terminal emulator (PC or workstation) connected to the service processor serial management port, you will not see system messages.

▼ Power On the Server for the First Time

Complete the following tasks:

- Confirm that you have completed the installation of the server in its rack. See [“Installing the Server” on page 19](#).
 - Connect a terminal or terminal emulator to the SER MGT port. See [“Connect a Terminal or Emulator to the SER MGT Port” on page 79](#).
1. **(Optional) Connect an Ethernet cable between the server’s NET MGT port and the network to which future connections to the SP and host will be made.**

See [“Connect the NET MGT Cable” on page 68](#).

After the initial configuration of the server using the SER MGT port, communication with the SP and host is usually performed through this Ethernet interface.

2. **Connect an Ethernet cable between one of the server's NET ports and the network to which the server will communicate.**

See ["Back Panel Connectors and Ports"](#) on page 66 for port information.)

3. **Plug the power cords into the power supplies and into a power source.**

Note – Only two power connections are required for operation. Use four power connections and two separate circuits for redundancy.

The service processor runs on the 3.3V standby voltage. As soon as power is connected to the server, the service processor powers on, runs diagnostics, and initializes the ILOM firmware.

After a few minutes, the SP login prompt appears on the terminal device. The host is not initialized or powered on yet.

4. **At the terminal device, log in to the SP as root with a password of changeme.**

```
ORACLESP-xxxxxxxx login: root
Password: changeme

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reserved.
. . .
->
```

After a brief delay, the SP prompt is displayed (->). At this point, there are many commands you can perform using the ILOM interface.

Additional SP information, such as how to change the password and how to set up the SP network parameters is available in the online documentation set.

5. **Open a second terminal device, log in to the SP as root with a password of changeme.**

After a brief delay, the SP prompt is displayed (->). At this point, there are many commands you can perform using the ILOM interface.

6. In the first terminal device, redirect the host output to display on the serial terminal device:

```
-> start /SP/console  
Are you sure you want to start /SP/console (y/n)? y  
Serial console started. To stop, type #.  
. . .
```

After you start the SP console, the server initialization takes approximately 20 minutes to complete. This terminal device displays all SP console messages during initial boot.

7. In the second terminal device, power on the server:

```
-> start /SYS  
Are you sure you want to start /SYS (y/n)? y
```

This terminal device displays all system console messages during initial boot.

8. When prompted, follow the onscreen instructions for configuring the Oracle Solaris OS on your host and enter the following configuration information.

You are prompted to confirm the configuration several times, enabling confirmation and changes. If you are not sure how to respond to a particular value, you can accept the default, and make future changes when the Oracle Solaris OS is running. See [“Oracle Solaris OS Configuration Parameters” on page 82](#) for a description of the Oracle Solaris OS parameters you must provide during initial configuration.

9. Log in to the server and explore its capabilities.

You can use several commands to verify the functionality of the server. The following list describes a few of them:

- **showrev** – Displays the host name and server architecture information. Use the **-a** option with this command to see the patches that are installed.
- **psrinfo** – Displays information about the number and status of the processors and cores in the host.
- **prtdiag** – Displays server configuration and diagnostic information.

Review the Oracle Solaris OS man pages and documentation for more details.

Oracle Solaris OS Configuration Parameters

You must provide these parameters during initial Oracle Solaris OS configuration.

Parameter	Description
Language	Select a number from the displayed language list.
Locale	Select a number from the displayed locale list.
Terminal Type	Select a terminal type that corresponds with your terminal device.
Network?	Select Yes .
Multiple Network Interfaces	Select the network interfaces that you plan to configure. If you are not sure, select the first one in the list.
DHCP?	Select Yes or No according to your network environment.
Host Name	Type the host name for the server.
IP Address	Type the IP address for this Ethernet interface.
Subnet?	Select Yes or No according to your network environment.
Subnet Netmask	(If subnet was Yes) Type the netmask for the subnet for your network environment.
IPv6?	Specify whether or not to use IPv6. If you are not sure, select No to configure the Ethernet interface for IPv4.
Security Policy	Select either standard UNIX security (No) or Kerberos Security (Yes). If you are not sure, select No .
Confirm	Review the onscreen information and change it if needed. Otherwise, continue.
Name Service	Select the name service according to your network environment. Note – If you select a name service other than None , you will be prompted for additional name service configuration information.
NFSv4 Domain Name	Select the type of domain name configuration according to your environment. If you are not sure, select Use the NFSv4 domain derived by the server .
Time Zone (Continent)	Select your continent.
Time Zone (Country or Region)	Select your country or region.

Time Zone	Select the time zone.
Date and Time	Accept the default date and time or change the values.
root Password	Type the <code>root</code> password twice. This password is for the superuser account for the Oracle Solaris OS on this server. This password is not the SP password.

Related Information

- [“Back Panel Connectors and Ports” on page 66](#)
- [“Assigning a Static IP Address to the Service Processor” on page 83](#)
- *Netra SPARC T3-1 Server Administration Guide*

Assigning a Static IP Address to the Service Processor

If your network does *not* use DHCP, the network management port is not operational until you configure network settings for the service processor.

This topic includes the following tasks:

- [“Log In to the Service Processor \(SER MGT Port\)” on page 83](#)
- [“Assign a Static IP to the NET MGT Port” on page 85](#)

Related Information

- [“Power On Task Overview” on page 77](#)
- [“Oracle ILOM System Console Overview” on page 78](#)
- [“Oracle Solaris OS Configuration Parameters” on page 82](#)

▼ Log In to the Service Processor (SER MGT Port)

After the service processor boots, access the ILOM CLI to configure and manage the server. The ILOM CLI prompt (`->`) is displayed at the first time the service processor is booted. The default configuration provides an ILOM CLI `root` user account. The default `root` password is `changeme`. Change the password using the service processor ILOM CLI `password` command.

1. If you are powering on the server for the first time, use the `password` command to change the root password.

```
ORACLESP-xxxxxxxxx login: root
Password: changeme

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...
Federal Acquisitions: Commercial Software -- Government Users
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...

Warning: password is set to factory default.

-> set /HOST/users/root password
Enter new password: *****
Enter new password again: *****

->
```

Note – After you set the root password, on subsequent reboots, the ILOM CLI login prompt is displayed.

2. Enter `root` for the login name followed by your password.

```
ORACLESP-xxxxxxxxx login: root
Password: password (nothing displayed)

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->
```


▼ Assign a Static IP to the NET MGT Port

Use this procedure only when:

- You are unable to use DHCP on your network.
- You must modify the NET MGT port settings.

In this procedure, you connect to the SER MGT port to manually reconfigure the NET MGT port to use a static IP address.

Note – For more information on configuring ILOM, refer to *Netra SPARC T3-1 Server Administration Guide*.

1. Set these network parameters according to the specific details of your network configuration.

Parameter	Description
/SP/network state	Specifies whether or not the service processor is on the network.
/SP/network pendingipaddress	IP address of the service processor.
/SP/network pendingipgateway	IP address of the gateway for the subnet.
/SP/network pendingipnetmask	Netmask for the service processor subnet.
/SP/network pendingipdiscovery	Specifies whether the service processor uses DHCP or static IP address assignment.
/SP/network commitpending	Commits the service processor to use the pending settings

Configure these parameters using the `set` command. For example:

```
-> set /host/network pendingaddress=xxx.xxx.xxx.xxx  
Set 'pendingaddress' to 'xxx.xxx.xxx.xxx'
```

2. Configure the service processor using information from your network administrator.

Parameter	Description
dhcp	Set up the network connection with a dynamically created IP configuration.
static	Set up the network connection with a static IP configuration.

- a. If you choose to use a dynamically created IP address (use DHCP to retrieve the network setting), set `pendingipdiscovery` to `dhcp`.

```
-> set /SP/network pendingipdiscovery=dhcp
Set 'pendingipdiscovery' to 'dhcp'
```

- b. If you choose to configure a static IP configuration, set the parameters `pendingipdiscovery`, `pendingipaddress`, `pendingipgateway`, and `pendingipnetmask` as follows.

- i. Set the service processor to accept a static IP address:

```
-> set /SP/network pendingipdiscovery=static
Set 'pendingipdiscovery' to 'static'
```

- ii. Set the IP address for the service processor:

```
-> set /SP/network pendingipaddress=service-processor-IPAddr
Set 'pendingipaddress' to 'service-processor-IPAddr'
```

- iii. Set the IP address for the service processor gateway.

```
-> set /SP/network pendingipgateway=gateway-IPAddr
Set 'pendingipgateway' to 'gateway-IPAddr'
```

- iv. Set the netmask for the service processor:

```
-> set /SP/network pendingipnetmask=255.255.255.0
Set 'pendingipnetmask' to '255.255.255.0'
```

This example uses `255.255.255.0` to set the netmask. Your network environment subnet might require a different netmask. Use a netmask number most appropriate to your environment.

3. Verify that the parameters were set correctly.

The following example shows parameters that have been set to convert a service processor from a DHCP configuration to a static configuration.

```
-> show /SP/network
/SP/network
Targets:
  interconnect
  ipv6
  test
```

```
Properties:
  commitpending = (Cannot show property)
  dhcp_server_ip = xxx.xxx.xxx.xxx
  ipaddress = xxx.xxx.xxx.xxx
  ipdiscovery = dhcp
  ipgateway = xxx.xxx.xxx.xxx
  ipnetmask = 255.255.252.0
  macaddress = 00:14:4F:3F:8C:AF
  managementport = /SYS/MB/SP/NETMGMT
  outofbandmacaddress = 00:14:4F:E8:3D:6F
  pendingipaddress = xxx.xxx.xxx.xxx
  pendingipdiscovery = static
  pendingipgateway = xxx.xxx.xxx.xxx
  pendingipnetmask = 255.255.255.0
  pendingmanagementport = /SYS/MB/SP/NETMGMT
  sidebandmacaddress = 00:14:4F:E8:3D:6E
  state = enabled
Commands:
  cd
  set
  show
->
```

Note – After setting the configuration parameters, you must enter the `set /SP/network commitpending=true` command for the new values to take affect.

4. Commit the changes to the service processor network parameters.

```
-> set /SP/network commitpending=true
Set 'commitpending' to 'true'
```

Note – You can type the `show /SP/network` command again (after typing the `set /SP/network commitpending=true` command) to verify that the parameters have been updated.

Identifying the Server Ports

These topics provide the pin descriptions of the server ports.

- [“USB Ports” on page 89](#)
- [“Alarm Port” on page 90](#)
- [“SER MGT Port” on page 91](#)
- [“NET MGT Port” on page 91](#)
- [“Gigabit-Ethernet Ports” on page 92](#)
- [“Video Port” on page 93](#)

Related Information

- [“Connecting the Server Cables” on page 65](#)
- [“Back Panel Connectors and Ports” on page 66](#)

USB Ports

You can access two USB ports from the front of the server and two USB ports from the back of the server.



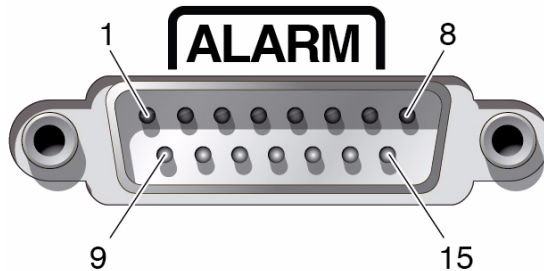
Pin	Signal Description	Pin	Signal Description
1	+5V supply	3	Data +
2	Data -	4	Ground

Related Information

- “Back Panel Connectors and Ports” on page 66
- “Front Panel Components” on page 13

Alarm Port

The alarm port on the rear panel uses a standard DB-15 connector. In a telecommunications environment, use this port to connect to the central office alarming system. The alarm port relay contacts are rated for 100 V 0.2 A maximum.



Pin	Signal Description	Pin	Signal Description
1	RESET0+	9	ALARM1_NC
2	RESET0-	10	ALARM1_COM
3	RESET1+	11	ALARM2_NO
4	RESET1-	12	ALARM2_NC
5	ALARM0_NO	13	ALARM2_COM
6	ALARM0_NC	14	ALARM3_NO
7	ALARM0_COM	15	ALARM3_COM
8	ALARM1_NO	CHASSIS	FRAME GND

Each alarm has a corresponding alarm LED on the front panel:

- ALARM0 and the Critical LED
- ALARM1 and the Major LED
- ALARM2 and the Minor LED
- ALARM3 and the User LED

Related Information

- [“Back Panel Connectors and Ports” on page 66](#)
- [“Front Panel Components” on page 13](#)
- [“Connect Other Data Cables” on page 69](#)

SER MGT Port

The SER MGT RJ-45 port, located on the back panel, provides the default connection to the system console.



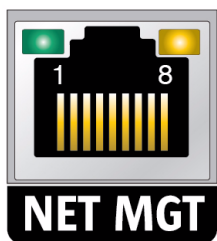
Pin	Signal Description	Pin	Signal Description
1	Clear to Send	5	Ground
2	Data Carrier Detect	6	Receive Data
3	Transmit Data	7	Data Terminal Ready
4	Ground	8	Ready to Send

Related Information

- [“Back Panel Connectors and Ports” on page 66](#)
- [“Connect Other Data Cables” on page 69](#)

NET MGT Port

The NET MGT RJ-45 port, located on the back panel, provides an optional Ethernet connection to the service processor.



Pin	Signal Description	Pin	Signal Description
1	Transmit Data +	5	No Connect
2	Transmit Data -	6	Receive Data -
3	Receive Data +	7	No Connect
4	No Connect	8	No Connect

Related Information

- [“Back Panel Connectors and Ports” on page 66](#)
- [“Connect Other Data Cables” on page 69](#)

Gigabit-Ethernet Ports

Four RJ-45 Gigabit-Ethernet connectors (NET0, NET1, NET2, NET3) can be accessed from the back panel. The Ethernet interfaces operate at 10 Mbit/sec, 100 Mbit/sec, and 1000 Mbit/sec.



Pin	Signal Description	Pin	Signal Description
1	Transmit/Receive Data 0 +	5	Transmit/Receive Data 2 -

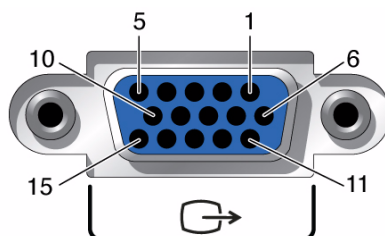
Pin	Signal Description	Pin	Signal Description
2	Transmit/Receive Data 0 -	6	Transmit/Receive Data 1 -
3	Transmit/Receive Data 1 +	7	Transmit/Receive Data 3 +
4	Transmit/Receive Data 2 +	8	Transmit/Receive Data 3 -

Related Information

- [“Back Panel Connectors and Ports” on page 66](#)
- [“Connect Other Data Cables” on page 69](#)

Video Port

The server has one 15-pin VGA video port on the back of the server.



Pin	Signal Description	Pin	Signal Description
1	Red Video	9	+5V
2	Green Video	10	Sync Ground
3	Blue Video	11	Monitor ID - Bit 0 (Ground)
4	Monitor ID - Bit 2 (Ground)	12	VGA 12C Serial Data
5	Ground	13	Horizontal Sync
6	Red Ground	14	Vertical Sync
7	Green Ground	15	VGA 12C Serial Clock
8	Blue Ground		

Related Information

- [“Back Panel Connectors and Ports” on page 66](#)
- [“Connect Other Data Cables” on page 69](#)

Glossary

A

- ACPI** Advanced configuration and power interface.
- ASR** Automatic system recovery.
- AWG** American wire gauge.

B

- BIOS** Basic input/output system.
- BMC** Baseboard management controller.

C

- CLI** Command-line interface.
- CMA** Cable management arm, used to route and secure cables extending from the rear of the system.
- CTS** Clear To Send.

D

DB-15	15-pin D-subminiature connector.
DDR3	Double-data rate three.
DHCP	Dynamic Host Configuration Protocol.
DIMM	Dual in-line memory module.
DR	Dual-rank DIMM.

E

ECC	Error correction code.
EMI	Electromagnetic interference.
ESD	Electrostatic discharge.

F

G

GRUB	GNU grand unified bootloader. An open source boot loader.
-------------	---

H

HBA	Host bus adapter.
------------	-------------------

I

IME	Integrated mirror enhanced array.
IPMI	Intelligent platform management interface.
IS	Integrated striping array.

K

KVM	Keyboard, video, mouse. Refers to using a switch to enable sharing of one keyboard, one display, and one mouse with more than one computer.
------------	---

L

LED	Light- emitting diode.
------------	------------------------

M

MAC or MAC address	Media access controller address.
---------------------------	----------------------------------

N

NEBS	Network Equipment-Building Standards. Defined standards for equipment to be installed in a telecommunications central office. Telecordia maintains these standards and tests equipment for NEBS certification.
NET MGT	Network management port. After connecting a network cable to this NET MGT port, you can configure the system Oracle ILOM SP through this port.
NIC	Network interface card.
NTP	Network Time Protocol.

NVRAM Nonvolatile random access memory.

O

OBP OpenBoot Prom.

Oracle ILOM Oracle Integrated Lights Out Manager. Oracle ILOM firmware is preinstalled on a variety of Oracle systems. Oracle ILOM enables you to remotely manage your Oracle servers regardless of the state of the host system.

Oracle VTS Oracle Validation Test Suite. Oracle VTS software is an Oracle hardware validation test based on the Solaris Operating System. The suite's multiple hardware diagnostic tests verify the functionality of most hardware controllers and devices for SPARC and x86 architecture based systems. Oracle VTS 7.0 is the first version of this software and supersedes the SunVTS suites.

OSP Outside plant

OS Operating system.

OVM Oracle VM Server for SPARC.

P

PCIe2 Peripheral Component Interconnect Express 2.0. Refers to cards or slots that support the PCI Express 2.0 specification.

PDB Power distribution board.

POST Power-on self-test.

PSH Predictive self-healing.

PSU Power supply unit.

PXE Preboot execution environment.

Q

QSFP Quad small form-factor pluggable.

R

RAID Redundant array of independent disks.

RAS Reliability, availability, and serviceability.

RIS Remote installation services.

RPM Rotations per minute.

RTS Request To Send.

S

SAS Serial-attached SCSI.

SATA Serial advanced technology attachment.

SCC System configuration card.

SCSI Small computer system interface.

SER MGT Serial management port. The default port for system management, especially during the initial system configuration.

SFF Small form factor.

S.M.A.R.T. Self-monitoring, analysis, and reporting technology.

SP Service processor.

SR DIMM Single-rank DIMM.

SSD Solid-state drive.

SSH Secure shell.

STP Shielded twisted pair.

SunVTS Sun Validation Test Suite. SunVTS software runs through version 6.x. The SunVTS software is superseded by the Oracle VTS 7.0 software.

T

TCG Trusted Computing Group.

TPM Trusted platform module. For more information, refer to the Microsoft Windows Trusted Platform Module Management documentation.

U

UI User interface.

UUID Universal unique identifier.

USB Universal serial bus.

US NEC United States National Electrical Code. A United States standard for the installation of electrical wiring and equipment.

V

VAC Volts of alternating current.

VDC Volts of direct (continuous) current.

VGA Video graphics array.

VT-d Virtualization technology for directed I/O.

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