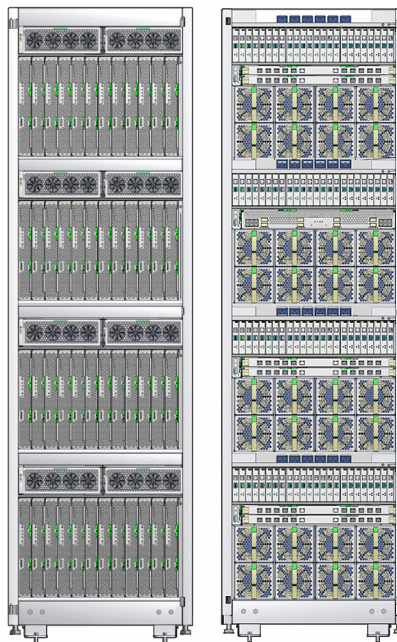


# Sun Blade™ 6048 Modular System Overview

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Sun Microsystems, Inc.  
[www.sun.com](http://www.sun.com)

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# Introduction

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This document provides an overview of the Sun Blade 6048 modular system.

This document is divided into the following sections:

- [“Logical Components” on page 1](#) describes the components that provide the computational functionality of the system. They consist of up to 48 server modules, blades or blade modules, 24 PCIe Express Modules (PCIe EMs, two per server module) and two Network Express Modules (NEMs).
- [“Service Processor” on page 10](#) describes the service processor, which allows administrators to monitor and manage logical components and infrastructure components, even when they are powered off.
- [“Infrastructure Components” on page 11](#) describes the infrastructure components, which consist of the chassis, the fans, and the power supplies.
- [“Related Documentation” on page 13](#)
- [“Managing Firmware” on page 14](#)

---

## Logical Components

The Sun Blade 6048 modular system chassis consists of four identical shelves, with the following maximum configuration for each shelf:

- Up to 48 Sun Blade 6000 family server blade modules: AMD Opteron, Intel® Xeon® processors, and Sun UltraSPARC processors, (12 per shelf)
- Eight 5600 or 8400W power supply modules (2 per shelf)
- Eight NEM filler panels or up to 8 NEMs (up to 2 per shelf)
- 96 PCIe Express Module (EM) slots (24 per shelf)
- Four Chassis Monitoring Modules (CMM) (1 per shelf)
- Thirty-two rear fan modules (8 for every 12 blades)

# System Overview

This section describes the logical components in the Sun Blade 6048 modular system and how they interact with each other.

## Sun Blade 6048 Modular System Logical Components

The Sun Blade 6048 modular system includes four chassis shelves.

- Each shelf contains slots for up to 12 server modules accessible from the front of the chassis, along with two power supplies and two front fan modules (located inside the power supplies).
- At the rear of each chassis shelf are up to 24 installed PCIe EMs (one or two PCIe EMs per server module or 24 per shelf), up to two installed NEMs (up to two single-slot or 1 dual-slot NEMs per shelf), one chassis management module (CMM), and eight fan modules. All active chassis components that are critical to system operation are configured for redundancy.

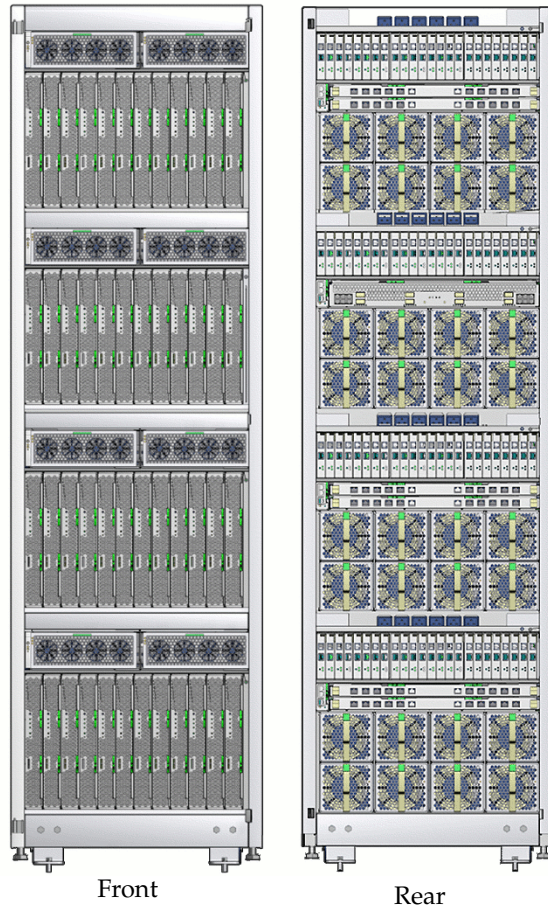
The Sun Blade 6048 modular system is designed for ease of service by either the customer for user-upgradeable components or by authorized service personnel. It consists of four identical shelves consisting of:

- 12 blade servers (48 total)
- 24 PCIe Em slots (96 total)
- 2 power supplies (8 total)

**FIGURE 1-1** Shows the front and rear views of a fully populated system.

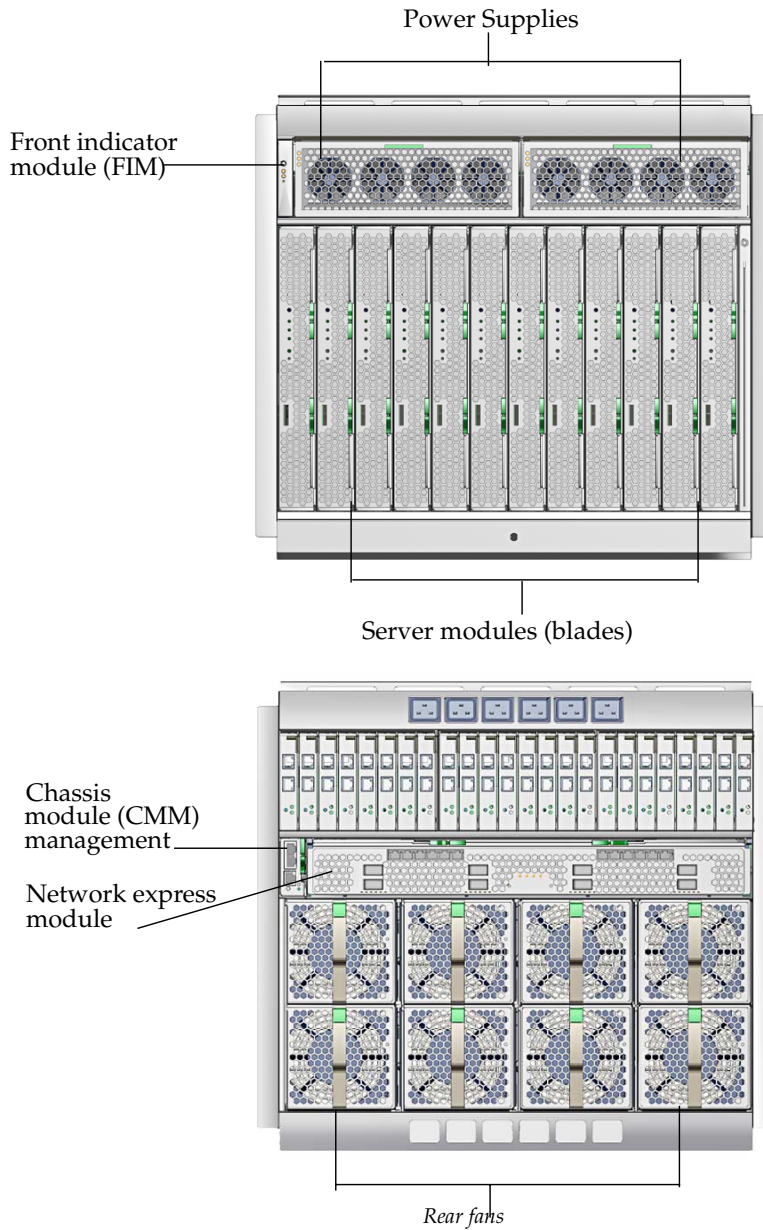


**FIGURE 1-1** Front and Rear Views of Chassis System



**FIGURE 1-2** shows the components that are common to each of the four shelves within a fully populated Sun Blade 6048 chassis.

**FIGURE 1-2** Populated Sun Blade Chassis



The logical components include:

- Blade Modules – See “Blade Modules” on page 5.
- Network Express Modules (NEMs) – See “NEMs” on page 8 for details.
- PCIe Express Modules (PCIe EMs) – See “PCIe EMs” on page 9 for details.

---

**Note** – The Chassis Management Module (CMM) is described in “Service Processor” on page 10.

---

## Blade Modules

Blade modules form the backbone of the system; in a sense, the other components exist to support their functionality.

Blade modules come in two categories: server modules and storage modules. For example, the Sun Blade X6250 is a server module. Most server modules are complete, autonomous servers, although some of them have no hard drives and must be attached to external storage.

A single chassis can hold any combination of supported server modules. Each slot operates independently and is not affected by the server modules in adjacent slots. Thus, an x64 module such as a Sun Blade X6250 can be installed next to a SPARC module such as a Sun Blade T6320.

The following table lists the blade modules:

---

**Note** – The lists of supported modules in this document are current as of the date this document was published; however new modules will be added as they are developed. For an up-to-date list, see <http://www.sun.com/servers/blades/offerings.jsp>

---

**TABLE 1** Blade Servers

Module	CPU Type	Documentation Web Site
Sun Blade X6220	AMD Operton	<a href="http://docs.sun.com/app/docs/prod/blade.x6220#hic">http://docs.sun.com/app/docs/prod/blade.x6220#hic</a>
Sun Blade X6240	AMD Opteron	<a href="http://docs.sun.com/app/docs/prod/blade.x6240#hic">http://docs.sun.com/app/docs/prod/blade.x6240#hic</a>
Sun Blade X6250	Intel Xeon	<a href="http://docs.sun.com/app/docs/prod/blade.x6250#hic">http://docs.sun.com/app/docs/prod/blade.x6250#hic</a>
Sun Blade X6440	AMD Opteron	<a href="http://docs.sun.com/app/docs/prod/blade.x6440#hic">http://docs.sun.com/app/docs/prod/blade.x6440#hic</a>

---

**TABLE 1** Blade Servers

Module	CPU Type	Documentation Web Site
Sun Blade X6450	Intel Xeon	<a href="http://docs.sun.com/app/docs/prod/blade.x6450#hic">http://docs.sun.com/app/docs/prod/blade.x6450#hic</a>
Sun Blade T6300	SPARC	<a href="http://docs.sun.com/app/docs/prod/blade.t6300#hic">http://docs.sun.com/app/docs/prod/blade.t6300#hic</a>
Sun Blade T6320	SPARC	<a href="http://docs.sun.com/app/docs/prod/blade.t6320#hic">http://docs.sun.com/app/docs/prod/blade.t6320#hic</a>
Sun Blade T6340	SPARC	<a href="http://docs.sun.com/app/docs/prod/blade.t6340#hic">http://docs.sun.com/app/docs/prod/blade.t6340#hic</a>
Sun Blade X6048 Disk Module	Storage	<a href="http://docs.sun.com/app/docs/prod/blade.6000disk#hic">http://docs.sun.com/app/docs/prod/blade.6000disk#hic</a>
Sun Blade X6270	Intel Xeon CSI compute blade	<a href="http://docs.sun.com/app/docs/prod/blade.6000disk#hic">http://docs.sun.com/app/docs/prod/blade.6000disk#hic</a>
Sun Blade X6275 Xenon 5500	Intel Xeon	<a href="http://docs.sun.com/app/docs/prod/blade.6000disk#hic">http://docs.sun.com/app/docs/prod/blade.6000disk#hic</a>

Many blade servers have a slot for a Raid Expansion Module (REM) and a Fabric Expansion Module (FEM).

- REMs are Host Bus Adapters (HBAs) that control disks on their parent boards and on companion storage modules. See [“RAID Expansion Modules” on page 6](#).
- FEMs support network and InfiniBand connectivity. They work with the network capability of many NEMs. For more information, see [“Fabric Expansion Modules” on page 7](#).

## RAID Expansion Modules

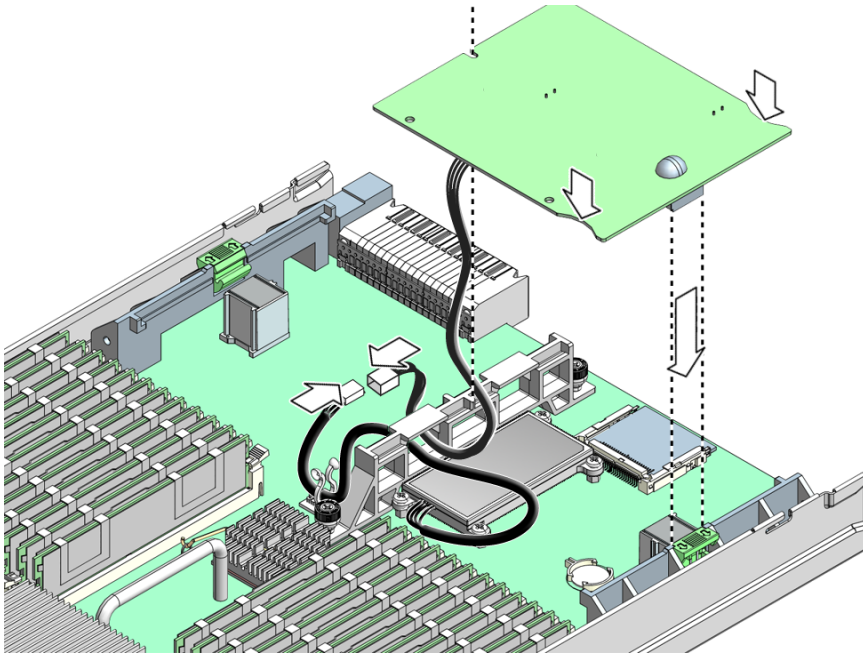
REMs provide HBA functionality on some blade servers. They mount to a REM connector on the blade motherboard.

The currently-supported REMs include:

- Sun Blade RAID 5 expansion module – supports single disks, and RAID levels 0, 1, 1E, 10, 5, or 6 with global or dedicated hot spares.
- Sun Blade RAID 0/1 expansion module – supports single disks, and RAID levels 0, 1, and 1E.

[FIGURE 1-3](#) shows a REM being installed on a Sun Blade X6450 server module.

**FIGURE 1-3** Installation of a REM on a Sun Blade X6450 Server Motherboard

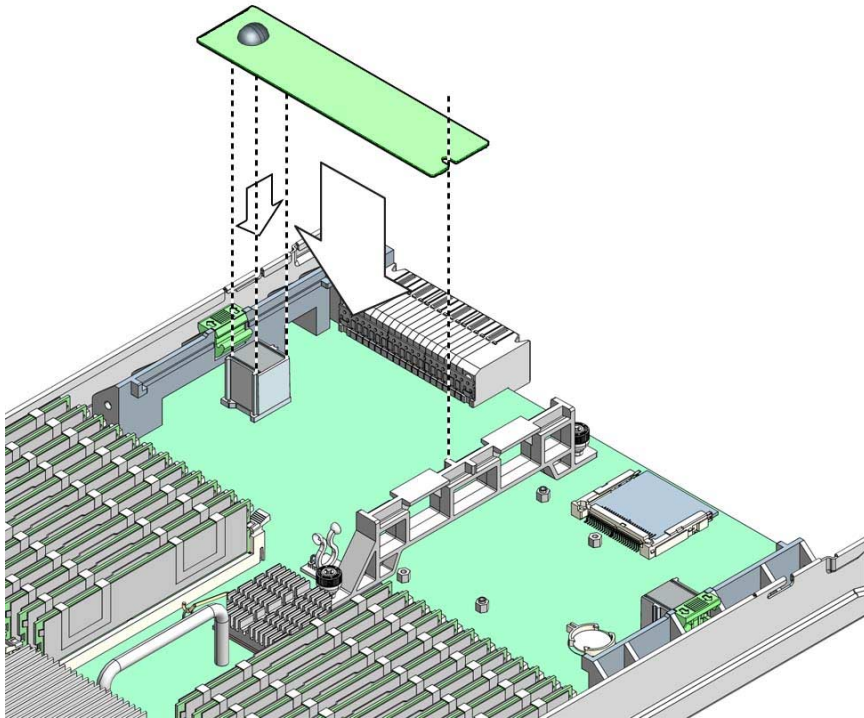


## Fabric Expansion Modules

FEMs allow blade servers to use the network and InfiniBand connections provided by certain NEMs. These NEMs and the corresponding FEMs operate as a matched set.

FEMs are installed on the FEM connector on the blade motherboard. [FIGURE 1-4](#) shows a Fabric Expansion Module on a Sun Blade X6450 server module.

**FIGURE 1-4** Installation of a FEM on a Sun Blade X6450 Server Motherboard



## NEMs

NEMs offer systemic connectivity to the blades in the chassis. Each NEM connects to all 12 blade slots in a single shelf. The basic NEM provides a 10/100/1000 Ethernet connection for each blade.

The chassis provides two NEM slots per shelf. Adding a second NEM provides a second set of 10/100/1000 Ethernet connections for each blade.

---

**Note** – If there is no NEM in the chassis, a PCIe EM can be used to provide server blades with Ethernet connectivity. See [“PCIe EMs” on page 9](#) for information on PCIe EMs.

---

Most NEMs are hot-swappable or hot-pluggable.

- Hot-swappable components can be removed and replaced without shutting down any system component.
- Hot-pluggable components can be removed without shutting down the system; however, administrators must prepare the system first. Usually this requires idling or turning off the component to be hot plugged.

The type of connectivity depends on the NEM.

---

**Note** – Most NEM functions, other than the 10/100/1000 Ethernet port, require a matching REM or FEM mounted on the blade motherboard before the blade server can use that function. See “[RAID Expansion Modules](#)” on page 6 or “[Fabric Expansion Modules](#)” on page 7 for more information.

---

## Sun Blade 6048 InfiniBand Switched NEMs

The supported Sun Blade 6048 InfiniBand Switched NEMs include:

- Two 36-port QDR InfiniBand switches
- 10 12x InfiniBand cable connectors
- 24 pass-through Gigabit Ethernet ports

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**Note** – Network express modules (NEMs): The Sun Blade 6048 chassis supports up to 8 installed NEMs (up to two single-slot or one dual-slot NEMs per shelf).

---

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**Note** – Check <http://www.sun.com/servers/blades/offerings.jsp> for the latest list of supported NEMs.

---

## PCIe EMs

The Sun Blade 6048 chassis supports up to 96 installed PCIe EMs (up to 2 PCIe EMs per server module or 24 per shelf). The PCIe EM slots are labeled PCIe EM 0 to 11.



The PCIe EMs are designed to offer independent, dedicated I/O functions configurable on a per server module basis.

Each blade slot has two dedicated PCIe EM slots, numbered as follows:

**TABLE 2** Blade and PCIe EM Slot Numbering

<b>Blade Slot</b>	<b>PCIe EM Slots</b>
0	0, 1
1	2, 3
2	4, 5
3	6, 7
4	8,9
5	10,11
6	12,13
7	14,15
8	16,17
9	18,19
10	20, 21
11	22,23

The PCIe EM format is a standard developed by the PCI-SIG standards organization. The chassis midplane implements PCI-Express connectivity between the PCIe EMs and server modules and assigns two PCIe EMs to each server module. Most PCIe EMs are hot-swappable or hot-pluggable, allowing system administrators to easily replace them.

PCIe EMs can be installed in a system without any modification to the connected server module hardware. The Sun Blade 6048 modular system supports industry-standard, hot-swappable PCIe EMs.

Check <http://www.sun.com/servers/blades/optioncards.jsp> for the latest list of supported PCIe EM modules.

---

## Service Processor

The chassis has four service processor modules, (one per shelf) referred to as a Chassis Management Module (CMM). This service processor (SP) supports the service processor program, called the Integrated Lights-Out Manager (ILOM).



The CMM appears in [FIGURE 1-2](#).

In addition to the CMM which manages the shelf, each server blade has its own service processor that operates independently of the CMM. These can be accessed by entering a command on the CMM. The blade service processor can also be accessed directly, through their SP IP address or through a dongle connector on the front of the server module.

Disk blades do not have a service processor. The CMM provides a limited set of commands for managing them.

The service processor allows you to manage chassis components and to access the service processors of the individual server modules even when the chassis and/or the server modules are powered off.

The ILOM enables you to:

- Display and configure ILOM network parameters
- Display and configure server module SP network parameters
- Connect to server module SP
- Display the following information about chassis components:
  - Whether the component is present
  - FRU SEEPROM data
  - Status

In addition to the CMM which manages the shelf, each server blade has its own service processor that operates independently of the CMM. These can be accessed directly, through their SP IP address, or through a dongle connector on the front of the server module.

Disk blades do not have a service processor. The CMM provides a limited set of commands for managing them.

---

## Infrastructure Components

The infrastructure components provide physical support, power, and cooling for the system. They include the chassis, eight power supplies with integrated fan modules, and the thirty-two rear fan modules.

- [“Chassis” on page 12](#)
- [“Sun Cooling Door 5600” on page 12](#)
- [“Sun Cooling Door 5200” on page 12](#)

## Chassis

The chassis is the physical enclosure that contains the system components. The chassis can accommodate corresponding front-to-back, rail-to-rail spacing of 26.77 inches (68.0 cm) to 34.25 inches (87.0 cm).

## Sun Cooling Door 5600

The Sun Cooling Door 5600 is a 35kW cooling system for high-density heat loads that mounts on the rear of the Sun Blade 6048 chassis while allowing access to the back of it.

Room air is drawn in through the front of the rack, picks up heat from the servers, transfers the heat to the Sun Cooling Door 5600's coil and is expelled through the rear of the rack or chassis. When the entering air temperature is 77°F (25°C) or lower, the Sun Cooling Door 5600 removes up to 35kW of heat generated by the components without raising the temperature of the air leaving the rack or chassis.

## Sun Cooling Door 5200

The Sun Cooling Door 5200 is a highly efficient air-to-water heat exchanger. It is installed onto the rear of the Sun Blade 6048 chassis and has a high cooling capacity. Its slim design and proximity to the heat load provides considerable floor space savings. It is a 100-percent passive system, allowing for minimal operation and maintenance costs. The Sun Cooling Door 5200 requires front-to-back air flow routing. The server fans push the warm air exhausted from the devices in the server chassis/rack into the rear door heat exchanger. The air is then cooled and exhausted out of the Sun Cooling Door 5200. See [FIGURE 1-5](#), Sun Cooling Door.

**FIGURE 1-5** Sun Cooling Door 5200



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## Related Documentation

Documentation for the Sun Blade 6048 modular system is on the web at:

<http://docs.sun.com/app/docs/prod/blade.6048mod#hic>

The documentation for the Sun Blade 6048 modular system is divided by function into the following collections:

- System Documentation – These collections contain the basic documentation for the system, including installation, service, safety and compliance, and product notes.

- ILOM 2.0 and 3.0 Documentation – This collection contains documentation for the chassis’ service processor, called the Chassis Management Module Integrated Lights-Out Manager (CMM ILOM). It also provides documentation for the Integrated Lights-Out Manager (ILOM), which is the service processor used by most (but not all) server modules.

The individual web site for each server module also provides documentation for that server module’s service processor.

- Sun Blade 6048 Switched InfiniBand QDR Switched Network Express Module Documentation

---

## Managing Firmware

This section addresses issues related to the firmware in the chassis and the server modules. It includes information about updating firmware and about keeping the firmware in the chassis elements compatible with other chassis elements.

- “Getting the Latest Sun Firmware Release” on page 14
- “How Sun Blade 6048 Firmware is Released” on page 15
- “The Scope and Purpose of Software Updates” on page 16
- “Updating Chassis and Server Module Firmware” on page 16
- “Chassis and Server Modules running ILOM” on page 17

## Getting the Latest Sun Firmware Release

All software and firmware for the Sun Blade 6048 and associated server modules can be downloaded from:

<http://www.sun.com/servers/blades/downloads.jsp#6048>

The download page for each product provides a list of major changes from one release to the next.

A more detailed list of problems fixed by the download is available in the corresponding product notes and web download page.

# Sun Blade 6048 Chassis Management Module (CMM) Blade Server Support Matrix

The most recently available blade server software release is preferred for use with the Sun Blade 6048 CMM software. Starting with CMM SW Release 3.1.2 this support matrix is available within the CMM SW Release download file list under Optional Files. The software support matrix provides the blade software release versions that are recommended for use with a specific CMM release. To access this page:

**1. Navigate to:**

<http://www.sun.com/servers/blades/downloads.jsp#6048>

**2. Press the Download button under Sun Blade 6048 Modular System - Downloads.**

The Sun Blade 6048 Chassis SW 3.1.2 page opens. From this page you set up an account.

**3. Click on the checkbox to select the I agree to the SunBlade X6048 3.1.2 License Agreement.**

**4. Enter a User Name and Password.**

As soon as your account is active you can access the Blade Server Support Matrix, located under Optional Files.

## How Sun Blade 6048 Firmware is Released

The firmware is incorporated into new chassis and blade products at the factory. However, it is updated periodically in packages called either “software updates” or “firmware updates.”

All of these updates are released for either a single server module (for example the Sun Blade X6450 server module), or for the Sun Blade 6048 chassis.

---

**Note** – For server modules, software updates can include software and firmware. However, the chassis has no software, so the chassis software updates contain only firmware.

---

# The Scope and Purpose of Software Updates

The chassis and server modules each have a corresponding product notes document that lists known issues with the hardware, software (server modules only), firmware, service processor, and documentation. These documents describe the issues and provide workarounds where possible.

The product notes document is updated with each major software release and often for minor releases as well.

---

**Note** – A major release is where the first number changes, for example, from 2.0 to 3.0. A minor release is where the second number changes, for example from 2.0. to 2.1.

Changes from software release to release are usually included as part of the software release web download, available at:

<http://www.sun.com/servers/blades/downloads.jsp#6000>

Minor releases might not include updates to the Product Notes.

---

The chassis product notes also include a list of bugs fixed in each release.

---

**Note** – The last two numbers of the Product Notes will vary, according to the release.

---

Product notes for the server modules and storage blades can be found at

<http://docs.sun.com/app/docs/prod/blade.srvr>

Follow the links on this page to the corresponding server module for the complete set of documentation associated with that server module.

## Updating Chassis and Server Module Firmware

If a NEM firmware update is required, Sun recommends that it is installed before other firmware.



---

**Caution** – Some firmware upgrade procedures remove a component from service. For example, server module ILOM upgrade procedures might shut down the server to perform BIOS upgrades. NEM and storage module firmware upgrades (or hot-swapping) might interrupt I/O connectivity to multiple blades.

---

See the following section for firmware update procedures. See the corresponding product notes for information about known issues and service dependencies.

## Adding a Server Module to the Chassis

Normally, you can install a server module with newer firmware than existing server modules in the chassis without adversely impacting the other components in the chassis.

However, to ensure that this is the case, Sun recommend that all components use the latest version of the firmware or the prior release of the firmware.

## Chassis and Server Modules running ILOM

### Sun Blade 6048 Chassis

The Sun Blade 6048 chassis uses ILOM firmware. See the ILOM documentation collection for the corresponding product for details.

### Firmware Update File

To update firmware for a server module or for the chassis, you must know the name of the firmware update file. The firmware update file name is documented in the platform ILOM Supplement and the Tools and Drivers CD or CD image.

### Server Modules Running ILOM

ILOM is Sun's common service processor firmware. It is the standard for rackmount servers and server modules, regardless of the CPU architecture. All newer Sun server modules, including SPARC, Intel, and AMD, run ILOM.

---

**Note** – The T6300 server module is an exception; it uses ALOM. See the T6300 documentation for details.

---

The firmware update procedures are located in the corresponding ILOM documentation.

## ELOM-to-ILOM Transition

Some server modules were originally shipped with the ELOM (Embedded Lights Out Manager) service processor firmware, such as the Sun Blade X6250 and Sun Blade X6450 server modules. These can all be updated to ILOM.

Sun recommends that all server modules running ELOM be updated to run ILOM.

This procedure is documented in the *ELOM-to-ILOM Migration Guide*, which is included in the corresponding server module documentation collections. It is also available here:

<http://docs.sun.com/app/docs/prod/blade.srvr>

## ELOM-to-ELOM Upgrades

The procedure for updating all server modules that run ELOM is in the *Sun Blade X6250 Server Module Embedded Lights Out Manager Administration Guide*, which is available in the documentation collections for all server modules that run ELOM. It is also available here:

<http://docs.sun.com/app/docs/prod/blade.srvr>



## Service Processor

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The chassis has four service processor modules, (one per shelf) referred to as a Chassis Management Module (CMM). This service processor (SP) supports the service processor program, called the Integrated Lights-Out Manager (ILOM).

The CMM appears in [FIGURE 1-1](#).

In addition to the CMM which manages the shelf, each server blade has its own service processor that operates independently of the CMM. These can be accessed by entering a command on the CMM. The blade service processor can also be accessed directly, through their SP IP address or through a dongle connector on the front of the server module.

Disk blades do not have a service processor. The CMM provides a limited set of commands for managing them.

The service processor allows you to manage chassis components and to access the service processors of the individual server modules even when the chassis and/or the server modules are powered off.

The ILOM enables you to:

- Display and configure ILOM network parameters
- Display and configure server module SP network parameters
- Connect to server module SP
- Display the following information about chassis components:
  - Whether the component is present
  - FRU EEPROM data
  - Status

In addition to the CMM which manages the shelf, each server blade has its own service processor that operates independently of the CMM. These can be accessed directly, through their SP IP address, or through a dongle connector on the front of the server module.

Disk blades do not have a service processor. The CMM provides a limited set of commands for managing them.

## Infrastructure Components

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The infrastructure components provide physical support, power, and cooling for the system. They include the chassis, eight power supplies with integrated fan modules, and the thirty-two rear fan modules.

- [“Chassis” on page 21](#)
- [“Sun Cooling Door 5600” on page 21](#)
- [“Sun Cooling Door 5200” on page 22](#)

### Chassis

The chassis is the physical enclosure that contains the system components. The chassis can accommodate corresponding front-to-back, rail-to-rail spacing of 26.77 inches (68.0 cm) to 34.25 inches (87.0 cm).

### Sun Cooling Door 5600

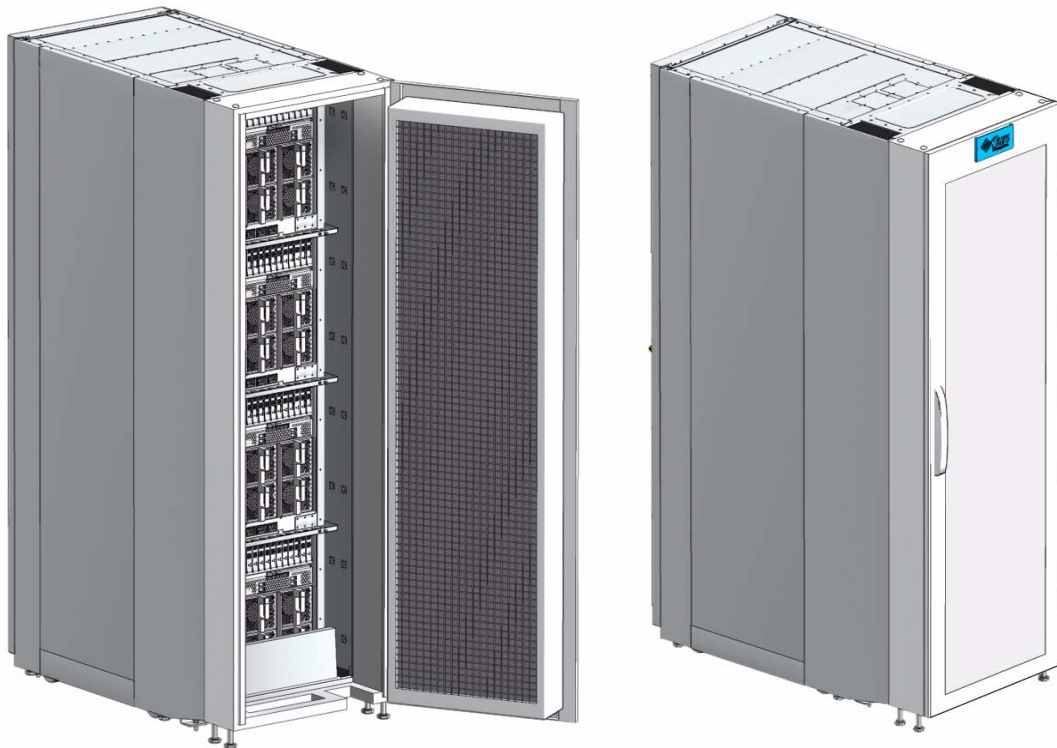
The Sun Cooling Door 5600 is a 35kW cooling system for high-density heat loads that mounts on the rear of the Sun Blade 6048 chassis while allowing access to the back of it.

Room air is drawn in through the front of the rack, picks up heat from the servers, transfers the heat to the Sun Cooling Door 5600's coil and is expelled through the rear of the rack or chassis. When the entering air temperature is 77°F (25°C) or lower, the Sun Cooling Door 5600 removes up to 35kW of heat generated by the components without raising the temperature of the air leaving the rack or chassis.

## Sun Cooling Door 5200

The Sun Cooling Door 5200 is a highly efficient air-to-water heat exchanger. It is installed onto the rear of the Sun Blade 6048 chassis and has a high cooling capacity. Its slim design and proximity to the heat load provides considerable floor space savings. It is a 100-percent passive system, allowing for minimal operation and maintenance costs. The Sun Cooling Door 5200 requires front-to-back air flow routing. The server fans push the warm air exhausted from the devices in the server chassis/rack into the rear door heat exchanger. The air is then cooled and exhausted out of the Sun Cooling Door 5200. See [FIGURE 3-1](#), Sun Cooling Door.

**FIGURE 3-1** Sun Cooling Door 5200



## Related Documentation

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Documentation for the Sun Blade 6048 modular system is on the web at:

<http://docs.sun.com/app/docs/prod/blade.6048mod#hic>

The documentation for the Sun Blade 6048 modular system is divided by function into the following collections:

- System Documentation – These collections contain the basic documentation for the system, including installation, service, safety and compliance, and product notes.
- ILOM 2.0 and 3.0 Documentation – This collection contains documentation for the chassis' service processor, called the Chassis Management Module Integrated Lights-Out Manager (CMM ILOM). It also provides documentation for the Integrated Lights-Out Manager (ILOM), which is the service processor used by most (but not all) server modules.

The individual web site for each server module also provides documentation for that server module's service processor.

- Sun Blade 6048 Switched InfiniBand QDR Switched Network Express Module Documentation



## Server Model Firmware Issues

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This section addresses issues related to the firmware in the chassis and the server modules. It includes information about updating firmware and about keeping the firmware in the chassis elements compatible with other chassis elements.

- “Getting the Latest Sun Firmware Release” on page 25
- “How Sun Blade 6048 Firmware is Released” on page 26
- “The Scope and Purpose of Software Updates” on page 26
- “Updating Chassis and Server Module Firmware” on page 27
- “Chassis and Server Modules running ILOM” on page 28

### Getting the Latest Sun Firmware Release

All software and firmware for the Sun Blade 6048 and associated server modules can be downloaded from:

<http://www.sun.com/servers/blades/downloads.jsp#6048>

The download page for each product provides a list of major changes from one release to the next.

A more detailed list of problems fixed by the download is available in the corresponding product notes and web download page.

### Sun Blade 6048 Chassis Management Module (CMM) Blade Server Support Matrix

The most recently available blade server software release is preferred for use with the Sun Blade 6048 CMM software 3.0, 3.1, and 3.1.2. This support matrix is available from the Sun Blade 6000 Chassis SW 3.1.2 for Firmware page. To access this page:

1. **Navigate to:** <http://www.sun.com/servers/blades/downloads.jsp#6048>
2. **Press the Download button under Sun Blade 6000 Modular System - Downloads.**

The Sun Blade 6048 Chassis SW 3.1.2 page opens. From this page you set up an account:

3. **Click on the checkbox to select the I agree to the SunBlade X6048 3.1.2 License Agreement .**
4. **Enter a User Name and Password.**

As soon as your account is active you can access the Blade Server Support Matrix, located under Optional Files.

## How Sun Blade 6048 Firmware is Released

The firmware is incorporated into new chassis and blade products at the factory. However, it is updated periodically in packages called either “software updates” or “firmware updates.”

All of these updates are released for either a single server module (for example the Sun Blade X6450 server module), or for the Sun Blade 6048 chassis.

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**Note** – For server modules, software updates can include software and firmware. However, the chassis has no software, so the chassis software updates contain only firmware.

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## The Scope and Purpose of Software Updates

The chassis and server modules each have a corresponding product notes document that lists known issues with the hardware, software (server modules only), firmware, service processor, and documentation. These documents describe the issues and provide workarounds where possible.

The product notes document is updated with each major software release and often for minor releases as well.



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**Note** – A major release is where the first number changes, for example, from 2.0 to 3.0. A minor release is where the second number changes, for example from 2.0. to 2.1.

Changes from software release to release are usually included as part of the software release web download, available at:

<http://www.sun.com/servers/blades/downloads.jsp#6000>

Minor releases might not include updates to the Product Notes.

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The chassis product notes also include a list of bugs fixed in each release.

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**Note** – The last two numbers of the Product Notes will vary, according to the release.

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Product notes for the server modules and storage blades can be found at

<http://docs.sun.com/app/docs/prod/blade.srvr>

Follow the links on this page to the corresponding server module for the complete set of documentation associated with that server module.

## Updating Chassis and Server Module Firmware

If a NEM firmware update is required, Sun recommends that it is installed before other firmware.



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**Caution** – Some firmware upgrade procedures remove a component from service. For example, server module ILOM upgrade procedures might shut down the server to perform BIOS upgrades. NEM and storage module firmware upgrades (or hot-swapping) might interrupt I/O connectivity to multiple blades.

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See the following section for firmware update procedures. See the corresponding product notes for information about known issues and service dependencies.

## Adding a Server Module to the Chassis

Normally, you can install a server module with newer firmware than existing server modules in the chassis without adversely impacting the other components in the chassis.

However, to ensure that this is the case, Sun recommend that all components use the latest version of the firmware or the prior release of the firmware.

## Chassis and Server Modules running ILOM

### Sun Blade 6048 Chassis

The Sun Blade 6048 chassis uses ILOM firmware. See the ILOM documentation collection for the corresponding product for details.

### Firmware Update File

To update firmware for a server module or for the chassis, you must know the name of the firmware update file. The firmware update file name is documented in the platform ILOM Supplement and the Tools and Drivers CD or CD image.

### Server Modules Running ILOM

ILOM is Sun's common service processor firmware. It is the standard for rackmount servers and server modules, regardless of the CPU architecture. All newer Sun server modules, including SPARC, Intel, and AMD, run ILOM.

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**Note** – The T6300 server module is an exception; it uses ALOM. See the T6300 documentation for details.

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The firmware update procedures are located in the corresponding ILOM documentation.

### ELOM-to-ILOM Transition

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## ELOM-to-ELOM Upgrades

The procedure for updating all server modules that run ELOM is in the *Sun Blade X6250 Server Module Embedded Lights Out Manager Administration Guide*, which is available in the documentation collections for all server modules that run ELOM. It is also available here:

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