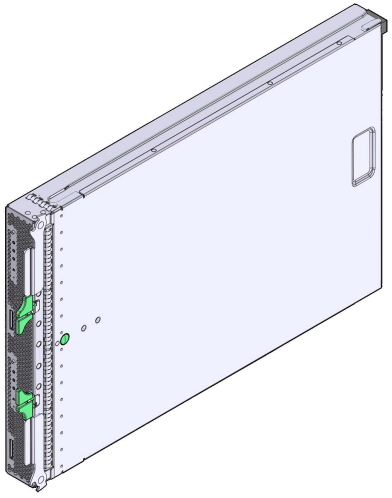
Sun Blade X6275 Server Module

Service Manual



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Preface

The *Sun Blade X6275 Server Module Service Manual* provides detailed procedures for removing and replacing replaceable parts in the Oracle® Sun Blade X6275 Server Module. This manual also includes information about the use and maintenance of the Server Module.

This document is written for technicians, system administrators, authorized service providers (ASPs), and users who have advanced experience troubleshooting and replacing hardware.

How This Document Is Organized

This manual contains the following chapters.

TABLE P-1 Sun Blade X6275 Server Module Service Manual Chapters

Chapter	Describes:
Chapter 1	"Introduction to the Sun Blade X6275 Server Module" provides an overview of the system, including front and back panel features. This chapter also contains illustrations showing system components.
Chapter 2	"Preparing to Service the System" describes the steps necessary to prepare the system for service.
Chapter 3	"Servicing Server Module Components" describes the service procedures for the motherboard and its associated components, including installing and upgrading memory modules (DDR3 DIMMs).
Chapter 4	"Returning the Server to Operation" describes how to bring the server back to operation after performing service procedures.
Appendix A	"BIOS Screens" contains examples of typical BIOS screens.

Related Documentation

To view the latest Sun Blade X6275 server module documentation online, go to http://docs.oracle.com, and then navigate to Sun Blade X6275 server module documentation.

The following table lists the available documents.

TABLE P-2 Sun Blade X6275 Server Module Related Documentation

Application	Title	Part Number
Additional documentation	*Getting Started Guide*	820-6847
Late-breaking information	*Sun Blade X6275 Server Module Product Notes*	820-6853
Installation	*Sun Blade X6275 Server Module Installation Guide*	820-6977
OS installation	*Sun Blade X6275 Server Module Linux Operating System Installation Guide*	820-6848
	Sun Blade X6275 Server Module Windows Operating System Installation Guide	821-0081
Service processor	*Sun Integrated Lights Out Manager 2.0 User's Guide*	820-1188
	Sun Integrated Lights Out Manager 2.0 Addendum	820-4198
	Sun Blade X6275 Server Module ILOM Supplement	820-6851
Safety and regulatory compliance	*Sun Blade X6275 Server Module Compliance and Safety Manual*	820-6852
Troubleshooting	*Sun Blade X6275 Server Module Diagnostics Guide*	820-6850
Service card	*Sun Blade X6275 Server Module General Service Information*	820-7252

Before You Read This Document

To fully use the information in this document, you must have thorough knowledge of the topics discussed in the *Sun Blade X6275 Server Product Notes.*

Online Documentation

The following table shows where to find documents online.

TABLE P-3 Sun Blade X6275 Server Module Server Online Documents

Function	URL	Description
Documentation	http://docs.sun.com	Navigate to the Sun Blade X6275 Server Module document page and then download PDF and view HTML documents.
Support	http://www.sun.com/support/	Obtain technical support and download patches.
Training	http://www.sun.com/training/	Learn about Sun courses.
Warranty	http://www.sun.com/service/support/warranty/index.html	Obtain specific details regarding your product's warranty.
Feedback	http://www.sun.com/hwdocs/feedback/	Submit your comments.

Note the meanings of the following symbols that might appear in this document.

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Sun Blade X6275 Server Module Service Manual, 820-6849-16

CHAPTER 1

Introduction to the Sun Blade X6275 Server Module

This chapter provides an overview of the features of the Oracle Sun Blade X6275 server module. This chapter also includes Sun Blade X6275 server module specifications.

The following information is included:

- Section 1.1, "Sun Blade X6275 server module Overview" on page 1-1
- Section 1.2, "Specifications" on page 1-8
- Section 1.3, "Illustrated Parts Breakdown" on page 1-12
- Section 1.4, "Sun Blade X6275 server module Front Panel LEDs and Features" on page 1-13
- Section 1.5, "Sun Blade X6275 server module Rear Panel Features" on page 1-15

1.1 Sun Blade X6275 server module Overview

The following topics are covered:

- Section 1.1.1, "Product Description" on page 1-2
- Section 1.1.2, "Product Features" on page 1-3
- Section 1.1.3, "About ILOM" on page 1-4
- Section 1.1.4, "About the Sun Blade Modular System Chassis" on page 1-7
- Section 1.1.5, "About the Chassis Monitoring Module (CMM)" on page 1-7

1.1.1 Product Description

The Sun Blade X6275 server module is a dual-node high-performance computing (HPC) blade. The server blade's two compute nodes (Node 0 and Node 1) are housed on a single motherboard in a single blade enclosure. The two compute nodes within a Sun Blade X6275 server module blade are identical and symmetric, but are fully independent of each other.

Each of the two nodes in the blade are based on a two-socket Intel Xeon ® platform, which consists of the IOH24, the I/O Controller Hub 10 (ICH10R), and the I/O subsystem. Both compute nodes in the Sun Blade X6275 server module have their own ILOM service processor based on the AST2100 chip.

Each node includes a Sun Flash Module, which provides a reliable and secure boot source for the node

There are two versions of the Sun Blade X6275 server module:

- The *Sun Blade X6275 1GbE Server Module* is supported in the Sun Blade 6000 modular system chassis and in the Sun Blade 6048 modular system chassis.
- The *Sun Blade X6275 IB Server Module* is supported in the Sun Blade 6048 modular system chassis.

  Each compute node on Sun Blade X6275 IB Server Module has one 4x QDR (Quad Data Rate) InfiniBand (IB) port that interfaces to the Network Express Module (NEM) 1 slot on the Sun Blade modular system chassis midplane, for a total of two IB ports per server module.

1.1.2 Product Features

The Sun Blade X6275 server module product features are listed in TABLE 1-1.

TABLE 1-1 Sun Blade X6275 server module Features

Feature	Description
CPU	Up to four Intel Xeon Processor 5500 Series Quad-core processors per server module. 8 cores per compute node, for a total of 16 cores per server module.
Nodes	Two independent compute nodes, 0 and 1. The Sun Blade X6275 server module has two symmetric compute nodes, with each independent compute node containing two Intel Xeon Processor 5500 Series processors.
Memory	Twenty-four memory slots per server module (twelve per compute node) Slots support 1333 MHz and 1066 MHz DDR3, ECC registered, DIMMs. Up to 96 GB of main memory (per compute node) using 8 GB DIMMs Up to 24 DDR3 DIMMs per blade (12 per node). Up to 2 DDR3 DIMMs per channel, 3 channels per installed processor. Up to 48 GB (using 4GB DDR3 DIMMs) per compute node, for a total of 192 GB of memory, per server module, for 8 GB DIMMs. See Section 3.1.2, "DDR3 DIMM Guidelines" on page 3-5.
Video Memory	8 MB, Maximum resolution: 1280x1024 pixels
Flash Modules	Two on-board 24 GB Sun Flash Modules (one per compute node).
USB Drives	Two on-board USB 2.0 drive slots (one per compute node).
Midplane I/O Module Support	The following combinations are supported: • Sun Blade X6275 IB server module installed in a Sun Blade 6048 modular system chassis with SunBlade 6048 Infiniband QDR Switched Network Express Module • Sun Blade X6275 1GbE server module with integrated GbE support installed into a Sun Blade 6000 or Sun Blade 6048 modular system chassis
NEMs	The following NEMs are supported: • Gigabit Ethernet (CU) 10-port Passthru Network Express Module (Recommended) • Sun Blade 6000 Virtualized Multi-Fabric 10GbE Network Express Module • Sun Blade 6000 Multi-Fabric Network Express Module • Sun Blade 6048 Infiniband QDR Switched Network Express Module

TABLE 1-1 Sun Blade X6275 server module Features *(Continued)*

Feature	Description
Service Processor (SP)	Server modules include a service processor (SP) for each compute node. The SP provides IPMI 2.0 compliant remote management capabilities across a broad range of Sun server models. Each server module node's SP features: • Integrated Lights Out Manager (ILOM) • Local ILOM command-line access using serial connection • 10/100 management Ethernet port to midplane • Remote keyboard, video, mouse, and storage (KVMS) over IP See Section 1.1.3, "About ILOM" on page 1-4 for more ILOM information.
Front Panel I/O	Two Universal Connector Ports (UCP), one per compute node, are available for use with the multi-port dongle cable. The dongle cable provides the following interface connections: • VGA graphics • Serial port • Dual USB ports (keyboard/mouse/USB disk) See Section 2.8.2, "Attaching a Multi-Port Dongle Cable" on page 2-12.
Operating systems	• Solaris S10U7 • Open Solaris 2009 06+SRU2 • CentOS 5.3 (64-bit) • SUSE Linux Enterprise Server 10 SP2 (64-bit) • SUSE Linux Enterprise Server 11 (64-bit) • Red Hat Enterprise Linux 4.8 (64-bit) • Red Hat Enterprise Linux 5.3 (64-bit) • Windows Server 2008 – Datacenter 64-bit
Chassis Compatibility	Sun Blade X6275 server module fits into Sun Blade 6048 and Sun Blade 6000 modular system chassis. **Note -** The chassis, the CMM ILOM and the SP ILOM must be compatible. See TABLE 1-2 for details.

1.1.3 About ILOM

Sun's Integrated Lights Out Manager (ILOM) resides on an integrated system service processor (SP) in the Sun Blade server modules. Each node contains its own SP ILOM with its own unique IP address.

The chassis also has an ILOM, called the Chassis Management Module (CMM) ILOM, which is used to manage chassis functions.

The SP ILOM can be accessed through its IP address, or through the Chassis Management Module CMM ILOM.

SP ILOM provides full remote KVMS (Keyboard, Video, Mouse, Storage) support. For remote media capabilities, SP ILOM provides remote administration through a browser-based interface, command-line interface (CLI), remote console, SNMP v1, v2c, v3, or IPMI v2.0 protocols.

A system administrator can use the out-of-band management Ethernet, or in-band communication through the server's operating system. A system administrator using out-of-band management can remotely control system power, monitor system FRU status, and load system firmware. Using in-band management, the system administrator can monitor system status and control system power-down.

Refer to the *Sun Blade X6275 server module ILOM Supplement* for detailed information. For general information, refer to the *Integrated Lights Out Manager* documentation collection.

1.1.3.1 ILOM 2.0 and ILOM 3.0

The Sun Blade X6275 can be equipped with ILOM 2.0 or ILOM 3.0. The SP ILOM must be matched to the CMM ILOM and the chassis as follows:

TABLE 1-2 ILOM and Chassis Compatability

ILOM Level	Chassis	SP ILOM Firmware	CMM ILOM Firmware
2.0	Sun Blade 6048	2.0.3.13 or 2.0.3.17	2.0.3.13
3.0	Sun Blade 6000 or Sun Blade 6048	3.0.4.10	3.0.6.11

In some instances, ILOM 2.0 and ILOM 3.0 work differently. The differences are noted where they occur. If no difference is noted, they work identically.

- For more on ILOM 2.0, see the *Sun Integrated Lights Out Manager 2.0 Supplement for the Sun Blade X6275 Server Module* and the Sun Integrated Lights Out Manager (ILOM) 2.0 Documentation collection.
- For more on ILOM 3.0, see the *Sun Integrated Lights Out Manager 3.0 Supplement for the Sun Blade X6275 Server Module* and the Sun Integrated Lights Out Manager (ILOM) 3.0 Documentation collection.

1.1.3.2 ILOM Node Numbering

A single Sun Blade X6275 server module contains two complete systems, each referred to as a node. Each node has its own SP running its own ILOM.

ILOM 2.0 and ILOM 3.0 number the nodes differently.

ILOM 2.0 Node Numbering

The 2.0 CMM ILOM displays slot addresses as if there are two separate server modules.

- Node 0 is addressed by the actual slot number.
- Node 1 is addressed by the slot number plus *N*, where *N* is 12 in a Sun Blade 6048 and 10 in a Sun Blade 6000 chassis. For example, for a server module in slot 6:
  - Node 0 is addressed by the actual slot number, 6.
  - Node 1 is addressed by:

    - slot 18 (the actual slot number plus 12) in a Sun Blade 6048 chassis

    - slot 16 (the actual slot number plus 10) in a Sun Blade 6000 chassis

This convention is reflected in the following CMM ILOM features:

- The /SYS/SLOTID target is different for the two blade ILOMs.
- The chassis' CMM ILOM provides separate targets for each blade. For example, if the blade is in slot 6, then the CMM ILOM provides /CH/BL6 and /CH/BL18 (or /CH/BL16).
- The CMM ILOM web interface provides separate management displays for the two blade ILOMs, using the two slot IDs.

For more information, see the *Sun Integrated Lights Out Manager 2.0 Supplement for the Sun Blade X6275 Server Module*.

ILOM 3.0 Node Numbering

ILOM 3.0 uses the actual slot number plus the node ID to identify modes.

For example in slot 6, the nodes are:

- Slot 6, node 0
- Slot 6, node 1

The CMM targets for the nodes in slot 6 are:

- /CH/BL6/NODE0 for node 0
- /CH/BL6/NODE1 for node 1

For more information, see the *Sun Integrated Lights Out Manager 3.0 Supplement for the Sun Blade X6275 Server Module*.

1.1.4 About the Sun Blade Modular System Chassis

Sun Blade X6275 server modules must reside within a Sun Blade 6048 or Sun Blade 6000 modular system chassis.

1.1.4.1 Sun Blade 6048 Modular System Chassis

The Sun Blade 6048 modular system chassis consists of four separate shelves contained within the unibody designed chassis. Up to 12 Sun Blade X6275 server modules can be installed within a single Sun Blade 6048 shelf, up to 48 server modules per Sun Blade 6048 chassis, for a maximum of 96 compute nodes per Sun Blade 6048 modular system chassis.

For more information, refer to the Sun Blade 6048 Modular System Chassis documentation.

Note – For CMM ILOM 2.0.3.13 systems, a Sun Blade X6275 server module must be inserted into the chassis before you power on. If the blade is not inside the chassis before you power on, ILOM does not recognize node 1. For ILOM 3.0 systems, this requirement does not apply.

1.1.4.2 Sun Blade 6000 Modular System Chassis

The Sun Blade 6000 modular system chassis holds up to 10 Sun Blade X6275 server modules for a maximum of 20 compute nodes per Sun Blade 6000 modular system chassis.

For more information, refer to the Sun Blade 6000 Modular System Chassis documentation.

1.1.5 About the Chassis Monitoring Module (CMM)

The Chassis Monitoring Module (CMM) provides a common management interface for each server module and compute node. The CMM is the primary point of management interaction for all shared chassis, components, and functions.

Through their associated ILOM service processors, all individual compute node's IPMI, HTTPs, CLI (SSH), SNMP, and file transfer interfaces are directly accessible from the Chassis Monitoring Module (CMM) Ethernet management port. Each compute node is assigned an IP address that is used for CMM management. IP addresses for compute nodes are assigned by static or DHCP methods.

Note – The CMM ILOM firmware must be compatible with the SP ILOM firmware. See TABLE 1-2 for compatability levels.

1.2 Specifications

This section contains Sun Blade X6275 server module specifications.

The following topics are covered:

- Section 1.2.1, "Server Module Boards" on page 1-8
- Section 1.2.2, "Dimensions" on page 1-9
- Section 1.2.3, "Environmental Specifications" on page 1-9
- Section 1.2.4, "Customer Replaceable Units (CRUs) and Field Replaceable Units (FRUs)" on page 1-10
- Section 1.2.5, "Components and Part Numbers" on page 1-11
- Section 1.2.6, "Accessory Kits" on page 1-11

1.2.1 Server Module Boards

The Sun Blade X6275 server module has the following boards installed in the blade. The boards are listed in TABLE 1-3.

TABLE 1-3 Server Module Boards

Board	Description	Reference
Motherboard	The motherboard includes four CPU module sockets, slots for 24 DDR3 DIMMs, slots for flash modules, slots for USB drives, I/O chipsets, and a chassis midplane connector.	Section 3.5, "Replacing the Motherboard Assembly (FRU)" on page 3-27
SP board	The service processor board subsystem includes independent integrated lights out management (ILOM) for compute nodes 0 and 1. This SP board is attached to the motherboard and is not separately replaceable.	Section 3.5, "Replacing the Motherboard Assembly (FRU)" on page 3-27
	The service processor (ILOM) subsystem controls the host power and monitors host system events (power and environmental). The service processor (ILOM) subsystem in each compute node is powered up whenever the blade is installed in a chassis that receives AC input power, even when the main power to each compute node is off.	Section 1.1.3, "About ILOM" on page 1-4

1.2.2 Dimensions

The Sun Blade X6275 server module form factor dimensions are listed in TABLE 1-4.

TABLE 1-4 Sun Blade X6275 server module Dimensions

Dimension	Sun Blade X6275 server module
Height	327 mm/12.87 inches
Width	43 mm/1.69 inches
Depth	512 mm/20.16 inches
Weight	Maximum: ~20.61 lbs (9.36 kg) - with 24 4 GB DDR3 DIMMs and 4 Intel Xeon EP processors installed

1.2.3 Environmental Specifications

TABLE 1-5 Server Module Environmental Specifications

Specification	Value
Temperature (operating)	41- 90˚ F 5 - 32˚ C
Temperature (storage)	-40 - 158˚ F -40 - 70˚ C
Humidity	10%- 90% non-condensing
Operating altitude	0 - 10,000 feet (0 - 3048 m)

Note – System cooling might be affected by dust and contaminant buildup. It is recommended that systems be opened and checked approximately every six months, or more often in dirty operating environments. Check system heat sinks, fans, and air openings. If necessary, clean systems by brushing or blowing contaminants or carefully vacuuming contaminants from the system.

1.2.4 Customer Replaceable Units (CRUs) and Field Replaceable Units (FRUs)

This section lists the CRUs and FRUs. Customer Replaceable Units (CRUs) are designed to be replaced by customers. Field Replaceable Units (FRUs) must be replaced by Sun service personnel.

Caution – Changing FRUs can damage your equipment and void your warranty.

TABLE 1-6 CRU and FRU List *(Subject to Change)*

Part	CRU or FRU
Base Blade	
Includes motherboard, SP card, batteries, and cables (no CPU and no memory)	FRU
CPUs	
4 Intel Xeon Quad-Core X5570 – 2.93 GHz, 8MB Cache, 6.4 GT/s QPI, HT, Turbo Boost, 95W, with heat sinks.	FRU
4 Intel Xeon Quad-Core X5560 – 2.80 GHz, 8MB Cache, 6.4 GT/s QPI, HT, Turbo Boost, 95W, with heat sinks.	FRU
4 Intel Xeon Quad-Core E5540 – 2.53 GHz, 8MB Cache, 5.86 GT/s QPI, HT, Turbo Boost, 80W, with heat sinks.	FRU
4 Intel Xeon Quad-Core L5520 – 2.26 GHz, 8MB Cache, 5.86 GT/s QPI, HT, Turbo Boost, 60W, with heat sinks.	FRU
4 Intel Xeon Quad-Core E5520 – 2.26 GHz, 8MB Cache, 5.86 GT/s QPI, HT, TurboBoost, 80W, with heat sinks.	FRU
DIMMs	
2GB DDR3 Memory Kit – 1x2GB 1333MHz DIMM	CRU
4GB DDR3 Memory Kit – 1x4GB 1333MHz DIMM	CRU
8GB DDR3 Memory Kit – 1x 8GB 1066MHz DIMM	CRU
Boot and Storage	
24 GB Sun Flash Modules (FMODs)	CRU
USB Drive (third-party supplied)	CRU
Miscellaneous	

TABLE 1-6 CRU and FRU List *(Continued)(Subject to Change)*

Part	CRU or FRU
CR2032 RTC battery (1 per compute node)	CRU
Service processor	FRU
Cable kit	CRU

1.2.5 Components and Part Numbers

Supported components and part numbers are subject to change over time. For the most up-to-date list, go to:

https://support.oracle.com/handbook_private/index.html

Click the name and model of your server, and then click Full Components List for the list of components and part numbers.

1.2.6 Accessory Kits

TABLE 1-7 lists the contents of the accessory kit that is shipped with the servers.

TABLE 1-7 Accessory Kit

Item	Part Number
Sun Blade X6275 Server Module Installation Guide (printed)	820-6977
Sun Blade X6275 Server Module Getting Started Guide (printed)	820-6847
Additional safety and license documentation	

1.3 Illustrated Parts Breakdown

The following illustrations provide exploded views of server module components. Use these illustrations, and the accompanying tables, to identify parts in your system.

FIGURE 1-1 Server Module Components

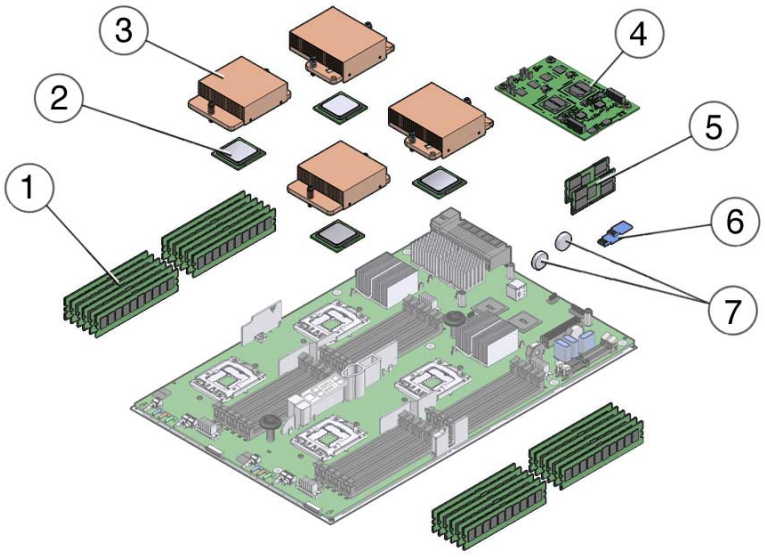


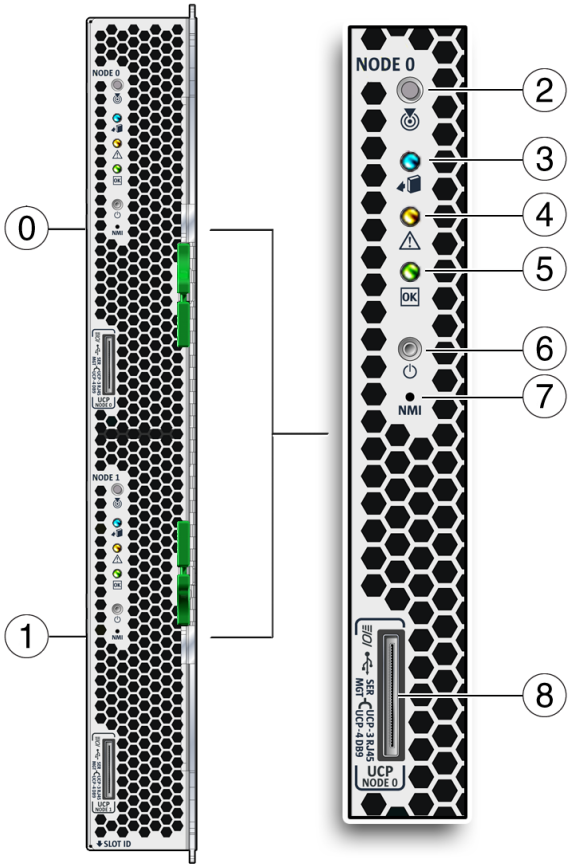
Figure Legend

1	DDR3 DIMMs (24 max)	CRU	**5**	Flash Modules (2 max)	FRU
2	CPU (4 max)	FRU	**6**	USB Drive (2 max)	FRU
3	Heat Sink	FRU	**7**	RTC Battery (2)	FRU
4	SP module	FRU			

1.4 Sun Blade X6275 server module Front Panel LEDs and Features

FIGURE 1-2 shows front panel features on the Sun Blade X6275 server module.

FIGURE 1-2 Sun Blade X6275 Server Module Front Panel LEDs



Note – After server module insertion, all front panel LEDs blink three times.

Figure Legend Node 0 and Node 1 Server Module LEDs

0 Node 0

1 Node 1

2 Server Module Locate LED - White - Use the locate button and locate LED to identify a server module within a fully populated chassis.

- From a remote location: Use the ILOM to turn the locate LED on and off.
- Co-located: Push and release the locate button to make the locate LED blink for 30 minutes (fast blink: 4Hz).

Press the button for more than 4 seconds to light all front panel LEDs for 15 seconds.

3 Server Module Ready to Remove LED- Blue

The server module is ready to be removed from the chassis and can be deconfigured from the chassis. This LED is activated using an ILOM remote Remove command. This LED is switched on by the service processor in response to an ILOM command.

LED states:

- Off: Normal Operation. The server module is not ready to remove.
- On: The server module is ready to remove from the chassis.

4 Server Module Service Action Required LED- Amber

LED states:

- Off: Normal operation.
- On: Fault (critical and non-critical). When a faulty component, such as a failed DIMM, is identified internally on the server, the Service Action Required LED is also lit.

5 Server Module OK LED– Green (blinking or steady on)

LED states:

- Full power- steady on
- Updating- slow blink 0.5 second on, 0.5 second off
- SP booting- fast blink 0.125 second on, 0.125 second off
- Node booting- slow blink 0.5 second on, 0.5 second off
- Standby power- blink: 0.1 second on, 2.9 seconds off.

6 Server Module Power/Standby button

- Press momentarily to toggle the server between standby power and full power.
- Press and hold for four seconds (while server is on) to force host power off immediately. ost power-off.

Caution - Pressing the Power/Standby Button for more than 4 seconds when in full power initiates an immediate shutdown to standby power, and could cause data loss.

See Section 2.4, “Powering Off the Server Module” on page 2-4.
See Section 4.3, “Powering On the Server Module” on page 4-4.

7 Non-Maskable Interrupt (NMI) button (Service only)

8 Universal Connector Port (UCP), used for dongle cable

See Section 2.8.2, “Attaching a Multi-Port Dongle Cable” on page 2-12.

1.5 Sun Blade X6275 server module Rear Panel Features

FIGURE 1-3 shows rear panel features on the Sun Blade X6275 server module.

FIGURE 1-3 Sun Blade X6275 Server Module Rear Panel

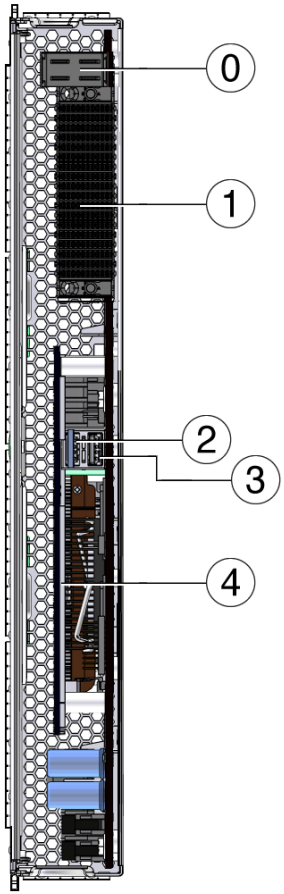


Figure Legend Rear Panel Features

0	Power Connector
1	Midplane Connector
2	USB Drive for Node 0
3	USB Drive for Node 1
4	Service Processor Board

CHAPTER 2

Preparing to Service the System

This chapter describes how to prepare the Sun Blade X6275 server module for servicing. This includes preparatory service procedures, a list of required tools and supplies, and information about obtaining up-to-date supported components and part numbers.

The following basic procedures describe how to prepare the server module for service. The procedures describe how to safely remove the server module from the chassis and how to remove the server module's top cover. These procedures are referenced throughout this manual.

The following topics are covered:

- Section 2.1, "Safety Information" on page 2-2
- Section 2.2, "Required Tools" on page 2-2
- Section 2.3, "Obtaining the Serial Number" on page 2-3
- Section 2.4, "Powering Off the Server Module" on page 2-4
- Section 2.5, "Removing the Server Module From the Sun Blade Chassis" on page 2-7
- Section 2.6, "Performing Electrostatic Discharge and Antistatic Prevention Measures" on page 2-9
- Section 2.7, "Removing the Server Module Top Cover" on page 2-11
- Section 2.8, "Using the Multi-Port Dongle Cable" on page 2-12
- Section 2.9, "Setting the Locate LED" on page 2-14

2.1 Safety Information

This section describes important safety information that you need to know prior to removing or installing parts in the Sun Blade X6275 server module.

Caution – Never attempt to run the server module with the cover removed. Hazardous voltage present.

Caution – Equipment damage possible. The server module cover 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*.
- Follow all cautions, warnings, and instructions marked on the equipment and described in the *Sun Blade X6275 Server Module 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. See this chapter.

2.2 Required Tools

The Sun Blade X6275 server module can be serviced with the following tools:

- Antistatic wrist strap
- Antistatic mat
- No. 2 Phillips screwdriver (with adjustable torque; set for 8 in-lbs)
- Non-conducting stylus or pencil (to power on server)

2.3 Obtaining the Serial Number

To obtain support for your server module, you need your serial number. The serial number is located on a label on the front ejector of the server module. Another label, which requires server module removal, is on the top of the server module as shown in FIGURE 2-1.

FIGURE 2-1 Serial Number Labels

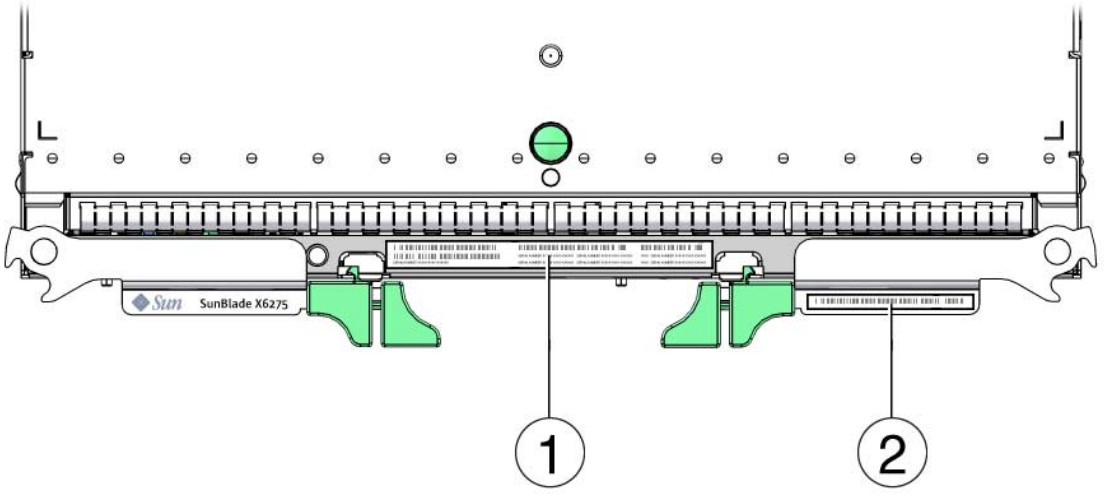


Figure Legend

1	Serial number label with MAC addresses
2	EZ serial number label on each ejector handle.

2.4 Powering Off the Server Module

To remove main power from the server module, choose one of the methods described in the following table.

TABLE 2-1 Shutdown Procedures

Shutdown	Method
Graceful shutdown	Use a pen, or other non-conducting pointed object, to press and release the Power/Standby Button on the front panel. When the main power is off, the OK LED on the front panel blinks, indicating that the server module is in standby power mode. See FIGURE 2-2. Pressing the Power/Standby Button causes Advanced Configuration and Power Interface (ACPI)–enabled operating systems to perform an orderly shutdown of the operating system. Server modules not running ACPI-enabled operating systems might ignore this event and the host will not shut down.
Immediate shutdown	Press and hold the Power/Standby Button for at least four seconds until the main power is off and the server module enters standby power mode. See FIGURE 2-2. When the main power is off, the OK LED on the front panel flashes, indicating that the server module is in standby power mode. **Caution -** All applications and files will be closed abruptly without saving changes. Possible data loss and file system corruption might occur.
ILOM SP CLI shutdown	See Section 2.4.1, "Powering Off Using the SP CLI" on page 2-5.
ILOM SP Web Interface shutdown	See Section 2.4.2, "Powering Off Using the SP Web Interface" on page 2-6.
Complete power removal	To completely power off the server module, you must disengage the server module from the midplane connector inside the chassis. To completely remove power from a server module, do the following: 1. Place the server module in standby power mode. 2. Unconfigure the server module using ILOM commands. 3. Pull the server module out 3 inches from the rack using the ejectors. 4. If you remove the server module completely, insert a filler panel in its place within 60 seconds.

Caution – Do not reinsert a server module until at least 20 seconds has elapsed since the server module was disengaged from the midplane connector.

Caution – Server modules should be removed only if the blue LED is lit, or if you are certain that a firmware update is not in progress. Pulling the server module out of the chassis during a firmware update might damage the server module, which might not be repairable in the field.

FIGURE 2-2 Front Panel OK LED and Power/Standby Button

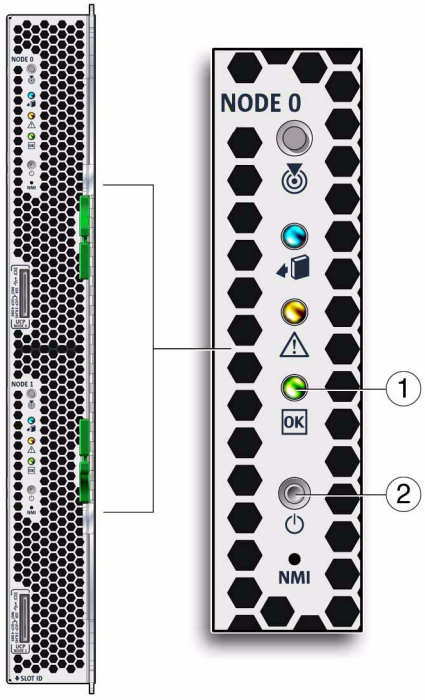


Figure Legend Power LED and Button

1	Power LED– Green
2	Power/Standby Button

2.4.1 Powering Off Using the SP CLI

You can use the service processor Command-Line Interface (CLI) to perform a graceful shutdown of the server module and ensure that all of the data is saved and the server module is ready for restart.

Refer to the ILOM and operating system documentation for additional information.

1. **Log in as a superuser or equivalent.**

   Depending on the type of problem, you might want to view server module status or log files, or run diagnostics before you shut down the server module.

2. **Notify affected users.**

3. **Save any open files and quit all running programs.**

   Refer to your application documentation for specific information.

4. **Open an SSH session to the SP.**

5. **Log into the Service Processor.**

   The default user name is **root** and the password is **changeme**.

6. **Type:** `stop /SYS`

   or

   ```
   cd /SP/CtrlInfo
   set powerctrl=off
   ```

7. **Repeat this procedure for the second compute node.**

2.4.2 Powering Off Using the SP Web Interface

You can use the service processor web interface to perform a graceful shutdown of the server module and ensure that all of your data is saved and the server module is ready for restart.

Refer to the ILOM and operating system documentation for additional information.

1. **Log in as a superuser or equivalent.**

   Depending on the type of problem, you might want to view server module status or log files, or run diagnostics before you shut down the server module.

2. **Notify affected users.**

3. **Save any open files and quit all running programs.**

   Refer to your application documentation for specific information.

4. **Open a web browser and enter the SP IP address in the location bar.**

5. **Log in to the Service Processor Web Interface.**

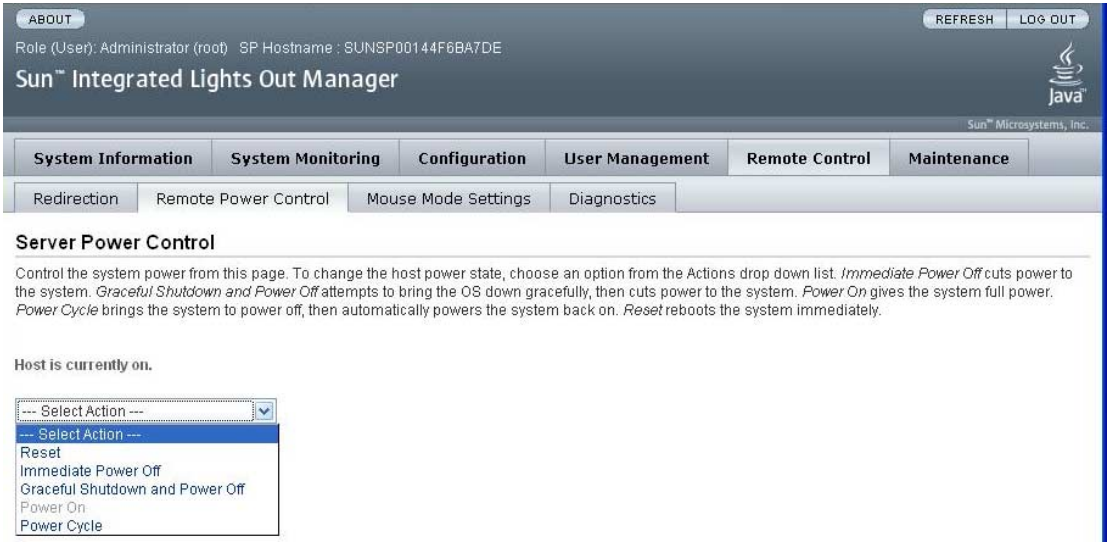
   The default user name is **root** and the password is **changeme**.

6. **Click the** Remote Control **tab, the** Remote Power Control **tab and then select** Graceful Shutdown and Power Off **from the drop-down list. See** FIGURE 2-3**.**

7. **Click Save. Click OK.**

8. **Repeat this procedure for the second compute node.**

FIGURE 2-3 Web Interface Power Off



2.5 Removing the Server Module From the Sun Blade Chassis

The server module must be removed from the Sun Blade 6048 or Sun Blade 6000 chassis to:

- Access the Fault Remind Button
- Clear CMOS and NVRAM
- Service the following components:
  - Motherboard/SP board
  - System components, such as flash modules, DIMMs, and CPUs

Caution – Damage to system components can occur through improper handling. Observe the proper ESD precautions when handling the server module. Wear a securely grounded ESD wrist strap. Handle components by the edges only. Do not touch metal contacts.

Caution – Do not reinsert a server module until at least 20 seconds has elapsed since the server module was disengaged from the midplane connector.

Caution – Server modules should only be removed if the blue LED is lit, or if you are certain that a firmware update is not in progress. Pulling the server module out of the chassis during a firmware update might damage the server module, which might not be repairable in the field.

To remove the server module from the Sun Blade 6048 or Sun Blade 6000 chassis.

1. **Power off both server module compute nodes or place them in standby power mode.**

   See Section 2.4, "Powering Off the Server Module" on page 2-4 for more information.

   When the server module compute nodes are in standby power mode, the OK LEDs blink (0.1 second on, 2.9 seconds off) on the front panel.

2. **Squeeze and hold green ejector buttons. See** FIGURE 2-4**.**

3. **Open the ejector levers by rotating both ejector arms away from the server module at the same time, to unseat the server module from the Sun Blade chassis connector.**

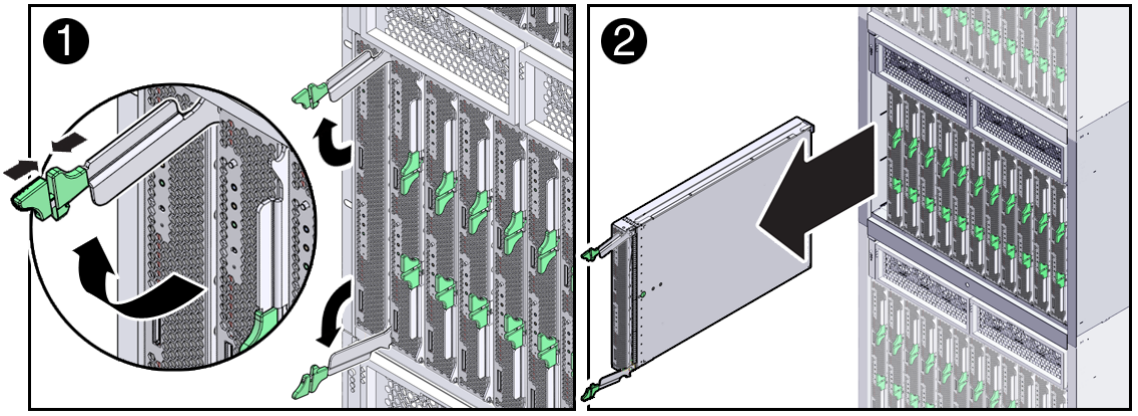
4. **Pull the server module out of the Sun Blade chassis by the ejector levers until you are able to grasp the server module with both hands to pull it out of the Sun Blade chassis.**

5. **Insert a server module filler panel into the empty slot, if the Sun Blade chassis is powered on.**

Caution – Do not operate the system with empty slots. Always insert a server module filler panel into an empty slot within 60 seconds to reduce the possibility of server module shutdown.

6. **Set the server module on an antistatic surface. See the next section.**

FIGURE 2-4 Removing a Server Module (Sun Blade 6048 Chassis Shown)



2.6 Performing Electrostatic Discharge and Antistatic Prevention Measures

2.6.1 Electrostatic Discharge Safety Measures

Electrostatic discharge (ESD) sensitive devices, such as the motherboards, drives, and memory DIMMs, require special handling.

Caution – Circuit boards and 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 boards. Do not touch the components along their connector edges.

2.6.1.1 Using an Antistatic Wrist Strap

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 metal area on the chassis. Following this practice equalizes the electrical potentials between you and the server.

Note – An antistatic wrist strap is not included in the accessory kit for the Sun Blade X6275 server module. However, antistatic wrist straps are included with options.

2.6.1.2 Using an Antistatic Mat

Place ESD-sensitive components such as motherboards, memory, and other PCBs on an antistatic mat.

2.6.2 ESD Handling Procedure

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

   Place ESD-sensitive components such as the printed circuit boards on an antistatic mat. The following items can be used as an antistatic mat:

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

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

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

2.7 Removing the Server Module Top Cover

1. **Power down both server module compute nodes.**

   See "Powering Off the Server Module" on page 2-4.

2. **Remove the server module from the chassis. Place it on a flat surface.**

   See "Removing the Server Module From the Sun Blade Chassis" on page 2-7.

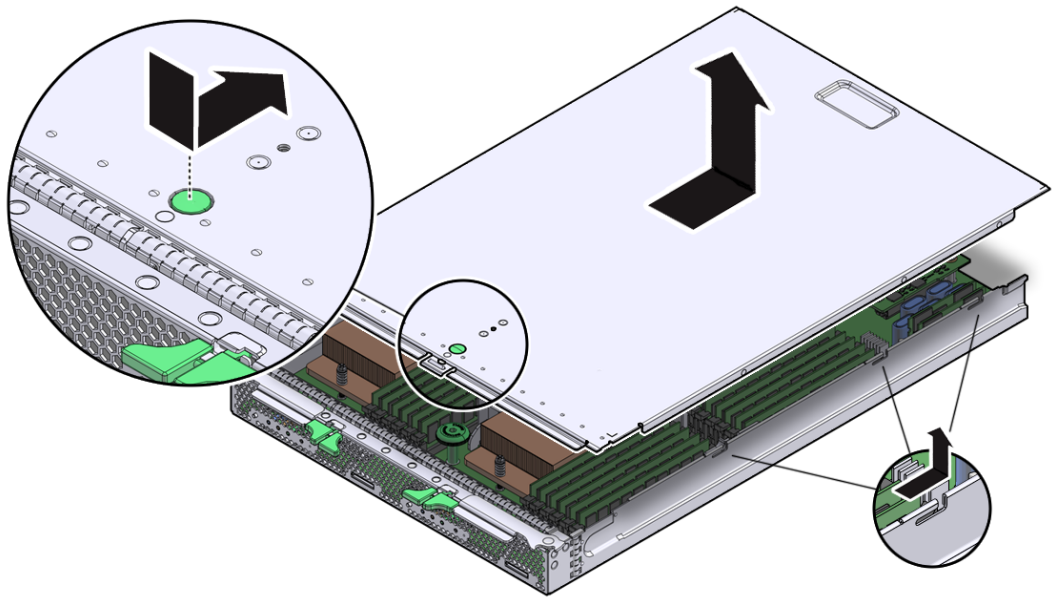
3. **Attach an antistatic wrist strap.**

   See "Performing Electrostatic Discharge and Antistatic Prevention Measures" on page 2-9.

4. **Press down on the server module cover release button and, using the indent for leverage, slide the main cover toward the rear of the server module chassis approximately 0.5 inch (12 mm). See** FIGURE 2-5**.**

5. **Grasp the server module cover by its rear edge and lift it straight up from the server module chassis.**

FIGURE 2-5 Removing the Server Module Top Cover



2.8 Using the Multi-Port Dongle Cable

Your chassis might ship with a multi-port dongle cable and a DB9 to RJ-45 serial adapter cable. You can use the multi-port cable to plug devices directly into the front of the server module for service, maintenance, and OS installation.

The multi-port cable provides connections for a VGA monitor, two USB devices, and a serial device.

Caution – Possible damage to the cable, server module, or chassis. Disconnect the multi-port dongle cable when you are finished using the cable. Otherwise, the cable, server module, or chassis can be damaged when the chassis door is closed or the cable is abruptly pulled.

2.8.1 Connecting the DB9 to RJ-45 Serial Adapter Cable

The DB9 to RJ-45 serial adapter cable provides DB9 serial access to the server module through an RJ-45 connection.

Your multi-port dongle cable might have three cables or four cables. If your multi-port cable has three cables, connect to the serial port using the RJ-45 connector.

If your multi-port cable has four cables, connect to the serial port using the DB9 connector, and do *not* use the RJ-45 connector. Use the DB9 to RJ-45 adapter cable, if necessary.

2.8.2 Attaching a Multi-Port Dongle Cable

1. **Insert the multi-port dongle cable into the universal connector port (UCP) on the server module front panel. See** FIGURE 2-6**.**
2. **Connect the multi-port dongle cable connections as appropriate.**

FIGURE 2-6 UCP Port

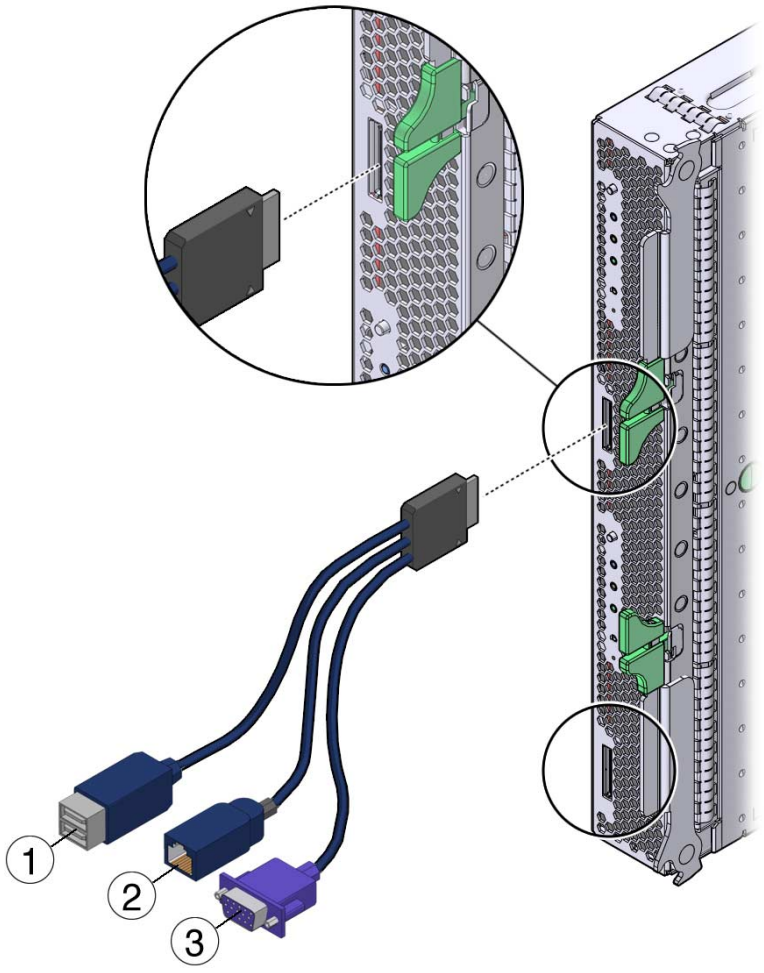


Figure Legend

1	Dual USB connectors
2	RJ-45 serial port
3	VGA video connector

2.9 Setting the Locate LED

Use the locate button and locate LED to identify a server module within a fully populated chassis.

- From a remote location: Use the ILOM to turn the locate LED on and off.
- Co-located: Push and release the locate button to make the locate LED blink for 30 minutes (fast blink: 4Hz).

▼ To Light the Locate LED Using the ILOM Web Interface

1. **Access the ILOM Web Interface.**
2. **On the Web Interface, navigate to** `System Monitoring - Indicators`**.**
3. **Select the radio button next to** `/SYS/LOCATE`**.**
4. **Select:** `Turn LED On`**, or** `Set LED to Fast Blink`**, from the drop-down menu.**

▼ To Light the Locate LED Using the ILOM CLI

- **Type: `set /SYS/LOCATE value=Fast_Blink`**

▼ To Darken the Locate LED Using the ILOM CLI

- **Type: `set /SYS/LOCATE value=Off`**

CHAPTER 3

Servicing Server Module Components

This chapter describes how to replace components in the Sun Blade X6275 server module.

Note – Before performing any of the procedures in this chapter, perform the procedures described in Chapter 2, Preparing to Service the System.

Note – Some of the procedures in this section are for customer-replaceable units (CRUs) and some are for field-replaceable units (FRUs), as noted in the procedures and in the list below. FRU components should be replaced *only* by trained service technicians. Contact your Sun Service representative for assistance with FRU replacements.

The following topics are covered in this chapter:

- Section 3.1, "Servicing DIMMs (CRU)" on page 3-2
- Section 3.2, "Servicing the USB Drives (CRU)" on page 3-15
- Section 3.3, "Servicing a Processor and Heat Sink (FRU)" on page 3-17
- Section 3.4, "Replacing the SP (FRU)" on page 3-25
- Section 3.5, "Replacing the Motherboard Assembly (FRU)" on page 3-27
- Section 3.6, "Servicing the System Battery (CRU)" on page 3-30
- Section 3.7, "Resetting Passwords and Clearing CMOS NVRAM" on page 3-33
- Section 3.8, "Recovering from Corrupt Service Processor Software" on page 3-36
- Section 3.9, "Displaying and Updating FRU Information" on page 3-38

3.1 Servicing DIMMs (CRU)

This section describes how to diagnose and replace faulty DDR3 DIMMs and Sun Flash Modules (FMODs). The following topics are covered:

- Section 3.1.1, "Identifying Faulty DIMMs" on page 3-2
- Section 3.1.2, "DDR3 DIMM Guidelines" on page 3-5 (Includes additional DDR 3 DIMM information.)
- Section 3.1.3, "Removing DDR3 DIMMs" on page 3-8
- Section 3.1.4, "Installing DDR3 DIMMs" on page 3-9
- Section 3.1.5, "Removing Flash Modules" on page 3-11
- Section 3.1.6, "Installing Flash Modules" on page 3-12

Note – CRU: These customer replaceable units can be replaced by anyone.

Caution – This procedure requires that you handle components that are sensitive to static discharge. This sensitivity can cause the component to fail. To avoid damage, ensure that you follow antistatic practices. See Section 2.6.1, "Electrostatic Discharge Safety Measures" on page 2-9.

3.1.1 Identifying Faulty DIMMs

The amber Service Action Required LED lights if the server module detects a DIMM fault.

To identify faulty DIMMs:

1. **Prepare the server module for service.**

   a. **Power off both server module compute nodes.**

      See Section 2.4, "Powering Off the Server Module" on page 2-4.

   b. **Remove the server module from the Sun Blade chassis. Place it on a flat surface.**

      See Section 2.5, "Removing the Server Module From the Sun Blade Chassis" on page 2-7.

c. **Attach an antistatic wrist strap.**

   See Section 2.6, “Performing Electrostatic Discharge and Antistatic Prevention Measures” on page 2-9.

d. **Remove the server module top cover.**

   See Section 2.7, “Removing the Server Module Top Cover” on page 2-11.

2. **Press and hold the Remind button on the motherboard to identify a faulty DIMM. An amber LED lights near the faulty DIMM. See** FIGURE 3-1**.**

Note – Do not hold the Fault Remind button down longer than necessary. A lit green charge status LED, located next to the Fault Remind button, indicates that the fault remind LED circuit is operational. If the charge status LED is out, the fault remind LEDs can not function. The charge status LED indicates the test circuit power level. After the server module is inserted into the Sun Blade chassis, the test circuit will recharge. However, the DIMM error(s) must re-occur to be stored and visible on a fault LED during the next fault remind test.

---

3. **Note the location of faulty DDR3 DIMMs slots on the motherboard of the server module.**

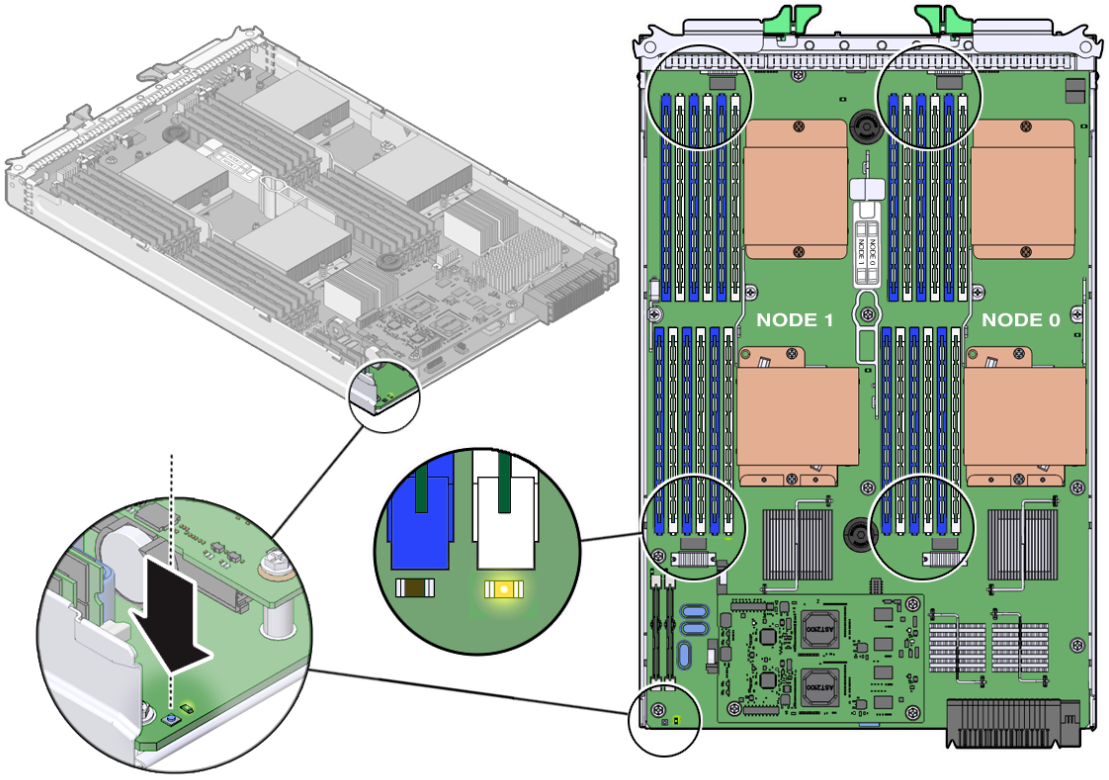
   DIMMs are identified with a corresponding amber LED on the motherboard.

4. **Ensure that all DIMMs are seated correctly in their slots.**

   If re-seating the DIMM does not fix the problem, remove and replace the faulty DIMM.

Note – The DIMM fault LED will remain on when the Fault Remind button is pressed after the DIMM is re-seated. The server module must be powered up again to verify if re-seating fixes the DIMM problem.

FIGURE 3-1 DIMM Fault LEDs and Remind Button Locations

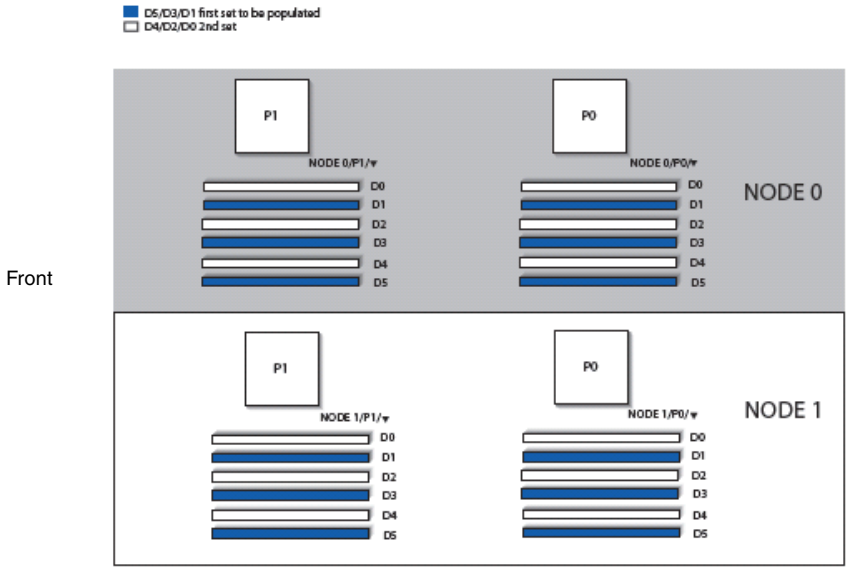


3.1.2 DDR3 DIMM Guidelines

Use the DDR3 DIMM guidelines, FIGURE 3-2, and FIGURE 3-3 to help you plan the memory configuration of your server module.

FIGURE 3-2 shows the DIMM population method.

FIGURE 3-2 DIMM Population



The DDR3 DIMM population rules for the Sun Blade X6275 Server Module are as follows:

- Required: One must populate dual-rank (DR) or single-rank (SR) DDR3 DIMMs in sets of three for each installed processor, one per memory channel.

  12 DDR3 DIMMs per server module or 24 DDR3 DIMMs (2 DDR3 DIMMs per memory channel) per server module configurations are supported.

Note – Only 3 DIMMs and 6 DIMMs per installed processor are supported.

- Do not populate any DDR3 DIMM socket next to an empty processor socket.

  Each processor contains a separate memory controller.
- Each installed processor can support a maximum of six dual-rank (DR) or single-rank (SR) DDR3 DIMMs.
- Populate DDR3 DIMMs by location according to the following rules:

- Populate the DDR3 DIMM slots for each memory channel that are the farthest from the processor first.

  For example, populate D5/D3/D1 first; then D4/D2/D0 second.

- Populate dual-rank (DR) or single-rank (SR) DDR3 DIMMs in sets of three (such as D5/D3/D1) for each processor, one per memory channel. See FIGURE 3-2.

- For maximum performance, apply the following rules:
  - A maximum of 3 DIMMs per installed processor is allowed to achieve 1333 MHz, otherwise the performance will clock down to 1066 MHz. See FIGURE 3-3.
  - The best performance is assured by preserving symmetry; for example, adding three of same kind of DDR3 DIMMs, one per memory channel; and ensuring that both processors have the same size of DDR3 DIMMs populated in the same manner.
  - In certain configurations, DDR3 DIMMs run slower than their individual maximum speed.
- Both compute nodes must have exactly the same memory configuration.
- The actual processors DDR3 DIMM speed will be:

  1333 MHz when:

  DIMM slots D4/D2/D0 are empty, and
  DIMM slots D5/D3/D1 are installed with 1 or 2 rank 1333 MHz DDR3 DIMMs

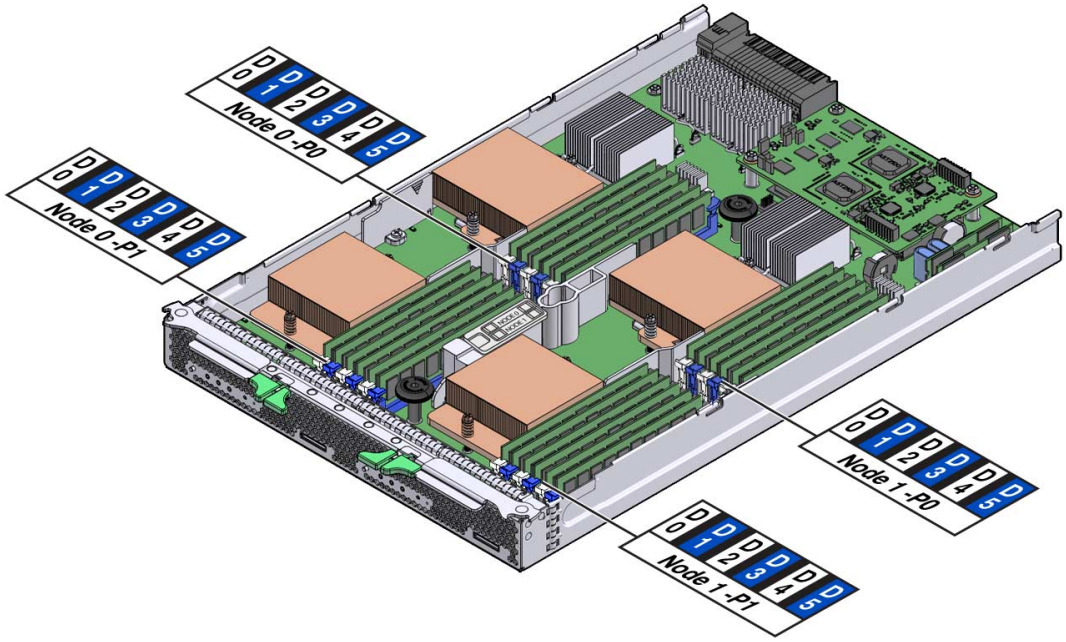
  1066 MHz when:

  DIMM slots D4/D2/D0 are installed with 1 or 2 rank DDR3 DIMMs (1066 or 1333 MHz), and
  DIMM slots D5/D3/D1 are installed with 1 or 2 rank DDR3 DIMMs (1066 or 1333 MHz)

Regarding Intel Xeon 5500 sequence memory performance, rank switching delay is higher when switching between DIMMs on a channel than it is when switching between ranks on the same DIMM. Therefore it is preferable to populate one dual-rank 4GB DIMM rather than two single-rank DIMMs per channel.

FIGURE 3-3 shows the DIMM numbering and positions.

FIGURE 3-3 DIMM Numbering and Position



3.1.3 Removing DDR3 DIMMs

1. **Prepare the server module for service.**

   a. **Power off both server module compute nodes.**

      See Section 2.4, "Powering Off the Server Module" on page 2-4.

   b. **Remove the server module from the Sun Blade chassis. Place it on a flat surface.**

      See Section 2.5, "Removing the Server Module From the Sun Blade Chassis" on page 2-7.

   c. **Attach an antistatic wrist strap.**

      See Section 2.6, "Performing Electrostatic Discharge and Antistatic Prevention Measures" on page 2-9.

   d. **Remove the server module top cover.**

      See Section 2.7, "Removing the Server Module Top Cover" on page 2-11.

Caution – Ensure that all power is removed from the server module before removing or installing DDR3 DIMMs, or damage to the DDR3 DIMMs might occur.

2. **Press the Remind button on the motherboard to locate the failed DIMMs.**

   See FIGURE 3-1 for the Remind button location.

3. **Locate the DIMM slot on the motherboard.**

   A lit LED next to a DIMM slot indicates a faulty DIMM.

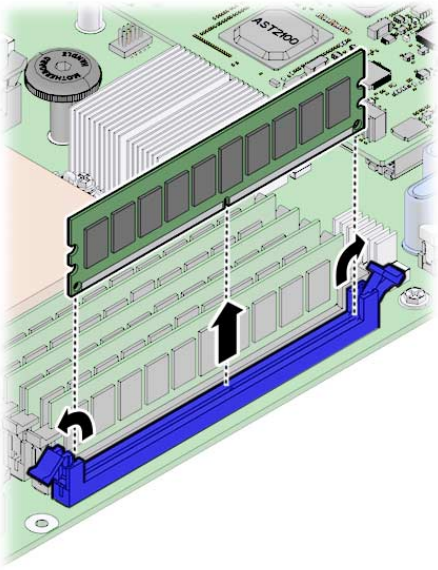
If the LED is...	Then the DIMM is...
Off	Operating properly.
On (amber)	Faulty and should be replaced.

4. **Rotate both DIMM slot ejectors outward as far as they will go.**

   This action partially ejects the DIMM from the slot.

5. **Carefully lift the DIMM straight up to remove it from the slot. See FIGURE 3-4.**

FIGURE 3-4 Removing a DIMM



3.1.4 Installing DDR3 DIMMs

Always replace a DDR3 DIMM with the same Sun part number as the failed DDR3 DIMM.

Tip – See Section 3.1.2, "DDR3 DIMM Guidelines" on page 3-5 for information about configuring the DDR3 DIMMs.

---

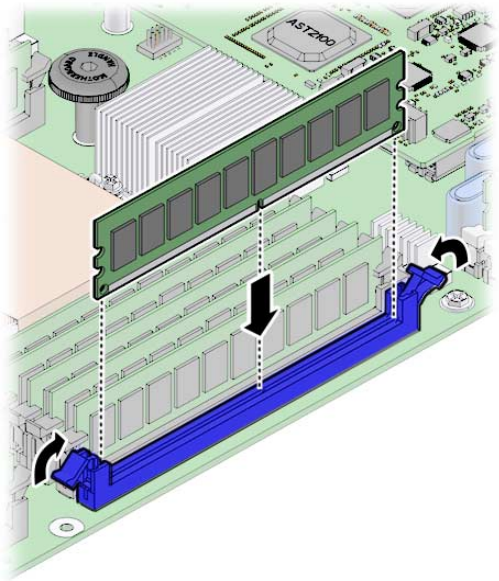
1. **Unpack the replacement DDR3 DIMMs and place them on an antistatic mat.**
2. **Ensure that the ejector tabs are in the open position.**
3. **Line up the replacement DDR3 DIMM with the connector. See** FIGURE 3-5**.**

   Align the DDR3 DIMM notch with the key in the connector. This ensures that the DDR3 DIMM is oriented correctly.
4. **Push the DDR3 DIMM into the connector until the ejector tabs lock the DDR3 DIMM in place.**

Caution – If the DDR3 DIMM does not easily seat into the connector, verify that the orientation of the DDR3 DIMM is as shown in FIGURE 3-5. If the orientation is reversed, damage to the DDR3 DIMM might occur.

5. **Repeat Step 2 through Step 4 until all replacement DDR3 DIMMs are installed.**
6. **Return the server module to operation.**
   a. **Install the server module top cover.**
      See Section 4.1, "Installing the Server Module Top Cover" on page 4-2.
   b. **Insert the server module into the Sun Blade chassis.**
      See Section 4.2, "Reinstalling the Server Module in the Sun Blade Chassis" on page 4-3.
   c. **Power on the server module.**
      See Section 4.3, "Powering On the Server Module" on page 4-4.
7. **Verify and view DIMM component information.**
   Use the ILOM web interface or CLI. Refer to the corresponding ILOM documentation collection.

FIGURE 3-5 Installing DDR3 DIMMs



3.1.5 Removing Flash Modules

Two Flash Module (FMOD) slots are located on the motherboard of the server module.

Note – **CRU**: This customer replaceable unit can be replaced by anyone.

---

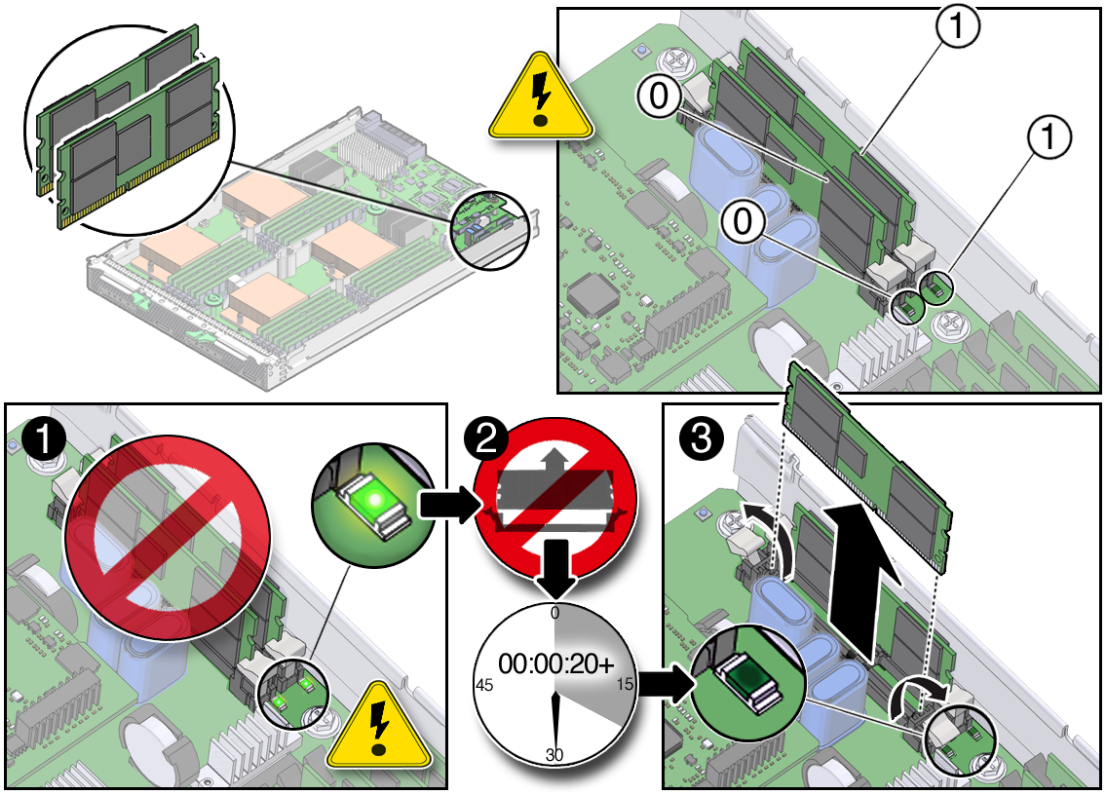
1. **If necessary, back up any data that is contained on the Flash Module (FMOD).**
2. **Prepare the server module for service.**
   a. **Power off both server module compute nodes.**
      See Section 2.4, “Powering Off the Server Module” on page 2-4.
   b. **Remove the server module from the Sun Blade chassis. Place it on a flat surface.**
      See Section 2.5, “Removing the Server Module From the Sun Blade Chassis” on page 2-7.
   c. **Attach an antistatic wrist strap.**
      See Section 2.6, “Performing Electrostatic Discharge and Antistatic Prevention Measures” on page 2-9.
   d. **Remove the server module top cover.**
      See Section 2.7, “Removing the Server Module Top Cover” on page 2-11.
3. **Locate the FMOD slot on the motherboard. See** FIGURE 3-6**, [1].**
   A lit green LED next to an FMOD slot indicates that the FMOD slot is powered on. It does not indicate a faulty FMOD. Wait for the FMOD LED to go off before installing or removing an FMOD to avoid damaging the FMOD.
4. **Wait for the green FMOD LED to go out (about 20 seconds). See** FIGURE 3-6**, [2].**

Caution – Do not remove or insert the flash module until the green LED goes out. Damage to the flash module can occur if the module is removed while the green LED is lit.

---

5. **Rotate both FMOD slot ejectors outward as far as they will go.**
   This action partially ejects the FMOD from the slot.
6. **Carefully lift the FMOD straight up to remove it from the slot. See** FIGURE 3-6**, [3].**

FIGURE 3-6 Removing Flash Modules



3.1.6 Installing Flash Modules

Caution – Do not remove or insert the flash module until the green LED goes out. Damage to the flash module can occur if the FMOD is installed while the green LED is lit.

Flash modules can be safely inserted into empty FMOD slots after FMOD power LEDs go off.

1. **Unpack the replacement flash modules and place them on an antistatic mat.**
2. **Ensure that the ejector tabs are in the open position.**

3. **Line up the flash module with the connector. See** FIGURE 3-7**.**

   Align the FMOD notch with the key in the connector. This ensures that the FMOD is oriented correctly.

4. **Push the flash module into the connector until the ejector tabs lock the FMOD in place.**

   If the FMOD does not easily seat into the connector, verify that the orientation of the FMOD is as shown in FIGURE 3-7. If the orientation is reversed, damage to the FMOD might occur.

5. **Repeat** Step 2 **through** Step 4 **until all flash modules are installed.**

6. **Return the server module to operation.**

   a. **Install the server module top cover.**

      See Section 4.1, “Installing the Server Module Top Cover” on page 4-2.

   b. **Insert the server module into the Sun Blade chassis.**

      See Section 4.2, “Reinstalling the Server Module in the Sun Blade Chassis” on page 4-3.

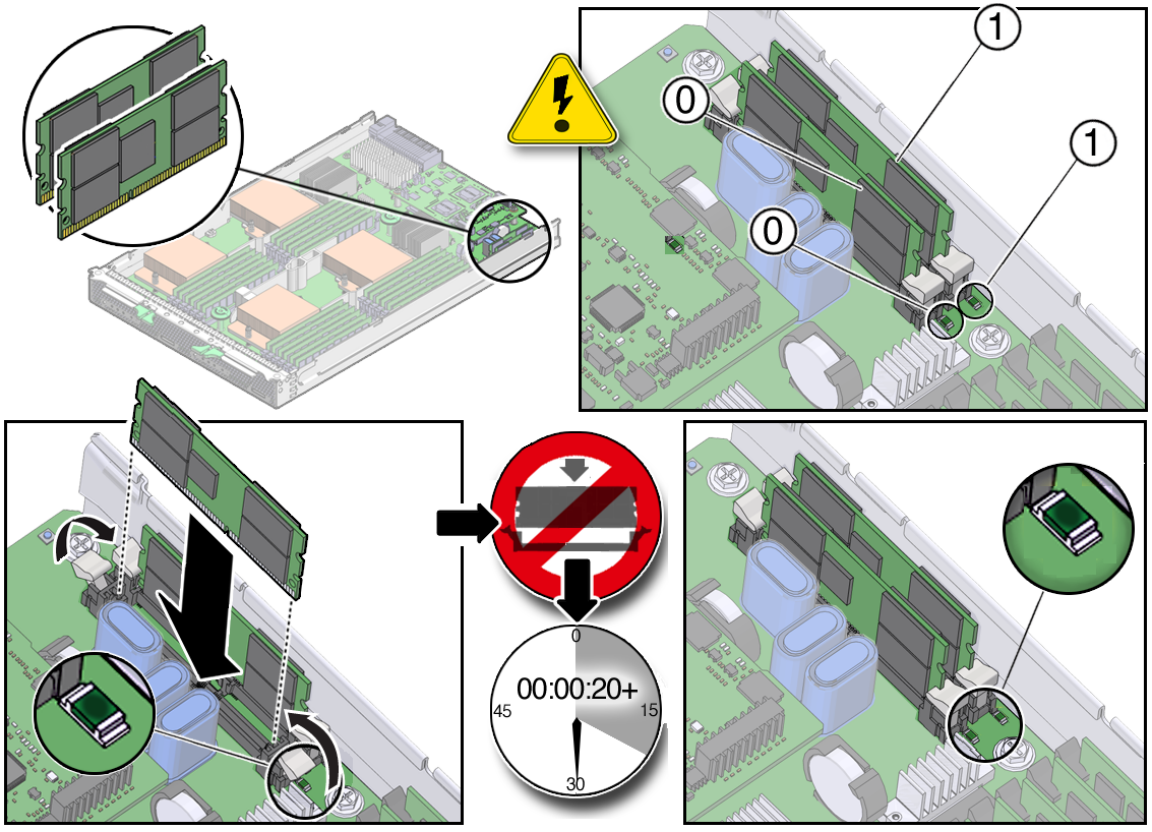
   c. **Power on the server module.**

      See Section 4.3, “Powering On the Server Module” on page 4-4.

7. **Verify and view flash module component information.**

   Use the ILOM web interface or CLI. Refer to the corresponding ILOM documentation collection.

FIGURE 3-7 Replacing Flash Modules



3.2 Servicing the USB Drives (CRU)

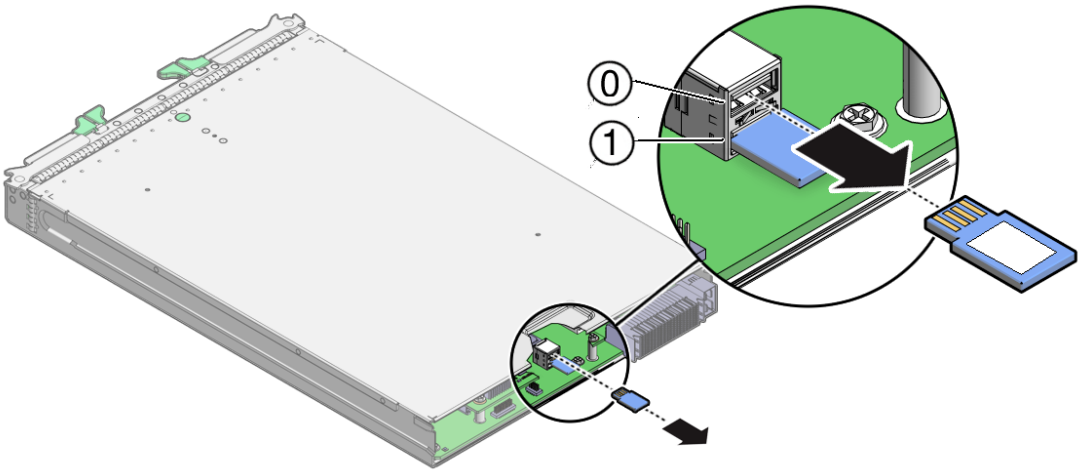
The USB drives might contain the boot OS. Two USB drive ports are located on the rear of the server module motherboard, under the SP board. The top USB port is for compute node 0. The bottom USB port is for compute node 1.

Note – CRU: This customer replaceable unit can be replaced by anyone.

3.2.1 Removing the USB Drive

1. **If necessary, back up any data that is contained on the USB drives.**
2. **Prepare the server module for service.**
   a. **Power off both server module compute nodes.**
      See Section 2.4, "Powering Off the Server Module" on page 2-4.
   b. **Remove the server module from the Sun Blade chassis. Place it on a flat surface.**
      See Section 2.5, "Removing the Server Module From the Sun Blade Chassis" on page 2-7.
   c. **Attach an antistatic wrist strap.**
      See Section 2.6, "Performing Electrostatic Discharge and Antistatic Prevention Measures" on page 2-9.
3. **Locate the USB port on the back of the motherboard. See** FIGURE 3-8**.**
4. **Grasp the USB drive, and pull the USB drive out.**
5. **Repeat** Step 4 **for the second USB Drive.**

FIGURE 3-8 Removing USB Drives From Ports



3.2.2 Installing the USB Drive

1. **Unpack the replacement USB drives and place them on an antistatic mat.**
2. **Push the USB drive into the port. The USB drive's gold fingers should face up. See** FIGURE 3-9**.**

Note – If any resistance is encountered, the USB drive might be upside down. Rotate the drive and try again. The label is normally on top.

---

3. **Repeat** Step 2 **for the second USB drive.**
4. **Return the server module to operation.**
   a. **Insert the server module into the Sun Blade chassis.**

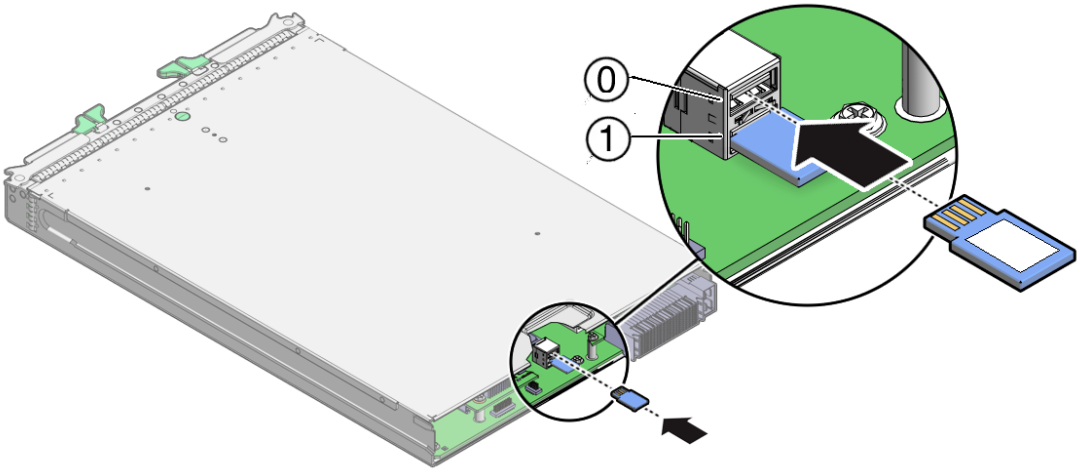
      See Section 4.2, "Reinstalling the Server Module in the Sun Blade Chassis" on page 4-3.

   b. **Power on the server module.**

      See Section 4.3, "Powering On the Server Module" on page 4-4.
5. **Verify and view component information.**

   Use the ILOM web interface or CLI. Refer to the corresponding ILOM documentation collection.

FIGURE 3-9 Replacing the USB Drives



3.3 Servicing a Processor and Heat Sink (FRU)

Use this procedure to replace a processor or a processor and heat sink. You need to identify the failed processor, remove the heat sink and processor, and then install replacement parts.

When replacing processors, do not install processors of different speeds on the same motherboard.

Note – Position P0 and P1 must always contain a processor.

Note – The processor is a FRU and must be replaced *only* by qualified service technicians. Contact your Sun Service representative for assistance.

3.3.1 Identifying a Faulty Processor

1. **Prepare the server module for service.**

   a. **Power off both server module compute nodes.**

      See Section 2.4, "Powering Off the Server Module" on page 2-4.

   b. **Remove the server module from the Sun Blade chassis. Place it on a flat surface.**

      See Section 2.5, "Removing the Server Module From the Sun Blade Chassis" on page 2-7.

   c. **Attach an antistatic wrist strap.**

      See Section 2.6, "Performing Electrostatic Discharge and Antistatic Prevention Measures" on page 2-9.

   d. **Remove the server module top cover.**

      See Section 2.7, "Removing the Server Module Top Cover" on page 2-11.

2. **Press the Remind button on the motherboard. See** FIGURE 3-10**.**

Note – Do not hold the Fault Remind button down longer than necessary. A lit green charge status LED, located next to the Fault Remind button, indicates that the fault remind LED circuit is operational. If the charge status LED is out, the fault remind LEDs can not function. The charge status LED indicates the test circuit power level. After the server module is inserted into the Sun Blade chassis, the test circuit will recharge. However, the processor error(s) must re-occur to be stored and visible on a fault LED during the next fault remind test.

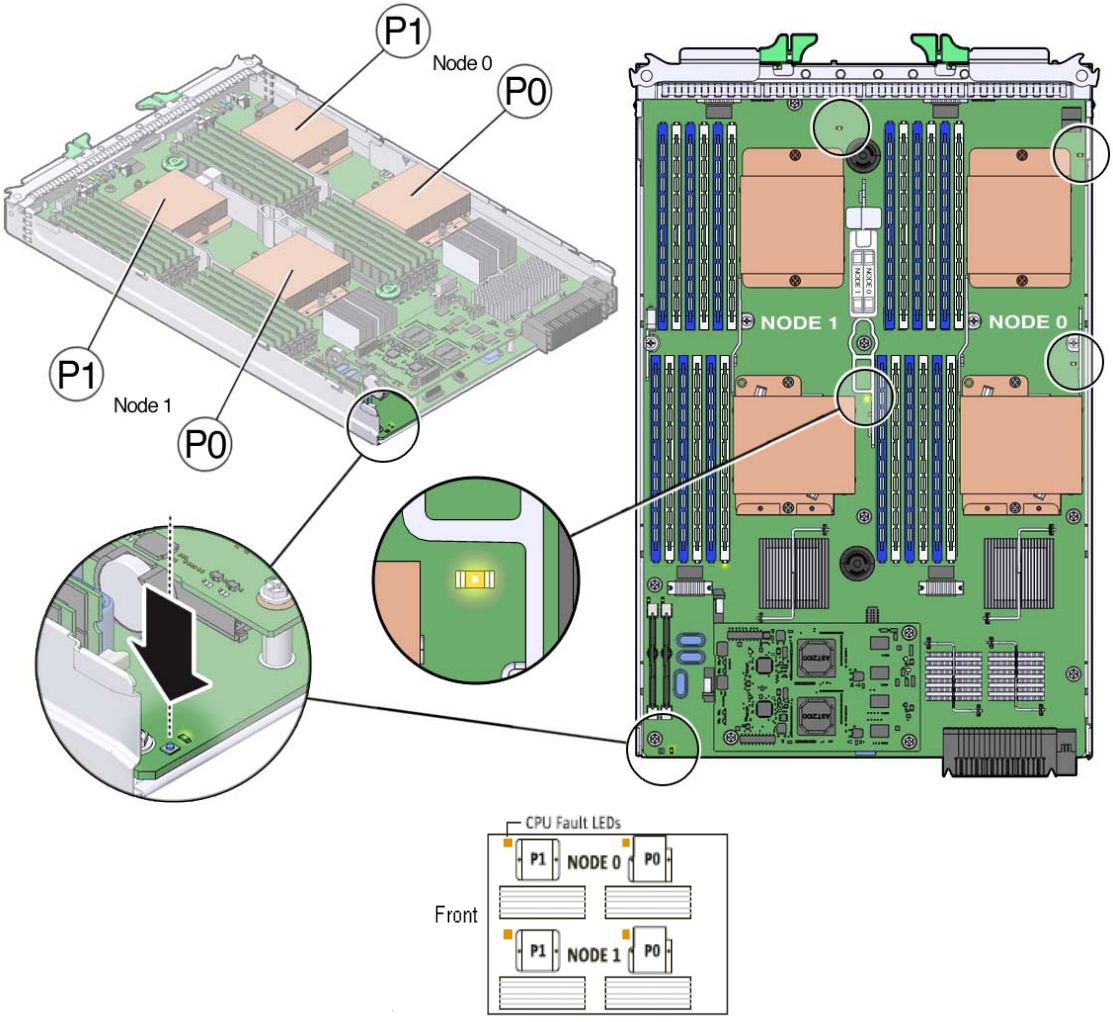
A failed processor is identified by a lit processor fault LED. See FIGURE 3-10.

If the LED is...	Then the processor is...
Off	Operating properly.
On (amber)	Faulty and should be replaced.

3. **Identify which processor and heat sink you are replacing.**

   The numbering of the processors and corresponding processor fault LEDs on the motherboard are shown in FIGURE 3-10.

FIGURE 3-10 Processor Fault LEDs and Remind Button Locations



3.3.2 Removing a Processor and Heat Sink

To remove a processor and heat sink from the motherboard:

1. **Identify the processor(s) to be removed, as required. See** FIGURE 3-11**, [1].**

   See Section 3.3.1, "Identifying a Faulty Processor" on page 3-18

2. **Gently press down on the top of the heat sink to counteract the pressure of the captive spring-loaded screws that secure the heat sink to the motherboard.**

3. **Alternately loosen each of the two spring-loaded mounting screws that secure the heat sink to the motherboard. Use a #2 Phillips screwdriver. See** FIGURE 3-11**, [2]. Turn each screw 180 degrees at a time.**

4. **To separate the heat sink from the top of the processor, gently wiggle the heat sink left and right, while pulling upward. See** FIGURE 3-11**, [3].**

   A thin layer of thermal compound separates the heat sink and the processor. This compound also acts as an adhesive.

5. **After you separate the heat sink from the processor, set the heat sink on a flat surface, away from the server module.**

   a. **Use an alcohol pad to completely clean all of the old thermal compound from the heat sink.**

   b. **Clean any dust from the heat sink fins.**

   Do not allow the thermal compound to contaminate the work space or other components.

6. **Use an alcohol pad to completely clean all of the old thermal compound from the component surface, before you remove the processor. See** FIGURE 3-11**, [4].**

   You will need to apply new thermal compound when you reinstall the heat sink in Section 3.3.3, "Installing a Processor and Heat Sink" on page 3-22.

7. **Lift the processor lever to the fully open position. See** FIGURE 3-11**, [5].**

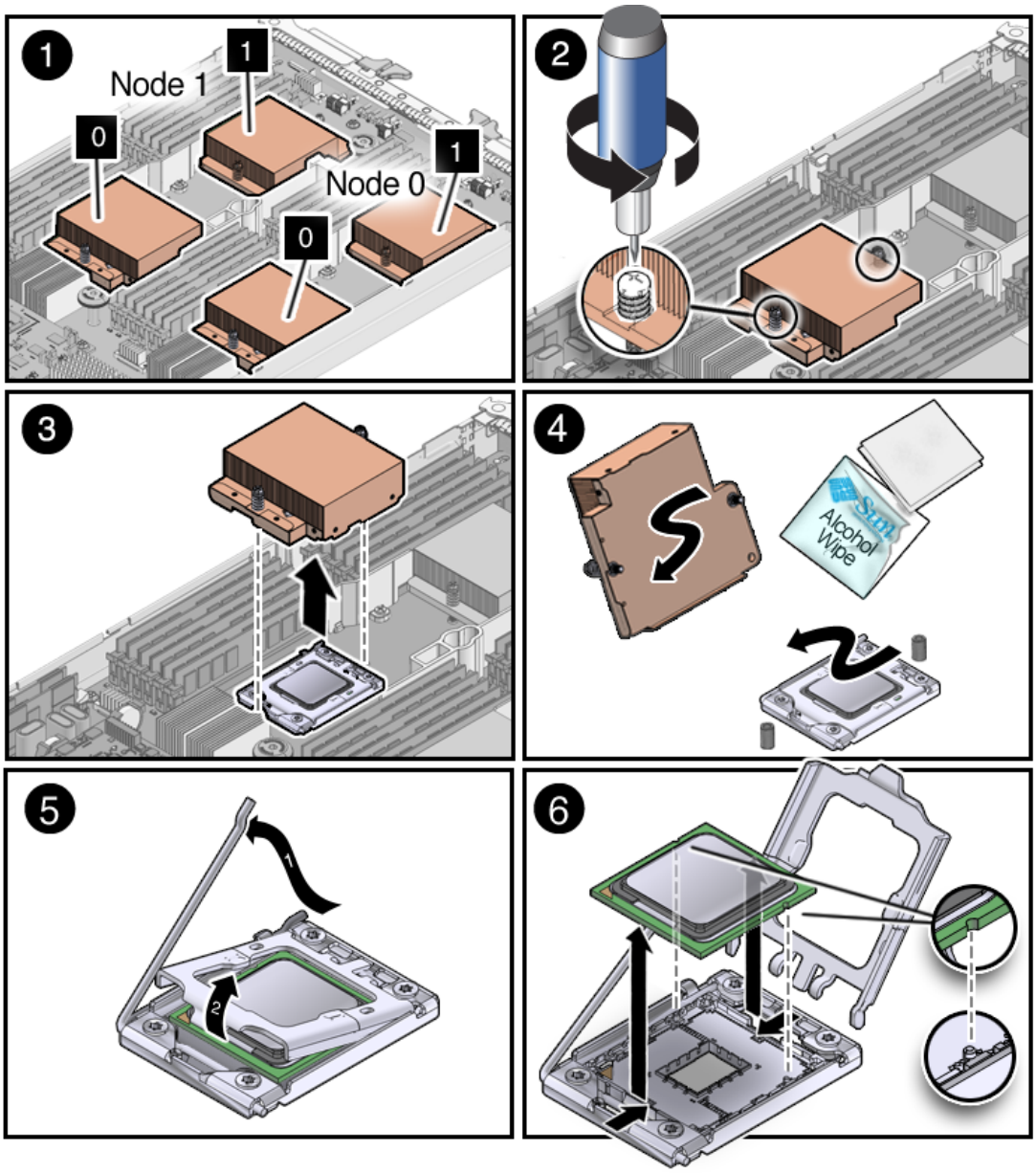
   a. **Holding down the processor clamp, carefully release the spring lever.**

   b. **Lift the processor clamp up and away from the processor. Leave it open.**

8. **Lift the processor out of the socket, leaving the lever in the open position. See** FIGURE 3-11**, [6].**

Caution – Never place the removed processor on any surface with the pins facing down. The processor will become contaminated and unusable. Ensure that the smooth side, that had thermal paste, has been completely cleaned.

FIGURE 3-11 Removing a Processor



3.3.3 Installing a Processor and Heat Sink

To install a new processor or an existing processor:

1. **Ensure that the processor socket release lever is in the fully open position. See** FIGURE 3-12**, [1].**
2. **Align the processor over the processor socket. See** FIGURE 3-12**, [2].**

   Refer to the notches on the processor and the processor socket for proper alignment.

Caution – Do *not* press down on the processor. Irreparable damage to the processor or motherboard might occur from excessive downward pressure. Do not forcibly seat the processor into the socket. Excessive downward pressure might damage the socket pins.

3. **Gently set the processor on the socket. See** FIGURE 3-12**, [1].**

   When properly aligned, the processor sits flat in the processor socket and has minimal side-to-side movement.
4. **Lower the processor clamp, and then latch the lever. See** FIGURE 3-12**, [2].**

   This action secures the processor in the socket.
5. **Ensure that the old thermal compound has been removed from the component surface and heat sink.**

   Use an alcohol pad to clean old thermal compound from the component surface. See Section 3.3.2, “Removing a Processor and Heat Sink” on page 3-20, Step 6.
6. **Using one syringe of thermal compound (500 mg [0.2 ml]), carefully apply the compound to the top of the processor in an X pattern, stopping short of the corners. See** FIGURE 3-12**, [3].**
7. **Carefully position heat sink over the processor, and align the heat sink screws with the screw holes in the motherboard. See** FIGURE 3-12**, [4].**
8. **Lower the heat sink onto the processor.**

Caution – Possible component damage can be caused by heat. Avoid moving the heat sink after it has contacted the top of the processor. Too much movement could disturb the layer of thermal compound, leading to ineffective heat dissipation and component damage.

9. **Gently press down on the top of the heat sink to counteract the pressure of the captive spring-loaded screws, and use a #2 torque screwdriver to alternately tighten each screw, 180 degrees at a time, until tight at 8 inch pounds. See** FIGURE 3-12**, [5].**

10. **Repeat** Step 1 **through** Step 9 **until all processors are installed. See** FIGURE 3-12**, [6].**

11. **Return the server module to operation.**

    a. **Install the server module top cover.**

       See Section 4.1, "Installing the Server Module Top Cover" on page 4-2.

    b. **Insert the server module into the Sun Blade chassis.**

       See Section 4.2, "Reinstalling the Server Module in the Sun Blade Chassis" on page 4-3.

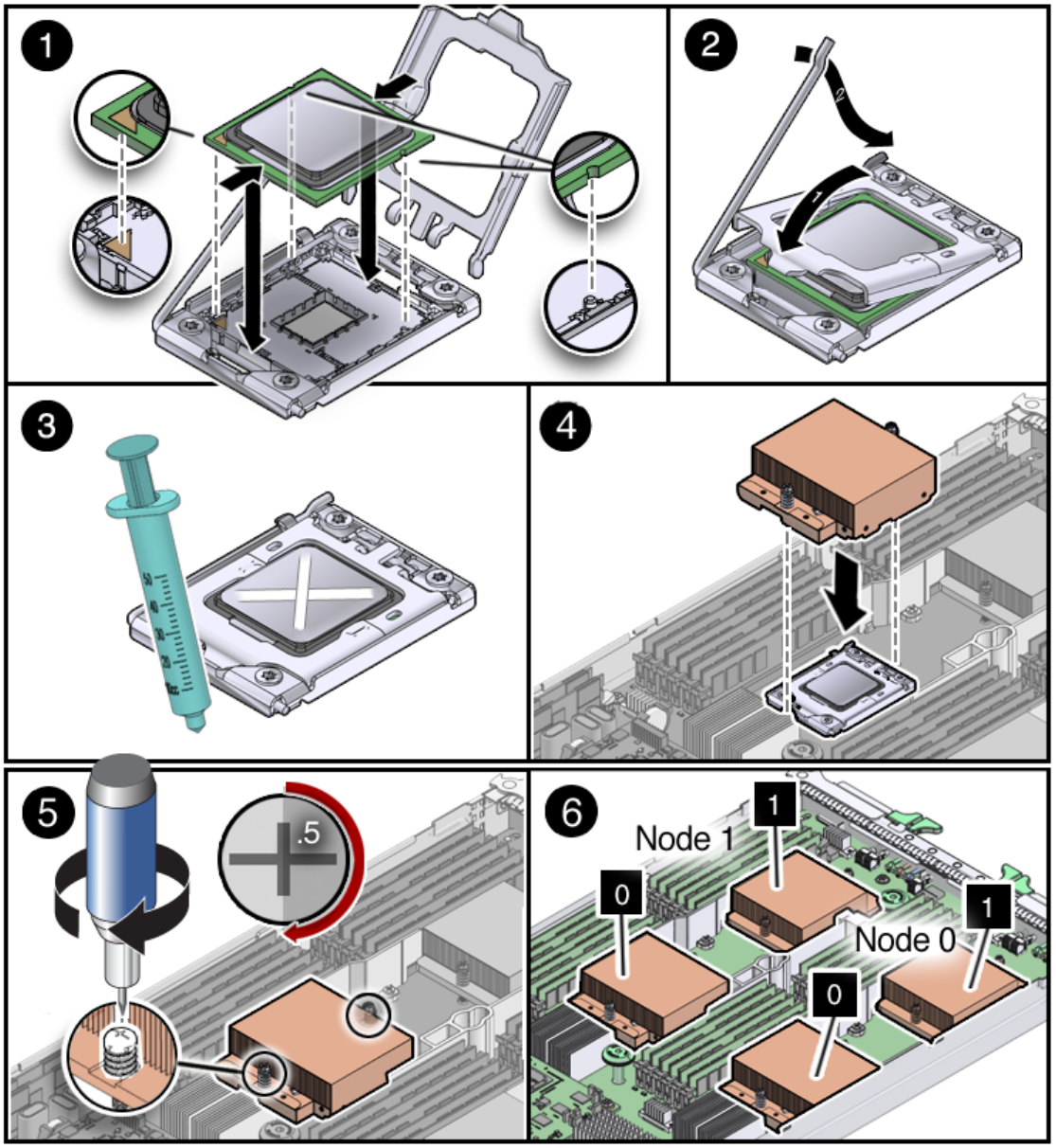
    c. **Power on the server module.**

       See Section 4.3, "Powering On the Server Module" on page 4-4.

12. **Update the BIOS and firmware.**

    Refer to the corresponding ILOM supplement.

FIGURE 3-12 Replacing a Processor



3.4 Replacing the SP (FRU)

This section provides instructions for replacing a damaged service processor (SP) unit.

Before You Begin

- If you are replacing an SP board that is not dead, obtain the ILOM version and download the system software release package (combined BIOS/ILOM) that incorporates that version. A system software release package can be downloaded from: http://support.oracle.com.
- If you are replacing a dead SP board, obtain the BIOS version and download the system software release package (combined BIOS/ILOM) that incorporates that version. A system software release package can be downloaded from: http://support.oracle.com.

1. **Prepare the server module for service.**

   a. **Power off both server module compute nodes.**

      See Section 2.4, "Powering Off the Server Module" on page 2-4.

   b. **Remove the server module from the Sun Blade chassis. Place it on a flat surface.**

      See Section 2.5, "Removing the Server Module From the Sun Blade Chassis" on page 2-7.

   c. **Attach an antistatic wrist strap.**

      See Section 2.6, "Performing Electrostatic Discharge and Antistatic Prevention Measures" on page 2-9.

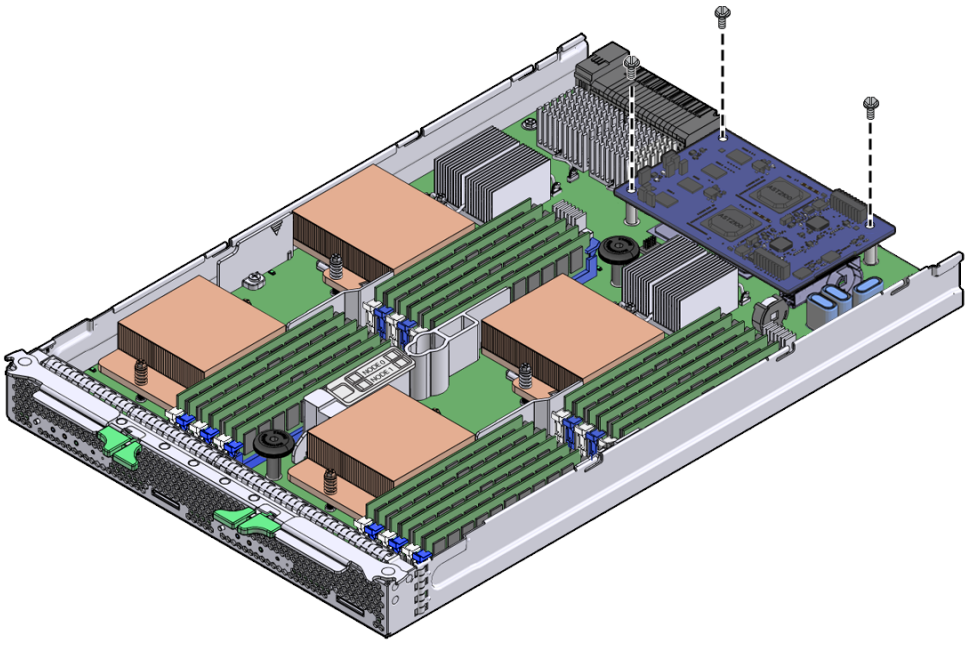
   d. **Remove the server module top cover.**

      See Section 2.7, "Removing the Server Module Top Cover" on page 2-11.

2. **Remove the new service processor from its shipping container and place it on an antistatic surface.**

3. **Remove the three screws that fasten the old service processor to the motherboard (**FIGURE 3-13**).**

FIGURE 3-13 SP and Screws



4. **Lift the service processor straight up to remove it.**
5. **Lower the new service processor onto the motherboard.**

   Lower the service processor straight onto the connector. Do not force it.
6. **Return the server module to operation.**

   a. **Install the server module top cover on the new motherboard.**

      See Section 4.1, “Installing the Server Module Top Cover” on page 4-2.

   b. **Insert the server module into the Sun Blade chassis.**

      See Section 4.2, “Reinstalling the Server Module in the Sun Blade Chassis” on page 4-3.

   c. **Power on the server module.**

      See Section 4.3, “Powering On the Server Module” on page 4-4.

Note – Because the MAC address of the SP is stored on the motherboard, after you replace the SP, its original MAC address is restored automatically.

---

7. **Update the system with the BIOS/ILOM firmware package you downloaded earlier.**

   This will ensure that both the BIOS and ILOM firmware (which are packaged and tested together) are at a supported level.

   Refer to the corresponding ILOM supplement for your server for details on updating firmware.

3.5 Replacing the Motherboard Assembly (FRU)

The motherboard is shipped installed in an empty server module chassis. Do *not* remove the motherboard from the server module chassis. Instead, remove components from the old server module chassis assembly, and install these components into the new motherboard and server module chassis assembly.

Note – The server module motherboard assembly is a FRU and must be replaced *only* by qualified service technicians. Contact your Sun Service representative for assistance.

- If you are replacing a motherboard that is not dead, obtain the BIOS and ILOM versions and download the system software release package (combined BIOS/ILOM) that incorporates those versions. A system software release package can be downloaded from: `http://support.oracle.com`.
- If you are replacing a dead motherboard, obtain the ILOM version and download the system software release package (combined BIOS/ILOM) that incorporates that version. A system software release package can be downloaded from: `http://support.oracle.com`.
- Before removing the motherboard, backup the FRUID information. See "How to Back Up FRU Information" on page 3-38.

1. **Prepare the server module for service.**

   a. **Power off both server module compute nodes.**

      See Section 2.4, "Powering Off the Server Module" on page 2-4.

   b. **Remove the server module from the Sun Blade chassis. Place it on a flat surface.**

      See Section 2.5, "Removing the Server Module From the Sun Blade Chassis" on page 2-7.

c. **Attach an antistatic wrist strap.**

   See Section 2.6, “Performing Electrostatic Discharge and Antistatic Prevention Measures” on page 2-9.

d. **Remove the server module top cover.**

   See Section 2.7, “Removing the Server Module Top Cover” on page 2-11.

2. **Remove reusable components from the server module motherboard.**

   See the following procedures.

   - DIMMs – See Section 3.1.3, “Removing DDR3 DIMMs” on page 3-8.
   - Flash Modules – See Section 3.1.5, “Removing Flash Modules” on page 3-11.
   - USB Drives – See Section 3.2.1, “Removing the USB Drive” on page 3-15.
   - Processor and heat sink – See Section 3.3.2, “Removing a Processor and Heat Sink” on page 3-20.

3. **Install the components on the new server module motherboard assembly.**

   See the following procedures.

   - DIMMs – See Section 3.1.4, “Installing DDR3 DIMMs” on page 3-9.
   - Flash Modules – See Section 3.1.6, “Installing Flash Modules” on page 3-12.
   - USB Drives – See Section 3.2.2, “Installing the USB Drive” on page 3-16.
   - Processor and heat sink – See Section 3.3.3, “Installing a Processor and Heat Sink” on page 3-22.

4. **Return the server module to operation.**

   a. **Install the server module top cover on the new motherboard.**

      See Section 4.1, “Installing the Server Module Top Cover” on page 4-2.

   b. **Insert the server module into the Sun Blade chassis.**

      See Section 4.2, “Reinstalling the Server Module in the Sun Blade Chassis” on page 4-3.

   c. **Power on the server module.**

      See Section 4.3, “Powering On the Server Module” on page 4-4.

5. **Restore FRUID information (Oracle Service personnel only):**

   a. **Log in to escalation mode with the escalation mode password.**

   b. **At the prompt, type:**

      # **servicetool --fru_product_serial_number**

      The following output displays:

      ```
      Servicetool is going to update the product serial number in
      mainboard and pdb FRUs.
      Do you want to continue (y|n)?
      ```

   c. **Type: y.**

      The following output displays:

      ```
      When entering values, do not use quotes; If you require
      embedded quotes, escape them with three backslashes;e.g.\\\"
      What is the new product serial number?
      ```

   d. **Type in the new product serial number.**

      For example: `1234567890`

      The following is an example of the output that displays:

      ```
      The product serial number has been updated.
      The new serial number is: "1234567890"
      Updating FRUs... done
      ```

   e. **To allow the SP to see the new serial number, reset the SP. Type:**

      # **reboot**

      This reboots the SP only and will close any ssh connections to the SP.

6. **Update the system with the BIOS/ILOM firmware package you downloaded earlier.**

   This will ensure that both the BIOS and ILOM firmware (which are packaged and tested together) are at a supported level. A BIOS/ILOM firmware package can be downloaded for your system from:

   http://support.oracle.com

   Refer to the corresponding ILOM supplement for your server for details on updating firmware.

3.6 Servicing the System Battery (CRU)

Two Real-Time-Clock (RTC) system CR2032 batteries, one per compute node, are located on the motherboard.

Note – CRU: This customer replaceable unit can be replaced by anyone.

3.6.1 Removing and Replacing the RTC Battery

1. **Prepare the server module for service.**
   a. **Power off both server module compute nodes.**
      See Section 2.4, “Powering Off the Server Module” on page 2-4.
   b. **Remove the server module from the Sun Blade chassis. Place it on a flat surface.**
      See Section 2.5, “Removing the Server Module From the Sun Blade Chassis” on page 2-7.
   c. **Attach an antistatic wrist strap.**
      See Section 2.6, “Performing Electrostatic Discharge and Antistatic Prevention Measures” on page 2-9.
   d. **Remove the server module top cover.**
      See Section 2.7, “Removing the Server Module Top Cover” on page 2-11.
2. **Remove the battery by gently pulling the clip away from the edge of the battery and lifting the battery straight up. See** FIGURE 3-14 **[1], [2].**
3. **Insert the battery by pressing the battery straight down and gently pushing the clip towards the edge of the battery. See** FIGURE 3-14 **[3], [4].**
   Install the new battery in the holder with the same orientation (polarity) as the battery that you removed.
   The positive polarity, marked with a “+” symbol, faces outward.
4. **Clear the CMOS NVRAM.**
   The BIOS settings revert to the default settings.
   See Section 3.7, “Resetting Passwords and Clearing CMOS NVRAM” on page 3-33.
5. **Return the server module to operation.**

a. Install the server module top cover.

See Section 4.1, "Installing the Server Module Top Cover" on page 4-2.

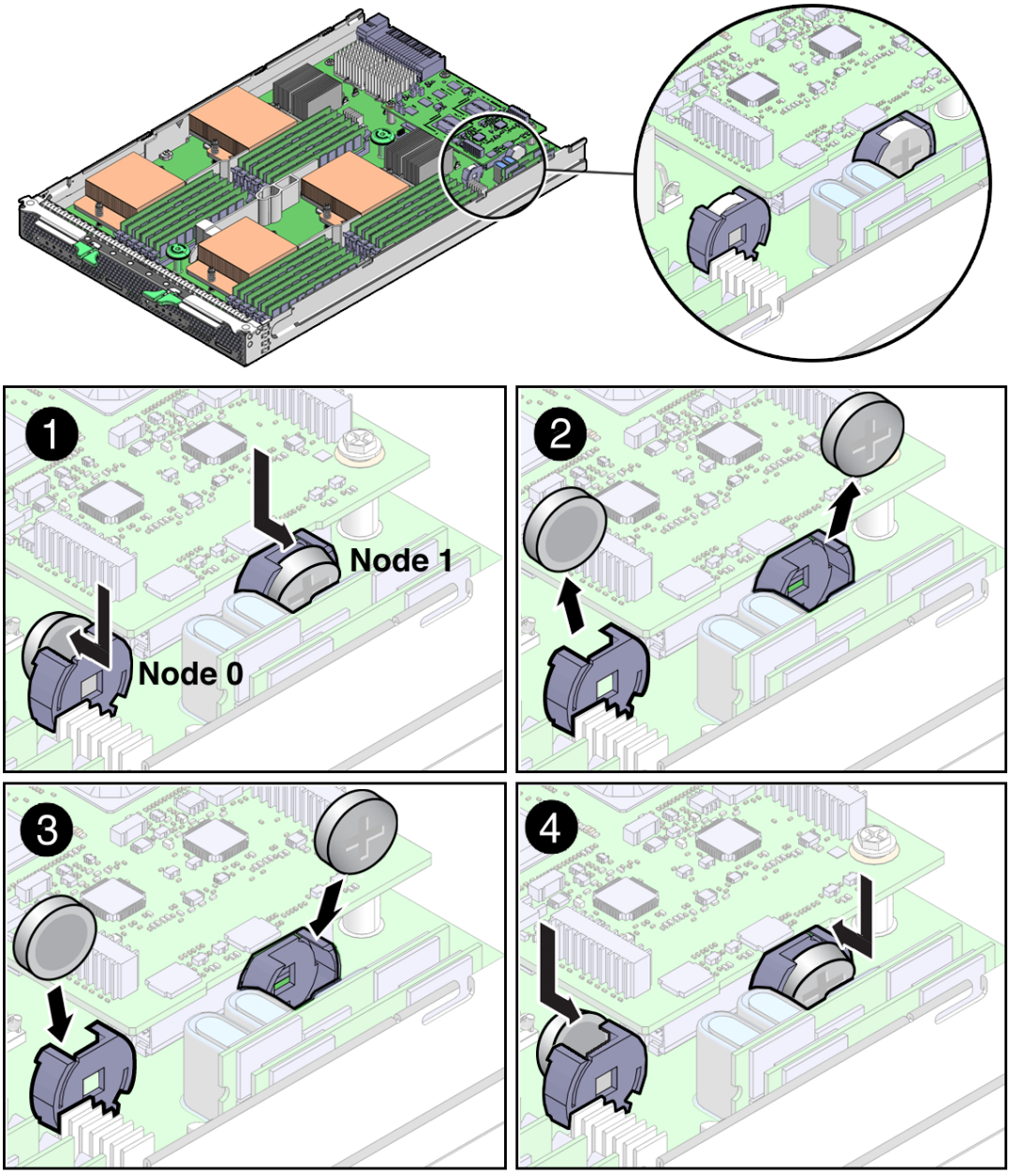
b. Insert the server module into the Sun Blade chassis.

See Section 4.2, "Reinstalling the Server Module in the Sun Blade Chassis" on page 4-3.

c. Power on the server module.

See Section 4.3, "Powering On the Server Module" on page 4-4.

FIGURE 3-14 Removing the RTC Batteries



3.7 Resetting Passwords and Clearing CMOS NVRAM

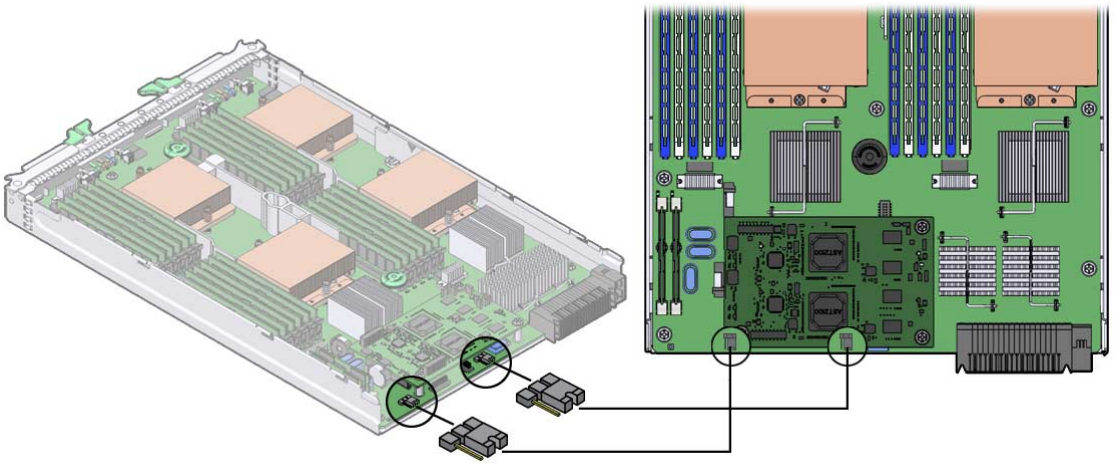
The following topics are covered:

- Section 3.7.1, “Overview” on page 3-33
- Section 3.7.2, “Clearing NVRAM using BIOS” on page 3-34
- Section 3.7.3, “Resetting BIOS Passwords and NVRAM Using a Jumper” on page 3-34

3.7.1 Overview

You can reset a password and clear both the CMOS NVRAM and BIOS password by changing the J42_1 (compute node 0) and J42_2 (compute node 1) jumper positions. FIGURE 3-15 shows jumpers in the normal (1-2) position.

FIGURE 3-15 Sun Blade X6275 Server Module Rear Panel Jumper Locations



3.7.2 Clearing NVRAM using BIOS

The BIOS PCI screens allow you to clear NVRAM during server module boot.

1. **Access the BIOS. Press F2 during server module boot.**

   See Section A.1, “Configuring BIOS Settings” on page A-1.

2. **Select the PCI menu.**

   See Section A.2.3, “BIOS PCI Menu Screens” on page A-15.

3. **Set Clear NVRAM to Yes.**

3.7.3 Resetting BIOS Passwords and NVRAM Using a Jumper

1. **Prepare the server module for service.**

   a. **Power off both server module compute nodes.**

      See Section 2.4, “Powering Off the Server Module” on page 2-4.

   b. **Remove the server module from the Sun Blade chassis. Place it on a flat surface.**

      See Section 2.5, “Removing the Server Module From the Sun Blade Chassis” on page 2-7.

   c. **Attach an antistatic wrist strap.**

      See Section 2.6, “Performing Electrostatic Discharge and Antistatic Prevention Measures” on page 2-9.

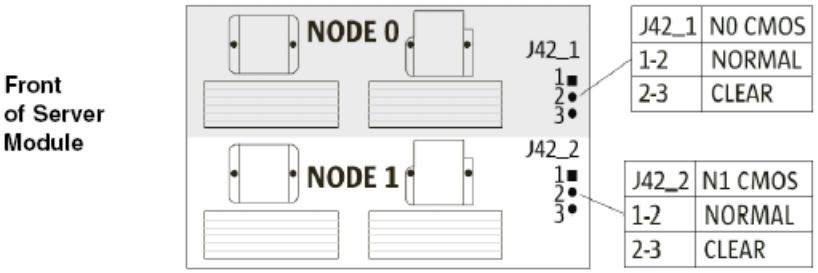
   d. **Remove the server module top cover.**

      See Section 2.7, “Removing the Server Module Top Cover” on page 2-11.

2. **Locate the jumpers J42_1 (compute node 0) and J42_2 (compute node 1) jumpers on the rear of the motherboard. The jumper default position is 1-2.**

   FIGURE 3-16 shows the jumpers.

FIGURE 3-16 Sun Blade X6275 Server Module CMOS Reset Jumper Settings



3. **Place the jumper on position 2-3 for 10 seconds.**
4. **Remove the jumper from position 2-3, and replace it back to its original position 1-2.**
5. **Repeat for the second compute node, if required.**
6. **Return the server module to operation.**

   a. **Install the server module top cover.**

      See Section 4.1, "Installing the Server Module Top Cover" on page 4-2.

   b. **Insert the server module into the Sun Blade chassis.**

      See Section 4.2, "Reinstalling the Server Module in the Sun Blade Chassis" on page 4-3.

   c. **Power on the server module.**

      See Section 4.3, "Powering On the Server Module" on page 4-4.

   Now, the BIOS password is reset and NVRAM is cleared.

3.8 Recovering from Corrupt Service Processor Software

If the SP (service processor) software becomes corrupted, you can reinstall the default SP software image. If an upgrade fails, or if the firmware image becomes corrupt, choose one of the following methods to recover the SP software:

- **Preboot menu**: See Section 3.8.1, "Recovering the SP Firmware Image using the Preboot Menu" on page 3-36.
- **IPMIflash**: See Section 3.8.2, "Recovering the SP Firmware Using IPMI" on page 3-37.

Refer to the corresponding ILOM supplement for detailed preboot and IPMI information.

3.8.1 Recovering the SP Firmware Image using the Preboot Menu

The preboot menu provides the ability to recover the ILOM firmware image by updating (flashing) the SP firmware.

Normally, you can update the SP using the ILOM CLI or the web interface. Refer to the Sun Integrated Lights Out Manager documentation for details.

If you are unable to access the ILOM to update the firmware, you can use this procedure to update it using the preboot menu.

3.8.1.1 Prerequisites

You must have a valid `.flash` firmware image file on a tftp server. This file is available on the tools and drivers DVD, and on the Oracle download site:

`http://support.oracle.com`

Note – Updating the SP firmware using the preboot menu requires a `.flash` file instead of the `.pkg` file used to update the SP from the ILOM.

3.8.1.2 To Recover the SP Firmware Image

1. **Restart the ILOM.**

   Refer to the corresponding ILOM supplement for detailed preboot menu and ILOM information.

2. **Interrupt the ILOM boot process to access the preboot menu. Choose one of the following methods:**

   Manually by pressing the Locate button, or
   Type **xyzzy** during a pause in the bootstrap process.

3. **Enter the command:**

   net flash *IPaddress path/name*.**flash**

   where:

   IPaddress is the IP address of a tftp server

   path is the path to the file relative to `/tftpboot`

   name is the first part of the `.flash` file filename

   For example:

   ```
   Preboot> net flash 10.8.173.25 images/system-rom.flash
   ```

   After a series of messages, the preboot prompt appears.

   ```
   Preboot>
   ```

4. **Use the reset command to restart the SP.**

   ```
   Preboot> reset
   ```

   The preboot menu exits and the ILOM boots.

3.8.2 Recovering the SP Firmware Using IPMI

Caution – The server module might be powered off during the final stages of firmware update, when the BIOS is updated.

- **To upgrade ILOM firmware using IPMI, type:**

ipmiflash -H *SP_IP* **-U root -P** *root_password* **write** *name*.**pkg** *config*

where:

- *root_password* – The ILOM root password.
- **-H** *SP_IP* – The IP address of the ILOM. It defaults to the local ILOM, so if you are on the host updating the local ILOM, you can omit it.

- *name* – The `.pkg` file. For example:

  `ILOM-2_0_3_13_r42414-Sun_Blade_X6275.pkg`

- *config* (optional) – Use `config` to save configuration data, and use `noconfig` to overwrite the configuration data. The default is `config`.

3.9 Displaying and Updating FRU Information

FOR SERVICE PERSONNEL ONLY. When replacing a motherboard assembly, FRU information must be obtained from the old motherboard assembly and transfered to the new motherboard assembly. Refer to the following:

- "How to Display FRUID Information" on page 3-38.
- "How to Back Up FRU Information" on page 3-38.

▼ How to Display FRUID Information

Note – This task is for Oracle Service personnel only.

1. **Enter Service Mode.**

   The Service Mode prompt appears.

2. **At the Service Mode command line, enter the following command:**

   `# showpsnc`

   A list of FRU appears.

▼ How to Back Up FRU Information

Note – This task is for Oracle Service personnel only.

1. **Enter Service Mode.**

   The Service Mode prompt appears.

2. **At the Service Mode command line, enter the following command:**

   # `copypsnc PRIMARY BACKUP1`

   This command performs a backup of current TLI (Top Level Identifier) and ILOM records.

CHAPTER 4

Returning the Server Module to Operation

This chapter describes how to return the Sun Blade X6275 server module to operation after you have performed service procedures.

The following topics are covered in this chapter:

- Section 4.1, "Installing the Server Module Top Cover" on page 4-2
- Section 4.2, "Reinstalling the Server Module in the Sun Blade Chassis" on page 4-3
- Section 4.3, "Powering On the Server Module" on page 4-4

Caution – Never attempt to run the server module with the cover removed. Hazardous voltage present.

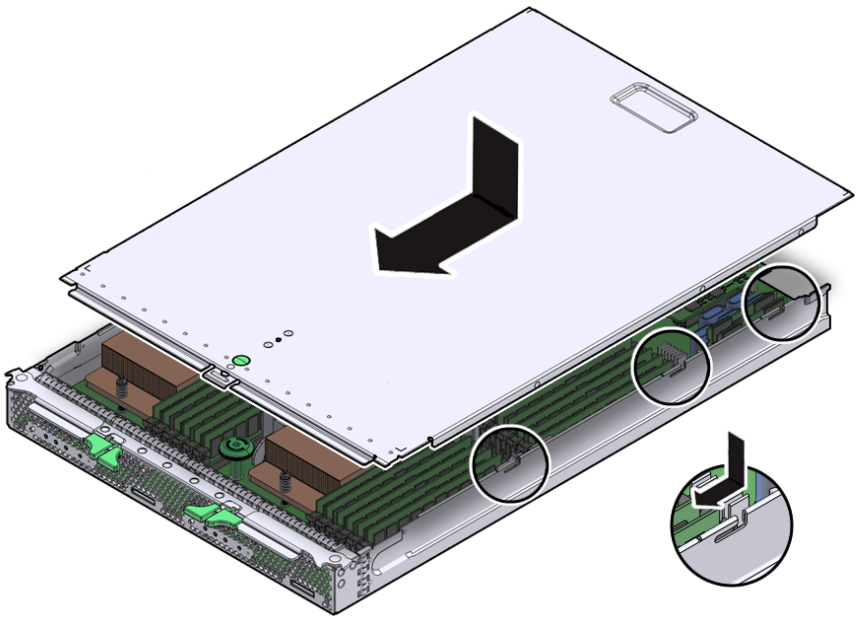
Caution – Equipment damage possible. The server module cover must be in place for proper air flow.

4.1 Installing the Server Module Top Cover

If you removed the server module top cover, perform the following steps to replace it:

1. **Grasp the server module cover by its rear edge and place it down on the server module chassis. See** FIGURE 4-1**.**
2. **Slide the main cover toward the front of the server module chassis approximately 0.5 inch (12 mm). Slide the cover under the tabs at the front of the server module.**
3. **Gently press down on the server module cover to engage it with the server module chassis.**
4. **When applicable, install the server module in the Sun Blade chassis and power on the server module.**

FIGURE 4-1 Installing the Server Module Top Cover



4.2 Reinstalling the Server Module in the Sun Blade Chassis

Caution – After you remove the server module from the chassis, wait for at least 20 seconds before reinserting the server module. If you do not, FMODs might not be recognized by the host compute nodes.

If you removed the server module from the chassis, perform these steps to replace it:

1. **Locate the desired slot in the Sun Blade chassis.**
2. **Remove the server module filler panel.**

   Pull the lever out and eject the server module filler panel.

   Do not discard the server module filler panel.

Caution – Do not operate the chassis with empty slots. Always insert a server module filler panel into an empty slot within 60 seconds to reduce the possibility of server module shutdown due to overheating.

3. **Position the server module vertically so that the ejectors are on the right.**

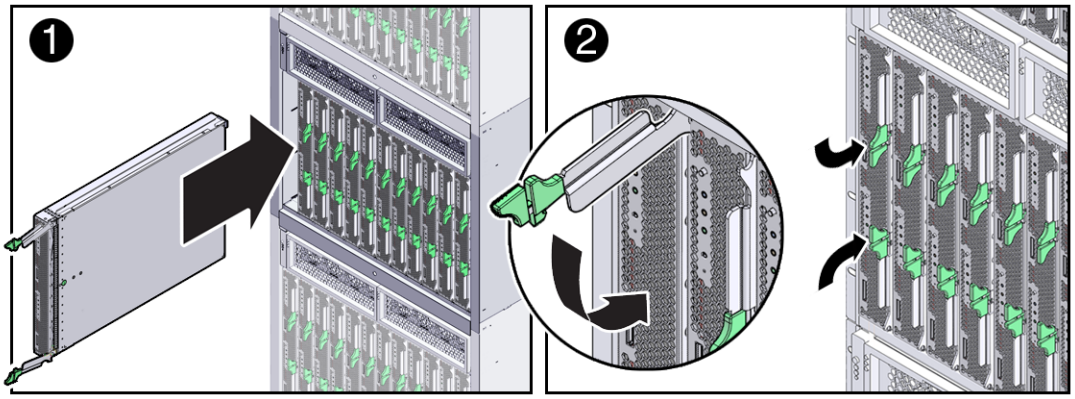
   FIGURE 4-2 [1] shows the server module being inserted into the Sun Blade 6048 chassis. Your chassis might differ.

4. **Push the server module into the slot until the server module stops.** [2]
5. **Rotate the ejectors down until they snap into place.**

   The server module is now flush with the chassis, and the ejectors are locked.

   If the chassis is powered on, the server module comes up to standby power. The green OK LED on the front panel blinks (0.1 seconds on, 2.9 seconds off).

FIGURE 4-2 Inserting the Server Module.



4.3 Powering On the Server Module

Before powering on your server module for the first time, follow the installation and cabling instructions provided in the *Sun Blade X6275 Server Module Installation Guide*, which is shipped with the server module and is also available online at http://docs.sun.com.

Note – For CMM ILOM 2.0.3.13 systems, a Sun Blade X6275 server module must be inserted into the chassis before you power on. If the blade is not inside the chassis before you power on, ILOM does not recognize node 1. For ILOM 3.0 systems, this requirement does not apply.

When the server module is inserted in to the chassis, the server module automatically powers on.

To apply power to the server module, choose a method described in TABLE 4-1.

TABLE 4-1 Power-On Procedures

Power On	Method
Apply standby power	Place the server module into the chassis. See Section 4.2, "Reinstalling the Server Module in the Sun Blade Chassis" on page 4-3. When the main power is off, the server module green OK LED on the front panel blinks once every three seconds, indicating that the server module is in standby power mode. See FIGURE 4-3.
Apply main power	To apply main power to the server module: 1. Verify that standby power is on. In standby power mode, the green OK LED on the front panel blinks. 2. Use a pen, or other non-conductive pointed object, to press and release the recessed Power/Standby Button on the server module front panel. When the main power is applied to the server module, the green OK LED next to the Power/Standby Button lights and remains lit. See FIGURE 4-3.

FIGURE 4-3 Front Panel OK LED and Power/Standby Button

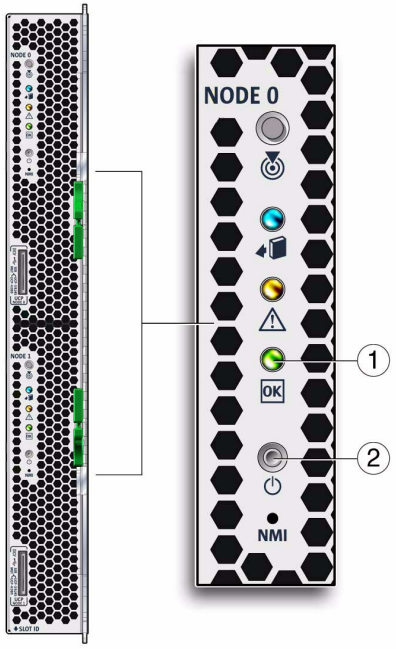


Figure Legend Power LED and Button

1	OK LED – Green
2	Power/Standby Button

APPENDIX **A**

BIOS Screens

A.1 Configuring BIOS Settings

This appendix describes how to view and or modify the BIOS Setup utility screens in the Sun Blade X6275 server module.

The following topics are covered in this appendix:

- Section A.1, “Configuring BIOS Settings” on page A-1
- Section A.2, “BIOS Setup Menu Screens” on page A-5

A.1.1 About BIOS

The BIOS Setup utility reports system information and can be used to configure the server BIOS settings. The Basic Input/Output System (BIOS) has a Setup utility stored in the BIOS flash memory.

The configured data is provided with context-sensitive help and is stored in the system's battery-backed CMOS RAM. If the configuration stored in the CMOS RAM is invalid, the BIOS settings default to the original state specified at the factory.

You can access BIOS configuration screens from the following interfaces:

- Use a USB keyboard, mouse, and VGA monitor connected directly to the server.
- Use an RKVM (or terminal emulator connected to a computer) through the serial port on the rear panel of the server.

A.1.2 Using BIOS Menu Items

To access BIOS configuration screens and change the system's parameters:

1. **Enter the BIOS Setup utility by pressing the F2 key while the system is performing the power-on self-test (POST). From a remote location, you can press CTRL-E.**

   When BIOS is started, the main BIOS Setup menu screen is displayed.

2. **Highlight the field to be modified using the arrow and Tab keys.**

   Use the left and right arrow keys to move sequentially back and forth through the menu screens. Fields that can be reconfigured are displayed in color. All other fields are nonconfigurable.

   - Use the up and down arrows, on the keyboard, to scroll through a menu.
   - Use the Tab key to move back and forth across columns.

3. **Press Enter to select the field.**

   A dialog box shows the available options.

4. **Modify the setup field and close the screen.**

5. **If you need to modify other setup parameters, use the arrow and Tab keys to navigate to the desired screen and menu item, and then repeat** Step 1 **through** Step 4**. Otherwise, go to** Step 6**.**

6. **Press and release the right arrow key until the Exit menu screen appears.**

7. **Follow the instructions on the Exit menu screen to save your changes and exit the Setup utility.**

A.1.3 BIOS Setup Utility Screens Overview

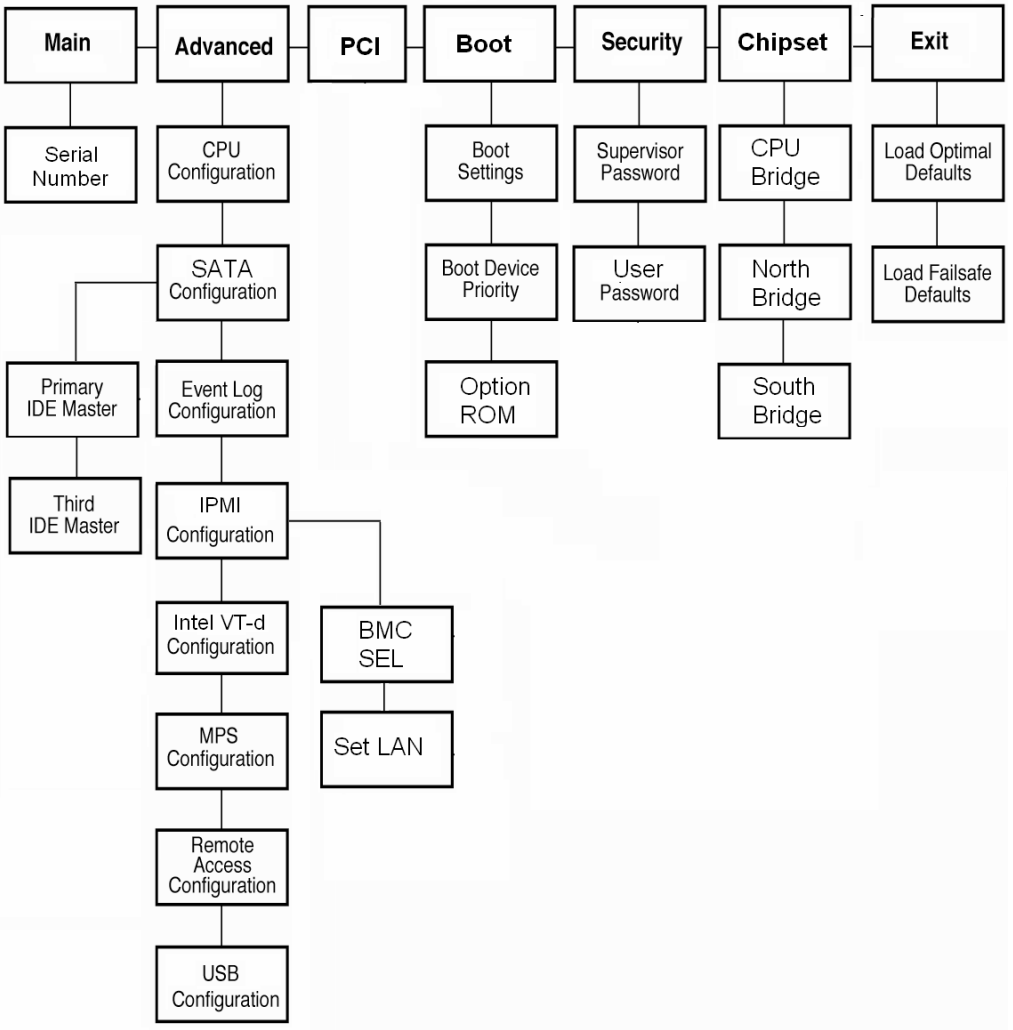
TABLE A-1 contains summary descriptions of the top-level BIOS setup screens.

TABLE A-1 BIOS Setup Screens Summary

Screen	Description	See...
Main	General product information, including BIOS type, processor, memory, and time/date.	Section A.2.1, "BIOS Main Menu Screens" on page A-5
Advanced	Configuration information for the CPU processor, memory, IDE, Super IO, trusted computing, USB, PCI, MPS and other information.	Section A.2.2, "BIOS Advanced Menu Screens" on page A-6
PCI	Clear NVRAM during server module boot.	Section A.2.3, "BIOS PCI Menu Screens" on page A-15
Boot	Configure settings during server module boot.	Section A.2.4, "BIOS Boot Menu Screens" on page A-17
Security	Set or change the user and supervisor passwords.	Section A.2.5, "BIOS Security Menu Screens" on page A-20
Chipset	Set or change the processor (CPU, North, South) bridge features.	Section A.2.6, "BIOS Chipset Menu Screens" on page A-20
Exit	Save changes and exit, discard changes and exit, discard changes, or load optimal or failsafe defaults.	Section A.2.7, "BIOS Exit Menu Screens" on page A-23

FIGURE A-1 summarizes the BIOS menu tree. See Section A.2, "BIOS Setup Menu Screens" on page A-5 for examples of each of these screens.

FIGURE A-1 BIOS Utility Menu Tree



A.2 BIOS Setup Menu Screens

The following figures show sample Sun Blade X6275 server module BIOS Setup utility screens.

Note – The screens shown are examples. The version numbers and the screen items and selections shown are subject to change over the life of the product.

All settings are set to the optimal default at startup.

A.2.1 BIOS Main Menu Screens

The BIOS Main screens provide general product information, including BIOS type, Processor type, memory, and time/date.

The Sun Blade X6275 server module has the following BIOS Main screens:

FIGURE A-2 BIOS Setup Utility: Main - System Overview

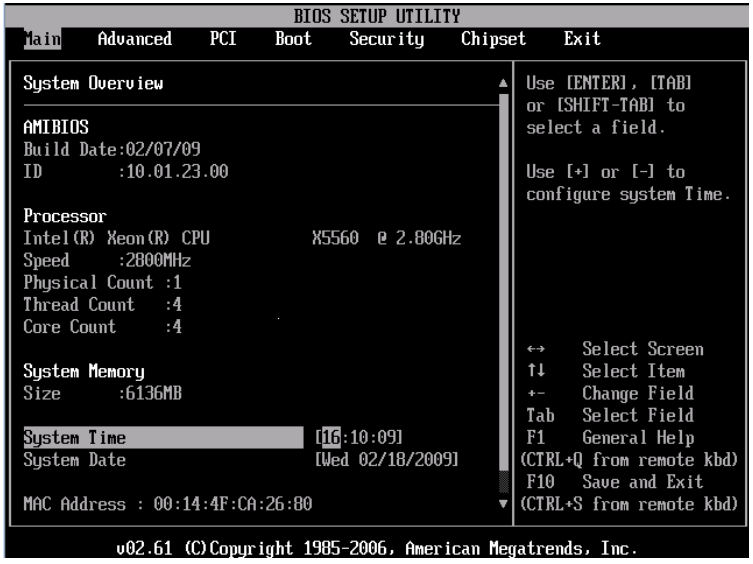
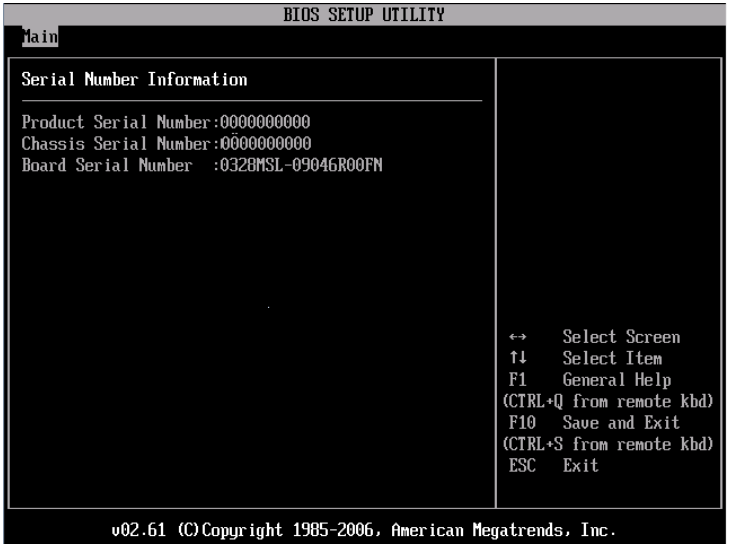


FIGURE A-3 BIOS Setup Utility: Main- Serial Number Information



A.2.2 BIOS Advanced Menu Screens

The BIOS Advanced screens provide detailed configuration information for the CPU, SATA, IDE, event log, IPMI, Intel VT-d, MPS, remote access, USB, and other system configuration information.

Note – The term BMC that might be displayed on some screens refers to the SP (service processor).

The Sun Blade X6275 server module has the following BIOS Advanced screens:

FIGURE A-4 BIOS Setup Utility: Advanced

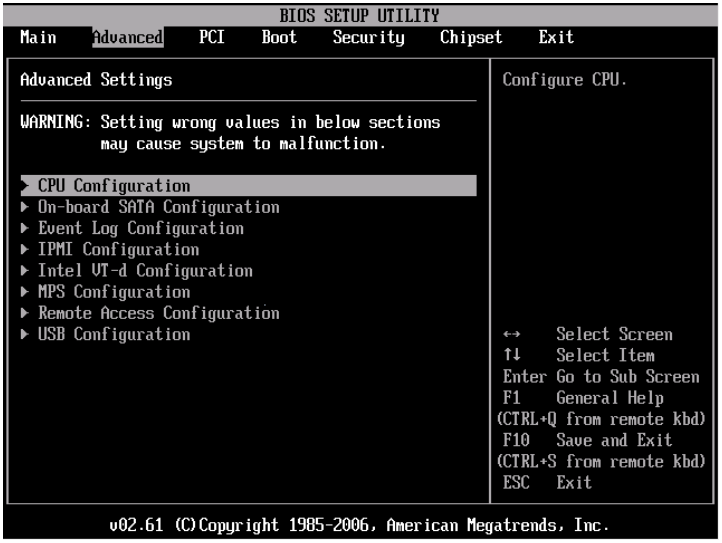


FIGURE A-5 BIOS Setup Utility: Advanced- CPU Configuration

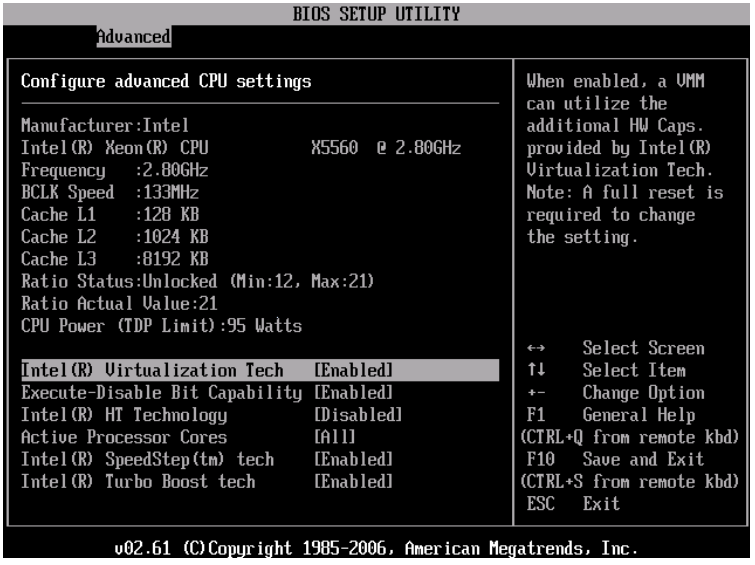


FIGURE A-6 BIOS Setup Utility: Advanced - SATA Settings

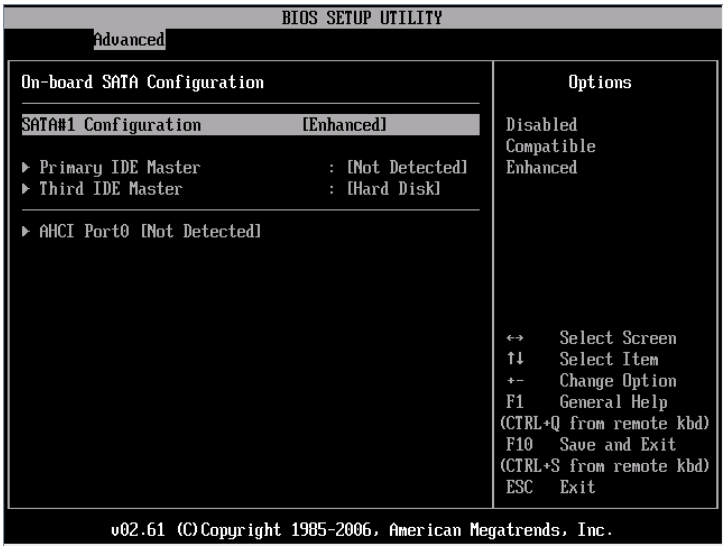


FIGURE A-7 BIOS Setup Utility: Advanced- IDE Configuration

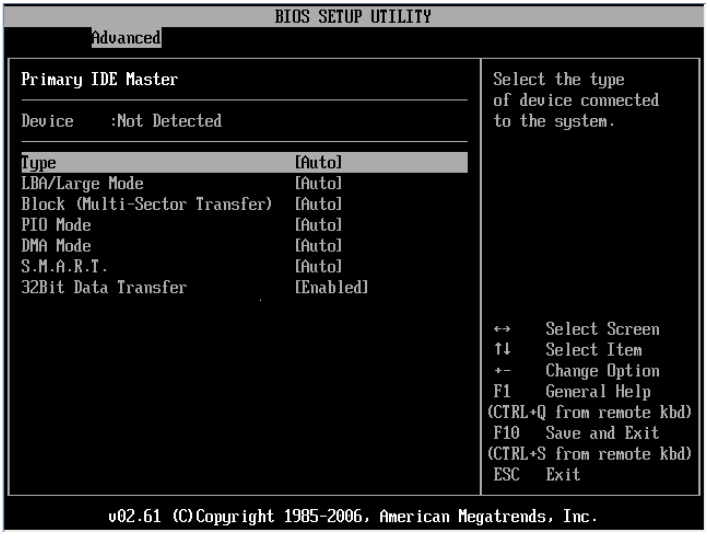


FIGURE A-8 BIOS Setup Utility: Advanced- Third IDE Master Configuration

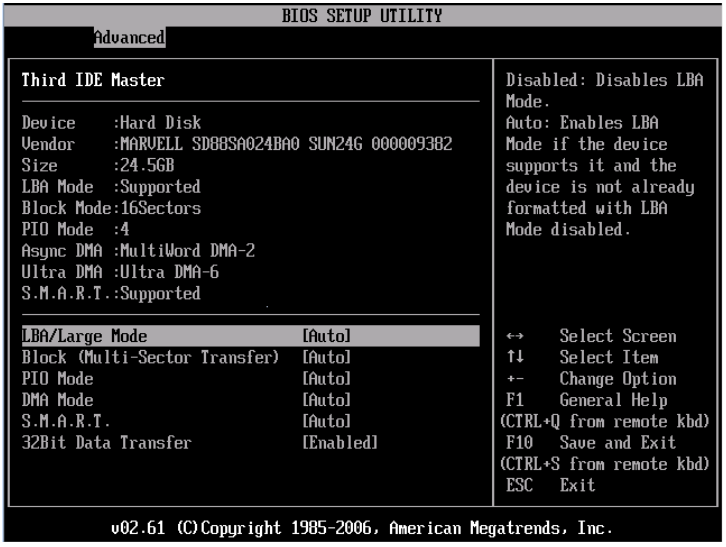


FIGURE A-9 BIOS Setup Utility: Advanced - Event Log

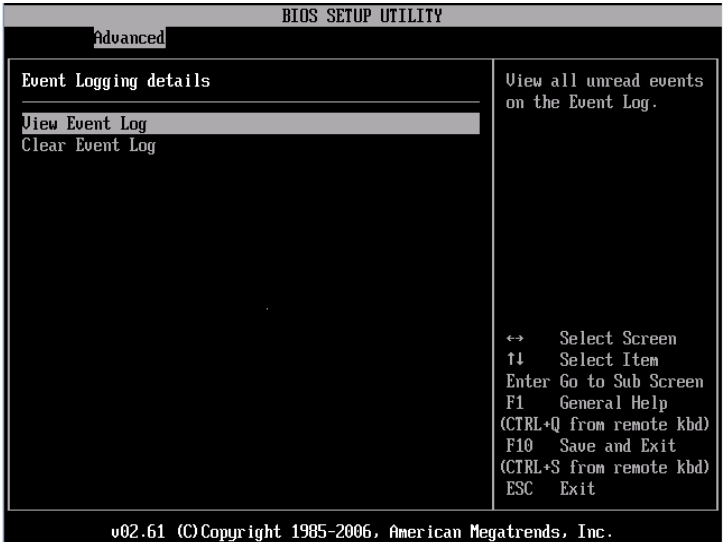


FIGURE A-10 BIOS Setup Utility: Advanced - View Event Log

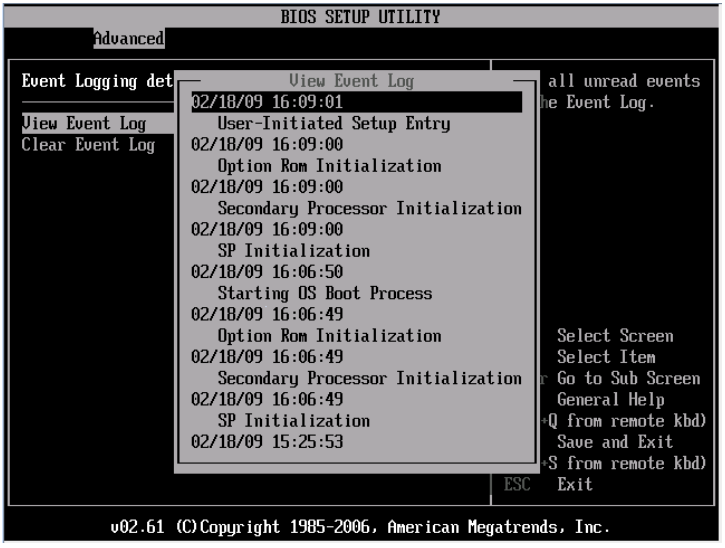


FIGURE A-11 BIOS Setup Utility: Advanced - Clear Event Log

FIGURE A-12 BIOS Setup Utility: Advanced - IPMI Configuration (SP/BMC)

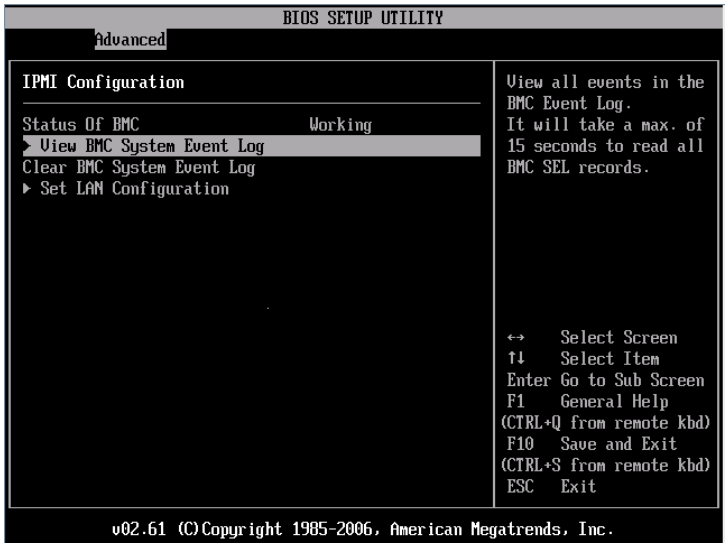


FIGURE A-13 BIOS Setup Utility: Advanced - IPMI - View BMC System Event Log (SEL)

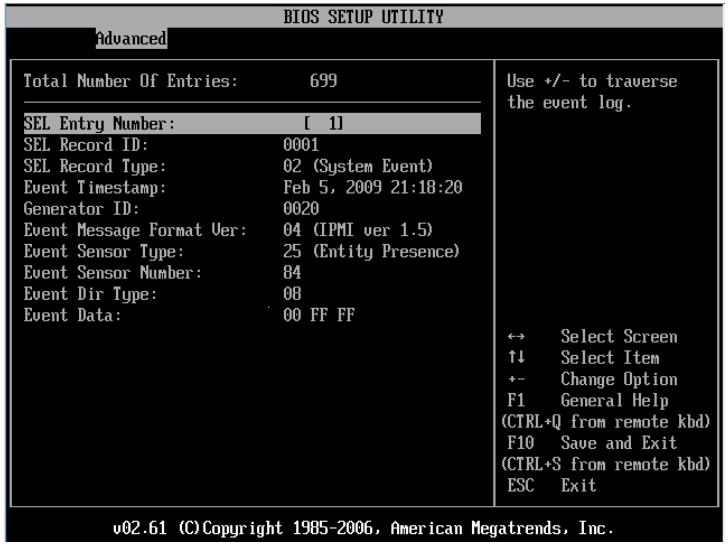


FIGURE A-14 BIOS Setup Utility: Advanced - IPMI - Clear BMC System Event Log

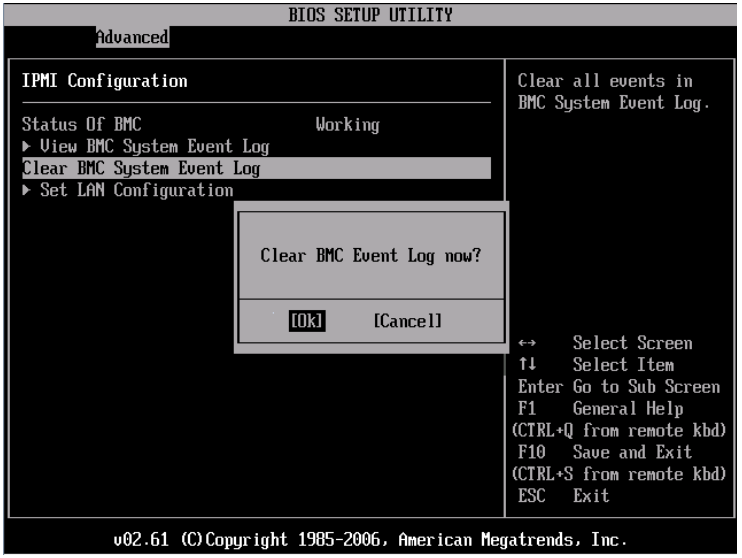


FIGURE A-15 BIOS Setup Utility: Advanced - IPMI - LAN Configuration -IP Assignment

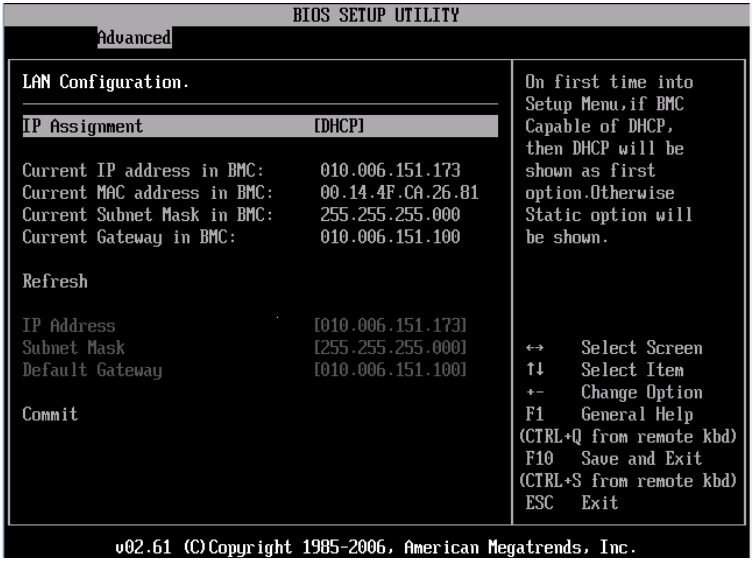


FIGURE A-16 BIOS Setup Utility: Advanced- Intel VT-d

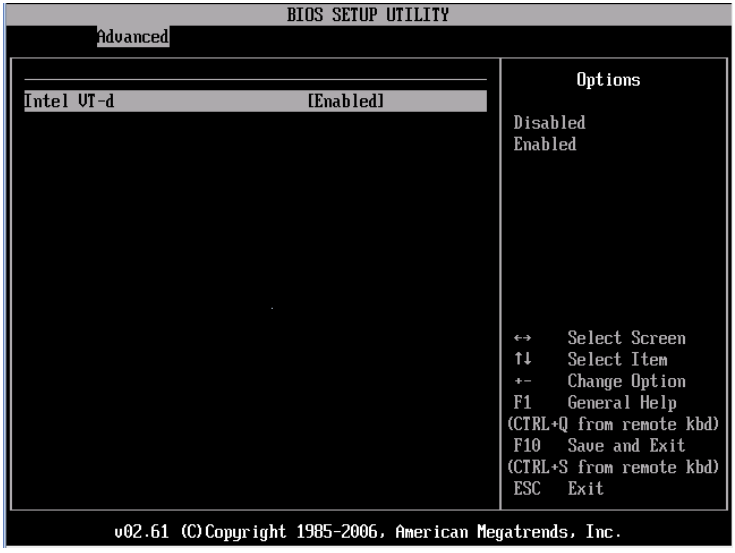


FIGURE A-17 BIOS Setup Utility: Advanced- MPS Configuration

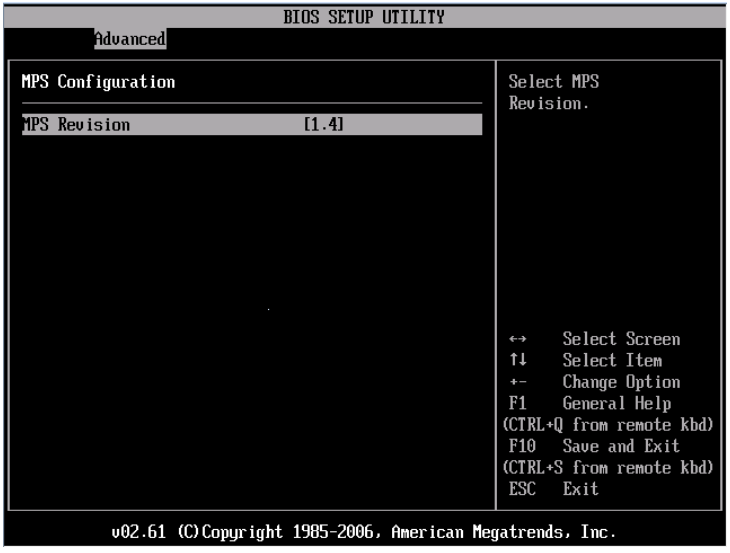


FIGURE A-18 BIOS Setup Utility: Advanced- Remote Access Type and Parameters

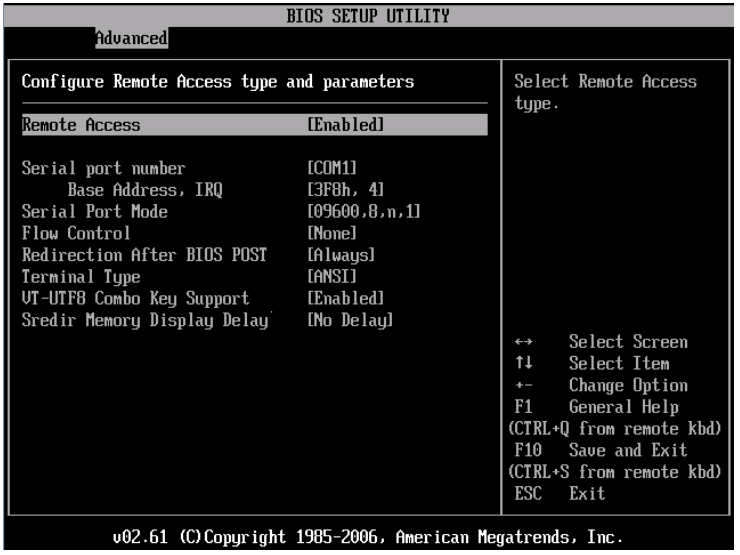


FIGURE A-19 BIOS Setup Utility: Advanced- USB Configuration

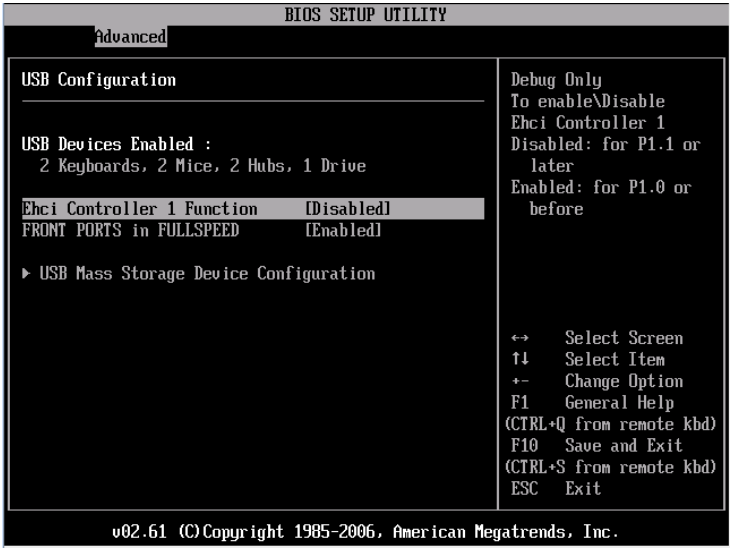


FIGURE A-20 BIOS Setup Utility: Advanced- USB Mass Storage Device Configuration

A.2.3 BIOS PCI Menu Screens

The BIOS PCI screens allow you to clear NVRAM during system boot. The Sun Blade X6275 server module has the following BIOS PCI screens:

FIGURE A-21 BIOS Setup Utility: PCI Settings

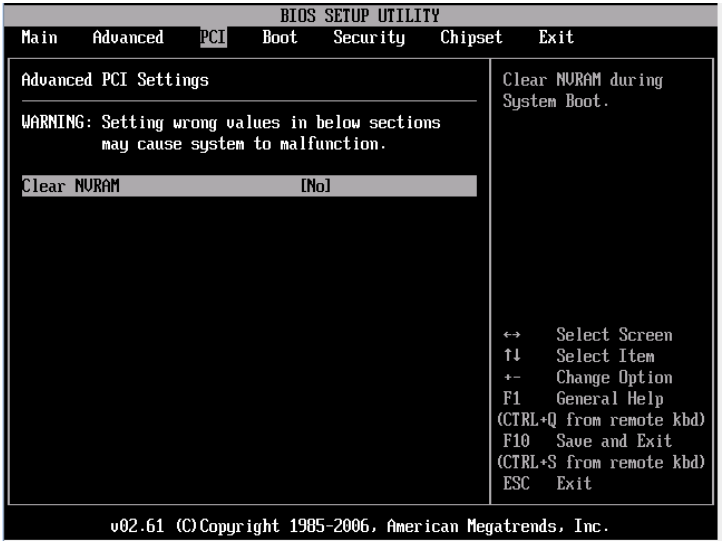
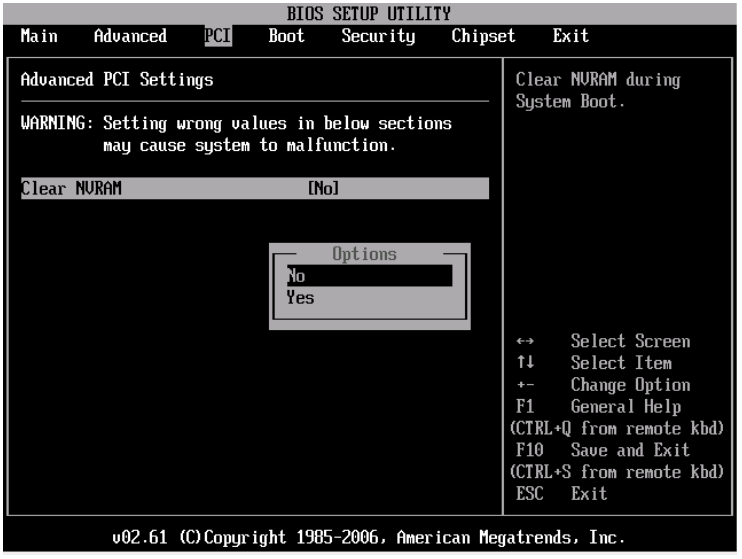


FIGURE A-22 BIOS Setup Utility: PCI Configuration - Clear NVRAM



A.2.4 BIOS Boot Menu Screens

The BIOS Boot screens allow you to configure the boot device priority (hard disk drives and the DVD-ROM drive). The Sun Blade X6275 server module has the following BIOS Boot screens:

FIGURE A-23 BIOS Setup Utility: Boot

FIGURE A-24 BIOS Setup Utility: Boot Settings Configuration

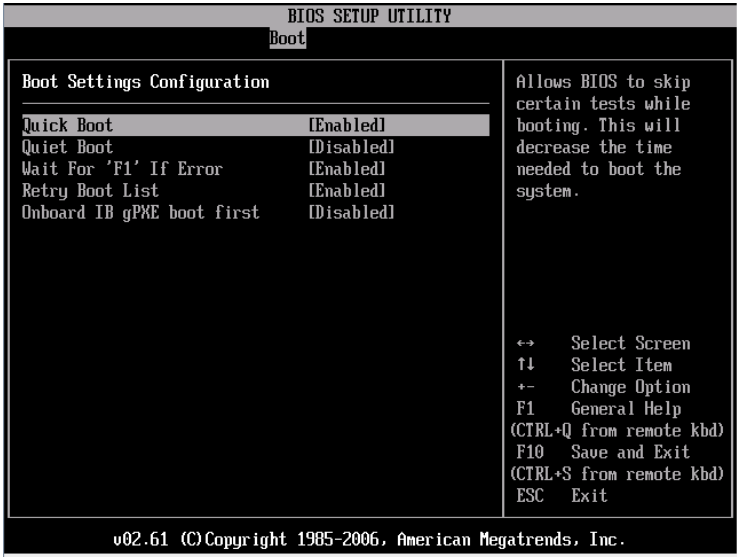


FIGURE A-25 BIOS Setup Utility: Boot Device Priority

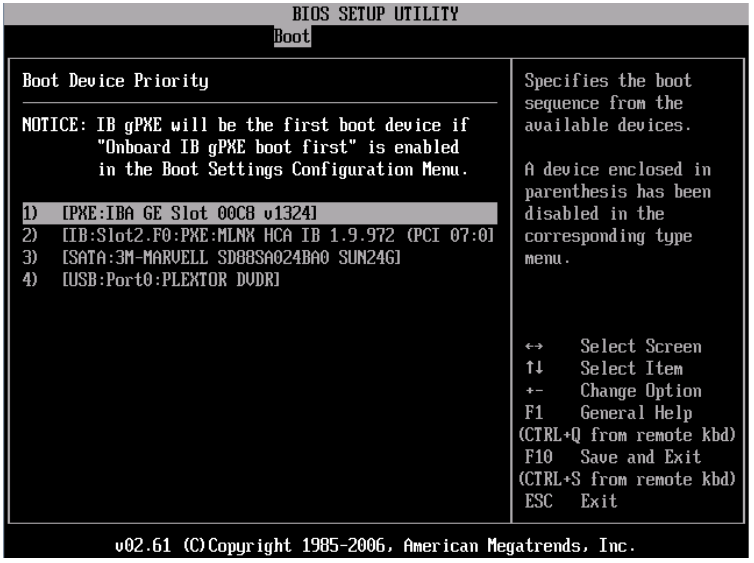


FIGURE A-26 BIOS Setup Utility: Boot Option ROM Enable

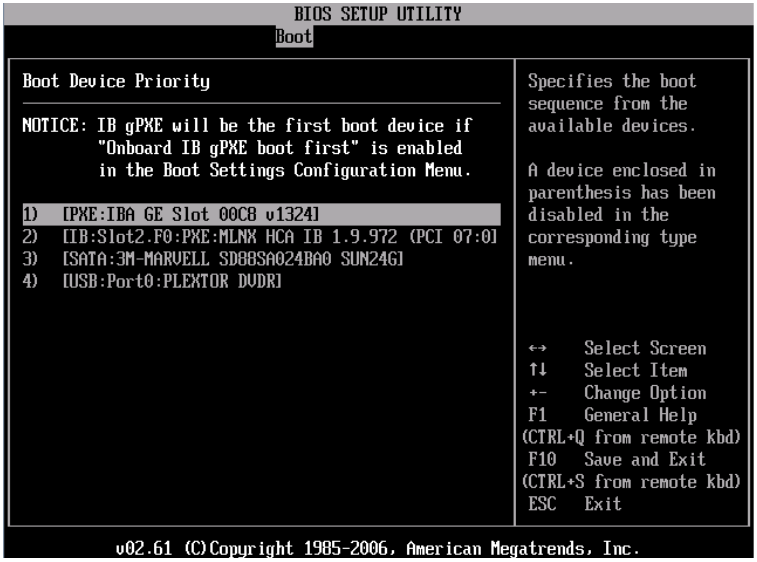
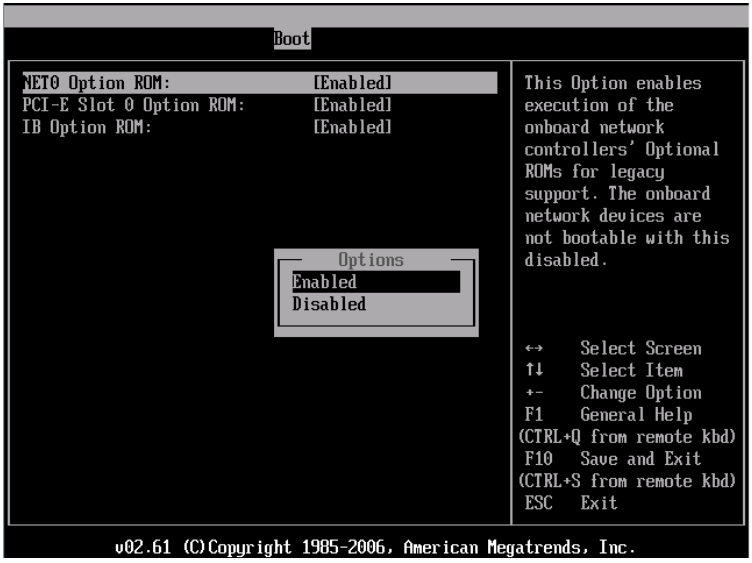


FIGURE A-27 BIOS Setup Utility: Boot Option ROM

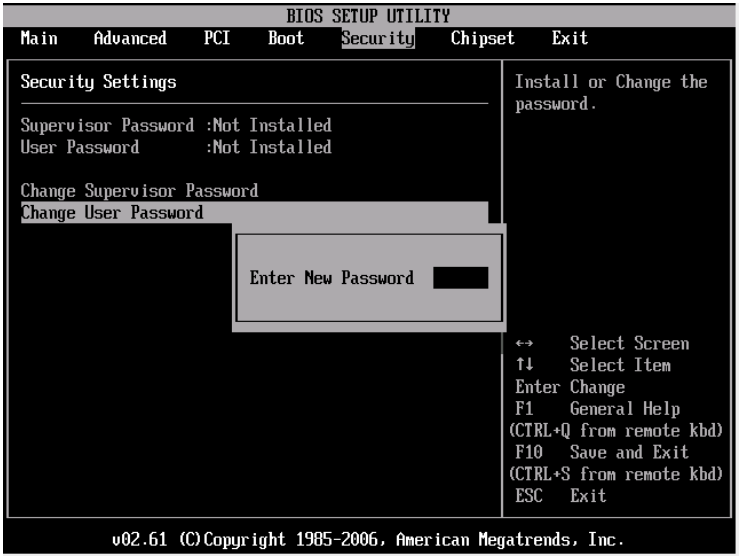


A.2.5 BIOS Security Menu Screens

The BIOS Security screens allow you to set or change the supervisor and user passwords.

The Sun Blade X6275 server module has the following BIOS Security screens:

FIGURE A-28 BIOS Setup Utility: Security - Change Password



A.2.6 BIOS Chipset Menu Screens

The BIOS Chipset screens allow you to configure chipset devices (if applicable).

The Sun Blade X6275 server module has the following BIOS Chipset screens:

FIGURE A-29 BIOS Setup Utility: Chipset

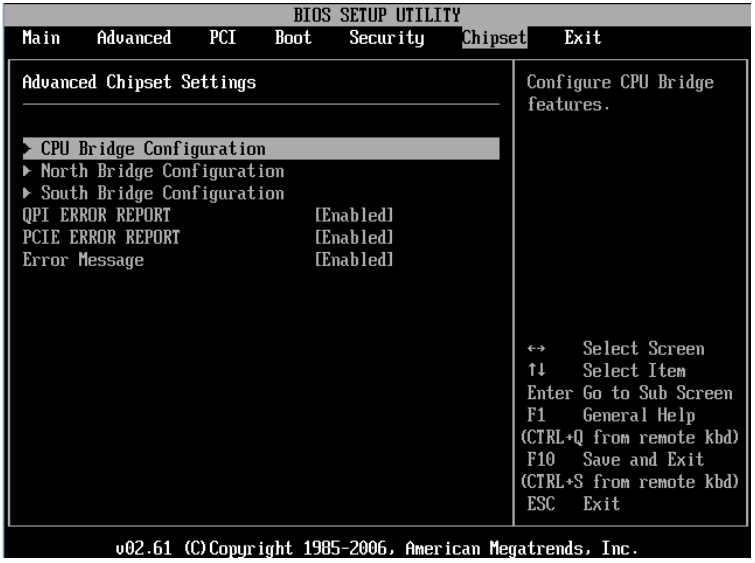


FIGURE A-30 BIOS Setup Utility: Chipset- CPU Bridge

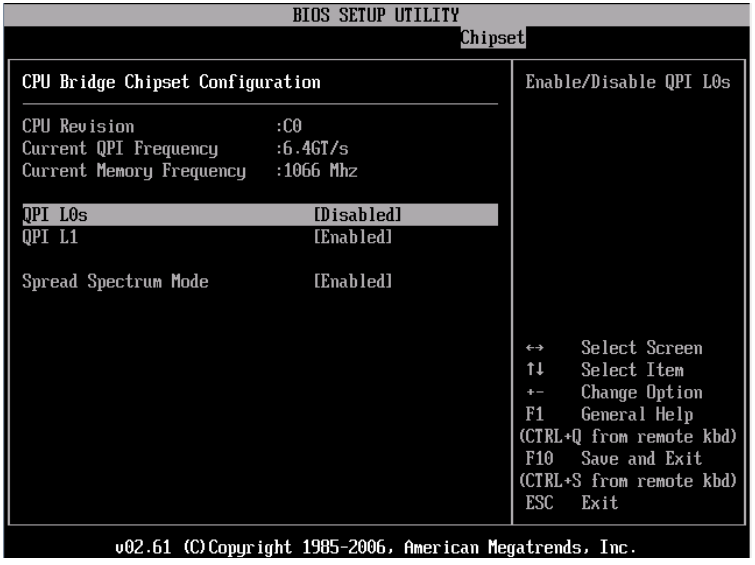


FIGURE A-31 BIOS Setup Utility: Server - Chipset - NorthBridge

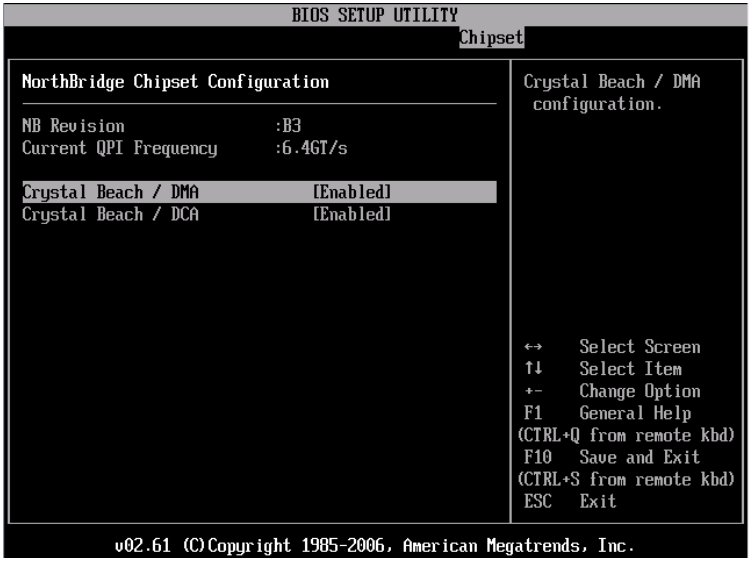
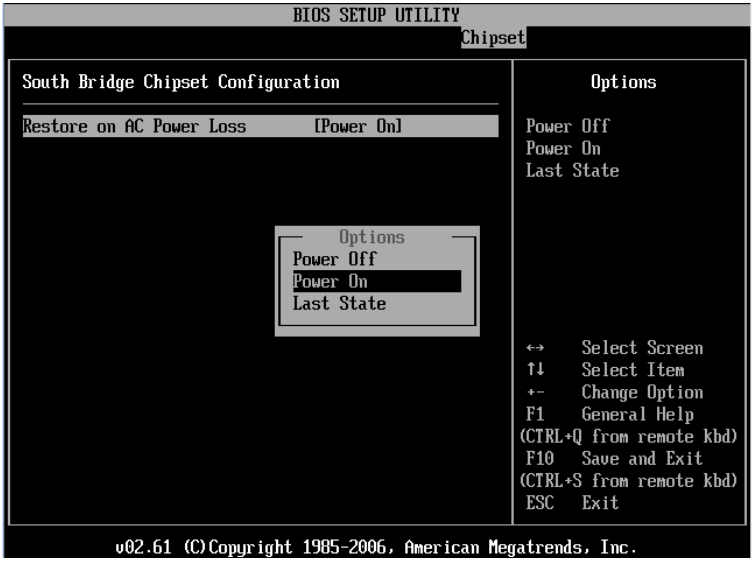


FIGURE A-32 BIOS Setup Utility: Server - Chipset - SouthBridge



A.2.7 BIOS Exit Menu Screens

The BIOS Exit screens allow you to save changes and exit, discard changes and exit, discard changes, or load optimal or failsafe defaults.

The Oracle Sun Blade X6275 server module has the following BIOS Exit screens:

FIGURE A-33 BIOS Setup Utility: Exit

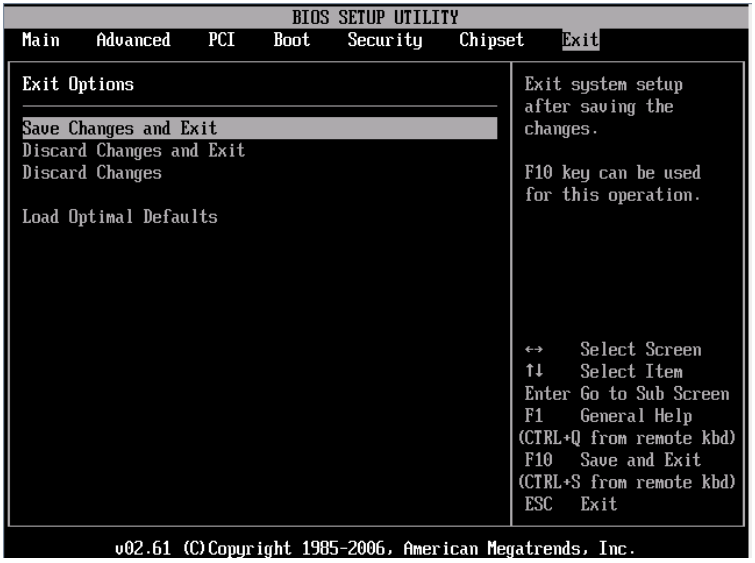


FIGURE A-34 BIOS Setup Utility: Exit - Save Configuration Changes

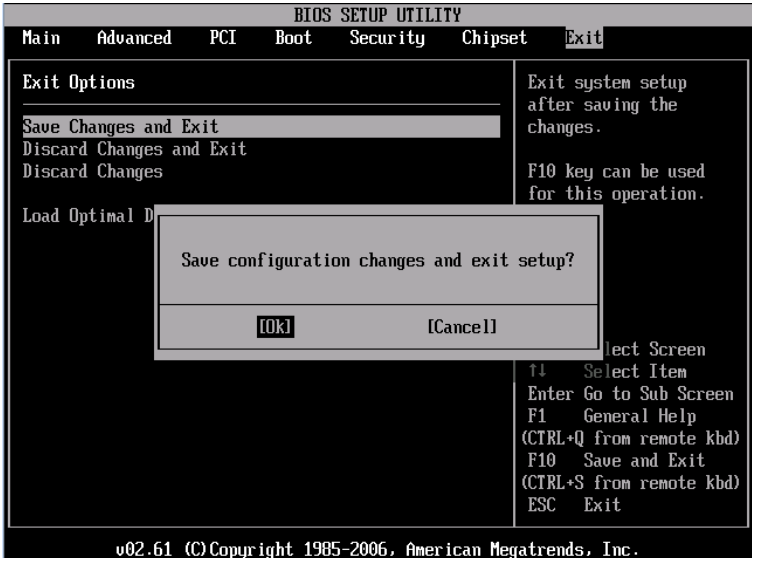


FIGURE A-35 BIOS Setup Utility: Exit - Discard Changes

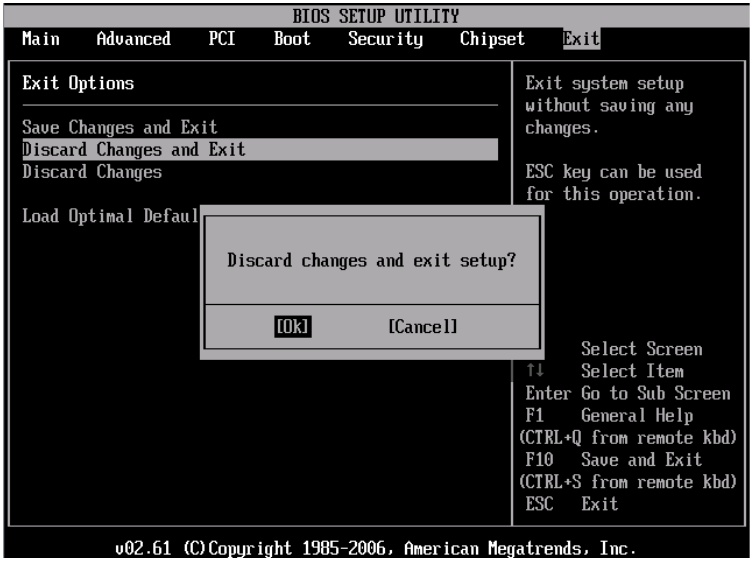


FIGURE A-36 BIOS Setup Utility: Exit - Discard Changes, Do Not Exit

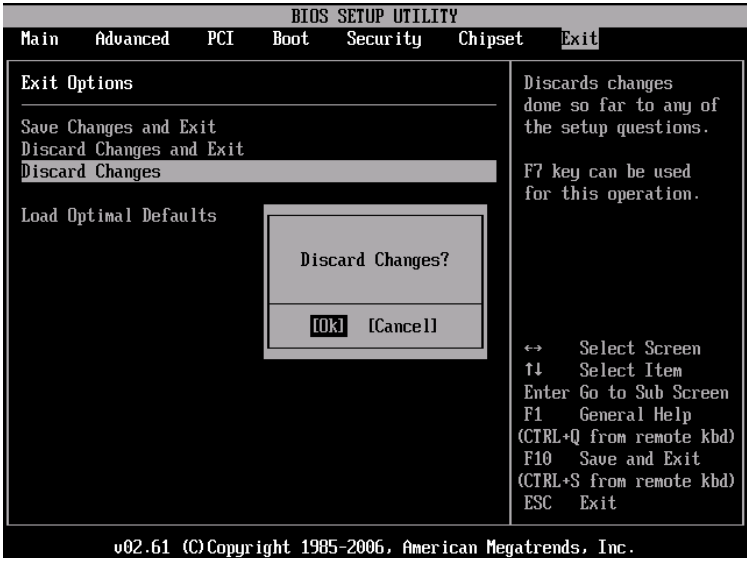
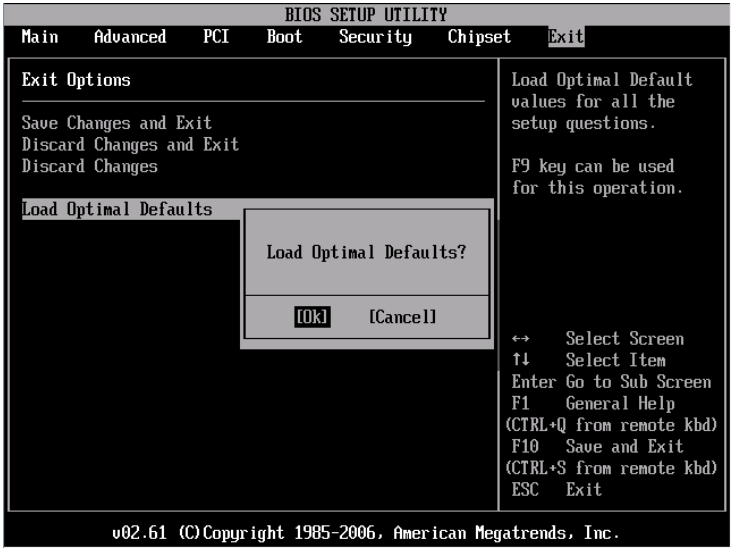


FIGURE A-37 BIOS Setup Utility: Exit - Load Optimal Defaults



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