

Sun Fire X4800 Server Service Manual



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Using This Documentation

This section describes related documentation, submitting feedback, and a document change history.

- “Product Information Web Site” on page 5
- “Documentation and Feedback” on page 5
- “About This Documentation (PDF and HTML)” on page 6
- “Contributors” on page 6
- “Change History” on page 6

Product Information Web Site

For information about the Sun x86 servers, go to <http://www.oracle.com/technetwork/server-storage/sun-x86/overview/index.html>.

For software and firmware downloads for your x86 server product, go to <http://www.oracle.com/technetwork/server-storage/sun-x86/downloads/index.html> page and click on your server model.

Documentation and Feedback

Documentation	Link
All Oracle products	http://www.oracle.com/documentation
Sun Fire X4800 server	http://download.oracle.com/docs/cd/E19140-01/index.html
Oracle ILOM 3.0	http://www.oracle.com/technetwork/documentation/sys-mgmt-networking-190072.html#ilom

Provide feedback on this documentation at: <http://www.oracle.com/goto/docfeedback>.

About This Documentation (PDF and HTML)

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

A PDF that includes all information on a particular topic subject (such as hardware installation or product notes) can be downloaded by clicking on the PDF button in the upper left corner of the page.

Contributors

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Change History

The following changes have been made to the documentation set.

- April 2010 – Installation Guide released.
- June 2010 – Installation Guide and Getting Started Guide re-released.
- July 2010 – Initial release of other documents.
- August 2010 – Product Notes and Service Manual re-released. ESX Installation Guide added.
- October 2010 – Product Notes re-released.
- December 2010 – Product Notes re-released.
- March 2011 – Documents re-released for SW1.2 including the Installation Guide, the Product Notes, the Linux Installation Guide, the Oracle Solaris Installation Guide, the Windows Installation Guide, and the Service Manual.
- July 2011 – Product Notes and Service Manual re-released.
- January 2012 – Product Notes updated for SW1.4.
- June 2012 – Product Notes, Oracle VM Installation Guide, Oracle Solaris Installation Guide, Oracle ILOM 3.0 Supplement, and the Diagnostics Manual re-released.
- June 2014 – Added changes to DIMM configuration rules.

Sun Fire X4800 Server Service Manual Overview

The *Sun Fire X4800 Server Service Manual* provides information and procedures for maintaining your server. The following table describes how this content is organized.

Section	Link
General server feature and component overview information	“Server and Component Overview” on page 9
Power-related Information and procedures	“Power and Reset” on page 41
Safety information and component removal and installation tasks	“Removing and Installing Components” on page 47
Maintenance procedures and information	“Sun Fire X4800 Server Service Procedures, and Information” on page 135
System specifications	“Sun Fire X4800 Server Specifications” on page 149

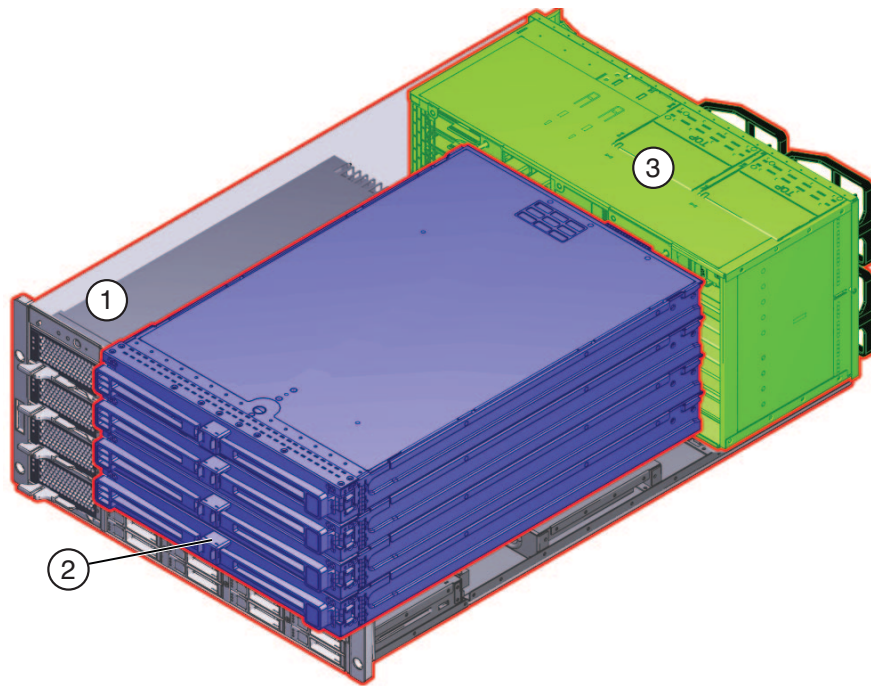
Server and Component Overview

This section provides overview information about the Sun Fire X4800 server and its components.

- [“Sun Fire X4800 Server Overview” on page 9](#)
- [“Component Overviews” on page 17](#)

Sun Fire X4800 Server Overview

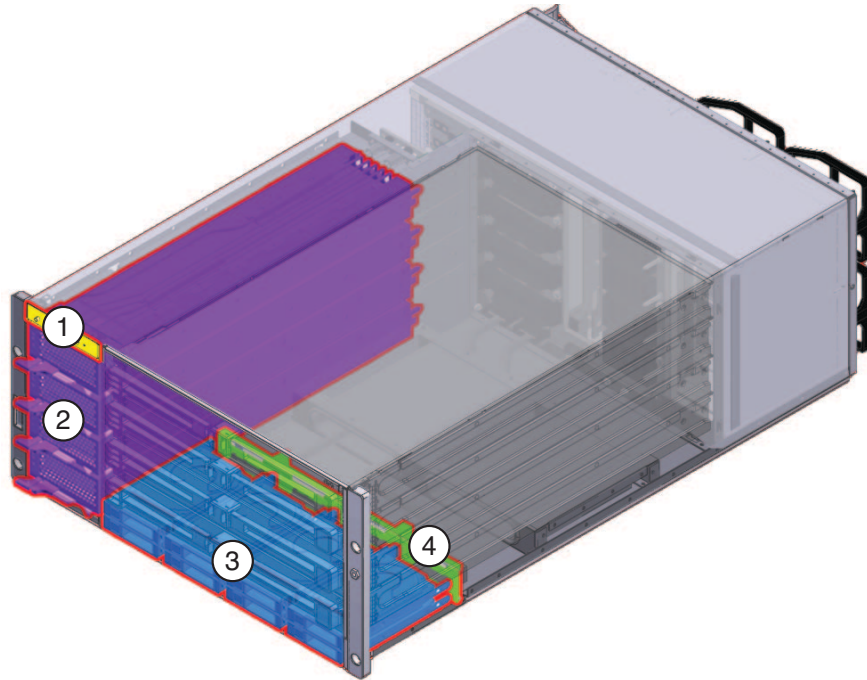
The Sun Fire X4800 server is comprised of a chassis component, a CPU module (CMOD) component, and a Subassembly module component.



Legend	
1	Chassis module (includes chassis, power supplies, and hard drives)
2	CPU module (CMOD)
3	Subassembly module

Sun Fire X4800 Server Chassis Overview

The Sun Fire X4800 server has a five RU chassis that contains the following:



Note – For the most up-to-date information regarding hardware and software support, refer to the [Sun Fire X4800 Server Product Notes](#).

Chassis Contents	Link
1 Front-panel indicator assembly	“Front Panel Indicator Module Overview” on page 18
2 Four slots for 2000W hot-swap-capable, load-sharing power supplies	“Power Supply Overview” on page 20
3 Drive bay support for eight 2.5 inch small form-factor SAS-2 hot-swap-capable, dual-port, enterprise-class hard drives	“Hard Drive and XL Bracket Assembly Overview” on page 22
4 Hard drive backplane	“Drive Backplane Overview” on page 23

See also:

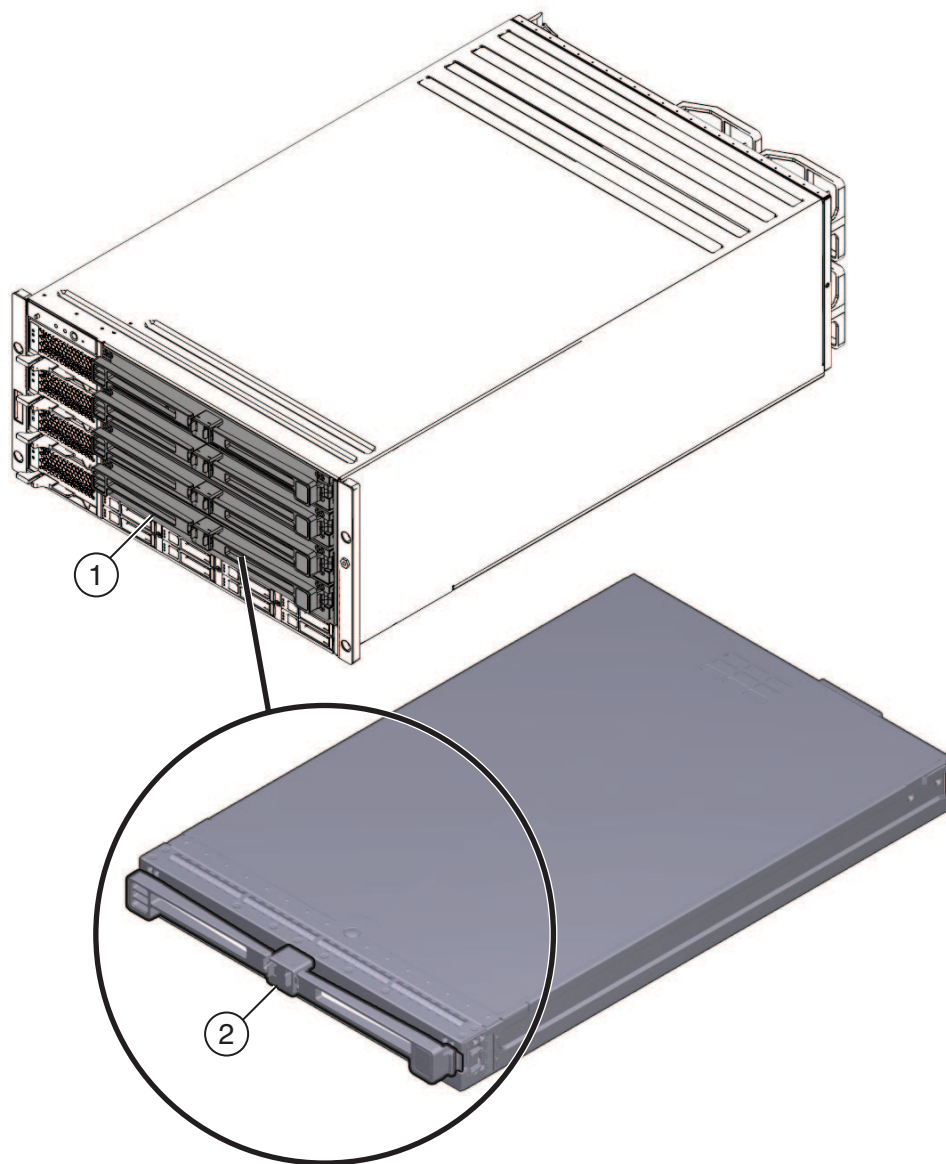
- [“Sun Fire X4800 Server Overview” on page 9](#)
- [“Sun Fire X4800 Server CPU Module \(CMOD\) and Filler Module Overview” on page 12](#)
- [“Sun Fire X4800 Server Subassembly Module Overview” on page 15](#)

Sun Fire X4800 Server CPU Module (CMOD) and Filler Module Overview

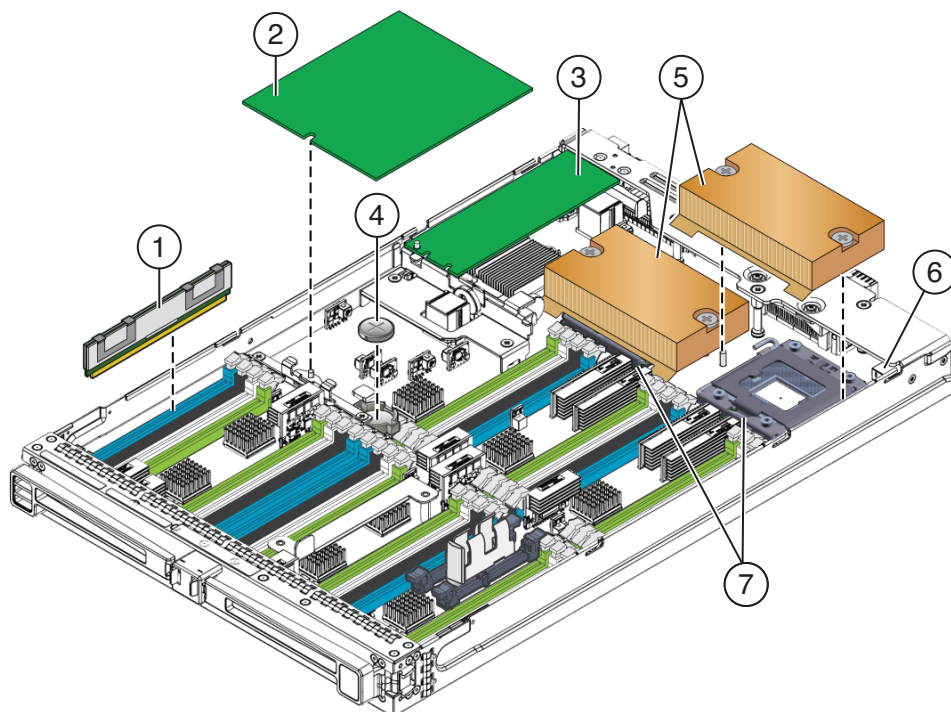
The CPU modules (CMODs) are the processing engines for the Sun Fire X4800 server. Each CMOD contains two processors (CPUs), memory, and I/O capabilities for PCIe and GigabitEthernet.

The CMOD bay of the Sun Fire X4800 server can contain up to four CMODs. The server supports two configurations, a two-module configuration and a fully loaded four-module configuration. In both configurations, CMOD 0 (BL 0) is the master CMOD. In the two-module configuration, a filler module *must* be used for slots that do not contain a CMOD. CMODs and filler modules have a lever mechanism that is used for removal and installation. The lever is held in place by a release latch.

Note – CMODs and CPU filler modules are designated as customer-replaceable units (CRU).



-
- | | |
|---|---------------------|
| 1 | CPU modules (CMODs) |
| 2 | Lever release latch |
-



Component	Link
1 32 DIMM slots. Support for up to 32 DDR3-1066 MHz RDIMM (16 per CPU)	“DIMM Overview” on page 25
2 SAS-2 RAID Expansion module (REM-one per system)	“RAID Expansion Module Overview” on page 26
3 Fabric Expansion module (FEM-one per CMOD)	“Fabric Expansion Module Overview” on page 27
4 System battery	“How to Replace the CMOD Battery (CRU)” on page 83
5 Heat sinks (2)	“CPU and Heatsink Assembly Overview” on page 29
6 Internal USB (partially obstructed)	“Internal USB Port Overview” on page 31
7 Two Intel Xeon X75xx CPU sockets (up to 130W TDP SKU per CPU)	“CPU and Heatsink Assembly Overview” on page 29

CMOD Connectivity

USB connectivity:

- One internal USB port for flash memory stick (connects to server storage fabric)
- One through the server midplane to SP module KVM

PCIe connectivity:

- Interconnect to two 8x PCIe (2.0) Express modules (PCIe EM)
- Interconnect to PCIe (2.0) Network Express module (NEM) with two on-board 10 GbE 10/100/1000BaseT ports

GigabitEthernet connectivity:

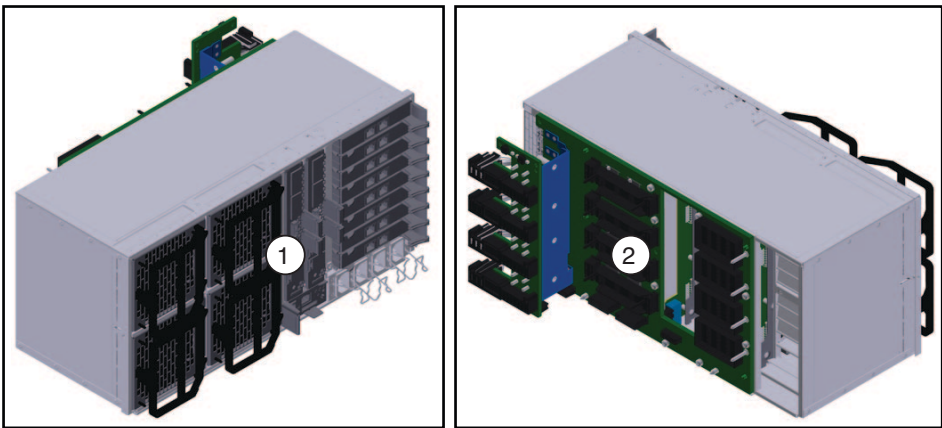
Interconnect to Network Express module (NEM) with four GigabitEthernet ports

See also:

- [“Sun Fire X4800 Server Chassis Overview” on page 10](#)
- [“Sun Fire X4800 Server Subassembly Module Overview” on page 15](#)

Sun Fire X4800 Server Subassembly Module Overview

The Subassembly module (SAM) resides inside the chassis and contains the midplane on the internal front-facing side of the SAM and the back side server components on the back side of the SAM.

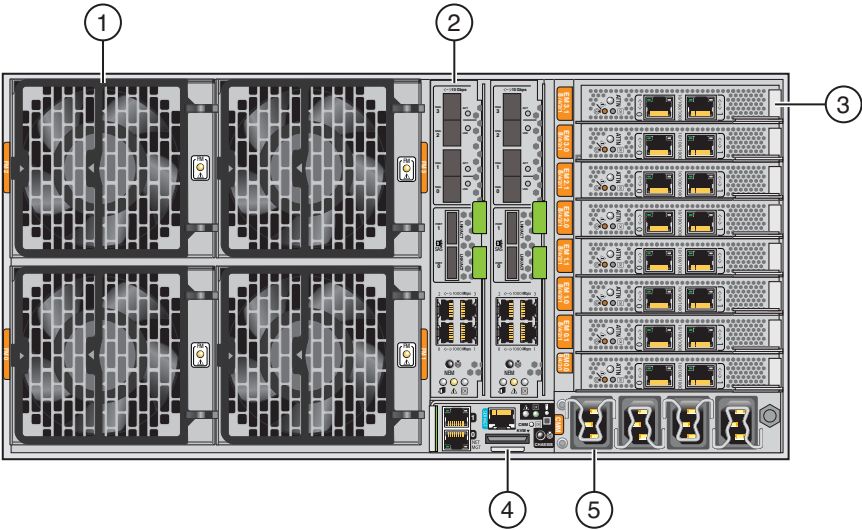


Legend

- | | | | |
|---|---------------|---|---|
| 1 | SAM back side | 2 | SAM (internal) front-facing side showing midplane board |
|---|---------------|---|---|

The SAM provides the interconnect between the AC power input lines and the power supply. It also provides the midplane interconnect between the back-end components (EMs, NEMs, and SP) and the front-side components (hard drives and CPU modules). Additionally, the SAM contains the cooling system for the CPU modules (CMODs). Cooling to the EMs, NEMs, and the SP module is provided by the power supply fans.

Note – The SAM is designated as a field-replaceable unit (FRU).



Item	Description	Overview
1	Four hot-swap-capable Fan modules (FMs) controlled by two Fan module controller boards (FBs) provide chassis cooling capability for up to 800W per CMOD (front-to-back air flow).	“Fan Module Overview” on page 31
2	Two hot-swap-capable Network Express modules (NEMs) with four 10/100/1000Base-T Ethernet ports (per NEM), four 10 GigabitEthernet SFP+: SR, LR, LRM, Twin-ax (per NEM), and two (unsupported) 4x mini SAS connectors (6.0 Gb/s, 3.0 Gb/s, 1.5 Gb/s) (per NEM).	“Network Express Module Overview” on page 32
3	Eight hot-swap-capable Constellation PCIe Express modules with 8x PCIe 5 GT/s or 2.5 GT/s.	“PCIe Express Module Overview” on page 36

Item	Description	Overview
4	A hot-swap-capable SP module with two 10/100/1000Base-T Chassis management ports, a serial console port (RJ-45), and a UCP (universal connector port) for a multi port cable that provides KVMs access.	“Service Processor (SP) Module Overview” on page 33
5	AC power block. Four AC power connectors with latching mechanisms.	“AC Power Block Overview” on page 37
	Midplane interconnect board (not shown)	“Midplane Overview” on page 39

See also:

- [“Sun Fire X4800 Server Chassis Overview” on page 10](#)
- [“Sun Fire X4800 Server CPU Module \(CMOD\) and Filler Module Overview” on page 12](#)

Component Overviews

This section provides overviews for the server chassis, CMOD, and Subassembly module components.

Note – Some components might not be supported initially. For the most up-to-date information about supported hardware, refer to the *Sun Fire X4800 Server Product Notes*.

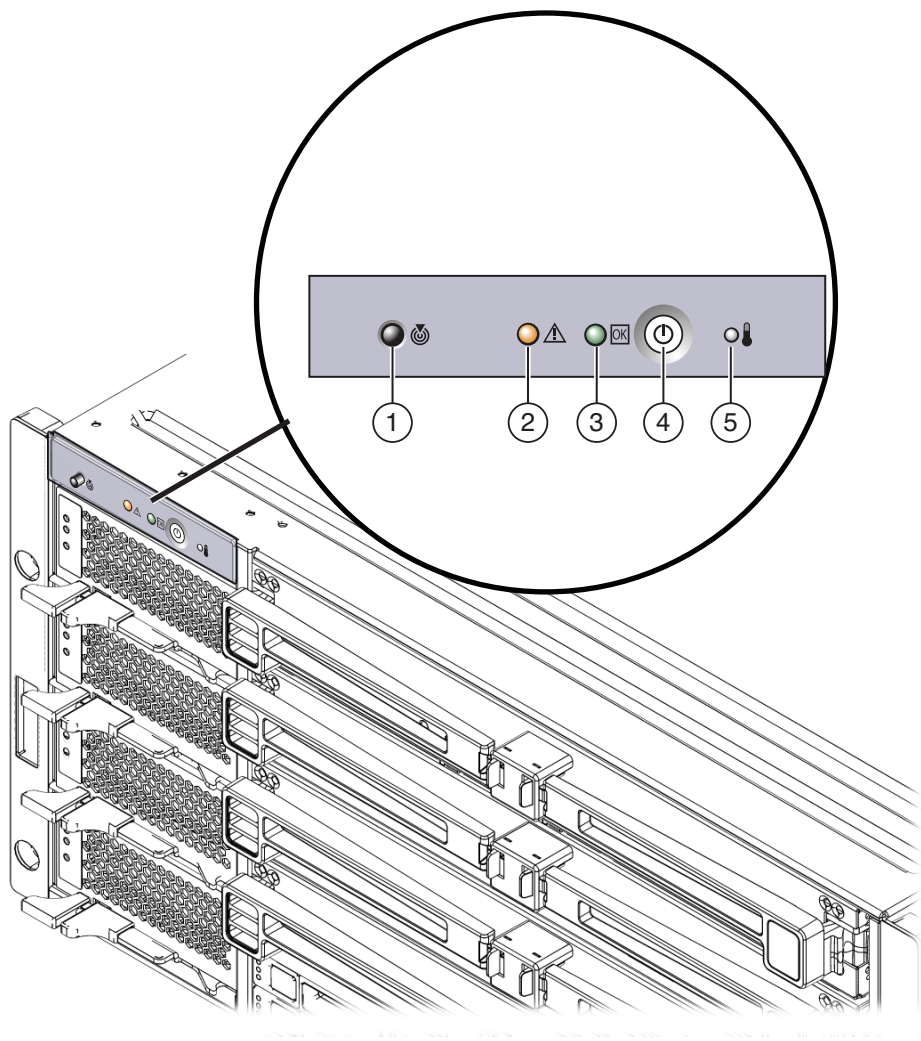
Overviews	
Chassis components	<ul style="list-style-type: none">■ “Front Panel Indicator Module Overview” on page 18■ “Power Supply Overview” on page 20■ “Hard Drive and XL Bracket Assembly Overview” on page 22■ “Drive Backplane Overview” on page 23
CPU module (CMOD) components	<ul style="list-style-type: none">■ “DIMM Overview” on page 25■ “RAID Expansion Module Overview” on page 26■ “Fabric Expansion Module Overview” on page 27■ “System Battery Overview” on page 28■ “CPU and Heatsink Assembly Overview” on page 29■ “Internal USB Port Overview” on page 31

Overviews

Subassembly module components	<ul style="list-style-type: none">■ “Fan Module Overview” on page 31■ “Network Express Module Overview” on page 32■ “Service Processor (SP) Module Overview” on page 33■ “SP Module Multi Port Cable Overview” on page 35■ “PCIe Express Module Overview” on page 36■ “AC Power Block Overview” on page 37■ “Fan Module Controller Board (FB) Overview” on page 38■ “Midplane Overview” on page 39
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Front Panel Indicator Module Overview

The indicator module is located on the front panel of the chassis. Use the front panel to power on and off the server and discern the server’s operating status.



Legend

1	Locate LED button	2	Service Action Required (fault) LED
3	OK (power state) LED	4	Power button
5	Over-temperature LED		

See also:

- [“Sun Fire X4800 Server Chassis Overview” on page 10](#)
- [“Front Indicator Panel LEDs” on page 140](#)

- [“Power and Reset” on page 41](#)

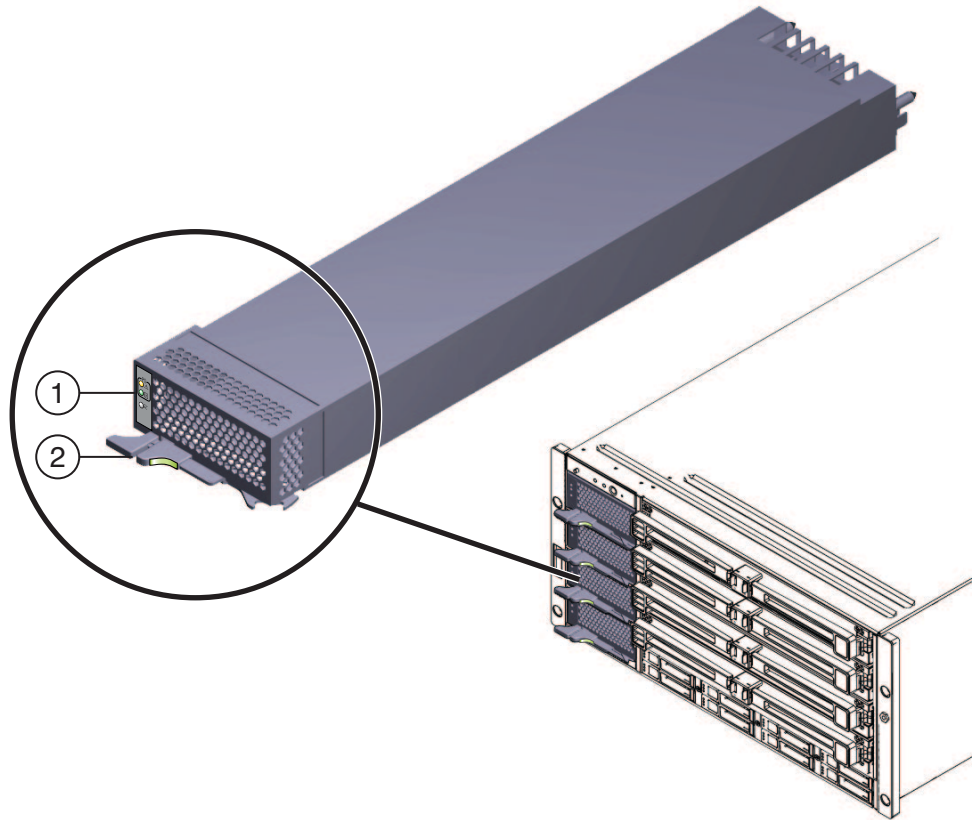
Power Supply Overview

The Sun Fire X4800 server chassis has the capability for up to four 2000W hot-swap-capable, load-sharing power supplies. This configuration provides a 2+2 power redundancy. The server requires two power supplies to operate. The power supply fans assist in the cooling of the PCIe EMs and the NEMs. Airflow through power supplies is front-to-back. All four power supplies should be present for proper I/O cooling.

Each power supply has an LED panel that reports on its status and a locking lever that assists in the removal and installation of the component. If a power supply is not present, the front and back Service Action Required LEDs will light.

The AC power inlet connectors for the power supplies are located on the back side of the Subassembly module on the AC power block. When four power supplies are installed in the server (recommended configuration), the AC power must be supplied by two separate and distinct circuits.

Note – Power supplies are designated as customer-replaceable components (CRU).



Legend

1	LED indicator panel	2	Locking lever
---	---------------------	---	---------------

See also:

- “Sun Fire X4800 Server Chassis Overview” on page 10
- “Front Panel Power Supply LED's” on page 143
- “AC Power Block Overview” on page 37
- “Removing and Installing a Power Supply (CRU)” on page 54
- “CRU and FRU List” on page 48

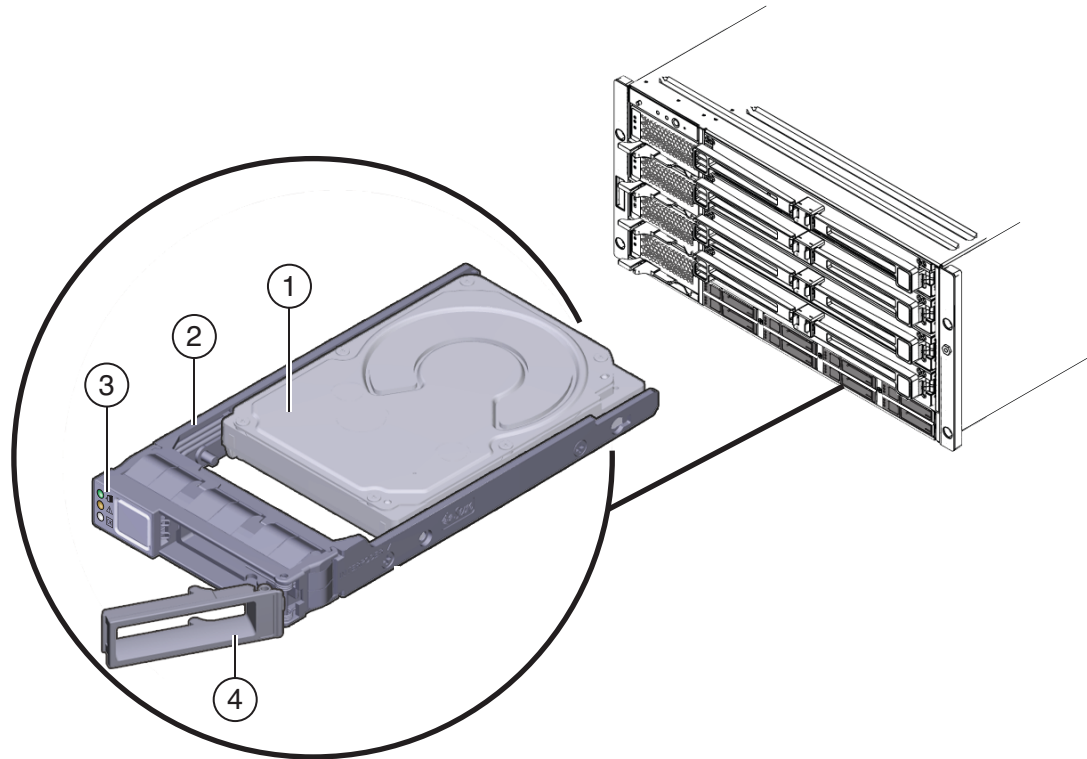
Hard Drive and XL Bracket Assembly Overview

Note – For the most up-to-date information about hardware and software support, refer to the [*Sun Fire X4800 Server Product Notes*](#).

The hard drive and bracket assembly is located in the chassis at the front of the server. The Sun Fire X4800 server drive bay can support up to eight SAS-2 drives. Each drive must be mounted in an XL bracket (XL brackets are longer than standard size HD brackets). The XL bracket has a status indicator panel and lever that assists in the removal of the drive.

To maintain the integrity of the server cooling system, drive slots not occupied by a HD *must* be populated with a hard drive filler. The base Sun Fire X4800 server system supplies adequate power for maximum drive configurations.

Note – Drives are designated as customer-replaceable components (CRU).



Legend

1	Hard drive	2	Drive bracket
3	Indicator panel	4	Lever

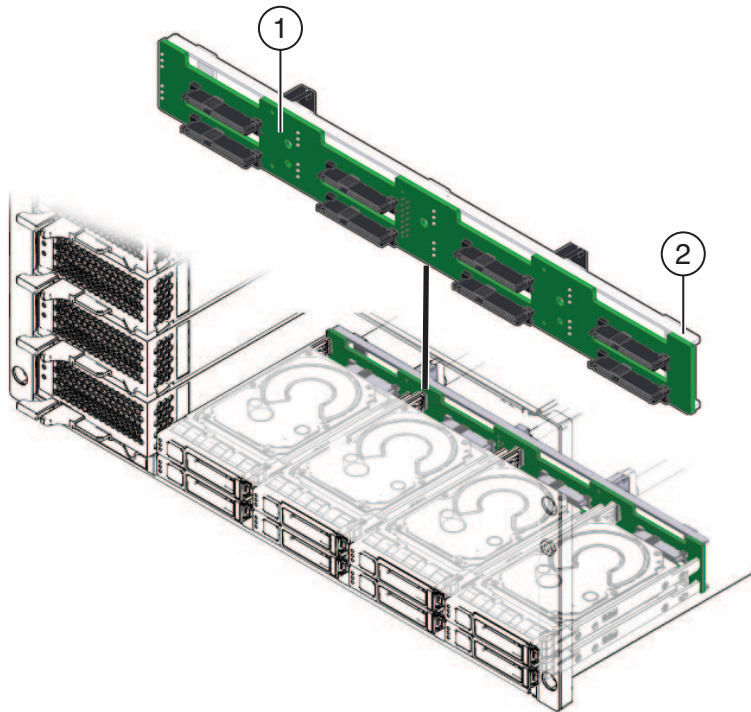
See also:

- “Sun Fire X4800 Server Chassis Overview” on page 10
- “Front Panel Hard Drive LED's” on page 144
- “Removing and Installing a Hard Drive (CRU)” on page 60
- “Removing and Installing a Hard Drive Filler” on page 65
- “Drive Backplane Overview” on page 23
- “CRU and FRU List” on page 48

Drive Backplane Overview

The Sun Fire X4800 server drive backplane provides signal interconnects from the drive bay to the midplane.

Note – The drive backplane is designated as a field-replaceable units (FRU).



Legend

- | | |
|---|---------------------------------|
| 1 | Drive backplane board |
| 2 | Drive backplane support bracket |
-

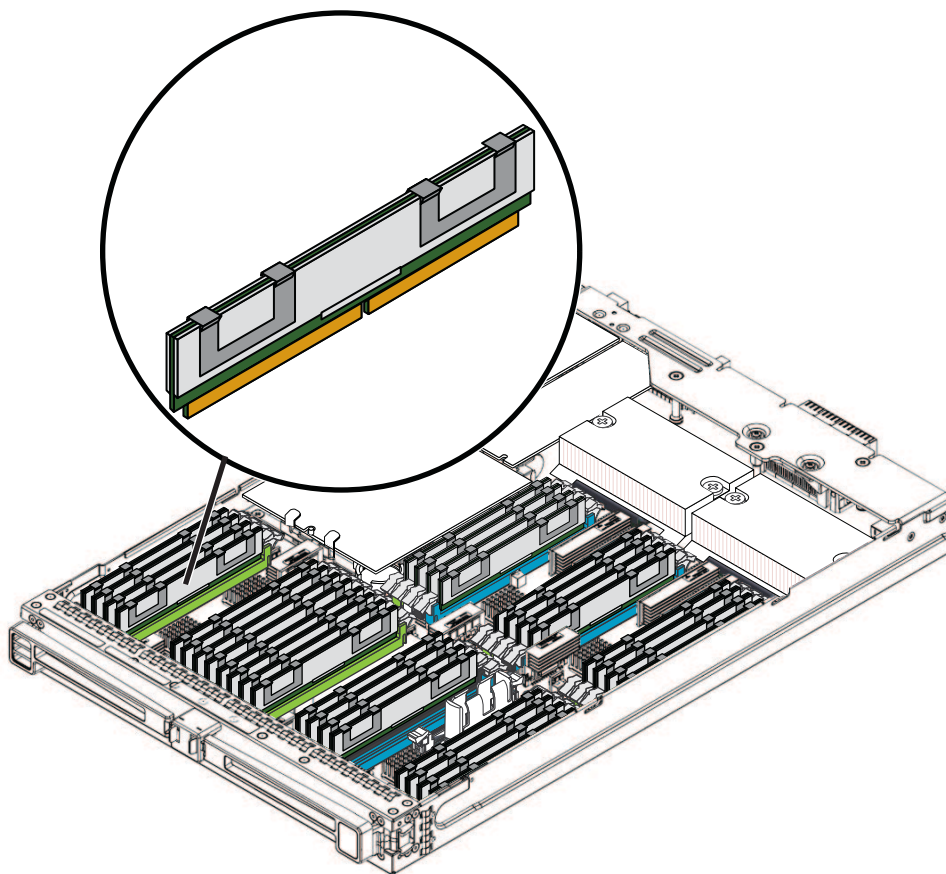
See also:

- [“Sun Fire X4800 Server Chassis Overview” on page 10](#)
- [“Midplane Overview” on page 39](#)
- [“Replacing the Hard Drive Backplane \(FRU\)” on page 67](#)
- [“CRU and FRU List” on page 48](#)

DIMM Overview

Note – For the most up-to-date information regarding hardware and software support, refer to the [Sun Fire X4800 Server Product Notes](#).

DIMMs are located on the CPU module (CMOD). Each CMOD has the capability of supporting up to 32 DDR3-1066 MHz RDIMMs (16 DIMMs per CPU).



Supported DIMM Sizes and Frequencies

2 GB DDR3 1066 MHz

4 GB DDR3 1066 MHz

Supported DIMM Sizes and Frequencies

8 GB DDR3 1066 MHz

Note – DIMMs are designated as a customer-replaceable unit (CRU).

See also:

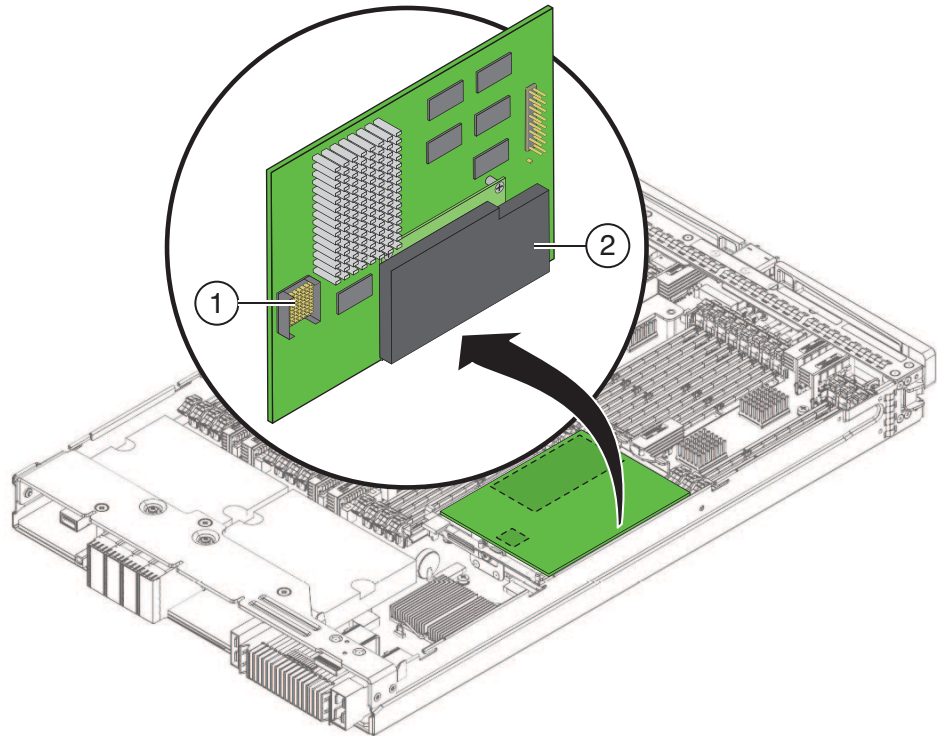
- “Sun Fire X4800 Server CPU Module (CMOD) and Filler Module Overview” on page 12
- “Removing and Installing DIMMs (CRU)” on page 85
- “CRU and FRU List” on page 48

RAID Expansion Module Overview

Note – Some components or functions might not be supported initially. For the most up-to-date information about supported hardware, refer to the [Sun Fire X4800 Server Product Notes](#).

To connect to the server’s storage fabric, the Sun Fire X4800 server on-board storage capabilities include support for a battery-backed 6-gigabit-per-second SAS-2 RAID Expansion module (REM) HBA in CPU module 0 (CMOD 0).

Note – The REM is designated as a customer-replaceable unit CRU).



Legend

- | | |
|---|-----------|
| 1 | Connector |
| 2 | Battery |
-

See also:

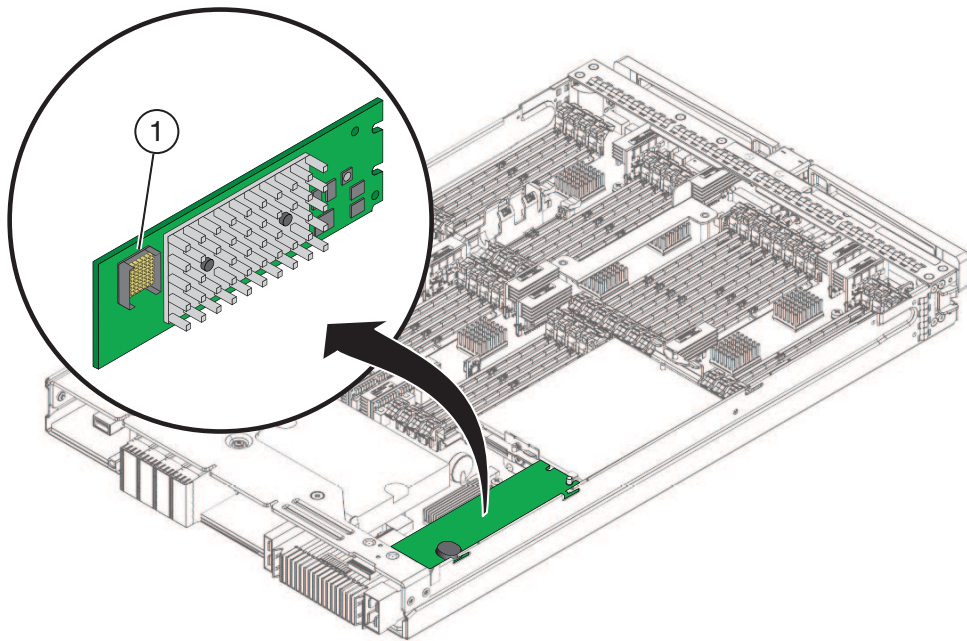
- “Sun Fire X4800 Server CPU Module (CMOD) and Filler Module Overview” on page 12
- “Removing and Installing a RAID Expansion Module (CRU)” on page 92
- “CRU and FRU List” on page 48

Fabric Expansion Module Overview

Note – Some components or functions might not be supported initially. For the most up-to-date information about supported hardware, refer to the [Sun Fire X4800 Server Product Notes](#).

The Sun Fire X4800 server CPU modules (CMODs) each support one Fabric Expansion module (FEM) in slot 0 *only*.

Note – The FEM is designated as a customer-replaceable unit (CRU).

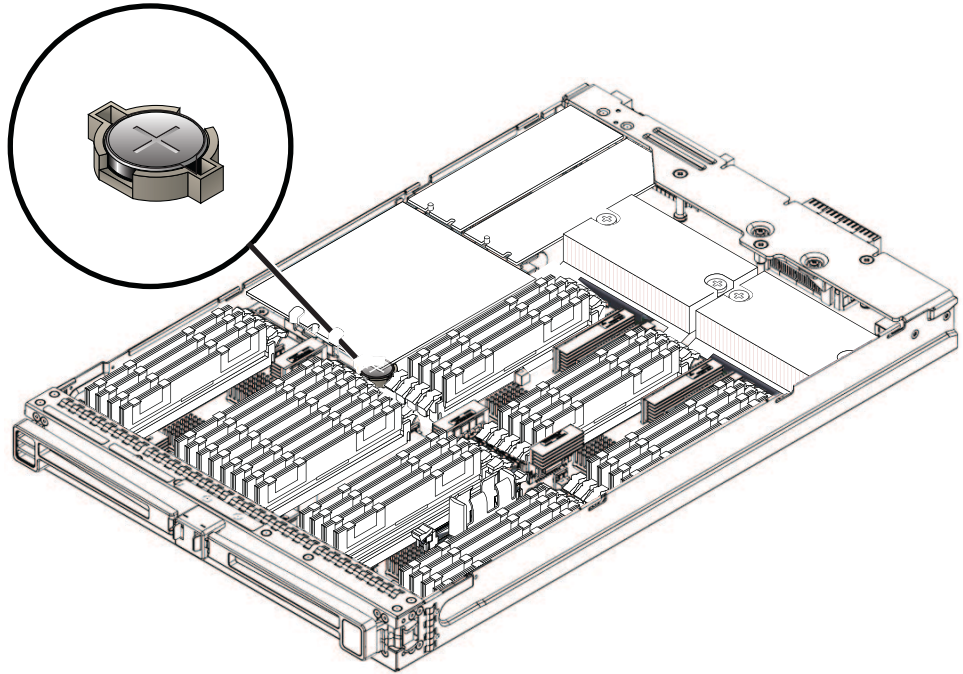


See also:

- “Sun Fire X4800 Server CPU Module (CMOD) and Filler Module Overview” on page 12
- “Removing and Installing a Fabric Expansion Module (CRU)” on page 96
- “CRU and FRU List” on page 48

System Battery Overview

The system battery is located on the motherboard. If a REM is installed, it must be removed to access the battery. The battery type is CR2032.

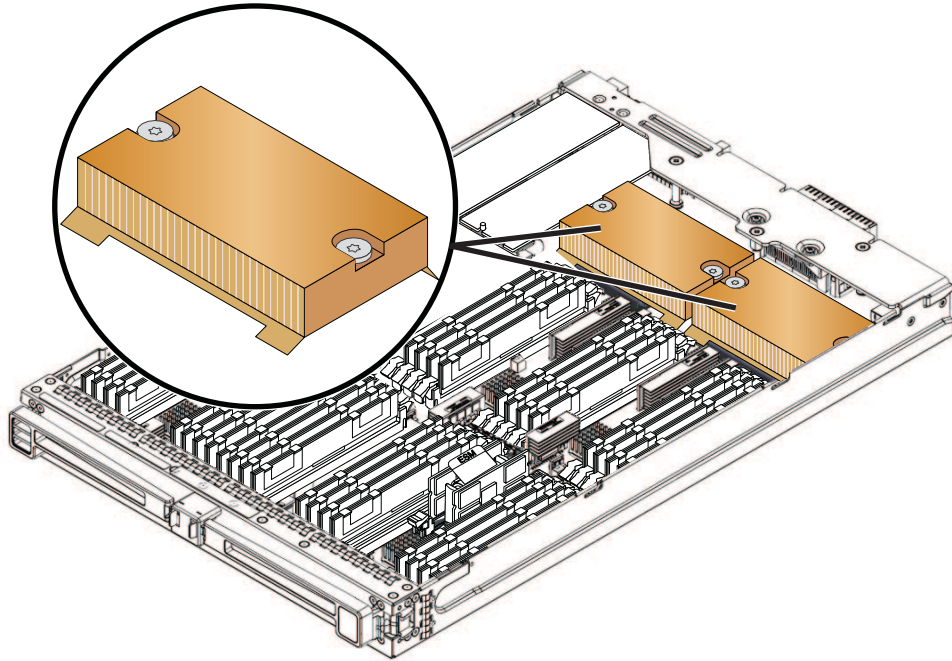


See also:

- [“How to Replace the CMOD Battery \(CRU\)” on page 83](#)
- [“CRU and FRU List” on page 48](#)

CPU and Heatsink Assembly Overview

Each CPU module (CMOD) for the Sun Fire X4800 server can contain either two 8-core or two 6-core Intel Xeon model CPUs. Each CPU is paired with a passive heatsink. The CPU and heatsink assemblies are cooled by a front-to-back airflow provided by the four Fan modules (FM) in the Subassembly module (SAM) on the back side of the server.



Supported Intel Xeon CPUs

Intel Xeon X7560 (2.26 GHz, 8 cores, 130 W) processor

Intel Xeon X7550 (2.00 GHz, 8 cores, 130 W) processor

Intel Xeon E7540 (2.00 GHz, 6 cores, 105 W) processor

Intel Xeon X7542 (2.6 GHz, 6 cores) processor

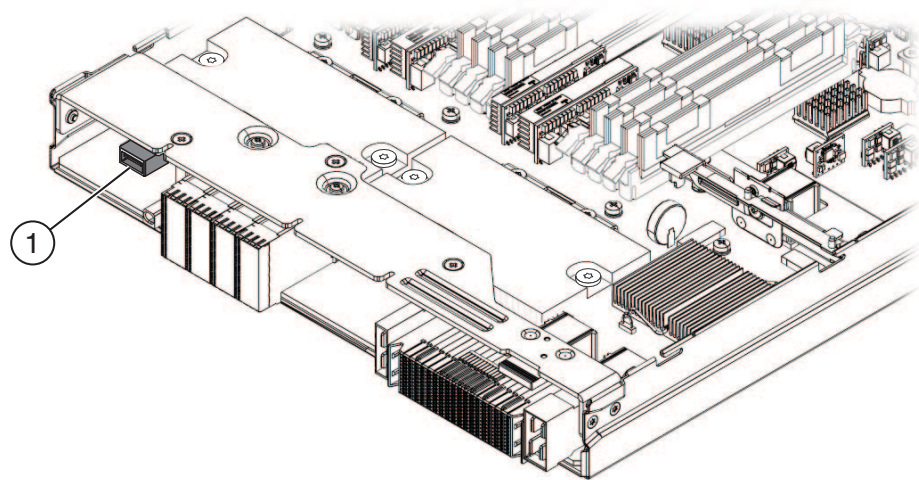
Note – The CPU and heatsink assembly is a field-replaceable unit (FRU).

See also:

- “Sun Fire X4800 Server CPU Module (CMOD) and Filler Module Overview” on page 12
- “Replacing a CPU and Heatsink Assembly (FRU)” on page 98
- “CRU and FRU List” on page 48

Internal USB Port Overview

The Sun Fire X4800 server CPU module (CMOD) has an internal USB port that you can use to boot a supported operating system (supported for CMOD 0/BL 0 only). The USB port is located on the back side of the CMOD. To access the internal USB port, you must first remove the CMOD.



Legend

1	Internal USB port
---	-------------------

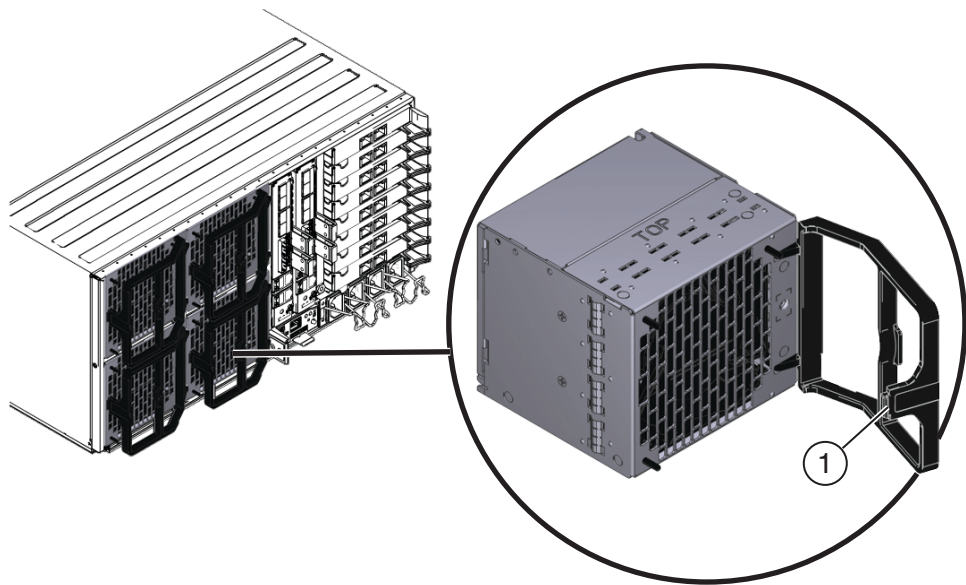
See also:

- [“Adding, Removing, and Installing a CMOD \(CRU\)” on page 71](#)
- [“Sun Fire X4800 Server CPU Module \(CMOD\) and Filler Module Overview” on page 12](#)

Fan Module Overview

The four Fan modules (FMs) provide cooling to the CPU modules (CMODs) by pulling air out of the server. The FMs are hot-swap capable and provide N+1 redundancy. Additional server cooling is performed by the power supply fans.

Note – FMs are designated as customer-replaceable units (CRU).



Legend

- 1 Handle and locking latch

See also:

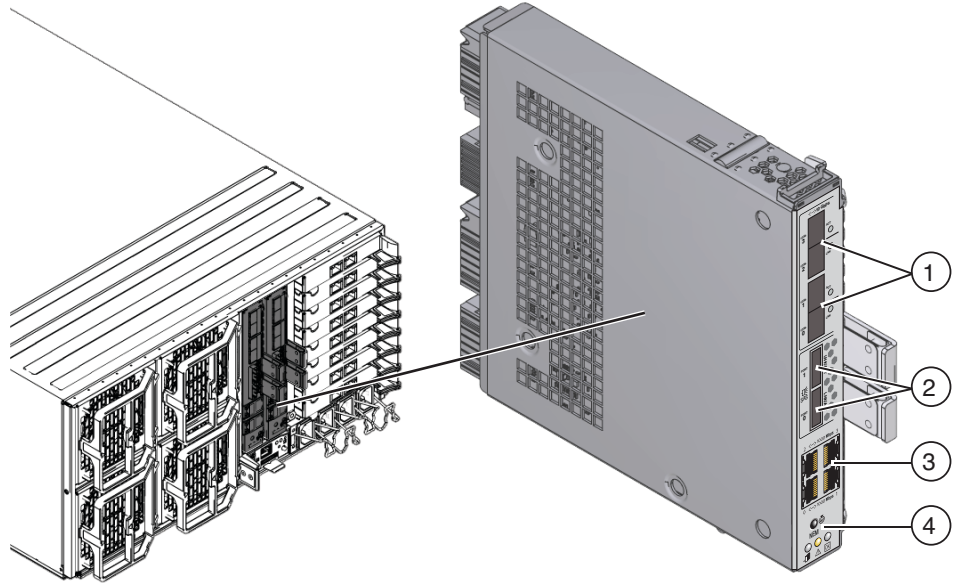
- “Sun Fire X4800 Server Subassembly Module Overview” on page 15
- “Removing and Installing a Fan Module (CRU)” on page 104
- “CRU and FRU List” on page 48

Network Express Module Overview

Note – Some components or functions might not be supported initially. For the most up-to-date information about supported hardware, refer to the [Sun Fire X4800 Server Product Notes](#).

The Network Express modules (NEMs) provide server network connectivity options. In addition to the four GigabitEthernet ports and the four 10/100/1000Base-T ports, the NEMs have a indicator panel.

Note – Network Express modules are designated as customer-replaceable units (CRU).



Legend

1	10 GigabitEthernet ports (4)	2	Mini SAS-2 ports (2) (not supported)
3	10/100/1000Base-T Ethernet ports (4)	4	Indicator panel

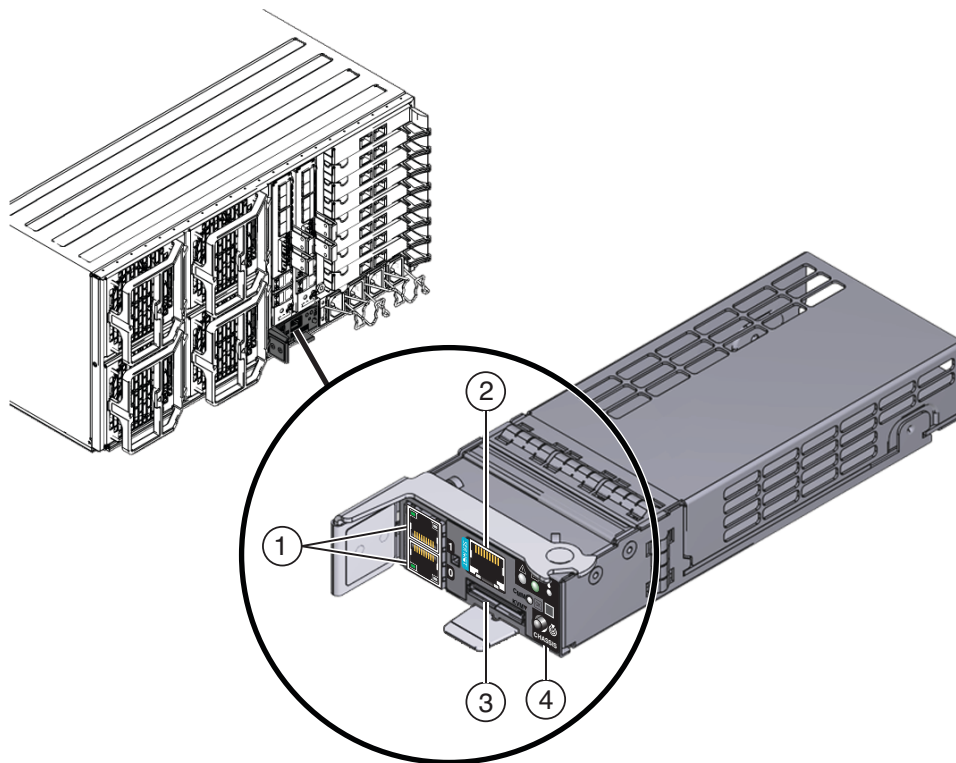
See also:

- [“Sun Fire X4800 Server Subassembly Module Overview” on page 15](#)
- [“Removing and Installing a NEM or a NEM Filler \(CRU\)” on page 111](#)
- [“CRU and FRU List” on page 48](#)

Service Processor (SP) Module Overview

The Service Processor (SP) Module ensures lights-out manageability of the entire server by providing an aggregate point for monitoring server components using Oracle Integrated Lights Out Management (ILOM). The SP module reduces cabling by providing a single management connection panel that includes 10/100/1000Base-T management (NET MGT) port, an RJ-45 serial port, and a universal connector port (UCP) for the multi port cable. The SP module also contains chassis status LEDs and has 1280 x 1024 video resolution (maximum) with 8 MB of video memory.

Note – The SP module is designated as a customer-replaceable units (CRU).



Legend

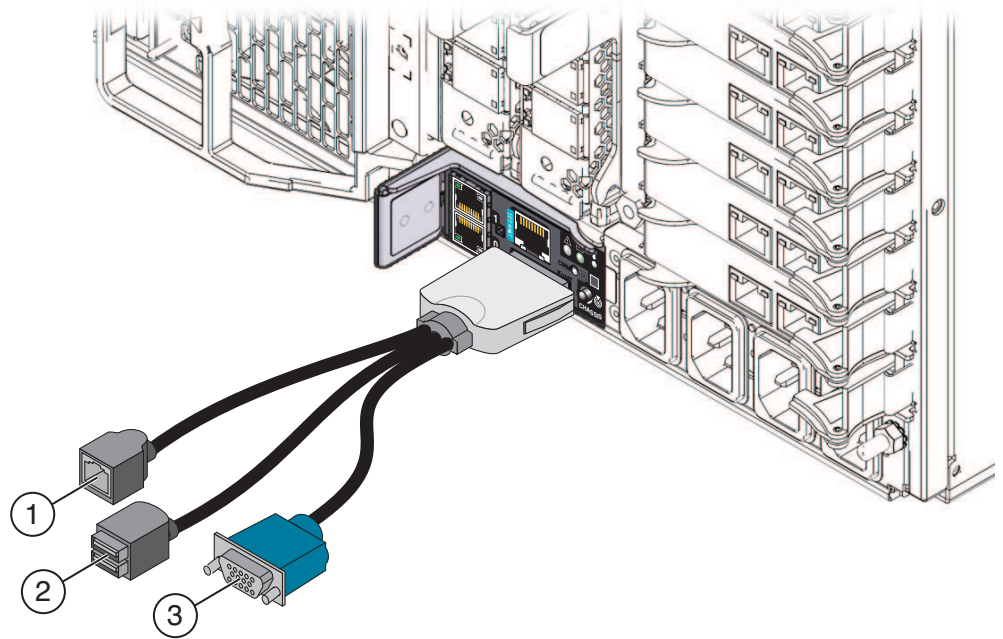
- | | |
|---|---------------------------------------|
| 1 10/100/1000Base-T NET MGT ports (2) (NET MGT port 1 not used) | 2 RJ-45 (serial) SER MGT console port |
| 3 Universal connector port (UCP) | 4 Chassis indicator panel |

See also:

- [“Sun Fire X4800 Server Subassembly Module Overview” on page 15](#)
- [“Removing and Installing the Service Processor Module \(CRU\)” on page 120](#)
- [“SP Module Multi Port Cable Overview” on page 35](#)
- [“CRU and FRU List” on page 48](#)

SP Module Multi Port Cable Overview

The multi port cable connects to the UCP (universal connector port) on the SP module at the rear of the server. The cable provides serial and video connections and enables local access to ILOM.



Legend

- | | |
|---|-------------------|
| 1 | RJ-45 serial port |
| 2 | USB ports (2) |
| 3 | Video port |
-

See also:

- [“Sun Fire X4800 Server Subassembly Module Overview” on page 15](#)
- [“Service Processor \(SP\) Module Overview” on page 33](#)

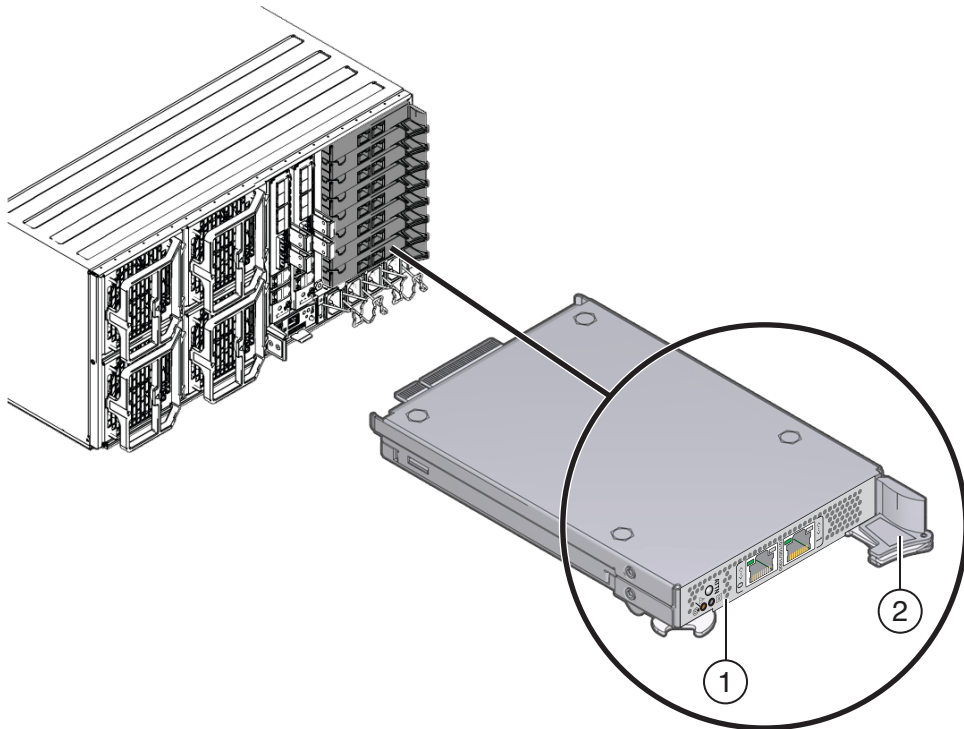
PCIe Express Module Overview

Note – Some components or functions might not be supported initially. For the most up-to-date information about supported hardware, refer to the [Sun Fire X4800 Server Product Notes](#).

The Sun Fire X4800 server has eight PCIe EM slots. The PCIe EMs have a lever mechanism that is used for removal and installation. The lever is held in place by a release latch.

Note – PCIe Express modules are designated as customer-replaceable units (CRU).

Note – The PCIe EM depicted in this topic might differ from the model supplied with your server.

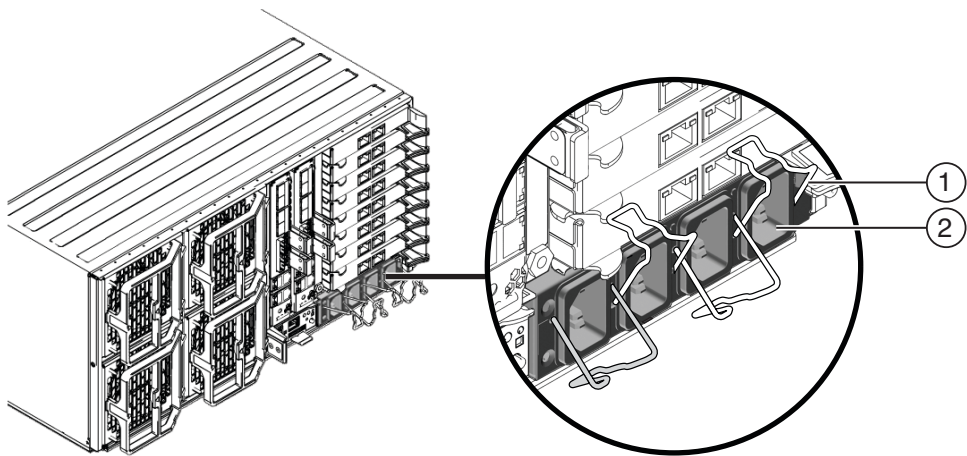


Legend	
1	Indicator panel
2	Locking lever and release latch

See also:

- “Sun Fire X4800 Server Subassembly Module Overview” on page 15
- “Removing and Installing a PCIe EM (CRU)” on page 116
- “CRU and FRU List” on page 48

AC Power Block Overview



Legend	
1	Retaining clip (4)
2	AC power inlet (4)

Each AC input connector supplies power to one of the power supply slots at the front of the machine. The input connectors are designated from left to right. The left-most connector is designated as 0 and supplies power to power supply slot 0 (the bottom slot at the front of the server). The right most connector is designated as 3 and supplies power to power supply slot 3 (the top slot at the front of the server). The following table shows the relationship between the power supply slots and AC input connectors.

Power slot (bottom to top)	PS 0	PS 1	PS 2	PS 3
AC input connector (left to right)	AC 0	AC 1	AC 2	AC 3

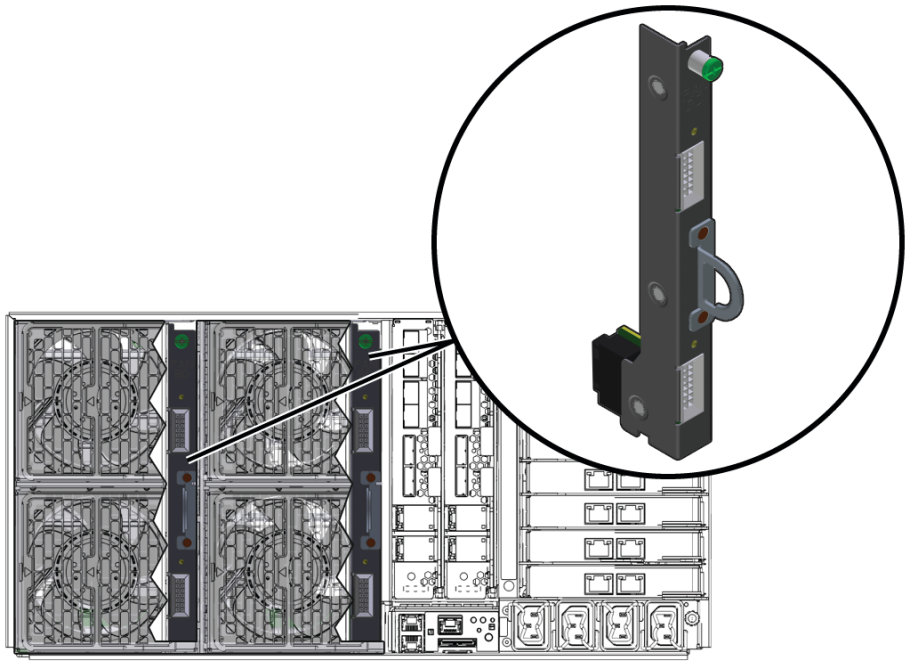
See also:

- [“Sun Fire X4800 Server Subassembly Module Overview” on page 15](#)
- [“Power Supply Overview” on page 20](#)

Fan Module Controller Board (FB) Overview

The server contains two Fan module controller boards (FBs). Each FB controls two Fan modules (FMs).

Note – The FBs are designated as field-replaceable units (FRU).



See also:

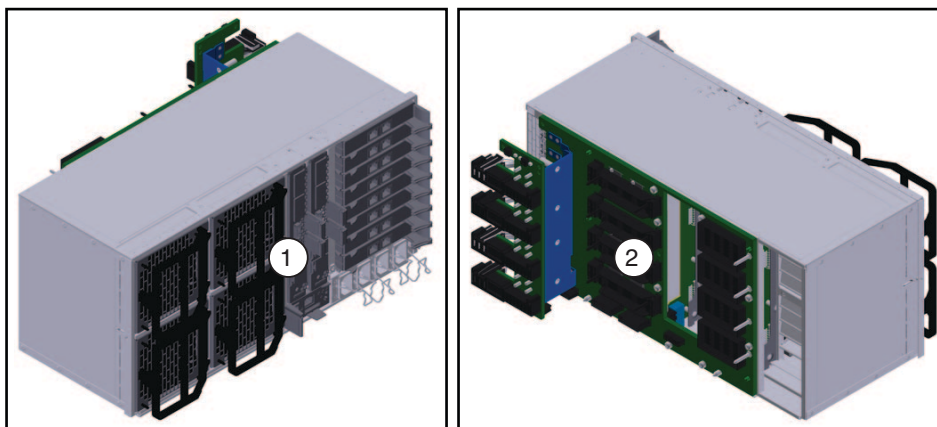
- [“Sun Fire X4800 Server Subassembly Module Overview” on page 15](#)

- “Fan Module Overview” on page 31
- “Replacing a Fan Module Controller Board (FRU)” on page 108.
- “CRU and FRU List” on page 48

Midplane Overview

The Sun Fire X4800 server's midplane resides on the internal (front-facing) side of the Subassembly module (SAM) and is inaccessible unless the SAM is removed. The midplane provides power and signal interconnects between back side server components and the front-end server components. The midplane and the SAM are considered a single unit. To replace the midplane you must replace the SAM.

Note – The SAM is designated as a field-replaceable unit (FRU).



Legend

- 1 Rear side (external) of SAM showing the back-end server components.
 - 2 Front side (internal) of SAM showing the midplane interconnect board.
-

See also:

- “Sun Fire X4800 Server Subassembly Module Overview” on page 15
- “CRU and FRU List” on page 48

Power and Reset

This section contains the following power-related topics for the Sun Fire X4800 server:

- [“Power Modes” on page 41](#)
- [“Power Button and Power OK LED” on page 42](#)
- [“How to Power On the Server” on page 42](#)
- [“How to Power Off the Server” on page 43](#)
- [“Controlling Server Power Remotely” on page 44](#)

Power Modes

The Sun Fire X4800 server has two power modes, *full power mode* and *standby power mode*.

Full power mode is the normal operational mode for the server. When the server enters full power mode, power is supplied to all the server components, the server boots and the operating system (OS) functions. You achieve full power mode by pressing the Power button on the front of the server when the server is in standby power mode. Once the server is operating in full power mode the Power OK LED is on continuously (does *not* blink).

Standby power is a non-operating mode, in which minimum power is supplied to the components that are required to run the SP. In standby power mode the OS does not boot.

To enter standby power mode, connect the server to an AC supply using the AC power cords, but do *not* press the front panel Power button. You can also enter standby power mode by powering off the server (from an operational mode) using one of the power off methods.

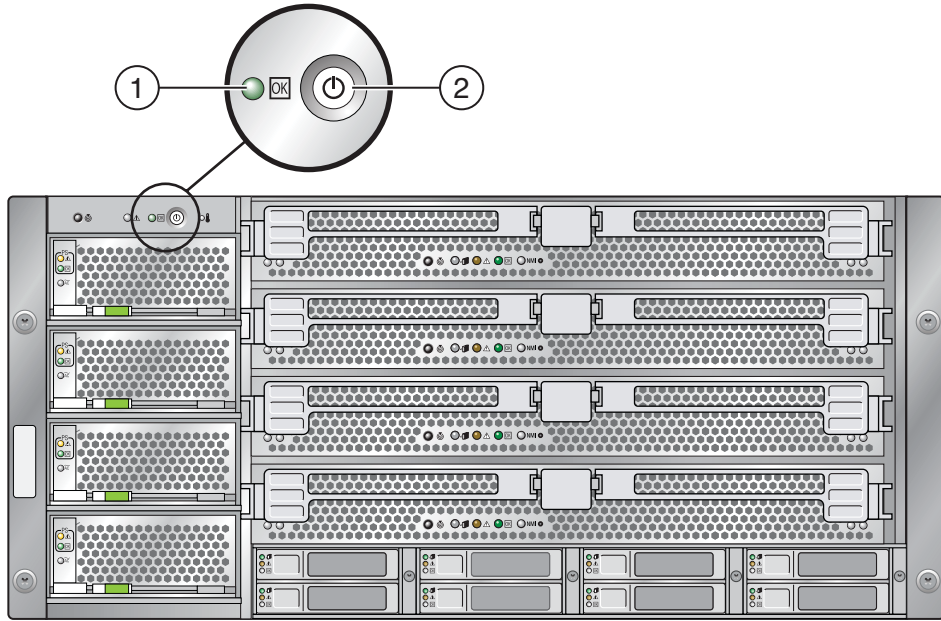
In standby power mode, the front panel Power LED blinks quickly while the SP is booting, and slowly once the SP has booted. The OK LED on each of the CPU modules (CMODs) blinks while the SP is initializing the CMOD, and remains on when after initialization is finished.

See also:

- [“Power Button and Power OK LED” on page 42](#)
- [“How to Power On the Server” on page 42](#)
- [“How to Power Off the Server” on page 43](#)
- [“Controlling Server Power Remotely” on page 44](#)

Power Button and Power OK LED

The Power button and the Power OK LED are located on the front indicator panel.



Legend

- 1 Power OK LED
- 2 Power button

See also:

- [“Front Panel Power Supply LED’s” on page 143](#)
- [“How to Power On the Server” on page 42](#)
- [“How to Power Off the Server” on page 43](#)

▼ How to Power On the Server

This procedure describes how to power on the server from standby power mode to full power mode.

- 1 **Verify that the server's power supplies are connected to an AC power source and that the server is in standby power mode.**

In standby power mode, the Power OK LED on the front panel blinks.

- 2 **To power on the server to full power mode, press the Power button.**

This action supplies full power to the server. The server boots to the operating system.

- See Also**
- [“Power Button and Power OK LED” on page 42](#)
 - [“Power Modes” on page 41](#)
 - [“Controlling Server Power Remotely” on page 44](#)
 - [“How to Power Off the Server” on page 43](#)

▼ How to Power Off the Server

- 1 **To gracefully power off the server from full power mode to standby power mode, use one of the following methods:**

- Use the operating system-specific shutdown procedure for the OS running on your server. Most operating systems have a shutdown procedure. This shutdown procedure provides a graceful shutdown of the OS, and it should be your first choice for powering off the server.
- Use the ILOM web interface or command-line interface. See [“Controlling Server Power Remotely” on page 44](#).
- To gracefully power off the server from main power mode to standby power mode using the Power button, quickly press and release the Power button on the front panel.



Caution – Potential data loss. Pressing and releasing the Power button causes Advanced Configuration and Power Interface (ACPI) enabled operating systems to perform an orderly shutdown of the operating system. Servers *not* running ACPI-enabled operating systems perform an emergency shut down to standby power mode.

When the main power is off and the server is in standby power mode, the Power OK LED on the front panel blinks, indicating that standby power is still available.

Note – In standby power mode, power is still directed to some components. To completely power off the server, you must disconnect the AC power cords from the back panel of the server.

- 2 **To perform an emergency shutdown of the server power, press and hold the Power button for four seconds to force main power off.**

The server enters standby power mode.



Caution – Potential data loss. Pressing and holding the Power button for four seconds performs an *immediate shutdown* of the server. The system does not prompt for confirmation, nor are you allowed to save and exit open applications.

- See Also**
- “Power Modes” on page 41
 - “Controlling Server Power Remotely” on page 44
 - “How to Power On the Server” on page 42
 - “How to Prepare for Service” on page 51

Controlling Server Power Remotely

- “How to Use the ILOM Command-Line Interface to Control Power” on page 44
- “How to Use the ILOM Web Interface to Control Power” on page 45
- “How to Use IPMITool to Control Power” on page 45

▼ How to Use the ILOM Command-Line Interface to Control Power

You can access the command-line interface (CLI) remotely using SSH or locally using the serial console port and the multi port cable.

- Before You Begin**
- This procedure assumes that you are set up to access the server using the command-line interface (CLI). For CLI connection procedures, refer to the [Oracle Integrated Lights Out Manager \(ILOM\) 3.0 Supplement for the Sun Fire X4800 Server](#).
 - For commands and general information about the ILOM CLI, refer to the *Sun Integrated Lights Out Manager (ILOM) 3.0 CLI Procedures Guide*, which is available online with the Sun Fire X4800 Server documentation.

1 Log in to the ILOM CLI.

The CLI prompt appears.

->

2 Enter one of the commands:

- > **start /SYS** (powers on to full power mode)
- > **stop /SYS** (gracefully powers down to standby power mode)
- > **stop -f /SYS** (immediate power off to standby power mode)
- > **reset /SYS** (immediately reboots)

3 To exit the CLI, type:

-> **exit**

- See Also**
- “Preparing for Service and Operation” on page 47
 - “How to Use the ILOM Web Interface to Control Power” on page 45
 - “Power Modes” on page 41

▼ How to Use the ILOM Web Interface to Control Power

- Before You Begin**
- You need to know the IP address of the server’s service processor.
 - For more information about the ILOM web interface, refer to the *Sun Integrated Lights Out Manager (ILOM) 3.0 Web Interface Procedures Guide*.

1 Log in to the ILOM web interface.

The ILOM main screen appears.

2 Click the Remote Control tab.

The Remote Control submenu tabs appear.

3 Click the Remote Power Control tab.

The Remote Power Control screen appears.

4 Select a power state from the drop-down list.

Choices are Immediate Power Off, Graceful Shutdown and Power Off, Power On, Power Cycle , and Reset.

5 To exit the ILOM web interface, click the Logout button at the top of the screen.

- See Also**
- “Preparing for Service and Operation” on page 47
 - “How to Use the ILOM Command-Line Interface to Control Power” on page 44
 - “Power Modes” on page 41

▼ How to Use IPMITool to Control Power

- For information about using SNMP and IPMI to manage your server, refer to the *Sun Integrated Lights Out manager (ILOM) 3.0 SNMP and IPMI Procedures Guide*.

- See Also**
- “Preparing for Service and Operation” on page 47
 - “Power Modes” on page 41

Removing and Installing Components

This section contains topics and tasks for the safe and efficient removal and installation of components in the Sun Fire X4800 server.

Description	Task
Preparation tasks and topics, including assessing the scope of the service task, reviewing safety information, and preparing the server for service and operation.	“Preparing for Service and Operation” on page 47
Replacement and installation tasks and topics for all customer-replaceable and field-replaceable components.	“Removal and Installation Procedures” on page 53

Preparing for Service and Operation

Use this section to assess the scope of the service or maintenance task and prepare the server for service and operation.

- [“Service Task Table” on page 47](#)
- [“CRU and FRU List” on page 48](#)
- [“Hot-Swap Components” on page 49](#)
- [“Required Service Tools” on page 49](#)
- [“Important Safety Information” on page 50](#)
- [“Antistatic Precautions and Procedures” on page 50](#)
- [“How to Prepare for Service” on page 51](#)
- [“How to Prepare for Operation” on page 52](#)

Service Task Table

The following task table provides an overview of the service sequencing instructions and links to the relevant topics and tasks.

Step	Task	Description	Topic or Task
1	Assess the scope of the task.	Understand the scope of the task by reviewing the CRU and FRU list, the list of hot-swap components, and the required tools.	<ul style="list-style-type: none">■ “CRU and FRU List” on page 48■ “Hot-Swap Components” on page 49■ “Required Service Tools” on page 49
2	Review the important safety information.	Always review the safety and ESD procedures <i>before</i> servicing the equipment in any capacity.	<ul style="list-style-type: none">■ “Important Safety Information” on page 50■ “Antistatic Precautions and Procedures” on page 50
3	Prepare the server for service.	Follow the routine procedures for preparing the equipment for service. This procedure is referenced at the beginning of every task.	“How to Prepare for Service” on page 51
4	Follow the component replacement or installation procedures.	The component replacement and installation procedures provide the step-by-step instructions for the safe and efficient servicing of your Sun Fire X4800 server.	“Removal and Installation Procedures” on page 53
5	Prepare the server for operation.	Follow the routine procedures for preparing the equipment for operation. This procedure is referenced at the end of every task.	“How to Prepare for Operation” on page 52

CRU and FRU List

The replaceable components in your Sun Fire X4800 server are designated as either field-replaceable units (FRU) or customer-replaceable units (CRU). A part designated as an FRU must be replaced by a Oracle-qualified service technician. A part designated as a CRU can be replaced by a person who is not a Oracle-qualified service technician. This table lists the FRU and CRU components of the Sun Fire X4800 server.

Component	Designation
CPU modules (CMODs) (4 maximum)	CRU
DIMM	CRU
RAID Expansion module	CRU

Component	Designation
Fabric Expansion module	CRU
Power supplies (4)	CRU
Hard drive (8 maximum)	CRU
PCIe Express modules Gen 2 (8 maximum)	CRU
Network Express module (2 maximum)	CRU
Fan modules (4)	CRU
SP module (SP)	CRU
Fan module controller (2)	FRU
Subassembly module (SAM)	FRU
CPU and Heatsink Assembly	FRU
Heatsink	FRU

See also: [“Service Task Table” on page 47](#)

Hot-Swap Components

The following is a list of Sun Fire X4800 server hot-swap capable components:

- Power supplies
- Hard drives
- Fan modules
- SP module
- NEMs
- PCIe EMs

Next: [“Required Service Tools” on page 49](#)

See: [“Service Task Table” on page 47](#)

Required Service Tools

The following is a list of the required tools:

- No. 1 Phillips screwdriver
- No. 2 Phillips screwdriver
- No. 2 long Phillips screwdriver (10 inches or longer)

See also: [“Service Task Table” on page 47](#)

Important Safety Information

This section describes important safety information that you need to know prior to removing or installing parts in your Sun Fire server.



Caution – Hazardous voltage present. Never attempt to run the server with the covers removed. You *must* disconnect the power supply before servicing any of the components documented in this section.



Caution – Equipment damage possible. The covers must be in place for proper air flow.

For your protection, observe the following safety precautions when setting up your equipment:

- Follow all Sun cautions, warnings, and instructions marked on the equipment and described in *Important Safety Information for Sun Hardware Systems* (816-7190).
- Follow all cautions, warnings, and instructions marked on the equipment and described in the *Sun Fire X4800 Server Safety and Compliance Guide*.
- Ensure that the voltage and frequency of your power source match the voltage and frequency inscribed on the equipment's electrical rating label.
- Follow the electrostatic discharge safety practices as described in this document.

See also: “[Antistatic Precautions and Procedures](#)” on page 50

Antistatic Precautions and Procedures



Caution – Component damage. Circuit boards and hard drives contain electronic components that are extremely sensitive to static electricity. Ordinary amounts of static electricity from clothing or the work environment can destroy the components located on these devices. Do not touch the components without antistatic precautions, especially along the connector edges.

Electrostatic discharge (ESD) can damage your processor, hard drives, expansion boards, and other components. ESD-sensitive devices, such as the motherboards, PCI cards, hard drives, and memory modules, require special handling. Always observe the following precautions before you install a system component:

- Do not remove a component from its protective packaging until you are ready to install it.
- Wear a wrist strap and attach it to the system chassis ground or to any metal part of the system before handling components or working in the interior compartment of the workstation.

- Use an antistatic mat. See [“How to Use an Antistatic Mat” on page 51](#).

Wear an antistatic wrist strap and use an antistatic mat when handling components such as hard drive assemblies, circuit boards, or PCI cards. When servicing or removing server components, attach an antistatic strap to your wrist and then to a bare metal area on the chassis. Following this practice equalizes the electrical potentials between you and the server.

▼ How to Use an Antistatic Mat

- 1 **Prepare an antistatic surface to set parts on during the removal, installation, or replacement process.**

Place static-sensitive components such as the printed circuit boards, memory modules, and CPUs on an antistatic mat. The following items can be used as an antistatic mat:

- Antistatic bag used to wrap a Sun replacement part
- Oracle antistatic mat, part number 250-1088
- A disposable antistatic mat (shipped with some replacement parts or optional system components)

- 2 **Attach an antistatic wrist strap.**

When servicing or removing server components, attach an antistatic strap to your wrist and then to a bare metal area on the chassis.

See Also [“Service Task Table” on page 47](#)

Next Steps [“How to Prepare for Service” on page 51](#)

▼ How to Prepare for Service

- 1 **Review the service task table for service sequencing and important safety information. See [“Service Task Table” on page 47](#).**
- 2 **Review the *Sun Fire X4800 Server Product Notes* document for up-to-date information about hardware-, software- and firmware-related issues.**
- 3 **If necessary, quiesce the OS.**

Note – Removal of some hot-swap components might cause disruption to network or storage access. Take the necessary precautions to prepare the OS for the inaccessibility of network communications or storage access.

- 4 **If necessary, place the server in standby power mode or power off the server. See “Power Modes” on page 41.**
-

Note – Before powering off the server to perform the removal or installation of a component, review the removal and installation procedures. Some components are hot-swap capable, and it might not be necessary to power off the server (see “Hot-Swap Components” on page 49).

Next Steps [“Removal and Installation Procedures” on page 53](#)

▼ **How to Prepare for Operation**

- 1 **If necessary, remove any service-related cabling and devices.**
- 2 **Remove tools from the interior and exterior of the server, the chassis, and the rack.**
Account for all tools used to service the server.
- 3 **Ensure that components are properly seated and cabled and that all cables are properly routed and secured.**
- 4 **Ensure that server front and back air vents are not obstructed or clogged.**
Use a vacuum to remove dust and debris from the server vents and chassis.



Caution – Possible component damage. The use of liquids or spray cleaners within the interior of the server, the chassis, and the rack can cause component damage. Do *not* use liquids or spray cleaners to clean the interior of the server.

- 5 **Connect the AC power cables to the server AC power block.**
The server enters standby mode.
- 6 **Power on the server. See “How to Power On the Server” on page 42.**
- 7 **Ensure that all components power on properly.**
Use the component’s LEDs to verify correct operation. See “Component LED Locations and Meanings” on page 140.

- 8 Prepare the rack for operation.
- 9 Use the tools and procedures described in the *Sun Fire X4800 Server Diagnostics Guide* to verify and test the operation and performance of new and replaced components.

See Also [“How to Prepare for Service” on page 51](#)

Removal and Installation Procedures

Chassis Components	Related Tasks and Topics
Power supplies	“Removing and Installing a Power Supply (CRU)” on page 54
Power supply designations	“Power Supply Designations” on page 54
AC power cables	“How to Remove and Install AC Power Cables” on page 59
Hard drive	“Removing and Installing a Hard Drive (CRU)” on page 60
Hard drive filler	“Removing and Installing a Hard Drive Filler” on page 65
Hard drive designations	“Hard Drive Designation” on page 60
Hard drive backplane	“Replacing the Hard Drive Backplane (FRU)” on page 67
Hard drive backplane cable routing	“Hard Drive Backplane Cable Routing and Designations” on page 69

CPU module (CMOD) and Internal Components	Related Tasks and Topics
CMOD	“Adding, Removing, and Installing a CMOD (CRU)” on page 71
CMOD filler	“Removing and Installing a CMOD Filler” on page 80
CMOD rules	“CPU Module (CMOD) Designation and Population Rules” on page 79
CMOD battery	“How to Replace the CMOD Battery (CRU)” on page 83
DIMMs	“Removing and Installing DIMMs (CRU)” on page 85
DIMM rules	“DIMM Population Rules” on page 89
RAID Expansion module (REM)	“Removing and Installing a RAID Expansion Module (CRU)” on page 92
Fabric Expansion module (FEM)	“Removing and Installing a Fabric Expansion Module (CRU)” on page 96

CPU module (CMOD) and Internal Components	Related Tasks and Topics
CPU and heatsink assembly	“Replacing a CPU and Heatsink Assembly (FRU)” on page 98
Subassembly Module Components	Related Tasks and Topics
Fan module (FM)	“Removing and Installing a Fan Module (CRU)” on page 104
FM designations	“Fan Module Designations” on page 104
Fan module Controller Board (FB)	“Replacing a Fan Module Controller Board (FRU)” on page 108
FB designations	“Fan Module Controller Board (FB) Designations” on page 108
Network Express module (NEM)	“Removing and Installing a NEM or a NEM Filler (CRU)” on page 111
NEM designations and assignments	“Network Express Module Designations and Assignments” on page 111
PCIe EM	“Removing and Installing a PCIe EM (CRU)” on page 116
PCIe EM designation and population rules	“PCIe EM Designations and Population Rules” on page 116
Service Processor (SP) Module	“Removing and Installing the Service Processor Module (CRU)” on page 120
Multi port cable	“Removing and Installing the Multi port Cable” on page 123
Subassembly module (SAM)	“Removing and Installing the Subassembly Module (FRU)” on page 125

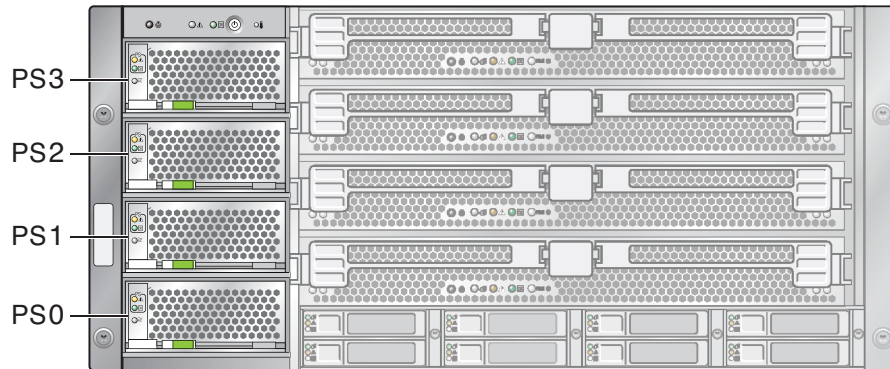
Removing and Installing a Power Supply (CRU)

This section contains topics and tasks related to the removal and installation of power supplies:

- [“Power Supply Designations” on page 54](#)
- [“How to Remove a Power Supply” on page 55](#)
- [“How to Install a Power Supply” on page 57](#)
- [“How to Remove and Install AC Power Cables” on page 59](#)

Power Supply Designations

The server contains four power supplies (PS0–PS3). The power supplies are designated PS0–PS3, with PS0 residing in the bottom slot and PS3 residing in the top slot.



See also:

- [“Power Supply Overview” on page 20](#)
- [“AC Power Block Overview” on page 37](#)

▼ How to Remove a Power Supply

Power supplies are hot-swap capable. That is, the server does not need to be powered off to remove or replace a power supply. However, the two power supply configuration is the minimum configuration for the server (not recommended). The server *cannot* operate on one power supply.

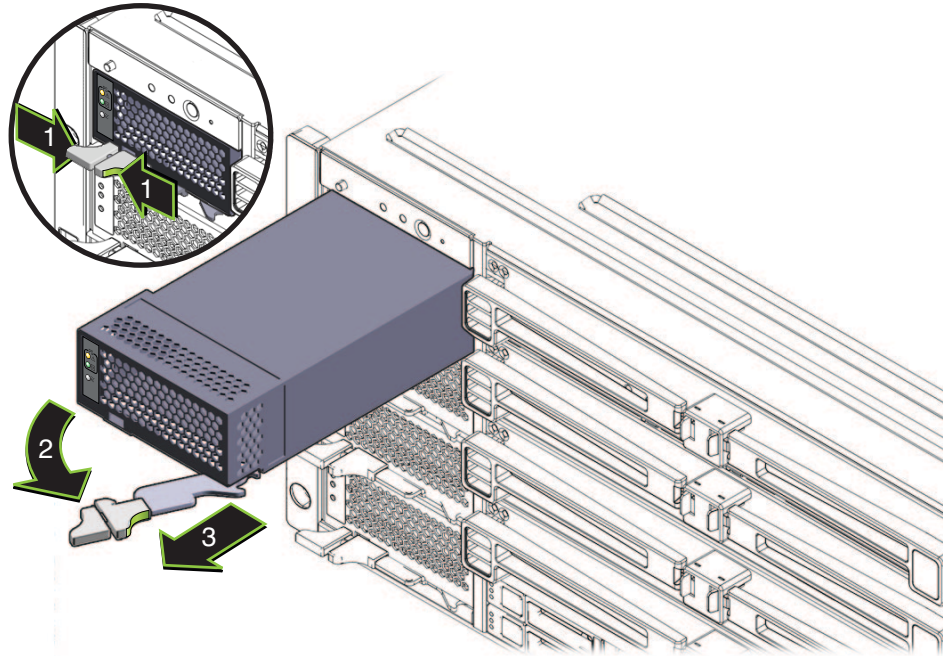
- Before You Begin**
- [“Sun Fire X4800 Server Chassis Overview” on page 10](#)
 - [“Power Supply Overview” on page 20](#)
 - [“Power Supply Designations” on page 54](#)

- 1 Prepare the server for service. See [“How to Prepare for Service” on page 51](#).
- 2 Locate the power supply that you need to remove.

If the power supply is in a fault state, the amber Service Action Required LED is on.

3 To unlock the power supply, firmly squeeze the end of the release handle.

The power supply release handle is located at the bottom of the power supply. The handle clicks when the locking mechanism is released.



4 Pull the release handle out and to the right until the handle is fully extended.

This action removes the pawl from the locking slot.

5 Use the handle to pull the unit partially out of the slot.

Pull the unit out far enough to grab it with your hands.

6 Close the release handle by moving it to the left until it locks.

7 To remove the power supply, slowly slide it out of the slot with one hand while supporting it with the other hand.



Caution – Airflow and temperature-related issues. Power supply slots contain an air vane that lowers when a power supply is removed from its slot. This device maintains proper airflow and cooling within the server.

- See Also**
- “How to Install a Power Supply” on page 57
 - “Front Panel Power Supply LED’s” on page 143

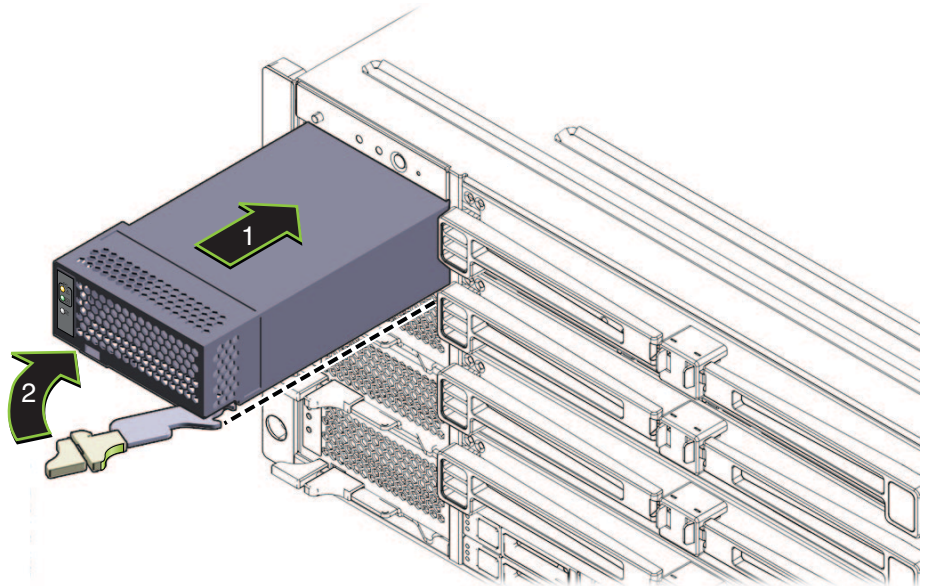
- “Sun Fire X4800 Server Chassis Overview” on page 10

▼ How to Install a Power Supply

- Before You Begin**
- “Sun Fire X4800 Server Chassis Overview” on page 10
 - “Power Supply Overview” on page 20
 - “Power Supply Designations” on page 54

- 1 Prepare the server for service. See “How to Prepare for Service” on page 51.
- 2 Ensure that the release handle on the power supply is in its fully open position.
The handle should extended away from the power supply.
- 3 Position the power supply at the opening with the LEDs to the left and the release handle at the bottom.

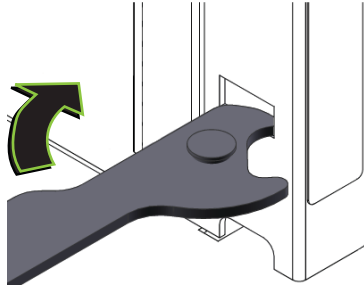
Correct positioning ensures that the connector on the power supply is aligned with the connector on the internal backplane of the server.



- 4 Slide the power supply into the opening until it stops.

Note – In this position, the power supply is *not* flush with the face of the server, and the connectors on the power supply are not engaged with the connectors on the internal midplane. Do *not* attempt to force the power supply into the server any farther.

- 5 **Ensure that the pawl on the end of the handle is aligned with the opening on the side of the power supply slot.**



- 6 **To engage and set the power supply connector with the connector on the internal backplane, push the end of the release handle to the left.**



Caution – Pinch point. When operating the lever, keep your fingers clear of the back side of the lever and the lever hinges.

This action draws the power supply into the slot and engages the connector on the power supply with the connectors on the internal backplane.

- 7 **Continue to push the release handle until the handle locks into place under the bottom edge of the power supply.**

This action produces a click when the lock engages. In this position, the power supply cannot be slid out of the server unless the release handle is unlocked and lifted first.

- 8 **If necessary, attach and lock the AC cable to the appropriate power supply slot (see [“How to Remove and Install AC Power Cables”](#) on page 59).**
- 9 **Prepare the server for operation. See [“How to Prepare for Operation”](#) on page 52.**

See Also

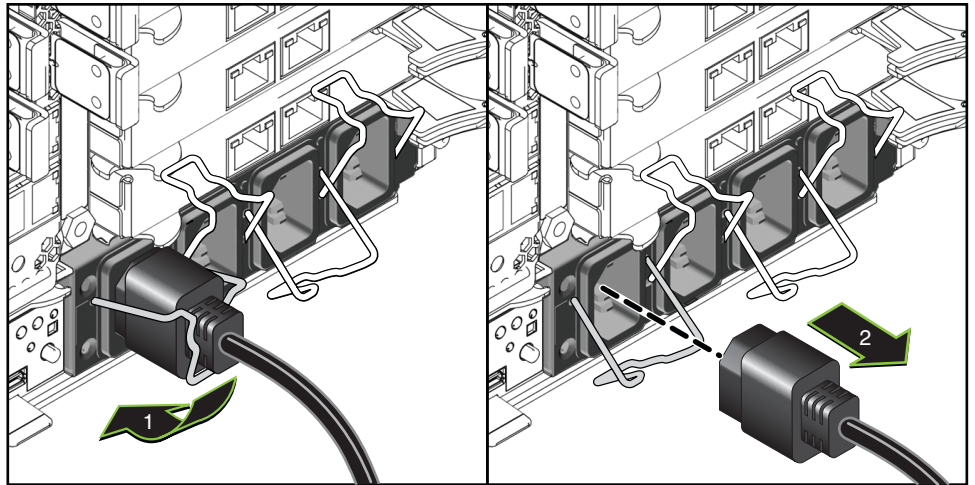
- [“How to Remove a Power Supply”](#) on page 55
- [“Front Panel Power Supply LED’s”](#) on page 143
- [“AC Power Block Overview”](#) on page 37

▼ How to Remove and Install AC Power Cables

Your Sun Fire X4800 server has an AC power block on the back panel. The block has four connectors. Each connector has a retaining clip to ensure that the AC connection is secure. Additionally, each power cable supplies power to a power supply slot. For more information, see [“AC Power Block Overview” on page 37](#).

1 To unlock an AC power cable, push down or lift the retaining clip.

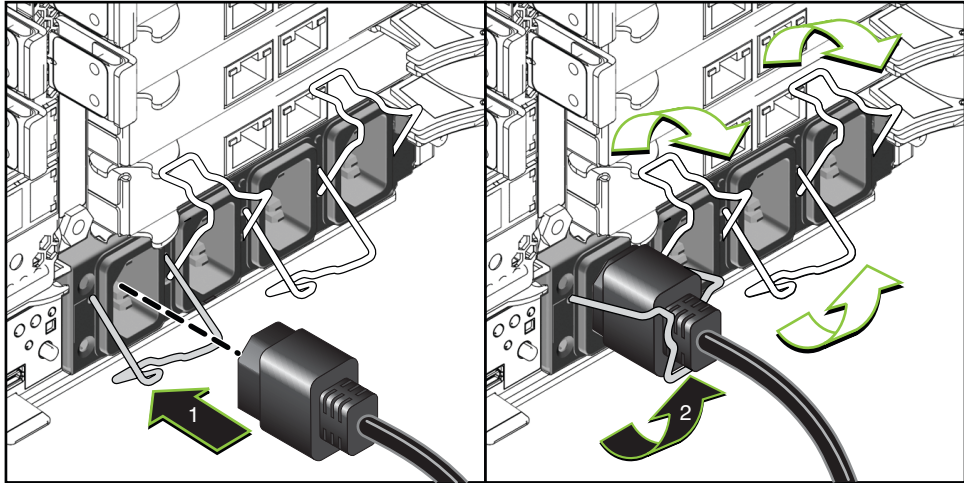
The arrangement of the clips alternates. To remove the first and third cables (counting from the left) push down on the clip. To remove the second and fourth cables lift up the clips.



2 To remove the cable, pull it out of the socket.

- 3 To install and secure an AC power cable, ensure that the retaining clip is in its open position, connect the AC cord to the AC power block, and engage the clip.

The arrangement of the clips alternates. To engage the first and third cables (counting from the left) firmly lift up on the clip. To engage the second and fourth cables firmly push down on the clip.



- See Also**
- “How to Remove a Power Supply” on page 55
 - “How to Install a Power Supply” on page 57

Removing and Installing a Hard Drive (CRU)

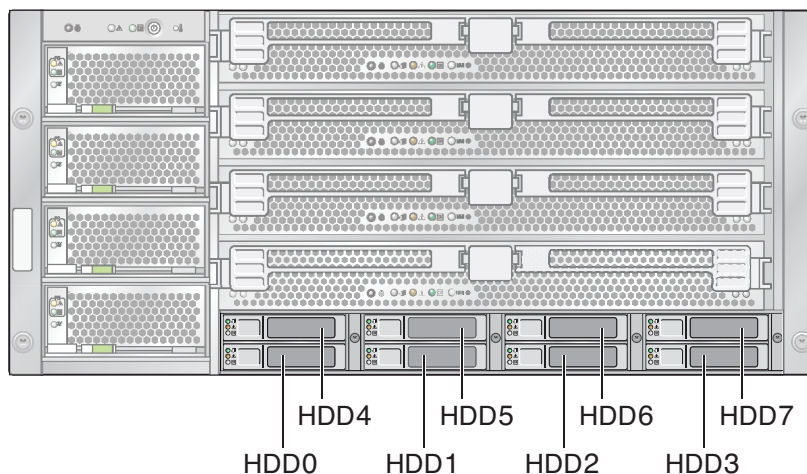
Note – The hard drives in the Sun Fire X4800 server are hot-swap components.

This section contains topics and tasks related to the removal and installation of hard drives:

- “Hard Drive Designation” on page 60
- “How to Remove a Hard Drive” on page 61
- “How to Install a Hard Drive” on page 63

Hard Drive Designation

The Sun Fire X4800 server can support up to eight hard drives. The hard drive slots are arranged along the lower front side of the server in two rows of four slots. The slots are labeled HDD 0 to HDD 7. The bottom row consists of slots HDD 0 to HDD 3. The top row consists of slots HDD 4 to HDD 7.



See also:

- [“How to Remove a Hard Drive”](#) on page 61
- [“How to Install a Hard Drive”](#) on page 63
- [“Drive Backplane Overview”](#) on page 23

▼ How to Remove a Hard Drive

Use this procedure to remove a hard drive (HD).

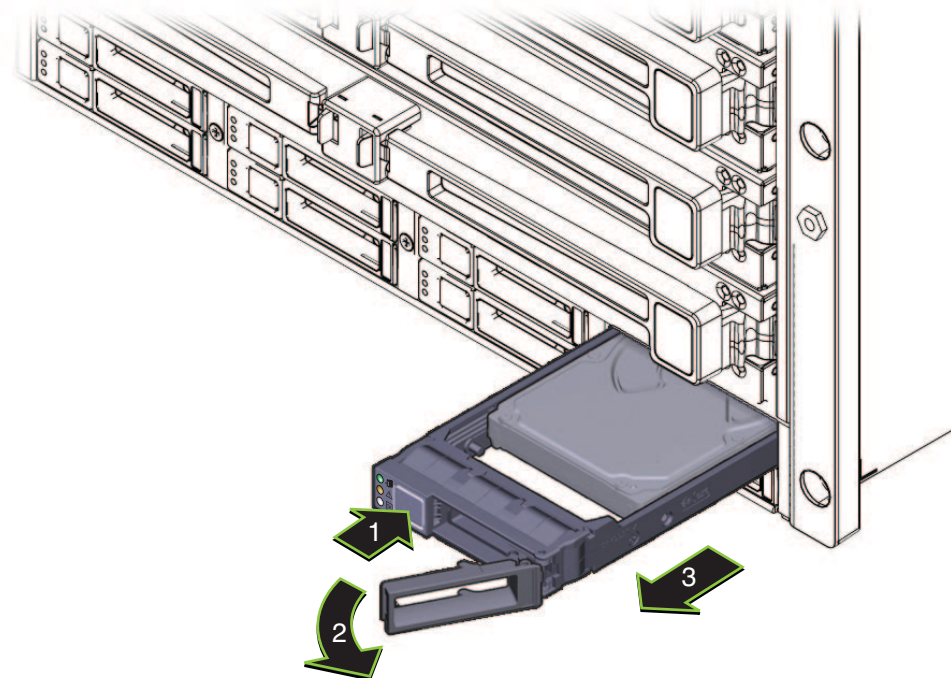
Note – The hard drives in the Sun Fire X4800 server are hot-swap components.



Caution – If you are removing more than one HD and not replacing the drives, label each HD to indicate its slot (see [“Hard Drive Designation”](#) on page 60). Drives *must* be installed in their original slot.

- 1 Prepare the server for service. See [“How to Prepare for Service”](#) on page 51.

- 2 To unlock the handle on the front of the hard drive assembly, push the handle release button. This action causes the handle to unlock and spring open.



- 3 To remove the hard drive, pull the drive out of the server using the handle.

Note – Do not remove the HD from the XL bracket assembly.



Caution – Airflow and temperature control–related issues. Do *not* leave a hard drive slot unoccupied. Hard drive slots *must* contain either a drive or a HD filler.

- 4 If you are replacing the hard drive, see [“How to Install a Hard Drive”](#) on page 63.
For information about how to install a HD filler, see [“How to Install a Hard Drive Filler”](#) on page 66.
- 5 Prepare the server for operation. See [“How to Prepare for Operation”](#) on page 52.

See Also

- [“Hard Drive and XL Bracket Assembly Overview”](#) on page 22
- [“Hard Drive Designation”](#) on page 60

▼ How to Install a Hard Drive

Use this procedure to install a hard drive (HD).

Note – The hard drives in the Sun Fire X4800 server are hot-swap components.



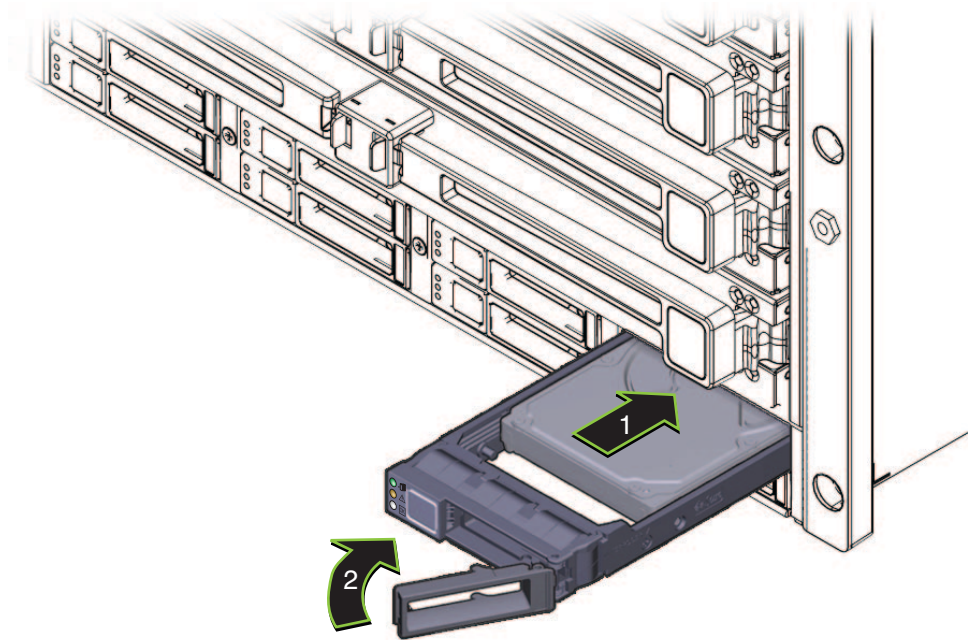
Caution – If you are removing more than one HD and not replacing the drives, label each HD to indicate its slot (see [“Hard Drive Designation” on page 60](#)). Drives *must* be installed in their original slots.

Before You Begin

- [“Hard Drive Designation” on page 60](#).
- [“Hard Drive and XL Bracket Assembly Overview” on page 22](#)

- 1 Prepare the server for service. See [“How to Prepare for Service” on page 51](#).
- 2 For information about how to remove a hard drive or an HD filler carrier, see [“How to Remove a Hard Drive” on page 61](#) or [“How to Remove a Hard Drive Filler” on page 65](#).

- 3 Press the lever release button on the front of the hard drive carrier and extend the lever to its fully open position.



- 4 Slide the hard drive carrier assembly into the slot until it stops. Do not push the drive into the slot any farther.
- 5 Align the pawl on the lever with the opening in the side wall of the slot.
- 6 To install the hard drive, close the lever until it locks and is flush with the front of the carrier.
This action pushes the hard drive carrier assembly into the slot and engages the connector on the hard drive with the connector on the hard drive backplane.
- 7 Prepare the server for operation. See [“How to Prepare for Operation” on page 52.](#)

- See Also**
- [“Hard Drive and XL Bracket Assembly Overview” on page 22](#)
 - [“Front Panel Power Supply LED’s” on page 143](#)

Removing and Installing a Hard Drive Filler

- [“How to Remove a Hard Drive Filler” on page 65](#)
- [“How to Install a Hard Drive Filler” on page 66](#)

▼ How to Remove a Hard Drive Filler

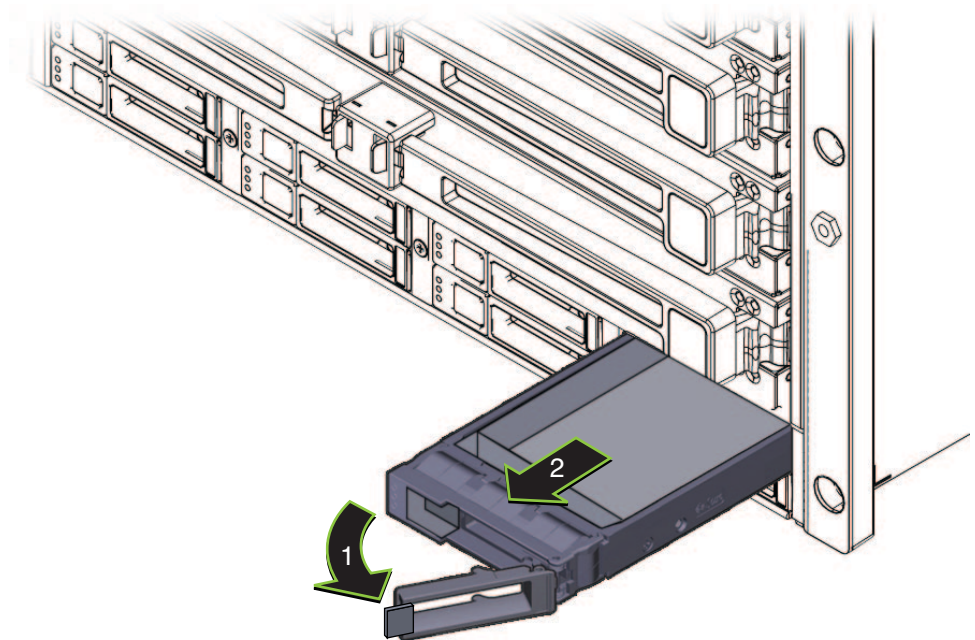
Use this procedure to remove a hard drive (HD) filler.



Caution – Air flow and temperature control–related issues . Do *not* leave a hard drive slot unoccupied. Hard drive slots *must* contain either a drive or a HD filler.

The HD filler is designed specifically to occupy empty drive slots for the purpose of maintaining server cooling. It does not contain electronics, and it is not a hard drive carrier.

- 1 Prepare the server for service. See [“How to Prepare for Service” on page 51](#).
- 2 To unlock the spring-loaded handle, lift the locking latch.



- 3 To remove the HD filler, extend the handle to its open position and pull the filler out of the slot.



Caution – Possible component damage. The handle does not extend to a 90-degree angle. Do not extend the handle beyond its limitation.

Drive slots *must* contain either a hard drive (HD) or an HD filler.

- Next Steps**
- [“How to Install a Hard Drive” on page 63](#)
 - [“How to Install a Hard Drive Filler” on page 66](#)

▼ How to Install a Hard Drive Filler

Use this procedure to install a hard drive (HD) filler.



Caution – Airflow and temperature control–related issues. Do *not* leave a hard drive slot unoccupied. Hard drive slots *must* contain either a drive or an HD filler.

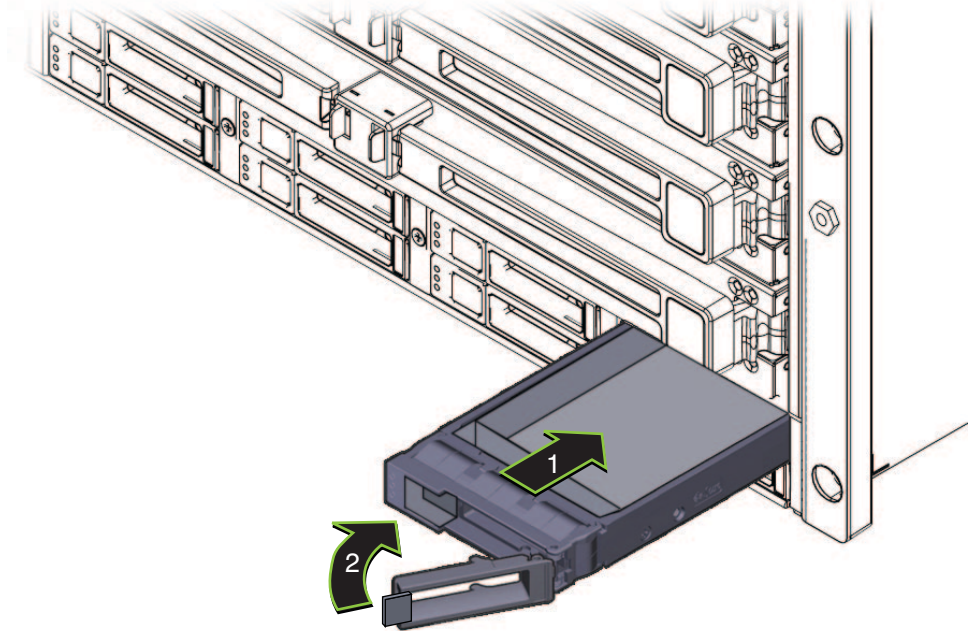
The HD filler is designed specifically to occupy empty drive slots for the purpose of maintaining server cooling. It does not contain electronics, and is not a hard drive carrier.

- 1 **Prepare the server for service.** See [“How to Prepare for Service” on page 51](#).
- 2 **If necessary, remove the HD occupying the slot.**
- 3 **To extend the HD filler spring-loaded handle, lift the locking latch.**



Caution – Possible component damage. The handle does not extend to a 90-degree angle. Do not extend the handle beyond its limitation.

- 4 To install the HD filler, slide it into the vacant slot until it is flush with the front of the server.



- 5 Close the spring-loaded handle.

Replacing the Hard Drive Backplane (FRU)

This section contains topics and tasks related to the removal and installation of the hard drive backplane:

- [“How to Remove the Hard Drive Backplane”](#) on page 67
- [“Hard Drive Backplane Cable Routing and Designations”](#) on page 69
- [“How to Install the Hard Drive Backplane”](#) on page 70

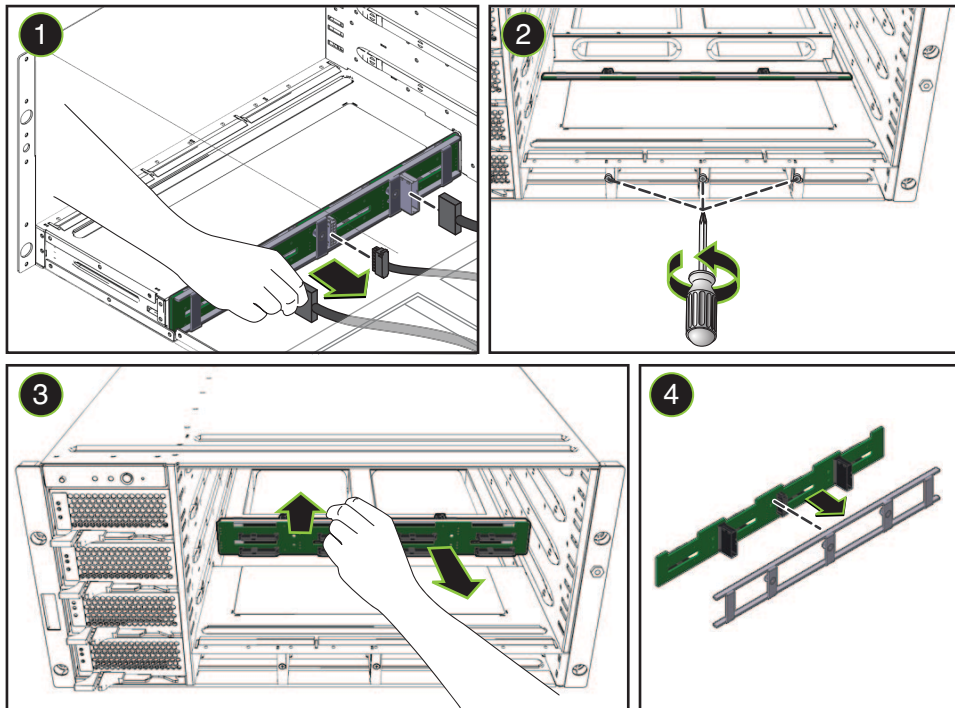
▼ How to Remove the Hard Drive Backplane

- Before You Begin**
- [“Sun Fire X4800 Server Chassis Overview”](#) on page 10
 - [“Drive Backplane Overview”](#) on page 23

- 1 Prepare the server for service. See [“How to Prepare for Service”](#) on page 51.

- 2 Disconnect the AC power cables from the AC power block. See [“How to Remove and Install AC Power Cables” on page 59](#).
- 3 Label and remove the CMODs and module fillers with their respective slot designation. See [“How to Remove a CPU Module \(CMOD\)” on page 72](#).
- 4 Label and remove the hard drives and any HD filler carriers. See [“How to Remove a Hard Drive” on page 61](#) or [“How to Install a Hard Drive Filler” on page 66](#).
- 5 To remove the three SAS connectors from the hard drive backplane, squeeze the connector lock clips and pull the connectors toward the back of the server (1).

As you face the server, the lock clips are on the left side of the connector. From left to right, the cables are labeled SAS 1, SAS Power, and SAS 0. The right most cable, SAS 0, is color coded.

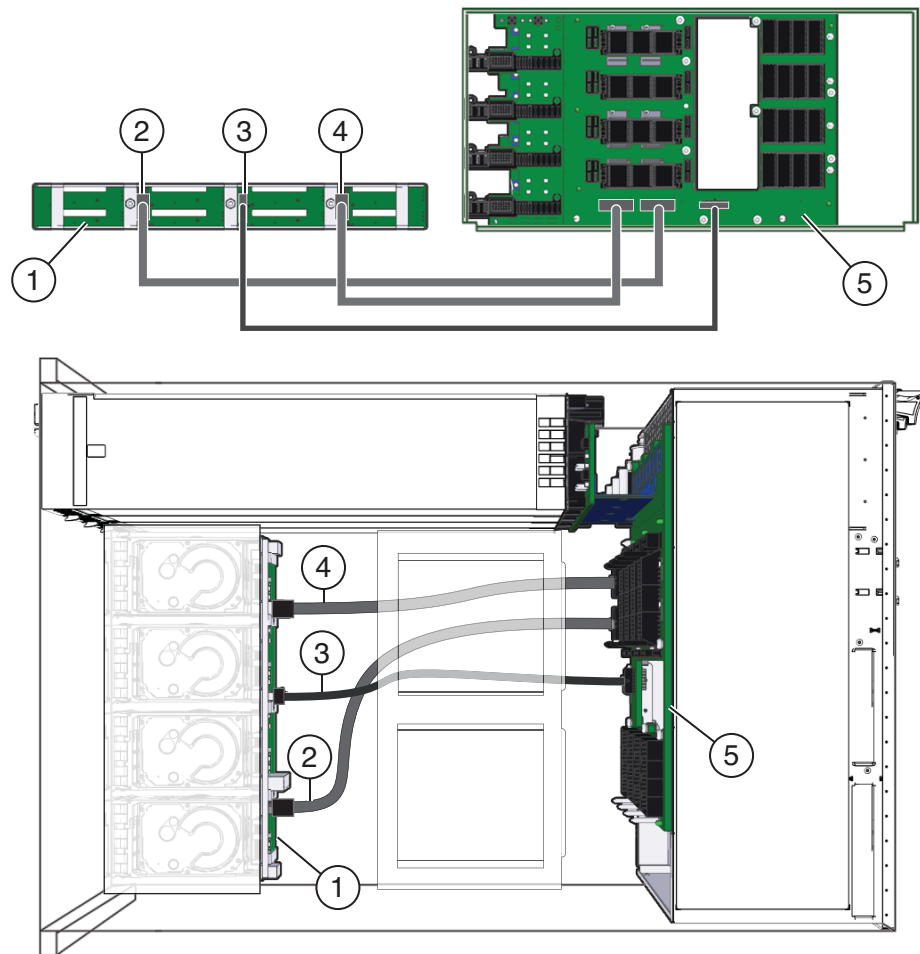


- 6 From the front of the machine, use a No. 1 Phillips screwdriver to loosen the three captive hard drive backplane retaining screws (2).
- 7 To remove the hard drive backplane and frame assembly from the server, slide it toward the back of the server, tilt the right side upward, and pull it out leading with the right edge (3).
- 8 Separate the HD backplane from the frame (4).

Next Steps [“How to Install the Hard Drive Backplane” on page 70](#)

See Also [“Hard Drive Backplane Cable Routing and Designations” on page 69](#)

Hard Drive Backplane Cable Routing and Designations



Legend

1	Hard drive backplane and frame assembly	2	SAS 0
---	---	---	-------

Legend

3 SAS power

4 SAS 1

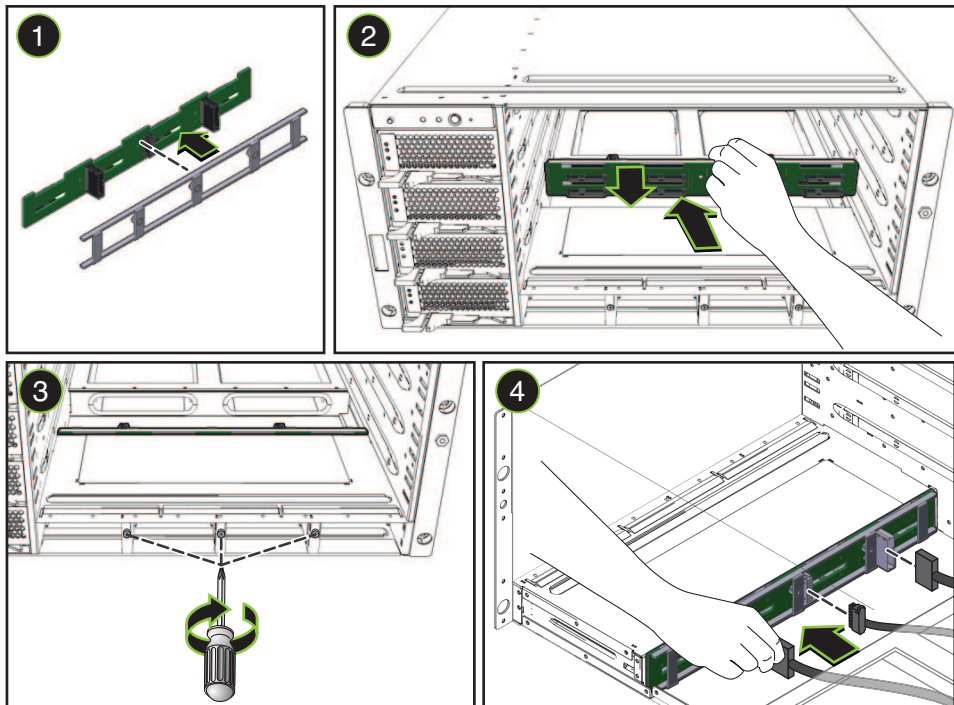
5 Midplane

▼ How to Install the Hard Drive Backplane

Before You Begin

- “Sun Fire X4800 Server Chassis Overview” on page 10
- “Drive Backplane Overview” on page 23

- 1 Prepare the server for service. See “How to Prepare for Service” on page 51.
- 2 Remove the hard drive backplane. See “How to Remove the Hard Drive Backplane” on page 67.
- 3 Join together the backplane and the frame (1).



- 4 Orient the hard drive backplane assembly with the connectors on the backplane facing toward the back of the server.
- 5 Insert the hard drive backplane into the server and position it against the back wall of the drive bay (2).
- 6 Hold the hard drive backplane assembly flat against the back wall of the drive bay and align the screw holes in the assembly with the captive screws.
For ease of installation, align the center screw first.
- 7 From the front of the server, use a No. 1 Phillips screwdriver to tighten the three captive screws and secure the hard drive backplane assembly (3).
- 8 Connect the SAS cables and the one SAS power cable to the hard drive backplane (4).
See [“Hard Drive Backplane Cable Routing and Designations”](#) on page 69 for cable routing and designations.
- 9 Install the hard drives into their original slots. See [“How to Install a Hard Drive”](#) on page 63.
- 10 Install the CMODs and filler modules into their original slots. See [“How to Install a CPU Module \(CMOD\)”](#) on page 76.
- 11 Install the AC power cables. See [“How to Remove and Install AC Power Cables”](#) on page 59.
- 12 Prepare the server for operation. See [“How to Prepare for Operation”](#) on page 52.

Adding, Removing, and Installing a CMOD (CRU)

This section contains topics and tasks related to the removal and installation of CPU modules (CMODs):

- [“How to Add a CPU Module \(CMOD\) to the Server Using the Upgrade Kit”](#) on page 71
- [“How to Remove a CPU Module \(CMOD\)”](#) on page 72
- [“How to Remove the CPU Module \(CMOD\) Cover”](#) on page 74
- [“How to Install the CPU Module \(CMOD\) Cover”](#) on page 75
- [“How to Install a CPU Module \(CMOD\)”](#) on page 76

▼ How to Add a CPU Module (CMOD) to the Server Using the Upgrade Kit

Use this procedure to change the configuration of your server using the CPU module upgrade kit.

- Before You Begin**
- For firmware compatibility issues, see “[SP Module and CMOD Firmware Compatibility Considerations](#)” on page 137.
 - For CMOD designation and population rules, see “[CPU Module \(CMOD\) Designation and Population Rules](#)” on page 79.

- 1 Prepare the server for service. See “[How to Prepare for Service](#)” on page 51.
- 2 Place the server in standby power mode. See “[Power Modes](#)” on page 41.
- 3 Remove the filler module from the slot. See “[How to Remove a CMOD Filler](#)” on page 81.
- 4 Install the CMOD into the slot. See “[How to Install a CPU Module \(CMOD\)](#)” on page 76.
- 5 Prepare the server for operation. See “[How to Prepare for Operation](#)” on page 52.
- 6 Boot to the BIOS Setup Utility and configure the server for the new CMOD.

See Also “[SP Module and CMOD Firmware Compatibility Considerations](#)” on page 137.

▼ How to Remove a CPU Module (CMOD)



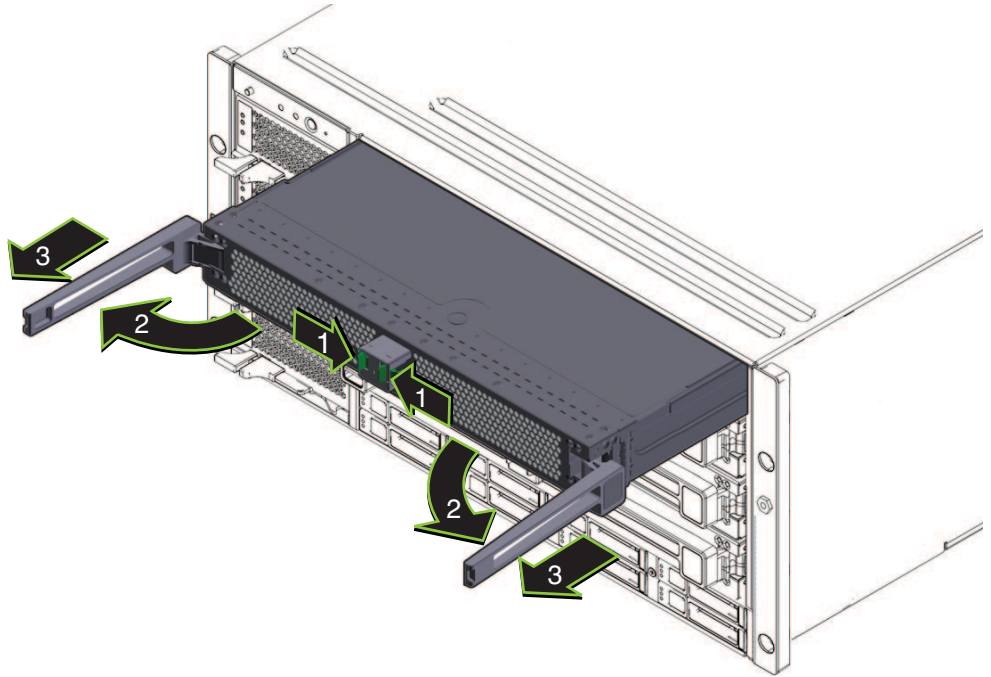
Caution – Airflow and temperature-related issues. For proper airflow and cooling, all CMOD slots *must* contain either a CMOD or a filler module. Do *not* operate the server with unoccupied CMOD slots.



Caution – The CMOD is *not* a hot-swap component. Power off the system before removing.

- Before You Begin**
- See the “[Sun Fire X4800 Server CPU Module \(CMOD\) and Filler Module Overview](#)” on page 12.
 - If you are replacing or removing a CMOD, you need a replacement module or a filler module.
- 1 Prepare for service. See “[How to Prepare for Service](#)” on page 51.

- 2 To unlock the CMOD, squeeze together the green tabs between the lever handles.
This action produces a click sound and releases the handles.



- 3 To disengage the CMOD, simultaneously rotate both levers outward away from the center of the module. Do *not* attempt to remove the CMOD now.
Rotating the levers outward causes the pawls on the end of the levers to engage the sidewall of the chassis and pull the CMOD out of its internal connector.
- 4 Use the handles to pull the CMOD *partially* out of its slot.
Pull the CMOD out so that approximately 6 inches extends from the front of the chassis.
- 5 Rotate the levers inward until they are closed and locked.



Caution – Potential physical harm or component damage. Because of the length and weight of the CMOD, one or more people should assist in the removal of the CMOD at this point.

- 6 To remove the CMOD, have an assistant support the CMOD as you grab it with your hands and slowly pull it out the slot.



Caution – Potential overheat condition. Unoccupied module slots disrupt air flow and temperature control within the server. Do not operate the server with empty CMOD slots.

- 7 If you are powering on the server, install a CMOD filler (or a replacement CMOD) in the slot. See [“How to Install a CMOD Filler” on page 82.](#)

- See Also**
- [“How to Verify CPLD Versions” on page 78](#)
 - [“CPU Module \(CMOD\) Designation and Population Rules” on page 79](#)
 - [“How to Remove the CPU Module \(CMOD\) Cover” on page 74](#)

▼ How to Remove the CPU Module (CMOD) Cover

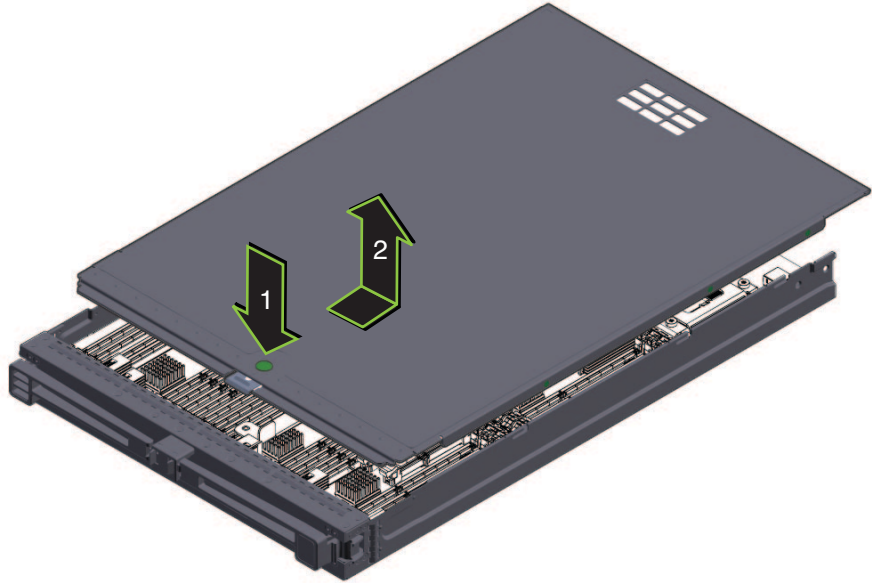


Caution – Component damage due to static electricity. Electronic components are extremely sensitive to static electricity. Ordinary amounts of static electricity from clothing or the work environment can destroy the components. Do not touch the components without antistatic precautions, especially along the connector edges. See [“Antistatic Precautions and Procedures” on page 50.](#)

Before You Begin [“Sun Fire X4800 Server CPU Module \(CMOD\) and Filler Module Overview” on page 12](#)

- 1 Remove the CMOD. See [“How to Remove a CPU Module \(CMOD\)” on page 72.](#)

- 2 Press the cover release button on the top of the cover.



- 3 Slide the cover toward the back of the CMOD until it stops (approximately 0.5 inch).
- 4 To remove, lift the cover straight up.

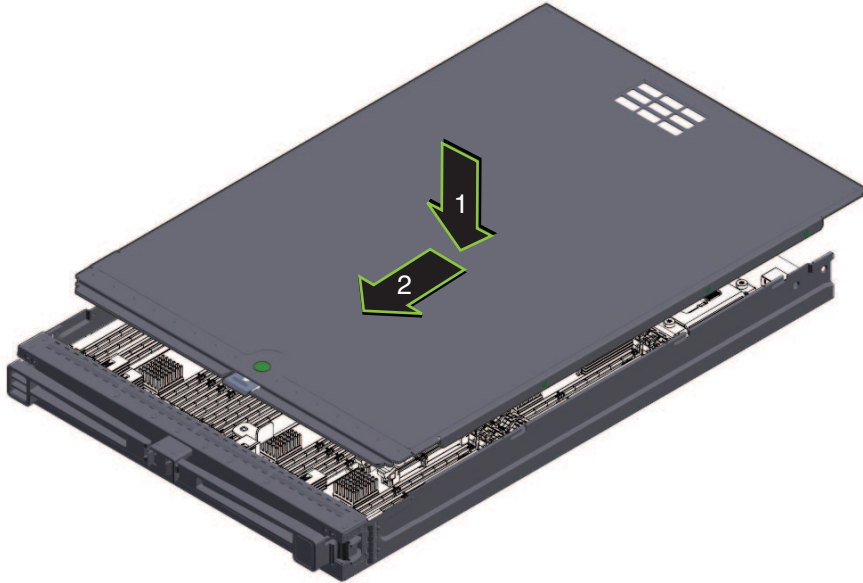
See Also [“How to Install the CPU Module \(CMOD\) Cover” on page 75](#)

▼ How to Install the CPU Module (CMOD) Cover

Before You Begin [“Sun Fire X4800 Server CPU Module \(CMOD\) and Filler Module Overview” on page 12](#)

- 1 **Set the cover on top of the CMOD with the cover release button toward the front of the module and with approximately 0.5 inch of the cover overhanging the rear of the module.**

This leaves a gap of approximately 0.5 inch between lead edge of the cover and front top edge of the CMOD chassis. The cover should sit evenly on top of the module.



- 2 **Slide the cover toward the front of the module until it stops, taking care that the lead edge of the cover slides under the front top edge of the CMOD.**

When the cover is properly installed, this action produces a click sound as the cover latch engages and locks the cover.

- 3 **Ensure that the cover is locked in place.**

The cover should not move unless the release button is pressed.

See Also [“How to Remove the CPU Module \(CMOD\) Cover” on page 74](#)

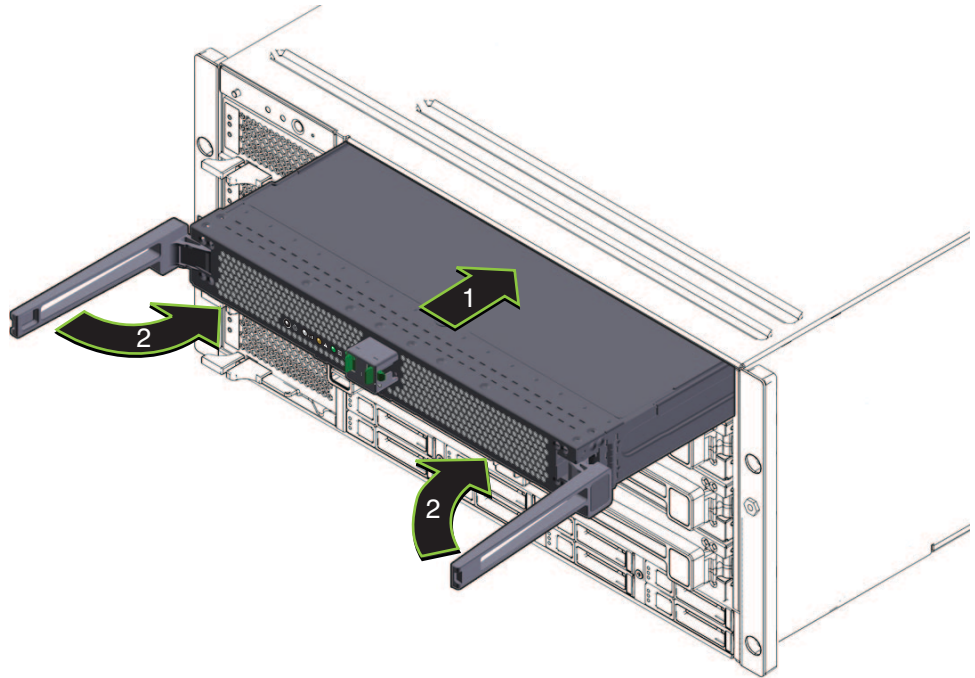
▼ **How to Install a CPU Module (CMOD)**

Before You Begin [“Sun Fire X4800 Server CPU Module \(CMOD\) and Filler Module Overview” on page 12](#)

- 1 **Locate the module slot that you need to populate.**

For slot designations and population rules, see [“CPU Module \(CMOD\) Designation and Population Rules” on page 79](#).

- 2 If necessary, remove the filler or CMOD that occupies the slot. See [“How to Remove a CMOD Filler” on page 81](#) or [“How to Remove a CPU Module \(CMOD\)” on page 72](#).
- 3 Open the CMOD levers to the fully open position by squeezing together the green locking tabs on the lever handles and rotating both handles outward, away from the center of the module.
The levers do not extend beyond 90 degrees.
- 4 Orient the CMOD so that the cover faces upward.
- 5 Carefully slide the module into the chassis until it stops.
Do not force the module into the chassis in an attempt to engage the connectors on the chassis midplane.



- 6 Ensure that the pawl on the end of each lever is aligned with the rectangular slot in the chassis sidewall.
- 7 To latch and lock the CMOD, simultaneously rotate and push both levers inward toward the center of the module until the locks on the handles click into place.



Caution – Pinch point. Keep your fingers clear of the back side of the lever, the lever hinges, and the edges of the module.

This action pushes the module into the chassis and engages the connector on the back of the module with the connector on the interior midplane. When the handles are locked, you cannot lift the levers without first releasing the locks on the handles.

- 8 To latch and lock a filler module, keep your fingers clear of the back side of the handle and push the lever inward and to the left until the lock clicks into place.**



Caution – Pinch point. When operating the lever keep your fingers clear of the back side of the lever, the lever hinges, and the edges of the module.

This action pushes the filler module into the chassis. When the handle is locked, you cannot lift the levers without first releasing the lock on the handle.

- See Also**
- [“How to Verify CPLD Versions” on page 78](#)
 - [“How to Remove a CPU Module \(CMOD\)” on page 72](#)
 - [“How to Add a CPU Module \(CMOD\) to the Server Using the Upgrade Kit” on page 71](#)

▼ How to Verify CPLD Versions

All CMODs must have identical CPLD levels. After installing a CMOD, you must verify the CPLD levels for all CMODs in the chassis.

Before You Begin All CMODs in the chassis must be installed, and the chassis must be in standby power mode. The green LED on all CMODs must be steady ON.

For more on standby power, see [“Power Modes” on page 41](#).

- 1 Logon to the ILOM.**
- 2 Enter the following command for each node in the chassis:**

```
show /SYS/BLn/CPLD
```

where *n* is the node number.
- 3 Verify that all nodes return the same value.**

If all nodes do not return the same value, contact Oracle service.

- See Also**
- [“Power Modes” on page 41](#)

- “CPU Module (CMOD) LEDs” on page 142

CPU Module (CMOD) Designation and Population Rules

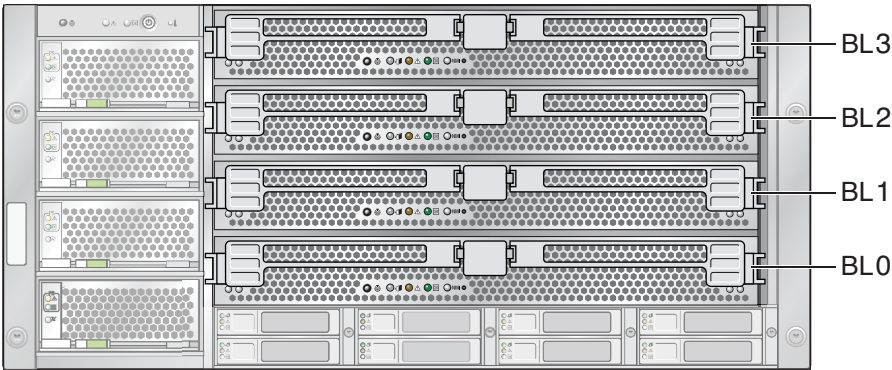
- “CPU Module (CMOD) Designations” on page 79
- “CPU Module (CMOD) Population Rules” on page 80

CPU Module (CMOD) Designations

On the front of the server chassis and within the ILOM interfaces (web and command-line), the CMODs are designated as BL 0–BL 3.

Chassis and ILOM Designation	
CMOD 3	BL 3
CMOD 2	BL 2
CMOD 1	BL 1
CMOD 0	BL 0

On the front of the server chassis, the bottommost slot is CMOD 0, designated as BL 0.



See also:

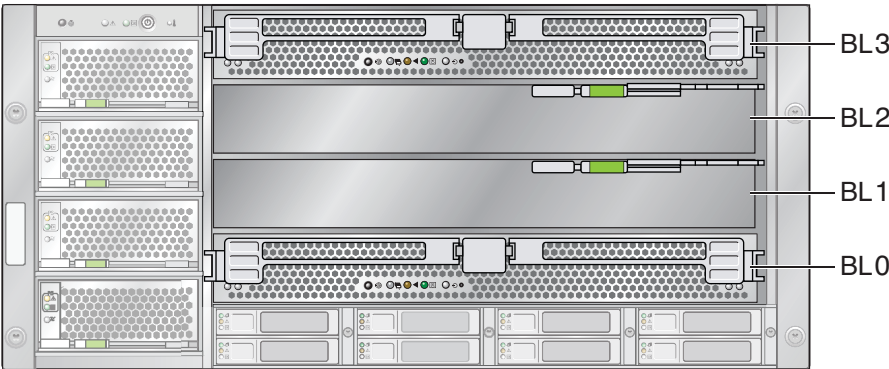
- “Sun Fire X4800 Server CPU Module (CMOD) and Filler Module Overview” on page 12.
- “Adding, Removing, and Installing a CMOD (CRU)” on page 71

CPU Module (CMOD) Population Rules

- The Sun Fire X4800 server supports two configurations, minimum and fully populated.
- For all configurations a CMOD *must* be installed slot 0.
- A slot must contain either a CMOD or a filler module.

Configuration	Component Population
Minimum	<ul style="list-style-type: none">■ CMODs in BL 0 and BL 3■ Filler modules in BL1 and BL 2
Fully populated	All slots populated with CMODs

The following illustration shows a sever in a minimum configuration. Slots BL 1 and BL 2 are occupied with CMOD fillers.



See also:

- [“Sun Fire X4800 Server CPU Module \(CMOD\) and Filler Module Overview” on page 12.](#)
- [“Adding, Removing, and Installing a CMOD \(CRU\)” on page 71](#)

Removing and Installing a CMOD Filler

This section contains topics and tasks related to the removal and installation of CMOD filler:

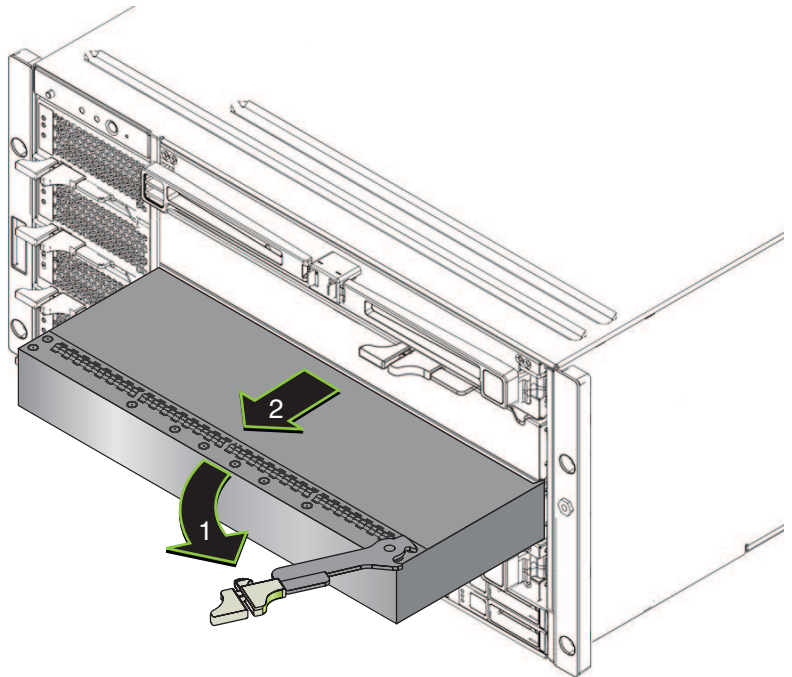
- [“How to Remove a CMOD Filler” on page 81](#)
- [“How to Install a CMOD Filler” on page 82](#)

▼ How to Remove a CMOD Filler



Caution – Airflow and temperature-related issues. For proper airflow and cooling, all CMOD slots *must* contain either a CMOD or a filler module. Do *not* operate the server with unoccupied CMOD slots.

- 1 Prepare the server for service. See [“How to Prepare for Service” on page 51](#).
- 2 To unlock the CMOD filler lever, squeeze the green tabs on the end of the lever.



- 3 Rotate the lever to the right to its fully open position.
The lever does not extend beyond 90 degrees. Rotating the lever to the right causes the pawl on the lever to engage the sidewall and release the filler.
- 4 To remove, use the handle to slide the filler out of the slot.

Next Steps

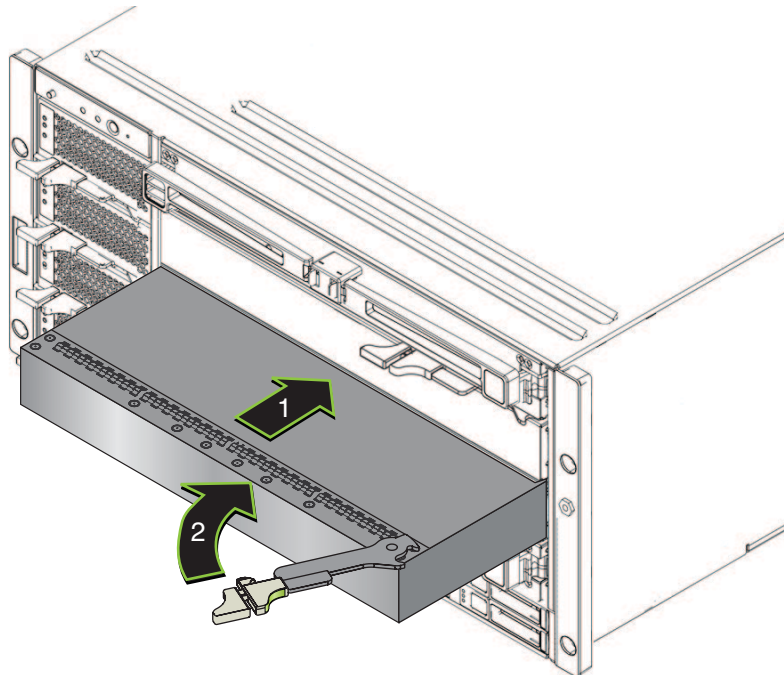
- [“How to Install a CPU Module \(CMOD\)” on page 76](#)
- [“How to Install a CMOD Filler” on page 82](#)

▼ How to Install a CMOD Filler



Caution – Airflow and temperature-related issues. For proper airflow and cooling, all CMOD slots *must* contain either a CMOD or a filler module. Do *not* operate the server with unoccupied CMOD slots.

- 1 Prepare the server for service. See [“How to Prepare for Service” on page 51](#).
- 2 If necessary, remove the CMOD. See [“How to Remove a CPU Module \(CMOD\)” on page 72](#).
- 3 To unlock the CMOD filler lever, squeeze the green-colored tabs on the end of the lever.
- 4 Rotate the lever to the right to its fully open position.
The lever does not extend beyond 90 degrees.
- 5 Position the filler in the slot with the lever to the right.
- 6 Slide the filler into the slot until it stops.
Do not push the filler beyond this point.



- 7 Ensure that the pawl on the lever is aligned with the slot in the CMOD sidewall.
- 8 To install the filler, rotate the lever to the left and firmly push it until it is flush with the front of the filler.



Caution – Pinch point. Keep hands and fingers clear of the back side of the lever.

Rotating the lever to the left causes the pawl to engage the sidewall . Push the filler into the slot until it is seated.

- 9 To lock the lever, push the lever until you hear the locking latch click.
- 10 Prepare the server for operation. See [“How to Prepare for Operation” on page 52.](#)

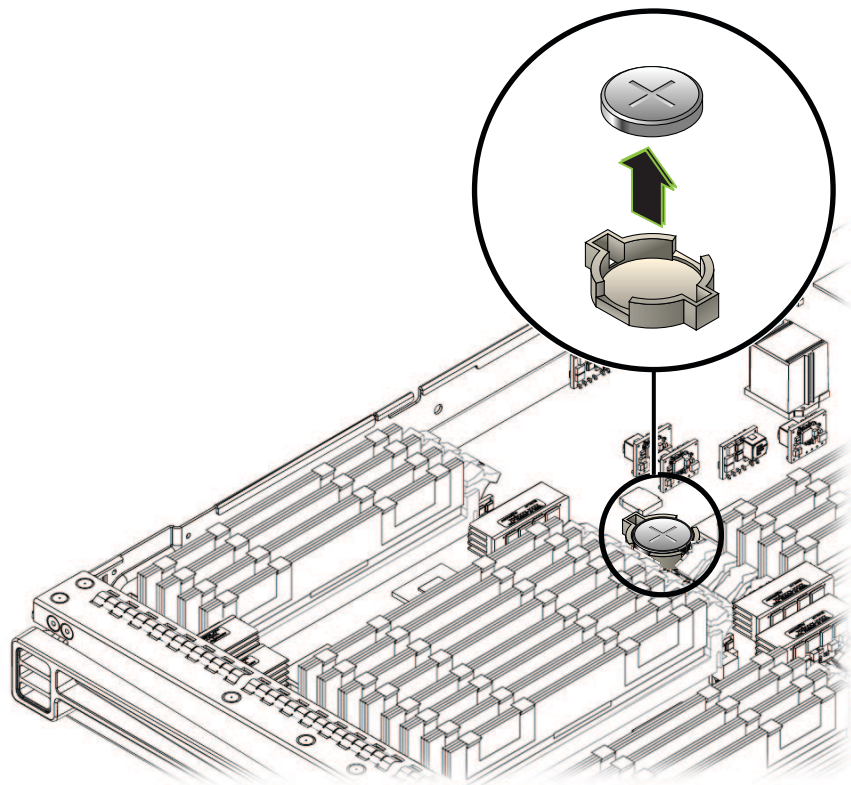
▼ How to Replace the CMOD Battery (CRU)

The battery (type CR2032) is located on the motherboard. If a RAID Expansion module (REM) is installed in the server, you must first remove it to access the battery.

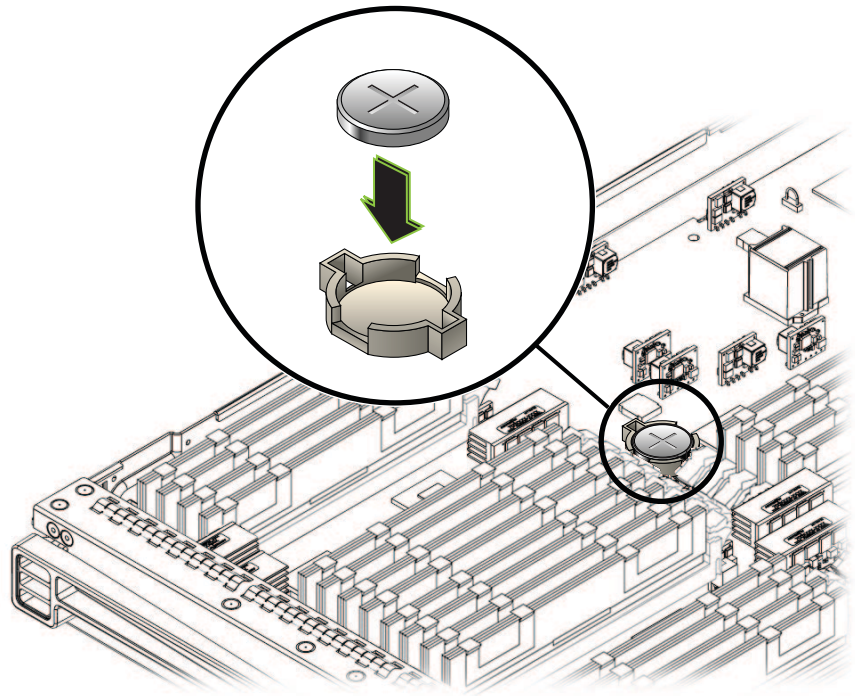
Before You Begin [“Sun Fire X4800 Server CPU Module \(CMOD\) and Filler Module Overview” on page 12](#)

- 1 Prepare the server for service. See [“How to Prepare for Service” on page 51.](#)
- 2 Remove the CMOD from the server. See [“How to Remove a CPU Module \(CMOD\)” on page 72.](#)
- 3 Set the CMOD on a flat antistatic surface with ample surrounding space and light.
- 4 Remove the CMOD cover. See [“How to Remove the CPU Module \(CMOD\) Cover” on page 74.](#)
- 5 If the CMOD has a REM card installed, you must remove it to access the battery. See [“How to Remove a RAID Expansion Module” on page 93.](#)
The REM card is supported for CMOD 0 (BL 0) only.
- 6 Pry the battery out of the battery socket and remove from the server.

Note – Dispose of or recycle the battery in accordance with your local regulations and facility procedures.



- 7 To install the new battery, place the battery on top of the battery socket with the positive terminal (+) side facing upward and carefully push the battery into the socket until it sits flat.



- 8 If necessary, install the REM card. See [“How to Install a RAID Expansion Module” on page 94.](#)
- 9 Install the cover. See [“How to Install the CPU Module \(CMOD\) Cover” on page 75.](#)
- 10 Install the CMOD into the server. See [“How to Install a CPU Module \(CMOD\)” on page 76.](#)
- 11 Place the server in standby power mode. See [“Power Modes” on page 41.](#)

Removing and Installing DIMMs (CRU)

For information about using the on-board fault LEDs to troubleshoot DIMMs, refer to the [Sun Fire X4800 Server Diagnostics Guide](#).

This section contains topics and tasks related to the removal and installation of DIMMs:

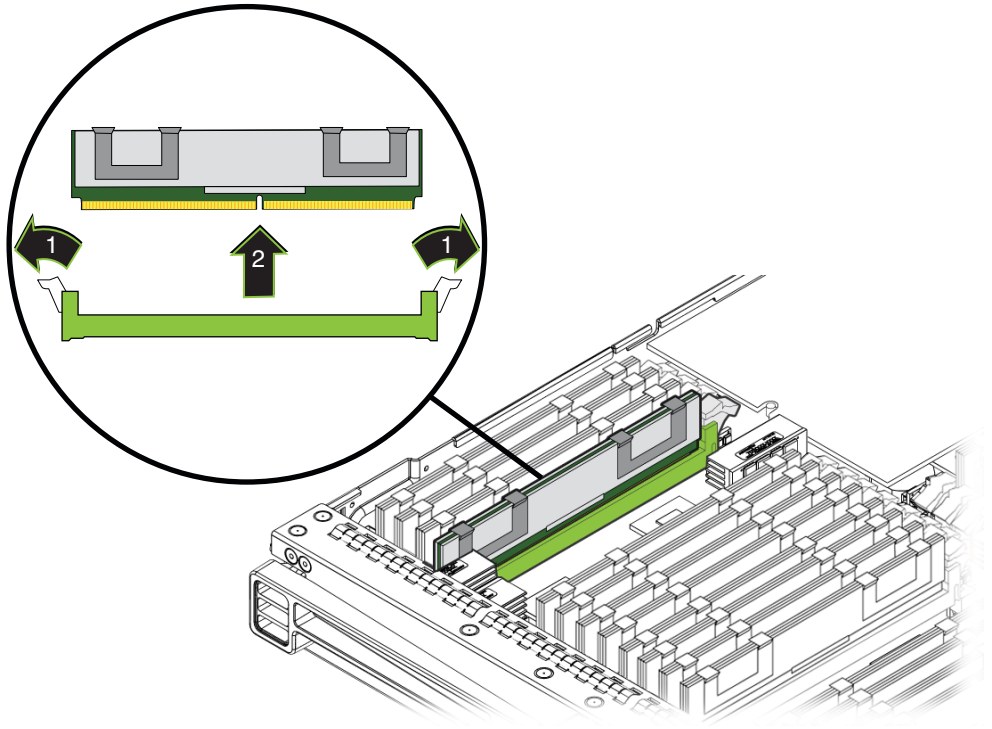
- [“How to Remove a DIMM” on page 86](#)
- [“How to Install a DIMM” on page 88](#)

▼ How to Remove a DIMM

- Before You Begin**
- For DIMM diagnostics, refer to “[Troubleshooting DIMM Problems](#)” in *Sun Fire X4800 Server Diagnostics Guide*.
 - “[DIMM Overview](#)” on page 25
 - “[Sun Fire X4800 Server CPU Module \(CMOD\) and Filler Module Overview](#)” on page 12
- 1 **Prepare the server for service.** See “[How to Prepare for Service](#)” on page 51.
 - 2 **Remove the CMOD from the server.** See “[How to Remove a CPU Module \(CMOD\)](#)” on page 72.
 - 3 **Set the module on a flat antistatic surface with ample surrounding space and light.**
 - 4 **Remove the CMOD cover.** See “[How to Remove the CPU Module \(CMOD\) Cover](#)” on page 74.
 - 5 **Press the DIMM Fault Remind button.**
This turns on the slot LEDs for the faulty DIMM.

- 6 To unlock the DIMM, *simultaneously* rotate the two release levers outward fully away from the DIMM.

This action unlocks and ejects the DIMM from the DIMM slot.



- 7 Remove the DIMM from the server.
- 8 If you are replacing the DIMM, see [“How to Install a DIMM” on page 88](#).
- 9 Install the CMOD top cover. See [“How to Install the CPU Module \(CMOD\) Cover” on page 75](#).
- 10 Insert the CMOD into the server. See [“How to Install a CPU Module \(CMOD\)” on page 76](#).
- 11 Prepare the server for operation. See [“How to Prepare for Operation” on page 52](#).

See Also

- [“How to Install a DIMM” on page 88](#)
- [“Maximum Memory Configurations” on page 92](#)

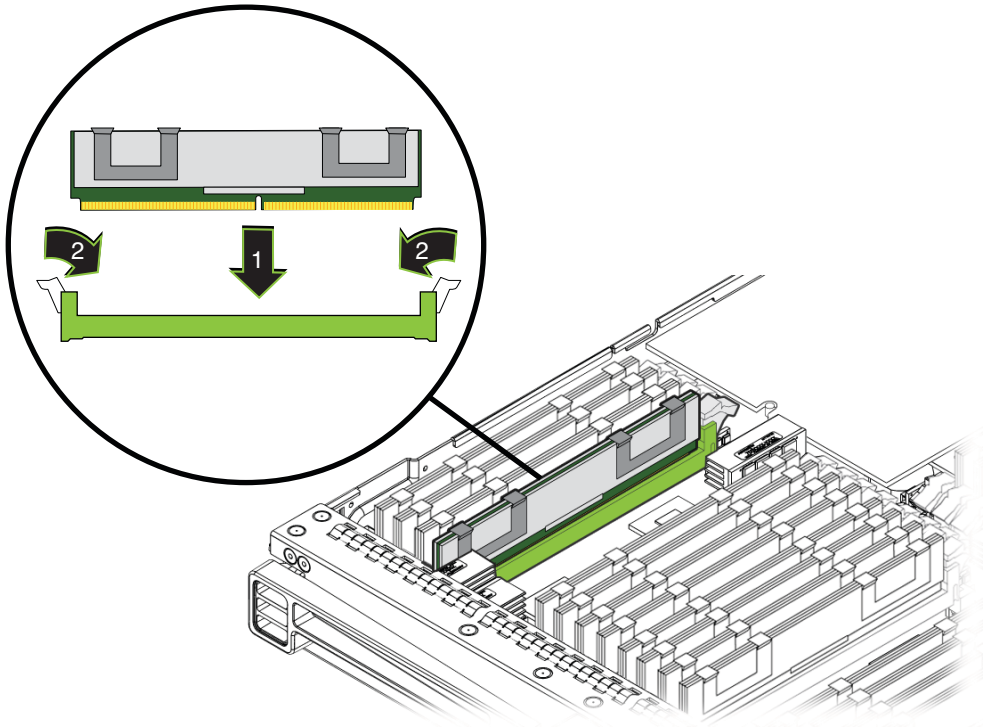
▼ How to Install a DIMM

Before You Begin

- “CPU Module (CMOD) Designation and Population Rules” on page 79.
- “DIMM Overview” on page 25
- “Sun Fire X4800 Server CPU Module (CMOD) and Filler Module Overview” on page 12

- 1 Prepare the server for service. See “How to Prepare for Service” on page 51.
- 2 Remove the CMOD from the server. See “How to Remove a CPU Module (CMOD)” on page 72.
- 3 Set the CMOD on a flat antistatic surface with ample surrounding space and light.
- 4 Remove the CMOD cover. See “How to Remove the CPU Module (CMOD) Cover” on page 74.
- 5 Ensure that the DIMM slot locking levers are in the fully open position.
- 6 Align the DIMM within the slot.

The DIMM is notched to accommodate the key (protrusion) in the slot. The key ensures correct DIMM installation. The DIMM can be correctly installed only one way.



- 7 To install the DIMM, *simultaneously* press down on both ends of the DIMM to push the it into the slot.

This action causes the DIMM locking levers to lift and lock into place on the DIMM.

- 8 Verify that the DIMM is properly installed and locked.

When properly locked in place, the DIMM cannot be removed.

- 9 Install the CMOD cover. See [“How to Install the CPU Module \(CMOD\) Cover” on page 75.](#)

- 10 Install the CMOD into the server. See [“How to Install a CPU Module \(CMOD\)” on page 76.](#)

- 11 Prepare the server for operation. See [“How to Prepare for Operation” on page 52.](#)

See Also [“How to Remove a DIMM” on page 86](#)

DIMM Population Rules

For additional information, including how to prepare the system for servicing, how to remove a CMOD, and how to remove or replace DIMMs, see [“Removing and Installing Components” on page 47.](#)

Each CMOD has 32 DIMM slots, with 16 allocated to each CPU. CMODs are shipped with configurations of 16 or 32 DIMMs, meaning that each CPU has either 8 or 16 DIMMs.

- On a CMOD with 16 DIMMs, you can replace DIMMs, and you can add additional DIMMs.
- On a CMOD with 32 DIMMs, you can replace DIMMs, but because they are fully populated, you cannot add DIMMs.

The rules for adding and replacing DIMMs are:

- When you replace DIMMs, you must match parameters.
- When you add DIMMs, you must match parameters and populate them in the specified order.

Matching Parameters

There are four parameters to consider when replacing DIMMs: size, speed, density, and manufacturer's model number.

- All of the DIMMs in the CMOD must be the same size and density.
- Both of the DIMMs in a pair must be the same size, speed, and density, and have the same manufacturer's model number. The pairs are 0/4, 1/5, 2/6, 3/7, 8/12, 9/13, 10/14, and 11/15.

The following table shows the requirements.

Parameter and Value	Match Within CMOD	Match Within Pairs
Size — 2Gb, 4Gb, or 8Gb	x	x
Speed — 1066 MHz JEDEC or DDR3 ECC RDIMMs		x
Density — Single or dual rank	x	x
Manufacturer's model number		x

DIMM Population Order

You can add DIMMs according to the following rules:

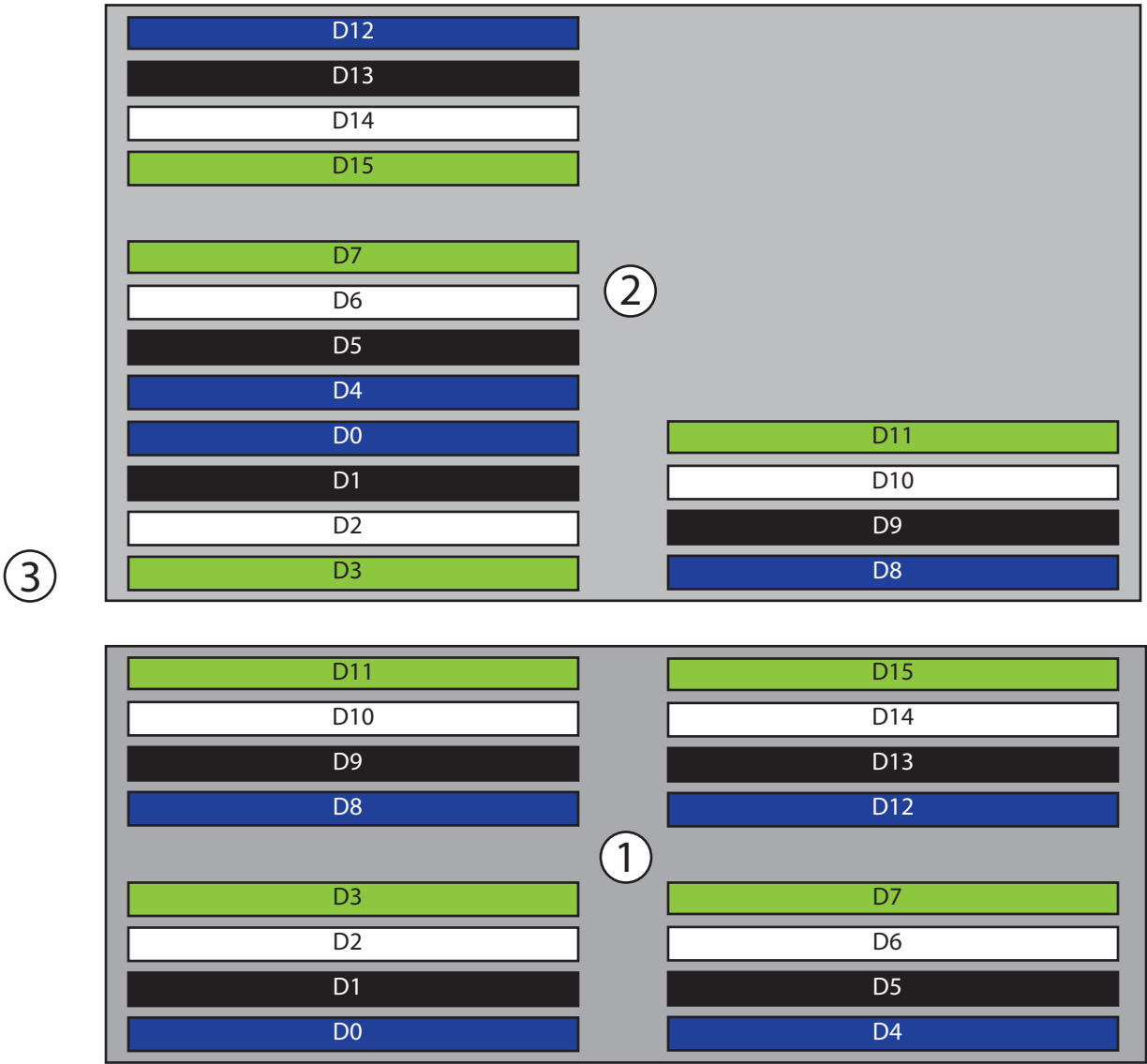
- You cannot add DIMMs to a 32–DIMM system because it is already fully populated.
- All DIMMs must have their parameters matched, as described above.
- Only four or eight DIMM upgrades are supported. As a result, all color blocks must be either full or empty.
- DIMMs must be populated in the correct order.

On a 16–DIMM CMOD, all the blue and white slots should already be populated.

When you add DIMMs, fill the black slots (D1/D5 and D10/14) first, and fill the green slots (D3/D7 and D11/D15) last

Order	Numbers	Slot Color	Minimum Configuration
1	D0/D4	Blue	These should be filled by default
2	D8/D12	Blue	
3	D2/D6	White	
4	D10/D14	White	
5	D1/D5	Black	Fill these first
6	D9/D13	Black	
7	D3/D7	Green	Fill these last
8	D11/D15	Green	

The following figure shows the location of the DIMMs on the CMOD.



Legend	Description
1	CPU 0
2	CPU 1
3	Towards the front of the CMOD

Maximum Memory Configurations

The following is a list of supported memory configurations.

- Fully populated configurations:
 - Fully populated 8-socket configuration:
 - Single-rank DIMMs: 512 GB (128 x 4 GB DIMMs)
 - Dual-rank DIMMs: 1024 GB (128 x 8 GB DIMMs)
 - Fully populated 4-socket configuration:
 - Single-rank DIMMs: 256 GB (64 x 4 GB DIMMs)
 - Dual-rank DIMMs: 512 GB (64 x 8 GB DIMMs)

See also:

- [“DIMM Overview” on page 25.](#)
- [“Removing and Installing DIMMs \(CRU\)” on page 85](#)

Unsupported DIMMs

The Sun Fire X4800 server does not support the following DIMMs:

- Unsupported memory configurations include MetaRAM, LR-DIMMs or UDIMMs; DDR3 speeds above 1066 MHz; DIMMs using 256 Mb, 512 Mb, or 4 Gb DRAM technologies; DIMMs using x16 DRAM devices; DDR3-800 MHz RDIMMs; and DDR3-978 MHz RDIMMs.

See also:

- [“DIMM Overview” on page 25.](#)
- [“Removing and Installing DIMMs \(CRU\)” on page 85](#)

Removing and Installing a RAID Expansion Module (CRU)

Note – The RAID Expansion module (REM) is supported only in CMOD 0 (BL 0).

This section contains topics and tasks related to the removal and installation of a RAID Expansion module (REM):

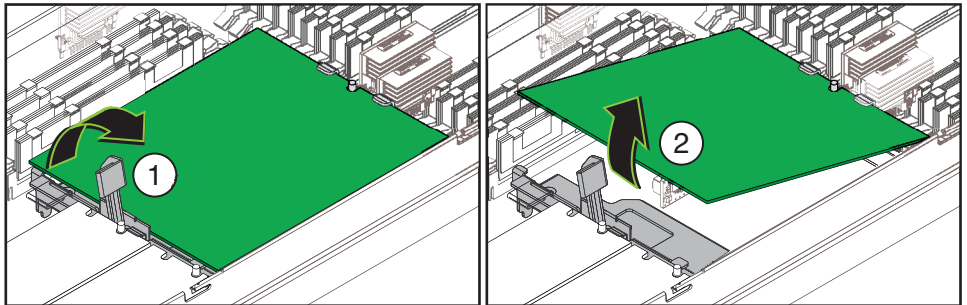
- [“How to Remove a RAID Expansion Module” on page 93](#)
- [“How to Install a RAID Expansion Module” on page 94](#)

▼ How to Remove a RAID Expansion Module

Note – The RAID Expansion module (REM) is supported only in CMOD 0 (BL 0).

Before You Begin [“RAID Expansion Module Overview” on page 26](#)

- 1 Prepare the server for service. See [“How to Prepare for Service” on page 51](#).
- 2 Remove the CMOD from the server. See [“How to Remove a CPU Module \(CMOD\)” on page 72](#).
- 3 Set the CMOD on a flat antistatic surface with ample surrounding space and light.
- 4 Remove the CMOD cover. See [“How to Remove the CPU Module \(CMOD\) Cover” on page 74](#).
- 5 Lift the REM ejector handle and rotate it to its fully open position.
This action ejects the REM from its connector on the motherboard.



- 6 Lift the connector end of the REM and pull the REM away from the retaining clip on the front support bracket.
- 7 If you are replacing the REM, see [“How to Install a RAID Expansion Module” on page 94](#).
- 8 Install the CMOD cover. See [“How to Install the CPU Module \(CMOD\) Cover” on page 75](#).
- 9 Install the CMOD in the server. See [“How to Install a CPU Module \(CMOD\)” on page 76](#).
- 10 Prepare the server for operation. See [“How to Prepare for Operation” on page 52](#).

See Also [“Sun Fire X4800 Server CPU Module \(CMOD\) and Filler Module Overview” on page 12](#)

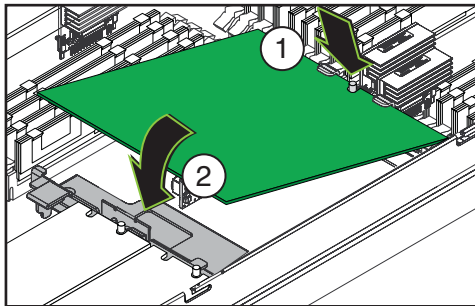
▼ How to Install a RAID Expansion Module

Note – The RAID Expansion module (REM) is supported only in CMOD 0 (BL 0).

Before You Begin

- “Sun Fire X4800 Server CPU Module (CMOD) and Filler Module Overview” on page 12
- “RAID Expansion Module Overview” on page 26

- 1 Prepare the server for service. See “How to Prepare for Service” on page 51.
- 2 Remove the CMOD from the server. See “How to Remove a CPU Module (CMOD)” on page 72.
- 3 Set the CMOD on a flat antistatic surface with ample surrounding space and light.
- 4 Remove the CMOD cover. See “How to Remove the CPU Module (CMOD) Cover” on page 74.
- 5 Remove the protective cap from the REM connector on the motherboard.
- 6 Remove the RAID Expansion module (REM) from its packaging.
- 7 Ensure that the REM ejector lever is in the closed position.
The lever should be flat with the REM support bracket.
- 8 Position the REM so that the battery is facing downward and the connector is aligned with the connector on the motherboard.



- 9 Slip the opposite end of the REM under the retaining clips on the front support bracket and ensure that the notch on the edge of the REM is positioned around the alignment post on the bracket.
- 10 Carefully lower and position the connector end of the REM until the REM contacts the connector on the motherboard.
- 11 Ensure that the connectors are aligned.

- 12 To seat the connector, carefully push the REM downward until it is in a level position.
- 13 Prepare the server for operation. See [“How to Prepare for Operation” on page 52.](#)

See Also [“How to Remove a RAID Expansion Module” on page 93](#)

▼ How to Replace the RAID Expansion Module Battery (CRU)

Before You Begin

- [“Sun Fire X4800 Server CPU Module \(CMOD\) and Filler Module Overview” on page 12](#)
- [“RAID Expansion Module Overview” on page 26](#)

- 1 Prepare the server for service. See [“How to Prepare for Service” on page 51.](#)
- 2 Remove the CMOD from the server. See [“How to Remove a CPU Module \(CMOD\)” on page 72.](#)
- 3 Set the CMOD on a flat antistatic surface with ample surrounding space and light.
- 4 Remove the CMOD cover. See [“How to Remove the CPU Module \(CMOD\) Cover” on page 74.](#)
- 5 Remove the REM. See [“How to Remove a RAID Expansion Module” on page 93.](#)
The REM battery is mounted on the underside of the REM card.
- 6 Disconnect the battery cable from the REM.
- 7 To remove the battery, use a No. 1 Phillips screwdriver to remove the retaining screws that mount the battery to the REM.
- 8 Secure the new battery to the underside of the REM using the retaining screws.
- 9 Attach the battery cable to the connector on the motherboard.
- 10 Install the REM in server. See [“How to Install a RAID Expansion Module” on page 94.](#)

Next Steps [“How to Install a RAID Expansion Module” on page 94](#)

Removing and Installing a Fabric Expansion Module (CRU)

This section contains topics and tasks related to the removal and installation of a Fabric Expansion module (FEM):

- [“How to Remove a Fabric Expansion Module” on page 96](#)
- [“How to Install a Fabric Expansion Module” on page 97](#)

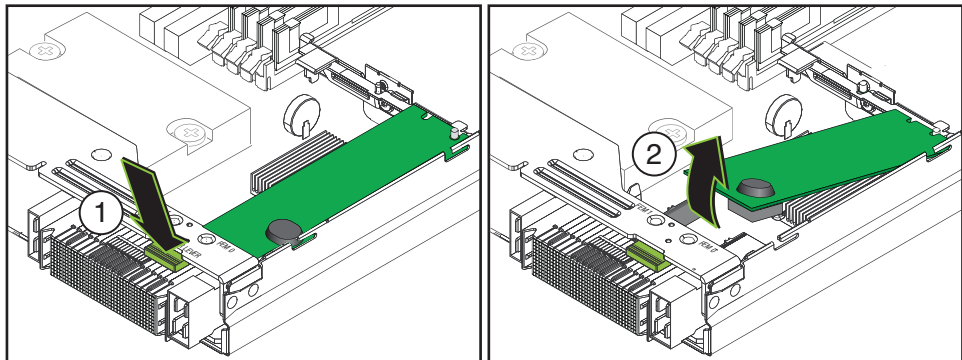
▼ How to Remove a Fabric Expansion Module

The CMOD has two FEM slots. FEM support is available in slot 0 only. Slot 0 is the slot nearest the edge of the CMOD.

- Before You Begin**
- [“Sun Fire X4800 Server CPU Module \(CMOD\) and Filler Module Overview” on page 12](#)
 - [“Fabric Expansion Module Overview” on page 27](#)

- 1 Prepare the server for service. See [“How to Prepare for Service” on page 51](#).
- 2 Remove the CMOD from the server. See [“How to Remove a CPU Module \(CMOD\)” on page 72](#).
- 3 Set the CMOD on a flat antistatic surface with ample surrounding space and light.
- 4 Remove the CMOD cover. See [“How to Remove the CPU Module \(CMOD\) Cover” on page 74](#).
- 5 To disconnect the FEM from the connector on the motherboard, push down on the FEM release button on the rear of the server.

This action ejects the FEM from its connector.



- 6 Carefully lift the FEM at the connector end.
The FEM is secured at the opposite end by a retaining clip on the front support bracket.
- 7 To remove the FEM, slide it away from the retaining clip and out of the server.

- 8 Prepare the server for operation. See [“How to Prepare for Operation” on page 52.](#)

See Also [“How to Install a Fabric Expansion Module” on page 97](#)

▼ How to Install a Fabric Expansion Module

The CMOD has two FEM slots. FEM support is available in slot 0 only. Slot 0 is the slot nearest the edge of the CMOD.

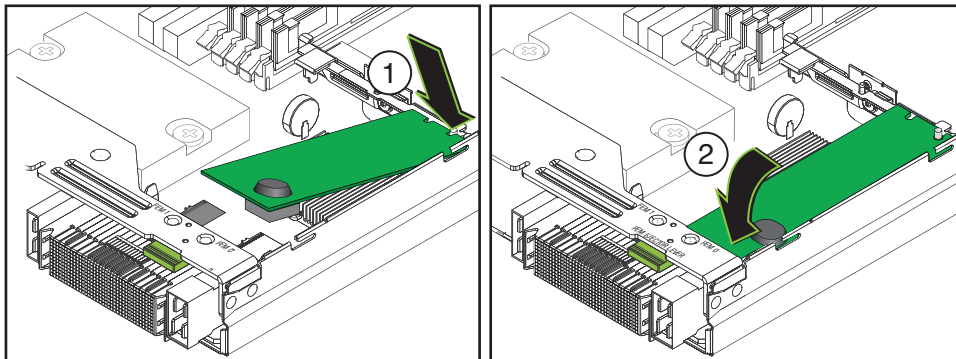
- Before You Begin**
- [“Sun Fire X4800 Server CPU Module \(CMOD\) and Filler Module Overview” on page 12](#)
 - [“Fabric Expansion Module Overview” on page 27](#)

- 1 Prepare the server for service. See [“How to Prepare for Service” on page 51.](#)
- 2 Remove the CMOD from the server. See [“How to Remove a CPU Module \(CMOD\)” on page 72.](#)
- 3 Set the CMOD on a flat antistatic surface with ample surrounding space and light.
- 4 Remove the CMOD cover. See [“How to Remove the CPU Module \(CMOD\) Cover” on page 74.](#)
- 5 Remove the protective cover from the FEM connector.

Note – The connector on your server might not have a protective cap.

- 6 Remove the FEM from its packaging.
- 7 Align the FEM in the server so that the connector on the FEM is positioned over the connector on the motherboard.

- 8 Slip the opposite end into the retaining clip on the front support bracket and ensure that the notch on the edge of the FEM is positioned around the alignment post on the bracket.



- 9 To install the FEM, carefully push the connector on the FEM onto the connector on the motherboard.
When fully seated, the FEM is in a level position.
- 10 Prepare the server for operation. See [“How to Prepare for Operation” on page 52](#).

See Also [“How to Remove a Fabric Expansion Module” on page 96](#)

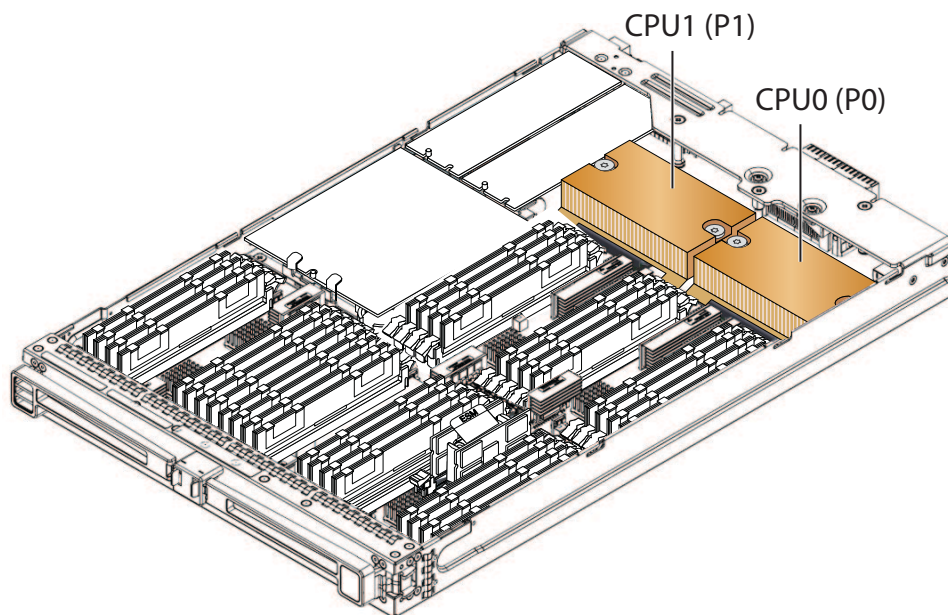
Replacing a CPU and Heatsink Assembly (FRU)

This section contains the following topics and tasks for the removal and installation of a CPU and heatsink assembly:

- [“CPU Designations” on page 98](#)
- [“How to Remove a CPU and Heatsink Assembly \(FRU\)” on page 99](#)
- [“How to Install a CPU and Heatsink Assembly \(FRU\)” on page 101](#)

CPU Designations

The CPUs are designated as CPU 0 and CPU 1. From the front of the CMOD CPU 0 is on the right and CPU 1 is on the left:



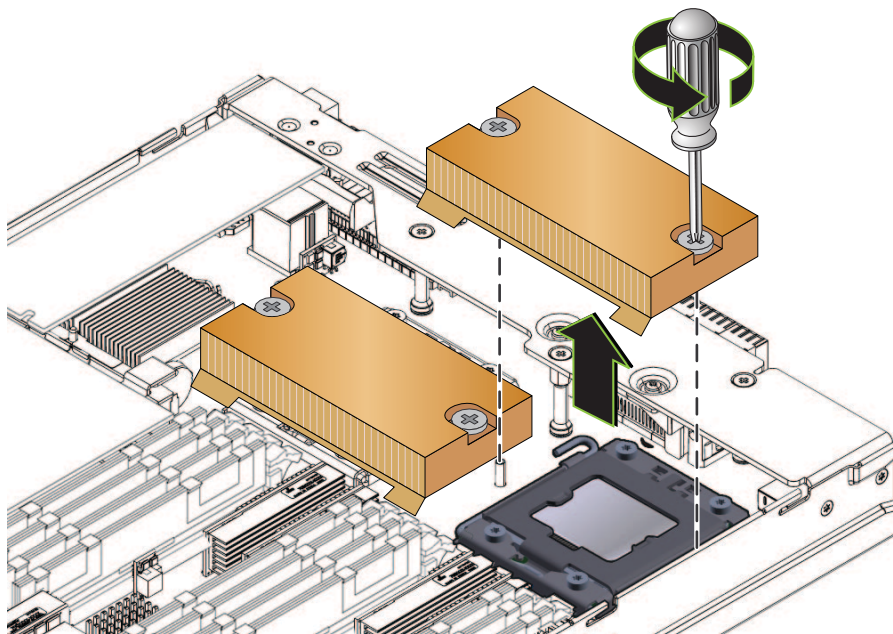
▼ How to Remove a CPU and Heatsink Assembly (FRU)

Use this procedure to replace a CPU. A CPU replacement kit contains a CPU, an alcohol wipe, and a syringe of thermal compound. When you replace a CPU, the heatsink is reused. Do *not* discard the heatsink.

- Before You Begin**
- “Sun Fire X4800 Server CPU Module (CMOD) and Filler Module Overview” on page 12
 - “CPU and Heatsink Assembly Overview” on page 29
 - “CPU Designations” on page 98
- 1 Prepare the server for service. See “How to Prepare for Service” on page 51.
 - 2 Remove the CMOD from the server. See “How to Remove a CPU Module (CMOD)” on page 72.
 - 3 Set the CMOD on a flat antistatic surface with ample surrounding space and light.
 - 4 Remove the CMOD cover. See “How to Remove the CPU Module (CMOD) Cover” on page 74.
 - 5 Use the motherboard-mounted blue fault remind button to identify the CPU and heatsink assembly that you need to remove.

- 6 Press down on the center of the heatsink and use a No. 2 Phillips screwdriver to completely loosen the two spring-loaded captive heatsink retaining screws.**

Pressing down on the heatsink relieves the pressure generated by the spring-loaded screws.

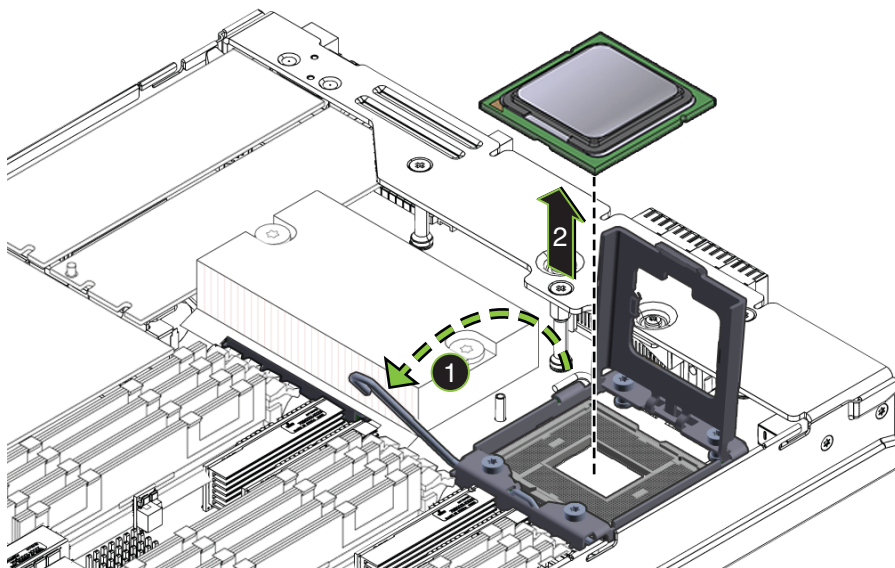


- 7 To remove the heatsink, slightly twist it left and right to break the adhesive seal created by the thermal compound.**

The thermal compound between the top of the CPU and the bottom of the heatsink acts as a mild adhesive.

- 8 Set aside and retain the heatsink, taking care that you do not allow the residual thermal compound on the bottom of the heatsink to contaminate other components or the work space.**

- 9 To unlock the CPU retaining cover, push down on the spring-loaded release lever and move it slightly away from the CPU and the release lever retaining clip.



- 10 Lift the release lever to its fully upright position.
- 11 Lift the CPU retaining cover to its fully upright position.
- 12 Lift the CPU from the socket.
- 13 Set the CPU aside taking care that you do not allow the residual thermal compound on the top of the CPU to contaminate other components or the work space.

See Also [“How to Install a CPU and Heatsink Assembly \(FRU\)” on page 101](#)

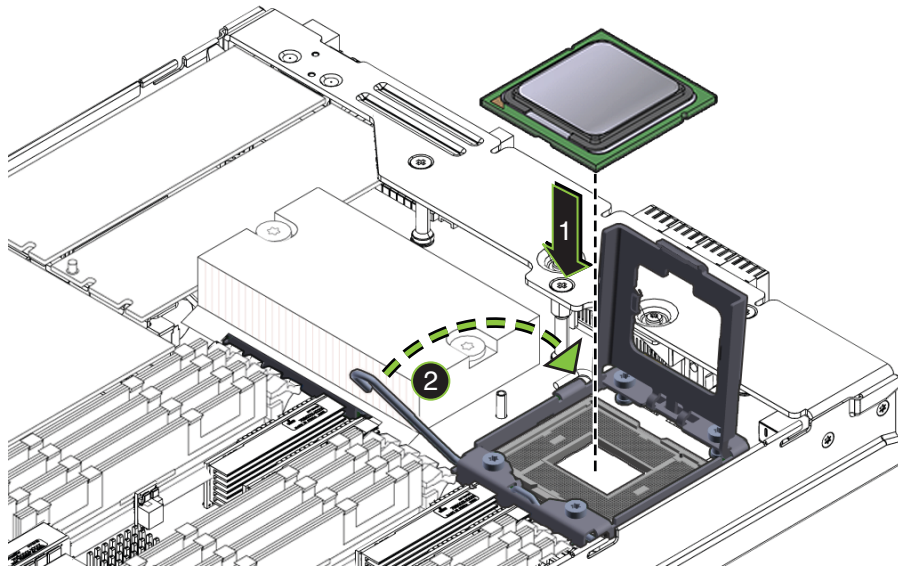
▼ How to Install a CPU and Heatsink Assembly (FRU)

Use this procedure to install a CPU. A CPU replacement kit contains a CPU, an alcohol wipe, and a syringe of thermal compound. When you replace a CPU, the heatsink is reusable. Do *not* discard the heatsink.

- Before You Begin**
- [“Sun Fire X4800 Server CPU Module \(CMOD\) and Filler Module Overview” on page 12](#)
 - [“CPU and Heatsink Assembly Overview” on page 29](#)
 - [“CPU Designations” on page 98](#)

- 1 Prepare the server for service. See [“How to Prepare for Service” on page 51](#).

- 2 Remove the CMOD from the server. See [“How to Remove a CPU Module \(CMOD\)”](#) on page 72.
- 3 Set the CMOD on a flat antistatic surface with ample surrounding space and light.
- 4 Remove the CMOD cover. See [“How to Remove the CPU Module \(CMOD\) Cover”](#) on page 74.
- 5 Remove the CPU and heatsink assembly. See [“How to Remove a CPU and Heatsink Assembly \(FRU\)”](#) on page 99.
- 6 Use the alcohol wipe that comes with the CPU replacement kit to remove the residual thermal compound on the underside of the heatsink.
The underside of the heatsink contacts the top of the CPU.
- 7 Ensure that the CPU retaining cover and the release lever are in their fully open upright position.



- 8 To ensure correct installation, align the keying on the CPU with the keying on the socket.
One corner of the CPU is marked with a triangle, and one corner of the CPU socket is also marked with a triangle. These two triangles are the key and must align. When these are aligned, other keying notches and trims line up as well.
- 9 *Carefully* set the CPU in the socket ensuring that the notches and indents in the socket and CPU line up and that the CPU sits flat within the socket.
When properly installed, the CPU fits snugly within the socket.



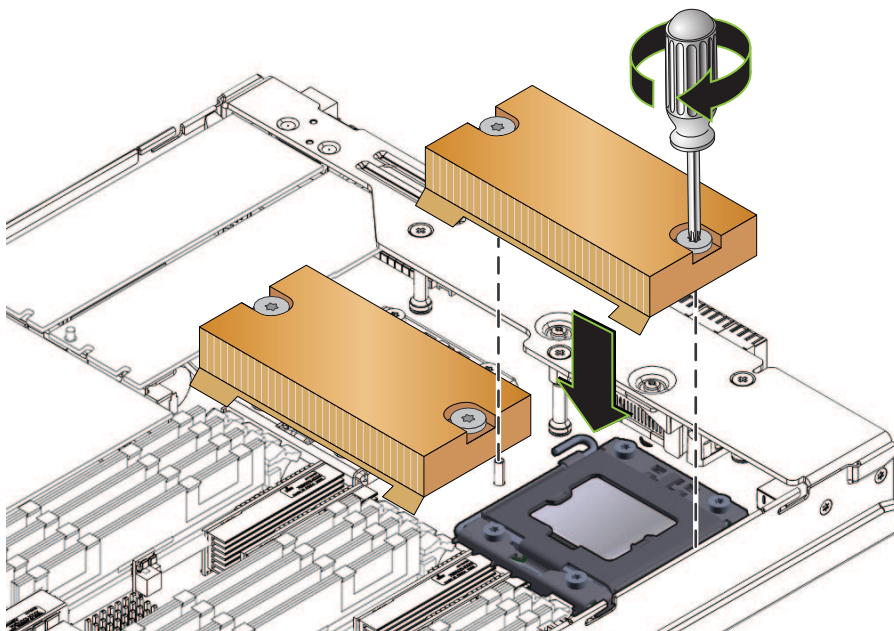
Caution – Possible component damage. The pins in the CPU socket can be easily damaged if touched or if the CPU is installed incorrectly. Do *not* drop the CPU onto the socket. The CPU sits atop the socket and does *not* require insertion. Do *not* press down on the CPU.

- 10 Close the CPU retaining cover.
- 11 Lower the release lever and secure it under the retaining clip.
- 12 Evenly apply the entire contents of the syringe of thermal compound (included in the CPU replacement kit) to the top of the CPU.
To ensure an even application of compound apply the contents in the shape of an asterisk.



Caution – Possible thermal-related component damage. To ensure the proper transfer of heat away from the surface of the CPU, apply the *entire* contents of the syringe.

- 13 Position the bottom of the heatsink over the CPU so that the captive screws in the heatsink align with the threaded standoffs on the motherboard.



- 14 Lower the heatsink onto the top of the CPU.



Caution – System thermal failure or component damage. Once the bottom of the heatsink contacts the top of the CPU, do not move the heatsink. Excessive heatsink movement can cause the thermal compound to smear and become uneven. This can result in voids in the compound that can negatively impact the transfer of heat away from the CPU.

- 15 **Press down on the center of the heatsink to engage the captive screws with the threaded standoffs on the motherboard.**
- 16 **To secure the heatsink, *alternately* tighten the captive screws until both screws are fully tightened.**

Turn each screw one-half a turn at a time.

Removing and Installing a Fan Module (CRU)

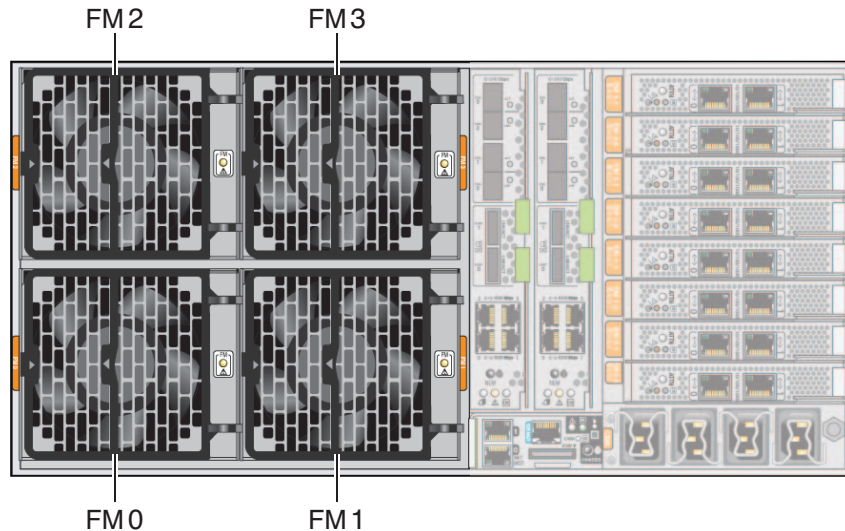
Note – The Fan module is a customer-replaceable unit (CRU).

This section contains topics and tasks related to the removal and installation of a Fan module (FM):

- [“Fan Module Designations” on page 104](#)
- [“How to Remove a Fan Module” on page 105](#)
- [“How to Install a Fan Module” on page 107](#)

Fan Module Designations

The four Fan modules (FMs) are designated FM 0–FM 3 with FM 0 and FM 1 on the bottom and FM 2 and FM 3 on the top:



▼ How to Remove a Fan Module



Caution – Potential for system over-temperature and component damage. Do not attempt to operate the system with insufficient cooling. Maintain the integrity of a properly functioning cooling system by *immediately* replacing nonworking components and ensuring unobstructed airflow.

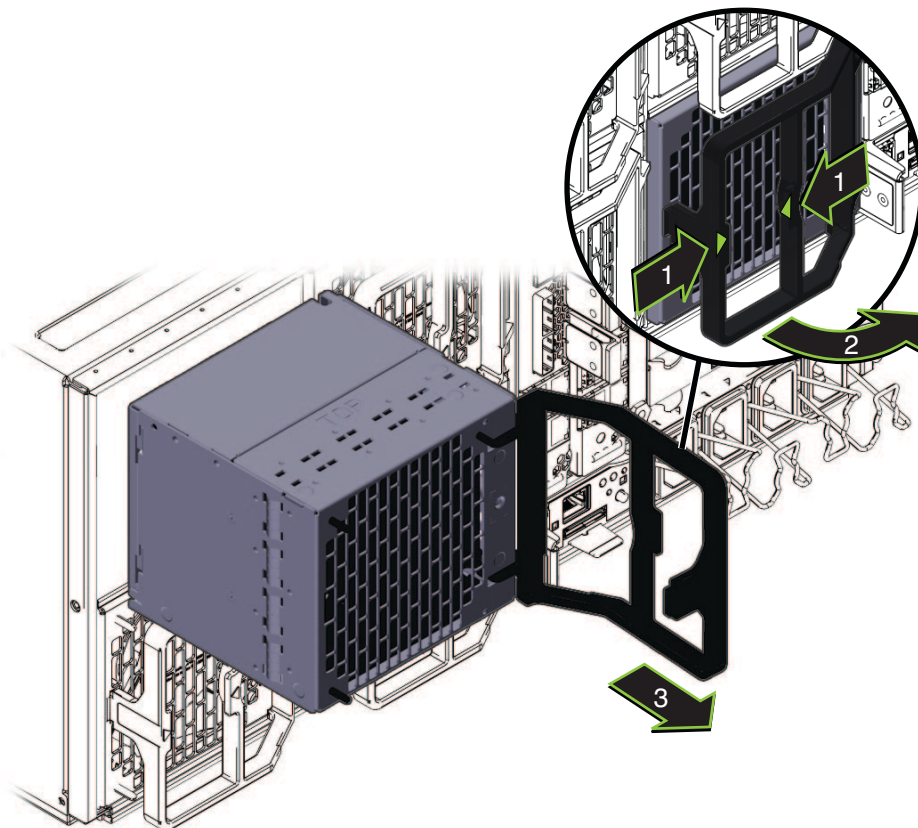
Note – The Fan module is a hot-swap component.

Before You Begin

- [“Fan Module Overview” on page 31](#)
- [“Fan Module Designations” on page 104](#)

- 1 Prepare the server for service. See [“How to Prepare for Service” on page 51](#).
- 2 Access the back of the server and identify the Fan module (FM) that you need to replace.

- 3 To release the FM handle, gently squeeze at the two green-colored release points and pull the handle outward to its fully opened position.



- 4 To remove, pull the FM out of the server.



Caution – Server over-temperature condition. When a Fan module is removed, the airflow vanes in the Subassembly module automatically close to maintain the integrity of the server cooling system. Do not defeat the purpose of the airflow vanes.

- 5 If you are replacing the Fan module, see [“How to Install a Fan Module” on page 107](#).
- 6 Prepare the server for operation. See [“How to Prepare for Operation” on page 52](#).

See Also [“Sun Fire X4800 Server Subassembly Module Overview” on page 15](#)

▼ How to Install a Fan Module

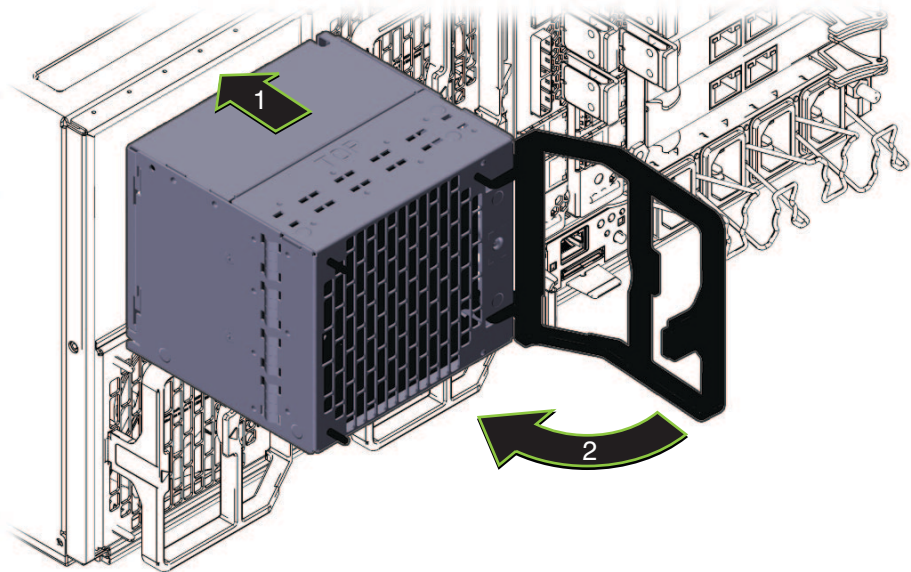


Caution – Potential for system over-temperature and component damage. Do not attempt to operate the system with insufficient cooling. Maintain the integrity of a properly functioning cooling system by *immediately* replacing nonworking components and ensuring unobstructed airflow.

Before You Begin

- “Sun Fire X4800 Server Subassembly Module Overview” on page 15.
- “Fan Module Overview” on page 31
- “How to Remove a Fan Module” on page 105

- 1 Prepare the server for service. See “How to Prepare for Service” on page 51.
- 2 Access the back of the server.
- 3 Ensure that the Fan module handle is in its fully open position.
To release the Fan module handle, gently squeeze at the two green-colored release points and pull the handle outward to its fully opened position.
- 4 To install the Fan module, hold the module by the handle and insert it into the vacant module bay (1).



- 5 To engage the module with the internal connector on the FB, firmly push the module inward until it stops.

6 Move the handle to its fully-closed position (2).

This action produces an audible click as the handle locks into place.

7 Prepare the server for operation. See [“How to Prepare for Operation” on page 52.](#)

See Also [“Sun Fire X4800 Server Subassembly Module Overview” on page 15](#)

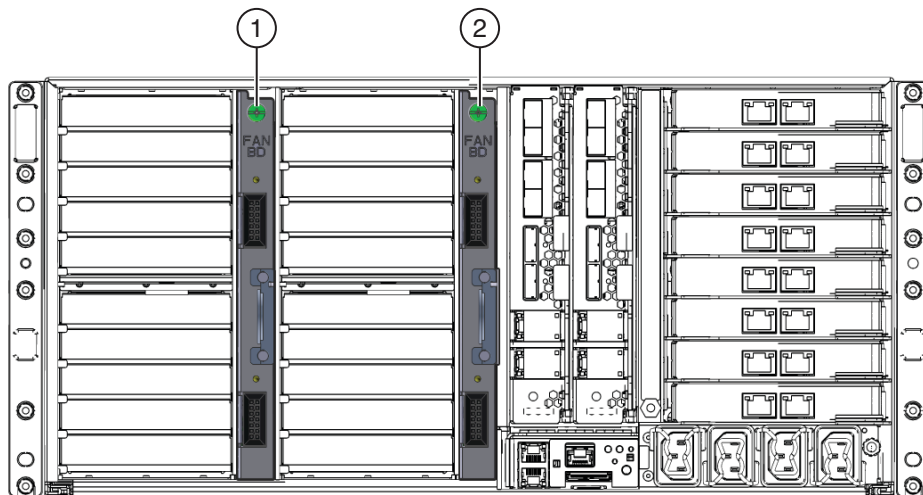
Replacing a Fan Module Controller Board (FRU)

This section contains these topics and tasks related to the removal and installation of a Fan module controller board (FB):

- [“Fan Module Controller Board \(FB\) Designations” on page 108](#)
- [“How to Remove a Fan Module Controller Board” on page 109](#)
- [“How to Install a Fan Module Controller Board” on page 110](#)

Fan Module Controller Board (FB) Designations

There are two FBs, FB 0 and FB 1. Each Fan module controller board (FB) controls two Fan modules (FM). The FBs are located behind FMs:



Fan Controller Boards

- | | |
|---|-------------------------------|
| 1 | FB 0 (controls FM 0 and FM 2) |
|---|-------------------------------|
-

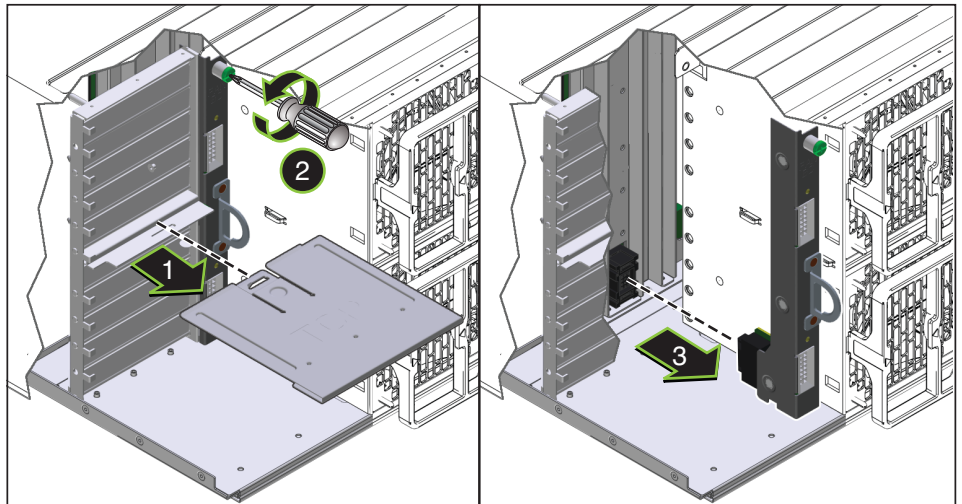
Fan Controller Boards

2 FB 1 (controls FM 1 and FM 3)

▼ How to Remove a Fan Module Controller Board

- Before You Begin**
- “Fan Module Controller Board (FB) Overview” on page 38
 - “Fan Module Designations” on page 104

- 1 Prepare the server for service. See “How to Prepare for Service” on page 51.
- 2 Access the back of the server.
- 3 Remove the FMs that are controlled by the FB that you need to replace. See “Fan Module Controller Board (FB) Designations” on page 108.
- 4 To remove the fan shelf, press down on the green release tab and slide the shelf out of the fan bay (1).



- 5 Completely loosen the green captive screw that secures the FBs (2).
- 6 To remove the FB, pull the handle on the controller board assembly (3).

Next Steps “How to Install a Fan Module Controller Board” on page 110

See Also “Sun Fire X4800 Server Subassembly Module Overview” on page 15

▼ How to Install a Fan Module Controller Board

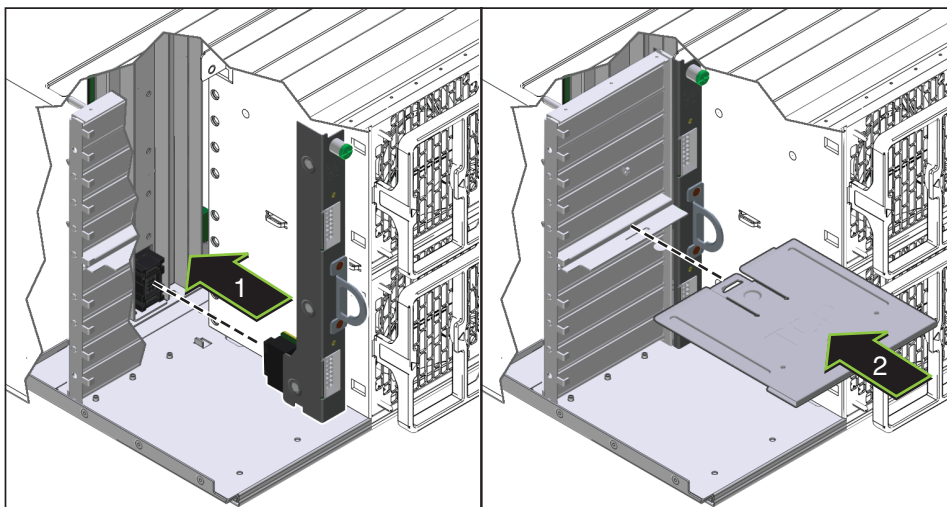


Caution – Potential for system over-temperature and component damage. Do not attempt to operate the system with insufficient cooling. Maintain the integrity of a properly functioning cooling system by *immediately* replacing nonworking components and ensuring unobstructed airflow.

Before You Begin

- “Fan Module Controller Board (FB) Overview” on page 38
- “How to Remove a Fan Module Controller Board” on page 109

- 1 Prepare the server for service. See “How to Prepare for Service” on page 51.
- 2 Access the back of the server.
- 3 If you are replacing an FB, see “How to Remove a Fan Module Controller Board” on page 109.
- 4 Use the handle to insert the FB into the server (1).



- 5 To secure the FB assembly, fully tighten the green captive screw (2).
- 6 Orient fan shelf with the green release tab facing upward.
- 7 To install the fan shelf, align it with the guides in the fan bay and slide it in until it locks in place (3).
This action creates a click as the shelf locks into place.
- 8 Install the FMs. See “How to Install a Fan Module” on page 107.

- 9 Prepare the server for operation. See [“How to Prepare for Operation” on page 52.](#)

See Also [“Sun Fire X4800 Server Subassembly Module Overview” on page 15](#)

Removing and Installing a NEM or a NEM Filler (CRU)

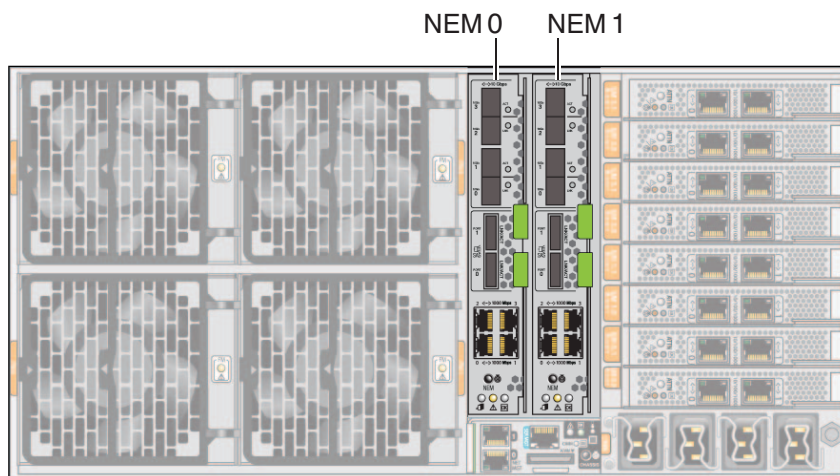
Note – The NEM is a hot-swap capable component.

This section contains topics and tasks related to the removal and installation of a Network Express module (NEM):

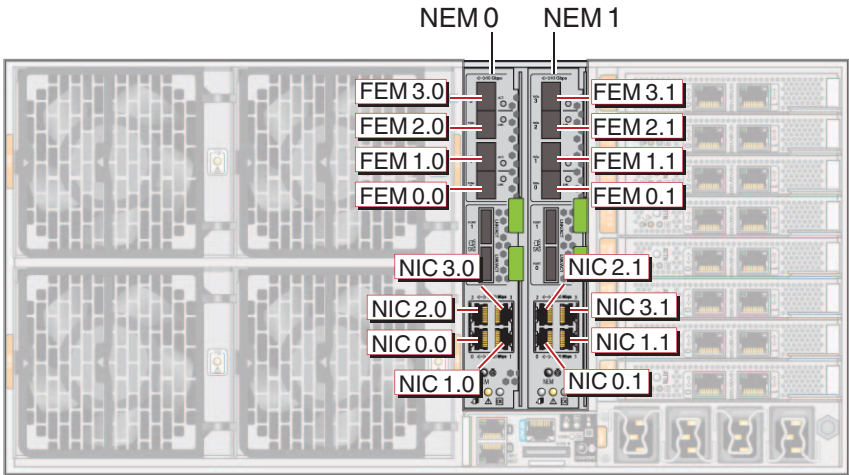
- [“Network Express Module Designations and Assignments” on page 111](#)
- [“How to Remove a NEM or a NEM Filler” on page 112](#)
- [“How to Install a NEM or a NEM Filler” on page 114](#)

Network Express Module Designations and Assignments

The Network Express modules (NEMs) are designated as NEM 0 and NEM 1. NEM 0 is on the left, and NEM 1 is on the right:



The ports of each NEM are allocated to the ports on a particular CMOD:



The numerical designations correspond to the CPU module (CMOD) position within the chassis.

Note – The first digit of the designation refers to the CMOD. The second digit refers to the port.

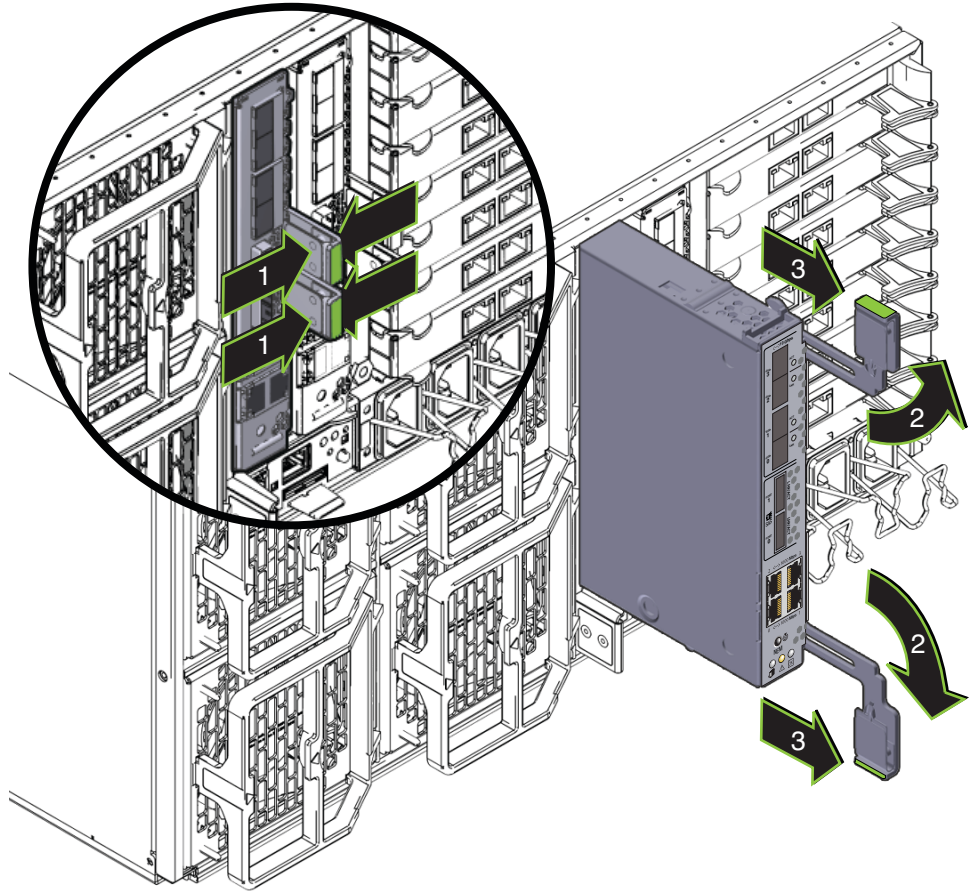
Designation	CPU Module
3.0 and 3.1	CMOD 3 (BL 3)
2.0 and 2.1	CMOD 2 (BL 2)
1.0 and 1.1	CMOD 1 (BL 1)
0.0 and 0.1	CMOD 0 (BL 0)

▼ How to Remove a NEM or a NEM Filler

Note – The NEM is a hot-swap capable component.

- Before You Begin**
- “Sun Fire X4800 Server Subassembly Module Overview” on page 15
 - “Network Express Module Overview” on page 32
- 1 Prepare the server for service. See “How to Prepare for Service” on page 51.
 - 2 Access the back of the server.

- 3 Label and disconnect any cables attached to the Network Express module (NEM).
- 4 To release the NEM, squeeze and extend the release handles outward in opposite directions. Pull the lower handle downward and lift the upper handle until both are in their fully open position.



- 5 To remove the NEM, pull it out of its slot using the handles.
- 6 Prepare the server for operation. See [“How to Prepare for Operation”](#) on page 52.

Next Steps [“How to Install a NEM or a NEM Filler”](#) on page 114

▼ How to Install a NEM or a NEM Filler

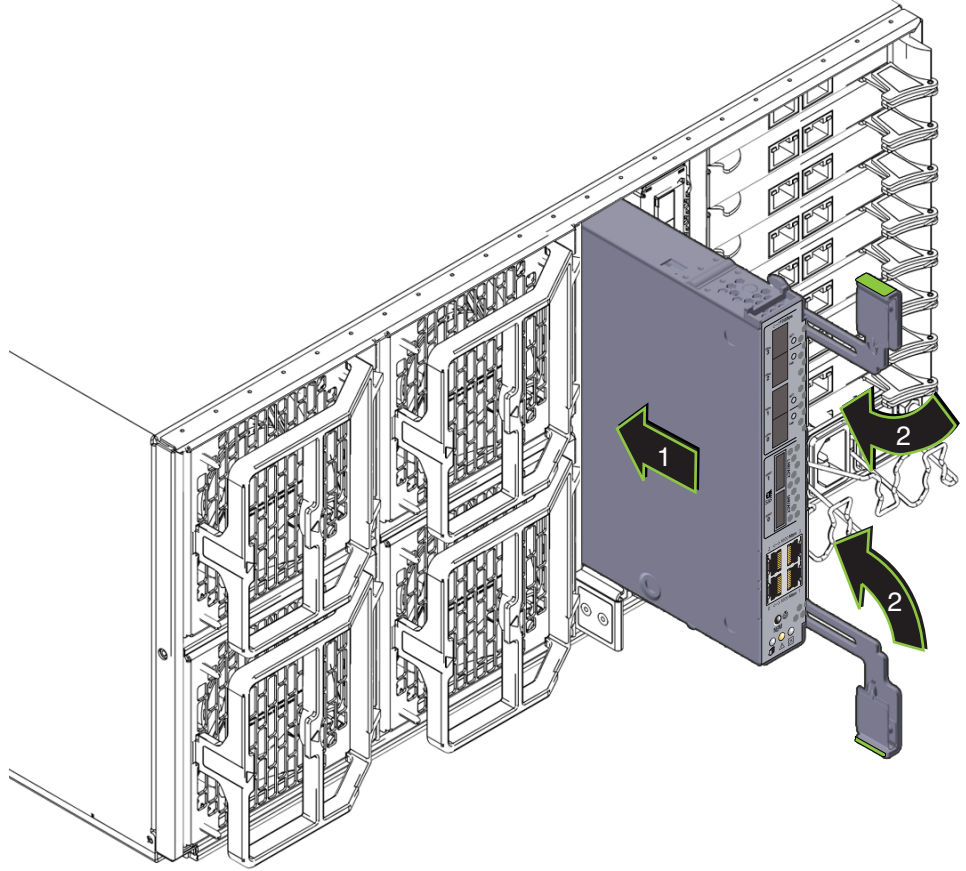
Note – The NEM is a hot-swap capable component.

Before You Begin

- “Sun Fire X4800 Server Subassembly Module Overview” on page 15
- “Network Express Module Overview” on page 32

- 1 Prepare the server for service.** See “[How to Prepare for Service](#)” on page 51.
- 2 Access the back of the server.**
- 3 If necessary remove a Network Express module (NEM) or a NEM filler.** See “[How to Remove a NEM or a NEM Filler](#)” on page 112.
- 4 Ensure that the NEM release handles are in their fully open position.**
Extend the release handles outward in opposite directions to their fully open position. Pull the lower handle downward and lift the upper handle.

- 5 To install the NEM, use the handles to slide the NEM into its slot until it stops (1).



- 6 Ensure that the pawl on the lever is aligned with the slot in the back of the server.
- 7 Rotate both handles toward the center of the NEM (2).



Caution – Pinch point. Keep your fingers clear of the back side of the lever, the lever hinges, and the edges of the module.

This action draws the NEM into the slot, engaging the NEM with its internal connector.

- 8 If necessary, install the 10 GE transceiver.
- 9 Attach the necessary cables to the NEM.

- 10 Prepare the server for operation. See [“How to Prepare for Operation” on page 52.](#)

Removing and Installing a PCIe EM (CRU)

Note – The PCIe EM is a hot-swap capable component.

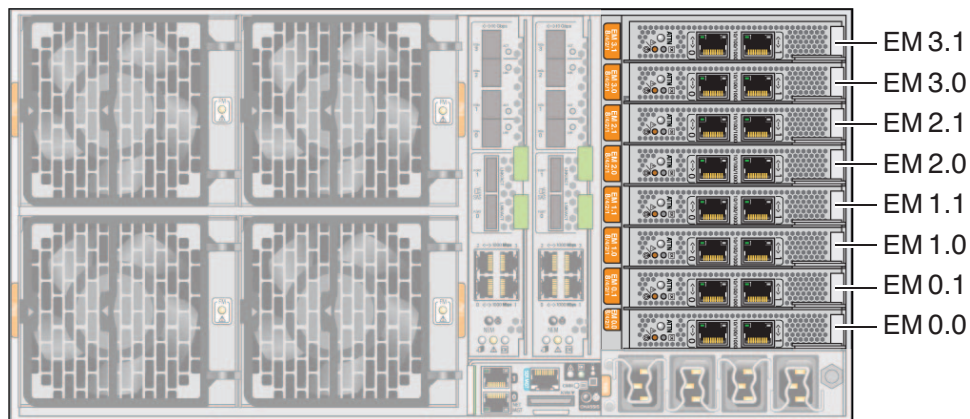
This section contains topic and tasks related to the removal and installation of a PCIe EM:

- [“PCIe EM Designations and Population Rules” on page 116](#)
- [“How to Remove a PCIe EM” on page 117](#)
- [“How to Install a PCIe EM or PCIe EM Filler” on page 118](#)

PCIe EM Designations and Population Rules

Note – The PCIe EM illustrations in this topic might differ from the model supplied with your server.

The PCIe EM slots are designated starting from the bottom as, EM 0.0–EM 3.1:



PCIe EM slots are paired and allocated to a single CMOD. The slots-to-CMOD pairing is as follows:

- Slots EM 0.0 and 0.1 are paired to CMOD 0 (BL 0).
- Slots EM 1.0 and 1.1 are paired to CMOD 1 (BL 1).

- Slots EM 2.0 and 2.1 are paired to CMOD 2 (BL 2).
- Slots EM 3.0 and 3.1 are paired to CMOD 3 (BL 3).

PCIe EM population order for a minimum configuration 4-socket server and a full configuration 8-socket server:

- 4-socket servers:
 - Slot 3.0 (IOH 0 on CMOD 3/BL 3)
 - Slot 0.0 (IOH 0 on CMOD 0/BL 0)—Shared if REM (x4) is present
 - Slot 3.1 (IOH 1 on CMOD 3/BL 3)
 - Slot 0.1 (IOH 1 on CMOD 0/BL 0)
- 8-socket servers:
 - Slot 3.0 (IOH 1 on CMOD 3/BL 3)
 - Slot 1.0 (IOH 2 on CMOD 1/BL 1)
 - Slot 0.0 (IOH 0 on CMOD 0/BL 0)—Shared if REM (x4) is present
 - Slot 2.0 (IOH 3 on CMOD 2/BL 2)
 - Slot 3.1 (IOH 1 on CMOD 3/BL 3)
 - Slot 1.1 (IOH 2 on CMOD 1/BL 1)
 - Slot 0.1 (IOH 0 on CMOD 0/BL 0)
 - Slot 2.1 (IOH 3 on CMOD 2/BL 2)

Note – For proper airflow and cooling slots not containing a PCIe EM must be populated with a filler panel.

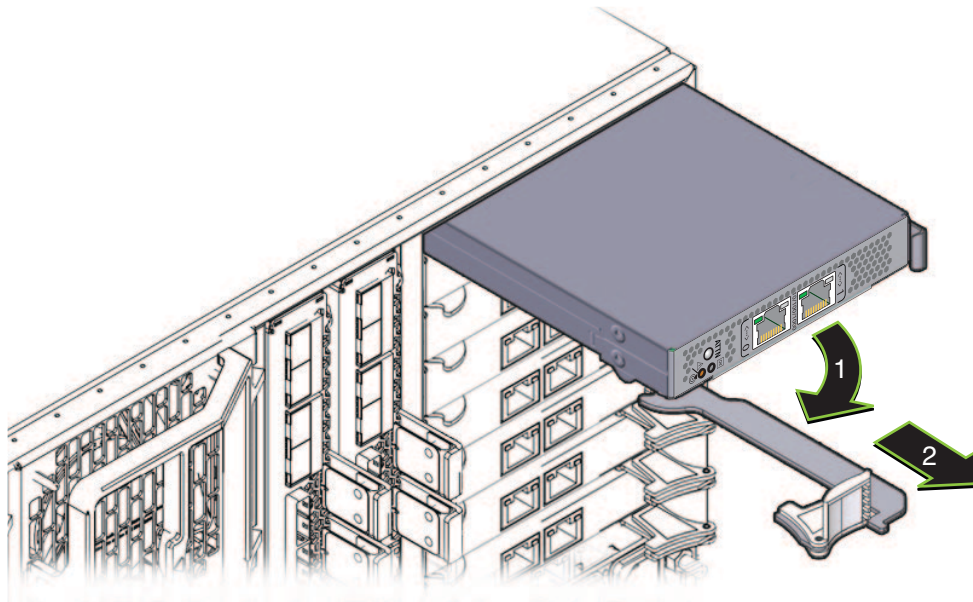
▼ How to Remove a PCIe EM

Note – The PCIe EM illustrations in this topic might differ from the model supplied or compatible with your server.

- Before You Begin**
- [“PCIe Express Module Overview” on page 36](#)
 - [“PCIe EM Designations and Population Rules” on page 116](#)

- 1 Prepare the server for service. See [“How to Prepare for Service” on page 51](#).
- 2 Access the back of the server.
- 3 Disconnect cables from the PCIe EM.

- 4 To unlock the PCIe EM, pull out on the underside of the release handle and rotate the handle to the left to its fully open position (1).



- 5 To remove the PCIe EM, use the handle to pull the PCIe EM from its slot (2).
- 6 If you are replacing a PCIe EM, see [“How to Install a PCIe EM or PCIe EM Filler”](#) on page 118.
- 7 Prepare the server for operation. See [“How to Prepare for Operation”](#) on page 52.

Next Steps [“How to Install a PCIe EM or PCIe EM Filler”](#) on page 118

See Also [“Sun Fire X4800 Server Subassembly Module Overview”](#) on page 15

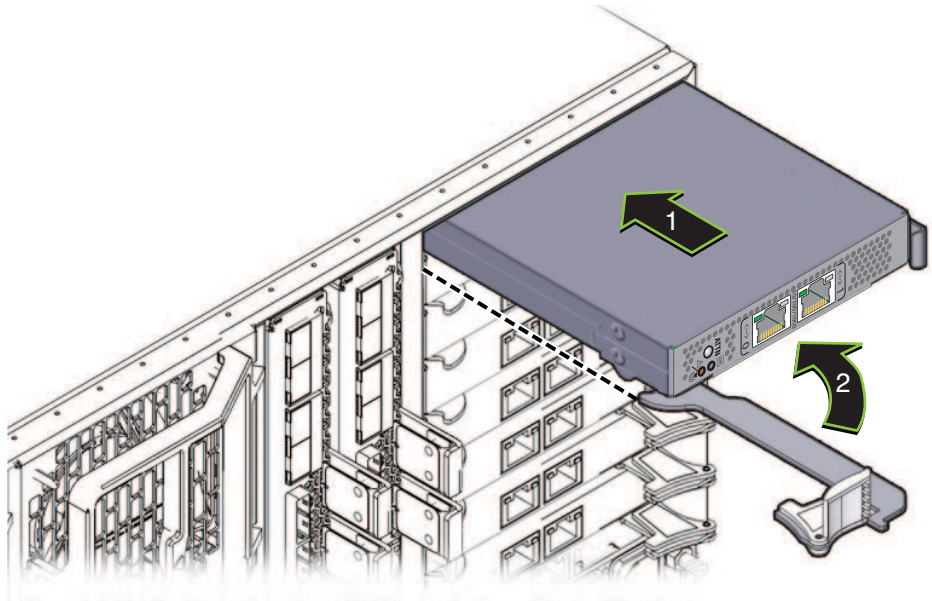
▼ How to Install a PCIe EM or PCIe EM Filler

Note – The PCIe EM illustrations in this topic might differ from the model supplied with your server.

- Before You Begin**
- [“PCIe Express Module Overview”](#) on page 36
 - [“PCIe EM Designations and Population Rules”](#) on page 116

- 1 Prepare the server for service. See [“How to Prepare for Service”](#) on page 51.

- 2 If necessary, remove a PCIe EM or PCIe EM filler. See [“How to Remove a PCIe EM” on page 117](#).
- 3 Ensure that the PCIe EM handles are in their fully open position.
To unlock and extend the handle, pull up on the underside of the release handle and lift the handle to its fully open position.
- 4 Position the PCIe EM at the slot with the handle at the bottom.
- 5 Slide the PCIe EM into the slot until it stops.



- 6 Ensure that the pawl on the end of the handle is aligned with the slot sidewall.
- 7 Rotate the handle downward until it is flush with PCIe EM.



Caution – Pinch point. Keep your fingers clear of the back side of the lever, the lever hinges, and the edges of the module.

This action draws the PCIe EM into the slot, engaging the PCIe EM with its internal connector.

- 8 Attach the necessary cables.
- 9 Prepare the server for operation. See [“How to Prepare for Operation” on page 52](#).

See Also [“How to Remove a PCIe EM” on page 117](#)

Removing and Installing the Service Processor Module (CRU)

This section contains topics and tasks related to the removal and installation of the Service Processor (SP) Module:

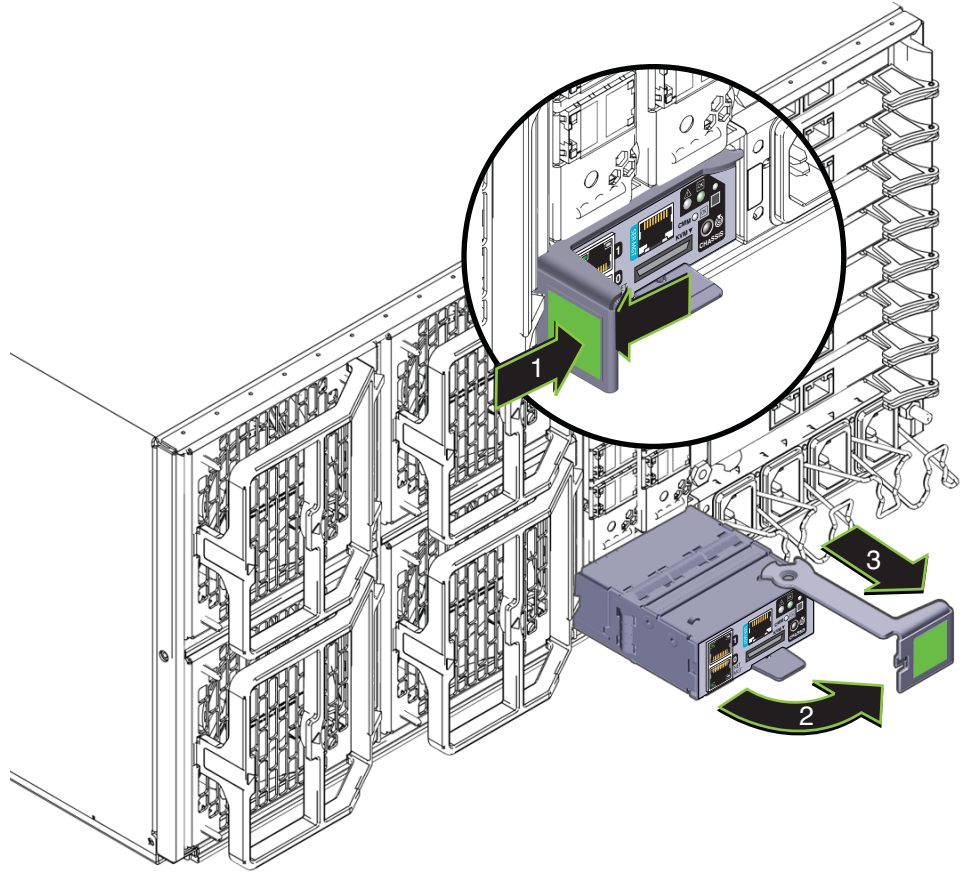
- [“How to Remove the SP Module” on page 120](#)
- [“How to Install the SP Module” on page 121](#)

▼ How to Remove the SP Module

- Before You Begin**
- [“Sun Fire X4800 Server Subassembly Module Overview” on page 15](#)
 - [“Service Processor \(SP\) Module Overview” on page 33](#)

- 1 Prepare the server for service. See [“How to Prepare for Service” on page 51](#).
- 2 Access the rear of the server.
- 3 If necessary, remove the multi port cable and any other cables connected to the SP module. See [“How to Remove the Multi Port Cable” on page 123](#).

- 4 To unlock the SP module, squeeze and rotate it to the right (1).



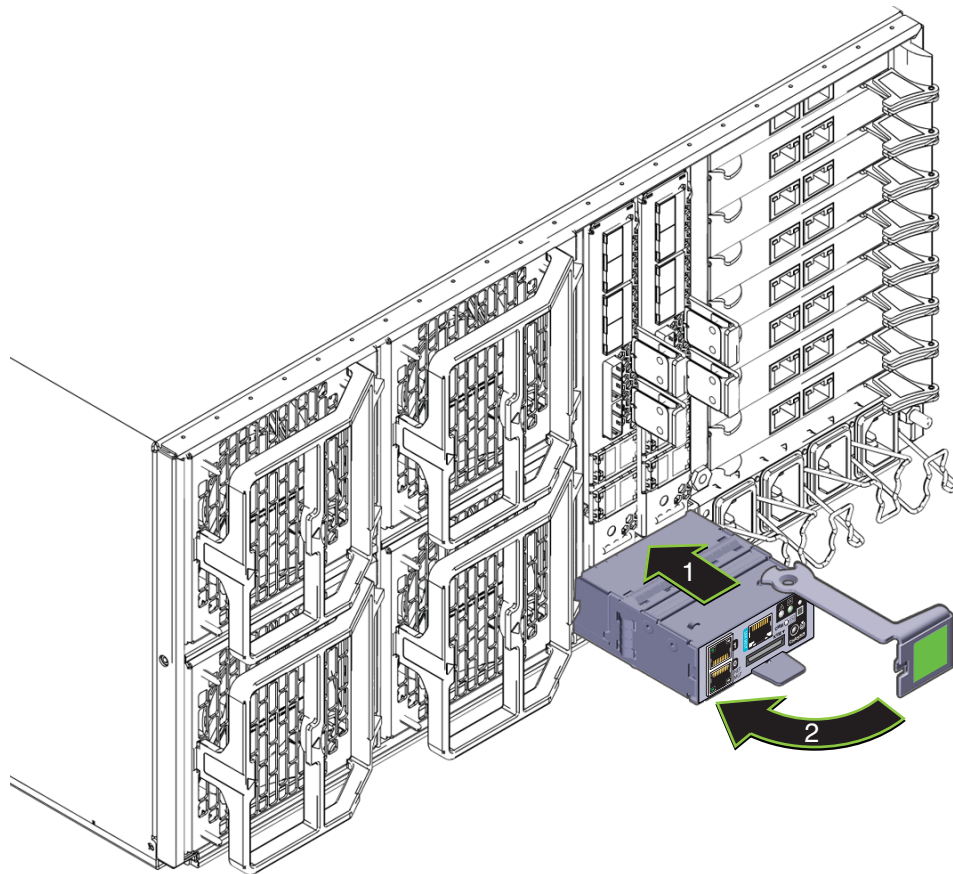
- 5 To remove the SP module, use the handle to pull it out of the slot (2).
- 6 Prepare the server for operation. See [“How to Prepare for Operation” on page 52](#).

Next Steps [“How to Install the SP Module” on page 121](#)

▼ How to Install the SP Module

- Before You Begin**
- [“SP Module and CMOD Firmware Compatibility Considerations” on page 137](#)
 - [“Sun Fire X4800 Server Subassembly Module Overview” on page 15](#)
 - [“Service Processor \(SP\) Module Overview” on page 33](#)

- 1 Prepare the server for service. See [“How to Prepare for Service”](#) on page 51.
- 2 To remove the SP module, see [“How to Remove the SP Module”](#) on page 120.
- 3 Ensure that the SP module handle is in its fully open position.
- 4 Slide the SP module into its slot until it stops (1).
Do *not* push the SP module any farther into the slot.



- 5 Ensure that the pawl on the handle is aligned with and engages the slot in the wall.
- 6 Rotate the handle to the left until it is flush with the SP module (2).



Caution – Pinch point. Keep your fingers clear of the back side of the lever, the lever hinges, and the edges of the module.

This action pushes the SP module into the server and engages the connectors on the rear of the SP module with the internal connector in the SAM.

- 7 If necessary, attach the multi port cable (see [“How to Install the Multi Port Cable” on page 124](#)) and any other cables.
- 8 Prepare the server for operation. See [“How to Prepare for Operation” on page 52](#).

See Also [“How to Remove the SP Module” on page 120](#)

Removing and Installing the Multi port Cable

This section contains tasks related to the removal and installation of the multi port cable:

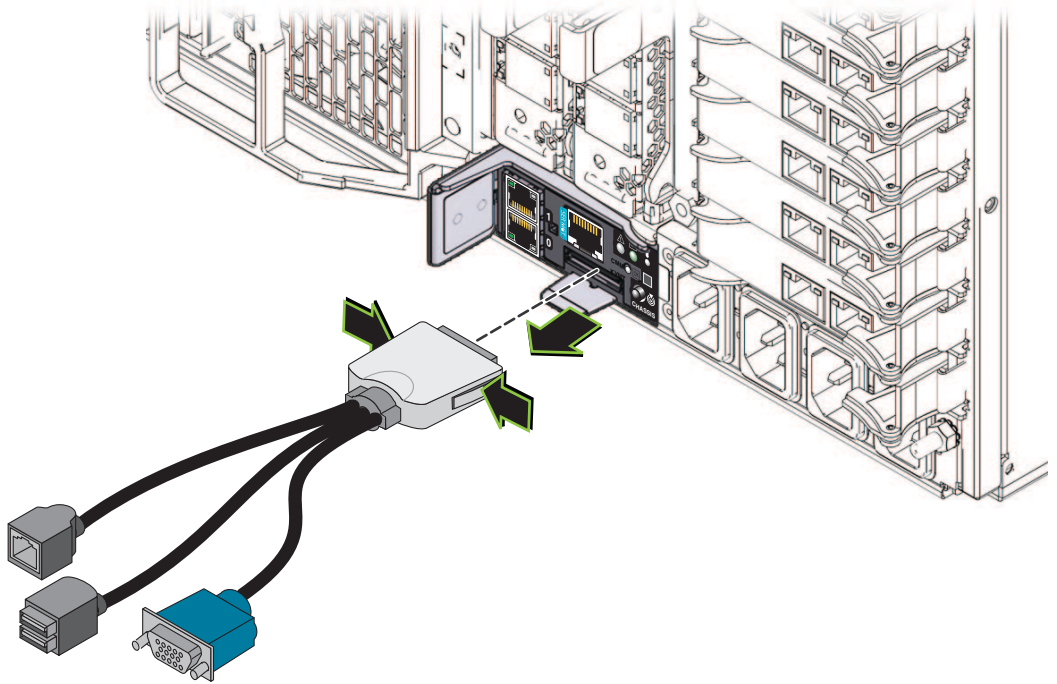
- [“How to Remove the Multi Port Cable” on page 123](#)
- [“How to Install the Multi Port Cable” on page 124](#)

▼ How to Remove the Multi Port Cable

The multi port cable connects to the universal connector port (UCP) on the SP module.

- 1 Access the rear of the server.
- 2 If necessary, label and remove any cables attached to the multi port cable.

- 3 To remove the cable, squeeze the edges of the multi port cable connector and pull the it out of the UCP on the SP module.

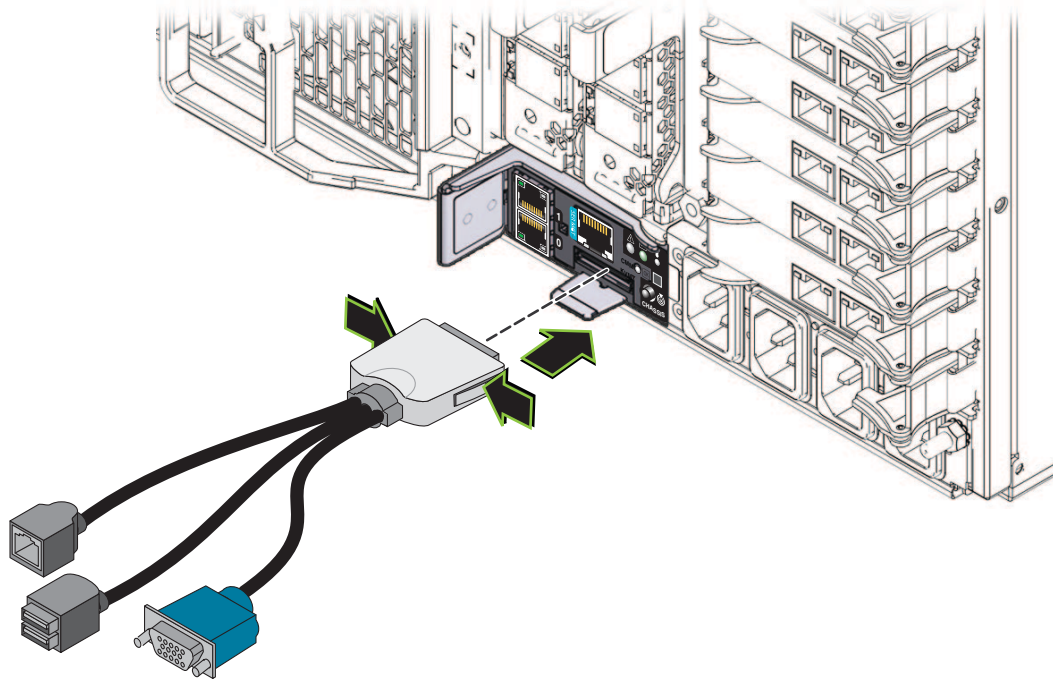


▼ How to Install the Multi Port Cable

The multi port cable connects to the universal connector port (UCP) on the SP module.

- 1 Access the rear of the server.

- 2 To install the multi port cable orient the cable, squeeze the sides, and insert the connector into the UCP connector on the SP module.



Removing and Installing the Subassembly Module (FRU)

This section contains tasks related to the removal and installation of the Subassembly module:

- “How to Remove the Subassembly Module” on page 125
- “How to Install the Subassembly Module” on page 129

▼ How to Remove the Subassembly Module

Before You Begin Review the following topics:

- “Sun Fire X4800 Server Subassembly Module Overview” on page 15
- “Midplane Overview” on page 39

- 1 Before replacing this component, backup the motherboard FRUID information. See “[Managing FRUID Information](#)” on page 135.
- 2 Prepare the server for service. See “[How to Prepare for Service](#)” on page 51.

3 Disconnect the AC power cables from the rear of the server.

The AC power connectors are retained by a wire latch. Lift the retaining latch and pull the connector out of its socket (see [“AC Power Block Overview” on page 37](#)).

4 Disengage the power supplies. See [“How to Remove a Power Supply” on page 55](#).

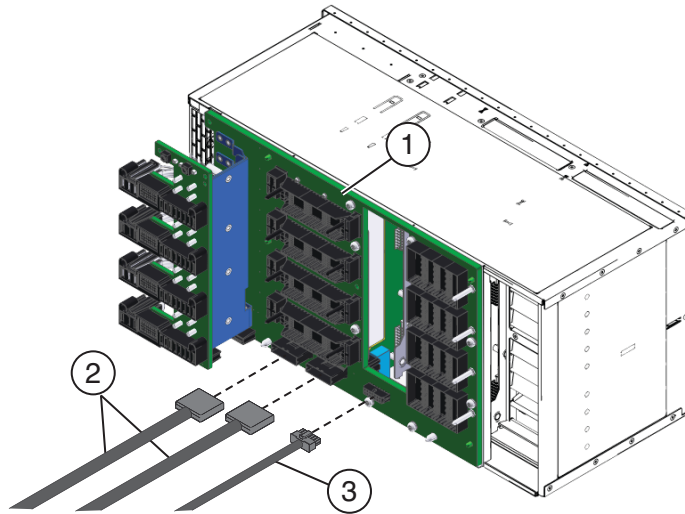
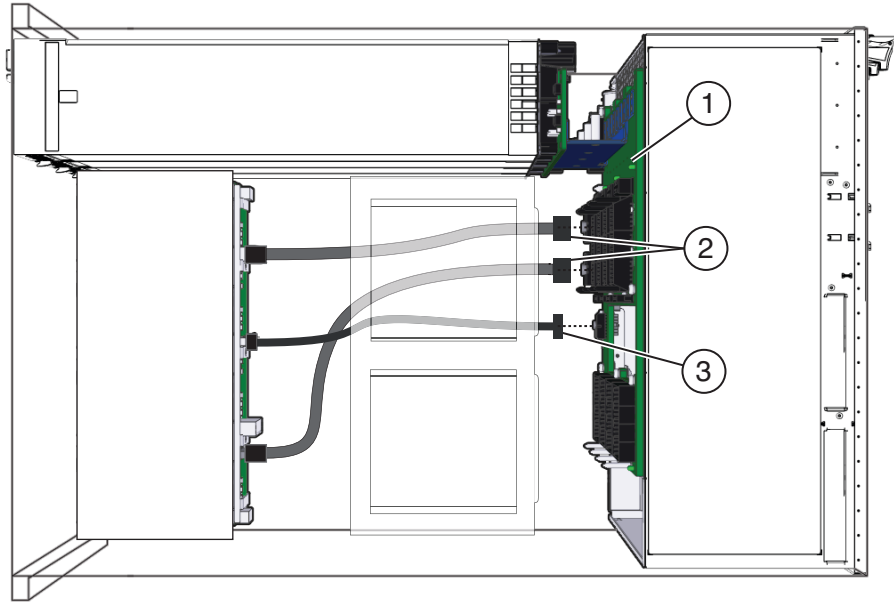
Partially remove the power supplies. This action ensures that the power supplies are disconnected from the midplane connectors.

5 Label and remove the CMODs and CPU filler modules. See [“How to Remove a CPU Module \(CMOD\)” on page 72](#).

CMODs and CPU filler modules must be returned to their original slots. For CMOD slot designations, see [“CPU Module \(CMOD\) Designations” on page 79](#).

6 Disconnect the three hard drive backplane cables *from the server midplane*.

Note – Do *not* disconnect the cables from the hard drive backplane.



- 7 Label and disconnect the cables connected to the *rear* of the server.

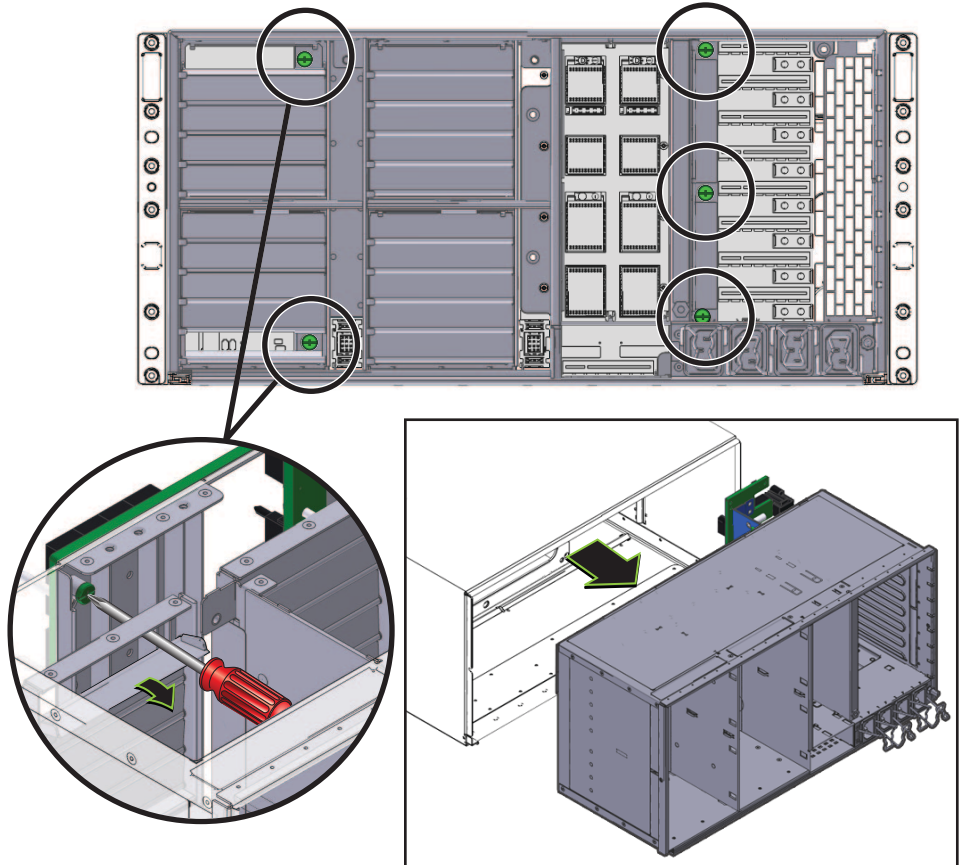
Note – Do *not* disconnect the cables at the hard drive backplane.

- 8 Remove the four Fan modules. See [“How to Remove a Fan Module” on page 105.](#)

- 9 **Remove the fan controller boards.** See [“How to Remove a Fan Module Controller Board” on page 109.](#)
- 10 **Remove the Network Express modules or Network Express module Ffillers.** See [“How to Remove a NEM or a NEM Filler” on page 112.](#)
If you are not replacing the SAM, removal of this component is optional but recommended.
- 11 **Remove the PCIe Express modules or PCIe Express module fillers.** See [“How to Remove a PCIe EM” on page 117.](#)
If you are not replacing the SAM, removal of this component is optional but recommended.
- 12 **Remove the SP module.** See [“How to Remove the SP Module” on page 120.](#)
If you are not replacing the SAM, removal of this component is optional but recommended.

- 13 Use a long No. 2 screwdriver to loosen the five green captive screws that secure the SAM to the server chassis.

Two of the captive screws are accessible through the airflow vanes of Fan module bays FM 0 and FM 2. To access the screws lift open the top and bottom air flow vanes.



- 14 To remove the SAM, carefully slide it out of the chassis.

Next Steps [“How to Install the Subassembly Module” on page 129](#)

▼ How to Install the Subassembly Module

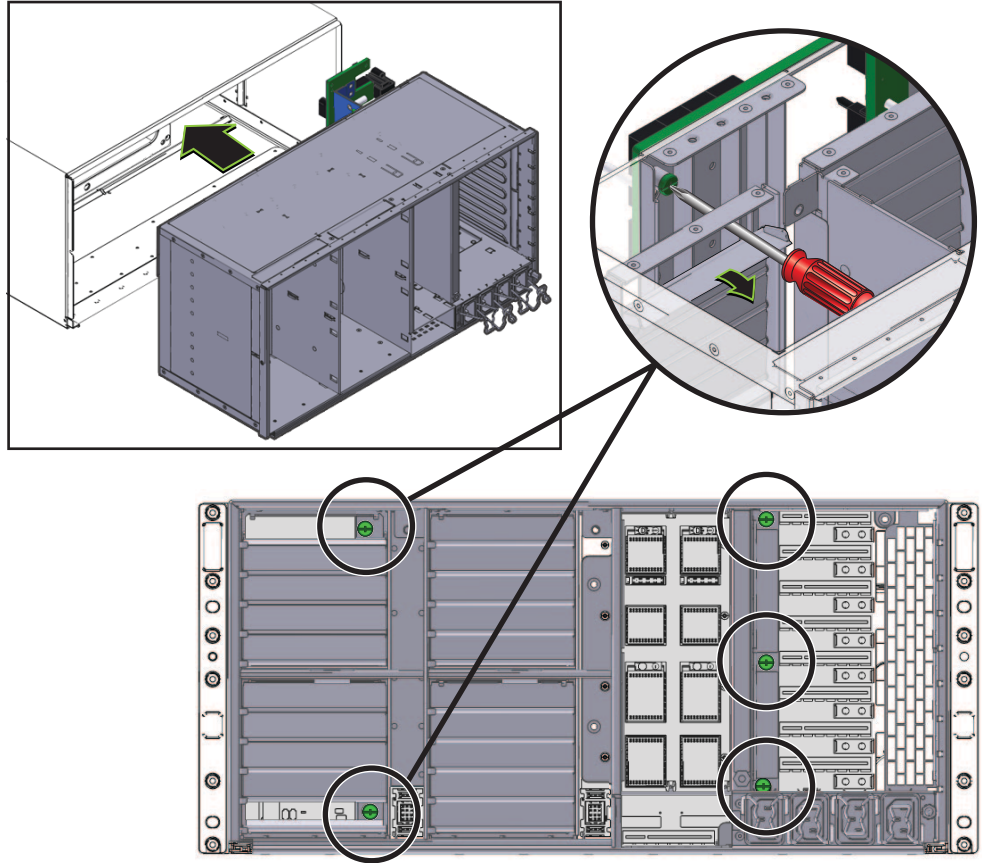
Before You Begin [“Sun Fire X4800 Server Subassembly Module Overview” on page 15](#)

- 1 Prepare the server for service. See [“How to Prepare for Service” on page 51](#).

- 2 Remove the SAM. See [“How to Remove the Subassembly Module” on page 125](#).
- 3 From the back of the server, ensure that the hard drive backplane cables are correctly routed. See [“Hard Drive Backplane Cable Routing and Designations” on page 69](#).
- 4 Position the SAM with the Fan module drive bay on the left.
- 5 Insert the SAM into rear of the server chassis.
- 6 Carefully slide the SAM into the chassis until it stops.
In this position the screws that secure the SAM to the interior chassis might not be touching their corresponding screw holes.
- 7 To ensure that the SAM mounting screws touch the interior screw holes on the chassis, firmly push the SAM inward until you can engage the screws.

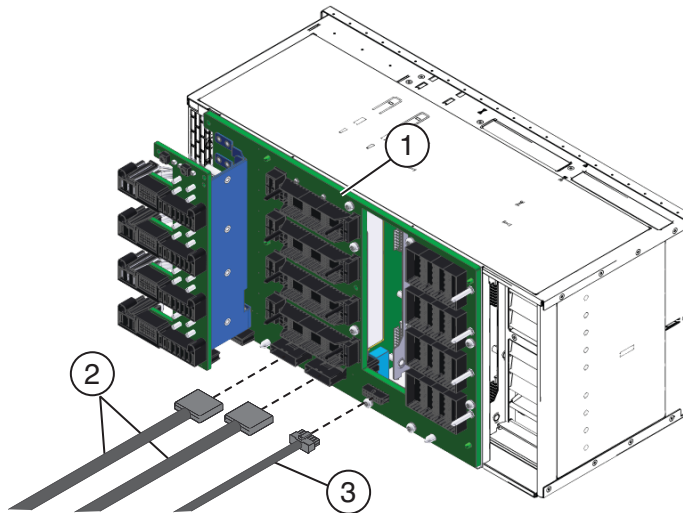
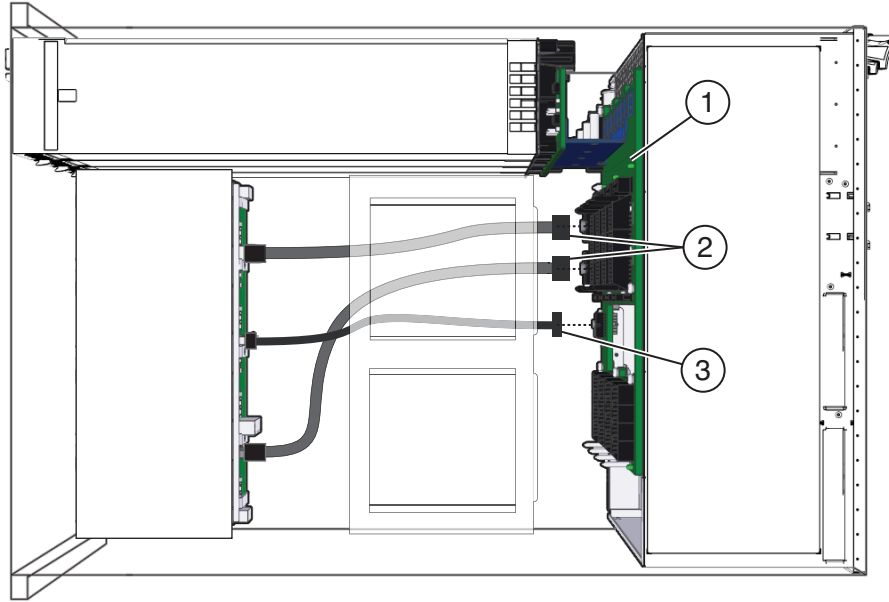
- 8 To partially secure the SAM in the server, use a long No. 2 screwdriver to tighten the three right-most green captive screws.

Two of the captive screws are accessible through the airflow vanes of Fan module bays FM 0 and FM 2. To access the screws lift open the top and bottom airflow vanes.



- 9 To fully secure the SAM in the server, carefully open the air vanes of the two left FMs and tighten the two green captive screws.

- 10 From the front of the server, connect the three hard drive backplane cables to the midplane.



- 11 At the rear of the server, install the fan controller boards. See [“How to Install a Fan Module Controller Board”](#) on page 110.
- 12 Install the four Fan modules. See [“How to Install a Fan Module”](#) on page 107.

- 13 Install the Network Express modules or Network Express module fillers. See [“How to Install a NEM or a NEM Filler” on page 114.](#)
- 14 Install the PCIe Express modules or PCIe Express module fillers. See [“How to Install a PCIe EM or PCIe EM Filler” on page 118.](#)
- 15 Install the SP module. See [“How to Install the SP Module” on page 121.](#)
- 16 Connect any cables network cables to the rear of the server.
- 17 Prepare the server for operation. See [“How to Prepare for Operation” on page 52.](#)
- 18 Backup and update the FRUID for the SAM serial number. See [“Managing FRUID Information” on page 135.](#)

See Also [“How to Remove the Subassembly Module” on page 125](#)

Sun Fire X4800 Server Service Procedures, and Information

This section contains topics and tasks related updating firmware, accessing the BIOS Setup Utility, and locating and reading component LEDs:

- [“Managing FRUID Information” on page 135](#)
- [“Firmware Information and Procedures” on page 137](#)
- [“How to Access the BIOS Setup Utility” on page 138](#)
- [“Updating the CPLD” on page 139](#)
- [“Component LED Locations and Meanings” on page 140](#)

Managing FRUID Information

This section contains tasks for managing the FRUID information of components in the server. The FRUID information is retained on the motherboard. This information should be backed up and updated whenever a major component is replaced.

Note – These tasks are intended for Oracle Service personnel only.

- [“How to Backup Motherboard FRUID Information” on page 135](#)
- [“How to Restore Motherboard FRUID Information” on page 136](#)
- [“How to Update Motherboard FRUID Information” on page 136](#)

▼ How to Backup Motherboard FRUID Information

Note – This information is for Oracle Service personnel only.

The server supports TLI and stores the TLI records in the motherboard (MB) FRUID container, called PRIMARY and in a file on the service processor (SP) filesystem, called BACKUP1. After adding or replacing a component in your server, you can initiate a backup of the latest TLI record information in the MB FRUID PRIMARY container to BACKUP1 on the SP filesystem using this procedure.

- 1 **Enter Service mode.**

- 2 To backup the PRIMARY container to the SP filesystem, enter the following command:
copypsync PRIMARY BACKUP1

See Also [“How to Restore Motherboard FRUID Information” on page 136](#)

▼ How to Restore Motherboard FRUID Information

Note – This information is for Oracle Service personnel only.

This procedure restores the FRUID backup.

- To restore FRUID information, enter Service mode and type the following command:
copypsync BACKUP1 PRIMARY

The MAC address stored in BACKUP1 is incorrect, because it is the address for the old MB.

▼ How to Update Motherboard FRUID Information

Note – This information is for Oracle Service personnel only.

After replacing a FRU, update the FRUID information that resides on the motherboard.

- 1 Use ILOM to obtain the information for the new component.

For example, to obtain the MAC address of a new motherboard from the CLI, use the show command:

show /SYS/MB/NET0

The MAC address appears in the list.

- 2 Make note of the component information.

- 3 Enter Service mode and use the **setpsnc** command to update the FRUID information:

For example, to change the motherboard MAC address:

setpsnc -m new-mac_address

where, *new-mac_address* is the MAC address of the new motherboard.

- 4 Backup the MB FRUID information. See [“How to Backup Motherboard FRUID Information” on page 135](#).

Firmware Information and Procedures

This section contains topics and tasks related to updating firmware:

- “How to Update Firmware” on page 137
- “How to Use the Tools and Drivers CD” on page 137
- “SP Module and CMOD Firmware Compatibility Considerations” on page 137

▼ How to Update Firmware

- For detailed information about updating firmware, refer to the [Oracle Integrated Lights Out Manager \(ILOM\) 3.0 Supplement for the Sun Fire X4800 Server](#).

▼ How to Use the Tools and Drivers CD

The Sun Fire X4800 Server Tools & Drivers CD contains software applications, utilities, and BIOS and ILOM firmware updates. For the most up-to-date information about the contents of the Tools and Drivers CD, refer to the [Sun Fire X4800 Server Product Notes](#).

The Tools and Drivers CD is available online as an ISO image from the Sun Fire X4800 server product page.

- 1 Download the latest Tools and Drivers CD ISO image, and do one of the following:
 - Use the ISO image to burn a CD.
 - Mount the ISO image as a virtual CD.
- 2 Boot the server from the CD.
- 3 Or browse the contents of the CD.

SP Module and CMOD Firmware Compatibility Considerations

Note – To ensure compatibility and optimal performance, Oracle recommends that you update your server to the latest version of firmware.

Firmware resides on both the SP module and the CPU modules (CMOD). The firmware versions on both components must match. You can perform firmware updates only on the SP module. The firmware that resides on the CMODs is maintained by the SP module. The SP

module automatically updates all CMODs to its version of firmware. If a CMOD is replaced and its version is different from the firmware version that resides on the SP module, then the SP module will update or downgrade the new CMOD to the version of firmware that resides on the SP module. If the SP module is replaced and its firmware is different from the firmware on the CMODs, it will update or downgrade the CMODs to the version of firmware that resides on the SP module.

The following table shows the resulting SP module response to user-initiated firmware updates and component replacements.

User Action	SP Response
Updates the SP module firmware	Updates the firmware of all CMODs to the version of firmware that resides on the SP module.
Replaces or adds a CMOD	Updates the new CMOD firmware to the version of firmware that resides on the SP module.
Installs an SP module with downgraded firmware	Downgrades the firmware of all CMODs to the downgraded version of firmware that resides on the SP module.
Installs an SP module with updated firmware	Updates the firmware of all CMODs to the updated version of firmware that resides on the SP module.

▼ How to Access the BIOS Setup Utility

Before You Begin Set up the server to view POST and boot messages.

- 1 Reboot or power on the server.**
Watch the POST messages for the prompt to press the F2 key.
- 2 When the prompt appears, press F2.**
The BIOS Setup Utility main menu appears.
- 3 Use the left and right arrow keys or the Tab key to navigate the top level of the utility.**
- 4 Use the down and up arrow keys to navigate the submenus.**
- 5 Use the Help information for instructions about how to change options, save setups, and exit the utility.**

Updating the CPLD



Caution – Possible damage to server system. The CPLD update procedures are for Oracle Service personnel only. Do not perform these procedures unless instructed by an Oracle Service representative.

- [“How to Update the CPLD From Oracle SunService” on page 139](#)
- [“How to Update the CPLD From Service Mode” on page 139](#)

▼ How to Update the CPLD From Oracle SunService



Caution – Possible damage to server system. This procedure is for Oracle Service personnel only. Do not perform this procedures unless instructed by an Oracle Service representative.

- 1 Log in to Oracle SunService.
- 2 Run the `cpldflash` script:
`/usr/local/bin/g5cpldflash.sh`

Note – An AC power cycle is not necessary for the CPLD flash to work.

- 3 When the flash is finished, exit SunService.

▼ How to Update the CPLD From Service Mode



Caution – Possible damage to server system. This procedure is for Oracle Service personnel only. Do not perform this procedure unless instructed by an Oracle Service representative.

- 1 Log in to service mode.
- 2 Create `svcuser` and set the user role to service mode.
- 3 Log in to `svcuser`.
- 4 At the prompt, enter the following command:
`set /SP/users/svcuser/service service_password=true`

- 5 **To get the short-form password, enter the long-form password.**

Make note of the short-form password.

- 6 **Set the current session mode to service.**

The prompt to enter the short-form password appears.

- 7 **To enter service mode, type the short-form password.**

The following service mode confirmation appears:

Currently in service mode.

- 8 **To flash the CPLD, type the following command:**

cpldflash

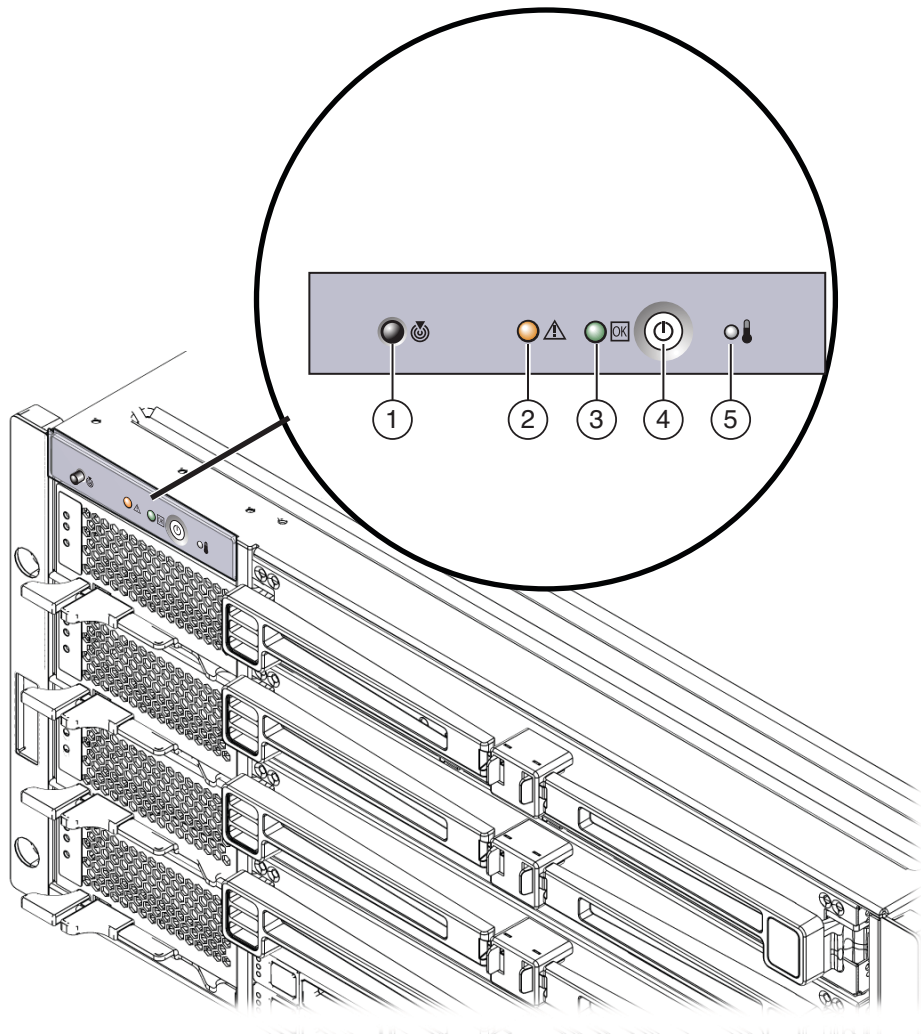
- 9 **When the flash is finished, exit service Mode.**

Component LED Locations and Meanings

This section provides information about the locations and meanings of component LED's on the Sun Fire X4800 server.

- [“Front Indicator Panel LEDs” on page 140](#)
- [“CPU Module \(CMOD\) LEDs” on page 142](#)
- [“Front Panel Power Supply LED's” on page 143](#)
- [“Front Panel Hard Drive LED's” on page 144](#)
- [“Back Panel Network Express Module LED's” on page 144](#)
- [“Back Panel SP Module LEDs” on page 146](#)
- [“Back Panel PCIe EM LEDs” on page 148](#)

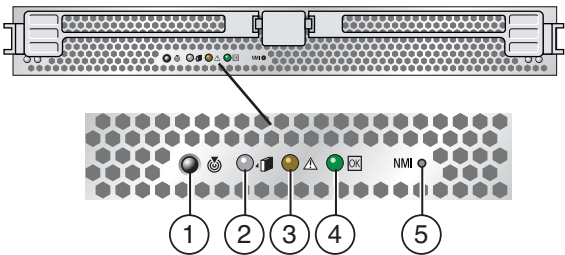
Front Indicator Panel LEDs



LED Name		Color	Activity
1	Locate	White	Identifies the server in a rack. <ul style="list-style-type: none">■ Off normally.■ Blinks when activated by the Locate button or ILOM.
2	Fault	Amber	Indicates a fault condition in the chassis. <ul style="list-style-type: none">■ Off normally.■ On solid when a component is in a fault state.

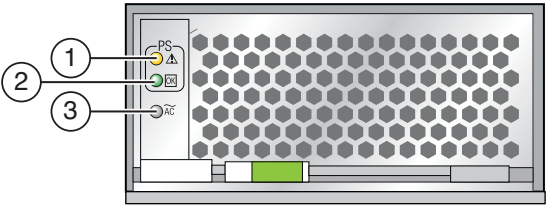
LED Name		Color	Activity
3	OK/Power	Green	<p>Indicates the power status of the server.</p> <ul style="list-style-type: none">Off when AC power cords are disconnected.Blinks at one second intervals when the host BIOS is booting, until BIOS finishes POST.Blinks quickly during SP boot (when AC power cords are connected to the server).Blinks slowly (2900ms Off, 100ms On) in standby power mode (post SP boot).On solid when in full power mode.See “Power and Reset” on page 41
4	Power button	None	<ul style="list-style-type: none">Press once to power on to full power mode from standby power mode.Press once to perform a graceful power-off from full power mode to standby power mode.Press and hold for four seconds to perform an immediate shutdown from full power to standby power mode.See “Power Button and Power OK LED” on page 42.
5	Over-temperature	Amber	<p>Indicates an over-temperature condition within the server.</p> <ul style="list-style-type: none">Off normally.On solid when the server's ambient temperature exceeds the upper threshold.

CPU Module (CMOD) LEDs



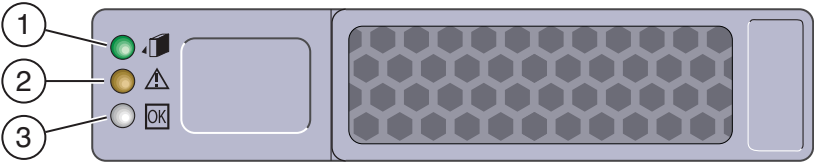
LED Name		Color	Activity
1	CMOD Locate LED	White	<ul style="list-style-type: none"> Off normally. Blinks when activated by the Locate button or ILOM.
2	Ready to Remove	Blue	Not used. Cold service.
3	CMOD Service Action Required (fault)	Amber	Indicates a CMOD fault condition. <ul style="list-style-type: none"> Off normally. On solid when the CMOD is in a fault state.
4	CMOD OK LED	Green	Indicates the state of the CMOD. <ul style="list-style-type: none"> Off when AC power is disconnected. Blinks quickly when the SP is initializing the CMOD (when the server is connected to AC power). On solid when in standby power mode. See “Power and Reset” on page 41.
5	NMI button	n/a	Service use only.

Front Panel Power Supply LED's



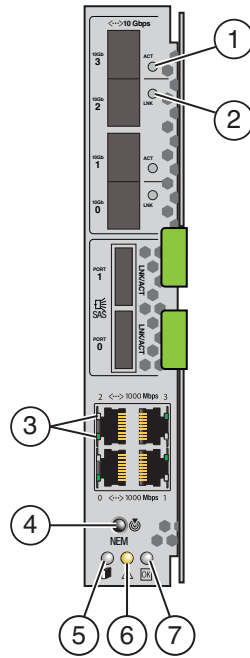
LED Name		Color	Activity
1	PSU Fault	Amber	Indicates a power supply fault condition. <ul style="list-style-type: none">■ Off normally.■ On solid when the power supply is in a fault state.
2	PSU OK LED	Green	On when the PSU is on. Otherwise it is Off.
3	AC LED	Green	<ul style="list-style-type: none">■ On. AC is connected.■ Off. AC is not connected.

Front Panel Hard Drive LED's



LED Name		Color	Activity
1	Hot Swap LED	Blue	<ul style="list-style-type: none">■ Off: Normal operation.■ Steady on: The system indicates that the drive is ready to be removed.
2	Fault	Amber	<ul style="list-style-type: none">■ Off: Normal operation.■ Steady on: The system has detected a fault with the HD.
3	Activity	Green	<ul style="list-style-type: none">■ Blink: Drive activity, standby.■ Off: Power is off or no drive activity.

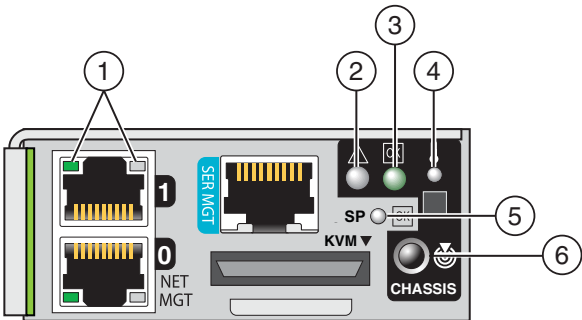
Back Panel Network Express Module LED's



LED Name	Color	Activity
1 10 GigabitEthernet port Activity LED	Green	On: Link established at 100 megabits.
	Amber	On: Link established at 10 megabits. Amber LED indicates that the link established is <i>not</i> at full capacity for that port.
2 10 GigabitEthernet port Link LED	Green	On: Link Activity.
3 10/1000/1000Base-T Ethernet LED (top)	Green	On: Link established at 1 gigabit
	Amber	On: Link established at 100 megabits. Amber LED indicates that the link established is <i>not</i> at full capacity for that port.
	Amber	Off: Link established at 10 megabits. Amber LED indicates that the link established is <i>not</i> at full capacity for that port.
10/1000/1000Base-T Ethernet LED (bottom)	Green	On: Link activity.

LED Name		Color	Activity
4	NEM Locate LED	White	<ul style="list-style-type: none">Off normally.Blinking when activated by the Locate button or ILOM.
5	OK to Remove LED	Blue	Off. Not used.
6	Service Action Required (fault) LED	Amber	<p>Indicates a fault condition.</p> <ul style="list-style-type: none">Off normally.On solid when the is in a fault state.
7	Power OK LED	Green	<p>Off when host is off.</p> <p>On when host is on.</p>

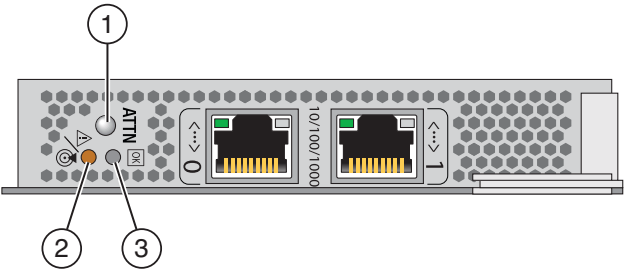
Back Panel SP Module LEDs



LED Name		Color	Activity
1	10/1000/1000Base-T Ethernet LED (left)	Green	On: Link established at 1 gigabit.
		Amber	On: Link established at 100 megabits. Amber LED indicates that the link established is <i>not</i> at full capacity for that port.
		Amber	Off: Link established at 10 megabits. Amber LED indicates that the link established is <i>not</i> at full capacity for that port.
	10/1000/1000Base-T Ethernet LED (right)	Green	On: Link activity.

LED Name		Color	Activity
2	Chassis Service Action Required (fault) LED	Amber	<p>Indicates a server fault condition.</p> <ul style="list-style-type: none"> ■ Off normally. ■ On solid when the server is in a fault state.
3	Chassis Power OK LED	Green	<p>Indicates the power status of the server.</p> <ul style="list-style-type: none"> ■ Off when AC power cords are disconnected. ■ Blinks quickly during SP boot (when AC power cords are connected to the server). ■ Blinks slowly in standby power mode (post SP boot). ■ On solid when in full power mode. ■ See “Power and Reset” on page 41
4	Chassis Over-temperature LED	Amber	<p>Indicates an over-temperature condition within the server.</p> <ul style="list-style-type: none"> ■ Off normally. ■ On solid when the internal server temperature exceeds the upper threshold.
5	SP module OK LED	Green or Yellow	<p>Indicates the power status of the SP module.</p> <ul style="list-style-type: none"> ■ Off when AC power cords are disconnected. ■ Blinks three times when SP module first receives power. ■ Off while SP is booting. ■ On when SP is functional. ■ Yellow when SP is not functional. ■ See “Power and Reset” on page 41
6	Chassis Locate LED	White	<p>Identifies the server in a rack:</p> <ul style="list-style-type: none"> ■ Off normally ■ Blinks when activated by the Locate button or ILOM.

Back Panel PCIe EM LEDs



LED Name		Color	Activity
1	ATTN button	n/a	Press to hot remove and to add.
2	Service Action Required (fault) LED	Amber	Indicates a fault condition. <ul style="list-style-type: none">■ Off normally.■ On solid when the is in a fault state.
3	OK LED	Green	Solid when SP is ready. Off when SP is not ready.

Sun Fire X4800 Server Specifications

- “Physical Specifications” on page 149
- “Power Specifications” on page 149
- “Environmental Specifications” on page 150

Physical Specifications

Specification	Value
Width	17.5 inches (445 mm)
Height	8.61 inches (218.75 mm)
Depth	27.56 inches (700 mm)
Weight	180 pounds

Power Specifications

Note – The power dissipation numbers listed in the following table are the maximum rated power numbers for the power supplies used in the server. The numbers are not a rating of the actual power consumption of the system. For up to date information on power consumption, go to the following web site and navigate to the appropriate page: <http://www.oracle.com/goto/x4800>

Specification	Value
Universal AC input	200–240 VAC
Maximum current at 200 VAC	20 A
Maximum power available	3500 W
Maximum power consumed	3800 W

Specification	Value
Volt-Ampere rating	3878 VA @ 240 VAC, 0.98 P.F.

Environmental Specifications

Specification	Value
Temperature (operating)	5°–35° C up to 10,000 ft
Humidity	10–90% RH non-condensing
Altitude (operating)	10,000 ft. 35° C from sea level to 900 m, maximum temperature lowers 1° C per 300 m increase in altitude 28° C at 3,000 m
Airflow (maximum possible)	552 CFM
Airflow (typical)	250 CFM

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