

Sun Netra X4270 Server

Installation Guide



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Using This Documentation

This installation guide describes how to install the Sun Netra X4270 server from Oracle into a rack, attach data and power cables to the server, and power on and configure the preinstalled operating system. This guide is written for system installers and enterprise administrators who have experience installing similar systems.

This preface contains the following topics:

- “Related Documentation” on page ix
- “Documentation, Support, and Training” on page xi
- “Documentation Feedback” on page xi

Related Documentation

The following tables list the Sun Netra X4270 server documentation and related documentation.

The documents listed as online are available at:

(<http://docs.sun.com/app/docs/prod/nt4270.srvr#hic>)

TABLE: Sun Netra X4270 Server Documentation

Application	Title	Part Number	Location
Late-breaking news	<i>Sun Netra X4270 Server Product Notes</i>	821-0577-xx	Online
Site planning	<i>Sun Netra X4270 Server Site Planning Guide</i>	821-0571-xx	Online
Getting started	<i>Sun Netra Rack Server Getting Started Guide</i>	820-3016-xx	Included in shipping kit
Installation	<i>Sun Netra X4270 Server Installation Guide</i>	821-0572-xx	Online
Service	<i>Sun Netra X4270 Server Service Manual</i>	821-0573-xx	Online

TABLE: Sun Netra X4270 Server Documentation (Continued)

Application	Title	Part Number	Location
Remote management	<i>Oracle Integrated Lights Out Manager (ILOM) 3.0 Supplement for the Sun Netra X4270 Server</i>	821-0574-xx	Online
Operating system installation	<i>Sun Netra X4270 Server Operating System Installation Guide</i>	821-0576-xx	Online
Safety and compliance	<i>Sun Netra X4270 Server Safety and Compliance Guide</i>	821-0575-xx	Online
Safety information	<i>Important Safety Information for Sun Hardware Systems</i>	816-7190-xx	Included in shipping kit

TABLE: ILOM 3.0 Documentation

Application	Title	Part Number	Location
Late-breaking news and issues	<i>Oracle Integrated Lights Out Manager (ILOM) 3.0 Feature Updates and Release Notes</i>	820-7329-xx	Online
Installation and configuration	<i>Oracle Integrated Lights Out Manager (ILOM) 3.0 Getting Started Guide</i>	820-5523-xx	Online
Conceptual information	<i>Oracle Integrated Lights Out Manager (ILOM) 3.0 Concepts Guide</i>	820-6410-xx	Online
Browser interface procedures	<i>Oracle Integrated Lights Out Manager (ILOM) 3.0 Web Interface Procedures Guide</i>	820-6411-xx	Online
CLI procedures	<i>Oracle Integrated Lights Out Manager (ILOM) 3.0 CLI Procedures Guide</i>	820-6412-xx	Online
SNMP and IPMI procedures	<i>Oracle Integrated Lights Out Manager (ILOM) 3.0 Management Protocols Reference Guide</i>	820-6413-xx	Online

TABLE: SAS Controller HBA and LSI 106x RAID Documentation

Application	Title	Part Number	Location
Disk management overview	<i>Sun Disk Management Overview</i>	820-6350-xx	Online
RAID management	<i>Sun LSI 106x RAID User's Guide</i>	820-4933-xx	Online
SAS HBA installation	<i>Sun StorageTek PCI Express SAS 8-Channel Internal HBA Installation Guide</i>	820-4932-xx	Online

TABLE: Diagnostics for x64 Servers

Application	Title	Part Number	Location
Diagnostics available for x64 servers	<i>Sun x64 Servers Diagnostics Guide</i>	820-6750-xx	Online

Documentation, Support, and Training

These web sites provide additional resources:

- Documentation (<http://docs.sun.com>)
- Support (<http://www.sun.com/support>)
- Training (<http://www.sun.com/training>)

Documentation Feedback

Submit comments about this document by clicking the Feedback[+] link at (<http://docs.sun.com>).

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

Sun Netra X4270 Server Installation Guide, part number 821-0572-10.

Understanding Server Features and Components

These topics introduce the server, detail its features, and describes the chassis controls, LEDs, and connectors.

Description	Links
Review and learn about the server features.	“Understanding Server Features” on page 1
Locate the system LEDs and controls.	“Identifying Chassis Components” on page 8

Related Information

- [“Understanding Server Features and Components” on page 1](#)
- [“Troubleshooting” on page 135](#)

Understanding Server Features

These topics introduce and describe the server features.

- [“Server Feature Overview” on page 2](#)
- [“Preinstalled Solaris OS Features” on page 4](#)
- [“ILOM Remote Management” on page 4](#)
- [“Reliability, Availability, and Serviceability” on page 5](#)
- [“Hot-Pluggable and Hot-Swappable Hard Drives” on page 6](#)
- [“Power Supply Redundancy” on page 7](#)
- [“Environmental Monitoring” on page 7](#)
- [“RAID Storage Configuration Support” on page 8](#)

Related Information

- “Identifying Chassis Components” on page 8

Server Feature Overview

The Sun Netra X4270 server is a carrier-grade, NEBS-certified, 2U server.

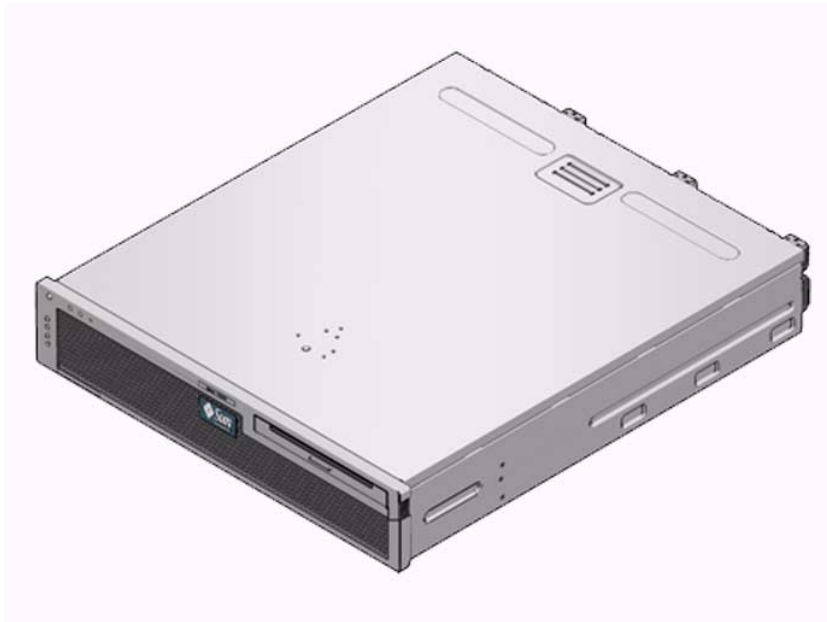


TABLE: Server Features

Feature	Description
Processor	One or two Intel Xeon quad-core processors: <ul style="list-style-type: none">• 4 cores (32 threads)• 8 cores (64 threads)
Memory slots/capacity	<ul style="list-style-type: none">• 18 memory slots for DDR3 DIMMS• Up to 144 GB of memory
Internal drives	Two factory options for internal storage: <ul style="list-style-type: none">• Two hot-pluggable SAS drives with a SATA DVD-RW drive• Four hot-pluggable SAS drives <i>without</i> a SATA DVD-RW drive Integrated drive controller supports RAID 0 and RAID 1

TABLE: Server Features (*Continued*)

Feature	Description
Optical media drive	One slot-loading, slimline SATA DVD drive, supporting CD-R/W, CD+R/W, DVD-R/W, DVD+R/W (when used with supported media)
Power supplies	Two hot-swappable AC or DC PSUs providing N+1 redundancy
Alarm	Four Telco dry contact (electrically isolated) user alarms
Cooling	The server contains the following fan assemblies: <ul style="list-style-type: none">• Three high-power fans for system cooling• Three low-power fans for hard drive and removable media drive cooling• Power supply unit fans, which operate whenever power is present to either unit
Ethernet ports	Four Gigabit Ethernet, RJ-45-based, autonegotiating ports (on two separate controllers)
PCI interfaces*	<ul style="list-style-type: none">• Two X8 electrical, X16 mechanical PCIe2 full-length, full-height slots (high-power 75 W with auxiliary power)• Three X8 electrical, X8 mechanical PCIe2 low-profile slots• One custom X8 electrical, X8 mechanical PCIe2 slot reserved for an internal SAS controller HBA
USB ports	Two USB 2.0 ports on rear panel
Additional ports	The following ports are located on the rear panel of the server: <ul style="list-style-type: none">• One RJ-45 serial management port (SER MGT) – the default connection to the system controller• One 10/100 Mbps Ethernet network management port (NET MGT) – connection to the system controller• One alarm port – supporting four dry contact alarms with two user inputs• One VGA port – connection to the host• One external serial attached SCSI (SAS) port
Remote management	On-board ILOM service processor
Firmware	<ul style="list-style-type: none">• ILOM (system management)• BIOS and POST
Cryptography	Processor integrated, cryptographic acceleration that supports industry standard security ciphers
Operating systems	Refer to the product notes for information on the OS support and the required patches.

* PCIe2 specifications described in this table list the physical requirements for PCIe2 cards. Additional support capabilities must also be provided (such as device drivers) for a PCIe2 card to function in the server. Refer to the specifications and documentation for a given PCIe2 card to determine if the required drivers are provided that enable the card to function in this server.

Related Information

- “Preinstalled Solaris OS Features” on page 4
- “ILOM Remote Management” on page 4

Preinstalled Solaris OS Features

The server is preinstalled with the Oracle Solaris OS and offers the following Solaris OS features:

- Stability, high performance, scalability, and precision of a mature 64-bit operating system.
- Support for over 12,000 leading technical and business applications.
- Solaris Containers – Isolates software applications and services using flexible, software-defined boundaries.
- DTrace – A comprehensive dynamic tracing framework for tuning applications and troubleshooting systemic problems in real time.
- Predictive Self-Healing – Capability that automatically diagnoses, isolates, and recovers from many hardware and application faults.
- Security – Advanced security features designed to protect the enterprise at multiple levels.
- Network Performance – Completely rewritten TCP/IP stack dramatically improves the performance and scalability of your networked services.

You can use the preinstalled Solaris OS, or you can reinstall a supported version of the Solaris OS from your network, from a CD, or from a downloaded copy. Refer to the *Sun Netra X4270 Server Product Notes* for information on the supported OS releases for your server.

Related Information

- Solaris OS documentation
- *Sun Netra X4270 Server Product Notes*

ILOM Remote Management

ILOM is system management firmware that enables you to actively manage and monitor components installed in your server. With ILOM, you can monitor and manage your system proactively by viewing hardware configurations, monitoring system information, managing system alerts, and more. ILOM provides a browser-based web interface and a command-line interface, as well as an SNMP user

interface and an IPMI user interface. ILOM automatically initializes as soon as power is applied to your system. ILOM will continue to run regardless of the state of the host operating system, making it a “lights-out” management system.

Some key features of ILOM include:

- Runs on its own processor and resources
- Allows for management of the server without consuming system resources
- Continues to provide management using standby power even when the server is powered off
- Provides an isolated management network separate from the data network
- Provides a concise view of hardware inventory and environmental information
- Provides the ability to control power, manage components, and access the host console
- Serves as an integration point for other management tools
- Enables the download of service processor firmware and BIOS changes
- Manages the inventory of hot-pluggable system components

ILOM enables you to remotely run diagnostics, such as POST, that would otherwise require physical proximity to the server’s serial port. You can also configure ILOM to send email alerts of hardware failures, hardware warnings, and other events related to the server or to ILOM.

The service processor runs independently of the server, using the server’s standby power. Therefore, ILOM continues to function when the server operating system goes offline or when the server is powered off.

For information about configuring and using the ILOM SP, refer to the ILOM 3.0 documentation and the *Oracle Integrated Lights Out Manager (ILOM) 3.0 Supplement for the Sun Netra X4270 Server*. For information on using SNMP with ILOM, refer to the *Oracle Integrated Lights Out Manager (ILOM) 3.0 Management Protocols Reference Guide*.

Related Information

- ILOM 3.0 documentation
- *Oracle Integrated Lights Out Manager (ILOM) 3.0 Supplement for the Sun Netra X4270 Server*

Reliability, Availability, and Serviceability

RAS are aspects of a system’s design that affect its ability to operate continuously and to minimize the time necessary to service the system. *Reliability* refers to a system’s ability to operate continuously without failures and to maintain data

integrity. *System availability* refers to the ability of a system to recover to an operational state after a failure, with minimal impact. *Serviceability* relates to the time it takes to restore a system to service following a system failure. Together, reliability, availability, and serviceability features provide for near continuous system operation.

To deliver high levels of reliability, availability, and serviceability, the Sun Netra X4270 server offers the following features:

- Ability to disable individual threads and cores without rebooting
- Lower heat generation reduces hardware failures
- Hot-pluggable hard drives
- Redundant, concurrent service power supplies (two)
- Environmental monitoring
- Internal hardware drive mirroring (RAID 1)
- Error detection and correction for improved data integrity
- Easy access for most component replacements

Related Information

- [“Hot-Pluggable and Hot-Swappable Hard Drives” on page 6](#)
- [“Power Supply Redundancy” on page 7](#)
- [“Environmental Monitoring” on page 7](#)
- [“RAID Storage Configuration Support” on page 8](#)

Hot-Pluggable and Hot-Swappable Hard Drives

The server hardware supports hot-plugging of the chassis-mounted hard drives. By using the proper software commands, you can install or remove these hard drives while the system is running. Hot-swap and hot-plug technologies significantly increase the system’s serviceability and availability by providing the ability to replace hard drives without service disruption.

Related Information

- [“Reliability, Availability, and Serviceability” on page 5](#)
- *Sun Netra X4270 Server Service Manual*

Power Supply Redundancy

The server provides two load-sharing service power supplies, enabling the system to continue operating should one of the power supplies fail or if a power source fails. This concurrent maintenance allows one power supply to be removed or replaced while the system is running.

Related Information

- [“Power Cord Preparation” on page 91](#)
- [“Assembling and Installing DC Power Cords” on page 93](#)

Environmental Monitoring

The server features an environmental monitoring subsystem that protects the server and its components against:

- Extreme temperatures
- Power supply failures
- Hardware faults

Temperature sensors are located throughout the system to monitor the ambient temperature of the system and internal components. The software and hardware ensure that the temperatures within the enclosure do not exceed predetermined safe operation ranges.

If the temperature observed by a sensor falls below a low-temperature threshold or rises above a high-temperature threshold, the monitoring subsystem software lights the amber Service Required LEDs on the front and rear panels. If the temperature condition persists and reaches a critical threshold, the system initiates a graceful system shutdown.

To conserve power, the system fans operate at a low RPM during normal operation. If a temperature sensor rises above a high-temperature threshold, the environmental monitoring system will increase the RPM of the fans in order to cool down the system.

In the event of a failure of the system controller, backup sensors protect the system from serious damage by initiating a forced hardware shutdown. Required LEDs remain lit after an automatic system shutdown to aid in problem diagnosis.

The power subsystem is monitored in a similar fashion by monitoring power supplies and reporting any fault in the front and rear panel LEDs.

Related Information

- [“Reliability, Availability, and Serviceability” on page 5](#)
- [“Identifying Chassis Components” on page 8](#)

RAID Storage Configuration Support

You can set up hardware RAID 1 (mirroring) and hardware RAID 0 (striping) configurations for any pair of internal drives, providing a high-performance solution for hard drive mirroring.

By attaching one or more external storage devices to the server, you can use a RAID software application such as Solstice DiskSuite or VERITAS Volume Manager to configure system drive storage in a variety of different RAID levels. Software RAID applications such as VERITAS Volume Manager are not included with this server. You must obtain and license these applications separately.

For information about which RAID levels your internal SAS HBA supports, refer to your SAS controller HBA documentation.

Related Information

- The SAS controller HBA documentation
- RAID software application documentation
- [“Configuring Server RAID Drives” on page 130](#)

Identifying Chassis Components

These topics show the locations of the system controls and LEDs.

- [“Front Panel Controls and LEDs” on page 9](#)
- [“System Status LEDs and Power Button” on page 12](#)
- [“User Alarm LEDs” on page 14](#)
- [“Rear Panel LEDs” on page 15](#)

Related Information

- [“Understanding Server Features” on page 1](#)
- [“Troubleshooting” on page 135](#)

Front Panel Controls and LEDs

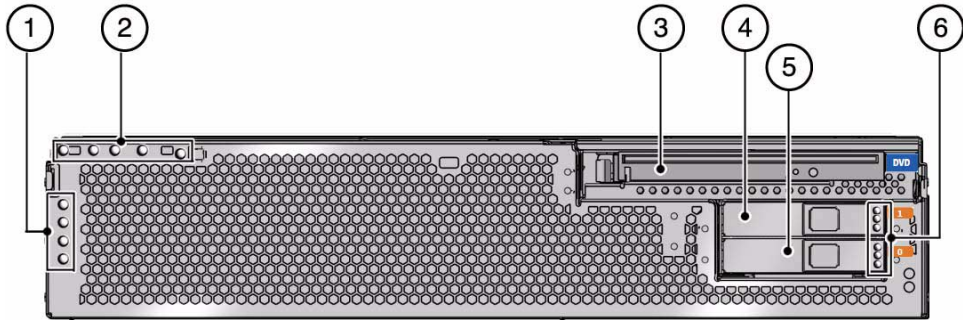
The following figures show the locations of the front panel controls and system status LEDs.

FIGURE: Front Panel With DVD



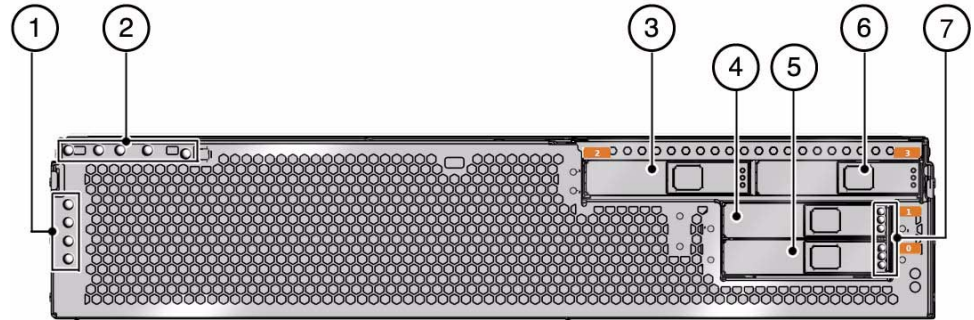
1	Telco alarm status indicators	Top to bottom – Critical LED, Major LED, Minor LED, User LED
2	System status indicators	Left to right – Locator LED button, Service Required LED, System Activity LED, Power button
3	Removable media button	Available only in configurations with two drives and a DVD drive

FIGURE: Front Panel With Bezel Removed With DVD and Two HDDs



-
- 1 Telco alarm status indicators
 - 2 System status indicators
 - 3 DVD drive
 - 4 Drive 1
 - 5 Drive 0
 - 6 Drive LEDs:
Top to bottom on each drive – OK to Remove LED, Service Required LED, Power OK LED
-

FIGURE: Front Panel With Bezel Removed With Four HDDs



-
- 1 Telco alarm status indicators
 - 2 System status indicators
 - 3 Drive 2
 - 4 Drive 1
 - 5 Drive 0
 - 6 Drive 3
 - 7 Drive LEDs:
Top to bottom on each drive – OK to Remove LED, Service Required LED, Power OK LED
-

Related Information

- [“System Status LEDs and Power Button” on page 12](#)
- [“User Alarm LEDs” on page 14](#)
- [“Rear Panel LEDs” on page 15](#)

System Status LEDs and Power Button

Locate the system status LEDs at the front and rear of the system, and locate the Power button next to the system status LEDs on the front panel.

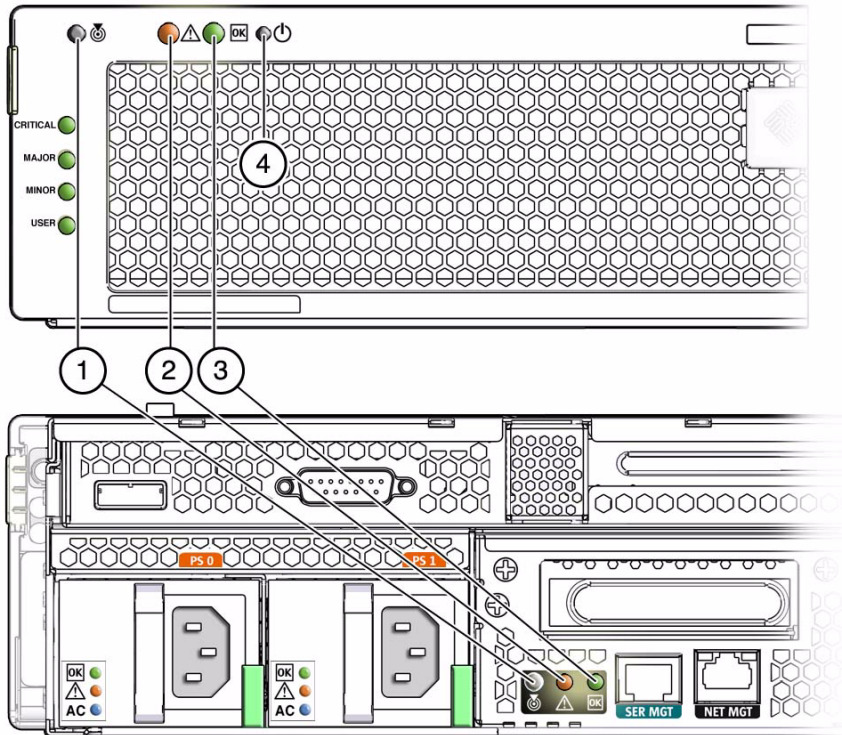






TABLE: System Status LEDs and Controls

No.	LED of Button	Symbol	LED Name and Description
1	Locator LED and button		<p>Activate the white Locator LED to find the system in a rack or datacenter.</p> <ul style="list-style-type: none">• Press the Locator button to toggle the LED on and off.• Use this ILOM command: <code>set /SYS/LOCATE value=Fast_Blink</code> <p>This LED provides the following indications:</p> <ul style="list-style-type: none">• Off – Normal operating state.• Fast blink – System received a signal as a result of one of the methods previously mentioned, indicating that locating is active.
2	Service required LED		<p>When the amber Service Required LED is on, service is required.</p> <p>To detect and diagnose faults, use either the POST or ILOM diagnostics tools. The ILOM <code>show faulty</code> command provides details about any faults that cause this indicator to light.</p> <p>Note - Under some fault conditions, individual component fault LEDs are lit in addition to the system System Required LED.</p>
3	Power OK LED		<p>The green System OK LED provides the following indications:</p> <ul style="list-style-type: none">• Off – Indicates that the system is not running in its normal state. System power might be on or in standby mode. The service processor might be running.• Steady on – Indicates that the system is powered on and is running in its normal operating state. No service actions are required.• Fast blink – Indicates the system is running at a minimum level in standby and is ready to be quickly returned to full function. The SP is running.• Slow blink – Indicates that a normal transitory activity is taking place. Slow blinking could indicate that the system diagnostics are running, or that the system is booting.
4	Power button		<p>The recessed Power button toggles the system on or off.</p> <ul style="list-style-type: none">• If the system host is powered off, press once to power on.• If the system is powered on, press once to initiate a graceful system shutdown to Standby mode.• If the system is powered on, press and hold for 4 seconds to initiate an emergency shutdown.

Related Information

- [“Front Panel Controls and LEDs” on page 9](#)
- [“Rear Panel LEDs” on page 15](#)
- [“Troubleshooting” on page 135](#)
- *Sun Netra X4270 Server Service Manual*
- ILOM 3.0 documentation set

User Alarm LEDs

The four user dry contact alarm LEDs are reserved for customer applications. With the exception of the Critical alarm LED, no user alarm LED will light unless signaled by a customer application.

Note – The red Critical LED will light when the power cords are connected and the system is not powered on.

FIGURE: User Alarm LEDs

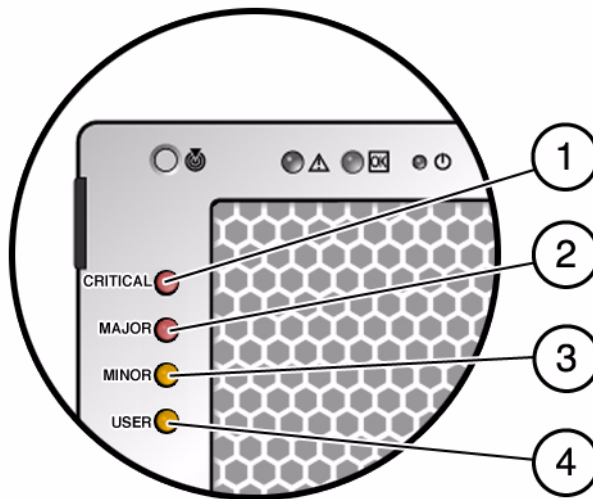


Figure Legend

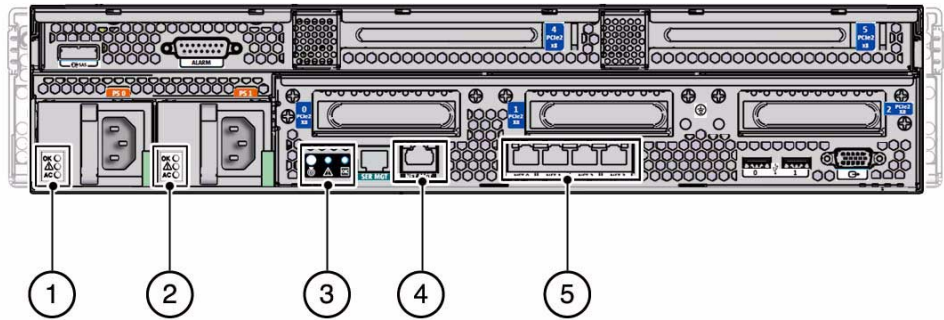
-
- | | |
|---|------------------------|
| 1 | Critical alarm red LED |
| 2 | Major alarm red LED |
| 3 | Minor alarm amber LED |
| 4 | User alarm amber LED |
-

Related Information

- [“Front Panel Controls and LEDs” on page 9](#)
- *Oracle Integrated Lights Out Manager (ILOM) 3.0 Supplement for Sun Netra X4270 Server*

Rear Panel LEDs

FIGURE: Rear Panel LEDs



1	Power supply 0 LEDs	Top to bottom – Power OK LED, Service Required LED, Power LED
2	Power supply 1 LEDs	Top to bottom – Power OK LED, Service Required LED, Power LED
3	System status LEDs	Left to right – Locator LED button, Service Required LED, Power OK LED
4	Service processor network management port LEDs	Left to right – Link Activity LED, Speed LED
5	Gigabit Ethernet ports	For each port, left to right – Link Activity LED, Speed LED

Related Information

- [“System Status LEDs and Power Button”](#) on page 12
- [“Cabling the Server”](#) on page 81
- [“Assembling and Installing DC Power Cords”](#) on page 93

Preparing for the Installation

These topics provide the information you need to prepare for the server installation.

Description	Links
Review all the tasks required to install and configure the server.	“Installation Task Overview” on page 18
Review the electrical requirements and power supply input voltage information.	“Electrical Specifications” on page 19 “Power Supply Voltage Information” on page 20
Examine the server’s shipping kit contents and assemble the required tools for installation.	“Shipping Kit Inventory List” on page 20 “Tools and Equipment Needed” on page 21
Review ESD requirements and take safety precautions.	“ESD Precautions” on page 22 “Safety Precautions” on page 22
Before installing the server into a rack, install any optional components into the server.	“Optional Component Installation” on page 23
Stabilize the rack before installing the server, if necessary.	“Stabilize the Rack for Installation” on page 24

Related Information

- [“Understanding Server Features and Components” on page 1](#)

Installation Task Overview

Perform the following tasks to install and configure the server.

Step	Description	Links
1	Review the <i>Sun Netra X4270 Server Product Notes</i> for any late-breaking news about the server.	Sun Netra X4270 Server Product Notes
2	Review the server specifications and site requirements in the <i>Sun Netra X4270 Server Site Planning Guide</i> for information.	Sun Netra X4270 Server Site Planning Guide
3	Familiarize yourself with the server features, controls, and LEDs required for installation.	“Understanding Server Features” on page 1 “Identifying Chassis Components” on page 8
4	Review the electrical specifications, assemble the required tools, confirm you received all of the items you ordered, and take ESD and safety precautions.	“Electrical Specifications” on page 19 “Power Supply Voltage Information” on page 20 “Tools and Equipment Needed” on page 21 “Shipping Kit Inventory List” on page 20 “ESD Precautions” on page 22 “Safety Precautions” on page 22
5	Install any optional component into the server.	“Optional Component Installation” on page 23
6	Install the server into either a 4-post or 2-post rack.	“Stabilize the Rack for Installation” on page 24 “Mounting the Server Into a 4-Post Rack” on page 25 “Mounting the Server Into a 2-Post Rack” on page 51
7	Attach data and management cables to the server.	“Cabling the Server” on page 81
8	Connect the power cords to the server, configure the ILOM service processor, and power on the server for the first time.	“Assembling and Installing DC Power Cords” on page 93 “Powering On the Server” on page 107
9	Set up the operating system.	“Configuring the Preinstalled Solaris OS” on page 123

Related Information

- [Sun Netra X4270 Server Product Notes](#)
- [Sun Netra X4270 Server Site Planning Guide](#)
- [Sun Netra X4270 Server Safety and Compliance Guide](#)

Electrical Specifications

Parameter	AC	DC
Voltage (nominal)	100 to 120/200 to 240 VAC (90 to 132/180 to 264 VAC ranges)	-48 or -60 VDC (-40 to -75 VDC range)
Input current (maximum)	9.0 A @ 100 VAC (900 VA)	15.4 A -48 VDC (740 VA)
Frequency (nominal)	50/60 Hz (47 to 63 Hz range)	N/A
DC input treatment	N/A	Isolated DC Return (DC-I)

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



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



Caution – The port(s) of this equipment or subassembly are suitable for connection to intrabuilding 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

- [“Power Supply Voltage Information” on page 20](#)
- [“Power Cord Preparation” on page 91](#)
- [“Assembling and Installing DC Power Cords” on page 93](#)
- [“Connect the Power Cords to the Server” on page 107](#)

Power Supply Voltage Information

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

The inputs to a power supply are isolated from the system 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 system chassis.

Note – The system 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 the 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 19
- [“Power Cord Preparation”](#) on page 91
- [“Assembling and Installing DC Power Cords”](#) on page 93
- [“Connect the Power Cords to the Server”](#) on page 107

Shipping Kit Inventory List

Standard system components are installed at the factory. Options such as a PCIe2 cards or a monitor are shipped separately.

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

Verify that you have received all the parts of your server.

- Server
- 19-inch, 4-post rackmount kit
- Package of mounting screws and nuts in assorted sizes to fit various types of racks and cabinets
- Earth grounding lug and two M5 nuts
- Miscellaneous hardware, cables, documents, and connectors
- Any optional components that were ordered with the server

Related Information

- [“Installation Task Overview” on page 18](#)
- [“Tools and Equipment Needed” on page 21](#)

Tools and Equipment Needed

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 23](#)
- [“Mounting the Server Into a 4-Post Rack” on page 25](#)
- [“Mounting the Server Into a 2-Post Rack” on page 51](#)

ESD Precautions

Electronic equipment is susceptible to damage by static electricity. Use a grounded antistatic wriststrap, footstrap, or equivalent safety equipment to prevent ESD when you install or service the servers.



Caution – To protect electronic components from electrostatic damage, which can permanently disable the system 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 system components.

Related Information

- [“Safety Precautions” on page 22](#)
- [“Cabling the Server” on page 81](#)

Safety Precautions



Caution – Deploy the anti-tilt bar or legs on the equipment rack before beginning an installation.



Caution – The server weighs approximately 41 lbs (18.6 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

- [“Stabilize the Rack for Installation” on page 24](#)
- [“Mounting the Server Into a 4-Post Rack” on page 25](#)
- [“Mounting the Server Into a 2-Post Rack” on page 51](#)

Optional Component Installation

The standard system components are installed at the factory. Optional components such as additional memory or PCIe2 cards will be shipped separately. If possible, install these components prior to installing the server in a rack.

Note – All of the PCIe slots comply with the PCI Express 2.0 specification and can accommodate 25 W PCIe Gen 2 cards.

If you ordered any options that are not factory-installed, see the *Sun Netra X4270 Server Service Manual* for installation instructions.

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

Related Information

- The component documentation
- *Sun Netra X4270 Server Service Manual*

▼ Stabilize the Rack for Installation



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

Review the *Sun Netra X4270 Server Site Planning Guide* and ensure that your rack meets the requirements for 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 anti-tilt 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 anti-tilt legs or anti-tilt bar, which are located at the bottom front of the rack cabinet.**

Related Information

- [“Safety Precautions” on page 22](#)
- Your rack cabinet documentation
- *Sun Netra X4270 Server Safety and Compliance Guide*
- *Sun Netra X4270 Server Site Planning Guide*

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 rack kit, and 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 the procedures in this chapter.



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 rack kit (included with the server).	“Hardmounting the Server in a 19-Inch, 4-Post Rack” on page 26
Mount the server using an optional 19-inch, 4-post slide mount kit for 600–800 mm cabinet depths.	“Mounting the Server Using the 19-Inch, 4-Post Sliding Rail Mount Rack Kit” on page 31
Mount the server using an optional 600 mm x 600 mm rackmount kit.	“Hardmounting the Server in a 600-mm, 4-Post Rack” on page 39

Related Information

- [“Preparing for the Installation” on page 17](#)
- [“Mounting the Server Into a 2-Post Rack” on page 51](#)

Hardmounting the Server in a 19-Inch, 4-Post Rack

The 19-inch, 4-post rack ships with the server and enables you to mount the server in most 4-post racks.

- [“19-Inch, 4-Post Hardmount Rack Kit” on page 27](#)
- [“Install the Server Using a 19-Inch, 4-Post Hardmount Rack Kit” on page 28](#)

Related Information

- [“Stabilize the Rack for Installation” on page 24](#)

19-Inch, 4-Post Hardmount Rack Kit

FIGURE: 19-Inch, 4-Post Hardmount Kit Contents

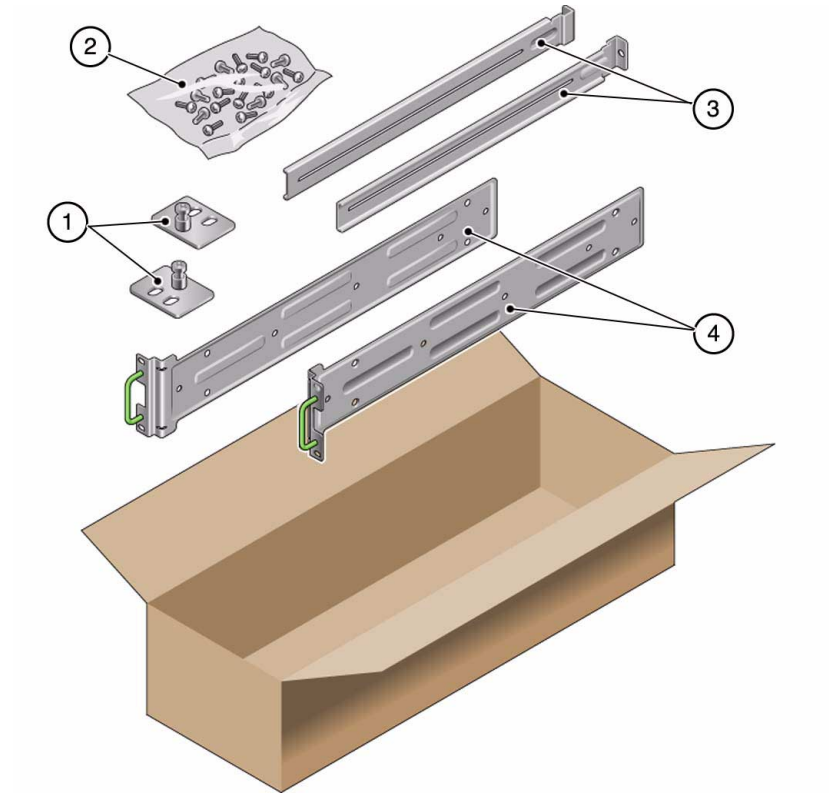


Figure Legend

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

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

Number	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

TABLE: 19-inch, 4-Post Rackmount Screw Kit Contents (*Continued*)

Number	Description	Where Used
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

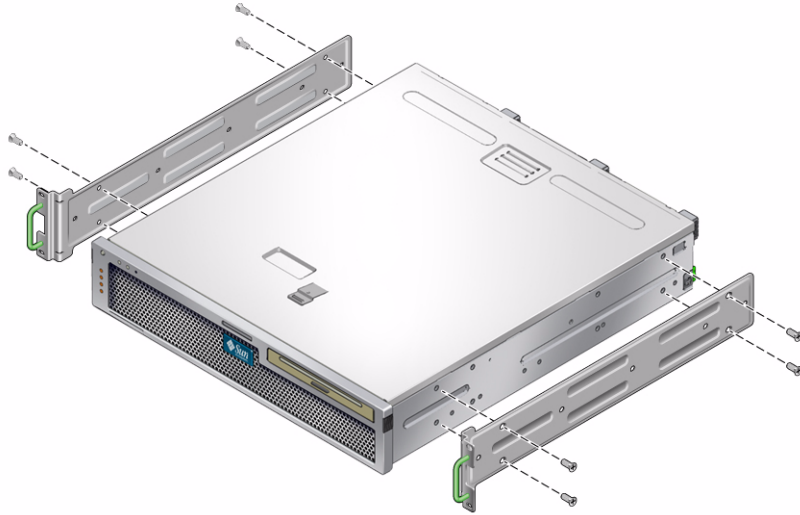
Related Information

- [“Stabilize the Rack for Installation” on page 24](#)
- [“Install the Server Using a 19-Inch, 4-Post Hardmount Rack Kit” on page 28](#)

▼ Install the Server Using a 19-Inch, 4-Post Hardmount Rack 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. 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.

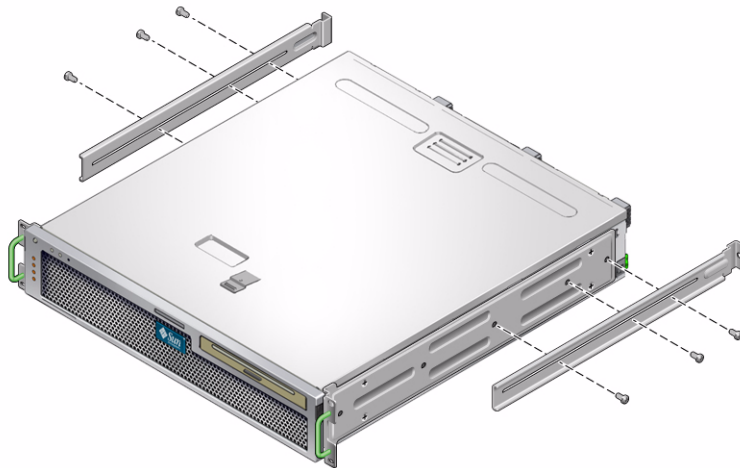


2. Measure the depth of the rack.

3. Get the two rear mount support brackets from the rack kit.

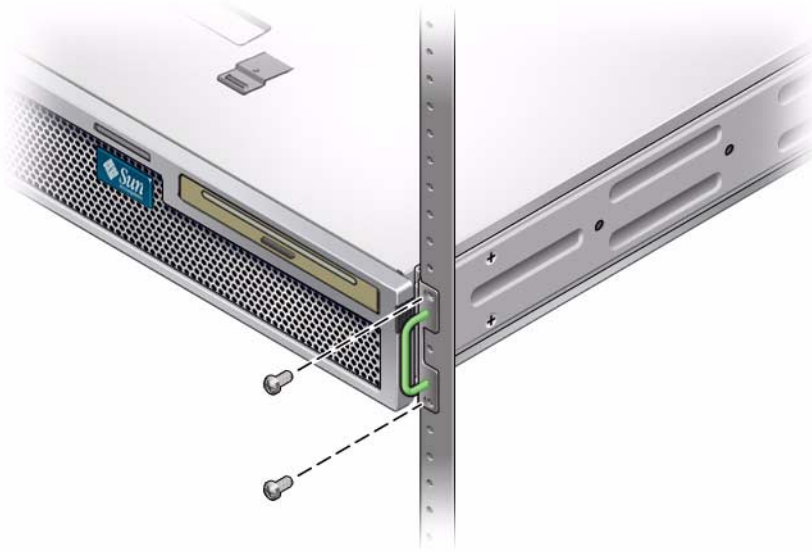
4. Install the rear mount support brackets at the rear of the server, extending the rear mount support brackets to the measured depth of the rack.

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.

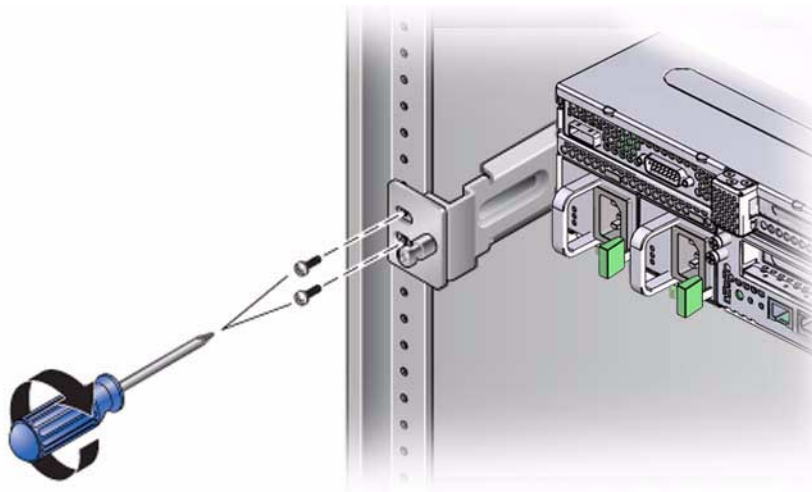


5. Lift the server to the desired location in the rack.

- 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.



- Get the two rear mount flanges from the rack kit.
- 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 24

- [“19-Inch, 4-Post Hardmount Rack Kit” on page 27](#)

Mounting the Server Using the 19-Inch, 4-Post Sliding Rail Mount Rack Kit

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

- [“19-Inch, 4-Post Sliding Rail Mount Rack Kit” on page 32](#)
- [“Install the Server Using the 19-Inch, 4-Post Sliding Rail Mount Rack Kit” on page 34](#)

Related Information

- [“Stabilize the Rack for Installation” on page 24](#)

19-Inch, 4-Post Sliding Rail Mount Rack Kit

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

FIGURE: Contents of the Sliding Rail 19-Inch, 4-Post Kit

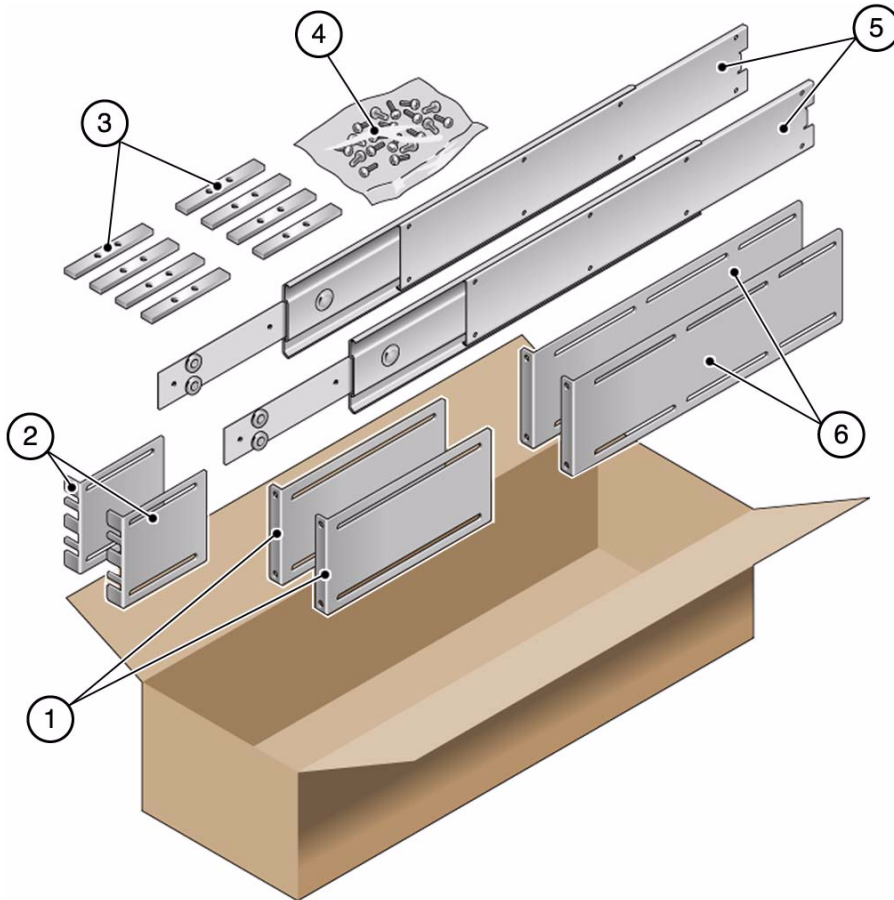


Figure Legend

1	Short brackets (2)	4	Screws
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

Number	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

- [“Stabilize the Rack for Installation” on page 24](#)
- [“Install the Server Using the 19-Inch, 4-Post Sliding Rail Mount Rack Kit” on page 34](#)

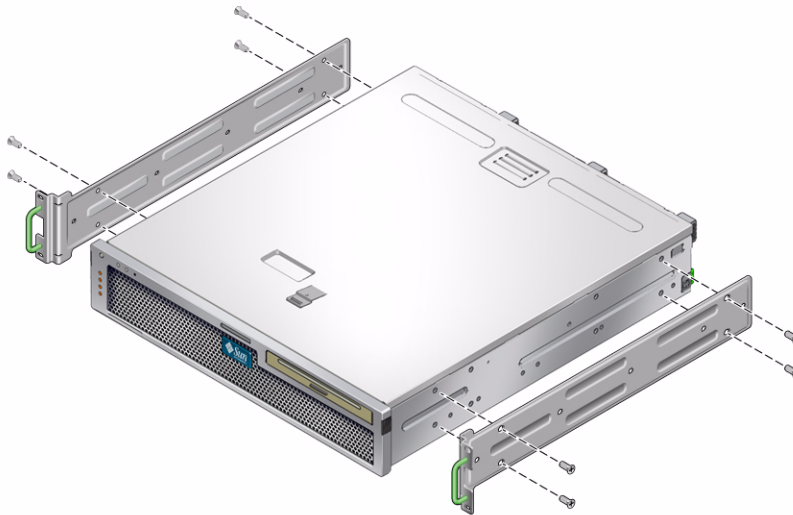
▼ Install the Server Using the 19-Inch, 4-Post Sliding Rail Mount Rack Kit

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. Get the hardmount brackets and M5 × 4.5 mm flathead Phillips screws from the standard rack kit.

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 ship kit.

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



3. Get the telco slide assemblies from the rack kit.
4. Press in the button on each slide and pull the glide completely out of the slide.

FIGURE: Dismantling the Slide

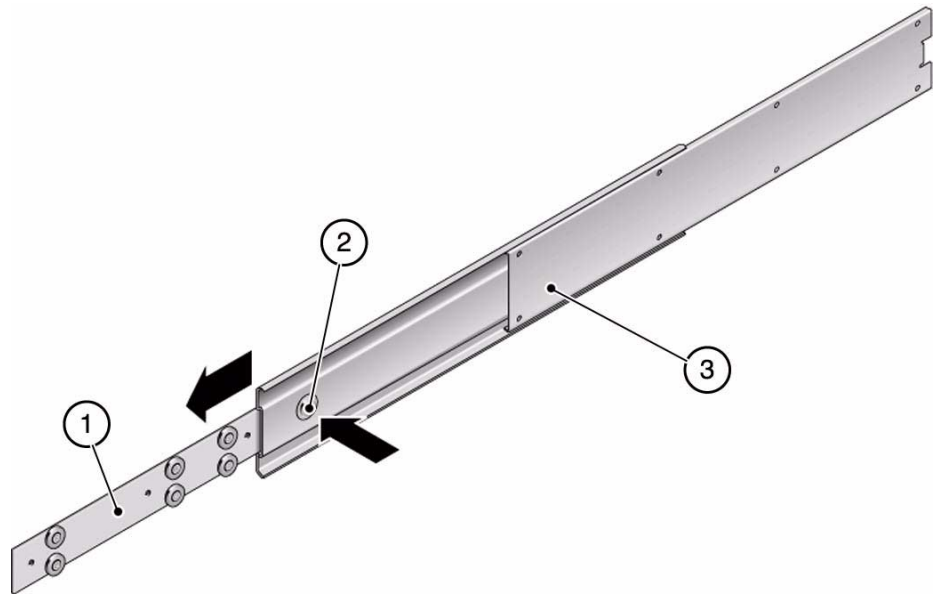
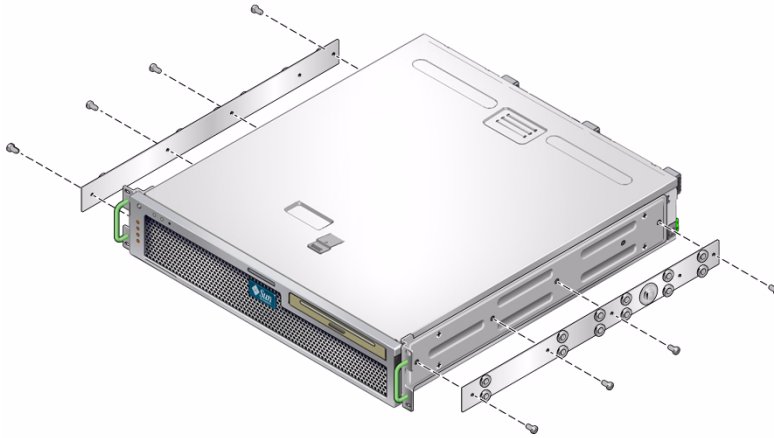


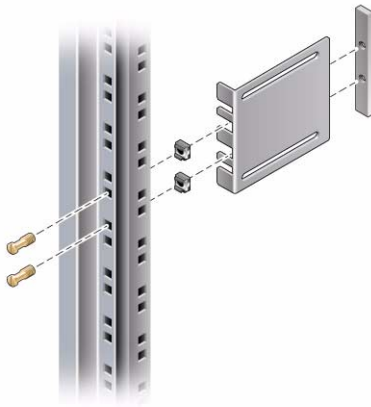
Figure Legend

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

- 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.



- Get the short brackets and long brackets from the rackmount kit.
- 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.
- 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.

9. Extend a slide to line up the access holes with the front screw holes.
10. 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.

FIGURE: Securing the Slide to the Brackets

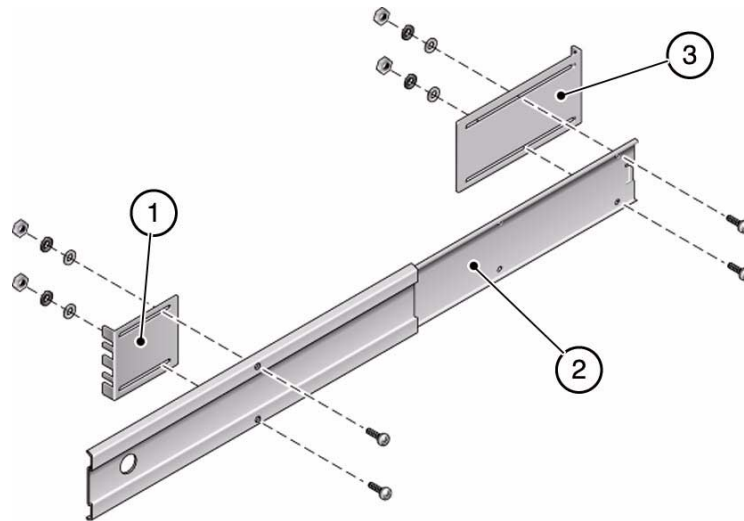


Figure Legend

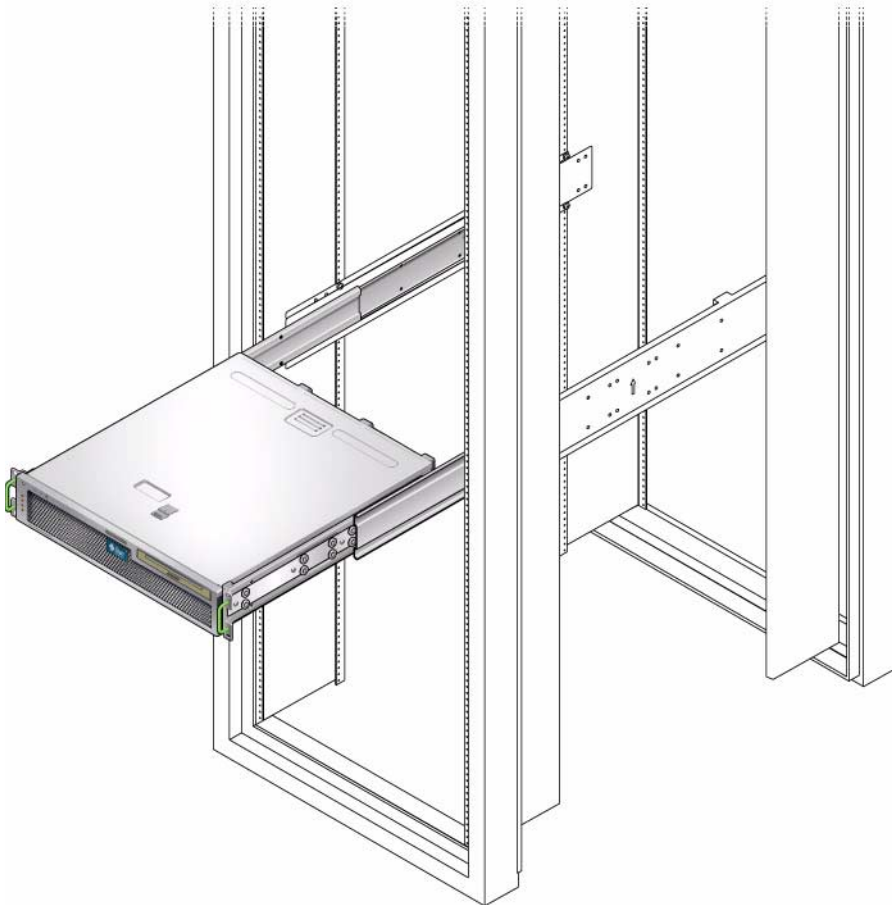
-
- | | |
|---|---------------|
| 1 | Short bracket |
| 2 | Slide |
| 3 | Long bracket |
-

11. Repeat [Step 9](#) and [Step 10](#) for the slide on the other side of the rack.
12. Push the slides completely into the assembly on each side of the rack and release the stop catches.

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

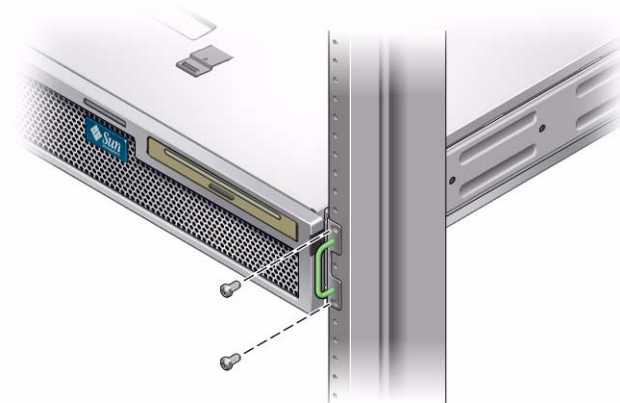
You might find that there is too much or too little room between the two slides mounted in the rack. Consequently, the glides attached to the server might not align correctly with the slides in the rack. If either situation occurs, loosen the M6 collar screws and cage nuts on the long and short brackets ([Step 7](#) and [Step 8](#)), move the brackets inward or outward to the appropriate points, then tighten them again.

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



15. 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 24](#)
- [“19-Inch, 4-Post Sliding Rail Mount Rack Kit” on page 32](#)

Hardmounting the Server in a 600-mm, 4-Post Rack

These topics contain information about using an optional rack kit to mount the server in 19-inch, 600-mm deep racks.

- [“600-mm, 4-Post Hardmount Rack Kit” on page 40](#)
- [“Install the Server Using the 600-mm, 4-Post Hardmount Rack Kit” on page 41](#)

Related Information

- [“Stabilize the Rack for Installation” on page 24](#)

600-mm, 4-Post Hardmount Rack Kit

FIGURE: 600-mm, 4-Post Hardmount Kit Contents

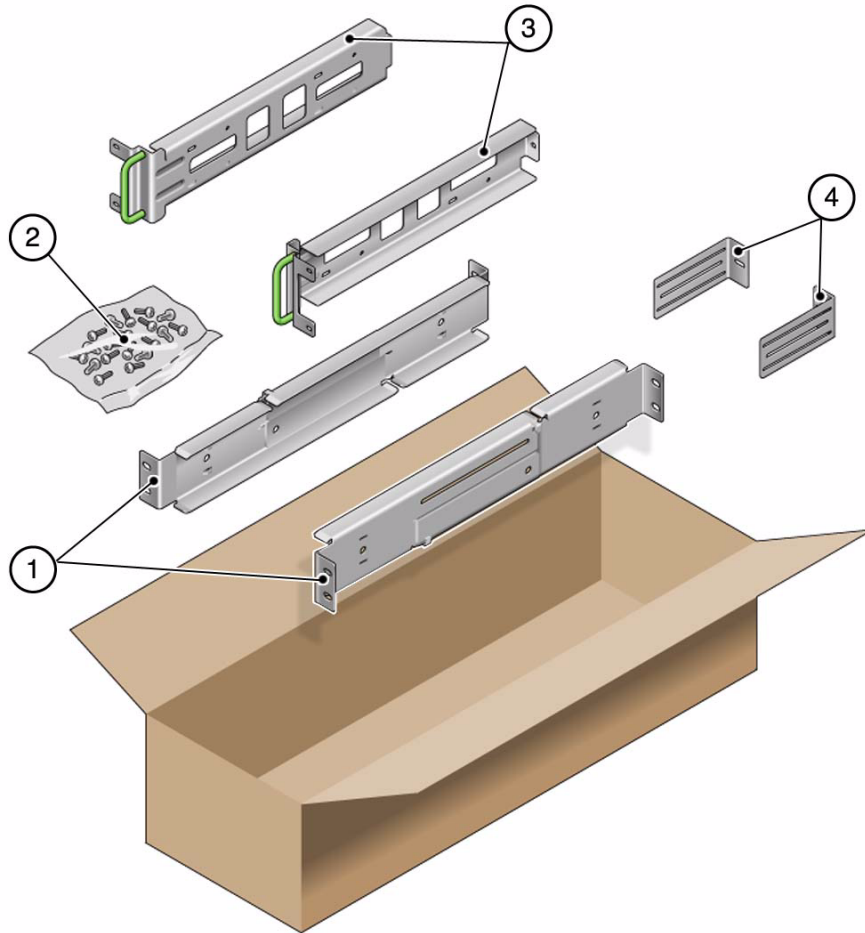


Figure Legend

- 1 Adjustable rails (2)
- 2 Screws

- 3 Side rails (2)
- 4 Rear flanges (2)

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

Number	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

- [“Stabilize the Rack for Installation” on page 24](#)
- [“Install the Server Using the 600-mm, 4-Post Hardmount Rack Kit” on page 41](#)

▼ Install the Server Using the 600-mm, 4-Post Hardmount Rack 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.

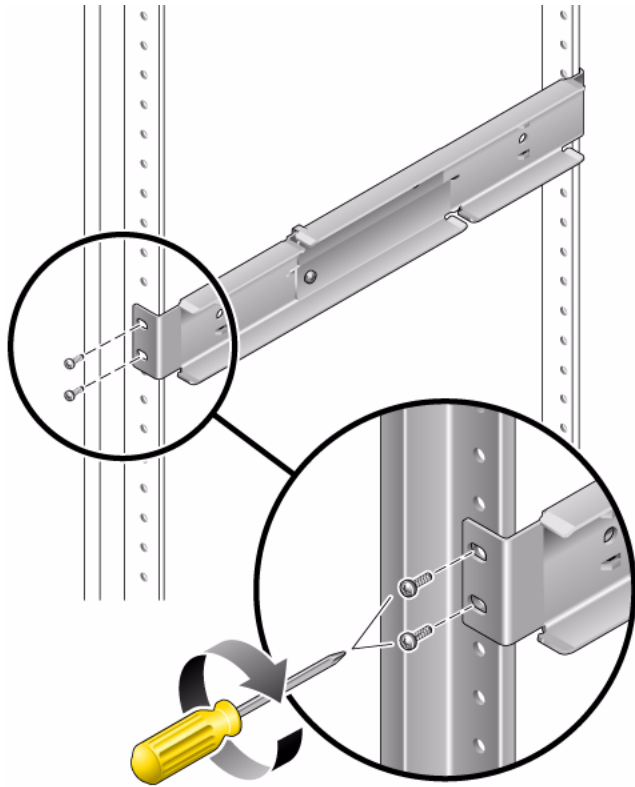
1. Get the adjustable rails from the rack kit.

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



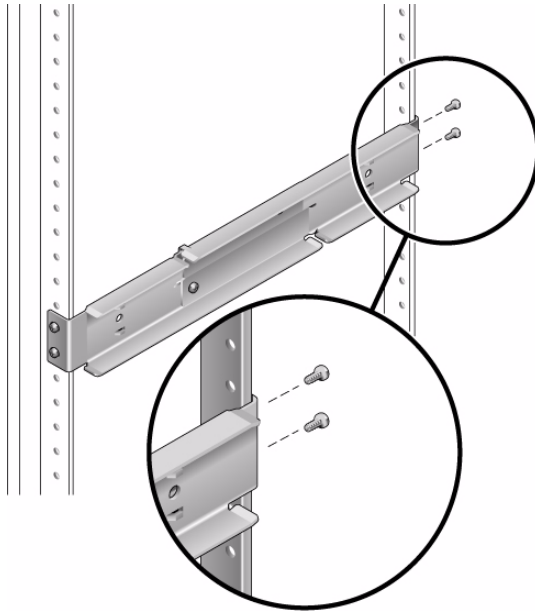
3. Lift one of the adjustable rails to the desired location in the rack. Using two screws, secure the front of the rail in the rack.

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



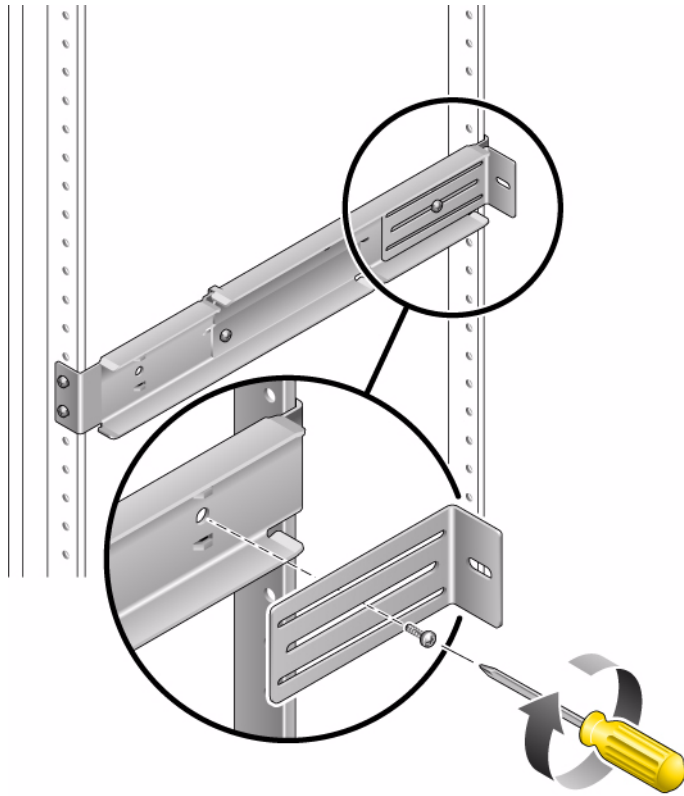
4. **At the rear of the rack, use two screws to secure the rear of the adjustable rails to the rack.**

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



5. **Tighten the two screws at the middle of each adjustable rail.**
6. **Repeat [Step 3](#) through [Step 5](#) to mount the other adjustable rail into the rack.**
7. **Get the rear flanges from the rack kit.**
8. **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.**

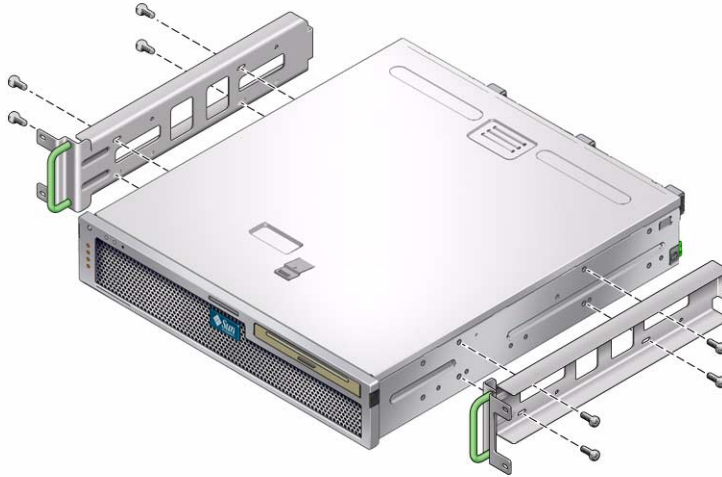
Do not completely secure the rear flanges to the adjustable rails. You will use these flanges to set the rack depth for the server in a later step.



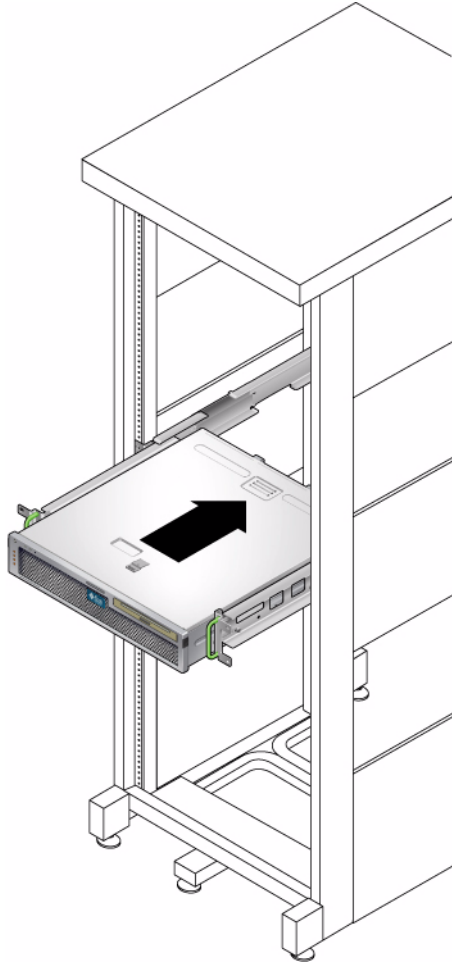
9. Get the side rails from the rack kit.

10. Using eight of the M5 × 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.

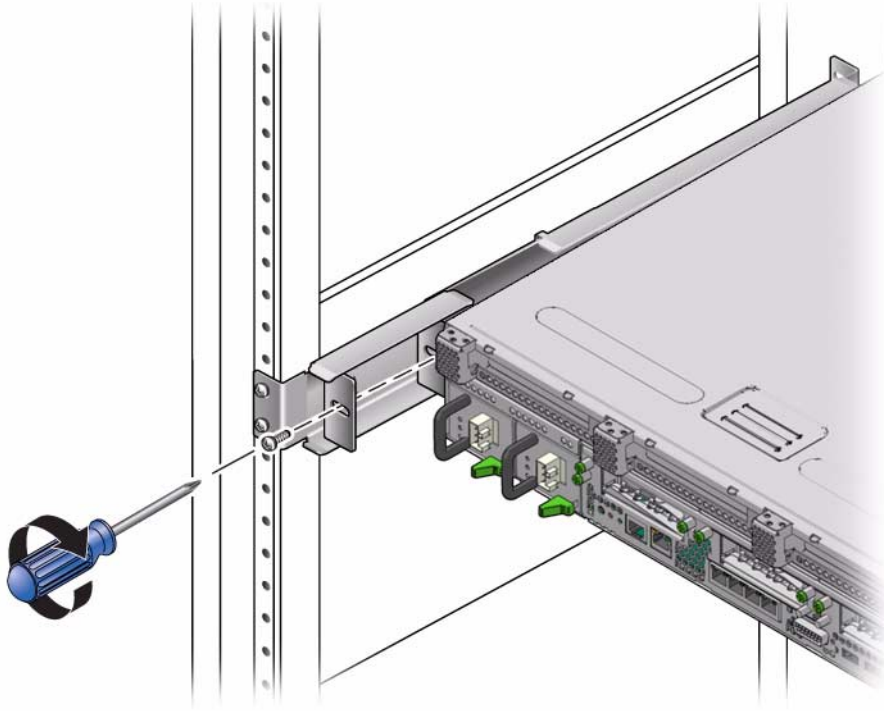


11. Lift the server into the rack and slide the server onto the adjustable rails.



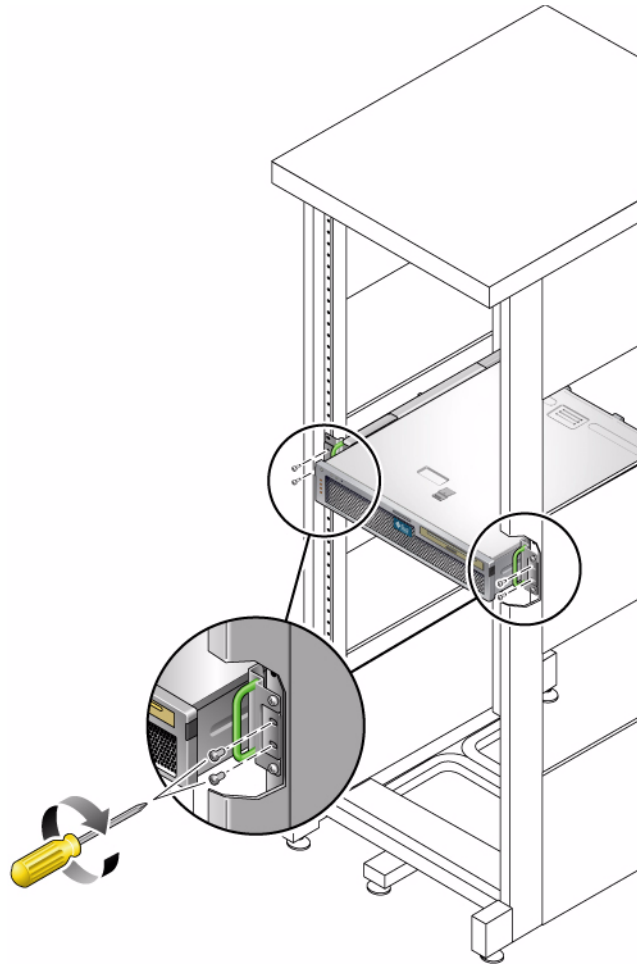
12. Push the server to the desired depth in the rack, then go to the rear of the server and push the rear flanges flush against the back of the server.
If the rack is especially shallow, you can flip the rear flanges around so that they rest flush against the rear of the server.
13. Lift the server out of the rack.
14. Set the rear flanges to the desired depth in the rack, then tighten the single M5 × 7 SEM screw on each of the flanges to secure them to the adjustable rails.
15. Lift the server into the rack and slide it onto the adjustable rails.

16. Push the server backward until it rests flush against the rear flanges, then use one M5 × 7 SEM screw for each rear flange to secure the rear of the server to the rear flanges.



17. 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 24
- [“600-mm, 4-Post Hardmount Rack Kit”](#) on page 40

Mounting the Server Into a 2-Post Rack

The server ships with a 19-inch, 4-post hardmount rack 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 the procedures in this chapter.



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
Installing the server using a 23-inch 2-post rackmount kit.	“Hardmounting the Server in a 23-Inch, 2-Post Rack” on page 52
Installing the server using a 19-inch 2-post rackmount kit.	“Hardmounting the Server in a 19-Inch, 2-Post Rack” on page 61
Installing the server using a 19-inch 2-post sliding rail rackmount kit.	“Mounting the Server Using the 19-Inch, 2-Post Rack Sliding Rail Mount Kit” on page 69

Related Information

- [“Mounting the Server Into a 4-Post Rack” on page 25](#)
- [“Preparing for the Installation” on page 17](#)

Hardmounting the Server in a 23-Inch, 2-Post Rack

These topics contain information about using an optional rack kit to install the server into a 23-inch (584.2-mm) wide 2-post ETSI rack.

- [“23-Inch, 2-Post Hardmount Rack Kit” on page 53](#)
- [“Install the Server Using the 23-Inch, 2-Post Hardmount Rack Kit” on page 55](#)

Related Information

- [“Stabilize the Rack for Installation” on page 24](#)

23-Inch, 2-Post Hardmount Rack Kit

FIGURE: 23-Inch, 2-Post Hardmount Rack Kit Contents

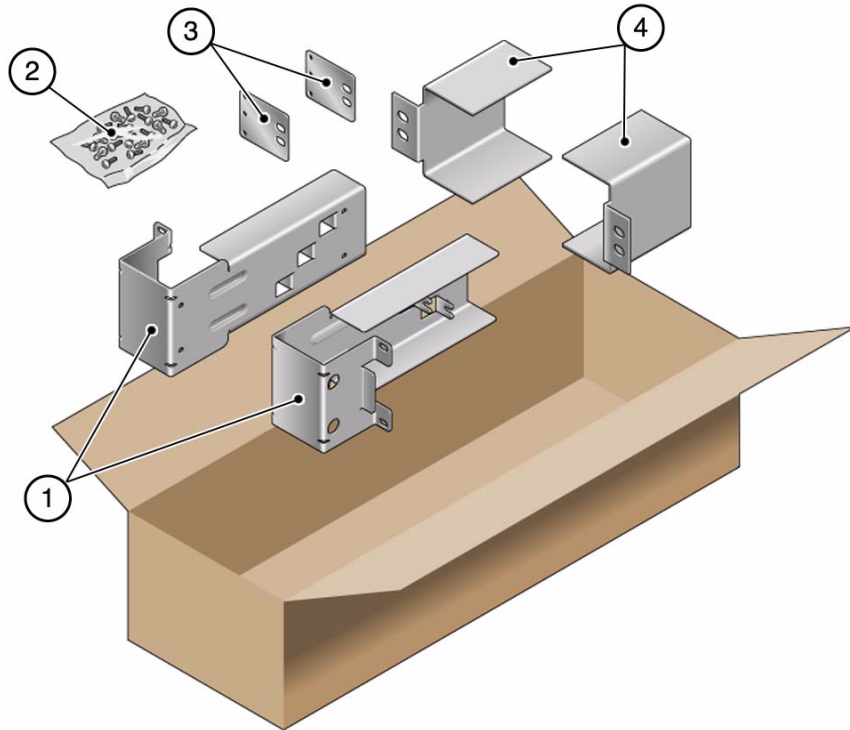


Figure Legend

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

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

Number	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

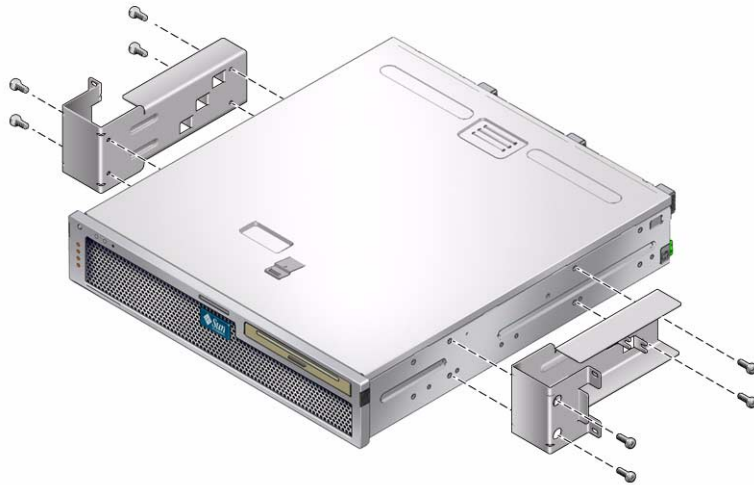
Related Information

- [“Stabilize the Rack for Installation” on page 24](#)
- [“Install the Server Using the 23-Inch, 2-Post Hardmount Rack Kit” on page 55](#)

▼ Install the Server Using the 23-Inch, 2-Post Hardmount Rack Kit

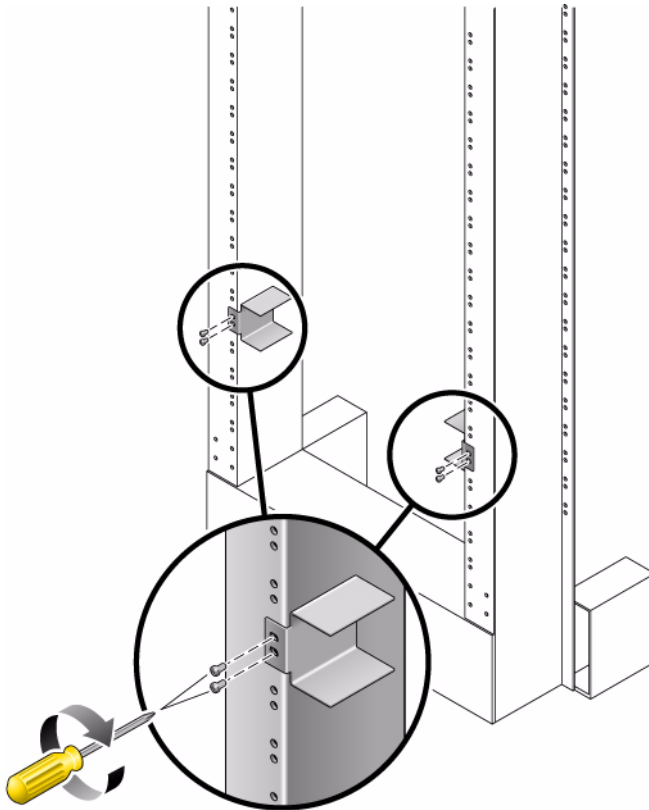
Note – The 23-inch, 2-post rackmount kit supports rack web thicknesses (the width of the rack post) of 76.20 mm (3 in.), 101.6 mm (4 in.), and 127 mm (5 in.).

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

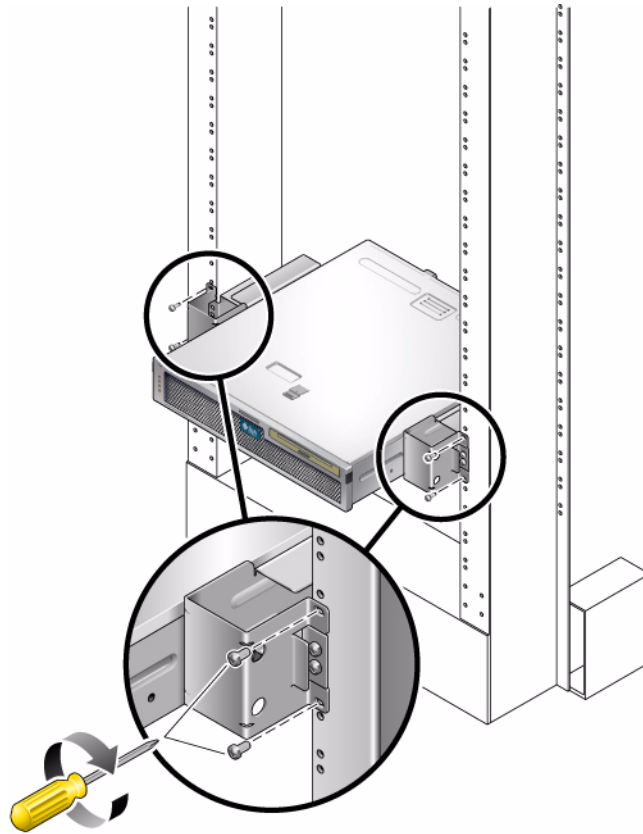


2. Lift the rail guides to the desired height in the rack and, using two screws each, secure both rail guides to the rack.

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



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



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

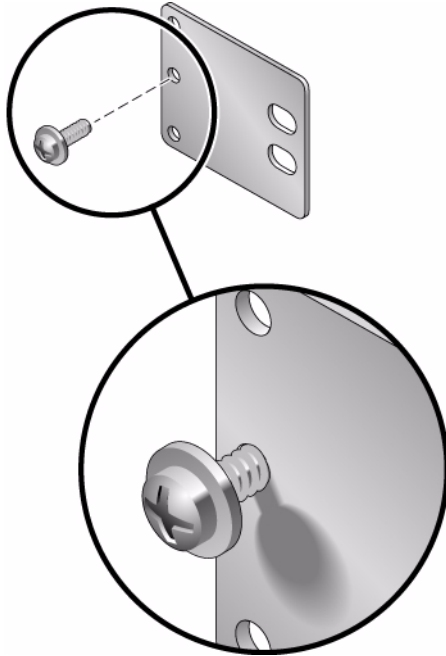
The size of the screws varies, depending on your particular rack.

5. (Optional) If your environment contains especially high vibrations, use 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.

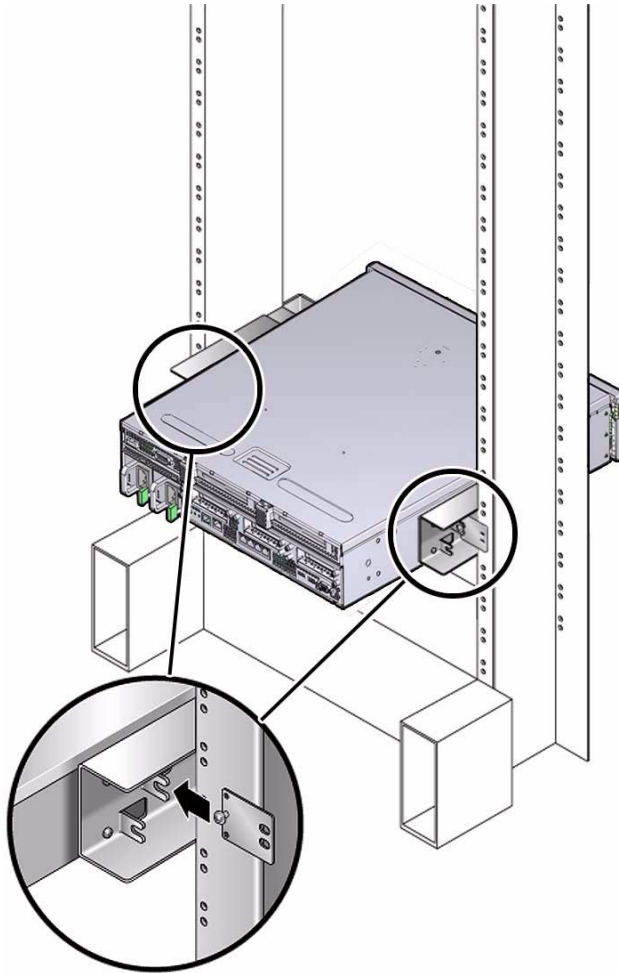
- a. Using one M5 x 7 SEM screw for each rear plate, loosely install the screw in one of the three positions on the rear plate.**

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.



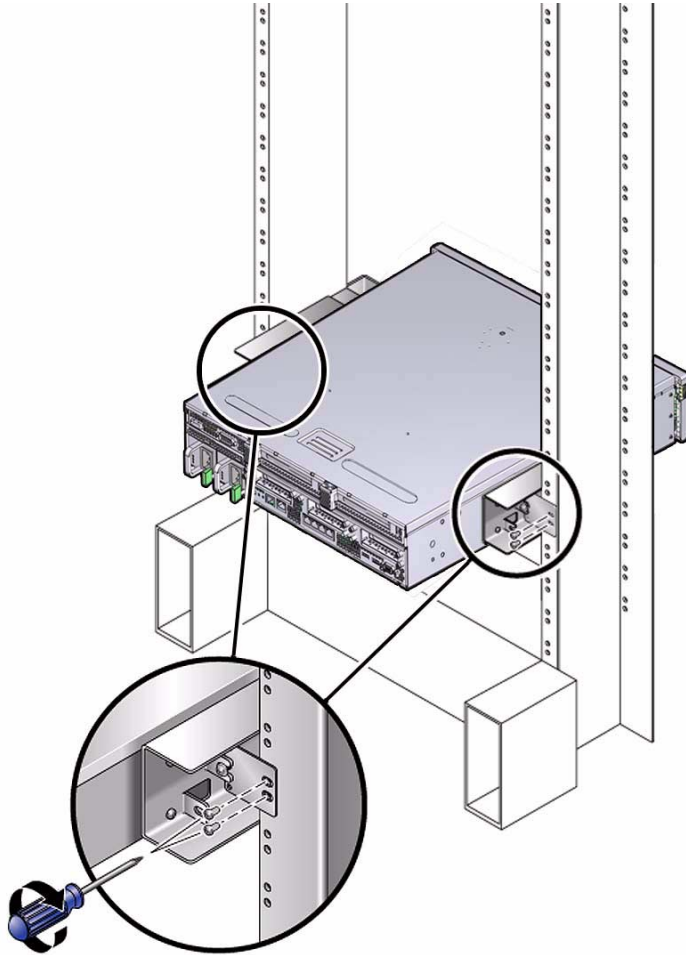
- b. Slide the rear plate in so that the screw slides into position into one of the eyelets.**

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. Repeat [Step a](#) through [Step d](#) to secure the rear plate on the other post.

Related Information

- [“Stabilize the Rack for Installation”](#) on page 24
- [“23-Inch, 2-Post Hardmount Rack Kit”](#) on page 53

Hardmounting the Server in a 19-Inch, 2-Post Rack

These topics contain information about using an optional rack kit to install the server into a 19-inch wide, 2-post rack.

- [“19-Inch, 2-Post Hardmount Rack Kit”](#) on page 62
- [“Install the Server Using the 19-Inch, 2-Post Hardmount Rack Kit”](#) on page 64

Related Information

- [“Stabilize the Rack for Installation”](#) on page 24

19-Inch, 2-Post Hardmount Rack Kit

FIGURE: 19-Inch, 2-Post Hardmount Rack Kit Contents

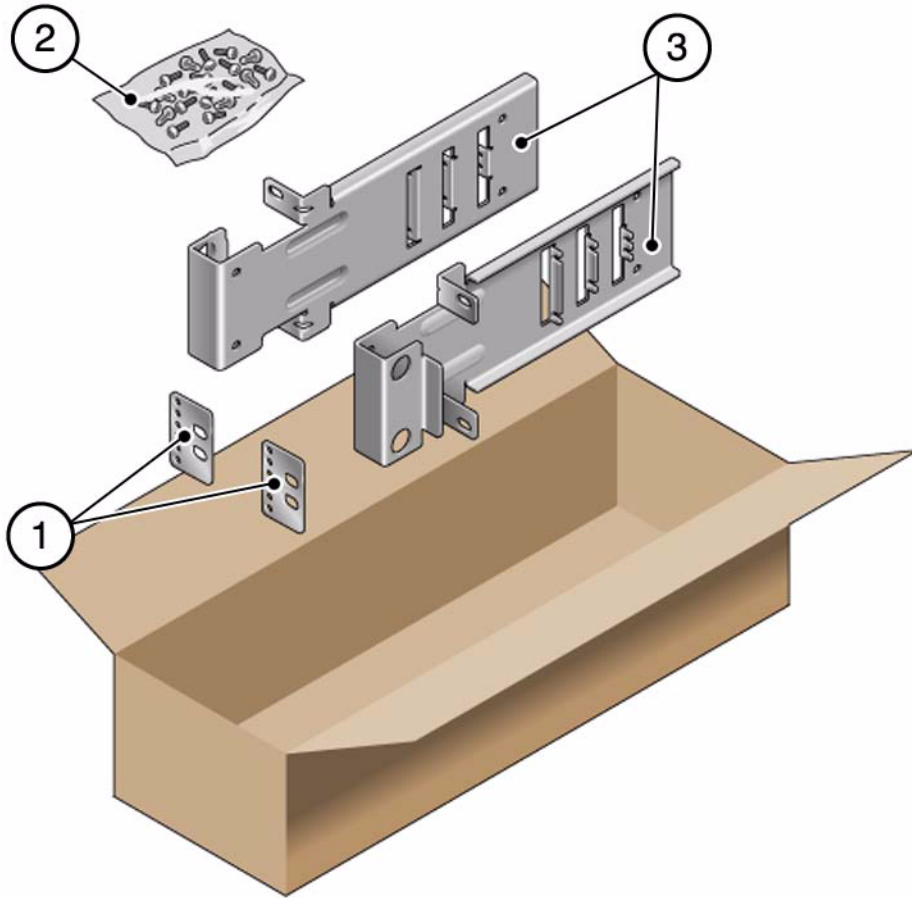


Figure Legend

-
- 1 Rear plates (2)
 - 2 Screws
 - 3 Side brackets (2)
-

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

Number	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

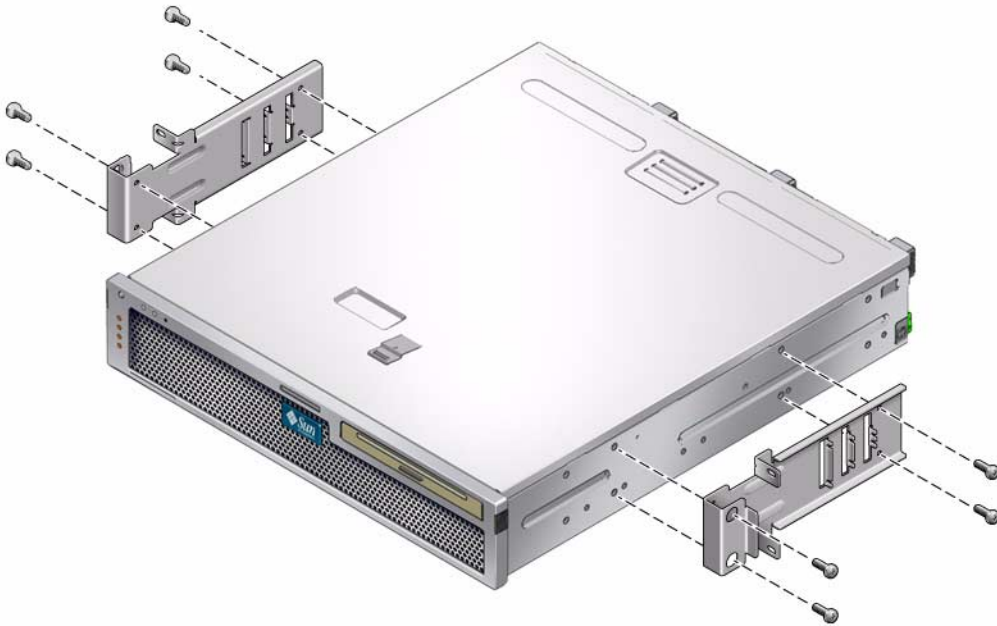
Related Information

- [“Stabilize the Rack for Installation” on page 24](#)
- [“Install the Server Using the 19-Inch, 2-Post Hardmount Rack Kit” on page 64](#)

▼ Install the Server Using the 19-Inch, 2-Post Hardmount Rack 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.).

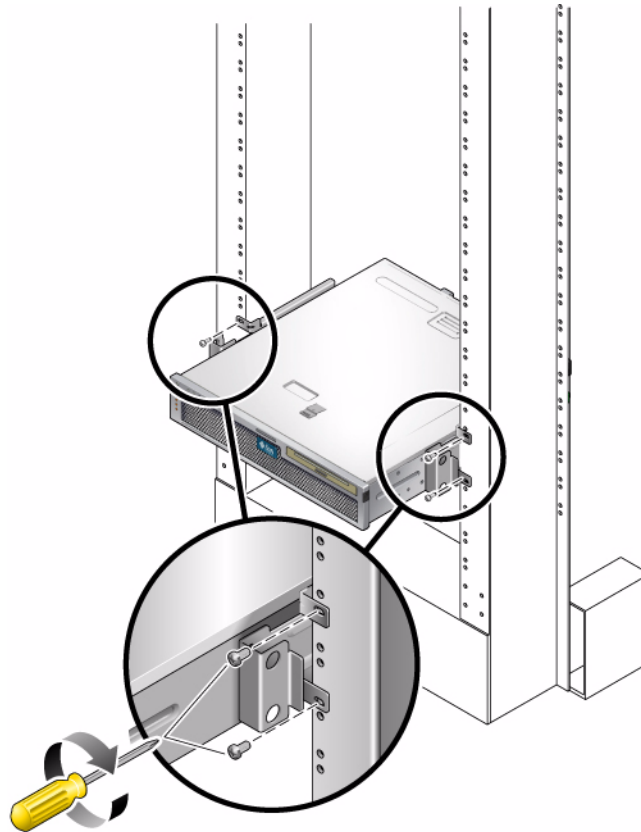
1. Using four of the M5 x 7 SEM screws for each side bracket, secure the side brackets to the sides of the server.



2. Lift the server into the rack.

3. 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.

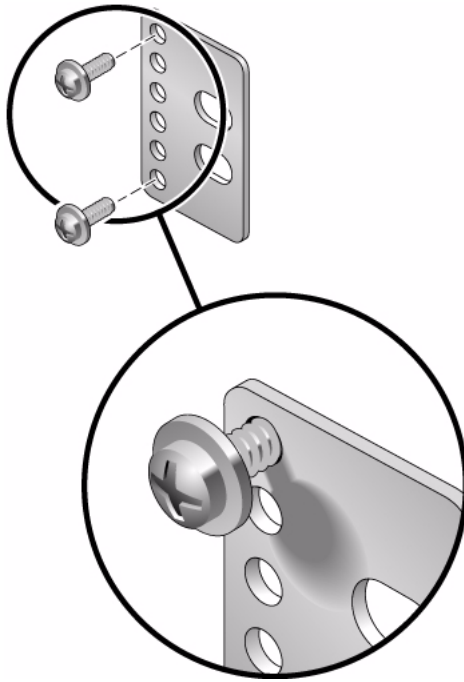


4. (Optional) If your environment contains especially high vibrations, use the rear plates to further secure the server to the rack.

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.

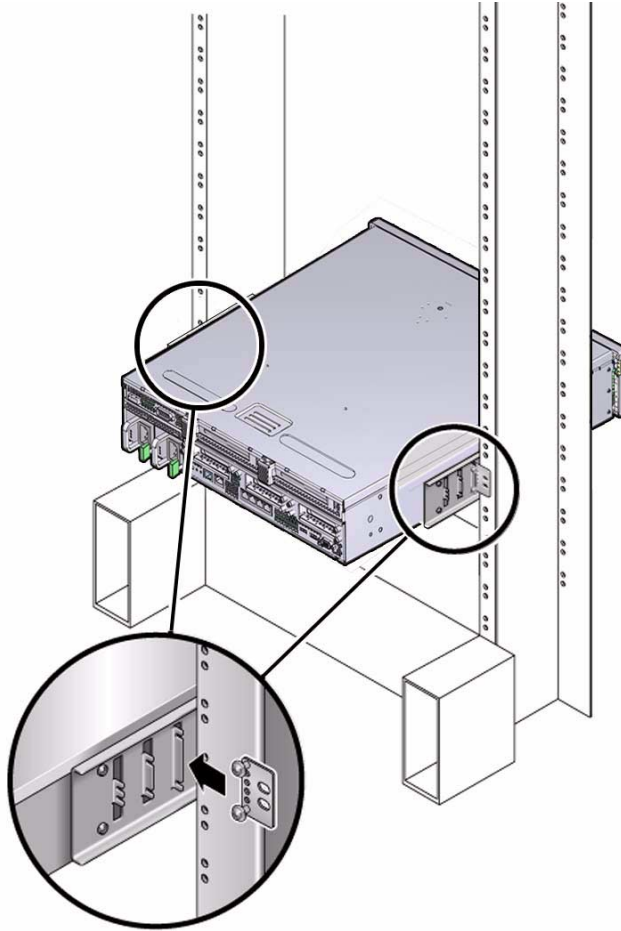
- a. Using two of the M3 × 8 SEM screws for each rear plate, loosely install the screws in one of the six positions on the rear plate.

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.**

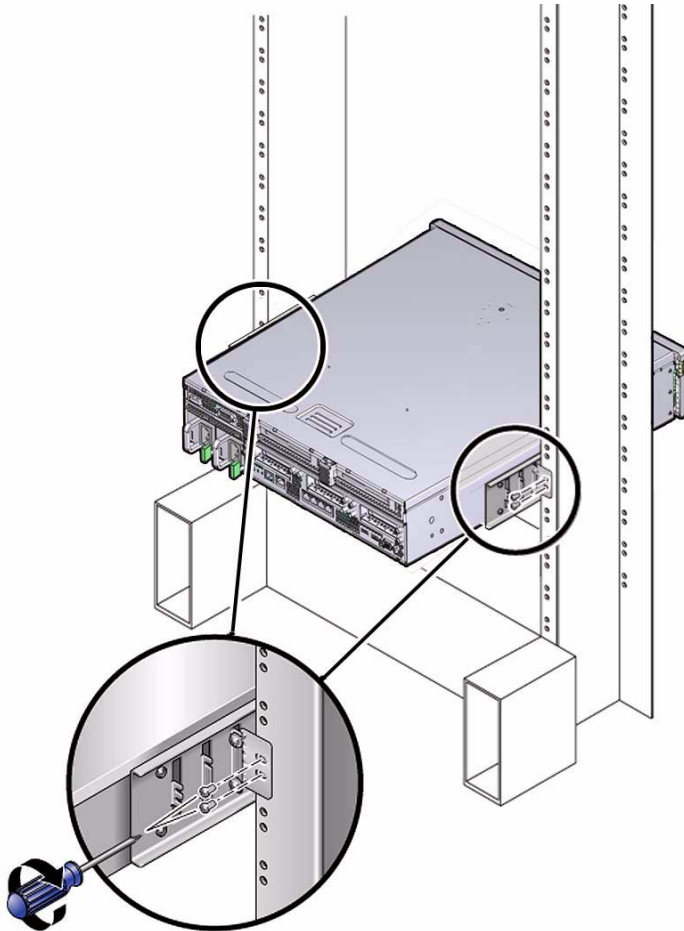
The screw heads should be facing the rear of the server. The other side of the rear plate should be in front of the rack post.



- 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. Repeat Step a through Step d to secure the rear plate on the other post.

Related Information

- [“Stabilize the Rack for Installation”](#) on page 24
- [“19-Inch, 2-Post Hardmount Rack Kit”](#) on page 62

Mounting the Server Using the 19-Inch, 2-Post Rack Sliding Rail Mount Kit

After installing the server using this optional 19-inch 2-post sliding rail mount rack kit, you can extend the server out of the rack for servicing.

- [“19-Inch, 2-Post Sliding Rail Mount Kit” on page 70](#)
- [“Install a Server Using the 19-Inch, 2-Post Sliding Rail Mount Kit” on page 71](#)

Related Information

- [“Stabilize the Rack for Installation” on page 24](#)

19-Inch, 2-Post Sliding Rail Mount Kit

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

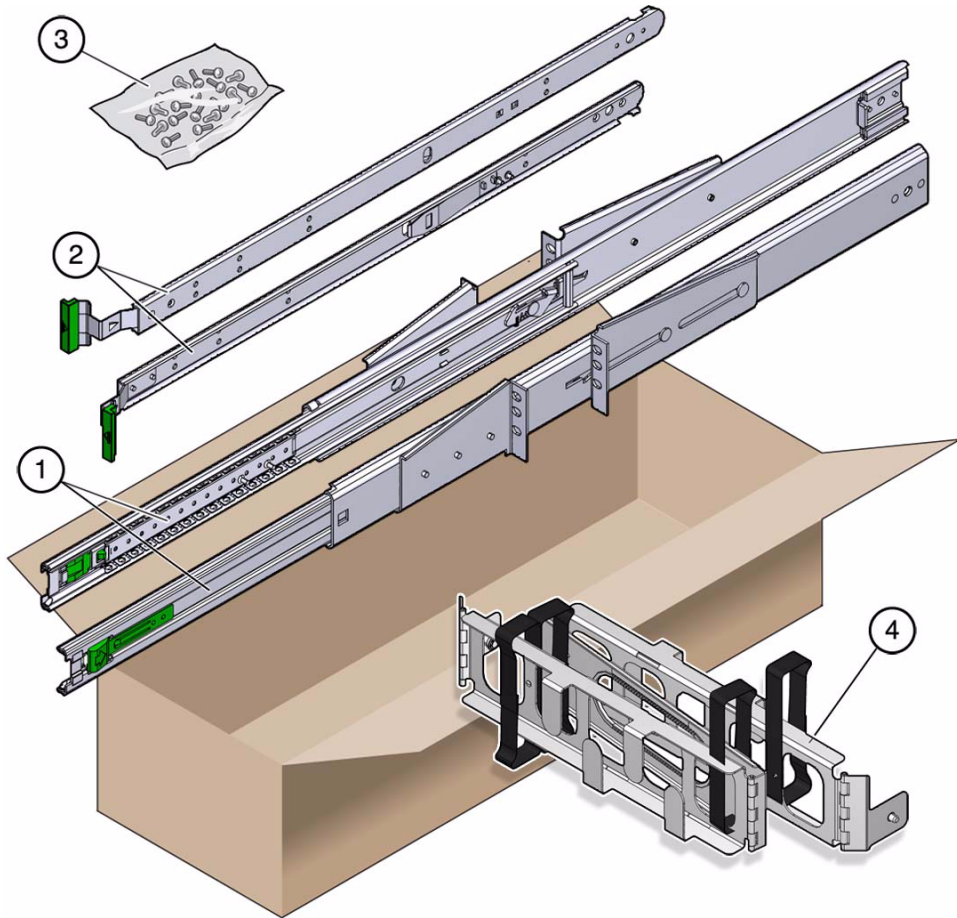


Figure Legend

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

Number	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

- [“Stabilize the Rack for Installation” on page 24](#)
- [“Install a Server Using the 19-Inch, 2-Post Sliding Rail Mount Kit” on page 71](#)

▼ Install a Server Using the 19-Inch, 2-Post Sliding Rail Mount Kit

Note – The 19-inch, 2-post sliding rail mount 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. Retrieve the slide assemblies from the rack kit.

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.

FIGURE: Removing Glides from the Slides

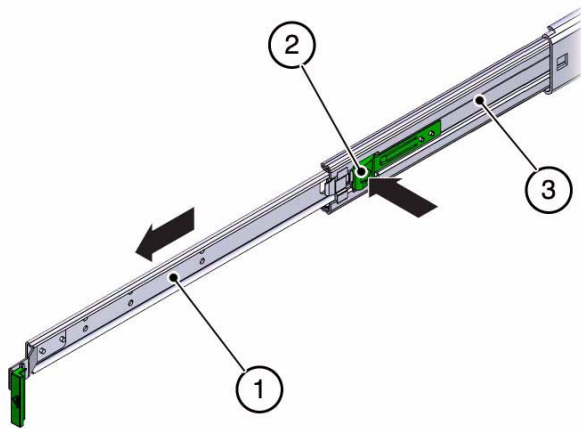
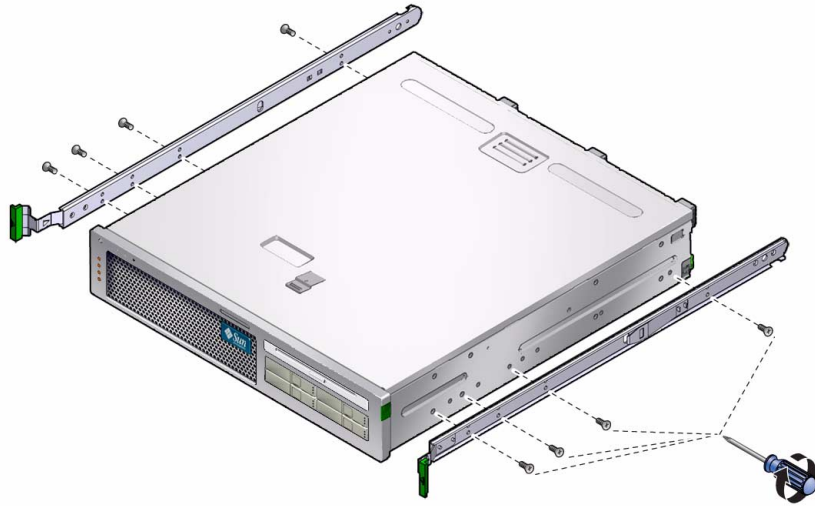


Figure Legend

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

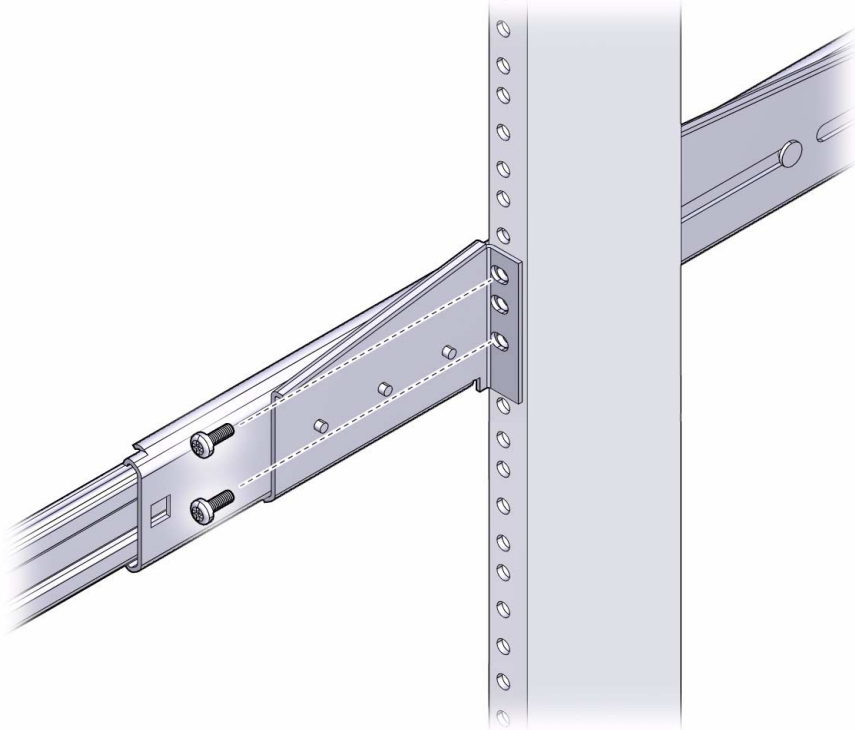
3. Using eight of the M4 x 0.5 x 5 mm Phillips panhead screws from the rackmount kit (four for each side), attach each glide to the side of the server chassis.



4. Get the rack brackets (front and rear) from the rackmount kit.

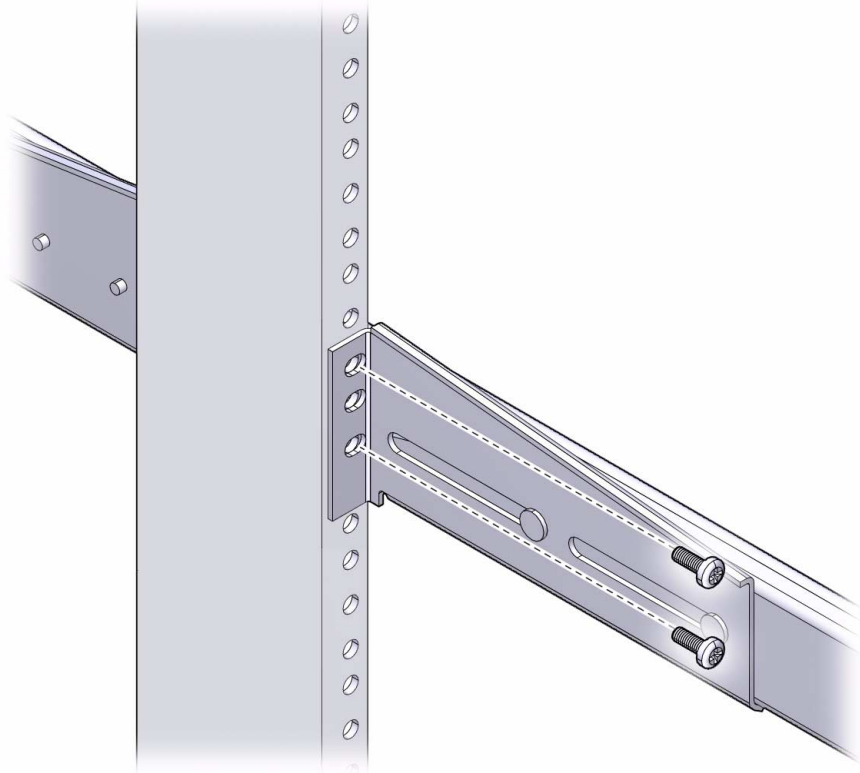
5. Lift each front bracket to the desired position at the *front* of the rack, and attach a front bracket to each of the front rack posts.

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.



6. 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 5](#). Tighten the screws enough to secure the brackets, but leave them loose enough for adjustment later.

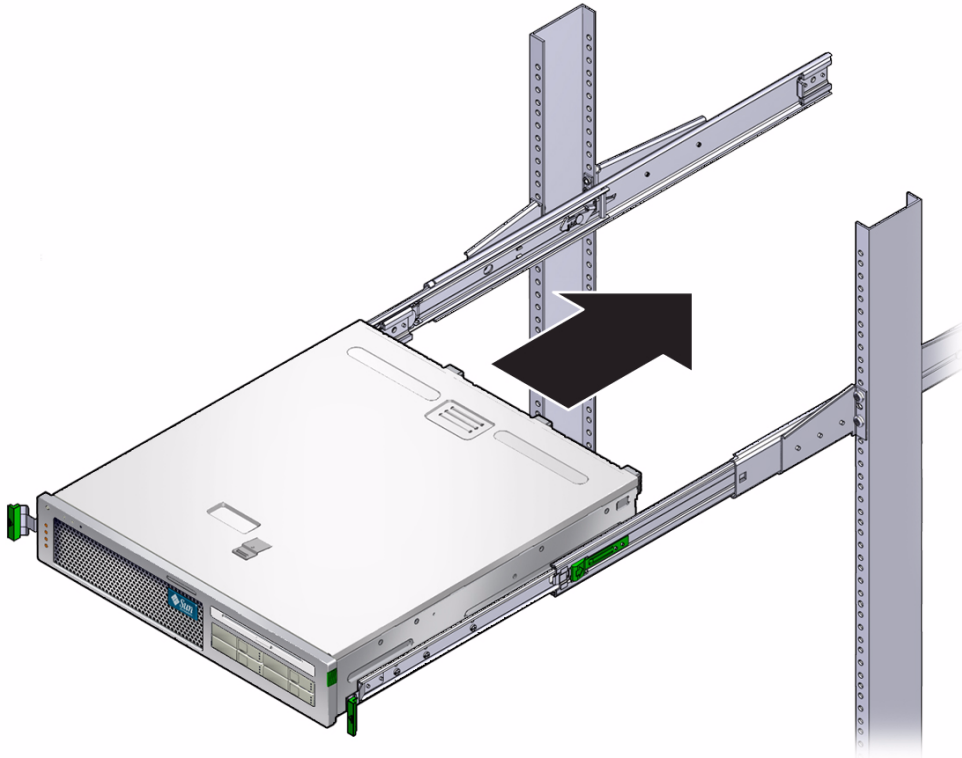


Note – If your rack has 10–32 holes, use the 10–32 collar screws and 10–32 threaded strips.

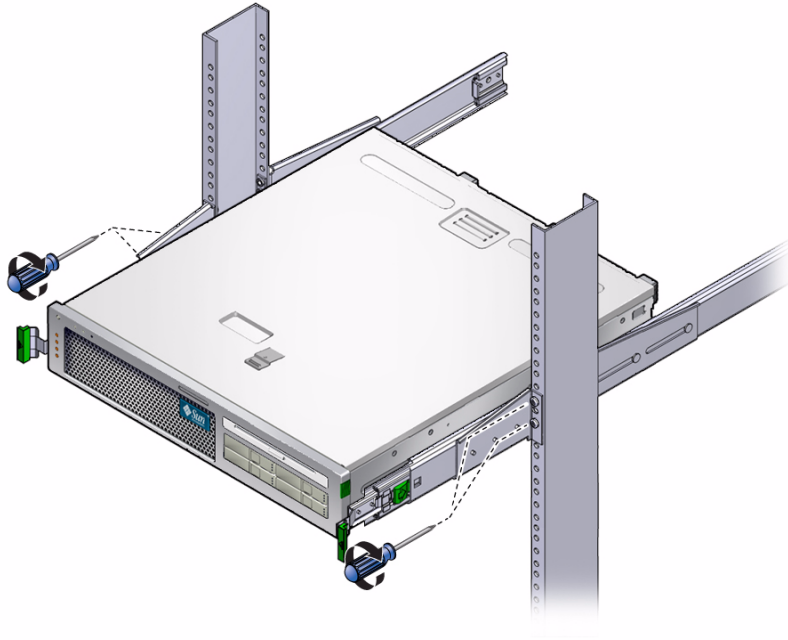
7. Align the glides attached to the server with the slide assemblies in the rack.

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 5](#) and [Step 6](#)), move the brackets inward or outward to the appropriate points, then tighten the brackets again.

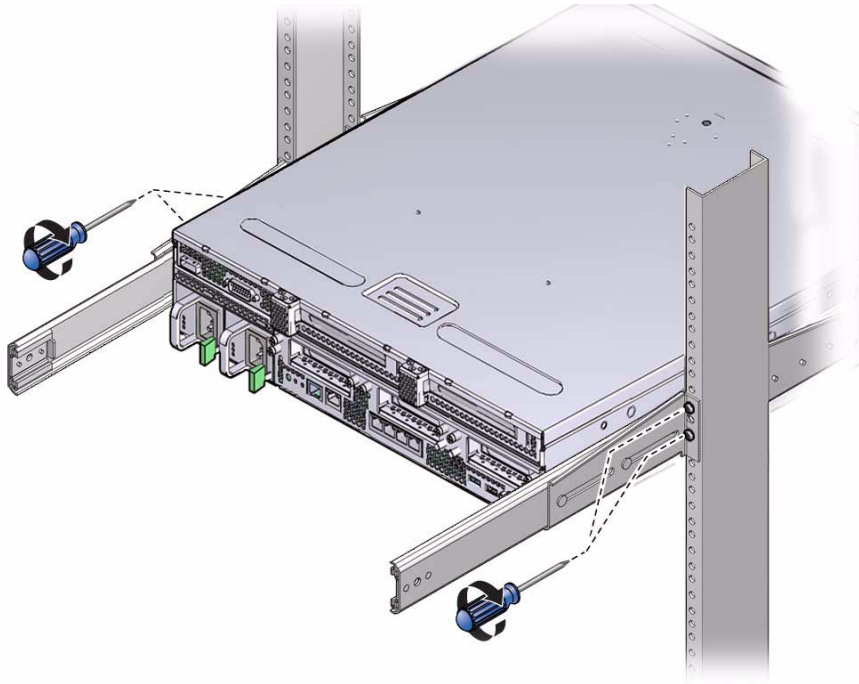
8. Push in the slide buttons and slide the server all the way into the rack enclosure.



9. Fully tighten the screws on the front brackets.

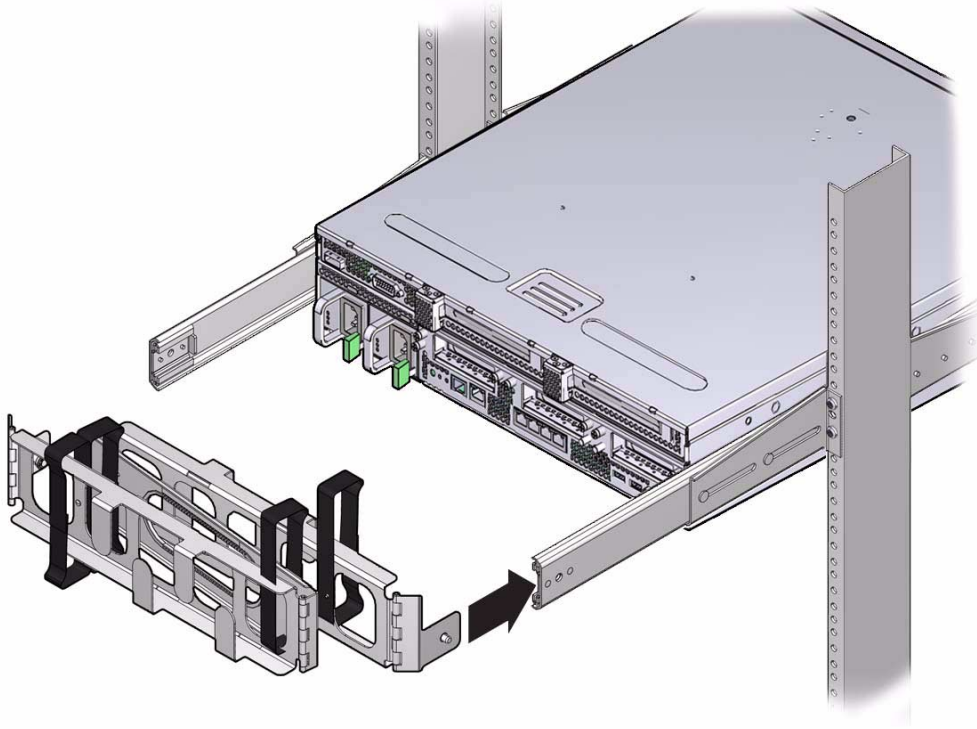


10. Fully tighten the screws on the rear brackets.



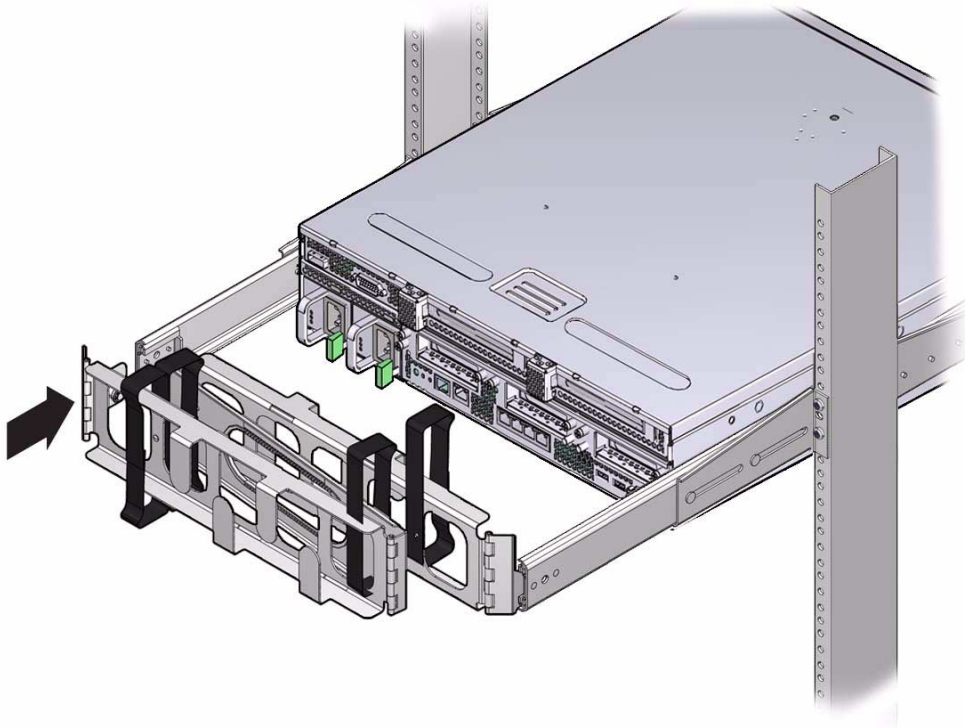
11. Attach the CMA to the right rail (note labels on the rails and the CMA) on the right side.

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.



12. 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 24
- [“19-Inch, 2-Post Sliding Rail Mount Kit”](#) on page 70

Cabling the Server

These topics describe how to connect the cables to the server.

Description	Links
Review the cable connections and ports on the rear of the server	“Rear Cable Connections and Ports” on page 82
Connect the cables to the server.	“Connecting Cables” on page 84

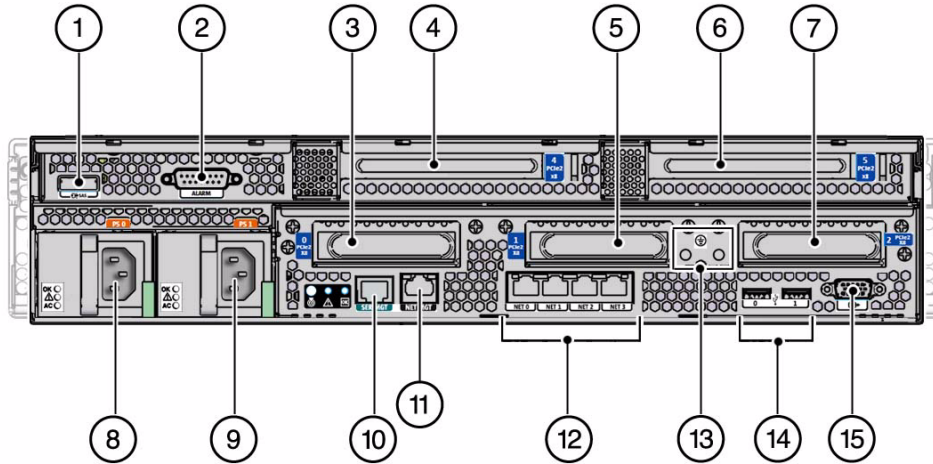
Related Information

- [“Identifying Chassis Components” on page 8](#)

Rear Cable Connections and Ports



Caution – To comply with NEBS lightning requirements, all I/O connections (except the Ethernet and power connections) must be made using shielded cables, and both ends of the shield must be grounded.



No.	Cable Port or Expansion Slot	Description
1	External SAS port	Connect external SAS storage devices and peripherals to this SFF-8088 port.
2	Alarm port	The alarm port uses a standard DB-15 connector. In a telecommunications environment, use this port to connect to the central office alarming system.
3	PCIe2 slot 0	The PCIe2 slots enable you to install optional cards to enhance the capabilities of the server. Refer to the <i>Sun Netra X4270 Server Service Manual</i> for installation instructions, and refer to your card documentation for cabling instructions. Note - All of the PCIe2 slots comply with the PCI Express 2.0 specification and can accommodate 25 W PCIe2 cards. Note - PCIe2 slot 3 (not accessible from the rear panel) is a custom slot reserved for an internal host bus adapter.
4	PCIe2 slot 4	
5	PCIe2 slot 1	
6	PCIe2 slot 5	
7	PCIe2 slot 2	

No.	Cable Port or Expansion Slot	Description
8	Power supply 0 input power	Use the supplied AC power cords or WAGO DC connectors with these ports.
9	Power supply 1 input power	<p data-bbox="679 262 1308 366">Do not attach power cords to the power supplies until you have finished connecting the data cables and have connected the server to a serial terminal or a terminal emulator (PC or workstation).</p> <p data-bbox="679 374 1308 513">The server goes into Standby mode and the ILOM system controller initializes as soon as the input power cables are connected to the power source. System messages might be lost if the server is not connected to a terminal, PC, or workstation at this time.</p> <p data-bbox="679 522 1308 604">Note - ILOM will signal a fault if both power supplies are not cabled at the same time, since it will be a nonredundant condition.</p>
10	Serial management port (SER MGT)	The serial management port uses an RJ-45 cable and is always available. This port is the default connection to the ILOM system controller.
11	Network management port (NET MGT)	<p data-bbox="679 730 1308 895">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. This port is not available until you have configured network settings for the system controller (through the service processor serial management port).</p> <p data-bbox="679 904 1308 951">Note - This port does not support connections to Gigabit networks.</p>
12	Ethernet ports (NET0, NET1, NET2, NET3)	The four Gigabit Ethernet ports enable you to connect the system to the network.
13	Grounding studs	Use the included grounding lug to attach an earth ground cable to server.
14	USB ports (USB 0, USB 1)	<p data-bbox="679 1130 1308 1199">The two USB ports support hot-plugging. You can connect and disconnect USB cables and peripheral devices while the server is running, without affecting system operations.</p> <p data-bbox="679 1208 1308 1260">Note - You can connect up to 126 devices to each of the two USB controllers, for a total of 252 USB devices per server.</p>
15	VGA (video) port	Use a 9-pin video cable to connect to a VGA video device.

Related Information

- [“Connecting Cables” on page 84](#)
- [“Assembling and Installing DC Power Cords” on page 93](#)
- [“Powering On the Server” on page 107](#)

Connecting Cables

Before powering on the server, you must make the following cable connections to the server. The server also has an alarm port, an external SAS port, a VGA video port, and USB ports available for connections to optional devices (see [“Rear Cable Connections and Ports”](#) on page 82).



Caution – In order to comply with NEBS lightning requirements, all I/O connections (except the Ethernet and power connections) must be made using shielded cables, and both ends of the shield must be grounded.

Note – When you are finished connecting the cables to the server, follow the instructions that came with your rack to secure and manage the cables.

Description	Links
Connect a cable to the serial management port. (Required for installation.)	“Service Processor Serial Management Port” on page 85 “Connect the Serial Management Cable” on page 85
Connect a cable to the network management port. (Required for installation.)	“Service Processor Network Management Port” on page 86 “Connect the Network Management Cable” on page 87
Connect cables to the Ethernet ports. (Required for installation.)	“Ethernet Network Cables” on page 87 “Connect the Ethernet Network Cables” on page 88
Connect an optional chassis ground wire.	“Chassis Ground Wire” on page 88 “Connect the Chassis Ground Wire” on page 89
Connect cables to any installed PCIe2 cards.	“Connect Cables to Installed PCIe2 Cards” on page 91
Prepare the power cords for the initial system power-on. (Required for installation.)	“Power Cord Preparation” on page 91 “Route AC Power Cords to the Server” on page 92 “Assembling and Installing DC Power Cords” on page 93

Related Information

- [“Rear Panel LEDs”](#) on page 15
- [“Rear Cable Connections and Ports”](#) on page 82

Service Processor Serial Management Port

The service processor serial management port (labeled SER MGT) is located on the rear panel. The SER MGT port provides the default connection between the service processor and a terminal or a computer. When initially configuring the server, you will use a serial connection to the SER MGT port. After the initial configuration, you can manage the server using the ILOM firmware.

Note – Use the service processor serial management port *only* for server management. This port is the default connection between the service processor and a terminal or a computer.



Use this port to set up the service processor network management port, as detailed in [“Connecting to the ILOM SP for the First Time”](#) on page 110.

Related Information

- [“Connect the Serial Management Cable”](#) on page 85
- [“Connecting to the ILOM SP for the First Time”](#) on page 110
- [“Determining the ILOM SP IP Address”](#) on page 113
- ILOM 3.0 documentation

▼ Connect the Serial Management Cable

Note – To comply with NEBS Lightning requirements, you must use a shielded twisted-pair cable for the connection between the SER MGT port and the terminal device. Both ends of the shield must be grounded.



Caution – Do not attach a modem to this port.

- **Connect a Category 5 (or better) shielded twisted-pair cable from the RJ-45 SER MGT port to the terminal device.**

Related Information

- [“Rear Cable Connections and Ports”](#) on page 82
- [“Service Processor Serial Management Port”](#) on page 85
- [“Connect the Power Cords to the Server”](#) on page 107
- [“Connecting to the ILOM SP for the First Time”](#) on page 110
- [“Configure the Preinstalled Solaris OS”](#) on page 124

Service Processor Network Management Port

The service processor network management port (labeled NET MGT) is located just to the right of the serial management (SER MGT) port on the rear panel. 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 [“Connecting to the ILOM SP for the First Time”](#) on page 110.

You might need to modify the IP Address settings for your network. For instructions, see [“Modifying the ILOM SP IP Address”](#) on page 116.

Related Information

- [“Connect the Network Management Cable”](#) on page 87
- [“Modifying the ILOM SP IP Address”](#) on page 116

▼ Connect the Network Management Cable

Because the network management port connects to an Ethernet network, you do not need to use a shielded twisted-pair cable for this connection.

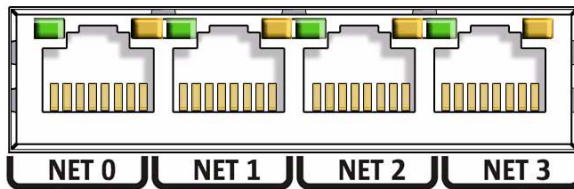
- Connect a Category 5 (or better) cable from the RJ-45 NET MGT port to your network switch or hub.

Related Information

- [“Rear Panel LEDs”](#) on page 15
- [“Rear Cable Connections and Ports”](#) on page 82
- [“Service Processor Network Management Port”](#) on page 86
- [“Modifying the ILOM SP IP Address”](#) on page 116

Ethernet Network Cables

The server has four RJ-45 Gigabit Ethernet network connectors, marked NET0, NET1, NET2, and NET3. Use these ports to connect the server to the network.



The LEDs located above each NET port are Link/Activity (left) and Speed (right) indicators for each port. The following table lists the Ethernet transfer rates and the Speed LED color.

Connection Type	IEEE Terminology	Speed LED Color	Transfer Rate
Ethernet	10BASE-T	Off	10 Mbit/sec
Fast Ethernet	100BASE-TX	Green	100 Mbit/sec
Gigabit Ethernet	1000BASE-T	Amber	1000 Mbit/sec

Related Information

- [“Rear Panel LEDs”](#) on page 15
- [“Rear Cable Connections and Ports”](#) on page 82
- [“Connect the Ethernet Network Cables”](#) on page 88

▼ Connect the Ethernet Network Cables

You do not need to use a shielded twisted-pair cable for these Ethernet network connections.

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

- [“Rear Cable Connections and Ports” on page 82](#)
- [“Ethernet Network Cables” on page 87](#)
- [“Solaris OS Configuration Parameters” on page 127](#)

Chassis Ground Wire

For additional grounding, optionally attach a chassis ground wire to the grounding studs located at the rear of the server. The advantages of attaching a chassis ground wire include:

- The chassis ground remains connected if the power cords are removed for a service procedure.
- A chassis ground wire connected to a grounded rack or a nearby ground location helps to short out ground loop currents resulting from a distant power system ground.
- This additional grounding point will allow current leakage to dissipate more efficiently.



Caution – For DC-powered systems, you *must* attach a chassis ground wire to the chassis if the center pins of your DC power input cables are not connected to earth ground.



Caution – The server power cords and the chassis ground wire must reference a common earth ground. Otherwise, you can introduce large ground loop currents that can degrade the performance of the equipment.

Related Information

- [“Electrical Specifications” on page 19](#)

- “Connect the Chassis Ground Wire” on page 89
- “DC Power Source, Power Connection, and Chassis Ground Requirements” on page 94
- “Overcurrent Protection Requirements” on page 96
- “Connect the DC Input Power Cords to the Server” on page 104
- “Powering On the Server” on page 107

▼ Connect the Chassis Ground Wire

The server shipping kit contains a grounding lug to use when connecting a chassis grounding wire to the rear of the server. You must supply the grounding wire.

1. **For DC-powered servers, see the “DC Power Source, Power Connection, and Chassis Ground Requirements” on page 94 for the site requirements for this task.**
2. **Retrieve the grounding lug and two M5 nuts from the shipping kit.**
3. **Insert the grounding wire into the receptacle of the grounding lug and use a crimping tool to crimp the receptacle around the wire.**
4. **Go to the back of the server and locate the two grounding studs.**
5. **Position and align the grounding lug on the two grounding studs at the rear of the chassis.**

FIGURE: Securing the DC Grounding Cable

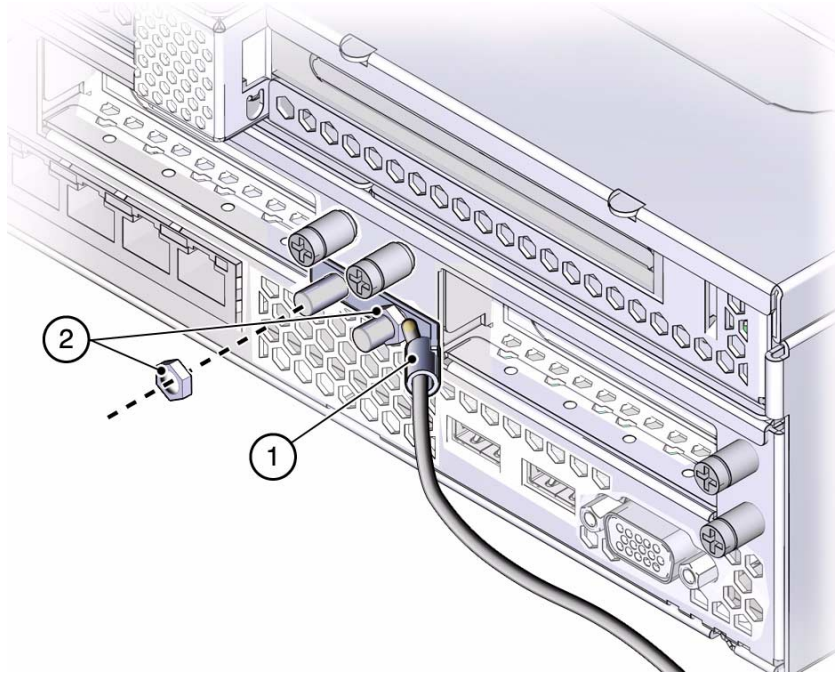


Figure Legend

-
- | | |
|---|---|
| 1 | M5 nuts |
| 2 | Earth ground cable secured in the grounding lug |
-

6. Secure the grounding lug to the grounding studs using the two M5 nuts.
7. Secure the other end of the grounding wire to the earth ground in the building.
You can secure the grounding wire to a proper grounding point on the rack, as long as the rack is properly grounded to the earth ground in the building.

Related Information

- [“Rear Cable Connections and Ports”](#) on page 82
- [“Chassis Ground Wire”](#) on page 88
- [“DC Power Source, Power Connection, and Chassis Ground Requirements”](#) on page 94
- [“Connect the DC Input Power Cords to the Server”](#) on page 104
- [“Connect the Power Cords to the Server”](#) on page 107

▼ Connect Cables to Installed PCIe2 Cards

If you have installed optional PCIe2 cards prior to installing the server, connect the appropriate cables to these cards.

Note – To comply with NEBS Lightning requirements, you must use shielded cables when connecting cables to PCIe2 card ports. Both ends of the shield must be grounded.

- **Connect cables to the PCIe2 cards as needed.**

Refer to the PCIe2 card documentation for specific instructions on connecting cables to these cards.

Related Information

- [“Rear Cable Connections and Ports” on page 82](#)
- *Sun Netra X4270 Server Service Manual*
- The PCIe2 card documentation

Power Cord Preparation

Powering on the system for the first time requires special preparation. For example, if you have not prepared a display before connecting the power cable, you will miss seeing the system messages.

Depending on your server, attach either AC or DC power cords.

- If your server is powered by AC power supplies, proceed to the [“Route AC Power Cords to the Server” on page 92](#) for instructions on routing the AC power cords to the server.
- If your server is powered by DC power supplies, see [“Assembling and Installing DC Power Cords” on page 93](#) for instructions for your server.

Related Information

- [“Power Supply Redundancy” on page 7](#)
- [“Electrical Specifications” on page 19](#)

▼ Route AC Power Cords to the Server

1. Route the AC power cords from the AC power source (for example, a power distribution unit) to the rear of the server.



Caution – Do not attach the AC power cords to the server power supplies yet. The server goes into Standby mode and the service processor initializes as soon as the AC power cord is connected to the power source.

2. Go to [“Connect the Power Cords to the Server”](#) on page 107 for instructions on connecting the server to AC power.

Related Information

- [“Rear Panel LEDs”](#) on page 15
- [“Assembling and Installing DC Power Cords”](#) on page 93
- [“Connect the Power Cords to the Server”](#) on page 107

Assembling and Installing 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.	“DC Power Source Requirements” on page 93 “DC Power Source, Power Connection, and Chassis Ground Requirements” on page 94 “Power Supply Inputs” on page 95 “Overcurrent Protection Requirements” on page 96
Assemble the DC input power cables.	“Assembling and Installing the DC Input Power Cables” on page 97
Connect the DC input power cables to the server.	“Connect the DC Input Power Cords to the Server” on page 104

Related Information

- [“Electrical Specifications” on page 19](#)
- [“Route AC Power Cords to the Server” on page 92](#)

DC Power Source Requirements

The following table lists the DC power source requirements for each power supply and for the entire server.

Note – One side of the DC power source must be reliably connected to earth ground.

TABLE: DC Operating Power Limits and Ranges

Description	Each Power Input	Entire Server*
Nominal input voltages	-48 VDC or -60 VDC	-48 VDC or -60 VDC
Operating input voltage range	-40 VDC to -75 VDC	-40 VDC to -75 VDC
Maximum operating input current	15.4 A @ -148 VDC (740 VA)	15.4 A @ -48 VDC (740 VA)
Maximum operating input power	740 W	740 W

* The entire server input power and current will be equally divided between the two inputs when both inputs are active and both power supplies are operating.

Note – The values in the chart above are the power supply specifications.

Related Information

- [“Electrical Specifications” on page 19](#)
- [“Power Supply Voltage Information” on page 20](#)
- [“DC Power Source, Power Connection, and Chassis Ground Requirements” on page 94](#)

DC Power Source, Power Connection, and Chassis Ground Requirements

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

- Suitable conductor material: Use copper conductors only.
- Power supply connections through the input connector: 12 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).

- System chassis ground 12 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 Wago Type 721-103/037-000 mating connectors 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.

Note – The DC version of the server must be installed in a restricted-access location. According to the intent of the U.S. 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.

Related Information

- [“Overcurrent Protection Requirements” on page 96](#)

Power Supply Inputs

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

The inputs to a power supply are isolated from the system 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 system chassis.



Caution – Safety agency requirements prohibit the 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 19
- “DC Power Source Requirements” on page 93
- “DC Power Source, Power Connection, and Chassis Ground Requirements” on page 94
- “Overcurrent Protection Requirements” on page 96

Overcurrent Protection Requirements

This product does not provide branch circuit overcurrent protection as defined by the United States National Electrical Code (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 16 A or less must have a branch circuit, or a supplementary overcurrent protection device, rated at no more than 20 A.
- Product power inputs with current ratings of more than 16 A 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 and/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

- [“Assembling and Installing the DC Input Power Cables” on page 97](#)

Assembling and Installing the DC Input Power Cables

These topics explain how to assemble and install DC input power cables.

- [“Assemble the DC Input Power Cable” on page 97](#)
- [“Install the Strain Relief Housings” on page 102](#)
- [“Connect the DC Input Power Cords to the Server” on page 104](#)

Related Information

- [“Route AC Power Cords to the Server” on page 92](#)

▼ Assemble the DC Input Power Cable

Assemble one DC input power cable for each DC power input to your server.

1. Verify that the following conditions have been satisfied.

The customer is responsible for satisfying these requirements.

- Install a DC power source that meets the server’s input power specifications.
- Secure DC power cables that meet the server’s power cabling specifications.
- Attach the DC input plug to the DC input power cables. The input plug is provided in the server’s shipping kit.

2. If the power cables are already connected to a DC power source, de-energize the cables by removing fuses, opening circuit breakers, or turning off the DC source.



Caution – Do not proceed with these instructions until you are sure that there is no voltage present on the DC power cables.

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

For each cable, you need the items shown in the following illustration. These items are included in the shipping kit that came with your server.

FIGURE: DC Connection Parts

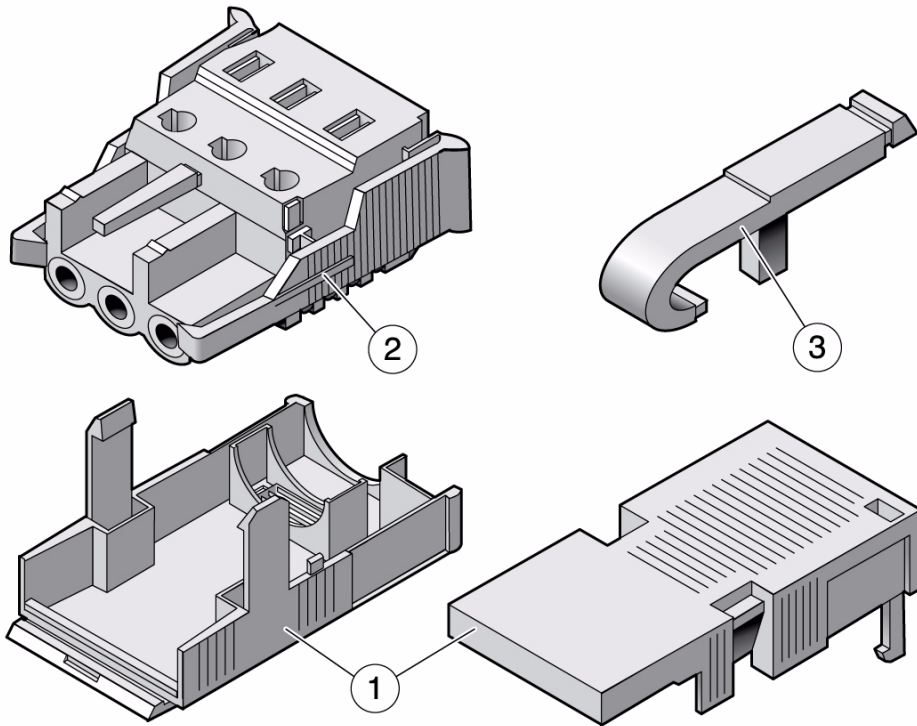


Figure Legend

-
- | | |
|---|----------------------------|
| 1 | Strain relief housing |
| 2 | DC input plug |
| 3 | Cage clamp operating lever |
-

4. Locate the three wires coming from the 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.

5. Strip 5/16 in. (8 mm) of insulation from each of the wires coming from the DC power source.

Do not strip more than 5/16 in. (8 mm) from each wire. Doing so leaves uninsulated wire exposed from the DC connector after the assembly is complete.

FIGURE: Stripping the Insulation From the Wire

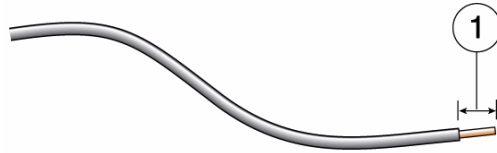


Figure Legend

1 5/16 in. (8 mm) maximum

6. Open the cage clamp for this section of the DC input plug by taking one of the following actions:

- Insert the tip of the cage clamp operating lever into the rectangular hole directly above the hole in the DC input plug where you want to insert the first wire. Press down on the cage clamp operating lever.
- Insert a small slotted 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.

FIGURE: Opening the DC Input Plug Cage Clamp Using the Cage Clamp Operating Lever

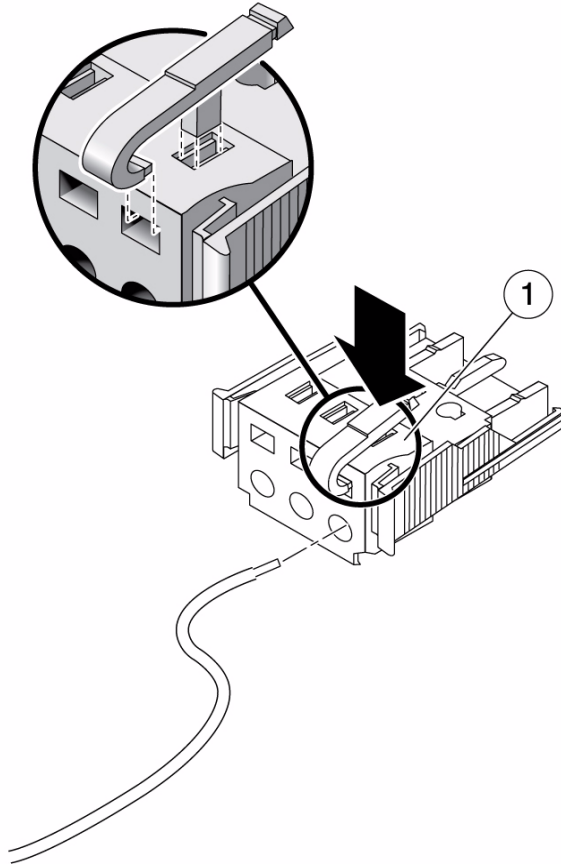


Figure Legend

-
- 1 DC input plug
-

FIGURE: Opening the Cage Clamp Using a Screwdriver

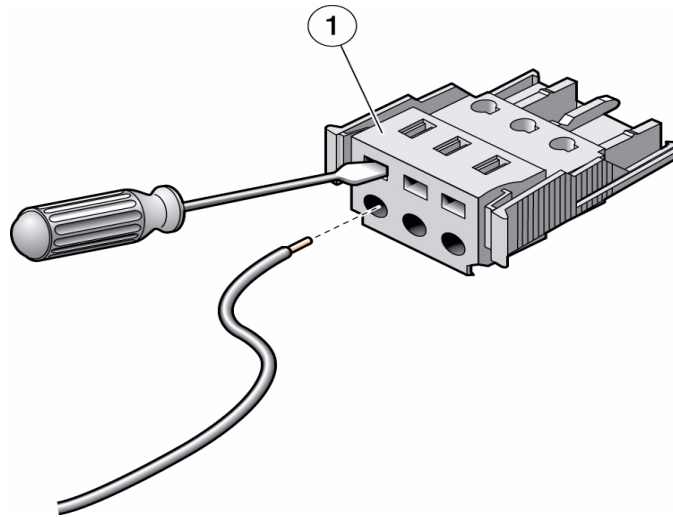


Figure Legend

-
- 1 DC input plug
-

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

FIGURE: Connector Wiring Assignments

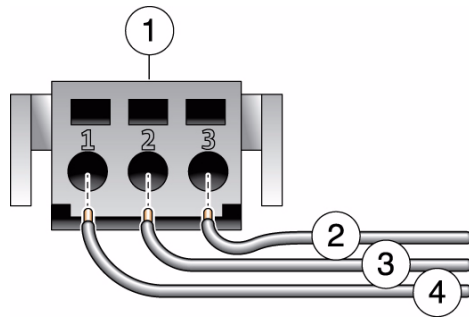


Figure Legend

-
- | | | | |
|---|--------------------------|---|------------------------------------|
| 1 | Top of connector | 3 | From chassis ground (green/yellow) |
| 2 | From -48V or -60V Return | 4 | From -48V or -60V |
-

Note – If you need to remove a wire from the DC input plug, insert the cage clamp operating lever or a small screwdriver and pull the wire from the DC input plug.

8. Release the lever or remove the tool to secure the wire into the connector.
9. Repeat the procedures for the other two wires to complete the assembly of the DC input power cable.
10. Repeat this procedure to create as many DC input power cables as you need for your unit.

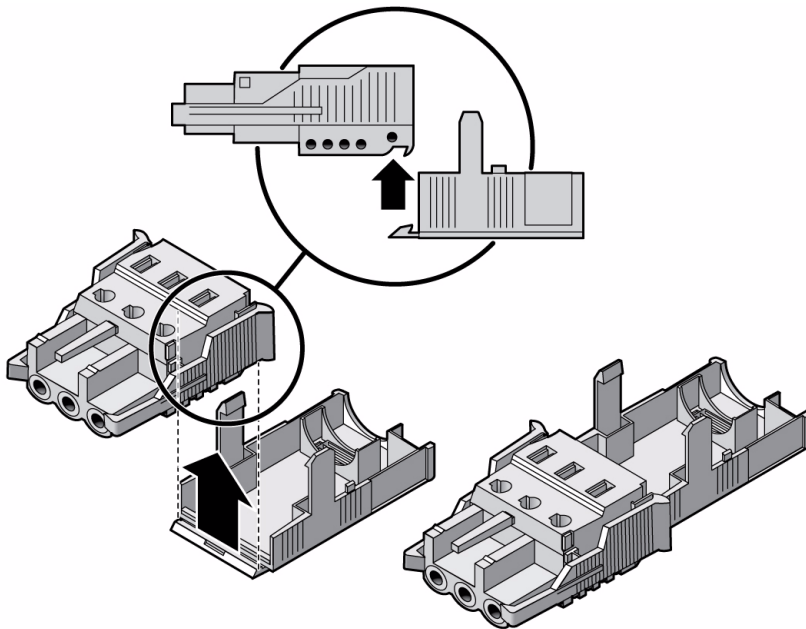
Related Information

- [“Install the Strain Relief Housings” on page 102](#)

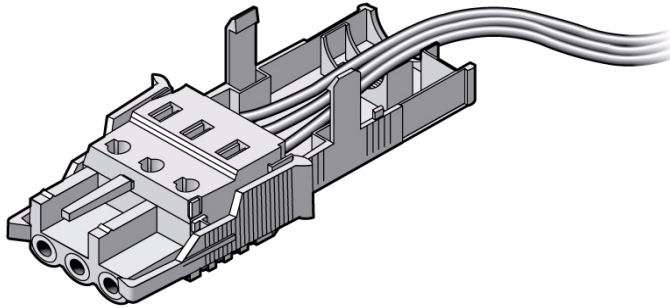
▼ Install the Strain Relief Housings

1. Insert the bottom portion of the strain relief housing into the notch on the DC input plug until it snaps into place.

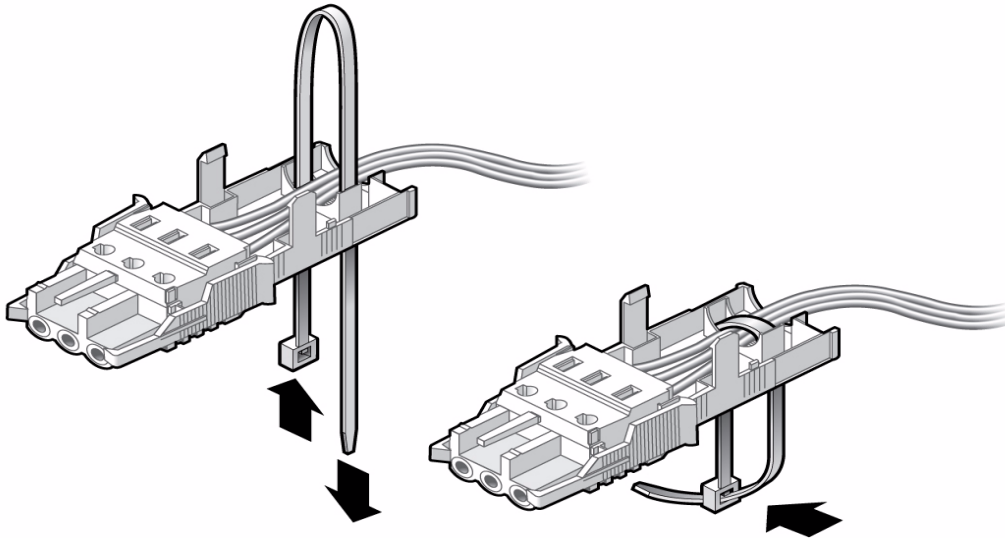
Ensure that the strain relief housing snaps into place on the DC input plug. You cannot complete the assembly correctly if the strain relief housing is not snapped into place.



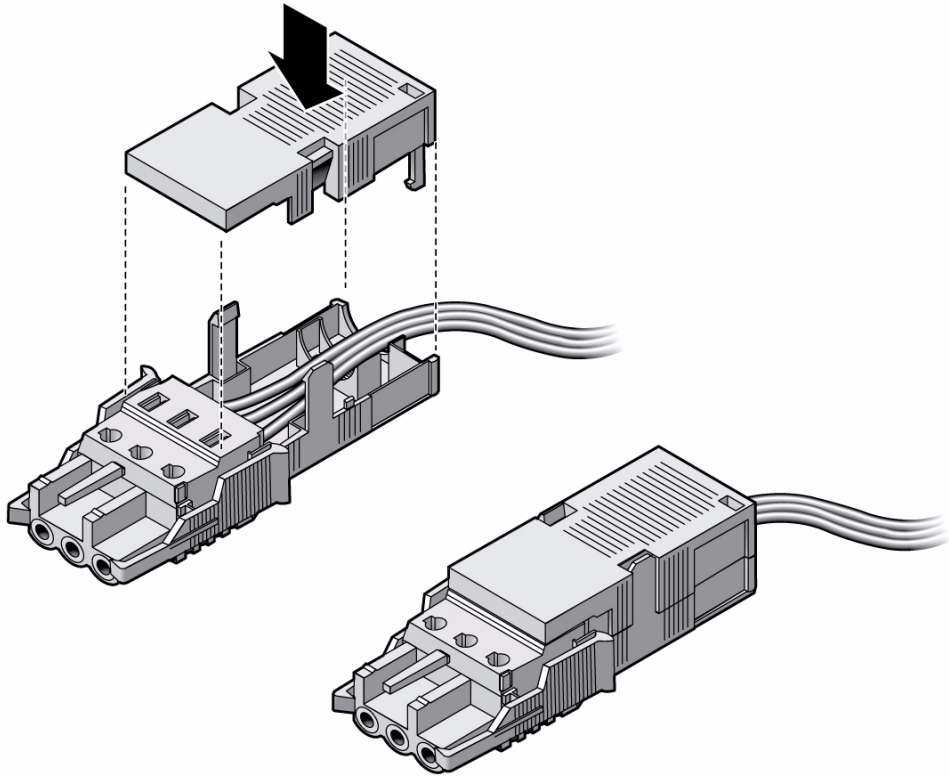
2. Route the three wires coming from the DC power source through the opening at the bottom end of the strain relief housing.



3. Insert a tie wrap into the bottom portion of the strain relief housing.



4. Loop the tie wrap over the wires and back out of the strain relief housing, and tightening the tie wrap to secure the wires to the strain relief housing.
5. Lower the top portion of the strain relief housing so that the three prongs on the top portion insert into the openings in the DC input plug.
Push the top and bottom portions of the strain relief housing together until they snap into place.



Related Information

- [“Connect the DC Input Power Cords to the Server” on page 104](#)

▼ Connect the DC Input Power Cords to the Server

1. Ensure that the input cables are de-energized with no DC power present.



Caution – Do not proceed with these instructions until you are sure that there is no voltage present on the DC power cables.

2. Route and secure the power cables in the rack and secure the cables with nylon tie wraps.

3. **Connect the chassis ground wire to the facility earth ground and ensure that this connection has proper bonding.**

For instructions, see [“Connect the Chassis Ground Wire” on page 89](#).

Note – Attaching a chassis ground wire is optional if grounds are included in the DC power input cables. However, even if grounds are included in the DC power input cables, attaching a chassis ground wire point will allow current leakage to dissipate more efficiently.

4. **Connect the -48V or -60V return and the -48V or -60V wires to the circuit breaker or fuse panel if they are not already connected.**
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 on the server, energize the input cables and verify that the green DC input LED is lighted on each power supply.**

Follow the booting procedure described in [“Powering On the Server” on page 107](#).

Related Information

- [“Rear Panel LEDs” on page 15](#)
- [“Rear Cable Connections and Ports” on page 82](#)
- [“Connect the Chassis Ground Wire” on page 89](#)
- [“DC Power Source Requirements” on page 93](#)
- [“Connect the Power Cords to the Server” on page 107](#)

Powering On the Server

These topics include instructions for powering on the server for the first time.

Description	Links
Make a serial connection to the server, and after connecting the power cords, view the startup messages.	“Connect the Power Cords to the Server” on page 107
Connect to the system ILOM SP for the first time, and determine the ILOM SP IP address.	“Connecting to the ILOM SP for the First Time” on page 110
Modify the way the ILOM SP receives an IP address. Either allow the ILOM SP to receive an IP address from a DHCP server, or manually assign a static IP address.	“Modifying the ILOM SP IP Address” on page 116
Power on the server for the first time.	“Power On the Server for the First Time” on page 120

Related Information

- [“Route AC Power Cords to the Server” on page 92](#)
- [“Connect the DC Input Power Cords to the Server” on page 104](#)

▼ Connect the Power Cords to the Server



Caution – The server goes into Standby mode and the ILOM SP initializes as soon as the power cables are connected to the power source.



Caution – Do not operate the server unless all fans, component heatsinks, air baffles, and the top cover are installed. Severe damage to server components can occur if the server is operated without adequate cooling mechanisms.

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

Note – If you do not connect a serial terminal or a terminal emulator, you will not see the system messages.

1. Connect a terminal or a terminal emulator (PC or workstation) to the SP serial management port.

See “[Service Processor Serial Management Port](#)” on page 85 for the location of the port. Configure the terminal or terminal emulator with these settings:

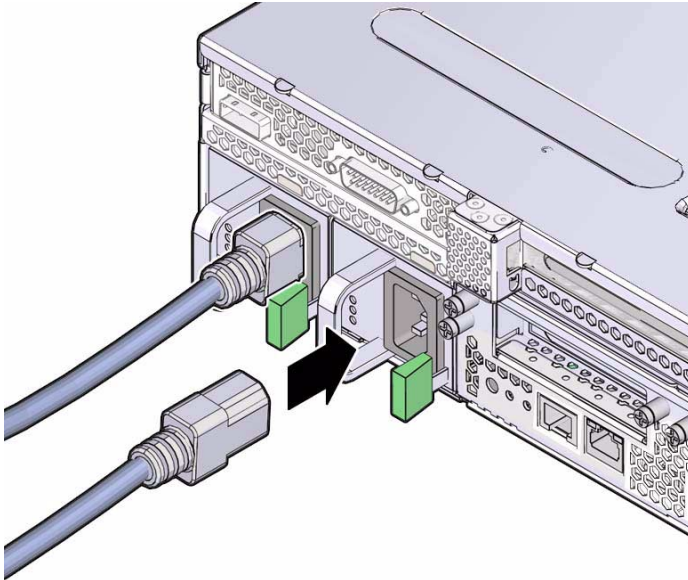
- 9600 baud
- 8 bits
- No parity
- 1 Stop bit
- No handshake

Note – If 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 SP serial management port, you will not see system messages. After connecting to the server with a terminal or terminal emulator, log in to the ILOM CLI to get to the SP console.

2. Power on the terminal or terminal emulator.

3. Connect the AC or DC power cables to both power supplies.

Watch the terminal for system messages.



Note – If you have already connected the DC power cords to the server, turn the circuit breakers on the DC power source to supply power to the server.

After the SP boots, the SP login prompt is displayed on the serial console.

4. Go to the [“Connecting to the ILOM SP for the First Time”](#) on page 110 and connect to the ILOM SP.

Related Information

- [“Electrical Specifications”](#) on page 19
- [“Power Supply Voltage Information”](#) on page 20
- [“Rear Cable Connections and Ports”](#) on page 82
- [“Assembling and Installing DC Power Cords”](#) on page 93
- [“Connecting to the ILOM SP for the First Time”](#) on page 110
- [“Power On the Server for the First Time”](#) on page 120

Connecting to the ILOM SP for the First Time

The topics describe how to connect to the ILOM SP for initial setup and configuration. These topics also provide an overview of the SP interfaces and connections.

Description	Links
Understand the features of the ILOM SP hardware and firmware.	“ILOM SP Overview” on page 111 “ILOM SP Interfaces” on page 112 “ILOM SP IP Addresses” on page 112
Determine the IP address of the ILOM SP. You will use this IP address when you power on the server for the first time.	“Determining the ILOM SP IP Address” on page 113

Related Information

- [“Connect the Power Cords to the Server” on page 107](#)
- [“Modifying the ILOM SP IP Address” on page 116](#)
- [“Using the Serial Connection to Change the SP IP Address” on page 116](#)
- [“Power On the Server for the First Time” on page 120](#)

ILOM SP Overview

The ILOM SP consists of the following hardware and software components.

Port	Function
ILOM hardware	<p>ILOM includes the following hardware components:</p> <ul style="list-style-type: none">• An embedded SP chipset. The SP monitors the status and configuration of field-replaceable components inside your server, such as fans, disk drives, and power supplies.• Two rear panel external connections: NET MGT port Ethernet connection and RJ-45 serial management port.
ILOM firmware	<p>Several system management firmware applications are preinstalled on the SP chipset. These operating system-independent firmware applications provide the following system management interfaces into your server:</p> <ul style="list-style-type: none">• Web browser interface• SSH command-line interface• IPMI v2.0 CLI• SNMP v3 interface <p>These interfaces call the same underlying system management functions on your SP. You can work with one or more of these interfaces to integrate with other management interfaces running in your data center.</p>
Remote Console application	<p>The Remote Console application allows remote clients to view the graphical console of your host server as though the clients were directly attached to its video connector. The Remote Console mirrors the video display from the server VGA device (up to 1280 x 1024 resolution) locally on the remote management system. The remote keyboard, mouse, CD drive, or diskette drive appear as standard USB devices.</p> <p>The Remote Console depends on the following requirements to run correctly. Client systems require a web browser (at least IE 6, Mozilla, or Firefox) with the Java Runtime Environment (at least version 1.6 plug-ins) correctly installed. Download the free Java Runtime Environment at: (http://java.sun.com)</p>
Client-Side Secure Shell application	<p>You must install a secure shell communications application on the remote client system (server, workstation, or laptop) to access the ILOM through a remote secure shell. Many secure shell communications applications are available from commercial or open-source distribution. Refer to (http://www.openssh.org) for information about open-source client-side SSH applications.</p>
Serial redirection	<p>You can set the serial redirection to display system output or ILOM output. A console can also be started to display system output. By default, the ILOM output displays. The BIOS contains these serial redirection options. See the <i>Sun Netra X4270 Server Service Manual</i> and the ILOM 3.0 documentation set for more information.</p>

Note – The factory has configured the SP hardware and firmware on your server with the most common settings used in the field. You might not need to change these defaults.

See the ILOM 3.0 documentation set for detailed information.

Related Information

- [“ILOM SP Interfaces” on page 112](#)
- [“ILOM SP IP Addresses” on page 112](#)
- ILOM 3.0 documentation

ILOM SP Interfaces

After you configure the IP address to comply with your network IP scheme, you can access the ILOM SP web browser interface using a supported Internet web browser. You can also connect to the ILOM SP through SSH.

Choose from one of several ILOM SP interfaces to support system management on your server. After you have determined the IP address of the SP, you can access SP firmware applications through the following ILOM SP interfaces:

- Serial port CLI
- SSH CLI
- Ethernet-based web browser

Related Information

- [“ILOM SP Overview” on page 111](#)
- [“ILOM SP IP Addresses” on page 112](#)
- ILOM 3.0 documentation

ILOM SP IP Addresses

If your network uses a DHCP server to assign IP addresses, the DHCP server will assign an IP address to the ILOM SP by default. In order for the ILOM SP to receive an IP address from the DHCP server:

- You must connect the SP to your network through the NET MGT port.

- DHCP services (for example, a DHCP server) must be present in your network infrastructure.

If a DHCP server cannot be reached after 3 DHCP requests, the ILOM SP is assigned a static IP address based on the network management port MAC address. This static IP address is always in the format 192.168.xxx.xxx.

Related Information

- [“ILOM SP Overview” on page 111](#)
- [“Rear Cable Connections and Ports” on page 82](#)
- [“Determining the ILOM SP IP Address” on page 113](#)
- [“Modifying the ILOM SP IP Address” on page 116](#)

Determining the ILOM SP IP Address

Before connecting to the ILOM SP, you need to determine its IP address. Choose one of the following methods to determine the IP address of the ILOM SP:

- [“View the SP IP Address Using BIOS” on page 113](#)
- [“View the SP IP Address Using ILOM” on page 114](#)

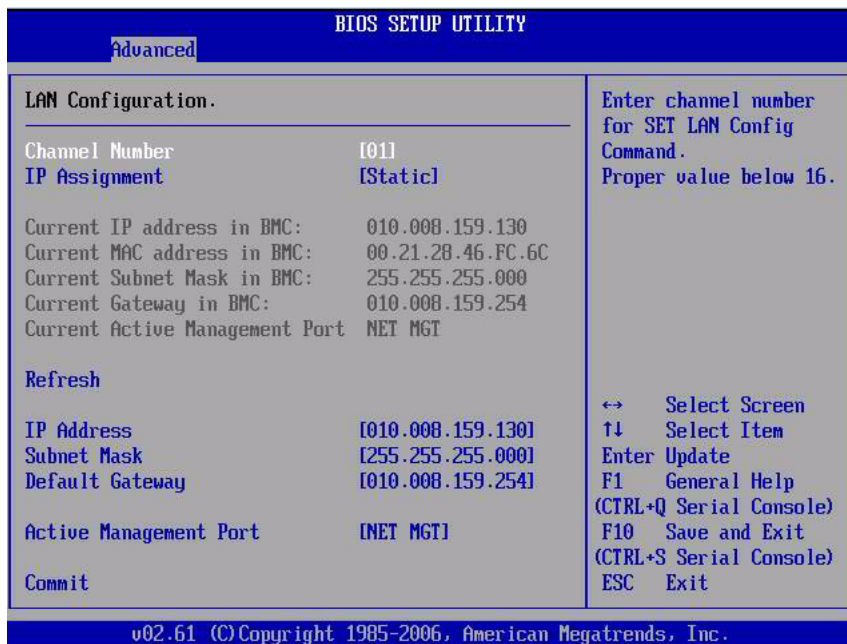
Related Information

- [“ILOM SP IP Addresses” on page 112](#)
- [“Modifying the ILOM SP IP Address” on page 116](#)

▼ View the SP IP Address Using BIOS

You can perform this task either through a serial connection or by connecting a VGA monitor and a USB keyboard to the system. For instructions on viewing the output on a VGA monitor, see [“\(Optional\) Redirect the Console Output to the Video Port” on page 129](#).

1. **Power on the server (or restart the server if it is running).**
2. **Press the F2 key during the POST operation to access the BIOS Setup menu.**
3. **Navigate to the Advanced tab, using the left and right keyboard arrow keys.**
4. **Using the up and down arrow keys, select IPMI Configuration and then select LAN Configuration.**
5. **View the SP IP address on LAN Configuration page.**



Tip – If the IP address is in the form of 192.168.xxx.xxx, the DHCP server might not have assigned an address and the SP might use a static address.

6. Press the Escape key to exit the BIOS Setup menu and restart your system.

Related Information

- “ILOM SP IP Addresses” on page 112
- “(Optional) Redirect the Console Output to the Video Port” on page 129
- “View the SP IP Address Using ILOM” on page 114

▼ View the SP IP Address Using ILOM

1. Connect a terminal (or PC running terminal emulation software) to the server serial port.
2. Ensure that the server hardware is installed and cables are inserted.
Ensure that the power is in Standby mode and the green LED is blinking. See “Cabling the Server” on page 81.
3. Verify that your terminal, laptop, PC, or terminal server is operational.

4. **Configure the terminal device or the terminal emulation software running on a laptop or PC to the following settings:**
 - 8N1: eight data bits, no parity, one stop bit
 - 9600 baud
 - Disable hardware flow control (CTS/RTS)
 - Disable software flow control (XON/XOFF)
5. **Connect a null serial modem cable from the RJ-45 serial port on the server back panel to a terminal device (if not connected already).**

See [“Connect the Serial Management Cable”](#) on page 85 for instructions.
6. **Press Enter on the terminal device to establish a connection between the terminal device and the ILOM SP.**

Note – If you connect to the serial port on the ILOM before it has been powered on or during its power-on sequence, SP boot messages might be displayed.

The ILOM displays a login prompt, after a short wait.

login:

7. **Type the default user name `root`, and then type the default password `changeme` to log in to the ILOM SP.**

The ILOM displays a default command prompt (`->`) indicating that you have successfully logged in.

8. **Type the command `show /SP/network` to display the current SP IP address.**

The IP information displays, as shown in the following sample:

```
/SP/network
Targets:

Properties:
  MACAddress = 00:1B:24:BE:4A:52
  IPAddress = 110.7.100.4
  Netmask = 255.255.255.0
  Gateway = 110.7.100.254
  DNS = 0.0.0.0
  IPSource = static
  Hostname = SUNSP001B24BE4A52

Target Commands:
  show
  set
```

9. **Record the IP address assigned to the ILOM.**

Related Information

- [“ILOM SP IP Addresses” on page 112](#)
- [“Modifying the ILOM SP IP Address” on page 116](#)
- [“Power On the Server for the First Time” on page 120](#)
- [ILOM 3.0 documentation](#)

Modifying the ILOM SP IP Address

Choose one of the following methods to change the current IP address of the ILOM SP:

- [“Using the Serial Connection to Change the SP IP Address” on page 116](#)
- [“Change a Static IP Address Using the SP ILOM Web Browser Interface” on page 119](#)

Related Information

- [“ILOM SP IP Addresses” on page 112](#)
- [“Determining the ILOM SP IP Address” on page 113](#)

Using the Serial Connection to Change the SP IP Address

The following examples show how to change the current IP address of the ILOM SP using a serial connection.

- [“Change the SP DHCP IP Address to a Static IP Address Using the Serial Connection” on page 117](#)
- [“Change the SP Static IP Address to a DHCP IP Address Using the Serial Connection” on page 118](#)

Related Information

- [“ILOM SP IP Addresses” on page 112](#)
- [“Determining the ILOM SP IP Address” on page 113](#)

▼ Change the SP DHCP IP Address to a Static IP Address Using the Serial Connection

1. Connect a terminal (or a PC running terminal emulation software) to the server serial port.
2. Ensure that the server hardware is installed and cables are inserted.
3. Verify that your terminal, laptop, PC, or terminal server is operational.
4. Configure the terminal device or the terminal emulation software running on a laptop or PC to the following settings:
 - 8N1: eight data bits, no parity, one stop bit
 - 9600 baud
 - Disable hardware flow control (CTS/RTS)
 - Disable software flow control (XON/XOFF)
5. Connect a null serial modem cable from the server's back panel RJ-45 serial port to a terminal device (if not connected already).

See [“Connect the Serial Management Cable”](#) on page 85 for instructions.

6. Press Enter on the terminal device to establish a connection between the terminal device and the ILOM SP.

The following login prompt displays:

```
SUNSP-xxxxx login:
```

7. Type the default user name `root`, and then type the default password (changeme) to log in to the ILOM SP.

The ILOM SP displays the default command prompt, indicating that you have successfully logged in:

```
->
```

8. Type the following command to determine the SP IP address:

```
show /SP/network
```

9. To assign a static IP ADDRESS, type the following commands in this order:

```
set /SP/network pendingipdiscovery=static  
set /SP/network pendingipaddress=xxx.xxx.xxx.xxx  
set /SP/network pendingipnetmask=xxx.xxx.xxx.xxx  
set /SP/network pendingipgateway=xxx.xxx.xxx.xxx  
set /SP/network commitpending=true
```

Replace `xxx.xxx.xxx.xxx` with the IP addresses of the system, netmask, and gateway server.

Related Information

- [“ILOM SP IP Addresses”](#) on page 112
- [“Determining the ILOM SP IP Address”](#) on page 113
- [“Change the SP Static IP Address to a DHCP IP Address Using the Serial Connection”](#) on page 118
- [“Change a Static IP Address Using the SP ILOM Web Browser Interface”](#) on page 119
- ILOM 3.0 documentation

▼ Change the SP Static IP Address to a DHCP IP Address Using the Serial Connection

1. **Connect a terminal (or a PC running terminal emulation software) to the server serial port.**
2. **Ensure that the server hardware is installed and cables are inserted.**
3. **Verify that your terminal, laptop, PC, or terminal server is operational.**
4. **Configure the terminal device or the terminal emulation software running on a laptop or PC to the following settings:**
 - 8N1: eight data bits, no parity, one stop bit
 - 9600 baud
 - Disable hardware flow control (CTS/RTS)
 - Disable software flow control (XON/XOFF)
5. **Connect a null serial modem cable from the server’s back panel RJ-45 serial port to a terminal device (if not connected already).**

See [“Connect the Serial Management Cable”](#) on page 85 for instructions.

6. **Press Enter on the terminal device to establish a connection between the terminal device and the ILOM SP.**

The following login prompt displays:

```
SUNSP-xxxxx login:
```

7. **Type the default user name `root`, and then type the default password (`changeme`) to log in to the ILOM SP.**

The ILOM SP displays the default command prompt, indicating that you have successfully logged in:

```
->
```

8. Type the following command to change a static address to a DHCP address:

```
-> set /SP/network pendingipdiscovery=dhcp
```

```
Set 'pendingdiscovery' to 'dhcp'
```

```
-> set /SP/network commitpending=true
```

```
Set 'commitpending' to 'true'
```

9. Type `show /SP/network` to view the newly assigned DHCP address.

DHCP enabled is shown as `IPSource=DHCP`.

Related Information

- [“ILOM SP IP Addresses” on page 112](#)
- [“Determining the ILOM SP IP Address” on page 113](#)
- [“Change the SP DHCP IP Address to a Static IP Address Using the Serial Connection” on page 117](#)
- [“Change a Static IP Address Using the SP ILOM Web Browser Interface” on page 119](#)
- ILOM 3.0 documentation

▼ Change a Static IP Address Using the SP ILOM Web Browser Interface

Note – The SP web browser interface can be accessed *only* if you know the SP IP address. See [“Determining the ILOM SP IP Address” on page 113](#).

1. Open a supported web browser such as Internet Explorer, Mozilla, or Firefox.
2. Type the IP address of the SP in the browser address bar.
For example: **http://xxx.xxx.xxx.xxx**
where *xxx* = IP address numbers
3. Accept the certificate when prompted.
4. Type your username (`root`) and password (`changeme`).
5. Select the Configuration tab and then the Network tab.
6. Set configurations, such as IP configuration and DNS, as required.
7. Do one of the following:
 - If DHCP is required, select the Enable DHCP check box.

- If STATIC is required, clear the Enable DHCP check box, and manually set all IP information.
8. **If you manually change the IP address, you must manually change the subnet mask, because the subnet mask changes according to the IP address class.**
 9. **Note your settings, click the Save button, and log out.**

If you changed the IP address, you will lose connectivity to the ILOM SP. Reconnect using the newly assigned IP address. Refer to the ILOM 3.0 documentation set for detailed information about using the browser interface.

Related Information

- [“ILOM SP Interfaces” on page 112](#)
- [“Determining the ILOM SP IP Address” on page 113](#)
- [“Change the SP DHCP IP Address to a Static IP Address Using the Serial Connection” on page 117](#)
- [“Change the SP Static IP Address to a DHCP IP Address Using the Serial Connection” on page 118](#)
- ILOM 3.0 documentation

▼ Power On the Server for the First Time

1. **Verify that the top cover is on.**

As a safety precaution, the system will power off whenever you remove the top cover.
2. **Verify that the power cords has been connected and that standby power is on.**

In standby power mode, the Power OK LED on the front panel flashes.
3. **To verify that you are connected to the server through the serial management port, perform the following substeps:**
 - a. **Connect a terminal (or a PC running terminal emulation software) to the server serial port.**
 - b. **Ensure that the server hardware is installed and cables are inserted.**
 - c. **Verify that your terminal, laptop, PC, or terminal server is operational.**
 - d. **Configure the terminal device or the terminal emulation software running on a laptop or PC to the following settings:**
 - 8N1: eight data bits, no parity, one stop bit

- 9600 baud
 - Disable hardware flow control (CTS/RTS)
 - Disable software flow control (XON/XOFF)
- e. **Connect a null serial modem cable from the server's back panel RJ-45 serial port to a terminal device (if not connected already).**
See ["Connect the Serial Management Cable"](#) on page 85 for instructions.
- f. **Press Enter on the terminal device to establish a connection between the terminal device and the ILOM SP.**
The ILOM prompt (->) displays.
- g. **Use a pencil or other pointed object to press and release the recessed Power button on the server front panel.**
When main power is applied to the server, the Power OK LED next to the Power button lights and remains lit.
4. **To display a screen for installing the preinstalled Solaris OS from the system management port, type at the ILOM prompt:**
-> **start /SP/console**
5. **Either configure the preinstalled Solaris OS or install and configure a different OS on the server.**
For more information, see ["Operating System Options"](#) on page 124.

Note – To switch back to the ILOM command-line interface from the serial console, press Esc (.).

Related Information

- ["Connect the Power Cords to the Server"](#) on page 107
- ["Determining the ILOM SP IP Address"](#) on page 113
- ["Modifying the ILOM SP IP Address"](#) on page 116

Configuring the Preinstalled Solaris OS

These topics provide the steps for configuring the preinstalled Solaris OS.

Note – Unlike with SPARC systems, you will *not* see the output of the preinstalled Solaris image through a monitor when you power on the server. You will see the BIOS POST and other boot information output.

Description	Links
Decide whether to configure the preinstalled Solaris OS, or install a different OS on the server.	“Operating System Options” on page 124
Configure the preinstalled Solaris OS.	“Configure the Preinstalled Solaris OS” on page 124 “Solaris OS Documentation and Training” on page 128 “Solaris OS Configuration Parameters” on page 127
The server ships with its console redirected to the <i>serial</i> port. You can choose an option to send the output to the VGA video port.	“(Optional) Redirect the Console Output to the Video Port” on page 129
Using the SAS HBA card RAID functionality, you can optionally mirror the preinstalled Solaris OS drive.	“Configuring Server RAID Drives” on page 130
Update the system firmware, if necessary to repair issues or add new features.	“Firmware Updates” on page 133

Related Information

- [“Configuring the Preinstalled Solaris OS” on page 123](#)
- [“Troubleshooting” on page 135](#)

Operating System Options

After configuring the ILOM SP network settings, you can configure the preinstalled Solaris OS or install a different OS like a supported version of the Linux OS or the Windows platform OS.

Use the appropriate reference below, depending on which OS you want to use:

- If you want to use the preinstalled Solaris 10 operating system, see [“Configuring the Preinstalled Solaris OS” on page 123](#).
- If you want to install a supported Linux OS, the Solaris OS, the OpenSolaris OS, or the VMWare virtualization software with the required drivers, refer to the *Sun Netra X4270 Server Operating System Installation Guide*. This document also contains procedures for installing the Solaris operating system from media.

For additional OS considerations specific to this server, refer to the *Sun Netra X4270 Server Product Notes*.

Related Information

- [“Configure the Preinstalled Solaris OS” on page 124](#)
- [“Solaris OS Configuration Parameters” on page 127](#)
- [“Solaris OS Documentation and Training” on page 128](#)

▼ Configure the Preinstalled Solaris OS

After configuring the server ILOM SP, you can configure the preinstalled Solaris OS using the ILOM SP to connect to the system console.

1. Configure an IP address for the ILOM SP.

For details, see [“Connecting to the ILOM SP for the First Time” on page 110](#).

2. Ensure that main power has been applied to the server.

For more information, see [“Power On the Server for the First Time” on page 120](#).

3. From the serial console, start a terminal session.

For example:

- On a serial console running the Solaris OS:

Type the appropriate command to start a terminal session. For example, you can start a terminal session on a Solaris console by typing:

```
$ tip -9600 /dev/ttya
```

■ **On a client running Windows:**

Open the appropriate program to start a terminal session. For example, you can start a terminal session on a Windows console by selecting:

Start -> Programs -> Accessories -> Communications -> Hyperterminal

■ **On a client running Linux:**

Type the appropriate command to start a terminal session. For example, to start a terminal session on a Linux console, you could launch Minicom.

Minicom is a text-based serial communication program that is included in the Linux distributions. For more information, see the man pages included in the Linux distribution.

4. Press Enter on the terminal device to establish a connection between the terminal device and the ILOM SP.

The following login prompt displays:

```
SUNSP-xxxxx login:
```

5. Type the default user name `root`, and then type the default password: `changeme` to log in to the ILOM SP.

The ILOM SP displays the default command prompt, indicating that you have successfully logged in:

```
->
```

6. Verify that the communication properties of the SP are set to the defaults.

For example:

```
-> show /SP/serial/host
/SP/serial/host
Targets:

Properties:
  commitpending = (Cannot show property)
  pendingspeed = 9600
  speed = 9600

Commands:
  cd
  show
```

Note – If the speed is anything other than 9600, change it using this command:
-> **set /SP/serial/host pendingspeed=9600 commitpending=true**

7. Power on the system and start the serial console mode.

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

Only accounts with Administrator privileges are enabled to configure the SP. Refer to the ILOM 3.0 documentation for more information.

8. Follow the Solaris OS preinstallation on-screen prompts.

The displayed screens will vary, depending on the method that you chose for assigning network information to the server (DHCP or static IP address).

When configuring the Solaris OS, you will be prompted for configuration parameters. See [“Solaris OS Configuration Parameters” on page 127](#) for a list of these parameters.

Note – To identify the MAC address for a server or other chassis components, see the Customer Information Sheet (shipped with the component), or inspect the printed MAC address label attached to the server or chassis component.

After you have entered the system configuration information, the server completes the boot process and displays the Solaris login prompt.

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

There are many command you can use to verify the functionality of the system. A few of these commands include:

- `showrev` – Displays the host name and system architecture information. Use the `-a` option with this command to list the installed patches.
- `psrinfo` – Displays information about the number and status of the system processors and cores.
- `prtdiag` – Displays system configuration and diagnostic information.

Refer to the command man pages and the Solaris documentation for more information about these and other Solaris commands.

Related Information

- [“Operating System Options” on page 124](#)

- “Solaris OS Configuration Parameters” on page 127
- “Solaris OS Documentation and Training” on page 128

Solaris OS Configuration Parameters

When configuring the Solaris OS, you will be prompted for the following configuration parameters. For more information about these settings, refer to the Solaris documentation.

Parameter	Description
Language	Select a number from the displayed languages 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 your answer to 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	When prompted with this, 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 system.
Time Zone (Continent)	Select your continent.

Parameter	Description
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 root password twice. This password is for the superuser account for the Solaris OS on this server. This password is not the SP password.

Related Information

- “Operating System Options” on page 124
- “Configure the Preinstalled Solaris OS” on page 124
- “Solaris OS Documentation and Training” on page 128

Solaris OS Documentation and Training

This topic provides pointers to information about the Solaris OS.

- Solaris OS User Documentation

You can access the various collections of the Solaris OS user documentation at:

(<http://docs.sun.com/>)

- Solaris OS Training

These courses provides flexible training options that accommodate your personal schedule and learning style. For Solaris Training and Certification options at a glance, go to:

(<http://www.sun.com/training>)

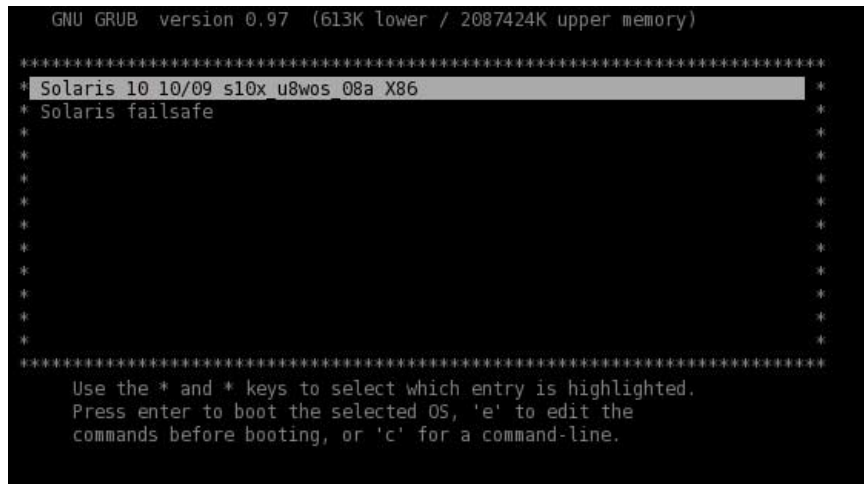
Related Information

- “Operating System Options” on page 124
- “Configure the Preinstalled Solaris OS” on page 124
- “Solaris OS Configuration Parameters” on page 127

▼ (Optional) Redirect the Console Output to the Video Port

The server console is automatically directed to the serial port. GRUB, the open source boot loader, is the default boot loader in the Solaris OS for x86-based or x64-based systems. The boot loader is the first software program that runs after you power on a system. For more information about administering the GRUB boot loader, refer to the Solaris documentation.

1. **Attach a VGA monitor cable to the video port located at the rear of the server.**
2. **Power on or reboot the system.**
3. **When the GRUB menu displays on the screen, press any key (except the Return key) to stop the system from booting.**



```
GNU GRUB version 0.97 (613K lower / 2087424K upper memory)
*****
* Solaris 10 10/09 s10x_u8wos_08a_X86
* Solaris failsafe
*
*
*
*
*
*
*
*
*
*
*****
Use the * and * keys to select which entry is highlighted.
Press enter to boot the selected OS, 'e' to edit the
commands before booting, or 'c' for a command-line.
```

4. **Use the up or down arrow keys to highlight the Solaris 10 10/09 s10x_u8a_X86 entry and press the e key.**
Pressing the e key allows you to edit this GRUB entry.
5. **Use the up or down arrow keys to select the kernel/platform/i86pc/multiboot line and press the e key.**
Pressing the e key enables you to edit this command.

6. Add `-B console=text` to end of the `kernel/platform/i86pc/multiboot` line and press the Return key.

The `kernel/platform/i86pc/multiboot -B console=text` line will be highlighted.

7. Press the **b** key to boot the system.

The system output will now be displayed on the VGA monitor.

Related Information

- [“Rear Cable Connections and Ports”](#) on page 82
- [“\(Optional\) Redirect the Console Output to the Video Port”](#) on page 129

Configuring Server RAID Drives

After you configure the Solaris OS, you might need to configure the RAID drives.

Note – Configuring RAID for the server is optional. By default, the Solaris preinstalled image is configured in a non-RAID configuration. If anything other than a basic mirror RAID is required, perform a fresh install of the Solaris OS (or other OS) in the desired RAID configuration.

Description	Links
Review the RAID drive overview and drive options.	“RAID Configurations” on page 131
Create a mirror of the preinstalled Solaris OS drive.	“Create a Mirror Image of the Preinstalled Solaris OS” on page 131

Related Information

- [“RAID Storage Configuration Support”](#) on page 8
- [“Front Panel Controls and LEDs”](#) on page 9

RAID Configurations

If your system ships with drives, the system will include a Sun StorageTek PCI Express SAS 8-Channel Internal HBA card. You can access RAID configuration through the SAS HBA card BIOS.

The server has the preinstalled OS on drive 0 (labeled 0 on the system). After completing the Solaris OS installation, you have the option to upgrade your single-drive OS to a mirrored RAID solution.

The SAS HBA card also supports RAID 0 (striping) configurations on systems with two or more drives. On systems that contain four drives, the SAS HBA card supports IME arrays (IME requires a minimum of 3 drives).

The internal SAS HBA is connected internally to an external SAS port on the rear panel. By connecting an external storage device like a JBOD, you can setup hardware RAID or software RAID configurations. Refer to the SAS HBA card documentation for further information.

The following table lists the supported RAID configurations.

RAID Configuration Supported	Drive Usage
IM (Integrated Mirror array) – 2 disk minimum, plus up to 2 hot-spare disks	Data on Primary disk might be merged
IME (Integrated Mirror Enhanced array) – 3 to 8 disks including up to 2 hot-spare disks	All data will be deleted during creation
IS (Integrated Striping array) – 2 to 8 disks	All data will be deleted during creation

Related Information

- [“RAID Storage Configuration Support” on page 8](#)
- [“Create a Mirror Image of the Preinstalled Solaris OS” on page 131](#)
- SAS controller HBA documentation

▼ Create a Mirror Image of the Preinstalled Solaris OS

Note – The Solaris OS supports hardware RAID and cannot be installed on an existing array if one has been created.

If you choose the preinstalled Solaris OS and want to make the OS part of a RAID set, and if you are using the installed SAS HBA card only, perform the following procedure to update the preinstalled Solaris OS to a mirrored RAID set. As noted in [“RAID Configurations” on page 131](#), only IM (Integrated Mirror) allows data on the primary drive to be preserved or merged into an array of drives.

This procedure describes how to create a mirror image of the OS before or after the Solaris installation. When the server has two or more hard disk drives, the Solaris OS is preinstalled on drive 0. You can mirror the Solaris OS to any of the other hard disk drives.

1. **Power on the server.**
2. **Press CTRL-C to access the LSI RAID Configuration utility.**
3. **Select the HBA card, then press Enter.**
4. **Choose RAID Properties.**
5. **Create an IM (Integrated Mirror) for the required disk configuration.**
6. **Select the drives to be used.**

Use the right arrow key to move the cursor to the RAID column, then press the space bar to include disks into the RAID.
7. **Because drive 0 contains data, select merge or delete:**
 - Choose M to merge data and start a sync operation.
 - Choose D to erase the preinstalled Solaris OS.
8. **Press C to create the RAID and start the sync operation.**
9. **Click Exit to save the configuration and close the menu.**
10. **Press Esc to exit the Configuration utility.**
11. **Reboot the Solaris OS.**

Related Information

- [“RAID Storage Configuration Support” on page 8](#)
- [“RAID Configurations” on page 131](#)
- SAS controller HBA documentation

Firmware Updates

Occasionally you might need to update the ILOM SP and BIOS firmware to repair issues or add new features. Each BIOS firmware version is paired and qualified with a specific ILOM SP firmware version. Whenever you update the ILOM SP firmware, you will update the BIOS firmware.

For instructions about updating the ILOM SP firmware, refer to the ILOM 3.0 documentation. Follow the firmware download and update instructions for x64-based systems.

Related Information

- *Oracle Integrated Lights Out Manager (ILOM) 3.0 Web Interface Procedure Guide*
- *Oracle Integrated Lights Out Manager (ILOM) 3.0 CLI Procedures Guide*
- ILOM 3.0 documentation

Troubleshooting

These topics describe how to power the server off and on, provide troubleshooting information, and provide a technical support worksheet.

Description	Links
If an error occurs while setting up the server, you may need to power down the server.	“Power Off the Server Gracefully” on page 135 “Power Off the Server For an Emergency” on page 136 “Power On the Server” on page 137
If you experience problems when setting up the server, see this troubleshooting topic for answers to common problems.	“Installation Troubleshooting” on page 139
If the troubleshooting topic does not resolve your problem, fill out this worksheet and contact technical support.	“Technical Support Information Worksheet” on page 141

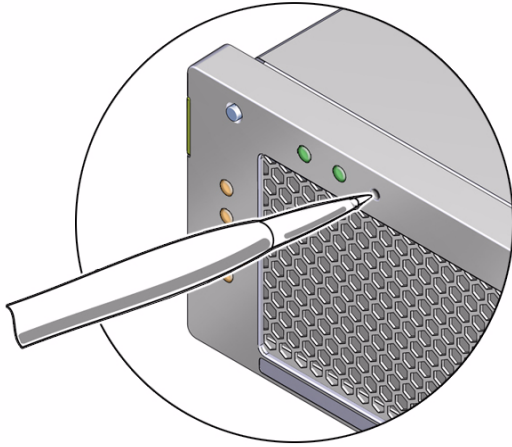
Related Information

- [“System Status LEDs and Power Button” on page 12](#)
- [“Powering On the Server” on page 107](#)

▼ Power Off the Server Gracefully

- Use a pen or other pointed object to press and release the power button on the front panel.

This action causes ACPI-enabled operating systems to perform an orderly shutdown of the operating system. Servers not running ACPI-enabled operating systems shut down to standby power mode immediately.



Caution – To completely power off the server, you must disconnect the power cords from the back panel of the server.

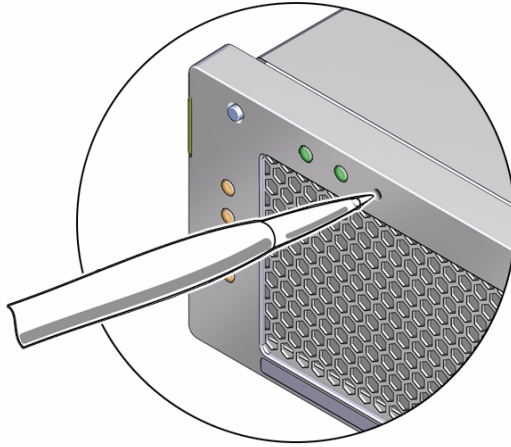
Related Information

- [“System Status LEDs and Power Button” on page 12](#)
- [“Connect the Power Cords to the Server” on page 107](#)
- [“Power On the Server for the First Time” on page 120](#)
- [“Power Off the Server For an Emergency” on page 136](#)
- [“Power On the Server” on page 137](#)

▼ Power Off the Server For an Emergency

- **Use a pen or other pointed object to press and hold the power button for at least four seconds to force the main power off and cause the server to enter standby power mode.**

When the main power is off, the Power/OK LED on the front panel begins to flash, indicating that the server is in standby power mode.



Caution – To completely power off the server, you must disconnect the power cords from the back panel of the server.

Related Information

- [“System Status LEDs and Power Button” on page 12](#)
- [“Power Off the Server Gracefully” on page 135](#)
- [“Power On the Server” on page 137](#)
- *Sun Netra X4270 Server Service Manual*

▼ Power On the Server

1. **Verify that the top cover is securely installed on the system.**
When the cover is removed, the system powers off automatically.
2. **Verify that the power cord has been connected and that Standby power is on.**
In standby power mode, the Power OK LED on the front panel flashes.

FIGURE: Front Panel Power OK LED

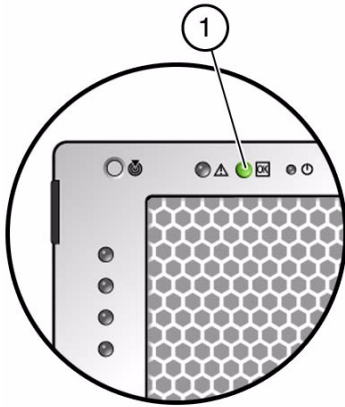
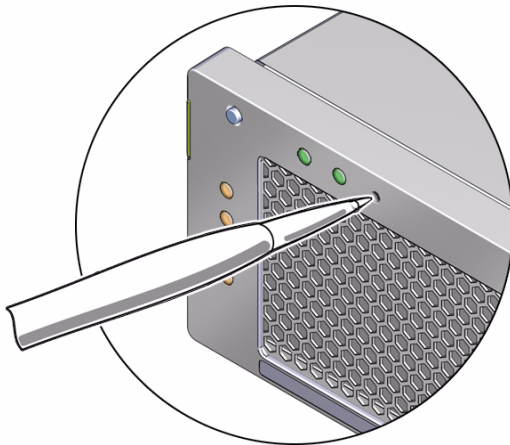


Figure Legend

-
- | | |
|---|--------------------------|
| 1 | Front panel power OK LED |
|---|--------------------------|
-

- 3. Use a pen or other pointed object to press and release the recessed power button on the server front panel.**

When the main power is applied to the server, the Power OK LED next to the Power button lights and remains lit.



Note – The first time the server powers on, POST can take up to a minute to complete.

Related Information

- “System Status LEDs and Power Button” on page 12
- “Power On the Server for the First Time” on page 120
- “Power Off the Server Gracefully” on page 135
- “Power Off the Server For an Emergency” on page 136

Installation Troubleshooting

If you experience problems while setting up your server, see the troubleshooting information in the following table.

Note – For additional troubleshooting information, refer to the *Sun Netra X4270 Server Service Manual*.

Problem	Possible Solution
Server powers on, but the monitor does not.	<ul style="list-style-type: none">• Is the Power button for the monitor turned on?• Is the monitor power cord connected to a wall outlet?• Is the monitor power cord connected to the monitor?• Does the wall outlet have power? Test by plugging in another device.
DVD does not eject from the media tray when you press the Eject button.	<ul style="list-style-type: none">• Move the mouse or press any key on the keyboard. The drive might be in low power mode.• Use the utility software installed on your server to eject the DVD.• Ensure that the media in the device is not in use and is not mounted by the operating system.
No video is displayed on the monitor screen.	<ul style="list-style-type: none">• Is the monitor cable attached to the video connector?• Does the monitor work when connected to another system?• If you have another monitor, does it work when connected to the original system?• If, after POST and BIOS are complete, you no longer see video output on your monitor and see only a flashing cursor, check the configuration of the operating system to determine if it is configured to redirect its output exclusively over the serial line.

Problem	Possible Solution
Server does not power on when the front panel Power button is pressed.	<p>Keep notes on the following situations in case you need to call service:</p> <ul style="list-style-type: none"> • Is the Power LED illuminated on the front of the system? (Ensure that the power cord is connected to the system and to a grounded power receptacle.) • Does the wall outlet have power? Test by plugging in another device. • Does the monitor sync within five minutes after power on? (The green LED on the monitor stops flashing and remains illuminated.)
Keyboard or mouse does not respond to actions.	<ul style="list-style-type: none"> • Verify that the mouse and keyboard cables are connected to the on-board USB 2.0 connectors on the server. • Verify that the server is powered on and the front Power LED is illuminated.
Server appears to be in low power mode, but the Power LED does not blink.	<p>The Power LED blinks only when all server components are in low power mode. A tape drive might be connected to your server. Because tape drives do not enter low power mode, the Power LED does not blink.</p>
Hung or frozen server: No response from mouse or keyboard or any application.	<p>Try to access your system from a different server on the network:</p> <ol style="list-style-type: none"> 1. On another system, type ping <i>IP-address-of-server</i>. 2. If a response is returned, then try logging in to the server using <code>telnet</code>, <code>ssh</code>, or <code>rlogin</code>. 3. If you successfully log in, list the running processes using the <code>ps</code> command. 4. Kill any processes that appear unresponsive or should not be running, by using the <code>kill process-ID</code> command. 5. Check the responsiveness of the server after each process is killed. <p>If this procedure does not work, power cycle the server:</p> <ol style="list-style-type: none"> 1. Press the Power button to power off the server and wait 20 to 30 seconds. 2. Press the Power button again to power the system back on.

Related Information

- [“Identifying Chassis Components” on page 8](#)
- [“Rear Cable Connections and Ports” on page 82](#)
- [“\(Optional\) Redirect the Console Output to the Video Port” on page 129](#)
- [“Power Off the Server Gracefully” on page 135](#)
- [“Power On the Server” on page 137](#)
- *Sun Netra X4270 Server Service Manual*

Technical Support Information Worksheet

If the troubleshooting information fail to solve your problem, use the following table to collect information that you might need to communicate to the support personnel.

System Configuration Information Needed	Your Information
Service contract number	
System model	
Operating system	
System serial number	
Peripherals attached to the system	
Email address and phone number for you and a secondary contact	
Street address where the system is located	
Superuser password	
Summary of the problem and the work being done when the problem occurred	
IP address	
Server name (system host name)	
Network or internet domain name	
Proxy server configuration	

Related Information

- *Sun Netra X4270 Server Service Manual*
- *X64 Diagnostics Guide*

Glossary

Numerics

2U two rack units (3.5 in./89 mm).

A

ACPI advanced configuration and power interface.

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.

CMOS	complementary metal-oxide semiconductor. Refers to the memory used to store BIOS settings.
CTS	clear to send.

D

DB-15	15-pin d-subminiature connector.
DDR3 SDRAM	double-data rate three synchronous dynamic random access memory.
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.
ESM	energy storage module.

G

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

H

HBA	host bus adapter.
------------	-------------------

I

- ILOM** Oracle Integrated Lights Out Manager. Firmware that enables you to manage the system even when system is shut down.
- IM** integrated mirror.
- IME** integrated mirror enhanced array.
- IPMI** intelligent platform management interface.
- IS** integrated striping array.

J

- JBOD** just a bunch of disks.

K

- KBC BAT** keyboard controller basic assurance test.

L

- LED** light-emitting diode.
- LSF** Low smoke fume.

M

- MPS** multiprocessor specification.

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 ILOM SP through this port.
NIC	network interface card.
NTP	network time protocol.
NVRAM	non-volatile random access memory.

O

OS	operating system.
OSP	outside plant.

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

QR DIMM quad-rank DIMM.

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.

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.

SSH secure shell.

STP shielded twisted pair.

T

- TCG** Trusted Computing Group.
- TPM** trusted platform module. For more information, refer to the Microsoft Windows Trusted Platform Module Management documentation.

U

- 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.

W

- WDT** watchdog timers.

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