Sun Blade Storage Module M2 Installation Guide

Part No: 821–0913
January 2012, Rev A

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Preface

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

- "Related Books" on page 5
- "About This Documentation (PDF and HTML)" on page 6
- "Documentation Comments" on page 6
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Product Information Web Site

For information about the Sun Blade Storage M2 module, go to the product site:

`http://www.oracle.com/goto/storagemodulem2`.

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

- Product information and specifications
- Software and firmware downloads

Related Books

The following is a list of documents related to Oracle's Sun Blade Storage Module M2. These and additional support documents are available on the web at:

`http://download.oracle.com/docs/cd/E19452-01/index.html`

Document	Description
Sun Blade Storage Module M2 Product Documentation	Integrated HTML version of all starred (*) documents, including Search and Index.
Sun Blade Storage Module M2 Getting Started Guide	Setup quick reference.
*Sun Blade Storage Module M2 Installation Guide**	How to install the storage module into a blade chassis and interpret operation LEDs.

Document	Description
*Sun Blade Storage Module M2 Product Notes**	Important late-breaking information about the storage module.
*Sun Blade Storage Module M2 Administration Guide**	How to assign storage to hosts and manage your storage module.
*Sun Blade Storage Module M2 Service Manual**	How to service and maintain your storage module.
Sun Blade Storage Module M2 Safety and Compliance Guide	Safety and compliance information about your storage module.

Translated versions of some of these documents are available at the web site described previously in Simplified Chinese, Korean, Japanese, French and Spanish. English documentation is revised more frequently and might be more up-to-date than the translated documentation.

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, appendices or section numbering.

Documentation Comments

Oracle is interested in improving the product documentation and welcome your comments and suggestions. You can submit comments at `http://www.oracle.com/goto/docfeedback`.

Change History

The following lists the release history of this documentation set:

- July 2010, initial publication.
- August 2010, information added for Sun Blade Storage Module M2 software release 1.0.1. This includes support for connecting a Sun Blade X6270 M2 server module with a Sun Storage 6Gb SAS REM HBA (SGX-SAS6-REM-Z) to the storage module.
- November 2010, information added for Sun Blade Storage Module M2 software release 1.1. Added new OS support, CR 6981082, fix for CR 6971532.
- December 2010, flash module (FMod) support removed from product (including 24 FMod slots on main board).

- September 2011, information added for Sun Blade Storage Module M2 software release 1.2. Added new OS support. Added support for the Sun Blade T3–B1 server module. Mention of SSD support removed. Added support for new 300 and 600 GB hard disk drives. Added support for the Sun Blade 6000 Switched NEM 24p 10GbE.
- January 2012. Updated physical dimension specifications in the *Sun Blade Storage Module M2 Installation Guide* and the *Sun Blade Storage Module M2 Service Manual*.

Overview of the Sun Blade Storage Module M2

This section describes the components and operation of the Sun Blade Storage Module M2. The following topics are included:

- "Terminology Used In This Document" on page 9
- "Storage Module Features" on page 10
- "Storage Module Components" on page 11
- "Storage Module Operation Within the Blade Chassis" on page 12

Terminology Used In This Document

The following terminology is used in this document.

chassis	The Sun Blade 6000 Modular System chassis.
CMM	Chassis Monitoring Module. An Integrated Lights Out Manager component of the Sun Blade 6000 Modular System used to access and manage servers, NEMs and storage modules in the chassis.
multipath	This is a dual path connection from a host to the storage module. Provides two paths to the storage components in the storage module for failover. Path failover is managed through REM firmware when you create logical drives using the REM firmware utilities.
NEM	Network Express Module. A networking I/O component that plugs into a Sun Blade Modular System chassis. The chassis contains two NEM slots: NEM 0 and NEM 1.
REM	A RAID Expansion Module. Also referred to as a Host Bus Adapter (HBA), or an initiator. Is installed in a server module and acts as an interface between the host and connected storage. Supports the creation of RAID volumes on connected storage. Provides disk management and monitoring of connected storage.
SAS–2	Serial Attached SCSI version 2. Supports up to 6 Gb/s data transfer rate. The combination of SAS-2 devices, such as REMs, NEMs and storage modules inside the chassis creates a SAS–2 domain connecting shared storage to servers. Access to the chassis SAS-2 domain is managed by the CMM.

SAS-2 NEM	Any Network Express Module that supports SAS–2 connectivity. Only NEMs that support SAS-2 can be used with the Sun Blade Storage Module M2. For example, the Sun Blade 6000 Virtualized Multi-Fabric 10GE NEM M2.
SAS target	A device containing logical units and target ports that receives requests from, and responds to, an initiator. An example of a target device is a hard disk. Other terms used to describe a SAS target are “device” and “end device.”
SATA	Serial ATA (or Serial Advanced Technology Attachment). Supports up to 1.5Gb/s data transfer rate for SATA and 3Gb/s for SATA-II. SATA devices are single port/single path.
server module	A Sun Blade server module that fits in the Sun Blade 6000 Module System. Server modules use storage in the storage module. Might also be known as a “blade” or a “server blade”.
single path	This is a single path connection from a host to the storage module (for example, if there is only one NEM in the chassis, or the target device is SATA). No path failover is available.
storage module	The Sun Blade Storage Module M2. Might also be known as a “disk module” or a “disk blade”.
zoning	Zoning in SAS-2 is a mechanism to manage large SAS topologies. The CMM Sun Blade Zone Manager is used to assign storage resources on a per-server basis in the chassis SAS-2 domain. Refer to the SAS-2 specification for more details.

Storage Module Features

The Sun Blade Storage Module M2 provides SAS-2 storage to server modules in the Sun Blade 6000 Modular System.

The following table summarizes the features of the storage module.

Feature	Description
Storage	Eight front panel accessible disk drive slots. The storage module supports SAS–2 mechanical hard disk drives.
Types	SAS–2 (2.5 inch or 63.5 mm).
Data Rates	1.5, 3 and 6 Gb per second (SAS-2) with auto-negotiation.
Protocols	SAS - Serial Attached SCSI - v1.0, v1.1, v2.0
	SSP - Serial SCSI Protocol.
	SMP - Serial Management Protocol.
	SES - SCSI Enclosure Services.

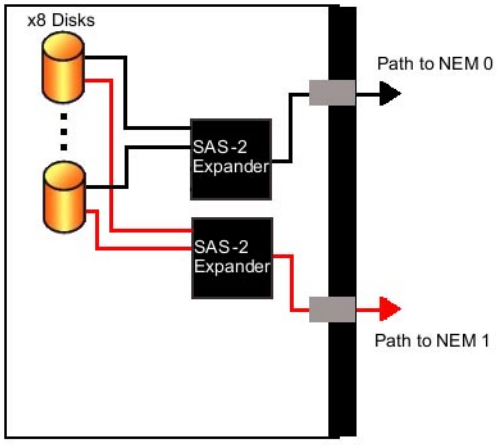
Feature	Description
Indicators	■ Activity and Fault LEDs for the storage module. ■ Locate LED for the storage module. ■ Activity, Fault and Ready–to–Remove LEDs for disk drives.
Management	■ Voltage and temperature alerts ■ Storage and storage module fault detection ■ Disk drive and storage module LED locate

The following table summarizes the physical specifications of the storage module.

Specification	Value
Width	12.9 inches/327.2 mm
Height	1.8 inches/44.5 mm
Depth	20.1 inches/511.7 mm
Weight	14.5 pounds/7.410 kg fully loaded.
Power	207W Max when fully loaded (estimated)
Environmental	Humidity: 10% to 90% non-condensing
	Temperature: 5° to 45° C operating (-40° to 70° C storage)
	Altitude: 0 to 10,000 ft (3,048 meters)
Power Supplies	12V from chassis backplane.
	3.3VAUX from chassis backplane.
Cooling	Front-to-back forced air (no internal fans).
Regulatory	UL/CSA
	FCC part15 Class A

Storage Module Components

The following illustration shows a block diagram of the Sun Blade Storage Module M2 components.



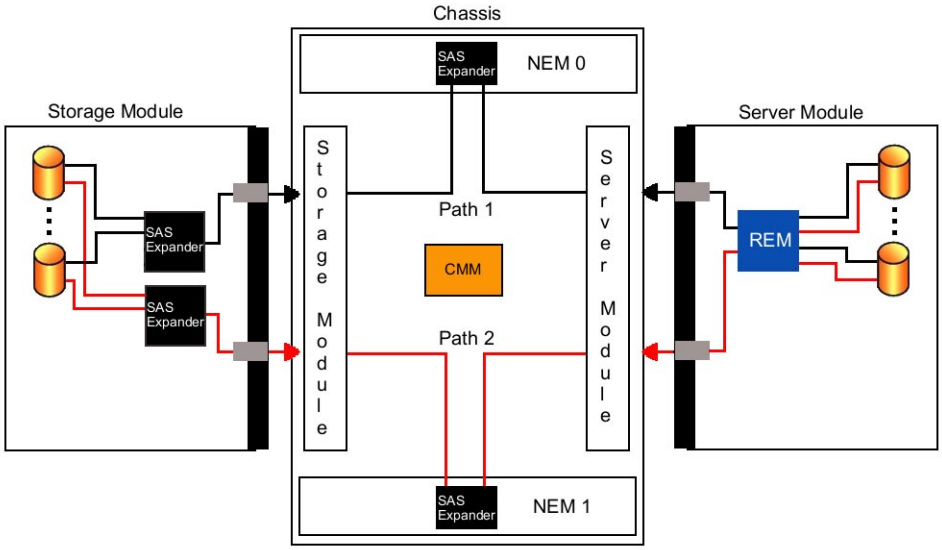
The storage module components include:

- Support for up to eight front accessible SAS-2 hard disk drives. For a list of supported drives, refer to the "Maintaining the Sun Blade Storage Module M2" in *Sun Blade Storage Module M2 Service Manual*.
- Two internal LSI SAS-2 x36 expanders, which are crossbar switches that connect SAS devices, such as HBAs and drives. These expanders provide dual paths to each SAS device in the storage module. For dual path support, two SAS-2 NEMs must be installed in the chassis.
- Storage resources that can be divided among multiple server hosts. This assigning of resources per host is called SAS-2 zoning and is configured through the chassis CMM ILOM. For more information, refer to the "Assigning Storage to Hosts" in *Sun Blade Storage Module M2 Administration Guide*.

Note – The storage module does not contain a Service Processor. The chassis CMM monitors the storage module and assigns host-to-storage access within the chassis SAS-2 domain.

Storage Module Operation Within the Blade Chassis

The following illustration shows a block diagram of how the server module and storage module interface with the chassis.



The storage module interfaces through the chassis to provide extra storage for installed server modules as follows:

- The storage and server modules plug into the chassis midplane through any free slot of a Sun Blade 6000 Modular System chassis. The drives of the storage module are connected to the chassis through SAS expanders in a dual path configuration. A SAS expander in the SAS-2 NEM completes the path through the blade chassis to the server modules. The Chassis Monitoring Module (CMM) Integrated Lights Out Manager (ILOM) manages the chassis SAS-2 domain and host-to-storage access.
- At least one SAS-2 NEM is required for the storage module. For host-to-disk dual path support, two SAS-2 NEMs are required. For single path support there must be one SAS-2 NEM in slot NEM 0. For a list of supported SAS-2 NEMs, see "System Requirements" on page 15.

Note – The storage module cannot work with SAS-1 NEMs, nor can you mix SAS-1 and SAS-2 NEMs in the chassis. For more information, see "SAS-1 and SAS-2 Compatibility" on page 18.

Note – At the release of this document, there is no support for connecting SAS devices to the external connectors of SAS-NEMs. Only internal chassis host-to-storage connections are allowed. If your host requires external storage, you can install a PCIe ExpressModule Host Bus Adapter in the chassis and connect to a supported external storage device.

- The host server module must have a supported SAS-2 RAID Expansion Module (REM) installed to access the storage module. The server module's REM controls its own internal drives as well as CMM-assigned drives on the storage module. The REM connects to the chassis SAS-2 domain through the SAS-2 NEMs to the storage module (see "System Requirements" on page 15 for supported REMs).

Note – The Sun Blade Zone Manager feature of the CMM ILOM cannot assign storage that is internal to a server module. The server module has exclusive control of its own internal drives.

System Requirements

This section describes the compatibility requirements for installing your Sun Blade Storage Module M2. The following topics are covered:

- "Storage Module Hardware Compatibility" on page 15

  This section includes:

  - What hardware is compatible with the storage module.
  - How to confirm that the Sun Blade 6000 Modular System has a PCIe 2.0 midplane.
  - SAS-1 and SAS-2 device compatibility in the chassis.
  - SAS target limits for host bus adapters in the chassis.
- "Storage Module Software Compatibility" on page 19

Storage Module Hardware Compatibility

The Sun Blade Storage Module M2 supports SAS-2. To achieve maximum 6 Gb/s performance with SAS-2, all components that make up the chassis SAS-2 fabric (server modules, REMs, NEMs, chassis) must support SAS-2. This section includes several topics that will help you in setting up the SAS-2 hardware environment.

- What hardware is compatible with the storage module.
- How to confirm that the Sun Blade 6000 Modular System has a PCIe 2.0 midplane.
- SAS-1 and SAS-2 compatibility in the chassis.
- SAS target limits for host bus adapters in the chassis.

Compatible Hardware

At the release of this document, the Sun Blade Storage Module M2 is supported in the following hardware environment (refer to the storage module documentation on the Oracle web site for up-to-date information).

Note – This table shows the release levels as of the time this document was published. However, these releases are often updated. Look for later releases on the download site for the corresponding product.

Servers	SAS-2 REMs	Chassis	SAS-2 NEMs
Sun Blade T3–B1 (SPARC), with system firmware 8.1.0.c or later (Sunsolve patch 147315-02).	■ Sun Storage 6Gb SAS REM HBA (SGX-SAS6-REM-Z) See note 2 below.	■ Sun Blade 6000 Modular System with PCIe 2.0 midplane	■ Sun Blade 6000 Virtualized Multi-Fabric 10GbE M2 NEM See note 4 below. ■ Sun Blade 6000 Switched NEM 24p 10GbE See notes 4 and 5 below.
Sun Blade T6320 G2 (SPARC), with system firmware 7.2.8 or later (Sunsolve patch 139440-11). See note 1 below.	■ Sun Storage 6Gb SAS REM HBA (SGX-SAS6-REM-Z) See note 2 below.	■ Sun Blade 6000 Modular System with PCIe 2.0 midplane	■ Sun Blade 6000 Virtualized Multi-Fabric 10GbE M2 NEM See note 4 below. ■ Sun Blade 6000 Switched NEM 24p 10GbE See notes 4 and 5 below.
Sun Blade T6340 (SPARC), with system firmware 7.2.8 or later (Sunsolve patch 139448-10). See note 1 below.	■ Sun Storage 6Gb SAS REM HBA (SGX-SAS6-REM-Z) See note 2 below.	■ Sun Blade 6000 Modular System with PCIe 2.0 midplane	■ Sun Blade 6000 Virtualized Multi-Fabric 10GbE M2 NEM See note 4 below. ■ Sun Blade 6000 Switched NEM 24p 10GbE See notes 4 and 5 below.
Sun Blade X6270 M2 (x86)	■ Sun Storage 6Gb SAS REM RAID HBA (SGX-SAS6-R-REM-Z) See note 2 below. ■ Sun Storage 6Gb SAS REM HBA (SGX-SAS6-REM-Z) See note 2 and 3 below.	■ Sun Blade 6000 Modular System with PCIe 2.0 midplane ■ Sun Blade 6000 Modular System with PCIe 2.0 midplane	■ Sun Blade 6000 Virtualized Multi-Fabric 10GbE M2 NEM See note 4 below. ■ Sun Blade 6000 Virtualized Multi-Fabric 10GbE M2 NEM See note 4 below. ■ Sun Blade 6000 Switched NEM 24p 10GbE See notes 4 and 5 below.

Notes:

1. The **Sun Blade T6320 and T6340 server modules** are supported for use in a SAS-2 environment with a SAS-2 REM, but are limited to a maximum 3 Gb/s data transfer speed.

2. The Sun Storage 6Gb SAS REMs include software and firmware. You should always use the latest versions. To download the latest updates for these REMs, go to the LSI Support site.
3. The **Sun Storage 6Gb SAS REM HBA (SGX-SAS6-REM-Z) in a Sun Blade X6270 M2 server module** is only supported for use with a Sun Blade Storage Module M2 if the storage module firmware is 5.3.6.0 or later. The minimum firmware for the storage module in this configuration is included in Sun Blade Storage Module M2 software release 1.0.1.
4. As of the release of this document, there is no support for using the external SAS-2 connectors of a SAS-2 NEM (such as the **Sun Blade 6000 Virtualized Multi-Fabric 10GbE M2 NEM**) to add external storage. Additional external storage may be added by installing a PCIe ExpressModule (EM) HBA and connecting external storage devices to it. The external storage is then controlled by the server module and its PCIe EM, and is not part of the chassis SAS-2 domain.
5. The **Sun Blade 6000 Ethernet Switched NEM 24p 10GbE** is only supported for use with a Sun Blade Storage M2 if NEM software release 1.1 or later is installed.

Confirming the Sun Blade 6000 Modular System Has a PCIe 2.0 Midplane

In order to support 6 Gb/s SAS-2 data transfer speeds, the Sun Blade 6000 Modular System chassis must have a midplane that supports PCIe 2.0 and the minimum supported CMM version firmware:

- The Sun Blade 6000 chassis A90–D comes with PCIe 2.0 midplane support and requires a minimum CMM firmware version of 3.0.12.10 (included in Sun Blade 6000 software release 4.0).
- The Sun Blade 6000 chassis A90–B might have a PCIe 2.0 midplane and requires a minimum CMM firmware version of 3.0.10.15a (included in Sun Blade 6000 software release 3.2.1). If the chassis does not come with a PCIe 2.0 compliant midplane, the midplane can be upgraded.

  You can check that the chassis has the a PCIe 2.0 midplane by logging into the CMM ILOM and performing one of the following steps:

  - Using the web interface, select CMM from the left pane and go to System Information —> Components and click on /CH in the Component Manager Status table.
  - Using the CLI, enter the `show/CH` command at the prompt.

    The midplane manufacturing part number is displayed in the fru_part_number field.

    - If the part number is 541–3789–xx or greater, the PCIe 2.0 midplane is installed.
    - If the part number is 541–1983–0x, the previous version of the PCIe midplane is installed and you should upgrade to the PCIe 2.0 midplane. The midplane is a field-replaceable unit (FRU) and must be removed and installed only by authorized Oracle service personnel.

SAS-1 and SAS-2 Compatibility

Note the following compatibility rules for using SAS-1 (3 Gb/s) and SAS-2 (6 Gb/s) components:

- Only SAS-2 NEMs can be used to create the SAS-2 domain in the chassis. SAS-1 and SAS-2 NEMs *cannot* be mixed in a chassis.

  For more on supported **SAS-2 NEMs**, see "Storage Module Hardware Compatibility" on page 15.

  Some examples of **SAS-1 NEMs** that would *not* be compatible in a chassis SAS-2 domain include:

  - Sun Blade 6000 Multi-Fabric Network Express Module (X4212A)
  - Sun Blade 6000 10GbE Multi-Fabric Network Express Module (X4236A)
  - Sun Blade 6000 Virtualized Multi-Fabric 10GbE Network Express Module (X4238)
- Server modules that use a SAS-1 REM will *not* be able to access the chassis SAS-2 domain, and therefore will not be able to access a Sun Blade Storage Module M2, nor will they be able to access a Sun Blade 6000 Disk Module (B18–AA). They will, however, still be able to access their own internal drives and the network component of the NEM.

  For more on supported **SAS-2 REMs**, see "Storage Module Hardware Compatibility" on page 15.

  Some examples of **SAS-1 REMs** that would *not* be able to access a chassis SAS-2 domain include:

  - Sun Blade server modules with embedded 1068E LSI controller chips
  - Sun Blade T6320 RAID 0/1 Expansion Module
  - Sun Blade RAID 0/1 G2 Expansion Module (X4607A)
  - Sun Blade RAID 5 Expansion Module (X4620A)
- If you are planning on moving data from disk drives in a Sun Blade 6000 Disk Module (a SAS-1 device) to a Sun Blade Storage Module M2, you must back up the data from the Sun Blade 6000 Disk Module disks and restore it to volumes that were created on the Sun Blade Storage Module M2 using a SAS-2 REM.

SAS Target Limits

To ensure a given configuration of storage modules does not exceed a SAS-2 REM's target limit, the following rules apply:

Note – Refer to your SAS-2 REM documentation to find out how many targets it can support. Targets might also be referred to as "devices".

- The storage module consumes up to 8 targets (8 disk drives).
- For single path configurations, each disk visible to the SAS-2 REM consumes one target.

- For dual path (also called "multipath") configurations, each disk visible to the REM consumes two targets.
- A server module might also have its own set of internal disks that consume targets, in addition to disks in connected storage modules.
- SAS expanders that reside on the storage module and the SAS–2 NEMs also consume targets (one per expander). There are two expanders on the storage module. There is one expander per SAS-2 NEM.
- The Sun Storage 6Gb SAS REM RAID HBA (SGX-SAS6- R-REM-Z) can support up to 7 Sun Blade Storage Module M2s.
- The Sun Storage 6Gb SAS REM HBA (SGX-SAS6- REM-Z) can support up to 9 Sun Blade Storage Module M2s.

Storage Module Software Compatibility

At the release of this document, the following list shows the minimum operating system version support for use with your Sun Blade Storage Module M2. Later versions of these operating systems might also be supported, for an up-to-date list refer to "Supported Operating Systems" in *Sun Blade Storage Module M2 Product Notes*.

- Oracle Solaris 10 OS 10/09 (64–bit only) with the latest patches to support your server's REM.
  - For SPARC systems using the Sun Storage 6Gb SAS REM HBA (SGX-SAS6-REM-Z), you need to install the following patch versions (or later): 142259-03, 143523-04, 141870-03.
  - For x86 systems using the Sun Storage 6Gb SAS REM HBA (SGX-SAS6-REM-Z), you need to install the following patch version (or later): 142901–13, 141871-03.

Note – To obtain the latest patches for the Solaris OS, go to `http://www.oracle.com/technetwork/systems/software-stacks/stacks/index.html`

- Oracle Enterprise Linux 5.4, 5.5, 5.6, 6.0, 6.1 (64–bit only)
- Red Hat Enterprise Linux 5.4, 5.5, 5.6, 6.0, 6.1 (64–bit only)
- SUSE Linux Enterprise Server 10 SP4 (64–bit only, with or without Xen)
- SUSE Linux Enterprise Server 11 (64–bit only, with or without Xen)
- Microsoft Windows Server 2008 (32 and 64–bit), R2 and R2 SP1 (64–bit only)
- VMware ESX/ESXi 4.0 U1
- VMware ESX/ESXi 4.1 U1

Note – Additional drivers might be required for SAS-2 REM and dual path support. For more information on configuring your OS for dual path support, refer to the documentation for your server module's REM.

Installing the Storage Module Into the Chassis

You can insert the storage module into any free slot in a supported chassis. The Sun Blade Storage Module M2 is hot-pluggable and therefore you can insert the storage module into a powered-on chassis.

The storage module receives its power directly from the chassis. There is no power switch on the module itself.

If your Chassis Management Module (CMM) has the minimum firmware required to support a SAS-2 environment (in which server REMs and chassis NEM are SAS-2), the chassis will, after a discovery period of up to five minutes, recognize the storage module after insertion. However, server modules in the chassis will not be able to see storage on the module until you have assigned its storage on a per-host basis using the Sun Blade Zone Manager feature of the chassis CMM ILOM. For more information on required firmware, see "Storage Module Hardware Compatibility" on page 15.

See also:

- "How to Install the Storage Module" on page 21

▼ How to Install the Storage Module

Before You Begin If you have optional components to install, do so before installing the storage module. For information on installing optional components, refer to the *Sun Blade Storage Module M2 Service Manual*.

1. **Locate a free slot in the chassis.**

   The storage module can be installed in any free slot.

2. **Remove the filler panel for the slot as follows:**

   a. **Pinch the ejector release lever and rotate it away from the filler panel.**

   b. **Slide out the filler panel.**

Caution – If the chassis is powered on, insert the storage module within 60 seconds of removing the filler panel. Otherwise, chassis cooling might be compromised.

Note – Filler panels should remain in any *unused* slots because they ensure that the chassis maintains the proper cooling and complies with FCC limits on electromagnetic interference (EMI).

3 **Pinch the storage module ejector release levers and rotate them away from the storage module as far as possible without forcing them.**

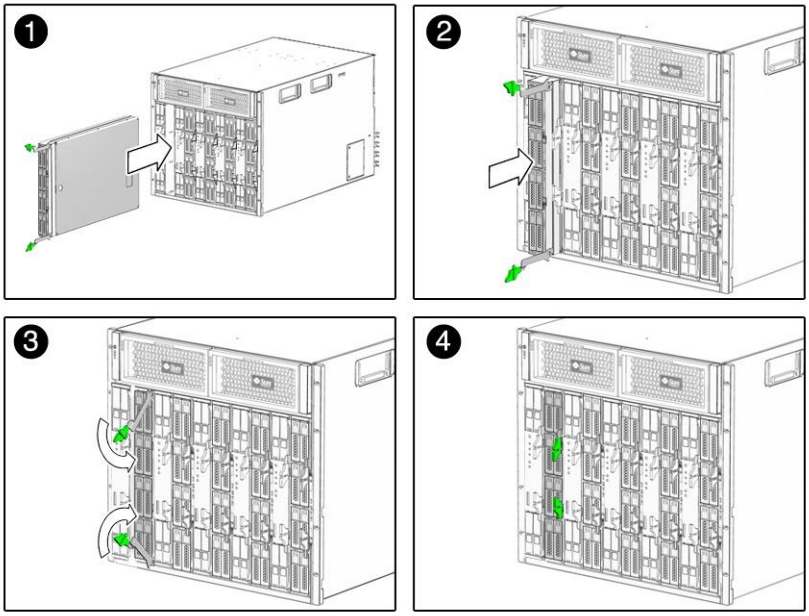
4 **Install the storage module as follows:**

a. **Position the disk module vertically so that the ejectors are on the right, as seen from the front of the module [1].**

b. **Push the storage module into the open slot until it stops [2].**

c. **Rotate the ejectors in towards the storage module until they lock into place.**

The storage module should now be flush with the chassis (although the disk drives stick out about 1.5 mm) and the ejectors locked in place **[3, 4]**.



Chassis power will immediately be applied to the storage module. The storage module green activity LED will blink and then remain steady on as the module is initially discovered by the Chassis Monitoring Module (CMM). This process can take up to a minute. Once storage module resources are fully discovered by the CMM, an "added to SAS-2 fabric" event will be logged in the CMM event log. This can take an additional 2 to 4 minutes.

Note – Before the storage module drives can be seen by server modules in the chassis, they must be assigned on a per-host basis using the Sun Blade Zone Manager feature of the CMM ILOM.

Next Steps

- For information about storage module LEDs, see "Storage Module Indicators" on page 25.
- For information about assigning storage module resources on a per-host basis, see "Assigning and Managing Storage" on page 27.

Storage Module Indicators

This section describes the indicator LEDs viewed during storage module operation.

- "Storage Module Front Panel LEDs" on page 25

Storage Module Front Panel LEDs

The front panel of the storage module is shown below.

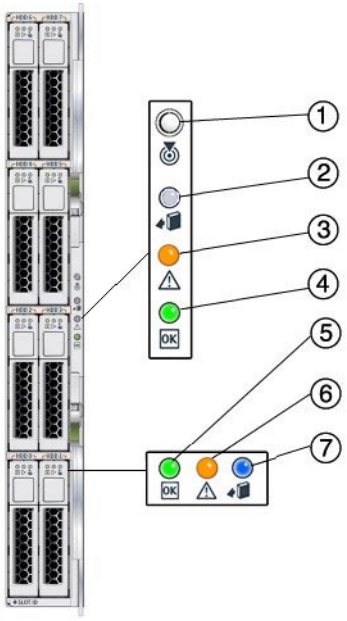


Figure Number	LED Name	Description
1	Combined Locate button and LED (white)	This LED helps identify which module you are working on in a chassis full of servers. ■ Push and release this button to make the Locate LED blink for 30 minutes. ■ When the Locate LED is blinking, push and release this button to make the Locate LED stop blinking. ■ Hold down the button for 5 seconds to initiate a "push-to-test" mode that illuminates all other LEDs for 15 seconds. ■ This LED can also be made to blink from a remote system using the CMM ILOM. Refer to the "Storage Module Sensors and Indicators" in *Sun Blade Storage Module M2 Administration Guide* for details.
2	Indicator not applicable	■ Not used.
3	Module Fault LED (amber)	This LED has two states: ■ On: An event has been acknowledged, and service action is required. This could indicate a problem with the module. ■ Off: Normal operation.
4	Module Status LED (green)	This LED has three states: ■ On: Module is configured and online. ■ Off: Module is not configured or is offline. ■ Blinking: Module is configuring or a firmware flash update is in progress.
5	Disk Drive Activity LED (green)	This LED has three states: ■ On: Power is on and disk is online. ■ Off: Disk is offline. ■ Blinking: Irregular blinking means normal disk activity; steady, slow blink means RAID activity (such as a rebuild).
6	Disk Drive Fault/Locate LED (amber)	This LED has four states: ■ On: Disk fault. Service action required. ■ Off: Normal operation. ■ Slow blink: Disk failure predicted. ■ Fast blink: Locate function activated.
7	Disk Drive Ready-to-Remove LED (blue)	This LED has two states: ■ On: Read to remove. ■ Off: Normal operation.

Assigning and Managing Storage

This section describes options for accessing and managing the storage in your storage module.

- "Overview of Assigning Storage to Hosts" on page 27
- "Overview of Storage Management Options" on page 28

Overview of Assigning Storage to Hosts

Before the Sun Blade Storage Module M2 can be seen by server modules in the chassis, you will need to log into the Chassis Monitoring Module (CMM) Integrated Lights Out Manager (ILOM) and configure SAS–2 zoning for the storage module. This will allow you to assign disks in the storage module to specific hosts.

Note – For in–depth instructions on assigning storage to hosts, refer to the *Sun Blade Storage Module M2 Administration Guide*.

The basic steps to assign storage are:

1. Your storage module, SAS-2 NEM(s) and server modules with SAS-2 REMs that will be using storage module resources should be plugged into the chassis and powered on.

   Note – SAS-2 components that are not in the chassis and powered on will not be seen by the CMM and therefore not be available for configuration in the SAS-2 domain.

   ---

2. Confirm that your version of CMM ILOM firmware supports storage zoning of the Sun Blade Storage Module M2 (see "Storage Module Hardware Compatibility" on page 15).
3. Log into the CMM ILOM using either a browser or command line. Your user account must have administrator privileges.
4. Run the Sun Blade Zone Manger found under the CMM Storage tab.
5. Assign storage in the storage module to host server modules in the chassis.

Note – At the release of this document, no two server modules can own the same disks (such as in a clustered environment). Check the "Supported Firmware, Hardware and Software" in *Sun Blade Storage Module M2 Product Notes* for updated information.

6. Save the zoning configuration.

Once SAS–2 zoning has been configured, the host server modules will be able to access and configure volumes on the storage assigned to them. For more information, see "Overview of Storage Management Options" on page 28.

Overview of Storage Management Options

After your Sun Blade Storage Module M2 is installed in the chassis, you can configure and manage your storage as follows:

- In order for supported hosts to access storage module resources, you first need to assign host-to-storage access using the Sun Blade Zone Manager feature of the CMM ILOM (see "Overview of Assigning Storage to Hosts" on page 27).
- To configure RAID volumes with your storage, use your server module's REM disk management software. For more information, refer to the disk management documentation for your server. See `http://www.oracle.com/technetwork/indexes/documentation/index.html`

For additional information on managing your storage, see "Managing Storage" in *Sun Blade Storage Module M2 Administration Guide*.

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