NovaScale Blade B240

Problem Determination and Service Guide

NOVASCALE BLADE

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NovaScale Blade B240
Problem Determination and Service Guide

Hardware

Trademarks and Acknowledgements

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Safety

Before installing this product, read the Safety Information.

قبل تركيب هذا المنتج، يجب قراءة الملاحظات الأمنية

Antes de instalar este produto, leia as Informações de Segurança.

在安裝本产品之前，请仔细阅读 Safety Information
(安全信息)。

安裝本產品之前，請先閱讀「安全資訊」。

Prije instalacije ovog produkta obavezno pročitajte Sigurnosne Upute.

Před instalací tohoto produktu si přečtěte příručku bezpečnostních instrukcí.

Læs sikkerhedsforskrifterne, før du installerer dette produkt.

Lees voordat u dit product installeert eerst de veiligheidsvoorschriften.

Ennen kuin asennat tämän tuotteen, lue turvaohjeet kohdasta Safety Information.

Avant d'installer ce produit, lisez les consignes de sécurité.

Vor der Installation dieses Produkts die Sicherheitshinweise lesen.

Πριν εγκαταστήσετε το προϊόν αυτό, διαβάστε τις πληροφορίες ασφάλειας
(safety information).

לפני שתתקינו מוצר זה, קראו את הוראות הבטיחות.

A termék telepítése előtt olvassa el a Biztonsági előírásokat!

Prima di installare questo prodotto, leggere le Informazioni sulla Sicurezza.

製品の設置の前に、安全情報をお読みください。

본 제품을 설치하기 전에 안전 정보를 읽으십시오.

Пред да се инсталира овој продукт, прочитајте информацијата за безбедност.

Les sikkerhetsinformasjonen (Safety Information) før du installerer dette produktet.

Przed zainstalowaniem tego produktu, należy zapoznać się
z książką "Informacje dotyczące bezpieczeństwa" (Safety Information).

Antes de instalar este produto, leia as Informações sobre Segurança.

Перед установкой продукта прочтите инструкции по
технике безопасности.

Pred inštaláciou tohto zariadenia si pečítaje Bezpečnostné predpisy.

Pred namestitvijo tega proizvoda preberite Varnostne informacije.

Antes de instalar este producto, lea la información de seguridad.

Läs säkerhetsinformationen innan du installerar den här produkten.

Safety statements

Important:

Each caution and danger statement in this documentation begins with a number. This number is used to cross reference an English-language caution or danger statement with translated versions of the caution or danger statement in the *Bull Safety Information* document.

For example, if a caution statement begins with a number 1, translations for that caution statement appear in the *Bull Safety Information* document under statement 1.

Be sure to read all caution and danger statements in this documentation before performing the instructions. Read any additional safety information that comes with your computer or optional device before you install the device.

Statement 1:

DANGER

Electrical current from power, telephone, and communication cables is hazardous.

To avoid a shock hazard:

- Do not connect or disconnect any cables or perform installation, maintenance, or reconfiguration of this product during an electrical storm.
- Connect all power cords to a properly wired and grounded electrical outlet.
- Connect to properly wired outlets any equipment that will be attached to this product.
- When possible, use one hand only to connect or disconnect signal cables.
- Never turn on any equipment when there is evidence of fire, water, or structural damage.
- Disconnect the attached power cords, telecommunications systems, networks, and modems before you open the device covers, unless instructed otherwise in the installation and configuration procedures.
- Connect and disconnect cables as described in the following table when installing, moving, or opening covers on this product or attached devices.

To Connect:	To Disconnect:
1. Turn everything OFF.	1. Turn everything OFF.
2. First, attach all cables to devices.	2. First, remove power cords from outlet.
3. Attach signal cables to connectors.	3. Remove signal cables from connectors.
4. Attach power cords to outlet.	4. Remove all cables from devices.
5. Turn device ON.	

Statement 2:

⚠️

CAUTION:
When replacing the lithium battery, use a battery recommended by the manufacture
If your system has a module containing a lithium battery, replace it only with the sa
module type made by the same manufacturer. The battery contains lithium and can
explode if not properly used, handled or disposed of.

Do not:

- Throw or immerse into water
- Heat to more than 100°C (212°F)
- Repair or disassemble

Dispose of the battery as required by local ordinances or regulations.

Statement 3:

⚠️

CAUTION:
When laser products (such as CD-ROMs, DVD drives, fiber optic devices, or
transmitters) are installed, note the following:

- Do not remove the covers. Removing the covers of the laser product could
  result in exposure to hazardous laser radiation. There are no serviceable
  parts inside the device.
- Use of controls or adjustments or performance of procedures other than
  those specified herein might result in hazardous radiation exposure.

⚠️

DANGER

Some laser products contain an embedded Class 3A or Class 3B laser
diode. Note the following.

Laser radiation when open. Do not stare into the beam, do not view directly
with optical instruments, and avoid direct exposure to the beam.

Class 1 Laser Product
Laser Klasse 1
Laser Klass 1
Luokan 1 Laserlaite
Appareil À Laser de Classe 1

Statement 4:

≥ 18 kg (39.7 lb)   ≥ 32 kg (70.5 lb)   ≥ 55 kg (121.2 lb)

CAUTION:
Use safe practices when lifting.

Statement 5:

CAUTION:
The power control button on the device and the power switch on the power supply do not turn off the electrical current supplied to the device. The device also might have more than one power cord. To remove all electrical current from the device, ensure that all power cords are disconnected from the power source.
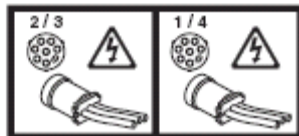
Statement 8:

CAUTION:
Never remove the cover on a power supply or any part that has the following label attached.

Hazardous voltage, current, and energy levels are present inside any component that has this label attached. There are no serviceable parts inside these components. If you suspect a problem with one of these parts, contact a service technician.

Statement 12:

CAUTION:
The following label indicates a hot surface nearby.

Statement 13:

DANGER

Overloading a branch circuit is potentially a fire hazard and a shock hazard under certain conditions. To avoid these hazards, ensure that your system electrical requirements do not exceed branch circuit protection requirements. Refer to the information that is provided with your device for electrical specifications.

Statement 20:

CAUTION:
To avoid personal injury, before lifting the unit, remove all the blades to reduce the weight.

Statement 21:

CAUTION:
Hazardous energy is present when the blade is connected to the power source. Always replace the blade cover before installing the blade.

WARNING: Handling the cord on this product or cords associated with accessories sold with this product, will expose you to lead, a chemical known to the State of California to cause cancer, and birth defects or other reproductive harm. *Wash hands after handling.*

ADVERTENCIA: El contacto con el cable de este producto o con cables de accesorios que se venden junto con este producto, pueden exponerle al plomo, un elemento químico que en el estado de California de los Estados Unidos está considerado como un causante de cancer y de defectos congénitos, además de otros riesgos reproductivos. *Lávese las manos después de usar el producto.*

Chapter 1. Introduction

This Problem Determination and Service Guide contains information to help you solve problems that might occur in your Bull NovaScale Blade B240 server. It describes the diagnostic tools that come with the blade server, error codes and suggested actions, and instructions for replacing failing components.

For information about the terms of the warranty and getting service and assistance, see the Bull Hardware Product Warranty document on the *Bull Blade Resource DVD*.

1.1   Related documentation

In addition to this document, the following documentation also comes with the server:

Installation and User's Guide
This printed document contains general information about the server, including how to install supported options and how to configure the server.

Safety Information
This document is in Portable Document Format (PDF) on the *Bull Blade Resource DVD*. It contains translated caution and danger statements. Each caution and danger statement that appears in the documentation has a number that you can use to locate the corresponding statement in your language in the Safety Attention document.

Bull Hardware Product Warranty
This document is in PDF on the *Bull Blade Resource DVD*. It contains information about the terms of the warranty and about service and assistance.

Depending on the server model, additional documentation might be included on the *Bull Blade Resource DVD*.

The blade server might have features that are not described in the documentation that comes with the server. The documentation might be updated occasionally to include information about those features, or technical updates might be available to provide additional information that is not included in the blade server documentation. In addition to the documentation in this library, be sure to review the *Bull Blade Planning and Installation Guide* for your Blade Chassis type for information to help you prepare for system installation and configuration.

1.2   Notices and statements in this document

The caution and danger statements that appear in this document are also in the multilingual *Safety Attention* document, which is on the *Bull Blade Resource DVD*. Each statement is numbered for reference to the corresponding statement in the *Safety Attention* document.

The following types of notices and statements are used in this document:

Note:
These notices provide important tips, guidance, or advice.

Important:
These notices provide information or advice that might help you avoid inconvenient or problem situations.

Attention:
These notices indicate possible damage to programs, devices, or data. An attention notice is placed just before the instruction or situation in which damage could occur.

CAUTION:
These statements indicate situations that can be potentially hazardous to you. A caution statement is placed just before the description of a potentially hazardous procedure step or situation.

DANGER:
These statements indicate situations that can be potentially lethal or extremely hazardous to you. A danger statement is placed just before the description of a potentially lethal or extremely hazardous procedure, step, or situation.

1.3   Features and specifications

The following table provides a summary of the features and specifications of the blade server.

☞ Notes:

- Power, cooling, removable-media drives, external ports, and advanced system management are provided by the Blade Chassis.
- The operating system in the blade server must provide USB support for the blade server to recognize and use the removable-media drives and front-panel USB ports. The Blade Chassis uses USB for internal communications with these devices.

Blade server features and specifications
Microprocessor: Supports one Intel® LGA-771 microprocessor **Note:** Use the Configuration/Setup Utility program to determine the type and speed of the microprocessors in your blade server.
Memory: • Dual-channel dual inline memory modules (DIMMs): 6 DIMM connectors • Type: ECC double-data rate (DDR2 667) DRAM • Supports 512 MB, 1 GB, 2 GB, and 4 GB DIMMs with up to 24 GB of total memory on the system board
Drives: Support for a pair of hot-swap, small form factor (SFF) Serial Attached SCSI (SAS) hard disk drives.
Predictive Failure Analysis® (PFA) alerts: • Microprocessor • Memory • Hard disk drive
Electrical input: 12 V dc
Integrated functions: • Expansion card interface • Local service processor: Baseboard Management Controller (BMC) with Intelligent Platform Management Interface (IPMI) firmware • ATI ES1000 video controller • LSI 1064E Serial Attached SCSI (SAS) controller • Light path diagnostics • RS-485 interface for communication with the management module • Automatic server restart (ASR) • Serial over LAN (SOL) • Redundant buses for communication with keyboard, mouse, and removable media drives • Concurrent keyboard/video/mouse (cKVM) support when optional cKVM feature card is installed • USB 2.0 for communication with the cKVM and removable media drives (an external USB port is not supported)

Environment (non-NEBS):
• Air temperature:
− Blade server on: 10° to 35° C (50° to 95° F). Altitude: 0 to 914.4 m (0 to 3000 ft)
− Blade server on: 10° to 32° C (50° to 89.6° F). Altitude: 914.4 to 2133.6 m (3000 to 7000 ft)
− Blade server off: 10° to 43° C (50° to 109.4° F). Altitude: 914.4 to 2133.6 m (3000 to 7000 ft)
− Blade server shipping: -40° to 60° C (-40° to 140° F)
• Humidity:
− Blade server on: 8% to 80%
− Blade server off: 8% to 80%
Size:
• Height: 24.5 cm (9.7 inches)
• Depth: 44.6 cm (17.6 inches)
• Width: 2.9 cm (1.14 inches)
• Maximum weight: 4.8 kg (10 lb.)

Table 1-1.   Blade server features and specifications

1.4 Blade server controls and LEDs

This section describes the controls and LEDs on the blade server.

☞ **Note:**
The control panel door is shown in the closed position in the following illustration. To access the power-control button, you must open the control panel door.
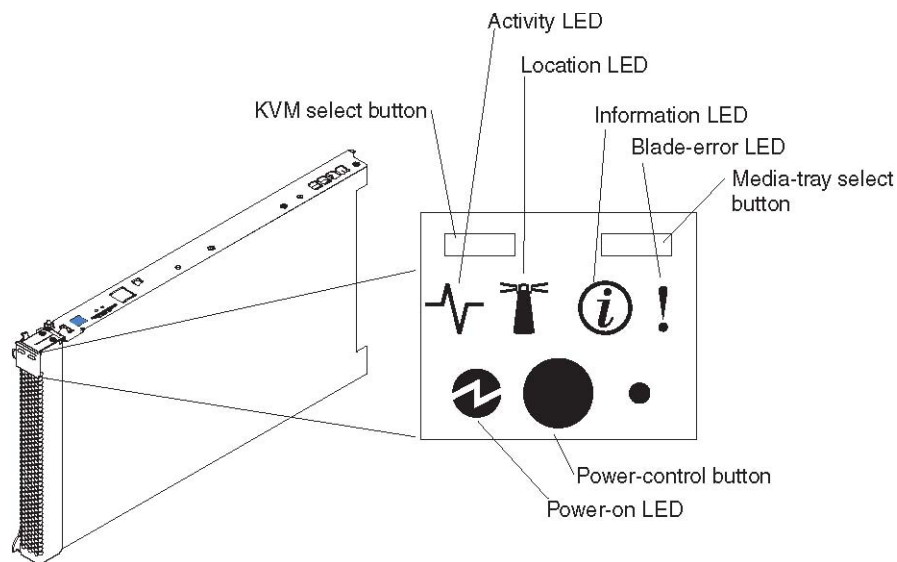
Figure 1-1.   Blade server controls and LEDs

Keyboard/video/mouse (KVM) select button:
Press this button to associate the shared Blade Chassis keyboard port, video port, and mouse port with the blade server. The LED on this button flashes while the request is being processed, and then is lit when the ownership of the keyboard, video, and mouse has been transferred to the blade server. It can take approximately 20 seconds to switch the keyboard, video, and mouse control to the blade server.

Using a keyboard that is directly attached to the management-module, you can press keyboard keys in the following sequence to switch KVM control between blade servers instead of using the KVM select button:

> NumLock NumLock *blade_server_number* Enter

> Where *blade_server_number* is the two-digit number for the blade bay in which the blade server is installed. A blade server that occupies more than one blade bay is identified by the lowest bay number that it occupies.

If there is no response when you press the KVM select button, you can use the management-module Web interface to determine whether local control has been disabled on the blade server.

☞ Notes:

- The operating system in the blade server must provide USB support for the blade server to recognize and use the keyboard and mouse, even if the keyboard and mouse have PS/2-style connectors.

- If you install a supported Microsoft Windows operating system on the blade server while it is not the current owner of the keyboard, video, and mouse, a delay of up to 1 minute occurs the first time that you switch the keyboard, video, and mouse to the blade server. All subsequent switching takes place in the normal KVM switching time frame (up to 20 seconds).

Activity LED:
When this green LED is lit, it indicates that there is activity on the hard disk drive or network.

Location LED:
The system administrator can remotely turn on this blue LED to aid in visually locating the blade server. When this LED is lit, the location LED on the blade unit is also lit. The location LED can be turned off through the management-module Web interface.

Information LED:
When this amber LED is lit, it indicates that information about a system error for the blade server has been placed in the management-module event log. The information LED can be turned off through the management-module Web interface.

Blade-error LED:
When this amber LED is lit, it indicates that a system error has occurred in the blade server. The blade-error LED will turn off only after the error is corrected.

Media-tray select button:
Press this button to associate the shared Blade Chassis media tray (removable-media drives) with the blade server. The LED on the button flashes while the request is being processed, and then is lit when the ownership of the media tray has been transferred to the blade server. It can take approximately 20 seconds for the operating system in the blade server to recognize the media tray.
If there is no response when you press the media-tray select button, you can use the management-module Web interface to determine whether local control has been disabled on the blade server.

☞ Note:
The operating system in the blade server must provide USB support for the blade server to recognize and use the removable-media drives.

Power-control button:

This button is behind the control panel door. Press this button to turn on or turn off the blade server.

☞ **Note:**

The power-control button has effect only if local power control is enabled for the blade server. Local power control is enabled and disabled through the management-module Web interface.

Power-on LED:

This green LED indicates the power status of the blade server in the following manner:

- **Flashing rapidly:** The service processor (BMC) on the blade server is communicating with the management module.

- **Flashing slowly:** The blade server has power but is not turned on.

- **Lit continuously:** The blade server has power and is turned on.

1.5 Turning on the blade server

After you connect the blade server to power through the Blade Chassis, the blade server can start in any of the following ways:

- You can press the power-control button on the front of the blade server (behind the control panel door, see *Blade server controls and LEDs* on page 5) to start the blade server.

☞ Notes:
1. Wait until the power-on LED on the blade server flashes slowly before pressing the power-control button. While the service processor in the management module is initializing, the power-on LED does not flash, and the power-control button on the blade server does not respond.
2. While the blade server is starting, the power-on LED on the front of the blade server is lit. See *Blade server controls and LEDs* on page 5 for the power-on LED states.

- If a power failure occurs, the Blade Chassis and then the blade server can start automatically when power is restored, if the blade server is configured through the management module to do so.

- You can turn on the blade server remotely by using the management module.

- If the blade server is connected to power (the power-on LED is flashing slowly), the operating system supports the Wake on LAN feature, and the Wake on LAN feature has not been disabled through the management module, the Wake on LAN feature can turn on the blade server.

1.6 Turning off the blade server

When you turn off the blade server, it is still connected to power through the Blade Chassis. The blade server can respond to requests from the service processor, such as a remote request to turn on the blade server. To remove all power from the blade server, you must remove it from the Blade Chassis.

Shut down the operating system before you turn off the blade server. See the operating-system documentation for information about shutting down the operating system.

The blade server can be turned off in any of the following ways:
- You can press the power-control button on the blade server (behind the control panel door, see *Blade server controls and LEDs* on page 5). This starts an orderly shutdown of the operating system, if this feature is supported by the operating system.
- If the operating system stops functioning, you can press and hold the power-control button for more than 4 seconds to turn off the blade server.
- The management module can turn off the blade server through the management-module Web interface. For additional information, see the Bull Blade Management Module documentation.

1.7   System board layouts

The following illustrations show the connectors, LEDs, switches, and jumpers on the system board. The illustrations in this document might differ slightly from your hardware.

1.7.1   System board connectors

The following illustration shows the system-board components, including connectors for user-installable optional devices, for the blade server.
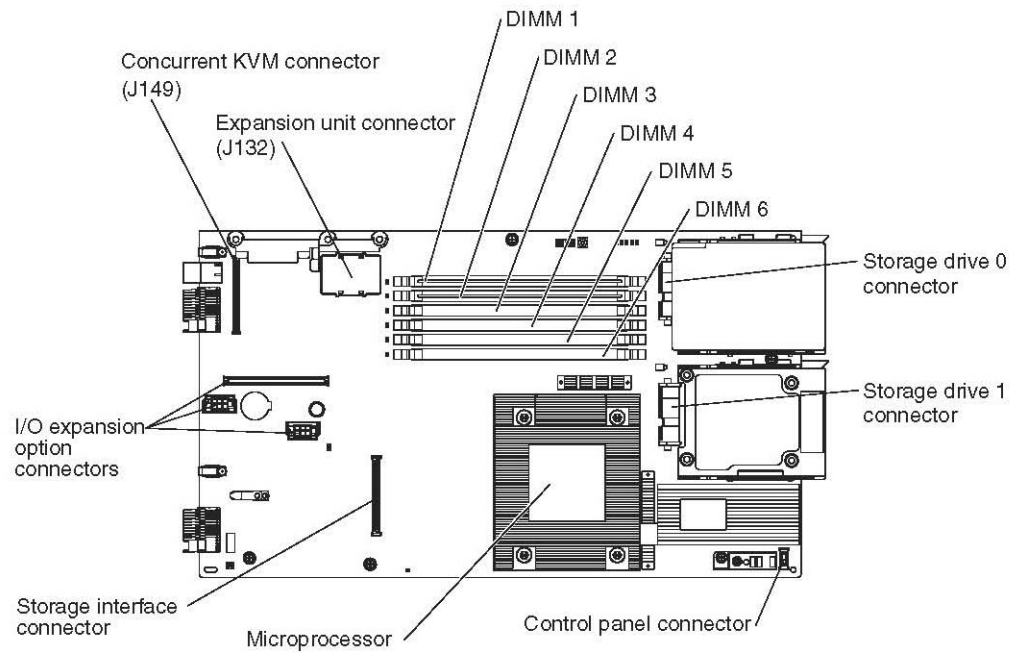
Figure 1-2.   System board connectors

1.7.2 System board switches

Use this information to locate and define system-board switches in the blade server.

The following illustration shows the locations of the two switch blocks (SW2 and SW3) and the light path diagnostics switch on the system board.
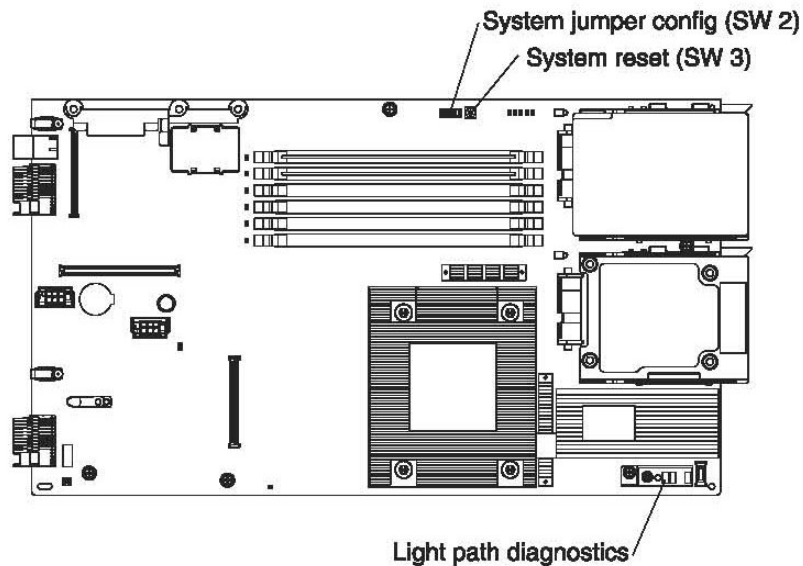
Figure 1-3. System board switches

The following table defines the function of each switch in the switch blocks (SW2, SW3).

Switch number	Description
SW2	Switch block 2 has the following switches:
	• 1 - Boot block
	• 2 - Force power on
	• 3 - Wake On LAN disable
	– On: Disabled
	– Off: Enabled (default)
	• 4 - Wake On LAN bypass disable
	– On: Disabled
	– Off: Enabled (default)
	• 5 – Debug serial port
	– On: Disabled
	– Off: Enabled (default)
	• 6 - RCTRST (I/O controller hub (ICH) real-time clock (RTC))
	– On: Reset RTC
	– Off: Normal (default))
	• 7 – Force PCIX 100
	– On: Force PCIX frequency at 100MHz maximum
	– Off: PCIX frequency at 133MHz maximum (default)

Switch number	Description
	• 8 - Bypass power-on password during next server start
	− On: Enabled
	− Off: Disabled (default)
SW3	Switch block 3 is a system-reset switch.

Table 1-2.   System board switch functions

1.7.3   System board LEDs

The following illustration shows the LEDs on the system board. You must remove the blade server from the Blade Chassis, open the cover or remove any optional expansion units, and press the light path diagnostics switch (see *System board switches* on page 10) to light any error LEDs that were turned on during processing. Diagnosing problems using the light path LEDs is described in *Light path diagnostics*, on page 99.
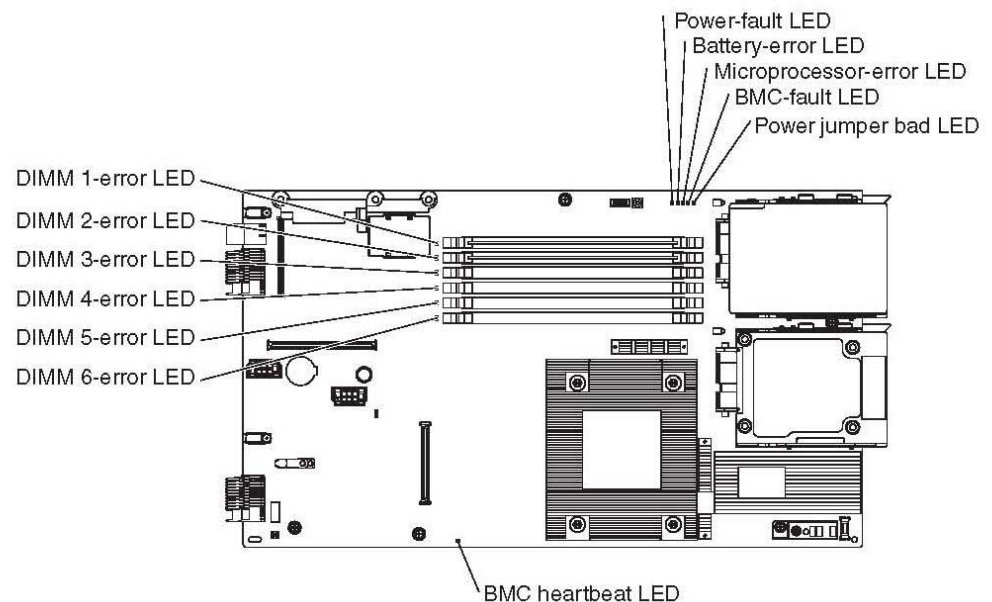
Figure 1-4.   System board LEDs

The following illustration shows the light path diagnostics panel on the system board.
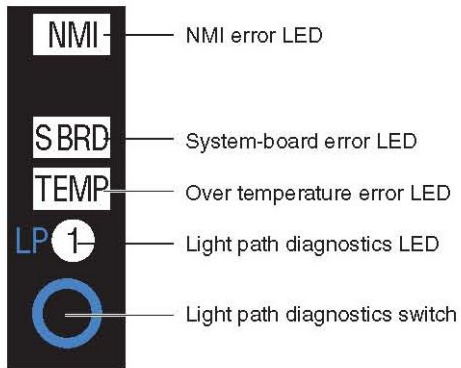
Figure 1-5.   Light path diagnostics panel

Chapter 2. Configuring the blade server

This chapter describes the configuration requirements for the blade server. Before you continue, make sure that the blade server has the latest version of firmware code. For additional information, see *Firmware updates* on page *18*.

The following configuration programs come with the blade server:

- **Configuration/Setup Utility program**
  The Configuration/Setup Utility program is part of the basic input/output system (BIOS). Use it to change system settings, such as interrupt requests (IRQ), date and time, and password. See *Using the Configuration/Setup Utility program* below for more information.

- **LSI Logic Configuration Utility program**
  The LSI Logic Configuration Utility program is part of the BIOS. Use it to set the device scan order and to set the SAS controller ID. See *Using the LSI Logic Configuration Utility program* on page *20* for more information.

- **Preboot Execution Environment (PXE) boot agent utility program**
  The PXE boot agent utility program is part of the BIOS. Use it to select the boot protocol and other boot options and to select a power-management option. For information about using this utility program, see *Using the PXE boot agent utility program* on page *18*.

2.1 Using the Configuration/Setup Utility program

To start the Configuration/Setup Utility program, complete the following steps:

1. Turn on the blade server (see *Turning on the blade server* on page 8).

2. Immediately give the blade server control of the Blade Chassis shared keyboard, video, and mouse ports.

   - If you are managing the blade server by using the Blade system console, press the KVM select button on the blade server (see *Blade server controls and LEDs* on page 5 for information).

   - If you are managing the blade server from a remote location, see the Management Module documentation for information and instructions.

3. When the Configuration/Setup utility message appears, press F1.

4. Follow the instructions on the screen.

2.1.1   Configuration/Setup Utility menu choices

The following choices are on the Configuration/Setup Utility main menu. Depending on the version of the BIOS, some menu choices might differ slightly from these descriptions.

- **System Summary**
  Select this choice to display configuration information, including the type, speed, and cache sizes of the microprocessors and the amount of installed memory. When you make configuration changes through other choices in the Configuration/Setup Utility program, the changes are reflected in the system summary; you cannot change settings directly in the system summary.

  - **Processor Summary**
    Select this choice to view information about the microprocessors installed in the blade server.

  - **USB Device Summary**
    Select this choice to view information about the USB devices installed in the blade server.

- **System Information**
  Select this choice to display information about the blade server. When you make configuration changes through other options in the Configuration/Setup Utility program, some of those changes are reflected in the system information; you cannot change settings directly in the system information.

  - **Product Data**
    Select this choice to view the machine type and model of the blade server, the serial number, and the revision level or issue date of the BIOS and diagnostics code that are stored in electrically erasable programmable ROM (EEPROM).

- **Devices and I/O Ports**
  Select this choice to view or change assignments for devices and input/output (I/O) ports.
  You can also enable or disable the integrated SAS and Ethernet controllers, all standard ports (such as serial), and the I/O-expansion card. **Enable** is the default setting for all controllers. If you disable a device, it cannot be configured, and the operating system will not be able to detect it (this is equivalent to disconnecting the device). If you disable the Ethernet controller, the blade server will have no Ethernet capability.
  With an optional Blade Storage Expansion Unit 3 (BSE3), you can control all of the SAS hard disk drives in the host blade server. Set **BSE3 Controls All Blade SAS HDD** to **Enable** to control all of the hard disk drives in the host blade server.

  - **Remote Console Redirection**
    Select this choice to enable Serial over LAN (SOL) and to set remote console communication parameters.

  - **Video**
    Select this choice to view information about the integrated video controller.

  - **System MAC Addresses**
    Select this choice to set and view the MAC addresses for the Ethernet controllers on the blade server.

Note:

MAC addresses are displayed only for those devices with PXE enabled.

- **Date and Time**
  Select this choice to set the system date and time, in 24-hour format (*hour:minute:second*).

- **System Security**
  Select this choice to set a power-on password. See *Using passwords* on page *17* for more information about passwords.

- **Start Options**
  Select this choice to view or change the start options. Changes in the start options take effect when you start the blade server.

  – **Startup Sequence Options**
    Select this choice to view the startup device sequence that is set for the blade server.

Note:

To set the startup sequence, which is the order in which the blade server checks devices to find a boot record, you must use the management-module Web interface.

You can set keyboard operating characteristics, such as whether the blade server starts with the keyboard number lock on or off. You can enable the blade server to run without a diskette drive or keyboard.

You can enable or disable the PXE option for all of the Ethernet controllers in the blade server. The default settings enable the PXE option for the two Ethernet controllers on the system board.

If you enable the boot fail count, the BIOS default settings will be restored after three consecutive failures to find a boot record.

You can enable a virus-detection test that checks for changes in the boot record when the blade server starts.

- **Advanced Setup**

  Select this choice to change settings for advanced hardware features.

Important:

The blade server might malfunction if these settings are incorrectly configured. Follow the instructions on the screen carefully.

- **Memory Settings**

  Select this choice to manually enable a pair of memory connectors.

  If a memory error is detected during POST or memory configuration, the blade server automatically disables the failing memory pair of memory connectors and continues operating with reduced memory. After the problem is corrected, you must enable the memory connectors. Use the arrow keys to highlight the pair of memory connectors that you want to enable, and use the arrow keys to select **Enable**.

  To maintain optimum system operation in the event of a memory failure, you can set memory configuration to sparing. Memory sparing removes the failed memory from the system configuration and activates a hot spare memory pair of DIMMs to replace the failed memory pair of DIMMs. Before you can enable the memory sparing, at least two pairs of DIMMs must be installed in the blade server that adhere to the special requirements that are described in *Installing a memory module* on page 37. Set **Memory Configuration** to **Flat** to disable memory mirroring and sparing.

- **Microprocessor Options**

  Select this menu item to disable the microprocessor cache or to set the microprocessor cache to use the write-back or write-through method. Write-back caching generally provides better system performance.
  You can also select this menu item to enable or disable hyper-threading and adjust microprocessor performance settings. If hyper-threading is enabled, it is active only if it is supported by your operating system.

- **PCI Bus Control**

  Select this choice to view and set interrupts for PCI devices and to configure the master-latency-timer value for the blade server.

- **Baseboard Management Controller (BMC) Settings**

  You can select this menu item to enable or disable and set the timeouts for the POST and OS loader watchdog timers and view BMC version information.

  - **BMC Network Configuration**

    Select this choice to set the network addresses of the BMC.

  - **BMC System Event Log**

    Select this choice to view and clear BMC event log entries.

- **Save Settings**

  Select this choice to save the changes that you have made in the settings.

- **Restore Settings**

  Select this choice to cancel the changes that you have made in the settings and restore the previous settings.

- **Load Default Settings**
  Select this choice to cancel the changes that you have made in the settings and restore the factory settings.

- **Exit Setup**
  Select this choice to exit from the Configuration/Setup Utility program. If you have not saved the changes that you have made in the settings, you are asked whether you want to save the changes or exit without saving them.

2.1.2   Using passwords

From the **System Security** choice, you can set, change, and delete a power-on password.

If you set a power-on password, you must type the power-on password to complete the system startup and to have access to the Configuration/Setup Utility menu.

You can use any combination of up to seven characters (A–Z, a–z, and 0–9) for the password. Keep a record of your password in a secure place.

If you forget the power-on password, you can regain access to the blade server in by removing the blade server battery and then reinstalling it or by using the power-on password override switch (see the *Problem Determination and Service Guide* on the *Resource DVD* for instructions).

2.2   Installing the operating system

If you have already configured the blade server hardware, download the latest operating-system installation instructions from the Bull Support Web site:
http://www.bull.com/support/.

2.3　Using the PXE boot agent utility program

Use the Preboot Execution Environment (PXE) boot agent utility program to select the boot protocol and other boot options and to select a power-management option.

☞ Notes:

- The blade server does not support Remote Program Load (RPL) selection for the boot protocol option.
- Enabling PXE might reduce the number of optional expansion modules that your blade server can manage.

To start the PXE boot agent utility program, complete the following steps:

1. Turn on the server.

2. When the `Broadcom  NetXtreme  Boot  Agent  vX.X.X` prompt is displayed, press Ctrl+S. You have 2 seconds (by default) to press Ctrl+S after the prompt is displayed.
   If the PXE setup prompt is not displayed, use the Configuration/Setup Utility program to set the **Enable Ethernet PXE/DHCP** option.

3. Use the arrow keys or press Enter to select a choice from the menu.

4. Follow the instructions on the screen to change the settings of the selected items; then, press Enter.

2.4　Firmware updates

Bull periodically provides BIOS code, service processor (BMC) firmware, and diagnostic firmware updates available for the blade server. Before you install the blade server in a Blade Chassis, go to http://www.bull.com/support/ to download the latest firmware for the blade server. Install the updates, using the instructions that are included with the downloaded files.

⚠ Important:
To avoid problems and to maintain system performance, always make sure that the BIOS code, service processor (BMC) firmware, and diagnostic firmware levels are consistent for all blade servers within the Blade Chassis.

2.5   Configuring the Gigabit Ethernet controllers

One Ethernet controller is integrated on the blade server system board. Each controller provides a 1000 Mbps full-duplex interface for connecting to one of the Ethernet-compatible I/O modules in I/O-module bays 1 and 2, which enables simultaneous transmission and reception of data on the Ethernet local area network (LAN). The Ethernet controller on the system board is routed to a different I/O module in I/O-module bay 1 or bay 2. The routing from an Ethernet controller to an I/O-module bay varies according to the blade server type and the operating system that is installed.

You do not have to set any jumpers or configure the controllers for the blade server operating system. However, you must install a device driver to enable the blade server operating system to address the Ethernet controllers. For device drivers and information about configuring the Ethernet controllers, see the *Resource DVD* that comes with the blade server.

Important:
To support failover on the blade server Ethernet controllers, the Ethernet switch modules in the Blade Chassis must have identical configurations.

2.6   Configuring a SAS RAID array

Use this information to configure a SAS RAID array.

Configuring a SAS RAID array applies only to a blade server in which two SAS storage drives are installed.

You can use two SAS storage drives in the blade server to implement and manage RAID level-0 (striping) or RAID level-1 (mirror) arrays (see http://www.support.bull.com for information. For the blade server, you must configure the SAS RAID by using the LSI Configuration Utility program.

If an optional expansion unit is installed, you can use it to control all of the SAS storage drives that are installed in the blade server. Enable this feature by using the **Device and I/O Ports** choice in Configuration/Setup Utility program (see Configuration/Setup Utility menu choices on page 14 for information and instructions).
Important: You must create the RAID array *before* you install the operating system on the blade server.

You can use the LSI Logic Configuration Utility program to configure the SAS storage drives and the SAS controller. To start the LSI Logic Configuration Utility, complete the following steps:

1. Turn on the blade server (make sure that the blade server is the owner of the keyboard, video, and mouse). See *Turning on the blade server* on page 8.

2. When the message Press **Ctrl-C** to start LSI Logic Configuration Utility is displayed, press **F1**. If an administrator password has been set, you must type the administrator password to access the full LSI Logic Configuration Utility menu.

3. Follow the instructions on the screen to modify the SAS storage drive and SAS controller settings.

2.7   Using the LSI Logic Configuration Utility program

You can use the LSI Logic Configuration Utility program to perform the following tasks:

- Set the SAS device scan order.

- Set the SAS ID for the controller.

- Manage the SAS RAID configuration.

To start the LSI Logic Configuration Utility program, complete the following steps:

1. Turn on the blade server, and make sure that the blade server is the owner of the keyboard, video, and mouse.

2. When the `<<<Press Ctrl-C to start LSI Logic Configuration Utility>>>` prompt is displayed, press Ctrl-C.

3. Use the arrow keys to select the controller from the list of adapters; then, press Enter.

4. Follow the instructions on the screen to change the settings of the selected items; then, press Enter. If you select **RAID Properties, SAS Topology** or **Advanced Adapter Properties**, additional screens are displayed.

Chapter 3. Parts listing

The following replaceable components are available for the Bull NovaScale Blade B240 server.

☞ **Note:**

The illustrations in this document might differ slightly from your hardware.
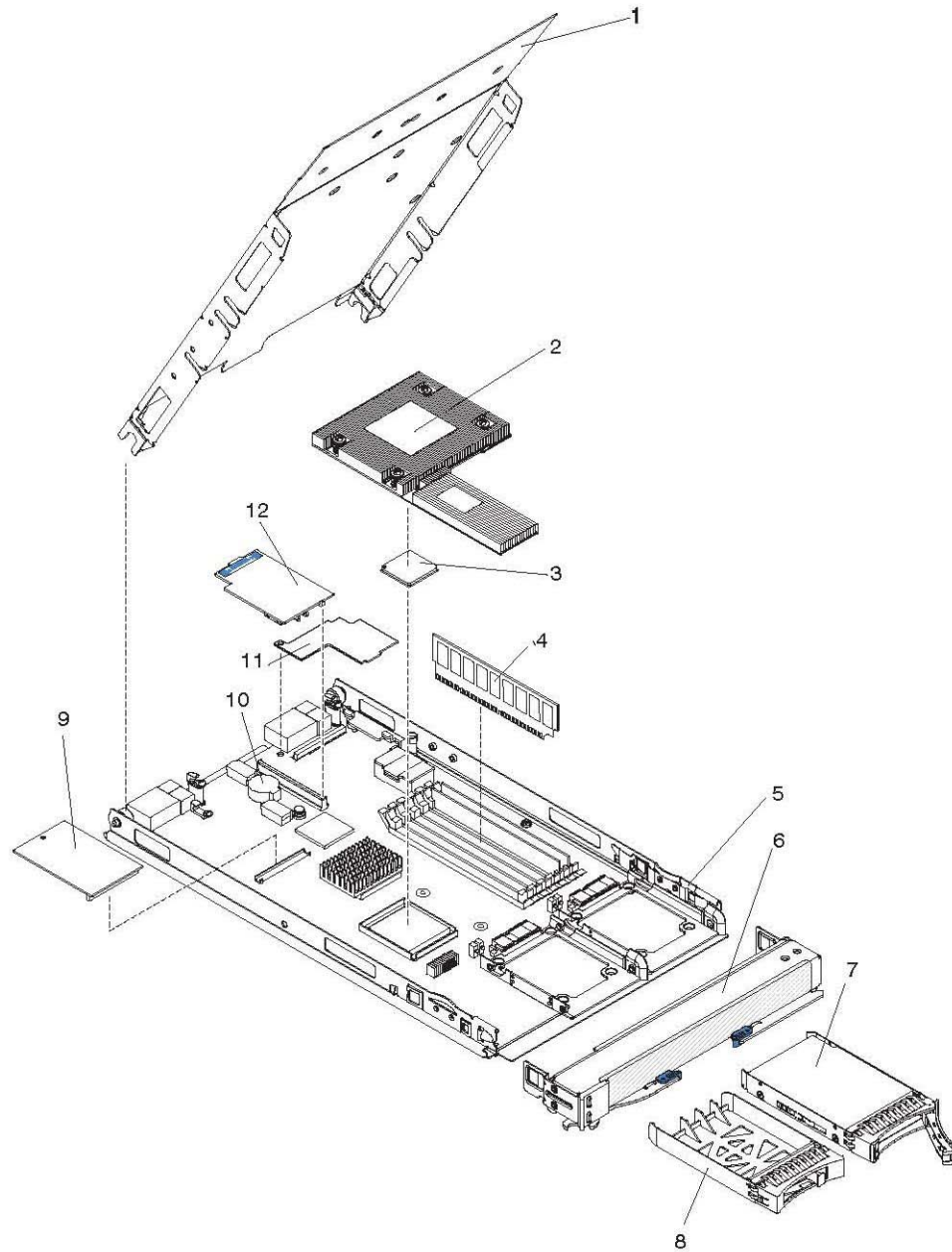
Figure 3-1.   Blade server parts

For information about the terms of the warranty and getting service and assistance, see the *Bull Hardware Product Warranty* document.

Index	Description
1	Cover (all models)
2	Heat sink, microprocessor (all models)
3	Microprocessor 3 GHz/1333-6M (dual core)
3	Microprocessor 2.50 GHz/1333-12M (quad core)
3	Microprocessor 2.83 GHz/1333-12M (quad core)
4	Memory, 1 GB VLP ECC DDR2
4	Memory, 2 GB VLP ECC DDR2
4	Memory, 4 GB VLP ECC DDR2
5	System board assembly
6	Front bezel
7	Hard disk drive, 2.5 inch hot-swap SAS 73 GB, 10 KHz, (option)
7	Hard disk drive, 2.5 inch hot-swap SAS 73 GB, 15 KHz, (option)
7	Hard disk drive, 2.5 inch hot-swap SAS 146 GB, 10 KHz, (option)
8	Hot-swap storage-bay filler
9	SAS storage interface card
10	Battery, 3.0 volt (all models)
11	Card, cKVM card (option)
12	SAS connectivity card
	Kit, miscellaneous parts (all models)

Table 3-1.   Blade server parts table

Chapter 4. Removing and replacing blade server components

4.1   Installation guidelines

Before you install options, read the following information:

- Read the safety information that begins on page v and the guidelines in *Handling static-sensitive devices*, on page 24. This information will help you work safely.

- When you install your new blade server, take the opportunity to download and apply the most recent firmware updates. This step will help to ensure that any known issues are addressed and that your blade server is ready to function at maximum levels of performance. To download firmware updates for your blade server, go to http://www.bull.com/support/.

- Observe good housekeeping in the area where you are working. Place removed covers and other parts in a safe place.

- Back up all important data before you make changes to disk drives.

- Before you remove a blade server from the Blade Chassis, you must shut down the operating system and turn off the blade server. You do not have to shut down the Blade Chassis itself.

- Blue on a component indicates touch points, where you can grip the component to remove it from or install it in the blade server, or open or close a latch.

- Orange on a component or an orange label on or near a component indicates that the component can be hot-swapped, which means that you can remove or install the component while the Blade Chassis is running. (Orange can also indicate touch points on hot-swap components.) See the instructions for removing or installing a specific hot-swap component for any additional procedures that you might have to perform before you remove or install the component.

- When you are finished working on the blade server, reinstall all safety shields, guards, labels, and ground wires.

4.2   System reliability guidelines

To help ensure proper cooling and system reliability, make sure that the following requirements are met:

- Each microprocessor socket always contains either a microprocessor heat-sink filler or a microprocessor and heat sink. If the blade server has only one microprocessor, it must be installed in microprocessor socket 1.
- You do not operate the Blade Chassis without a blade server, expansion unit, or filler blade installed in each blade bay to ensure proper cooling. See the documentation for your Blade Chassis type for additional information.
- The blade server battery must be operational. If the battery becomes defective, replace it immediately. For instructions, see the *Problem Determination and Service Guide.*

4.2.1   Handling static-sensitive devices

> **Attention:**
> Static electricity can damage the blade server and other electronic devices. To avoid damage, keep static-sensitive devices in their static-protective packages until you are ready to install them.

To reduce the possibility of damage from electrostatic discharge, observe the following precautions:

- When you work on a Blade Chassis that has an electrostatic discharge (ESD) connector, use a wrist strap when you handle modules, optional devices, or blade servers. To work correctly, the wrist strap must have a good contact at both ends (touching your skin at one end and firmly connected to the ESD connector on the front or back of the Blade Chassis).
- Limit your movement. Movement can cause static electricity to build up around you.
- Handle the device carefully, holding it by its edges or its frame.
- Do not touch solder joints, pins, or exposed circuitry.
- Do not leave the device where others can handle and damage it.
- While the device is still in its static-protective package, touch it to an *unpainted* metal part of the Blade Chassis or any *unpainted* metal surface on any other grounded rack component in the rack in which you are installing the device for at least 2 seconds. This drains static electricity from the package and from your body.
- Remove the device from its package and install it directly into the blade server without setting it down. If it is necessary to set down the device, put it back into its static-protective package. Do not place the device on the blade server cover or on a metal surface.
- Take additional care when you handle devices during cold weather. Heating reduces indoor humidity and increases static electricity.

4.2.2   Returning a device or component

If you are instructed to return a device or component, follow all packaging instructions, and use any packaging materials for shipping that are supplied to you.

4.3   Removing the blade server from a Blade Chassis

⚠️ Attention:

- To maintain proper system cooling, do not operate the Blade Chassis without a blade server, expansion unit, or blade filler installed in each blade bay.
- Note the bay number. Reinstalling a blade server into a different bay than the one from which it was removed could have unintended consequences. Some configuration information and update options are established according to bay number; if you reinstall the blade server into a different bay, you might have to reconfigure the blade server.

To remove the blade server from a Blade Chassis, complete the following steps. The appearance of your Blade Chassis might be different, see the documentation for your Blade Chassis for additional information.

Release handles (open)
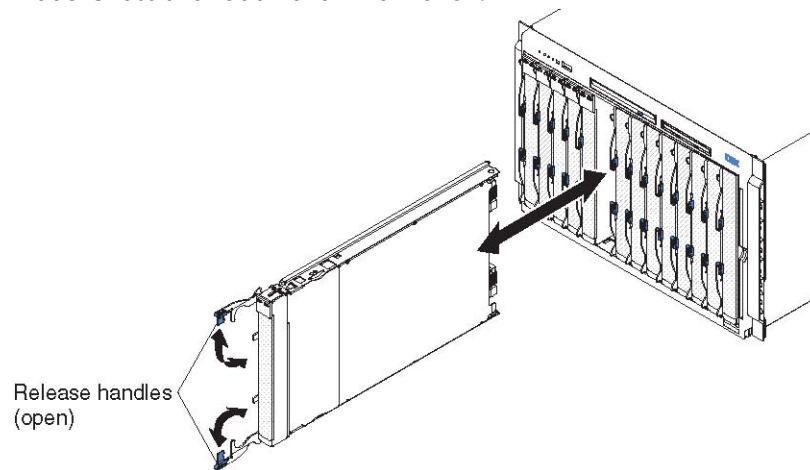
Figure 4-1.   Removing the blade server from a Blade Chassis

1. Read the safety information that begins on page ix and *Installation guidelines*, on page 23.

2. If the blade server is operating, shut down the operating system; then, press the power-control button (behind the blade server control panel door) to turn off the blade server (see *Turning off the blade server*, on page 8 for more information).

⚠️ Attention:
Wait at least 30 seconds, until the hard disk drives stop spinning, before proceeding to the next step.

3. Pull the two release handles to the open position as shown in the illustration. The blade server moves out of the bay approximately 0.6 cm (0.25 inch).

4. Pull the blade server out of the bay.

5. Place either a blade filler or another blade server in the bay within 1 minute.

4.4   Installing the blade server in a Blade Chassis

To install a blade server in a Blade Chassis, complete the following steps. The appearance of your Blade Chassis might be different, see the documentation for your Blade Chassis for additional information.
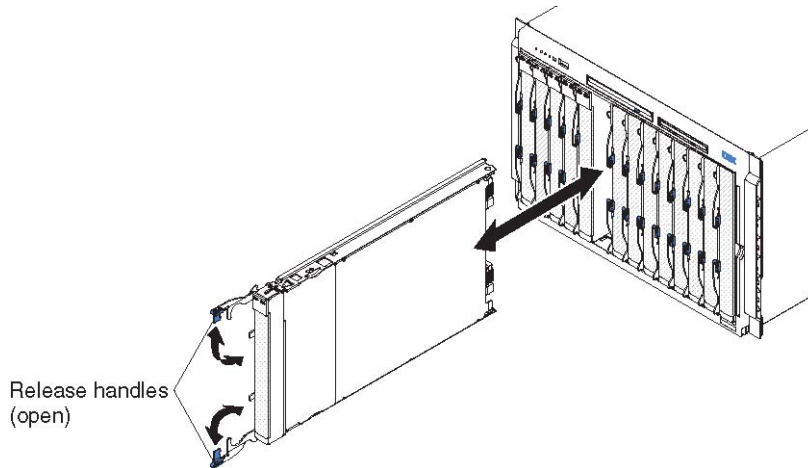
Figure 4-2.   Installing the blade server in a Blade Chassis

Statement 21:

CAUTION:
Hazardous energy is present when the blade is connected to the power source. Always replace the blade cover before installing the blade.

1.   Read the safety information that begins on page ix and *Installation guidelines*, on page 23.

2.   Make sure that the release handles on the blade server are in the open position (perpendicular to the blade server).

3.   If you installed a blade filler or another blade server in the bay from which you removed the blade server, remove it from the bay.

Attention:
You must install the blade server in the same blade bay from which you removed it. Some blade server configuration information and update options are established according to bay number. Reinstalling a blade server into a different blade bay from the one from which it was removed could have unintended consequences, and you might have to reconfigure the blade server.

4.   Slide the blade server into the blade bay from which you removed it until it stops.

5.   Push the release handles on the front of the blade server closed.

6.   Turn on the blade server (see *Turning on the blade server*, on page 8 for instructions).

7. Make sure that the power-on LED on the blade server control panel is lit continuously, indicating that the blade server is receiving power and is turned on.

8. (Optional) Write identifying information on one of the labels that come with the blade servers and place the label on the Blade Chassis bezel. See the documentation for your Blade Chassis for information about the label placement.

Important:
Do not place the label on the blade server or in any way block the ventilation holes on the blade server.

If you have changed the configuration of the blade server or if you are installing a different blade server from the one that you removed, you must configure the blade server through the Configuration/Setup Utility, and you might have to install the blade server operating system. Detailed information about these tasks is available in the *Installation and User's Guide*.

4.5 Removing and blade server parts

Replacement the following blade server parts is your responsibility. If Bull installs one at your request, you will be charged for the installation.

The illustrations in this document might differ slightly from your hardware.

4.5.1 Removing the blade server cover

To remove the blade server cover, complete the following steps.

Figure 4-3.   Removing the blade server cover

1. Read the safety information that begins on page ix and *Installation guidelines*, on page 23.

2. If the blade server is installed in a Blade Chassis, remove it (see *Removing the blade server from a Blade Chassis*, on page 25 for instructions).

3. Carefully lay the blade server down on a flat, static-protective surface, with the cover side up.

4. Press the blade-cover release on each side of the blade server or expansion unit and lift the cover open, as shown in the illustration.

5. Lift the cover from the blade server and store it for future use.

4.5.2 Installing the blade server cover

To install the blade server cover, complete the following steps.
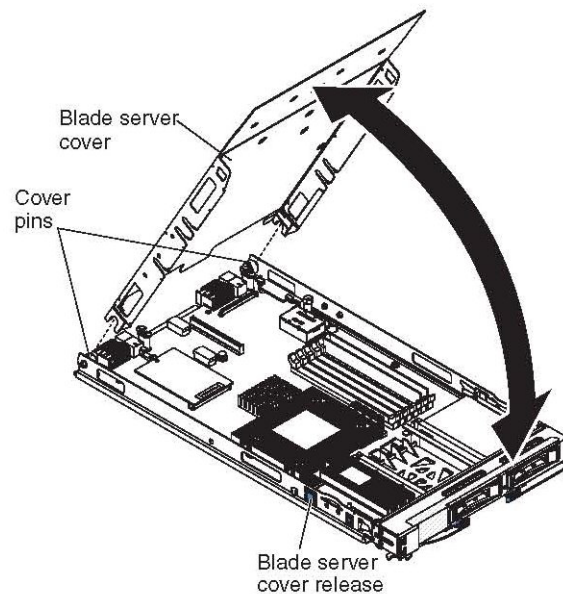
Figure 4-4.   Installing the blade server cover

⚠️ **Attention:**
You cannot insert the blade server into the Blade Chassis until the cover is installed and closed. Do not attempt to override this protection.

1. Read the safety information that begins on page ix and *Installation guidelines*, on page 23.

2. Lower the cover so that the slots at the rear slide down onto the pins at the rear of the blade server. Before closing the cover, check that all components are installed and seated correctly and that you have not left loose tools or parts inside the blade server.

3. Pivot the cover to the closed position until it clicks into place.

4. Install the blade server into the Blade Chassis (see *Installing the blade server in a Blade Chassis*, on page 26 for instructions).

4.5.3　Removing an optional expansion unit

To remove the expansion unit, complete the following steps.
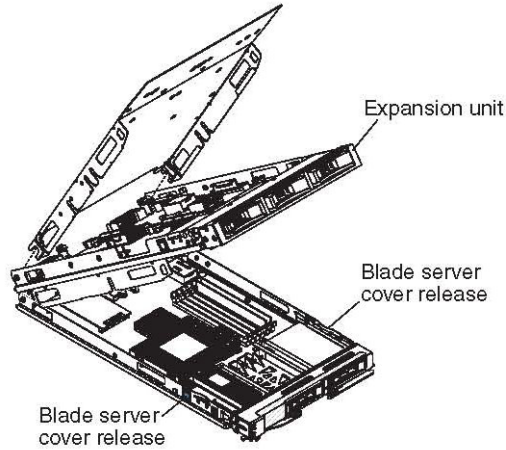
Figure 4-5.　Removing an expansion unit

1. Read the safety information beginning on page vii and *Installation guidelines*, on page 23.

2. If the blade server is installed in a Blade Chassis, remove it (see *Removing the blade server from a Blade Chassis*, on page 25 for instructions).

3. Carefully lay the blade server down on a flat, static-protective surface, with the cover side up.

4. Remove the blade server cover, if one is installed (see *Removing the blade server cover*, on page 28 for instructions).

5. Remove the expansion unit:

    a. Press the blade-cover release on each side of the blade server.

    b. Use the extraction device on the expansion unit, if one is present, to disengage the expansion unit from the system board. These extraction devices can be of several types, including thumb screws or levers.

    c. Rotate the expansion unit open; then, lift the expansion unit from the blade server.

4.5.4   Installing an optional expansion unit

☞ **Note:**

If a high-speed expansion card is installed on the blade server system board, you cannot install an expansion unit.

The following illustration shows how to install an expansion unit on a blade server.
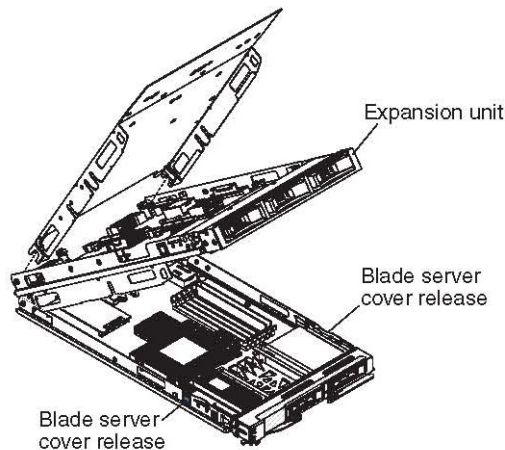
Figure 4-6.   Installing an expansion unit

1. Read the safety information beginning on page vii and *Installation guidelines*, on page 23.

2. If the blade server is installed in a Blade Chassis, remove it (see *Removing the blade server from a Blade Chassis*, on page 25 for instructions).

3. Open the blade server cover (see *Removing the blade server cover* on page 28 for instructions).

4. Remove the protective covers from the blade expansion connectors, if they are present.

5. Touch the static-protective package that contains the expansion unit to any *unpainted* metal surface on the Blade Chassis or any *unpainted* metal surface on any other grounded rack component; then, remove the expansion unit from the package.

6. Orient the expansion unit as shown in the illustration.

7. Lower the expansion unit so that the slots at the rear slide down onto the cover pins at the rear of the blade server.

8. Close the expansion unit (see the documentation for the expansion unit for information and instructions):

a. If the expansion unit has an extraction device, pivot the expansion unit closed; then, use the extraction device to fully seat the expansion unit on the system board. These extraction devices can be of several types, including thumbscrews or levers.

b. If the expansion unit has no extraction device, pivot the expansion unit closed; then, press the expansion unit firmly into place until the blade-cover releases click.

The connectors on the expansion unit automatically align with and connect to the connectors on the system board.

☞ Note:

Some expansion units have their own cover and do not require installation of a separate blade server cover.

9. Install the blade server cover, if required (see *Installing the blade server cover* on page 29).

10. Install the blade server into the Blade Chassis (see *Installing the blade server in a Blade Chassis*, on page 26 for instructions).

4.5.5   Removing the bezel assembly

To remove the bezel assembly, complete the following steps.
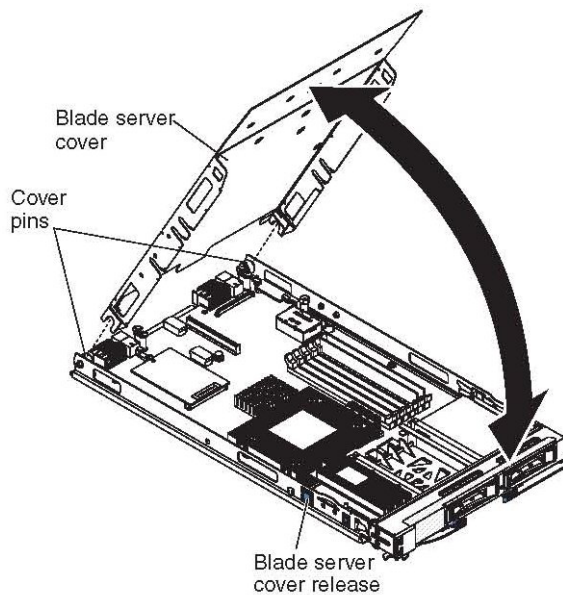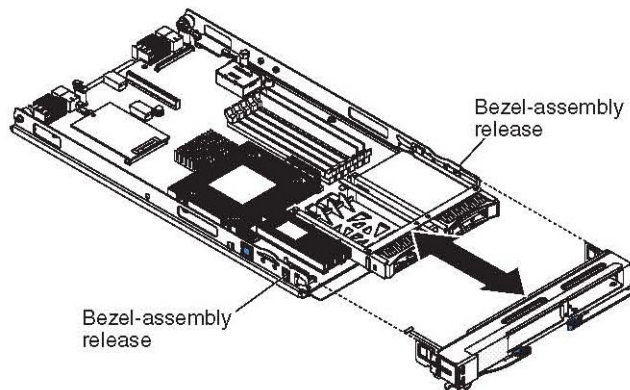

Figure 4-7.   Removing the bezel assembly

1. Read the safety information that begins on page ix and *Installation guidelines*, on page 23.

2. If the blade server is installed in a Blade Chassis, remove it (see *Removing the blade server from a Blade Chassis*, on page 25 for instructions).

3. Open the blade server cover (see *Removing the blade server cover*, on page 28 for instructions).

4. Press the bezel-assembly release on each side of the blade server and pull the bezel assembly away from the blade server approximately 1.2 cm (0.5 inch).

5. Disconnect the control panel cable from the control panel connector.

6. Pull the bezel assembly away from the blade server.

7. Store the bezel assembly in a safe place.

4.5.6   Installing the bezel assembly

To install the bezel assembly, complete the following steps.
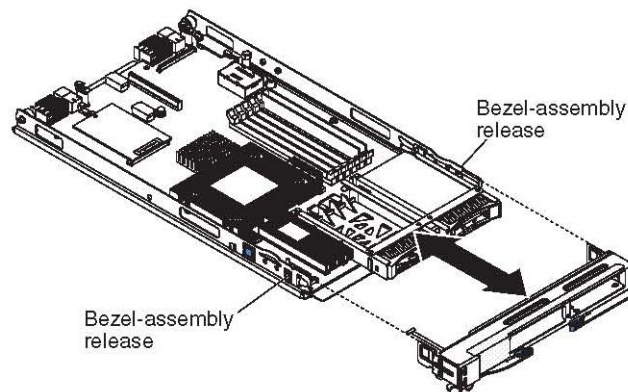
Figure 4-8.   Installing the bezel assembly

1. Read the safety information that begins on page ix and *Installation guidelines*, on page 23.

2. Connect the control-panel cable to the control-panel connector on the system board.

3. Carefully slide the bezel assembly onto the blade server until it clicks into place.

4. Install the blade server cover (see *Installing the blade server cover* on page 29).

5. Install the blade server into the Blade Chassis (see *Installing the blade server in a Blade Chassis*, on page 26 for instructions).

4.5.7   Removing a hot-swap SAS hard disk drive

To remove a SAS hard disk drive, complete the following steps.
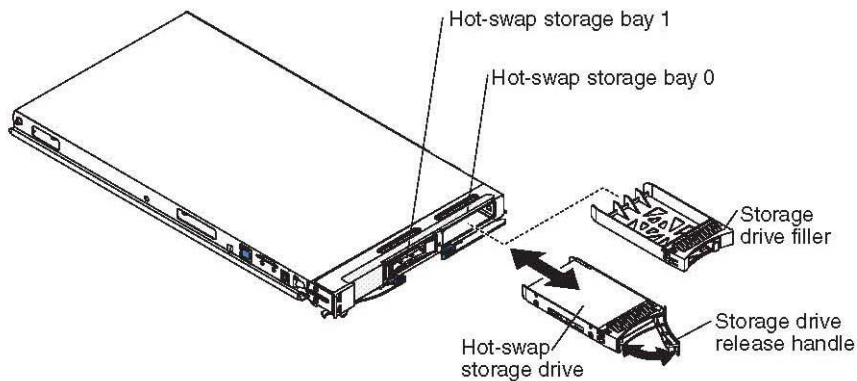
Figure 4-9.   Removing a SAS hard disk drive

1. Read the safety information that begins on page ix and *Installation guidelines*, on page 23.

2. Press the arrow on the storage drive release handle to release the hard disk drive and use the release handle to pull the drive away from the storage bay.

3. If you are instructed to return the hard disk drive, follow all packaging instructions, and use any packaging materials for shipping that are supplied to you.

4.5.8　Installing a hot-swap SAS hard disk drive

Use this information to install a hot-swap storage drive in the blade server.

The blade server has two storage bays for installing or removing hot-swap storage devices, such as SAS storage drives.

☞ **Notes:**

- The following illustration shows how to install a hot-swap storage drive in a blade server.
- The illustrations in this document might differ slightly from your hardware.

At least one storage drive might already be installed in storage bay 0. If the blade server is equipped with one storage drive, you can install an additional drive in storage bay 1. These two SAS hard disk drives can be used to implement and manage a redundant array of independent disks (RAID) level-1 array. See *Configuring a SAS RAID array* on page 19 for information about SAS RAID configuration.

To install a hot-swap storage drive, complete the following steps.
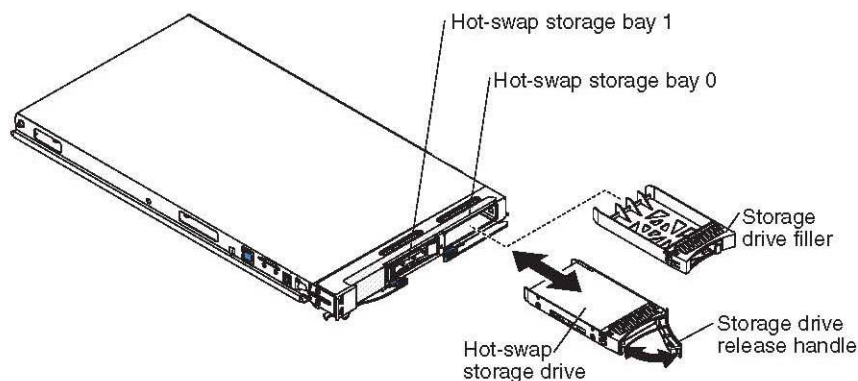
Figure 4-10. Installing a SAS hard disk drive

1. Read the safety information that begins on page ix and *Installation guidelines*, on page 23.

2. Identify the hot-swap storage bay (hot-swap storage bay 0 or hot-swap storage bay 1) in which the hard disk drive will be installed.

3. If a storage-drive filler is installed, remove it from the storage bay by lifting the release levers and pulling it away from the blade server.

4. Touch the static-protective package that contains the hard disk drive to any *unpainted* metal surface on the blade unit or any *unpainted* metal surface on any other grounded rack component; then, remove the hard disk drive from the package.

5. Press the arrow on the storage drive release handle to release the hard disk drive and use the release handle to slide the drive into the storage bay until it is firmly seated in the connector.

6. Lock the hard disk drive into place by closing the storage drive release handle.

4.5.9   Removing a memory module

Notes:

- The following illustration shows the location of the DIMM connectors on the system board.
- The illustrations in this document might differ slightly from your hardware.

To remove a DIMM, complete the following steps.

Figure 4-11. Removing a DIMM baffle

1. Read the safety information that begins on page ix and *Installation guidelines*, on page 23.

2. If the blade server is installed in a Blade Chassis, remove it (see *Removing the blade server from a Blade Chassis*, on page 25).

3. Remove the blade server cover (see *Removing the blade server cover*, on page 28 for instructions).

4. Locate the DIMM.

⚠ CAUTION:
To avoid breaking the retaining clips or damaging the DIMM connectors, handle the clips gently.

5. Move the retaining clips on the ends of the DIMM connector to open position by pressing the retaining clips away from the center of the DIMM connector.
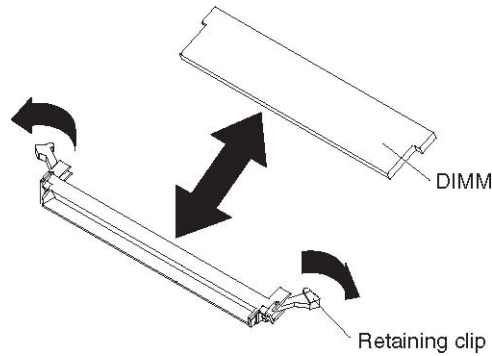
6. Using your fingers, remove the DIMM baffle from the system board.

7. If you are instructed to return the DIMM, follow all packaging instructions, and use any packaging materials for shipping that are supplied to you.

4.5.10   Installing a memory module

Use these instructions to install memory modules in the blade server.

☞ Notes:
- The following illustration shows the location of the DIMM connectors on the system board.
- The illustrations in this document might differ slightly from your hardware.

The following notes describe the types of direct inline memory modules (DIMMs) that the blade server supports and other information that you must consider when you install DIMMs:

- The system board has DIMM connectors.

- The server supports two-way memory interleaving.

- The optional DIMMs that are available for the blade server are 512 MB, 1 GB, 2 GB, and 4 GB. Depending on the memory configuration that is set in the Configuration/Setup Utility program, the blade server can support a minimum of 1 GB and a maximum of 24 GB of system memory on the system board.

- When you install memory, you must install a pair of matched DIMMs. Some blade server models come with one DIMM installed in DIMM slot 1. In this case, you must order and install a second matched DIMM in DIMM slot 2. Install the DIMMs in the order shown in the following table.

Pair	DIMM pairs and location
First	DIMM 1 and DIMM 2
Second	DIMM 3 and DIMM 4
Third	DIMM 5 and DIMM 6

Table 4-1.   DIMM installation order

- All DIMMs in a pair or group must be the same size, speed, type, technology, and physical design. You can use compatible DIMMs from different manufacturers.

- Install only ECC DDR2 667 DRAM with ECC DIMMs.

- Installing or removing DIMMs changes the configuration information of the blade server. After you install or remove a DIMM, you must change and save the new configuration information by using the Configuration/Setup Utility program. When you restart the blade server, a message indicates that the memory configuration has changed. Start the Configuration/Setup Utility program and select **Save Settings** (see *Configuration/Setup Utility menu choices* on page 14 for more information) to save changes.

To install a DIMM, complete the following steps:

1. Read the safety information that begins on page vii and *Installation guidelines* on page 23.

2. Read the documentation that comes with the DIMMs.

3. If the blade server is installed in a Blade Chassis unit, remove it (see *Removing the blade server from a Blade Chassis* on page 25 for instructions).

4. Remove the blade server cover (see *Removing the blade server cover* on page 28 for instructions).

5. If an optional expansion unit is installed, remove the expansion unit (see *Removing an optional expansion unit* on page 30).

6. Locate the DIMM connectors. Determine the connector into which you will install the DIMM.
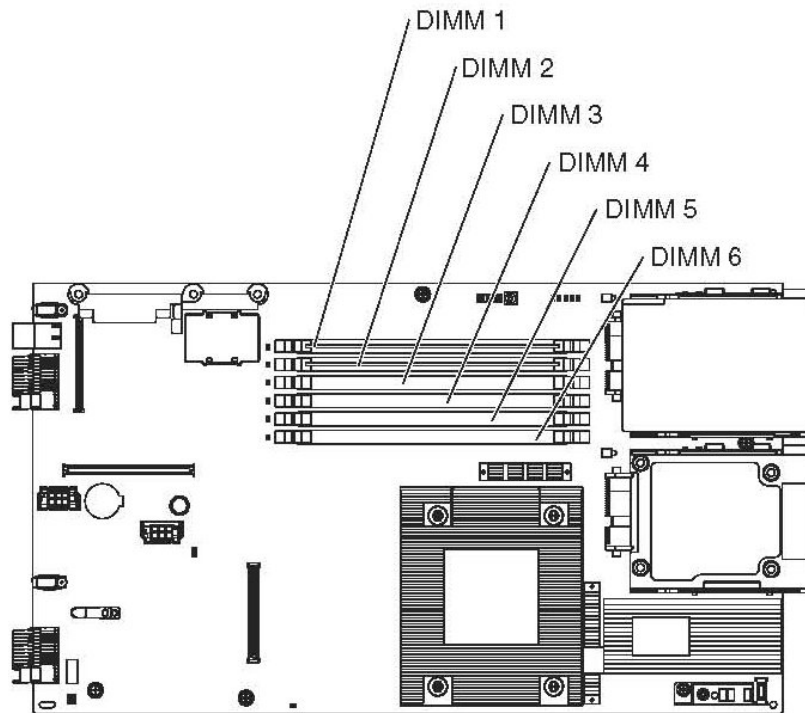
Figure 4-12. DIMM connectors locations

7. Touch the static-protective package that contains the DIMM to any *unpainted* metal surface on the Blade Chassis unit or any *unpainted* metal surface on any other grounded rack component in the rack in which you are installing the DIMM for at least 2 seconds; then, remove the DIMM from its package.

8. To install the DIMMs, repeat the following steps for each DIMM that you install:
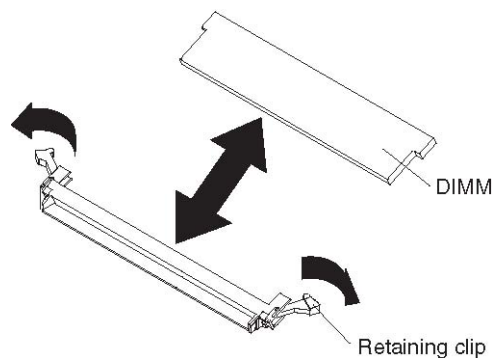
Figure 4-13. Installing a DIMM

a. Turn the DIMM so that the DIMM keys align correctly with the connector on the system board.
    Attention: To avoid breaking the retaining clips or damaging the DIMM connectors, handle the clips gently.

b. Make sure that the small tabs on the retaining clips are in the notches on the DIMM. If there is a gap between the DIMM and the retaining clips, the DIMM has not been correctly installed. Press the DIMM firmly into the connector, and then press the retaining clips toward the DIMM until the tabs are fully seated. When the DIMM is correctly installed, the retaining clips are parallel to the sides of the DIMM.
Important: If there is a gap between the DIMM and the retaining clips, the DIMM has not been correctly installed. In this case, open the retaining clips and remove the DIMM; then, reinsert the DIMM.

9. Install the optional expansion unit, if you removed one from the blade server to remove a DIMM (see *Installing an optional expansion unit* on page 31).

10. Install the blade server cover, if required (see *Installing the blade server cover* on page 29).

11. Install the blade server into the Blade Chassis (see *Installing the blade server in a Blade Chassis*, on page 26 for instructions).

4.5.11   Removing a Concurrent KVM Feature Card

The blade server provides a connector for installation of an optional Concurrent KVM (cKVM) Feature Card.

To remove a cKVM Feature Card, complete the following steps.

Figure 4-14. Removing a Concurrent KVM Feature Card

1. Read the safety information that begins on page ix and *Installation guidelines*, on page 23.

2. If the blade server is installed in a Blade Chassis, remove it (see *Removing the blade server from a Blade Chassis*, on page 25).

3. Remove the blade server cover (see *Removing the blade server cover*, on page 28 for instructions).

4. If a small-form-factor expansion card or a high-speed expansion card is installed, remove it (see *Removing an I/O expansion card*, on page 42 or *Removing a high-speed expansion card* on page 46).

5. Gently pivot the narrow end of the card out of the cKVM card connectors; then, slide the notched end of the card out of the tabs on the expansion card bracket and lift the card out of the blade server.

6. If you are instructed to return the cKVM Feature Card, follow all packaging instructions, and use any packaging materials for shipping that are supplied to you.

4.5.12   Installing a Concurrent KVM Feature Card

To install a Concurrent KVM (cKVM) Feature Card, complete the following steps.
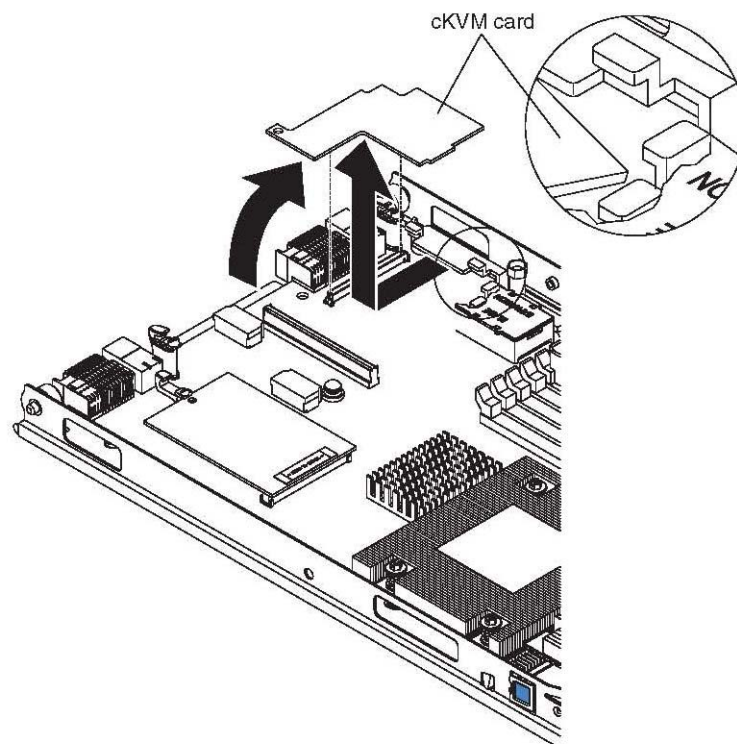
Figure 4-15. Installing a Concurrent KVM Feature Card

1. Touch the static-protective package that contains the expansion card to any *unpainted* metal surface on the Blade Chassis or any *unpainted* metal surface on any other grounded rack component; then, remove the Concurrent KVM Feature Card from the package.

2. Locate the concurrent-KVM connector and orient the Concurrent KVM Feature Card.

3. 3. Slide the right side of the card (the side of the card that is away from the concurrent-KVM connector) between the two tabs at the right side of the expansion card bracket; then, gently pivot the card into the connector.

☞ Note:
For device-driver and configuration information to complete the installation of the Concurrent KVM Feature Card, see the documentation that comes with the card.

4. If you removed a small-form-factor expansion card or a high-speed expansion card, reinstall it (see *Installing an I/O expansion card* on page 43 or *Installing a high-speed expansion card*, on page 47).

5. Install the blade server cover (see *Installing the blade server cover*, on page 29).

6. Install the blade server into the Blade Chassis (see *Installing the blade server in a Blade Chassis*, on page 26).

4.5.13 Removing an I/O expansion card

To remove an I/O expansion card, complete the following steps.
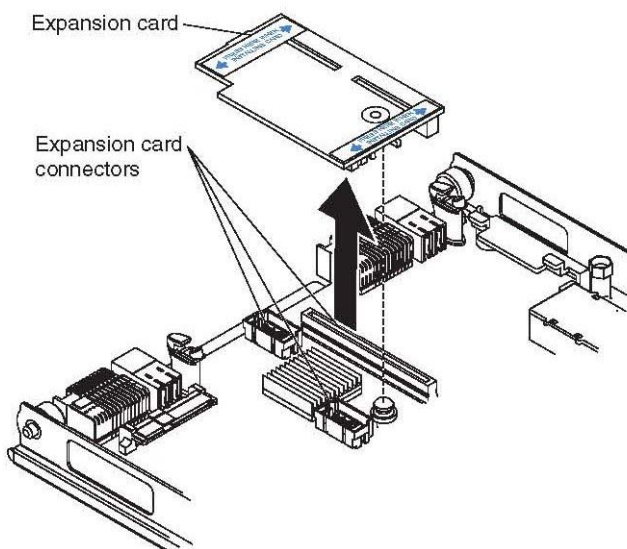
Figure 4-16. Removing a small-form-factor expansion card
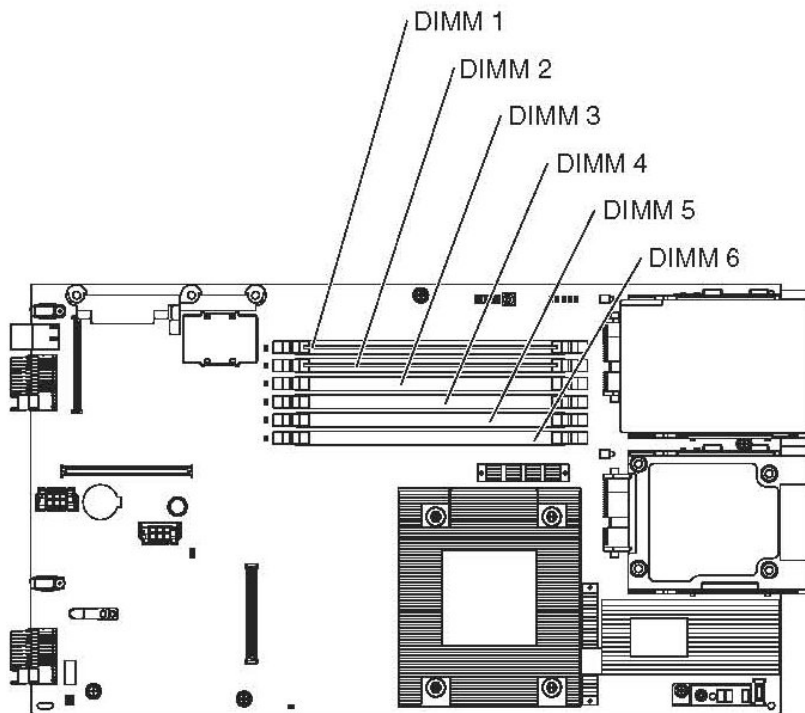
1. Read the safety information that begins on page ix and *Installation guidelines*, on page 23.

2. If the blade server is installed in a Blade Chassis, remove it (see *Removing the blade server from a Blade Chassis*, on page 25).

3. Remove the blade server cover (see *Removing the blade server cover*, on page 28 for instructions).

4. Gently pivot the wide end of the card out of the expansion card connectors; then, slide the notched end of the card out of the raised hook on the expansion card bracket and lift the card out of the blade server.

5. If you are instructed to return the expansion card, follow all packaging instructions, and use any packaging materials for shipping that are supplied to you.

4.5.14   Installing an I/O expansion card

Use these instructions to install an I/O expansion card, such as a SAS connectivity card, and a high-speed expansion card, such as a high-speed expansion card (CFFh), in the blade server. The illustrations show installing a SAS connectivity card and a high-speed expansion card on the system board; installing the cards in an expansion unit is similar.

Before you install the I/O expansion card in a blade server, consider the following expansion card, blade server, and other related device information:

- The appearance of your blade server or system boards might be different from the illustrations in this document.

- Depending on the model of blade server in which the I/O expansion card is being installed, the specific location of connectors and other components might be different from the illustrations in this document.

Make sure that the Bull Chassis unit and the I/O modules to which the I/O expansion card is mapped support the network-interface type of the I/O expansion card. For example, if you add an Ethernet expansion card to a blade server in a Blade Chassis, the I/O modules in I/O-module bays 3 and 4 on the Bull Blade Chassis-Standard must both be compatible with the expansion card. All other expansion cards that are installed in other blade servers in the Blade Chassis unit must also be compatible with these I/O modules. In this example, you can then install two Ethernet switch modules, or two pass-thru modules. Because pass-thru modules are compatible with a variety of I/O expansion cards, installing two pass-thru modules enables the use of several types of compatible I/O expansion cards in blade servers within the same Blade Chassis.

The following illustration shows how to install an I/O expansion card.
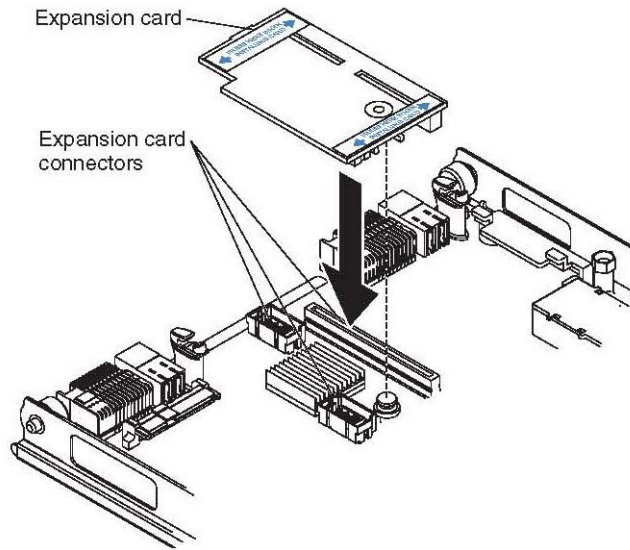
Figure 4-17. Installing an I/O expansion card

To install an I/O expansion card, complete the following steps:

1. Read the safety information that begins on page ix and *Installation guidelines*, on page 23.

2. Turn off the blade server.

3. If the blade server is installed in a Blade Chassis, remove it (see *Removing the blade server from a Blade Chassis*, on page 25).

4. Remove the blade server cover (see *Removing the blade server cover*, on page 28 for instructions).

5. If an optional expansion unit is installed, remove it (see Removing an optional expansion unit on page 30).

6. If the system board in the blade server contains an I/O expansion card, such as a high-speed expansion card, remove the expansion card that is blocking access to these connectors.

7. Touch the static-protective package that contains the expansion card to any *unpainted* metal surface on the Blade Chassis or any *unpainted* metal surface on any other grounded rack component for at least 2 seconds.

8. Remove the I/O expansion card from its static-protective package.

9. Locate the three I/O expansion-card connectors on the system board in the blade server. Note that two of these card connectors are identical.

10. Align the I/O expansion card over the system board in the blade server, so that the three connectors on the reverse side of the card are correctly aligned above the three matching expansion card connectors on the system board in the blade server.
ATTENTION: When you apply pressure to both sides of the expansion card to seat it in the blade server in step, press the card gently, so that you do not damage it.

11. To correctly seat the I/O expansion card in the blade server, press down firmly on all four corners of the card. The two labels on the top ends of the card are blue touch points on the I/O expansion card. One of these labels contains the following statement: **PRESS TO INSTALL**. The I/O expansion card is automatically secured to the system board through the retention clip that is located on the reverse side of the card.

☞ **Note:**
The retention clip is permanently attached to the reverse side of the I/O expansion card. Do *not* attempt to remove the retention clip.

12. If you removed an expansion card that was blocking access to the three I/O expansion-card connectors on the blade-server system board, reinstall the expansion card.

13. Reinstall the cover on the blade server. For instructions, see the *Installation and User's Guide* that comes with your blade server. Turn on the blade server.

☞ **Note:**
For device-driver and configuration information to complete the installation of the I/O expansion card, see the documentation that comes with the expansion card.

14. Install the blade server cover (see *Installing the blade server cover*, on page 29).

15. Install the blade server into the Blade Chassis (see *Installing the blade server in a Blade Chassis*, on page 26. Turn on the blade server, and continue with tou blade system activities.

4.5.15   Removing a high-speed expansion card

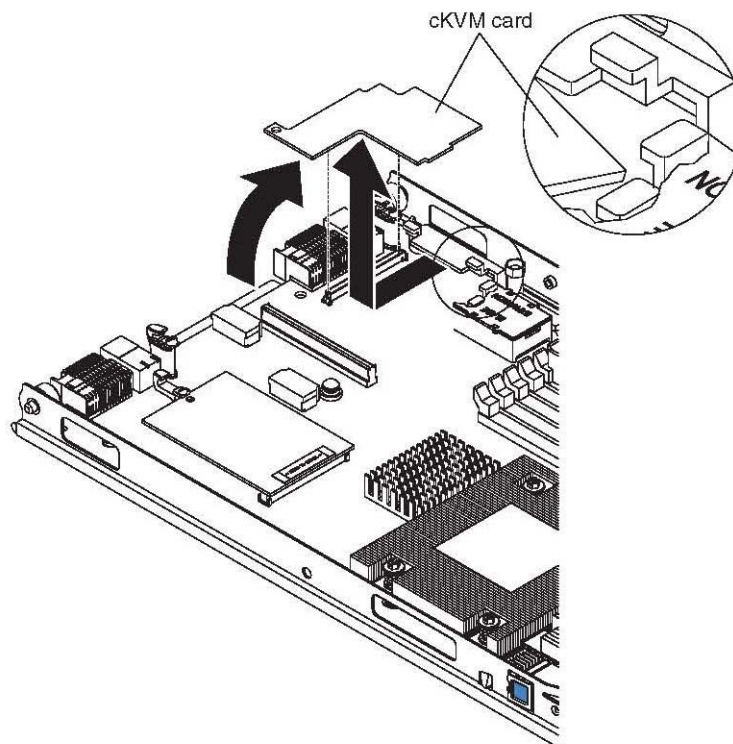To remove a high-speed expansion card, complete the following steps.
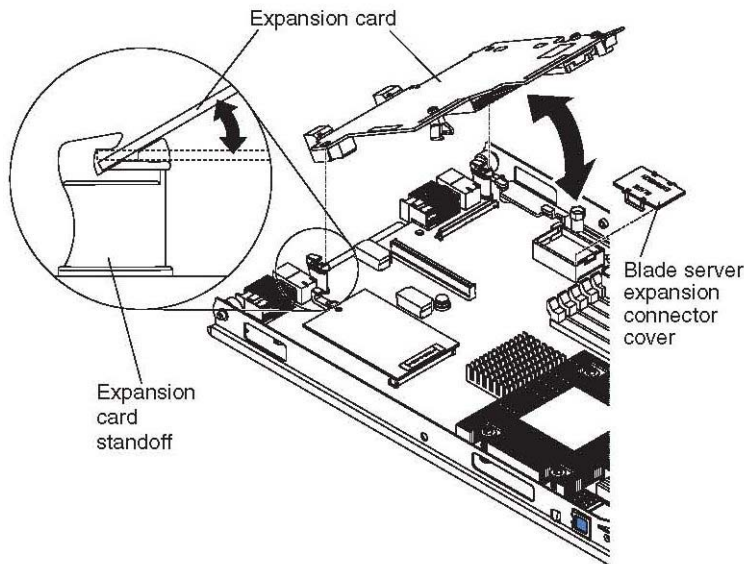
Figure 4-18. Removing a high-speed expansion card

1. Read the safety information that begins on page ix and *Installation guidelines*, on page 23.

2. If the blade server is installed in a Blade Chassis, remove it (see *Removing the blade server from a Blade Chassis*, on page 25).

3. Remove the blade server cover (see *Removing the blade server cover*, on page 28 for instructions).

4. If an optional expansion unit is installed, remove it (see Removing an optional expansion unit on page 30).

5. Pivot the narrow end of the card away from the blade expansion connector; then, slide the slots at the back end of the card out of the expansion-card standoffs and lift the card out of the blade server.

6. If you are instructed to return the expansion card, follow all packaging instructions, and use any packaging materials for shipping that are supplied to you.

4.5.16 Installing a high-speed expansion card

☞ Notes:

- High-speed expansion cards are *not* supported by all Blade Chassis types. See your Blade Chassis documentation for compatibility. If an expansion unit is installed on the blade server, you cannot install a high-speed expansion card on the blade server, it must be installed on the expansion unit.

- The illustrations in this document might differ slightly from your hardware.

The following illustration shows how to install a high-speed expansion card.
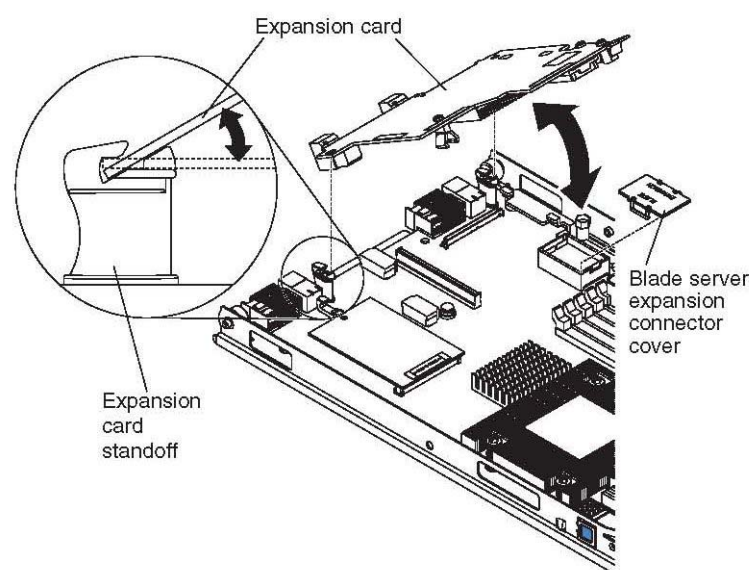
Figure 4-19. Installing a high-speed expansion card

To install a high-speed expansion card, complete the following steps:

1. Read the safety information that begins on page ix and *Installation guidelines*, on page 23.

2. If the blade server is installed in a Blade Chassis, remove it (see *Removing the blade server from a Blade Chassis*, on page 25).

3. Remove the blade server cover (see *Removing the blade server cover*, on page 28 for instructions).

4. Locate the blade-expansion connector and remove the cover, if one is installed.

5. Touch the static-protective package that contains the expansion card to any *unpainted* metal surface on the Blade Chassis or any *unpainted* metal surface on any other grounded rack component; then, remove the expansion card from the package.

6. Orient the expansion-card and slide the slot at the back end of the card onto the pins on the expansion card standoff; then, gently pivot the card into the blade-expansion connector.

7. Firmly press on the indicated locations to seat the expansion card.

☞ **Note:**
For device-driver and configuration information to complete the installation of the expansion card, see the documentation that comes with the expansion card.

8. Install the blade server cover (see *Installing the blade server cover*, on page 29).

9. Install the blade server into the Blade Chassis (see *Installing the blade server in a Blade Chassis*, on page 26).

4.5.17   Removing the battery

To remove the battery, complete the following steps.

1. Read the safety information that begins on page ix and *Installation guidelines*, on page 23.

2. If the blade server is installed in a Blade Chassis, remove it (see *Removing the blade server from a Blade Chassis*, on page 25 for instructions).

3. Remove the blade server cover (see *Removing the blade server cover*, on page 28 for instructions).

4. Locate the battery on the system board.

Battery (BH1)
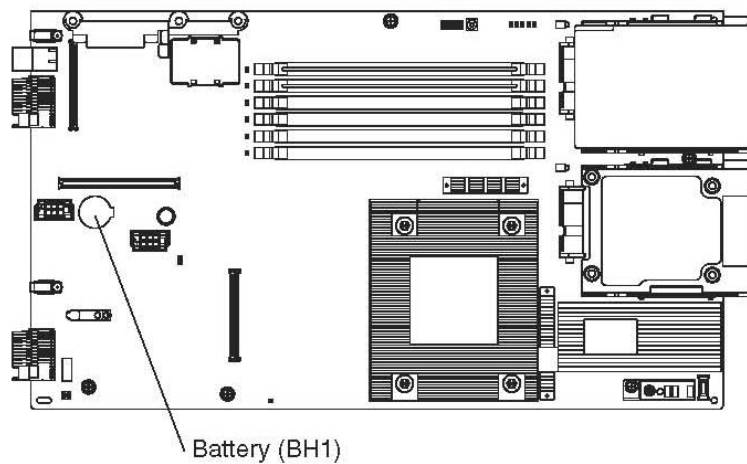
Figure 4-20. Locating the battery

5. Use one finger to press the top of the battery clip away from the battery. The battery pops up when released.
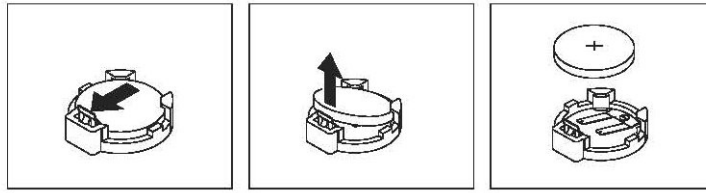
Figure 4-21. Removing the battery

6. Use your thumb and index finger to lift the battery from the socket.

7. Dispose of the battery as required by local ordinances or regulations.

4.5.18 Installing the battery

The following notes describe information that you must consider when you are replacing the battery in the blade server.

- When you are replacing the battery, you must replace it with a lithium battery of the same type from the same manufacturer.

- To order replacement batteries, call 1-800-426-7378 within the United States, and 1-800-465-7999 or 1-800-465-6666 within Canada. Outside the U.S. and Canada, call your Bull marketing representative or authorized reseller.

- After you replace the battery, you must reconfigure the server and reset the system date and time.

- To avoid possible danger, read and follow the following safety statement.

Statement 2:

CAUTION:
When replacing the lithium battery, use a battery recommended by the manufacturer. If your system has a module containing a lithium battery, replace it only with the same module type made by the same manufacturer. The battery contains lithium and can explode if not properly used, handled or disposed of.

Do not:
- Throw or immerse into water
- Heat to more than 100°C (212°F)
- Repair or disassemble

Dispose of the battery as required by local ordinances or regulations.

To install the battery, complete the following steps.
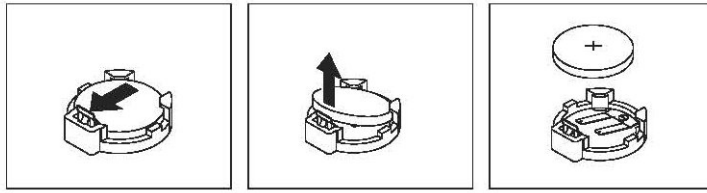
Figure 4-22. Installing the battery

1. Follow any special handling and installation instructions that come with the battery.

2. Locate the battery connector.

3. Insert the battery:

   a. Tilt the battery so that you can insert it into the socket on the side opposite the battery clip.

   b. Press the battery down into the socket until it clicks into place. Make sure the battery clip holds the battery securely.

4. Install the blade server cover (see *Installing the blade server cover*, on page 29).

5. Install the blade server into the Blade Chassis (see *Installing the blade server in a Blade Chassis*, on page).

6. Turn on the blade server and run the Configuration/Setup Utility program. Set configuration parameters as needed (see *Configuration/Setup Utility menu choices*, on page 14 for information).

The illustrations in this document might differ slightly from your hardware.

4.5.19   Removing a microprocessor and heat sink

Read the following important guidelines before removing a microprocessor that is not faulty (for example, when you are replacing the system board assembly).

If you are not replacing a defective heat sink or microprocessor, the thermal material on the heat sink and microprocessor will remain effective if you complete the following steps:

Carefully handle the heat sink and microprocessor when removing or installing these components. Do not touch the thermal material or otherwise allow it to become contaminated.

☞ Notes:

- The heat-sink is packaged with the thermal material applied to the underside. This thermal material is not available as a separate part. The heat sink must be replaced when new thermal material is required, such as when a defective microprocessor is replaced or if the thermal material is contaminated or has come in contact with another object other than its paired microprocessor.
- The microprocessor for this system board includes a heat sink.
- A heat-sink can be ordered separately if the thermal material becomes contaminated.

To remove a microprocessor, complete the following steps.
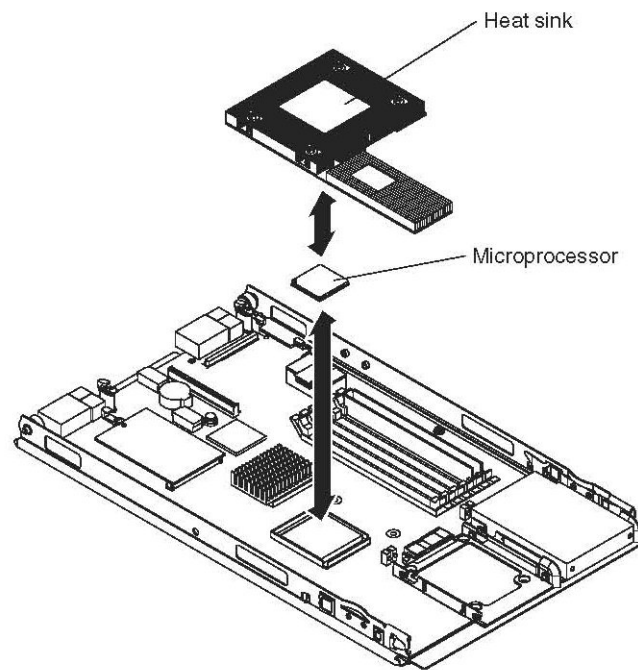
1. Read the safety information that begins on page ix, and *Installation guidelines*, on page 23.

2. f the blade server is installed in a Blade Chassis, remove it (see *Removing the blade server from a Blade Chassis*, on page 25 for instructions).

3. Remove the blade server cover (see *Removing the blade server cover*, on page 28 for instructions).

4. If an optional expansion unit is installed, remove it (see Removing an optional expansion unit on page 30).

5. Remove the heat sink.

⚠ **Attention:**
Do not touch the thermal material on the bottom of the heat sink. Touching the thermal material will contaminate it. If the thermal material on the microprocessor or heat sink becomes contaminated, you must replace the heat sink.

a. Loosen the screw on one side of the heat sink to break the seal with the microprocessor.

b. Press firmly on the captive screws that retain the heat sink and loosen them with a screwdriver.

c. Use your fingers to gently pull the heat sink from the processor.

⚠ **Attention:**
Do not use any tools or sharp objects to lift the release lever on the microprocessor socket. Doing so might result in permanent damage to the system board.
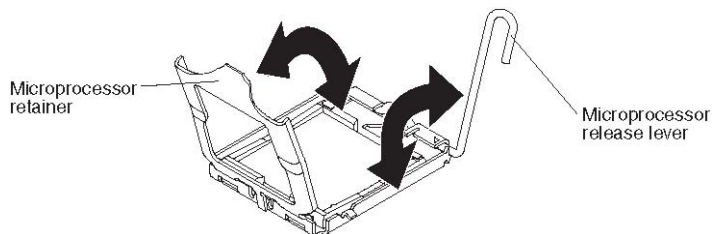
Figure 4-23. Removing the heat sink

6. Rotate the locking lever on the microprocessor socket from its closed and locked position until it stops in the fully open position (approximately a 90° angle). Lift the microprocessor retainer cover upward.

7. Use your fingers to pull the microprocessor out of the socket.
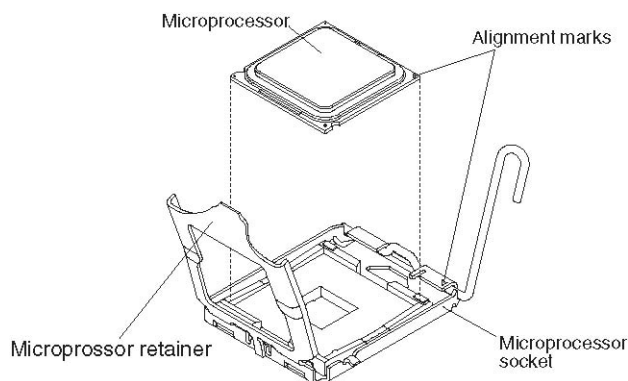
Figure 4-24. Removing the microprocessor from the socket

8. If you are instructed to return the microprocessor and heat sink, follow all packaging instructions, and use any packaging materials for shipping that are supplied to you.

4.5.20   Installing a microprocessor and heat sink

To install a microprocessor and heat sink, complete the following steps.
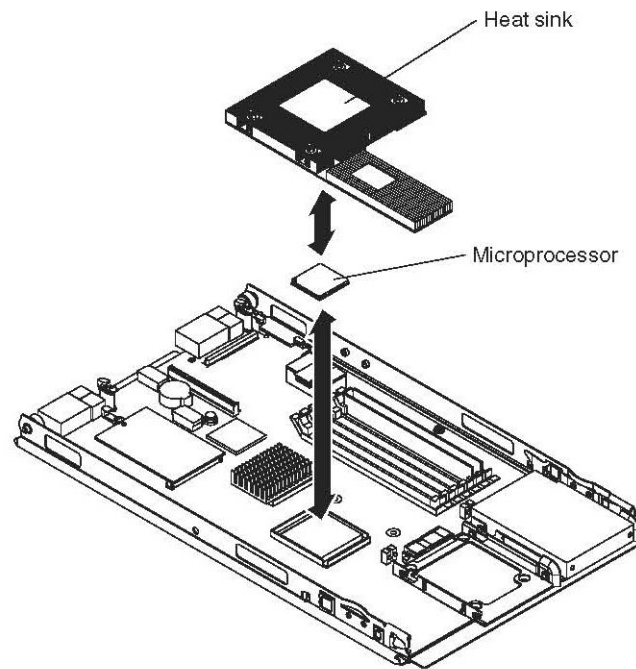
Figure 4-25. Installing a microprocessor and heat sink

⚠ **Attention:**
Do not touch the contacts in the microprocessor socket. Touching these contacts might result in permanent damage to the system board.

1.   Install the microprocessor:

⚠ **Attention:**
Do not use any tools or sharp objects to lift the locking lever on the microprocessor socket. Doing so might result in permanent damage to the system board.
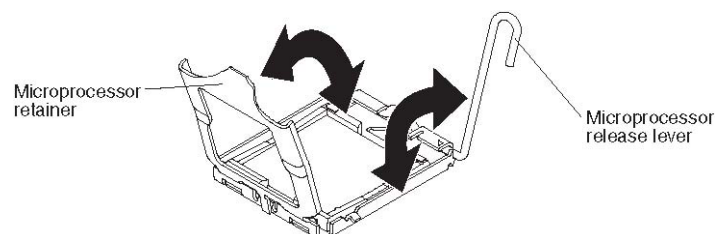
Figure 4-26. Rotating the microprocessor socket locking lever

a.   Rotate the locking lever on the microprocessor socket from its closed and locked position until it stops in the fully open position (approximately a 90° angle), as shown.

b. Rotate the microprocessor retainer on the microprocessor socket from its closed position until it stops in the fully open position (approximately a 90° angle), as shown.

c. Touch the static-protective package that contains the microprocessor to any *unpainted* metal surface on the Blade Chassis or any *unpainted* metal surface on any other grounded rack component; then, remove the microprocessor from the package.

d. Remove the cover from the bottom of the microprocessor.
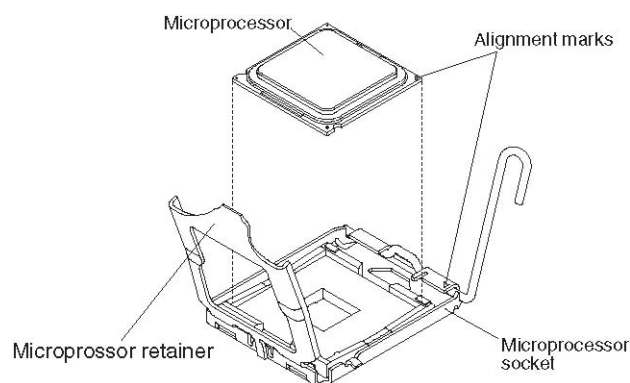
e. Center the microprocessor over the microprocessor socket. Align the triangle on the corner of the microprocessor with the triangle on the corner of the socket and carefully place the microprocessor into the socket.

Attention:

- **Do not press the microprocessor into the socket.**
- **Make sure that the microprocessor is oriented and aligned correctly in the socket before you try to close the microprocessor retainer.**

f. Carefully close the microprocessor retainer.

g. Rotate the locking lever on the microprocessor socket to the closed and locked position. Make sure that the lever is secured in the locked position by the tab on the microprocessor socket.

2. Install a heat sink on the microprocessor.

⚠ Attention:
- **Do not set down the heat sink after you remove the plastic cover.**
- **Do not touch the thermal material on the bottom of the heat sink. Touching the thermal material will contaminate it. If the thermal material on the microprocessor or heat sink becomes contaminated, contact your service technician.**
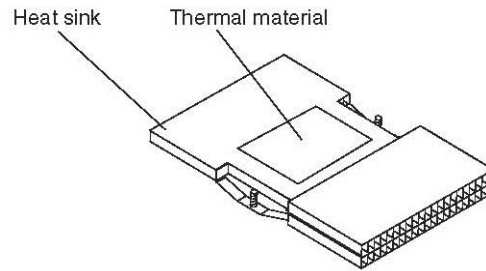
a. Remove the plastic protective cover from the bottom of the heat sink.

b. Make sure that the thermal material is still on the bottom of the heat sink; then, align and place the heat sink on top of the microprocessor in the retention bracket, thermal material side down. Press firmly on the heat sink.

c. Align the three screws on the heat sink with the holes on the heat-sink retention module.

d. Press firmly on the captive screws and tighten them with a screwdriver, alternating between screws until they are tight. If possible, each screw should be rotated two full rotations at a time. Repeat until the screws are tight. Do not overtighten the screws by using excessive force. If you are using a torque wrench, tighten the screws to 8.5 to 13 Newton-meters (Nm) (6.3 to 9.6 inch-pounds).

3. Install the bezel assembly (see *Installing the bezel assembly*, on page 33).

4. Install the blade server cover (see *Installing the blade server cover*, on page 29).

5. Install the blade server into the Blade Chassis (see *Installing the blade server in a Blade Chassis*, on page 26).

4.5.21   Removing the system board assembly

When replacing the system board, you will replace the system board and blade base as one assembly. After replacement, you must either update the blade server with the latest firmware or restore the pre-existing firmware that the customer provides on a diskette or CD image.

☞ Note:

See *System board layouts*, on page 9 for more information on the locations of the connectors, jumpers and LEDs on the system board.

To remove the system board assembly, complete the following steps:

1. Read the safety information that begins on page ix, and *Installation guidelines*, on page 23.

2. If the blade server is installed in a Blade Chassis, remove it (see *Removing the blade server from a Blade Chassis*, on page 25 for instructions).

3. Remove the blade server cover (see *Removing the blade server cover*, on page 28).

4. Remove the blade server bezel assembly (see *Removing the bezel assembly*, on page 32).

5. Remove all of the installed components in the following list from the system board assembly; then, place them on a non-conductive surface or install them on the new system board assembly.

    – I/O-expansion card. See *Removing an I/O expansion card*, on page 42, and *Removing a high-speed expansion card*, on page 46.
    – Concurrent KVM feature card. See *Removing a Concurrent KVM Feature Card*, on page 40.
    – Hard disk drives. See *Removing a hot-swap SAS hard disk drive*, on page 34.
    – Microprocessors and heat sinks. See *Removing a microprocessor and heat sink*, on page 50.
    – DIMMs. See *Removing a memory module*, on page 36.

6. If you are instructed to return the system board assembly, follow all packaging instructions, and use any packaging materials for shipping that are supplied to you.

4.5.22   Installing the system board assembly

To install the system board assembly, complete the following steps:

1. Install all of the components in the following list that were removed from the old system board assembly onto the new system board assembly.

    –   Concurrent KVM feature card. See *Installing a Concurrent KVM Feature Card*, on page 41.
    –   I/O-expansion card. See *Installing an I/O expansion card*, on page 43, and *Installing a high-speed expansion card*, on page 47.
    –   Hard disk drives. See *Installing a hot-swap SAS hard disk drive*, on page 35.
    –   Microprocessors and heat sinks. See *Installing a microprocessor and heat sink*, on page 53.
    –   DIMMs. See *Removing a memory module*, on page 37.

2. Install the bezel assembly (see *Installing the bezel assembly*, on page 33).

3. Install the blade server cover (see *Installing the blade server cover*, on page 29).

4. Install the blade server into the Blade Chassis (see *Installing the blade server in a Blade Chassis*, on page 26).

Chapter 5. Diagnostics

This chapter describes the diagnostic tools that are available to help you solve problems that might occur in the blade server.

☞ **Note:**
The blade server uses shared resources that are installed in the Blade Chassis. Problems with these shared resources might appear to be in the blade server (see *Solving shared Blade resource problems*, on page 126 for information about isolating problems with these resources). See the *Problem Determination and Service Guide* for your Blade Chassis and other Blade component documentation for diagnostic procedures for shared Blade components.

5.1   Diagnostic tools

The following tools are available to help you diagnose and solve hardware-related problems:

- **POST beep codes, error messages, and error logs**
  The power-on self-test (POST) generates beep codes and messages to indicate successful test completion or the detection of a problem. See *POST*, on page 59 for more information.

- **Troubleshooting tables**

  These tables list problem symptoms and actions to correct the problems. See *Troubleshooting tables*, on page 84 for more information.

- **Light path diagnostics**
  Use the light path diagnostics to diagnose system errors quickly. See *Light path diagnostics*, on page 99 for more information.

- **Diagnostic programs, messages, and error codes**
  The diagnostic programs are the primary method of testing the major components of the blade server. These programs are stored in read-only memory (ROM) on the blade server. See *Diagnostic programs, messages and error codes*, on page 103 for more information.

5.2   POST

When you turn on the blade server, it performs a series of tests to check the operation of the blade server components and some optional devices in the blade server. This series of tests is called the power-on self-test, or POST.

If a power-on password is set, you must type the password and press Enter, when prompted, for POST to run.

If POST is completed without detecting any problems, a single beep sounds, and the blade server startup is completed.

If POST detects a problem, more than one beep might sound, or an error message is displayed. See *Beep code descriptions*, on page 60 and *POST error codes*, on page 70 for more information.

5.2.1 POST beep codes

A beep code is a combination of short or long beeps or a series of short beeps that are separated by pauses. For example, a "1-2-3" beep code is one short beep, a pause, two short beeps, a pause, and three short beeps. A beep code other than one beep indicates that POST has detected a problem. To determine the meaning of a beep code, see *Beep code descriptions*. If no beep code sounds, see *No-beep symptoms*, on page 64.

5.2.1.1 Beep code descriptions

The following table describes the beep codes and suggested actions to correct the detected problems. A single problem might cause more than one error message. When this occurs, correct the cause of the first error message. The other error messages usually will not occur the next time POST runs.

☞ Note:

Exception:
If there are multiple error codes or light path diagnostics LEDs that indicate a microprocessor error, the error might be in a microprocessor or in a microprocessor socket. See *Microprocessor problems*, on page 88 for information about diagnosing microprocessor problems.

POST beep codes		
• Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved.		
• If an action step is preceded by "(Trained service technician only)," that step must be performed only by a trained service technician.		
Beep code	Description	Action
1-1-2	Microprocessor register test failed.	1. (Trained service technician only) Reseat the microprocessor. 2. Replace the following components one at a time, in the order shown, restarting the blade server each time: a. (Trained service technician only) Microprocessor b. (Trained service technician only) System board assembly

- Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved.
- If an action step is preceded by "(Trained service technician only)," that step must be performed only by a trained service technician.

Beep code	Description	Action

1-1-3	CMOS write/read test failed.	1. Reseat the battery
		2. Replace the following components one at a time, in the order shown, restarting the blade server each time:
		   a. Battery
		   b. (Trained service technician only) System board assembly

1-1-4	BIOS ROM checksum failed.	1. Update the BIOS code.
		2. Reseat the DIMMs.
		3. Replace the following components one at a time, in the order shown, restarting the blade server each time:
		   a. DIMMs
		   b. (Trained service technician only) System board assembly

1-2-1	Programmable interval timer failed.	(Trained service technician only) Replace the system board assembly.
1-2-2	DMA initialization failed.	(Trained service technician only) Replace the system board assembly.
1-2-3	DMA page register write/read failed.	(Trained service technician only) Replace the system board assembly.

1-2-4	RAM refresh verification failed.	1. Reseat the DIMMs.
		2. Replace the following components one at a time, in the order shown, restarting the blade server each time:
		   a. DIMMs
		   b. (Trained service technician only) System board assembly

1-3-1	First 64K RAM test failed.	1. Reseat the DIMMs.
		2. Replace the following components one at a time, in the order shown, restarting the blade server each time:
		   a. DIMMs
		   b. (Trained service technician only) System board assembly

POST beep codes		
• Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved.		
• If an action step is preceded by "(Trained service technician only)," that step must be performed only by a trained service technician.		
Beep code	Description	Action

1-3-2	First 64K RAM parity test failed.	1. Reseat the DIMMs.
		
		2. Replace the following components one at a time, in the order shown, restarting the blade server each time:
		
		  a. DIMMs
		
		  b. (Trained service technician only) System board assembly

2-1-1	Secondary DMA register test failed.	(Trained service technician only) Replace the system board assembly.
2-1-2	Primary DMA register test failed.	(Trained service technician only) Replace the system board assembly.
2-1-3	Primary interrupt mask register test failed.	(Trained service technician only) Replace the system board assembly.
2-1-4	Secondary interrupt mask register test failed.	(Trained service technician only) Replace the system board assembly.
2-2-2	Keyboard controller test failed.	1. Check the function of the shared Blade Chassis resources (see *Solving shared Blade resource problems*, on page 126). 2. (Trained service technician only) Replace the system board assembly.
2-3-1	Screen initialization failed.	(Trained service technician only) Replace the system board assembly.
2-4-4	Unsupported memory configuration	1. Check the DIMM error LEDS on the blade server. 2. Check the management-module event log for DIMM error messages. 3. Replace noncompatible or failing DIMMs in the blade server.
3-1-1	Timer tick interrupt failed.	(Trained service technician only) Replace the system board assembly.
3-1-2	Interval timer channel 2 failed.	(Trained service technician only) Replace the system board assembly.

POST beep codes		

- Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved.
- If an action step is preceded by "(Trained service technician only)," that step must be performed only by a trained service technician.

Beep code	Description	Action

3-1-4	Time-of-day clock failed.	1. Reseat the battery.
		2. Replace the following components one at a time, in the order shown, restarting the blade server each time:
		   a. Battery
		   b. (Trained service technician only) System board assembly

3-2-1	Serial port failed	(Trained service technician only) Replace the system-board assembly.
3-2-2	Parallel port failed	(Trained service technician only) Replace the system-board assembly.

3-3-2	Critical SMBUS error occurred.	1. Power down the blade server and reseat it in the Blade Chassis.
		2. Reseat the DIMMs.
		3. Replace the following components one at a time, in the order shown, restarting the blade server each time:
		   a. DIMMs
		   b. (Trained service technician only) System board assembly

3-3-3	No operational memory in system.	**Important:** In some memory configurations, the 3-3-3 beep code might sound during POST, followed by a blank monitor screen. If this occurs and the **Boot Fail Count** option in the **Start Options** of the Configuration/Setup Utility program is enabled, you must restart the blade server three times to reset the configuration settings to the default configuration (the memory connector or band of connectors enabled).
		1. Install or reseat DIMMS and restart the blade server *three times*.
		2. Replace the following components one at a time, in the order shown, restarting the blade server each time:
		   a. DIMMs
		   b. (Trained service technician only) System-board assembly.

Table 5-1.   POST beep codes

5.2.1.2   No-beep symptoms

The following table describes situations in which no beep code sounds when POST is completed.

No-beep symptoms	
• Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved. • If an action step is preceded by "(Trained service technician only)," that step must be performed only by a trained service technician.	
No-beep symptom	**Action**
No beep and the blade server operates correctly	(Trained service technician only) Replace the system board assembly.
No beep and no video (system-error LED is off)	See *Solving undetermined problems*, on page 131.
No beep and no video (system attention LED is lit)	See *Light path diagnostics*, on page 99.

Table 5-2.   No-beep symptoms

5.2.2   Error logs

The BMC log contains all system status messages from the blade server service processor. The management-module event log in your Blade Chassis contains messages that were generated on each blade server during POST and status messages from the Blade service processor. (See the Management Module documentation for more information.)

The following illustration shows an example of a BMC log entry.

```
                      BMC System Event Log
-------------------------------------------------------------
Get Next Entry
Get Previous Entry
Clear BMC SEL


Entry Number-      00005 / 00011
Record ID-         0005
Record Type-       02
Timestamp-         2005/01/25  16:15:17
Entry Details:     Generator ID- 0020
                   Sensor Type- 04
                   Assertion Event
                   Fan
                   Threshold
                   Lower Non-critical - going high

                   Sensor Number- 40
                   Event Direction/Type- 01

                   Event Data- 52 00 1A
```

Figure 5-1.   Example of a BMC log entry

Important:

- A single problem might cause several error messages. When this occurs, work to correct the cause of the first error message. After you correct the cause of the first error message, the other error messages usually will not occur the next time you run the test.

- The management-module event log in your Blade Chassis lists messages according to the position of the blade server in the blade bays. If a blade server is moved from one bay to another, the management-module event log will report messages for that blade server using the new bay number; messages for that blade server that were generated before the move will still be listed using the previous bay number.

The BMC log is limited in size. When the log is full, new entries will not overwrite existing entries; therefore, you must periodically clear the BMC log through the Configuration/Setup Utility program (the menu choices are described in the *Installation and User's Guide.)* When you are troubleshooting an error, be sure to clear the BMC log so that you can find current errors more easily.

Entries that are written to the BMC log during the early phase of POST show an incorrect date and time as the default time stamp; however, the date and time are corrected as POST continues.

Each BMC log entry appears on its own page. To display all the data for an entry, use the Up Arrow (↑) and Down Arrow (↓) keys or the Page Up and Page Down keys. To move from one entry to the next, select **Get Next Entry** or **Get Previous Entry.**

The BMC log indicates an assertion event when an event has occurred. It indicates a deassertion event when the event is no longer occurring.

Some of the error codes and messages in the BMC log are abbreviated.

You can view the contents of the BMC log from the Configuration/Setup Utility program and from the diagnostic programs.

When you are troubleshooting PCI-X slots (I/O slots), note that the error logs report the PCI-X buses numerically. The numerical assignments vary depending on the configuration. You can check the assignments by running the Configuration/Setup Utility program (see the *Installation and User's Guide* for more information).

5.2.2.1   Viewing the BMC log from the Configuration/Setup Utility program

For complete information about using the Configuration/Setup Utility program, see the *Installation and User's Guide.*

To view the BMC log, complete the following steps:

1. Turn on the blade server.

2. When the prompt `Press F1 for Configuration/Setup` appears, press F1. If you have set a power-on password, you must type the password and press Enter to start the Configuration/Setup Utility program.

3. Select **Advanced Settings → Baseboard Management Controller (BMC) settings →
BMC System Event Log**.

5.2.2.2 Viewing the BMC log from the diagnostic programs

The BMC log contains the same information, whether it is viewed from the
Configuration/Setup Utility program or from the diagnostic programs.

For information about using the diagnostic programs, see *Running the diagnostics
programs*, on page 103.

To view the BMC log, complete the following steps:

1. If the blade server is running, turn off the blade server.

2. Turn on the blade server.

3. When the prompt F2 for Diagnostics appears, press F2.

4. From the top of the screen, select **Hardware Info**.

5. From the list, select **BMC Log**.

5.2.3   BMC error messages

The following table lists BMC error messages and suggested actions to correct the detected problems.

BMC error messages	
• Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved. • If an action step is preceded by "(Trained service technician only)," that step must be performed only by a trained service technician.	
Error message	**Action**

I/O board fault	1. Reseat the I/O expansion card.
	 2. Replace the following components one at a time, in the order shown, restarting the blade server each time:
	    a. I/O expansion card
	    b. (Trained service technician only) System board assembly

cKVM card fault	1. Reseat the cKVM feature card. 2. Replace the cKVM feature card.

BEM 1 fault	1. Reseat the following components one at a time, in the order shown, restarting the blade server each time:
	    a. ServeRAID SAS controller
	    b. RAID battery
	    c. Expansion unit
	 2. Replace the expansion unit.

BEM 2 fault	1. Reseat the expansion unit. 2. Replace the expansion unit.
High speed expansion card fault	1. Reseat the high-speed expansion card. 2. Replace the high-speed expansion card.

Front panel cable is not connected to system board	1. Reseat the control panel cable.
	 2. Replace the following components one at a time, in the order shown, restarting the blade server each time:
	    a. Bezel assembly
	    b. (Trained service technician only) System board assembly

BSE RAID battery failure	1. Reseat the SAS controller battery connector in the Storage Expansion Unit. 2. Replace the SAS controller battery in the Blade Storage Expansion Unit 3.

	BMC error messages
• Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved.	
• If an action step is preceded by "(Trained service technician only)," that step must be performed only by a trained service technician.	

Error message	Action

BSE RAID fault	1. Reseat the ServeRAID SAS controller in the Storage Expansion Unit.
	2. Replace the following components one at a time, in the order shown, restarting the blade server each time:
	   a. ServeRAID SAS controller
	   b. Storage Expansion Unit

Memory module bus fault	1. Reseat the expansion unit. 2. Replace the expansion unit system board.
Firmware (BIOS) halted, System management bus error	1. Update the blade server firmware. 2. Update the blade server and option device drivers.

PCI bus timeout- system error	1. Remove the blade server from the Blade; then, reinstall it.
	2. Reseat all the options installed in the blade server one at a time, restarting the blade server each time to determine where the problem is located.
	3. Remove options from the blade server one at a time to determine where the problem is located.
	4. Replace the following components one at a time, in the order shown, restarting the blade server each time:
	   a. All options installed in the blade server
	   b. (Trained service technician only) System board assembly

Microprocessor halted	1. Remove the blade server from the Blade Chassis; then, reinstall it.
	2. Reseat the microprocessor.
	3. Replace the following components one at a time, in the order shown, restarting the blade server each time:
	   a. (Trained service technician only) Replace the microprocessor
	   b. (Trained service technician only) System board assembly

Microprocessor temperature warning	1. Make sure that the blade server is sufficiently cooled. 2. Make sure that the microprocessor filler is installed correctly. 3. Make sure that the the front bezel on the blade server is not blocked. 4. (Trained service technician only) Replace microprocessor.

BMC error messages	

- Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved.
- If an action step is preceded by "(Trained service technician only)," that step must be performed only by a trained service technician.

Error message	Action
Firmware (BIOS) backup ROM corruption, System board failure	1. Update the blade server firmware. 2. Replace the Storage Expansion Unit.
Planar voltage fault (power 12V fault)	1. Remove the optional expansion unit from the Blade Chassis; then, reinstall it. 2. (Trained service technician only) Replace the system board assembly.
Planar voltage fault (planar fault)	1. Remove the blade server from the Blade Chassis; then, reinstall it. 2. (Trained service technician only) Replace the system board assembly.
Power controller timeout	1. Remove the blade server from the Blade Chassis; then, reinstall it. 2. (Trained service technician only) Replace system board assembly.
Incompatible power controller firmware	(Trained service technician only) Replace system board assembly.
Blade incompatible with chassis	1. Make sure that the management-module firmware is at the latest level. 2. If the firmware is at latest level, the blade device is not supported by Blade Chassis in which it is installed.
Firmware (BIOS) ROM corruption detected	Update the BIOS code.
Internal error CPU fault	Make sure that all of the software and the drivers are at the latest levels.
CPU over temperature	Make sure that the blade server is sufficiently cooled.
CPU fault	(Trained service technician only) Replace microprocessor.
CPU disabled	(Trained service technician only) Replace microprocessor.
Invalid CPU configuration	Make sure that microprocessors are supported and compatible.
VRD 5d power good fault	1. Remove the blade server from the Blade Chassis; then, reinstall it. 2. (Trained service technician only) Replace the system board assembly.
Hard drive *xx* removal detected	Replace hard disk drive *xx*.
Hard drive *xx* fault	Information only. No action required.

Table 5-3.   BMC error messages

5.2.4   POST error codes

The following table describes the POST error codes and suggested actions to correct the detected problems.

POST error codes		
Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved. If an action step is preceded by "(Trained service technician only)," that step must be performed only by a trained service technician.		
Error code	Description	Action

062	Three consecutive startup failures	1. Run the Configuration/Setup Utility program, select **Load Default Settings**, make sure that the date and time are correct, and save the settings.
		
		2. Reseat the following components one at a time, in the order shown, restarting the blade server each time:
		
		    a. Battery
		
		    b. (Trained service technician only) Microprocessor
		
		3. Replace the following components one at a time, in the order shown, restarting the blade server each time:
		
		    a. Battery
		
		    b. (Trained service technician only) Microprocessor
		
		    c. (Trained service technician only) System board assembly

101	Timer tick interrupt failure	(Trained service technician only) Replace the system board assembly.
102	Timer 2 test failure	(Trained service technician only) Replace the system board assembly.
106	Diskette controller failure	(Trained service technician only) Replace the system board assembly.

151	Real time clock failure	1. Reseat the battery.
		
		2. Replace the following components one at a time, in the order shown, restarting the blade server each time:
		
		    a. Battery
		
		    b. (Trained service technician only) System board assembly

	POST error codes	
Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved. If an action step is preceded by "(Trained service technician only)," that step must be performed only by a trained service technician.		
Error code	Description	Action
161	Real-time clock battery failure	1. Run the Configuration/Setup Utility program. 2. Reseat the battery. 3. Replace the following components one at a time, in the order shown, restarting the blade server each time: a. Battery b. (Trained service technician only) System board assembly
162	Invalid configuration information or CMOS RAM checksum failure.	1. Run the Configuration/Setup Utility program, select **Load Default Settings**, and save the settings. 2. Reseat the battery. 3. Replace the following components one at a time, in the order shown, restarting the blade server each time: a. Battery b. (Trained service technician only) System board assembly
163	Time of day not set.	1. Run the Configuration/Setup Utility program, select **Load Default Settings**, make sure that the date and time are correct, and save the settings. 2. Reseat the battery. 3. Replace the following components one at a time, in the order shown, restarting the blade server each time: a. Battery b. (Trained service technician only) System board assembly
184	Bad power-on password.	1. Run the Configuration/Setup Utility program, select **Load Default Settings**, and save the settings. 2. Reseat the battery. 3. Replace the following components one at a time, in the order shown, restarting the blade server each time: a. Battery b. (Trained service technician only) System board assembly
188	Bad EEPROM CRC #2	(Trained service technician only) Replace the system board assembly.

POST error codes		
Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved.		
If an action step is preceded by "(Trained service technician only)," that step must be performed only by a trained service technician.		
Error code	Description	Action
189	Three attempts to enter the incorrect password.	Restart the blade server, run the Configuration/Setup Utility program, and change the power-on password.

289	Memory error.	1. Run the Configuration/Setup Utility program, disable the problem DIMMs under select **Advanced Setup + Memory Settings**, and save the settings.
		
		2. If an expansion unit is installed, reseat it.
		
		3. Replace the following components one at a time, in the order shown, restarting the blade server each time:
		  a. DIMMs
		  b. (Trained service technician only) System board assembly
		  c. Optional expansion unit (if one installed)

301	Keyboard failure.	1. If you have installed a USB keyboard, run the Configuration/Setup Utility program and enable keyboardless operation to prevent the POST error message 301 from being displayed during startup. 2. Check the function of the shared Blade Chassis resources (see *Solving shared Blade resource problems*, on page 126). 3. (Trained service technician only) Replace the system board assembly.
602	Invalid diskette boot record.	1. Check the function of the shared Blade Chassis resources (see *Solving shared Blade resource problems*, on page 126). 2. (Trained service technician only) Replace the system board assembly
604	Diskette drive failure.	1. Check the function of the shared Blade Chassis resources (see *Solving shared Blade resource problems*, on page 126). 2. (Trained service technician only) Replace the system board assembly

POST error codes		
Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved.		
If an action step is preceded by "(Trained service technician only)," that step must be performed only by a trained service technician.		
Error code	Description	Action

1200	Processor machine check.	1. Reseat the microprocessor (Trained service technician only).
		
		2. Replace the following components one at a time, in the order shown, restarting the blade server each time:
		
		  a. (Trained service technician only) Microprocessor
		  b. (Trained service technician only) System board assembly

1762	Hard disk drive configuration has changed	1. Run the Configuration/Setup Utility program and make sure that the hard disk drive configuration is correct, and save the settings.
		
		2. Reseat the hard disk drives.
		
		3. If an optional expansion unit is installed, reseat it.
		
		4. Replace the following components one at a time, in the order shown, restarting the blade server each time:
		
		  a. Hard disk drives
		  b. Optional expansion unit (if one is installed)
		  c. (Trained service technician only) System board assembly

1800	No more IRQs available.	1. Run the Configuration/Setup Utility program and make sure that interrupt resource settings are correct.
		
		2. Remove each I/O-expansion card one at a time, restarting the blade server each time, until the problem is isolated.
		
		3. If an optional expansion unit is installed, reseat it.
		
		4. Replace the following components one at a time, in the order shown, restarting the blade server each time:
		
		  a. Failed I/O-expansion card
		  b. Optional expansion unit (if one is installed)
		  c. (Trained service technician only) System board assembly

1801	No more room for option ROM.	1. Run the Configuration/Setup Utility program and make sure that the PXE settings are correct. Disabling PXE can allow more optional devices to be managed.

	POST error codes	

Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved.

If an action step is preceded by "(Trained service technician only)," that step must be performed only by a trained service technician.

Error code	Description	Action
		2. Use the Configuration/Setup Utility program (**Advanced Setup ->PCI Bus Control + PCI ROM Control**) to disable each optional device one at a time, restarting the blade server each time, until the 1801 error code is cleared. Optional devices that cause the 1801 error code are the I/O expansion cards and expansion units. Disable these optional devices in the order of least-to-most important.
		3. Remove each optional device one at a time, restarting the blade server each time, until the 1801 error code is cleared. Optional devices that cause the 1801 error code are the I/O expansion cards and optional expansion unit. Remove these optional devices in the order of least-to-most important.
		4. (Trained service technician only) If the problem remains after all optional devices have been removed, replace the system-board assembly.
1802	No more I/O space available.	1. Run the Configuration/Setup Utility program and make sure that interrupt resource settings are correct.
		2. Remove each I/O expansion card one at a time, restarting the blade server each time, until the problem is isolated.
		3. If an optional expansion unit is installed, reseat it.
		4. Replace the following components one at a time, in the order shown, restarting the blade server each time:
		a. Failed I/O expansion card.
		b. Optional expansion unit (if one is installed.
		c. (Trained service technician only) System-board assembly

POST error codes		
Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved. If an action step is preceded by "(Trained service technician only)," that step must be performed only by a trained service technician.		
Error code	Description	Action
1803	No more memory (above 1 MB) available.	1. Run the Configuration/Setup Utility program and make sure that interrupt resource settings are correct. 2. Remove each I/O expansion card one at a time, restarting the blade server each time, until the problem is isolated. 3. If an optional expansion unit is installed, reseat it. 4. Replace the following components one at a time, in the order shown, restarting the blade server each time: a. Failed I/O expansion card. b. Optional expansion unit (if one is installed). c. (Trained service technician only) System-board assembly -
1804	No more memory (below 1 MB) available.	1. Run the Configuration/Setup Utility program and make sure that interrupt resource settings are correct. 2. Remove each I/O expansion card one at a time, restarting the blade server each time, until the problem is isolated. 3. If an optional expansion unit is installed, reseat it. 4. Replace the following components one at a time, in the order shown, restarting the blade server each time: a. Failed I/O expansion card. b. Optional expansion unit (if one is installed). c. (Trained service technician only) System-board assembly
1805	Checksum error or 0 size option ROM.	1. Run the Configuration/Setup Utility program and make sure that interrupt resource settings are correct. 2. Remove each I/O expansion card one at a time, restarting the blade server each time, until the problem is isolated. 3. If an optional expansion unit is installed, reseat it. 4. Replace the following components one at a time, in the order shown, restarting the blade server each time: a. Failed I/O expansion card. b. Optional expansion unit (if one is installed). c. (Trained service technician only) System-board assembly

POST error codes		
Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved. If an action step is preceded by "(Trained service technician only)," that step must be performed only by a trained service technician.		
Error code	Description	Action

1806	PCI device failed BIST.	1. Run the Configuration/Setup Utility program) and make sure that interrupt resource settings are correct.
		
		2. Remove each I/O expansion card one at a time, restarting the blade server each time, until the problem is isolated.
		
		3. If an optional expansion unit is installed, reseat it.
		
		4. Replace the following components one at a time, in the order shown, restarting the blade server each time:
		
		    a. Failed I/O expansion card.
		
		    b. Optional expansion unit (if one is installed).
		
		    c. (Trained service technician only) System-board assembly

1807	System board device did not respond or was disabled by the user.	1. Run the Configuration/Setup Utility program and make sure that interrupt resource settings are correct.
		
		2. Remove each I/O expansion card one at a time, restarting the blade server each time, until the problem is isolated.
		
		3. If an optional expansion unit is installed, reseat it.
		
		4. Replace the following components one at a time, in the order shown, restarting the blade server each time:
		
		    a. Failed I/O expansion card.
		
		    b. Optional expansion unit (if one is installed).
		
		    c. (Trained service technician only) System-board assembly

1808	Invalid header.	1. Run the Configuration/Setup Utility program and make sure that interrupt resource settings are correct. 2. Remove each I/O expansion card one at a time, restarting the blade server each time, until the problem is isolated. 3. If an optional expansion unit is installed, reseat it. 4. Replace the following components one at a time, in the order shown, restarting the blade server each time: a. Failed I/O expansion card. b. Optional expansion unit (if one is installed). c. (Trained service technician only) System-board assembly

POST error codes		
Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved. If an action step is preceded by "(Trained service technician only)," that step must be performed only by a trained service technician.		
Error code	Description	Action

1962	Boot sector error, no operating system installed.	1. Make sure that a bootable operating system is installed.
		
		2. Run the SAS Attached Disk diagnostic test.
		
		3. Reseat the hard disk drive.
		
		4. Replace the following components one at a time, in the order shown, restarting the blade server each time:
		
		   a. Hard disk drive
		
		   b. (Trained service technician only) System board assembly

00012000	Processor machine check	1. (Trained service technician only)
		Reseat the microprocessor.
		
		2. Replace the following components one at a time, in the order shown, restarting the blade server each time:
		
		   a. (Trained service technician only).
		
		   b. (Trained service technician only) System-board assembly

000197	Processor P failed BIST	1. (Trained service technician only)
		Reseat the microprocessor.
		
		2. Replace the following components, one at a time, in the order shown, restarting the blade server each time:
		
		   a. (Trained service technician only).
		
		   b. (Trained service technician only) System-board assembly

00150100	Multi-bit error occurred: forcing NMI DIMM=xx DIMM=yy (could not isolate)	1. Reseat following components one at a time, in the order shown, restarting the blade server each time:
		
		   a. DIMMs xx and yy - .
		
		   b. Optional expansion unit (if one is installed.
		
		2. Replace the following components, one at a time, in the order shown, restarting the blade server each time:
		
		   a. DIMMs xx and yy
		
		   b. Optional expansion unit (if one is installed).
		
		   c. (Trained service technician only) System-board assembly

Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved.

If an action step is preceded by "(Trained service technician only)," that step must be performed only by a trained service technician.

Error code	Description	Action

00150200	SERR: Addr or Spec. Cyc. DPE Slot=*xx* Vendor ID=*xxxx* Device ID=*xxxx* Status=*xxxx*	1. If an optional expansion unit is installed, reseat it.
		
		2. Reseat the I/O expansion card in slot *xx*; then, restart the blade server.
		
		3. Replace the following components, one at a time, in the order shown, restarting the blade server each time:
		
		    a. I/O expansion card in slot *xx*
		
		    b. Optional expansion unit (if one is installed).
		
		    c. (Trained service technician only) System-board assembly

00150300	SERR: Received Target Abort Slot=*xx* Vendor ID=*xxxx* Device ID=*xxxx* Status=*xxxx*	1. If an optional expansion unit is installed, reseat.
		
		2. Reseat the I/O expansion card in slot *xx*; then, restart the blade server.
		
		3. Replace the following components, one at a time, in the order shown, restarting the blade server each time:
		
		    a. I/O expansion card in slot *xx*
		
		    b. Optional expansion unit (if one is installed).
		
		    c. (Trained service technician only) System-board assembly

00150400	SERR: Device Signaled SERR Slot=*xx* Vendor ID=*xxxx* Device ID=*xxxx* Status=*xxxx*	1. If an optional expansion unit is installed, reseat it.
		
		2. Reseat the I/O expansion card in slot *xx*; then, restart the blade server.
		
		3. Replace the following components, one at a time, in the order shown, restarting the blade server each time:
		
		    a. I/O expansion card in slot *xx*
		
		    b. Optional expansion unit (if one is installed).
		
		    c. (Trained service technician only) System-board assembly

00150500	PERR: Master Read parity error Slot=*xx* Vendor ID=*xxxx* Device ID=*xxxx* Status=*xxxx*	1. If an optional expansion unit is installed, reseat it.
		
		2. Reseat the I/O expansion card in slot *xx*; then, restart the blade server.
		
		3. Replace the following components, one at a time, in the order shown, restarting the blade server each time:
		
		    a. I/O expansion card in slot *xx*
		
		    b. Optional expansion unit (if one is installed.
		
		    c. (Trained service technician only) System-board assembly

POST error codes		
Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved.		
If an action step is preceded by "(Trained service technician only)," that step must be performed only by a trained service technician.		
Error code	Description	Action

00150600	PERR: Primary Write parity error Slot=*xx* Vendor ID=*xxxx* Device ID=*xxxx* Status=*xxxx*	1. If an optional expansion unit is installed, reseat it.
		
		2. Reseat the I/O expansion card in slot *xx*; then, restart the blade server.
		
		3. Replace the following components, one at a time, in the order shown, restarting the blade server each time:
		
		    a. I/O expansion card in slot *xx*
		
		    b. Optional expansion unit (if one is installed).
		
		    c. (Trained service technician only) System-board assembly

00150700	PERR: Secondary signaled parity error Slot=*xx* Vendor ID=*xxxx* Device ID=*xxxx* Status=*xxxx*	1. If an optional expansion unit is installed, reseat.
		
		2. Reseat the I/O expansion card in slot *xx*; then, restart the blade server.
		
		3. Replace the following components, one at a time, in the order shown, restarting the blade server each time:
		
		    a. I/O expansion card in slot *xx*
		
		    b. Optional expansion unit (if one is installed).
		
		    c. (Trained service technician only) System-board assembly

00150900	SERR/PERR Detected on PCI bus (no source found)	1. If an optional expansion unit is installed, reseat it.
		
		2. Reseat each I/O expansion card, restarting the blade server each time.
		
		3. Replace the following components, one at a time, in the order shown, restarting the blade server each time:
		
		    a. I/O expansion card in slot *xx*
		
		    b. Optional expansion unit (if one is installed.
		
		    c. (Trained service technician only) System-board assembly

00151000	SERR: Signaled Target Abort Slot=*xx* Vendor ID=*xxxx* Device ID=*xxxx* Status=*xxxx*	1. If an optional expansion unit is installed, reseat it.
		
		2. Reseat the I/O expansion card in slot *xx*; then, restart the blade server.
		
		3. Replace the following components, one at a time, in the order shown, restarting the blade server each time:
		
		    a. I/O expansion card in slot *xx*
		
		    b. Optional expansion unit (if one is installed).
		
		    c. (Trained service technician only) System-board assembly

	POST error codes	

Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved.

If an action step is preceded by "(Trained service technician only)," that step must be performed only by a trained service technician.

Error code	Description	Action

00151100	MCA: Recoverable Error Detected Proc	1. Reseat the microprocessor.
		
		2. Replace the following components, one at a time, in the order shown, restarting the blade server each time:
		
		    a. (Trained service technician only) Microprocessor.
		
		    b. (Trained service technician only) System-board assembly

00151200	MCA: Unrecoverable Error Detected Proc	1. (Trained service technician only) Reseat the microprocessor.
		
		2. Replace the following components, one at a time, in the order shown, restarting the blade server each time:
		
		    a. (Trained service technician only).
		
		    b. (Trained service technician only) System-board assembly

00151300	MCA: Excessive Recoverable Error Detected Proc	1. (Trained service technician only) Reseat the microprocessor.
		
		2. Replace the following components one at a time, in the order shown, restarting the blade server each time:
		
		    a. (Trained service technician only).
		
		    b. (Trained service technician only) System-board assembly

00151350	Processor Machine Check Data a Bank= *xx* APIC ID=*xx* CR4=*xxxx xxxx*	Additional data for debugging. See error codes 00151100, 00151200, and 00151300 for action.
00151351	Processor Machine Check Data b Address= *xxxx xxxx xxxx xxxx* Time stamp=*xxxx xxxx xxxx xxxx*	Additional data for debugging. See error codes 00151100, 00151200, and 00151300 for action.
00151352	Processor Machine Check Data b Status= *xxxx xxxx xxxx xxxx*	Additional data for debugging. See error codes 00151100, 00151200, and 00151300 for action. If bit 10 of Data b status is set, do not replace the microprocessor.

00151500	Excessive Single Bit Errors Detected DIMM=*xx*	1. Reseat DIMM *xx* and the expansion unit if one is installed.
		
		2. Replace the following components one at a time, in the order shown, restarting the blade server each time:
		
		    a. DIMM *xx*.
		
		    b. Optional expansion unit (if one is installed.
		
		    c. (Trained service technician only) System-board assembly

	POST error codes	
Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved. If an action step is preceded by "(Trained service technician only)," that step must be performed only by a trained service technician.		
Error code	Description	Action
00151700	Started Hot Spare memory Copy. Failed row/rows=*xx* and *yy* copied to spare row/rows=*aa* and *bb*	1. Reseat a DIMM. See error code 00151500 to determine which DIMM to reseat. 2. Replace a DIMM. See error code 00151500 to determine which DIMM to replace
00151710	Completed Hot Spare memory Copy. Failed row/rows=*xx* and *yy* copied to spare row/rows=*aa* and *bb*	1. Reseat a DIMM. See error code 00151500 to determine which DIMM to reseat. 2. Replace a DIMM. See error code 00151500 to determine which DIMM to replace.
00151720	Parity Error Detected on Processor bus	1. (Trained service technician only) Reseat the microprocessor. 2. Replace the following components one at a time, in the order shown, restarting the blade server each time: a. (Trained service technician only) Microprocessor. b. (Trained service technician only) System-board assembly
00151730	CRC Error	Reseat all DIMMs
01295085	ECC checking hardware test failed	1. (Trained service technician only) Reseat the microprocessor. 2. Replace the following components, one at a time, in the order shown, restarting the blade server each time: a. (Trained service technician only). b. (Trained service technician only) System-board assembly
012980xx	The BIOS does not support the Processor Pxx	1. Make sure that the microprocessor is supported. 2. Update the blade server firmware.
012981xx	Unable to apply the Microcode update for Processor Pxx	1. Make sure that the microprocessor is supported. 2. Replace the microprocessor.
I9990303	No Boot device found	Install the operating system on the storage drive
I999301	Fixed disk boot sector error.	1. Reseat the hard disk drive. 2. Replace the following components one at a time, in the order shown, restarting the blade server each time: a. Hard disk drive b. (Trained service technician only) System board assembly

Table 5-4.   POST error codes

5.3   Checkout procedure

The checkout procedure is the sequence of tasks that you should follow to diagnose a problem in the blade server.

5.3.1   About the checkout procedure

Before performing the checkout procedure for diagnosing hardware problems, review the following information:

- Read the safety information that begins on page ix.

- The diagnostic programs provide the primary methods of testing the major components of the blade server. If you are not sure whether a problem is caused by the hardware or by the software, you can use the diagnostic programs to confirm that the hardware is working correctly.

- When you run the diagnostic programs, a single problem might cause more than one error message. When this happens, correct the cause of the first error message. The other error messages usually will not occur the next time you run the diagnostic programs.

☞ Note:
Exception:
If there are multiple error codes or light path diagnostics LEDs that indicate a microprocessor error, the error might be in a microprocessor or in a microprocessor socket. See *Microprocessor problems*, on page 88 for information about diagnosing microprocessor problems.

- If the blade server is halted and a POST error code is displayed, see *POST error codes*, on page 70. If the blade server is halted and no error message is displayed, see *Troubleshooting tables*, on page 84 and *Solving undetermined problems*, on page 131.

- For intermittent problems, check the error log; see *POST*, on page 59 and *Diagnostic programs, messages and error codes*, on page 103.

- If no LEDs are lit on the blade server front panel, verify the blade server status and errors in the management-module Web interface; also see *Solving undetermined problems*, on page 131.

- If device errors occur, see *Troubleshooting tables*, on page 84.

5.3.2   Performing the checkout procedure

To perform the checkout procedure, complete the following steps:

1. If the blade server is running, turn off the blade server.

2. Turn on the blade server. Make sure that the blade server has control of the video (the keyboard/video/mouse button is lit). If the blade server does not start, see *Troubleshooting tables*, on page 84.

3. Record any POST beep codes that sound or POST error messages that are displayed on the monitor. If an error is displayed, look up the first error in the *POST error codes*, on page 70.

4. Check the control panel blade-error LED; if it is lit, check the light path diagnostics LEDs (see *Light path diagnostics*, on page 99).

5. Check for the following results:

    –   Successful completion of POST, indicated by a single beep.

    –   Successful completion of startup, indicated by a readable display of the operating-system desktop.

6. Did a single beep sound and are there readable instructions on the main menu?

    –   **No:** Find the failure symptom in *Troubleshooting tables*, on page 84; if necessary, see *Solving undetermined problems*, on page 131.

    –   **Yes:** Run the diagnostic programs (see *Running the diagnostics programs*, on page 103).

        •   If you receive an error, see *Diagnostic* , on page 105.

        •   If the diagnostic programs were completed successfully and you still suspect a problem, see *Solving undetermined problems*, on page 131.

5.4 Troubleshooting tables

Use the troubleshooting tables to find solutions to problems that have identifiable symptoms. If these symptoms relate to shared Blade Chassis resources, see *Solving shared Blade resource problems*, on page 126.

If you cannot find the problem in these tables, see *Running the diagnostics programs*, on page 103 for information about testing the blade server.

If you have just added new software or a new optional device, and the blade server is not working, complete the following steps before using the troubleshooting tables:

1. Remove the software or device that you just added.

2. Run the diagnostic tests to determine whether the blade server is running correctly.

3. Reinstall the new software or new device.

5.4.1 General problems

General problems
• Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved.
• If an action step is preceded by "(Trained service technician only)," that step must be performed only by a trained service technician.

Symptom	Action
A cover lock is broken, an LED is not working, or a similar problem has occurred.	It depends of the part, contact your Bull representative.

Table 5-5.   General problems

5.4.2   Hard disk drive problems

Hard disk drive problems	
• Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved. • If an action step is preceded by "(Trained service technician only)," that step must be performed only by a trained service technician.	
Symptom	Action
Not all drives are recognized by the Fixed Disk or SAS Attached Disk diagnostic test.	Remove the storage drive that is indicated by the diagnostic tests; then, run the Fixed Disk or SAS Attached Disk diagnostic test again. If the remaining drives are recognized, replace the drive that you removed with a new one.
The blade server stops responding during the Fixed Disk or SAS Attached Disk diagnostic test.	Remove the hard disk drive that was being tested when the blade server stopped responding, and run the diagnostic test again. If the Fixed Disk or SAS Attached Disk diagnostic test runs successfully, replace the drive that you removed with a new one.
A hard disk drive passes the Fixed Disk or SAS Attached Disk diagnostics test, but the problem remains.	Run the SAS Fixed Disk or SAS Attached Disk diagnostic test again. If the drive passes the diagnostics but continues to have a problem, replace the drive with a new one.

Table 5-6.   Hard disk drive problems

5.4.3   Intermittent problems

Intermittent problems	
• Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved. • If an action step is preceded by "(Trained service technician only)," that step must be performed only by a trained service technician.	
Symptom	Action
A problem occurs only occasionally and is difficult to diagnose.	1. Make sure that: a When the blade server is turned on, air is flowing from the rear of the Blade Chassis at the blower grille. If there is no airflow, the blower is not working. This causes the blade server to overheat and shut down. b The SAS hard disk drives are configured correctly. 2. Check the BMC log (See *POST*, on page 59). 3. See *Solving undetermined problems*, on page 131.

Table 5-7.   Intermittent problems

5.4.4 Keyboard or mouse problems

The keyboard and mouse are shared Blade Chassis resources. First, make sure that the keyboard and mouse are assigned to the blade server; then, see the following table and *Solving shared Blade resource problems*, on page 126.

Keyboard or problems	
• Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved.	
• If an action step is preceded by "(Trained service technician only)," that step must be performed only by a trained service technician.	
Symptom	Action

All keyboard and mouse problems.	1. Make sure that the keyboard/video/mouse select button LED on the front of the blade server is lit, indicating that the blade server is connected to the shared keyboard and mouse.
	
	2. Check the function of the shared Blade Chassis resources (see *Solving shared Blade resource problems*, on page 126).
	
	3. Make sure that:
	  a The device drivers are installed correctly.
	  b The keyboard and mouse are recognized as USB, not PS/2, devices by the blade server. Although the keyboard and mouse might be a PS/2-style devices, communication with them is through USB in the Blade Chassis. Some operating systems allow you to select the type of keyboard and mouse during installation of the operating system. If this is the case, select USB.
	
	4. (Trained service technician only) Replace the system board assembly.

Table 5-8.   Keyboard or mouse problems

5.4.5   Memory problems

Memory problems	
<td colspan="2">• Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved. • If an action step is preceded by "(Trained service technician only)," that step must be performed only by a trained service technician.</td>
Symptom	Action

The amount of system memory that is displayed during POST or by the Configuration/Setup Utility program is less than the amount of installed physical memory	1. Make sure that:
	   a You have installed the correct type of memory.
	   b If you changed the memory, you updated the memory configuration in the Configuration/Setup Utility program.
	   c All banks of memory are enabled. The blade server might have automatically disabled a memory bank when it detected a problem, or a memory bank might have been manually disabled.
	
	2. Check BMC log for error message 289:
	   a If a DIMM was disabled by a system-management interrupt (SMI), replace the DIMM.
	   b If a DIMM was disabled by the user or by POST, run the Configuration/Setup Utility program and enable the DIMM.
	
	3. Reseat the DIMM.
	
	4. Replace the following components one at a time, in the order shown, restarting the blade server each time:
	
	   a. Optional expansion unit (if one is installed).
	   b. Replace the DIMM.
	   c. (Trained service technician only) System board assembly

Multiple rows of DIMMs in a branch are identified as failing	1. Reseat the DIMMs; then, restart the server. 2. Remove the lowest-numbered DIMM pair of those that are identified and replace it with an identical pair of known good DIMMs; then, restart the server. Repeat as necessary. If the failures continue after all identified pairs are replaced, go to step 4. 3. Return the removed DIMMs, one pair at a time, to their original connectors, restarting the server after each pair, until a pair fails. Replace each DIMM in the failed pair with an identical known good DIMM, restarting the server after each DIMM. Replace the failed DIMM. Repeat step 3 until all removed DIMMs have been tested. 4. (Trained service technician only) Replace the system board

Table 5-9.   Memory problems

5.4.6 Microprocessor problems

Hard disk problems	
• Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved. • If an action step is preceded by "(Trained service technician only)," that step must be performed only by a trained service technician.	
Symptom	Action
The blade server emits a continuous beep during POST, indicating that the startup (boot) microprocessor is not working correctly.	1. (Trained service technician only) Reseat the microprocessor. 2. (Trained service technician only) Replace the microprocessor.

Table 5-10. Microprocessor problems

5.4.7 Monitor or video problems

Monitor or video problems	
• Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved. • If an action step is preceded by "(Trained service technician only)," that step must be performed only by a trained service technician.	
Symptom	Action

The screen is blank.	1. Check the function of the shared Blade Chassis resources (see *Solving shared Blade resource problems,* on page 126).
	
	 2. Make sure that:
	   a Damaged BIOS code is not affecting the video; see *Recovering from a BIOS update failure,* on page 123.
	   Important: In some memory configurations, the 3-3-3 beep code might sound during POST, followed by a blank monitor screen. If this occurs and the **Boot Fail Count** option in the **Start Options** of the Configuration/Setup Utility program is enabled, you must restart the blade server three times to reset the configuration settings to the default configuration (the memory connector or band of connectors enabled).
	   b The device drivers are installed correctly.
	
	 3. (Trained service technician only) Replace the system board assembly

The monitor has screen jitter, or the screen image is wavy, unreadable, rolling, or distorted.	1. Check the function of the shared Blade Chassis resources (see *Solving shared Blade resource problems,* on page 126). 2. (Trained service technician only) Replace the system board assembly.
Wrong characters appear on the screen.	1. If the wrong language is displayed, update the firmware or operating system with the correct language in the blade server that has ownership of the monitor. 2. Check the function of the shared Blade Chassis resources (see *Solving shared Blade resource problems,* on page 126). 3. (Trained service technician only) Replace the system board assembly.

Table 5-11. Monitor or video problems

5.4.8   Network connection problems

The blade server connects to the network using shared Blade Chassis resources. See the following table and *Solving shared Blade resource problems*, on page 126.

Network connection problems
• Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved. • If an action step is preceded by "(Trained service technician only)," that step must be performed only by a trained service technician.

Symptom	Action

One or more blade servers are unable to communicate with the network.	1. Check the function of the shared Blade Chassis resources (see *Solving shared Blade resource problems*, on page 126).
	2. Make sure that:
	  a The correct device drivers are installed.
	  b The Ethernet controllers correctly configured.
	  c Optional I/O-expansion cards are correctly installed and configured.
	3. (Trained service technician only) Replace the system board assembly.

Table 5-12. Network connection problems

5.4.9   Optional device problems

Optional device problems
• Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved. • If an action step is preceded by "(Trained service technician only)," that step must be performed only by a trained service technician.

Symptom	Action

An optional device that was just installed does not work.	1. Make sure that:
	  a The device is designed for the blade server.
	  b You followed the installation instructions that came with the device and the device is installed correctly.
	  c You have not loosened any other installed devices or cables.
	  d You updated the configuration information in the Configuration/Setup Utility program. Whenever memory or any other device is changed, you must update the configuration.
	2. If the device comes with its own test instructions, use those instructions to test the device.
	3. Reseat the device that you just installed.
	4. Replace the device that you just installed.

Table 5-13. Optional device problems

5.4.10   Power error messages

Power to the blade server is provided by shared Blade Chassis resources. See the following table and *Solving shared Blade resource problems*, on page 126.

Power error messages	
• Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved. • If an action step is preceded by "(Trained service technician only)," that step must be performed only by a trained service technician.	
Symptom	**Action**
System Power Good fault	1. Reseat the blade server. 2. Check the function of the shared Blade Chassis resources (see *Solving shared Blade resource problems*, on page 126). 3. If an optional expansion unit is installed, reseat it. 4. Replace the following components one at a time, in the order shown, restarting the blade server each time: a. Optional expansion unit (if one is installed. b. (Trained service technician only) System-board assembly
VRD Power Good fault	1. Reseat the blade server. 2. Check the function of the shared Blade Chassis resources see *Solving shared Blade resource problems*, on page 126). 3. (Trained service technician only) Replace the system board assembly.
System over recommended voltage for +12v.	Informational only. **Note:** If the problem persists, perform the following tasks. 1. Reseat the blade server. 2. Check the function of the shared Blade Chassis resources see *Solving shared Blade resource problems*, on page 126. 3. (Trained service technician only) Replace the system board assembly.
System over recommended voltage for +0.9v.	Informational only. **Note:** If the problem persists, perform the following tasks. 1. Reseat the blade server. 2. Check the function of the shared Blade Chassis resources (see *Solving shared Blade resource problems*, on page 126. 3. (Trained service technician only) Replace the system board assembly.

- Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved.
- If an action step is preceded by "(Trained service technician only)," that step must be performed only by a trained service technician.

Symptom	Action
System over recommended voltage for +3.3v.	Informational only. **Note:** If the problem persists, perform the following tasks. 1. Reseat the blade server. 2. Check the function of the shared Blade Chassis resources (see *Solving shared Blade resource problems*, on page 126. 3. (Trained service technician only) Replace the system board assembly.
System over recommended 5V fault.	Informational only. **Note:** If the problem persists, perform the following tasks. 1. Reseat the blade server. 2. Check the function of the shared Blade Chassis resources (see *Solving shared Blade resource problems*, on page 126. 3. (Trained service technician only) Replace the system board assembly.
System under recommended voltage for +12v.	Informational only. **Note:** If the problem persists, perform the following tasks. 1. Reseat the blade server. 2. Check the function of the shared Blade Chassis resources (see *Solving shared Blade resource problems*, on page 126. 3. (Trained service technician only) Replace the system board assembly.
System under recommended voltage for +0.9v.	Informational only. **Note:** If the problem persists, perform the following tasks. 1. Reseat the blade server. 2. Check the function of the shared Blade Chassis resources see *Solving shared Blade resource problems*, on page 126. 3. (Trained service technician only) Replace the system board assembly.

Power error messages	
• Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved. • If an action step is preceded by "(Trained service technician only)," that step must be performed only by a trained service technician.	
Symptom	**Action**
System under recommended voltage for +3.3v.	Informational only. **Note:** If the problem persists, perform the following tasks. 1. Reseat the blade server. 2. Check the function of the shared Blade Chassis resources (see *Solving shared Blade resource problems*, on page 126. 3. (Trained service technician only) Replace the system board assembly.
System under recommended 5V fault.	Informational only. **Note:** If the problem persists, perform the following tasks. 1. Reseat the blade server. 2. Check the function of the shared Blade Chassis resources (see *Solving shared Blade resource problems*, on page 126. 3. (Trained service technician only) Replace the system board assembly.

Table 5-14. Power error messages

5.4.11   Power problems

Power problems	
• Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved.	
• If an action step is preceded by "(Trained service technician only)," that step must be performed only by a trained service technician.	
Symptom	Action
The power-control button does not work.	1. Reseat the control-panel connector. 2. Replace the bezel assembly. 3. (Trained service technician only) Replace the system board assembly.
The blade server does not turn on.	1. Check the function of the shared Blade Chassis resources (see *Solving shared Blade resource problems*, on page 126). 2. Make sure that the power-on LED on the blade server control panel is flashing slowly. a If the power LED is flashing rapidly and continues to do so, the blade server is not communicating with the management-module; reseat the blade server and go to step 7 b If the power LED is off, the blade bay is not receiving power, the blade server is defective, or the LED information panel is loose or defective. 3. Check the power-management policies in the operating system for the blade server. 4. Check the management module log of the corresponding blade server for an error preventing the blade server from turning on. 5. Reseat the blade server. 6. If you just installed a device in the blade server, remove it and restart the blade server. If the blade server now starts, you might have installed more devices than the power to that blade bay supports. 7. (Trained service technician only) If you tried another blade server in the blade bay when checking the function of the shared Blade Chassis resources and the other blade server worked, replace the system board assembly. 8. See *Solving undetermined problems*, on page 131.
The blade server turns off for no apparent reason.	1. Check the function of the shared Blade Chassis resources (see *Solving shared Blade resource problems*, on page 126). 2. (Trained service technician only) If the microprocessor error LED is lit, replace the microprocessor. 3. (Trained service technician only) Replace the system board assembly.

Power problems	
• Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved.	
• If an action step is preceded by "(Trained service technician only)," that step must be performed only by a trained service technician.	
Symptom	**Action**

The blade server does not turn off.	1. Verify whether you are using an Advanced Configuration and Power Interface (ACPI) or non-ACPI operating system.
	
	2. If you are using a non-ACPI operating system, complete the following steps:
	    a. Turn off the blade server by pressing the power-control button for 4 seconds.
	    b. If the blade server fails during POST and the power-control button does not work, remove the blade server from the bay and reseat it.
	
	3. If the problem remains or if you are using an ACPI-aware operating system, complete the following steps:
	    a. Check the power-management policies in the operating system for the blade server.
	    b. (Trained service technician only) Replace the system board assembly.

Table 5-15. Power problems

5.4.12   Removable-media drive problems

<table>
<tr><td colspan="2" align="center">Removable-media drive problems</td></tr>
<tr><td colspan="2">• Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved.
• If an action step is preceded by "(Trained service technician only)," that step must be performed only by a trained service technician.</td></tr>
<tr><td>Symptom</td><td>Action</td></tr>
<tr>
<td>All removable-media drive problems.</td>
<td>
1. The media-tray select button LED on the front of the blade server is lit, indicating that the blade server is connected to the shared removable-media drives.

2. Check the function of the shared Blade Chassis resources (see *Solving shared Blade resource problems*, on page 126).

3. Run the Configuration/Setup Utility program and make sure that the drive is enabled.

4. For CD-ROM or DVD drive problems, make sure that the correct device driver is installed.

5. Reseat the battery.

6. Replace the battery.

7. (Trained service technician only) Replace the system board assembly
</td>
</tr>
<tr>
<td>The CD or DVD drive is detected as /dev/sr0 by SUSE Linux. (If the SUSE Linux operating system is installed remotely onto a blade server that is not the current owner of the media tray [CD or DVD drive, diskette drive, and USB port], SUSE Linux detects the CD or DVD drive as /dev/sr0 instead of /dev/cdrom</td>
<td>
Establish a link between /dev/sr0 and /dev/cdrom as follows:

1. Enter the following command:
    rm /dev/cdrom; ln -s /dev/sr0 /dev/cdrom

2. Insert the following line in the /etc/fstab file:
    /dev/cdrom /media/cdrom auto ro,noauto,user,exec 0 0
</td>
</tr>
</table>

Removable-media drive problems
• Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved. • If an action step is preceded by "(Trained service technician only)," that step must be performed only by a trained service technician.

Symptom	Action
The CD or DVD drive is not recognized after being switched back to the blade server running Windows 2000 Advanced Server with SP3 applied. (When the CD or DVD drive owned by blade server *x* is switched to another blade server, then is switched back to blade server *x*, the operating system in blade server *x* no longer recognizes the CD or DVD drive. This happens when you have not safely stopped the drives before switching ownership of the media tray [CD or DVD drive, diskette drive, and USB port].)	**Note:** Because the Blade Chassis uses USB to communicate with the media tray devices, switching ownership of the media tray to another blade server is the same as disconnecting a USB device. Before you switch ownership of the CD or DVD drive (media tray) to another blade server, safely stop the media tray devices on the blade server that currently owns the media tray, as follows: 1. Double-click the **Unplug/Eject Hardware** icon in the Windows taskbar. 2. Select **USB Floppy** and click **Stop**. 3. Select **USB Mass Storage Device** and click **Stop**. 4. Click **Close**. You can now safely switch ownership of the media tray to another blade server.

Table 5-16. Removable-media drive problems

5.4.13   Service processor problems

Service processor problems
• Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved. • If an action step is preceded by "(Trained service technician only)," that step must be performed only by a trained service technician.

Symptom	Action
The management-module reports a general monitor failure.	Disconnect the Blade Chassis from all electrical sources, wait for 30 seconds, reconnect the Blade Chassis to the electrical sources, and restart the blade server. If the problem remains, see *Solving undetermined problems*, on page 131, and the *Hardware Maintenance Manual and Troubleshooting Guide* or *Problem Determination and Service Guide* for your Blade Chassis.

Table 5-17. Service processor problems

5.4.14   Software problems

Software problems
•   Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved. •   If an action step is preceded by "(Trained service technician only)," that step must be performed only by a trained service technician.

Symptom	Action

You suspect a software problem.	1. To determine whether the problem is caused by the software, make sure that:
	    a The blade server has the minimum memory that is needed to use the software. For memory requirements, see the information that comes with the software.
	       Note: If you have just installed an adapter or memory, the blade server might have a memory-address conflict.
	
	    b The software is designed to operate on the blade server.
	    c Other software works on the blade server.
	    d The software works on another server.
	
	2. If you received any error messages when using the software, see the information that comes with the software for a description of the messages and suggested solutions to the problem.
	
	3. Contact your place of purchase of the software.

Table 5-18.   Software problems

5.4.15   Universal Serial Bus (USB) port problems

The USB ports are shared Blade Chassis resources. First, make sure that the USB ports are assigned to the blade server; then, see the following table and *Solving shared Blade resource problems*, on page 126.

Universal Serial Bus (USB) port problems
•   Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved. •   If an action step is preceded by "(Trained service technician only)," that step must be performed only by a trained service technician.

Symptom	Action

A USB device does not work.	1. Check the function of the shared Blade Chassis resources (see *Solving shared Blade resource problems*, on page 126).
	
	2. Make sure that:
	    a The operating system supports USB devices.
	    b The correct USB device driver is installed.
	
	3. (Trained service technician only) Replace the system board assembly.

Table 5-19.   Universal Serial Bus (USB) port problems

5.5 Light path diagnostics

Light path diagnostics is a system of LEDs on the control panel and on various internal components of the blade server. When an error occurs, LEDs can be lit throughout the blade server to help identify the source of the error.

After you remove the blade server, you can press and hold the light path diagnostics switch for a maximum of 25 seconds to light the LEDs and locate the failing component. The following components have this feature:

- Hard disk drives
- Light path diagnostics panel
- Microprocessors
- Memory modules (DIMMs)

5.5.1 Viewing the light path diagnostic LEDs

Before working inside the blade server to view light path diagnostics LEDs, read the safety information that begins on page ix and *Installation guidelines*, on page 23.

If an error occurs, view the light path diagnostics LEDs in the following order:

1. Look at the control panel on the front of the blade server (see *Blade server controls and LEDs*, on page 5).

    – If the information LED is lit, it indicates that information about a suboptimal condition in the blade server is available in the BMC log or in the management-module event log.

    – If the blade-error LED is lit, it indicates that an error has occurred; go to step 2.

2. To view the light path diagnostics panel and LEDs, complete the following steps:

    a. Remove the blade server from the Blade Chassis.

    b. Place the blade server on a flat, static-protective surface.

    c. Remove the cover from the blade server.

    d. Press and hold the light path diagnostics switch to light the LEDs of the failing components in the blade server. The LEDs will remain lit for as long as you press the switch, to a maximum of 25 seconds.

The following illustration shows the locations of the system board error LEDs.

Power-fault LED
Battery-error LED
Microprocessor-error LED
BMC-fault LED
Power jumper bad LED

DIMM 1-error LED
DIMM 2-error LED
DIMM 3-error LED
DIMM 4-error LED
DIMM 5-error LED
DIMM 6-error LED

BMC heartbeat LED
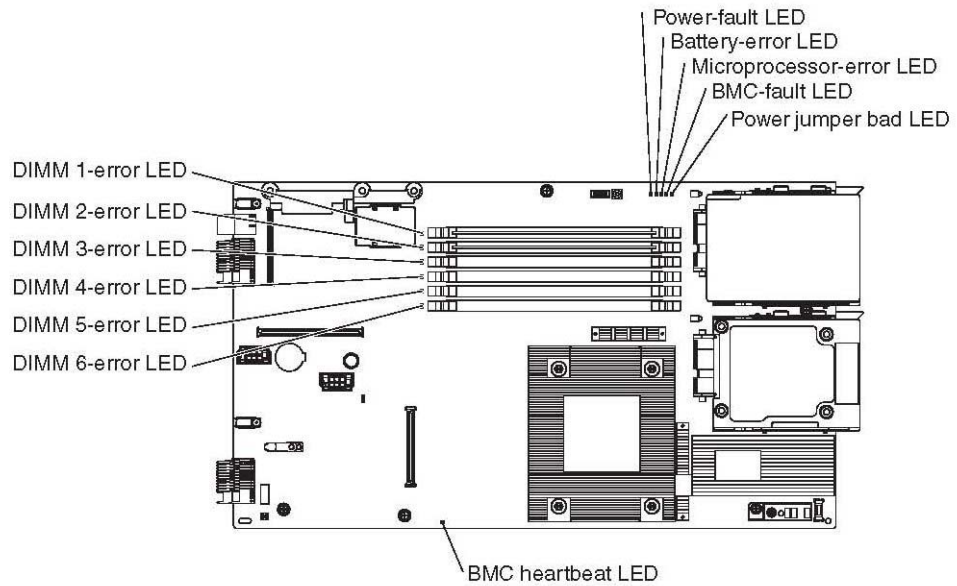
Figure 5-2.   System board error LEDs

The following illustrations show the system board light path diagnostics panel and LEDs on the system board light path diagnostics panel..

System jumper config (SW 2)
System reset (SW 3)

Light path diagnostics
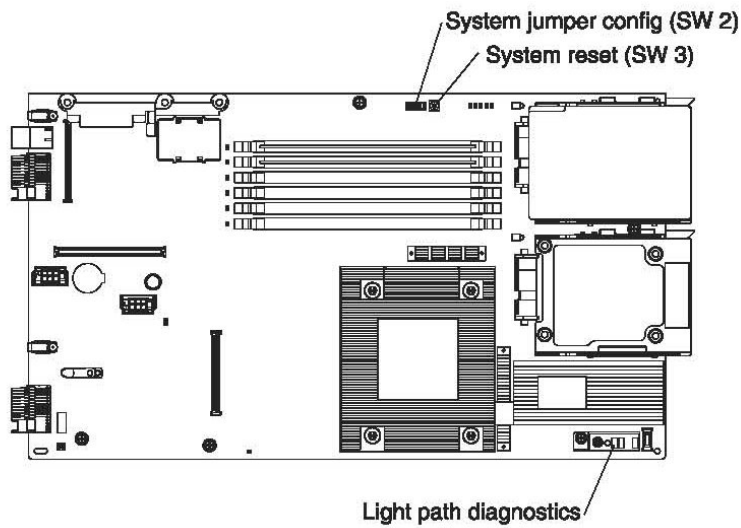
Figure 5-3.   System board light path diagnostics panel
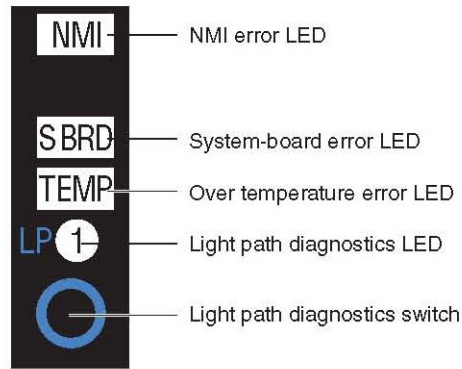
Figure 5-4.   System board light path diagnostics panel LEDs

5.5.2   Light path diagnostics LEDs

The following table describes the LEDs on the light path diagnostics panel on the system board and suggested actions to correct the detected problems.

Light path diagnostics LEDs		
• Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved. • If an action step is preceded by "(Trained service technician only)," that step must be performed only by a trained service technician.		
Lit light path diagnostics LED	Description	Action
None	An error has occurred and cannot be isolated, or the service processor has failed.	1. Make sure that the light path diagnostics LED is lit to ensure that there is enough power in the blade server to light the rest of the LEDs. 2. Check the BMC log for information about an error that is not represented by a light path diagnostics LED.
DIMM _x_ error	A memory error occurred.	1. Make sure that DIMM _x_ is supported. 2. Reseat the DIMM _x_. 3. Replace the DIMM _x_. **Note:** Multiple DIMM LEDs do not necessarily indicate multiple DIMM failures. If more than one DIMM LED is lit, reseat or replace one DIMM at a time until the error is corrected.
LP1	• LP1 LED on system board: system-board assembly light path diagnostic LEDs have power. • LP1 LED on optional expansion unit: check light path LEDs on the system board	Check for error LEDs that are lit on the system-board assembly.

Light path diagnostics LEDs		
• Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved.		
• If an action step is preceded by "(Trained service technician only)," that step must be performed only by a trained service technician.		
Lit light path diagnostics LED	Description	Action
LP2	Light path diagnostic LEDs on the optional expansion unit have power.	Check for error LEDs that are lit on the optional expansion unit.

Microprocessor error	The microprocessor has failed or overheated, or the start microprocessor is missing.	1. Check the Chassis Management Module (AMM) log for more information. Perform appropriate action.
		2. If the log shows that a microprocessor is disabled or that a microprocessor IERR has occurred perform the following actions.
		  a. (Trained service technician only). Reseat the microprocessor.
		  b. (Trained service technician only). Replace the microprocessor.

NMI (NMI error)	The system board has failed.	1. Replace the blade server cover, reinsert the blade server in the Blade Chassis, and restart the blade server. Check the BMC log for information about the error. 2. (Trained service technician only) Replace the system board assembly.
S BRD (System board error)	The system board has failed	(Trained service technician only) Replace the system board assembly.
TEMP (Over temperature error)	The system temperature has exceeded a threshold level.	1. Check the function of the shared Blade Chassis resources (see *Solving shared Blade resource problems*, on page 126). 2. Make sure that the room temperature is not too high. See *Features and specifications*, on page 3 for temperature information.
SAS hard disk drive error	The SAS hard disk drive has failed.	Run the SAS Attached Disk diagnostic test. If the diagnostics pass but the drive continues to have a problem, replace the SAS hard disk drive with a new one.

Table 5-20. Light path diagnostics LEDs

5.6   Diagnostic programs, messages and error codes

The diagnostic programs are the primary method of testing the major components of the blade server. As you run the diagnostic programs, text messages and error codes are displayed on the screen and are saved in the test log. A diagnostic text message or error code indicates that a problem has been detected; to determine what action you should take as a result of a message or error code, see the table in *Diagnostic* , on page 105.

If you cannot find the problem using the diagnostic programs, see *Solving undetermined problems*, on page 131 for information about testing the blade server.

5.6.1   Running the diagnostics programs

To run the diagnostic programs, complete the following steps:

1. If the blade server is running, turn off the blade server.

2. Turn on the blade server.

3. When the prompt F2 for Diagnostics appears, press F2.

4. From the top of the screen, select either **Extended** or **Basic**.

5. From the menu, select the test that you want to run, and follow the instructions on the screen.

For help with the diagnostic programs, press F1. You also can press F1 from within a help screen to obtain online documentation from which you can select different categories. To exit from the help information, press Esc.

To determine what action you should take as a result of a diagnostic text message or error code, see the table in *Diagnostic* , on page 105.

If the diagnostic programs do not detect any hardware errors but the problem remains during normal server operations, a software error might be the cause. If you suspect a software problem, see the information that comes with your software.

A single problem might cause more than one error message. When this happens, correct the cause of the first error message. The other error messages usually will not occur the next time you run the diagnostic programs.

👉 **Note:**
Exception:
If there are multiple error codes or light path diagnostics LEDs that indicate a microprocessor error, the error might be in a microprocessor or in a microprocessor socket. See *Microprocessor problems*, on page 88 for information about diagnosing microprocessor problems.

If the blade server stops responding during testing and you cannot continue, restart the blade server and try running the diagnostic programs again. If the problem remains, replace the component that was being tested when the blade server stopped.

The diagnostic programs assume that a keyboard and mouse are attached to the Blade Chassis and that the blade server controls them. If you run the diagnostic programs with either no mouse or a mouse attached to the Blade Chassis that is not controlled by the blade server, you cannot use the **Next Cat** and **Prev Cat** buttons to select categories. All other mouse-selectable functions are available through function keys.

To view server configuration information such as system configuration, memory contents, interrupt request (IRQ) use, direct memory access (DMA) use, or device drivers, select **Hardware Info** from the top of the screen.

5.6.2 Diagnostic text messages

Diagnostic text messages are displayed while the tests are running. A diagnostic text message contains one of the following results:

Passed: The test was completed without any errors.

Failed: The test detected an error.

User Aborted: You stopped the test before it was completed.

Not Applicable: You attempted to test a device that is not present in the blade server.

Aborted: The test could not proceed because of the blade server configuration.

Warning: The test could not be run. There was no failure of the hardware that was being tested, but there might be a hardware failure elsewhere, or another problem prevented the test from running; for example, there might be a configuration problem, or the hardware might be missing or is not being recognized.

The result is followed by an error code or other additional information about the error.

5.6.3 Viewing the test log

To view the test log when the tests are completed, select **Utility** from the top of the screen and then select **View Test Log**. The test-log data is maintained only while you are running the diagnostic programs. When you exit from the diagnostic programs, the test log is cleared.

To save the test log to a file on a diskette or to the hard disk, select **Save Log** on the diagnostic programs screen and specify a location and name for the saved log file.

☞ Note:
To save the test log to a diskette, you must use a diskette that you have formatted yourself; this function does not work with preformatted diskettes. If the diskette has sufficient space for the test log, the diskette can contain other data.

5.6.4   Diagnostic messages

The following table describes the messages that the diagnostic programs might generate and suggested actions to correct the detected problems. Follow the suggested actions in the order in which they are listed in the action column.

If the diagnostic programs generate error codes that are not listed in the table, make sure that the latest level of the BIOS code is installed.

In the error codes, *x* can be any numeral or letter. However, if the three-digit number in the central position of the code is 000, 195, or 197, *do not* replace a part of the blade server. These numbers appearing in the central position of the code have the following meanings:

000   The blade server passed the test. Do not replace a part of the blade server.

195   The Esc key was pressed to end the test. Do not replace a part of the blade server.

197   This is a warning error, but it does not indicate a hardware failure; do not replace a part of the blade server. Take the action that is indicated in the Action column, but *do not replace a* part of the blade server. See the description for **Warning** in the section *Diagnostic text messages*, on page 104 for more information.

5.7 BMC self tests

BMC self tests		
• Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved.		
• If an action step is preceded by "(Trained service technician only)," that step must be performed only by a trained service technician.		
Error code	Description	Action
166-901-xxx	Failed the BMC test due to a failure in the host bus.	1. Turn off the blade server, open the blade server release levers and pull the blade server away from the blade server bay, but do not remove it. 2. Wait 45 seconds and reseat the blade server in the blade server bay and turn on the blade server. 3. Rerun the test. 4. Make sure that the component firmware level is up-to-date, upgrade if necessary; then, rerun the test. The installed firmware level can be found in the Firmware/VPD section of the Management Module. 5. Turn off the blade server and reseat the blade server in the blade server bay and turn on the blade server. 6. Rerun the test. 7. If the failure remains, refer to Chapter 4, "Removing and replacing blade server components," on page 23 to replace the failed component.

BMC self tests		
• Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved.		
• If an action step is preceded by "(Trained service technician only)," that step must be performed only by a trained service technician.		
Error code	Description	Action
166-902-xxx	Failed the BMC self test due to a failure in SIO Bus and DASD SEP	1. Turn off the blade server, open the blade server release levers and pull the blade server away from the blade server bay, but do not remove it. 2. Wait 45 seconds and reseat the blade server in the blade server bay and turn on the blade server. 3. Rerun the test. 4. Make sure that the component firmware level is up-to-date, upgrade if necessary; then, rerun the test. The installed firmware level can be found in the Firmware/VPD section of the Management Module. 5. Turn off the blade server and reseat the blade server in the blade server bay and turn on the blade server. 6. Rerun the test. 7. If the failure remains, refer to Chapter 4, "Removing and replacing blade server components," on page 23 to replace the failed component.
166-903-xxx	Failed the BMC self test due to a failure in the LAN or cKVM bus.	1. Turn off the blade server, open the blade server release levers and pull the blade server away from the blade server bay, but do not remove it. 2. Wait 45 seconds and reseat the blade server in the blade server bay and turn on the blade server. 3. Rerun the test. 4. Make sure that the component firmware level is up-to-date, upgrade if necessary; then, rerun the test. The installed firmware level can be found in the Firmware/VPD section of the Management Module. 5. Make sure that the Ethernet device firmware level is up-to-date, upgrade if necessary; then, rerun the test. 6. Turn off the blade server and reseat the blade server in the blade server bay and turn on the blade server. 7. Rerun the test. 8. If the failure remains, refer to Chapter 4, "Removing and replacing blade server components," on page 23 to replace the failed component.

BMC self tests		
• Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved.		
• If an action step is preceded by "(Trained service technician only)," that step must be performed only by a trained service technician.		
Error code	Description	Action
166-904-xxx	Failed the BMC self test due to a failure in the main expander.	1. Turn off the blade server, open the blade server release levers and pull the blade server away from the blade server bay, but do not remove it. 2. Wait 45 seconds and reseat the blade server in the blade server bay and turn on the blade server. 3. Rerun the test. 4. Make sure that the component firmware level is up-to-date, upgrade if necessary; then, rerun the test. The installed firmware level can be found in the Firmware/VPD section of the Management Module. 5. Turn off the blade server and reseat the blade server in the blade server bay and turn on the blade server. 6. Rerun the test. 7. If the failure remains, refer to Chapter 4, "Removing and replacing blade server components," on page 23 to replace the failed component.
166-905-xxx	Failed the BMC self test due to a failure in the CPU/VRD bus.	1. Turn off the blade server, open the blade server release levers and pull the blade server away from the blade server bay, but do not remove it. 2. Wait 45 seconds and reseat the blade server in the blade server bay and turn on the blade server. 3. Rerun the test. 4. Make sure that the BMC firmware level is up-to-date, upgrade if necessary; then, rerun the test. The installed firmware level can be found in the Firmware/VPD section of the Management Module. 5. Turn off the blade server, remove the blade server from the blade server bay and remove the cover. 6. Locate the microprocessor and reseat it. See "Removing a microprocessor and heat sink" on page 50 for more information. 7. Close the cover and reseat the blade server in the blade server bay, and turn on the blade server. 8. Rerun the test. 9. If the failure remains, refer to Chapter 4, "Removing and replacing blade server components," on page 23 to replace the failed component.

BMC self tests		
• Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved.		
• If an action step is preceded by "(Trained service technician only)," that step must be performed only by a trained service technician.		
Error code	Description	Action
166-906-xxx	Failed the BMC self test due to a failure in VPD or Power PSOC.	1. Turn off the blade server, open the blade server release levers and pull the blade server away from the blade server bay, but do not remove it. 2. Wait 45 seconds and reseat the blade server in the blade server bay and turn on the blade server. 3. Rerun the test. 4. Make sure that the BMC firmware level is up-to-date, upgrade if necessary; then, rerun the test. The installed firmware level can be found in the Firmware/VPD section of the Management Module. 5. Turn off the blade server, open the blade server release levers and pull the blade server away from the blade server bay, but do not remove it from the bay 6. Wait 45 seconds and reseat the blade server in the blade module bay and turn on the blade server 7. Rerun the test. 8. If the failure remains, refer to Chapter 4, "Removing and replacing blade server components," on page 23 to replace the failed component.
166-907-xxx	Failed the BMC self test due to a failure in the EXP A0 bus.	1. Turn off the blade server, open the blade server release levers and pull the blade server away from the blade server bay, but do not remove it. 2. Wait 45 seconds and reseat the blade server in the blade server bay and turn on the blade server. 3. Rerun the test. 4. Make sure that the BMC firmware level is up-to-date, upgrade if necessary; then, rerun the test. The installed firmware level can be found in the Firmware/VPD section of the Management Module. 5. Turn off the blade server, open the blade server release levers and pull the blade server away from the blade server bay, but do not remove it from the bay 6. Wait 45 seconds and reseat the blade server in the blade module bay and turn on the blade server 7. Rerun the test. 8. If the failure remains, refer to Chapter 4, "Removing and replacing blade server components," on page 23 to replace the failed component.

BMC self tests		
• Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved.		
• If an action step is preceded by "(Trained service technician only)," that step must be performed only by a trained service technician.		
Error code	Description	Action
166-908-xxx	Failed the BMC self test due to a failure in the EXP A1 bus.	1. Turn off the blade server, open the blade server release levers and pull the blade server away from the blade server bay, but do not remove it. 2. Wait 45 seconds and reseat the blade server in the blade server bay and turn on the blade server. 3. Rerun the test. 4. Make sure that the BMC firmware level is up-to-date, upgrade if necessary; then, rerun the test. The installed firmware level can be found in the Firmware/VPD section of the Management Module. 5. Turn off the blade server, open the blade server release levers and pull the blade server away from the blade server bay, but do not remove it from the bay. 6. Wait 45 seconds and reseat the blade server in the blade module bay and turn on the blade server. 7. Rerun the test. 8. If the failure remains, refer to Chapter 4, "Removing and replacing blade server components," on page 23 to replace the failed component.
166-909-xxx	Failed the BMC self test due to a failure in the EXP B bus.	1. Turn off the blade server, open the blade server release levers and pull the blade server away from the blade server bay, but do not remove it. 2. Wait 45 seconds and reseat the blade server in the blade server bay and turn on the blade server. 3. Rerun the test. 4. Make sure that the BMC firmware level is up-to-date, upgrade if necessary; then, rerun the test. The installed firmware level can be found in the Firmware/VPD section of the Management Module. 5. Turn off the blade server, open the blade server release levers and pull the blade server away from the blade server bay, but do not remove it from the bay. 6. Wait 45 seconds and reseat the blade server in the blade module bay and turn on the blade server. 7. Rerun the test. 8. If the failure remains, refer to Chapter 4, "Removing and replacing blade server components," on page 23 to replace the failed component.

BMC self tests		
• Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved.		
• If an action step is preceded by "(Trained service technician only)," that step must be performed only by a trained service technician.		
Error code	Description	Action
166-910-xxx	Failed the BMC self test due to a failure in the onboard legacy daughter card.	1. Turn off the blade server, open the blade server release levers and pull the blade server away from the blade server bay, but do not remove it. 2. Wait 45 seconds and reseat the blade server in the blade server bay and turn on the blade server. 3. Rerun the test. 4. Make sure that the BMC firmware level is up-to-date, upgrade if necessary; then, rerun the test. The installed firmware level can be found in the Firmware/VPD section of the Management Module. 5. Turn off the blade server, open the blade server release levers and pull the blade server away from the blade server bay, but do not remove it from the bay. 6. Wait 45 seconds and reseat the blade server in the blade module bay and turn on the blade server. 7. Rerun the test. 8. If the failure remains, refer to Chapter 4, "Removing and replacing blade server components," on page 23 to replace the failed component.
166-911-xxx	Failed the BMC self test due to a failure in the BSE-3 PCI-X A slot.	1. Turn off the blade server, open the blade server release levers and pull the blade server away from the blade server bay, but do not remove it. 2. Wait 45 seconds and reseat the blade server in the blade server bay and turn on the blade server. 3. Rerun the test. 4. Make sure that the BMC firmware level is up-to-date, upgrade if necessary; then, rerun the test. The installed firmware level can be found in the Firmware/VPD section of the Management Module. 5. Turn off the blade server, open the blade server release levers and pull the blade server away from the blade server bay, but do not remove it from the bay. 6. Wait 45 seconds and reseat the blade server in the blade module bay and turn on the blade server. 7. Rerun the test. 8. If the failure remains, refer to Chapter 4, "Removing and replacing blade server components," on page 23 to replace the failed component.

BMC self tests		
• Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved.		
• If an action step is preceded by "(Trained service technician only)," that step must be performed only by a trained service technician.		
Error code	Description	Action
166-912-xxx	Failed the BMC self test due to a failure in the BSE-3 PCI-X B slot.	1. Turn off the blade server, open the blade server release levers and pull the blade server away from the blade server bay, but do not remove it. 2. Wait 45 seconds and reseat the blade server in the blade server bay and turn on the blade server. 3. Rerun the test. 4. Make sure that the BMC firmware level is up-to-date, upgrade if necessary; then, rerun the test. The installed firmware level can be found in the Firmware/VPD section of the Management Module. 5. Turn off the blade server, open the blade server release levers and pull the blade server away from the blade server bay, but do not remove it from the bay. 6. Wait 45 seconds and reseat the blade server in the blade module bay and turn on the blade server. 7. Rerun the test. 8. If the failure remains, refer to Chapter 4, "Removing and replacing blade server components," on page 23 to replace the failed component.

Table 5-21. BMC self tests

5.8   Broadcom Ethernet device tests

Broadcom Ethernet device tests		
• Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved. • If an action step is preceded by "(Trained service technician only)," that step must be performed only by a trained service technician.		
Error code	Description	Action
405-002-xxx	Passed the EEPROM test on the system board.	N/A
405-903-xxx	Failed the EEPROM test on the system board.	1. Make sure that the component firmware level is up-to-date, upgrade if necessary; then, rerun the test. The installed firmware level can be found in the Firmware/VPD section of the Management Module. 2. If the failure remains, refer to Chapter 4, "Removing and replacing blade server components," on page 23 to replace the failed component.
405-003-xxx	Passed the internal memory test.	N/A
405-904-xxx	Failed the internal memory test.	1. Make sure that the component firmware level is up-to-date, upgrade if necessary; then, rerun the test. The installed firmware level can be found in the Firmware/VPD section of the Management Module. 2. If the failure remains, refer to Chapter 4, "Removing and replacing blade server components," on page 23 to replace the failed component.

Table 5-22. Broadcom Ethernet device tests

5.9   CPU stress tests

CPU stress tests		
• Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved. • If an action step is preceded by "(Trained service technician only)," that step must be performed only by a trained service technician.		
Error code	Description	Action
089-801-xxx	Aborted due to an internal program error.	1. If the blade server has stopped responding, turn off and restart the blade server; then, rerun the test. 2. Make sure that the system firmware level is up-to-date, upgrade if necessary; then, rerun the test. The installed firmware level can be found in the Firmware/VPD section of the Management Module. 3. If the blade server has stopped responding, turn off and restart the blade server; then, rerun the test. 4. If the failure remains, refer to Chapter 4, "Removing and replacing blade server components," on page 23 to replace the failed component (Trained service technician only).
089-802-xxx	Aborted due a system resource availability error.	1. If the blade server has stopped responding, turn off and restart the blade server; then, rerun the test. 2. Make sure that the system firmware level is up-to-date, upgrade if necessary; then, rerun the test. The installed firmware level can be found in the Firmware/VPD section of the Management Module. 3. If the blade server has stopped responding, turn off and restart the blade server; then, rerun the test. 4. If the failure remains, refer to Chapter 4, "Removing and replacing blade server components," on page 23 to replace the failed component (Trained service technician only).
089-901-xxx	Failed the CPU stress test.	1. If the blade server has stopped responding, turn off and restart the blade server; then, rerun the test. 2. Make sure that the system firmware level is up-to-date, upgrade if necessary; then, rerun the test. The installed firmware level can be found in the Firmware/VPD section of the Management Module. 3. If the blade server has stopped responding, turn off and restart the blade server; then, rerun the test. 4. If the failure remains, refer to Chapter 4, "Removing and replacing blade server components," on page 23 to replace the failed component (Trained service technician only).

Table 5-23. CPU stress tests

5.10   Memory self tests

Memory self tests		
• Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved. • If an action step is preceded by "(Trained service technician only)," that step must be performed only by a trained service technician.		
Error code	**Description**	**Action**
210-000-000	Passed the memory self test.	N/A
201-811-xxx	Aborted the memory self test because the test was unable to locate the _SM_ key when locating the SMBIOS structure data.	1. If the blade server has stopped responding, turn off and restart the blade server; then, rerun the test. 2. Make sure that the system BIOS firmware level is up-to-date, upgrade if necessary; then, rerun the test. The installed firmware level can be found in the Firmware/VPD section of the Management Module. 3. Rerun the test. 4. If the failure remains, refer to Chapter 4, "Removing and replacing blade server components," on page 23 to replace the failed component. 5. Rerun the test.
201-812-xxx	Aborted the memory self test because the SMBIOS type 0 structure indicates a non-supported, invalid machine ID.	1. If the blade server has stopped responding, turn off and restart the blade server; then, rerun the test. 2. Make sure that the system BIOS firmware level is up-to-date, upgrade if necessary; then, rerun the test. The installed firmware level can be found in the Firmware/VPD section of the Management Module. 3. If the failure remains, refer to Chapter 4, "Removing and replacing blade server components," on page 23 to replace the failed component. 4. Rerun the test.
201-815-xxx	Aborted the memory self test because of a programming error in the Quick Memory menu item selection process.	1. If the blade server has stopped responding, turn off and restart the blade server; then, rerun the test. 2. Make sure that the system BIOS firmware level is up-to-date, upgrade if necessary; then, rerun the test. The installed firmware level can be found in the Firmware/VPD section of the Management Module. 3. Rerun the test. 4. If the failure remains, refer to Chapter 4, "Removing and replacing blade server components," on page 23 to replace the failed component.

Memory self tests		
• Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved.		
• If an action step is preceded by "(Trained service technician only)," that step must be performed only by a trained service technician.		
Error code	Description	Action
201-818-xxx	Aborted the memory self test because the test was unable to locate the _SM_ key when locating the SMBIOS structure data for the memory information	1. If the blade server has stopped responding, turn off and restart the blade server; then, rerun the test. 2. Make sure that the system BIOS firmware level is up-to-date, upgrade if necessary; then, rerun the test. The installed firmware level can be found in the Firmware/VPD section of the Management Module. 3. If the failure remains, refer to Chapter 4, "Removing and replacing blade server components," on page 23 to replace the failed component.
201-819-xxx	Aborted the memory self test because the START-END address ranges are located in the restricted area of memory.	1. If the blade server has stopped responding, turn off and restart the blade server; then, rerun the test. 2. Make sure that the system BIOS firmware level is up-to-date, upgrade if necessary; then, rerun the test. The installed firmware level can be found in the Firmware/VPD section of the Management Module. 3. If the failure remains, refer to Chapter 4, "Removing and replacing blade server components," on page 23 to replace the failed component.
201-877-xxx	Aborted the memory self test because the Mirroring feature is enabled.	1. If the blade server has stopped responding, turn off and restart the blade server. 2. Press F1 during start up and turn off the Mirrroring feature; the, rerun the test. 2. Make sure that the system BIOS firmware level is up-to-date, upgrade if necessary; then, rerun the test. The installed firmware level can be found in the Firmware/VPD section of the Management Module. 4. If the failure remains, refer to Chapter 4, "Removing and replacing blade server components," on page 23 to replace the failed component.

	Memory self tests	
• Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved.		
• If an action step is preceded by "(Trained service technician only)," that step must be performed only by a trained service technician.		
Error code	Description	Action
201-878-xxx	Aborted the memory self test because the Sparing feature is enabled.	1. If the blade server has stopped responding, turn off and restart the blade server. 2. Press F1 during start up and turn off the Sparing feature; the, rerun the test. 3. Make sure that the system BIOS firmware level is up-to-date, upgrade if necessary; then, rerun the test. The installed firmware level can be found in the Firmware/VPD section of the Management Module. 4. If the failure remains, refer to Chapter 4, "Removing and replacing blade server components," on page 23 to replace the failed component.
201-885-xxx	Aborted the memory self test because the microprocessor does not support MTRR functions and cannot de-cache available memory.	1. If the blade server has stopped responding, turn off and restart the blade server. 2. Make sure that the system BIOS firmware level is up-to-date, upgrade if necessary; then, rerun the test. The installed firmware level can be found in the Firmware/VPD section of the Management Module. 3. If the failure remains, refer to Chapter 4, "Removing and replacing blade server components," on page 23 to replace the failed component.
201-886-xxx	Aborted due to a program error in the E820 function call, which indicates there is not enough available memory for testing.	1. If the blade server has stopped responding, turn off and restart the blade server. 2. Make sure that the system BIOS firmware level is up-to-date, upgrade if necessary; then, rerun the test. The installed firmware level can be found in the Firmware/VPD section of the Management Module. 3. If the failure remains, refer to Chapter 4, "Removing and replacing blade server components," on page 23 to replace the failed component.

	Memory self tests	
• Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved. • If an action step is preceded by "(Trained service technician only)," that step must be performed only by a trained service technician.	
Error code	Description	Action
201-894-xxx	Aborted due to an unexpected error code.	1. If the blade server has stopped responding, turn off and restart the blade server. 2. Make sure that the system BIOS firmware level is up-to-date, upgrade if necessary; then, rerun the test. The installed firmware level can be found in the Firmware/VPD section of the Management Module. 3. If the failure remains, refer to Chapter 4, "Removing and replacing blade server components," on page 23 to replace the failed component.
201-899-xxx	The memory self test was aborted by the user.	The memory self test was terminated by the user before test completion.
201-901-xxx	Failed the memory self test due to a single-bit error in DIMM x OR failed the memory self test due to a multi-bit error in DIMMs x and y.	1. If the blade server has stopped responding, turn off the blade server and pull it out of the bay to disconnect it from power. 2. Reseat DIMM x. 3. Return the blade server to the blade server bay and turn on the blade server. 4. Make sure that the system BIOS firmware level is up-to-date, upgrade if necessary; then, rerun the test. The installed firmware level can be found in the Firmware/VPD section of the Management Module. 5. If the failure remains, refer to Chapter 4, "Removing and replacing blade server components," on page 23 to replace the failed component. 6. Return the blade server to the blade server bay, press F1 during start up and in the **Configuration/Setup Utility program > Resource Utilization** section, click **Available System Memory** to re-enable all memory; then, rerun the test.

Table 5-24. Memory self tests

5.11   Optical drive self tests

Optical drive self tests		
• Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved. • If an action step is preceded by "(Trained service technician only)," that step must be performed only by a trained service technician.		
Error code	**Description**	**Action**
215-000-xxx	Passed the optical drive self test.	N/A
215-801-xxx	Aborted the optical drive self test because it was unable to communicate with the device driver.	1. Make sure that the cable for the optical drive is securely connected at both ends of the cable, then; tighten any loose connections. 2. Make sure that the cable for the optical drive is not damaged, then; replace the cable if damage is present. 3. Rerun the test. 4. Make sure that the firmware level is up-to-date, upgrade if necessary; then, rerun the test. The installed firmware level can be found in the Firmware/VPD section of the Management Module. 5. Rerun the test. 6. Replace the CD or DVD drive. Refer to you Blade Chassis documentation for information about replacing the drive.
215-802-xxx	Aborted the optical drive self test due to media tray being open.	1. Close the media tray and wait 15 seconds. 2. Rerun the test. 3. Insert a new CD or DVD into the drive and wait for 15 seconds for the media to be recognized; then, rerun the test. 4. Make sure that the cable for the optical drive is securely connected at both ends of the cable and tighten any loose connections. 5. Make sure that the cable for the optical drive is not damaged and replace the cable if damage is present. 6. Rerun the test. 7. Replace the CD or DVD drive. Refer to you Blade Chassis documentation for information about replacing the drive.

Optical drive self tests		
• Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved.		
• If an action step is preceded by "(Trained service technician only)," that step must be performed only by a trained service technician.		
Error code	Description	Action
215-803-xxx	Failed the optical drive self test due to the disk possibly being in use by the system.	1. Wait for the system activity to stop; then, rerun the test. 2. Turn off and turn on the system, then; rerun the test. 3. If the component failure remains, see your Blade Chassis for information about replacing the optical drive (media tray).
215-901-xxx	Aborted the optical drive self test because the drive media was not detected.	1. Insert a new CD or DVD into the drive and wait for 15 seconds for the media to be recognized. 2. Rerun the test. 3. Make sure that the cable for the optical drive is securely connected at both ends of the cable, then; tighten any loose connections. 4. Make sure that the cable for the optical drive is not damaged, then; replace the cable if damage is present. 5. Rerun the test. 6. Replace the CD or DVD drive. Refer to you Blade Chassis documentation for information about replacing the drive.
215-902-xxx	Failed the optical drive self test due to a read miscompare.	1. Insert a new CD or DVD into the drive and wait for 15 seconds for the media to be recognized. 2. Rerun the test. 3. Make sure that the cable for the optical drive is securely connected at both ends of the cable, then; tighten any loose connections. 4. Make sure that the cable for the optical drive is not damaged, then; replace the cable if damage is present. 5. Rerun the test. 6. Replace the CD or DVD drive. Refer to you Blade Chassis documentation for information about replacing the drive.

Optical drive self tests		
• Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved.		
• If an action step is preceded by "(Trained service technician only)," that step must be performed only by a trained service technician.		
Error code	Description	Action
215-903-xxx	Aborted the optical drive self test because the drive could not be accessed.	1. Insert a new CD or DVD into the drive and wait for 15 seconds for the media to be recognized. 2. Rerun the test. 3. Make sure that the cable for the optical drive is securely connected at both ends of the cable, then; tighten any loose connections. 4. Make sure that the cable for the optical drive is not damaged, then; replace the cable if damage is present. 5. Rerun the test. 6. Replace the CD or DVD drive. Refer to you Blade Chassis documentation for information about replacing the drive.
215-904-xxx	Failed the optical drive self test due to a possible read error.	1. Insert a new CD or DVD into the drive and wait for 15 seconds for the media to be recognized. 2. Rerun the test. 3. Make sure that the cable for the optical drive is securely connected at both ends of the cable, then; tighten any loose connections. 4. Make sure that the cable for the optical drive is not damaged, then; replace the cable if damage is present. 5. Rerun the test. 6. Replace the CD or DVD drive. Refer to you Blade Chassis documentation for information about replacing the drive.

Table 5-25. Optical drive self tests

5.12   Storage drive self tests

Storage drive self tests		
• Follow the suggested actions in the order in which they are listed in the Action column until the problem is solved. • If an action step is preceded by "(Trained service technician only)," that step must be performed only by a trained service technician.		
Error code	Description	Action
217-000-000	Passed the storage drive self test.	N/A
217-800-xxx	The storage drive self test was terminated by the user.	N/A
217-900-xxx	Failed the storage drive self test.	1. Make sure that the storage drive is securely connected in the storage drive connector, then; reseat the storage drive. 2. Rerun the test. 3. Make sure that the system BIOS firmware level is up-to-date, upgrade if necessary; then, rerun the test. The installed firmware level can be found in the Firmware/VPD section of the Management Module. 4. Rerun the test. 5. If the failure remains, refer to Chapter 4, "Removing and replacing blade server components," on page 23 to replace the failed component.

Table 5-26. Storage drive self tests

5.13   Recovering from a BIOS update failure

The blade server has an advanced recovery feature that will automatically switch to a backup BIOS page if the BIOS code in the blade server has become damaged, such as from a power failure during an update.

The flash memory of the blade server consists of a primary page and a backup page. If the BIOS code in the primary page is damaged, the baseboard management controller will detect the error and automatically switch to the backup page to start the blade server. If this happens, a POST message Booted from backup POST/BIOS image is displayed. The backup page version may not be the same version as the primary image.

You can then recover or restore the original primary page BIOS by using a BIOS flash diskette.

To recover the BIOS code and restore the blade server operation to the primary page, complete the following steps:

1. Download the latest version of the BIOS code. Go to http://www.bull.com/support/ for more information.

2. Update the BIOS code, following the instructions that come with the update file that you download. This will automatically restore and update the primary page.

3. Restart the blade server.

If that procedure fails, the blade server might not restart correctly or might not display video. To manually restore the BIOS code, complete the following steps:

1. Read the safety information that begins on page ix and *Installation guidelines*, on page 23.

2. Turn off the blade server.

3. Remove the blade server from the Blade Chassis (see *Removing the blade server from a Blade Chassis*, on page 25).

4. Remove the cover (see *Removing the blade server cover*, on page 28).

5. Locate switch block SW2-1 on the system board (see *System board switches*, on page 10).

6. Move the BIOS backup page switch (SW3-1) to the ON position to enable the backup page.

7. Replace the cover and reinstall the blade server in the Blade Chassis, making sure that the media tray is selected by the relevant blade server.

8. Insert the BIOS flash diskette into the media tray diskette drive.

9. Restart the blade server. The system begins the power-on self-test (POST).

10. Select **1 - Update POST/BIOS** from the menu that contains various flash (update) options.

⚠️ Attention:
Do NOT type Y when you are prompted to back up the ROM location; doing so causes the damaged BIOS to be copied into the backup page.

11. When you are prompted whether you want to move the current POST/BIOS image to the backup ROM location, type N.

12. When you are prompted whether you want to save the current code to a diskette, type N.

13. Select **Update the BIOS**.

⚠️ Attention:
Do NOT type restart the blade server at this time.

14. When the update is complete, remove the flash diskette from the diskette drive.

15. Turn off the blade server and remove it from the Blade Chassis.

16. Remove the cover of the blade server.

17. Move switch SW3-1 to OFF to return to the normal startup mode.

18. Replace the cover and reinstall the blade server in the Blade Chassis.

19. Restart the blade server.

5.14 Service processor (BMC) error codes

The baseboard management controller (BMC) log contains up to 512 of the most recent service processor errors in IPMI format. These messages are a combination of plain text and error code numbers. You can view the BMC log from the Configuration/Setup Utility menu by selecting **Advanced Setup → Baseboard Management Controller (BMC) Settings → BMC System Event Log**.

You can view additional information and error codes in plain text by viewing the management-module event log in your Blade Chassis.

5.15 Solving SAS hard disk drive problems

For any SAS error message, one or more of the following devices might be causing the problem:

- A failing SAS device (adapter, drive, or controller)

- An improper SAS configuration

For any SAS error message, make sure that the SAS devices are configured correctly.

5.16   Solving shared Blade resource problems

Problems with Blade shared resources might appear to be in the blade server. The following sections provide procedures to help you isolate blade server problems from shared Blade resource problems. If the problem is thought to be with a shared resource, see the documentation for your Blade Chassis and other Blade component documentation for additional information. If the problem cannot be solved, see *Solving undetermined problems*, on page 131.

To check the general function of shared Blade resources, complete the following operations:

- Make sure that:

    – The Blade Chassis has the required power modules installed and is connected to a working power source.

    – Power management has been correctly set for your Blade Chassis configuration.

- Check if the problem is being experienced with more than one blade server. Perform a test of the function on a known-good blade server.

- Try the blade server in a different blade bay.

- Try a known-good blade server in the blade bay.

5.16.1   Keyboard or mouse problems

To check for keyboard or mouse problems, complete the following steps until the problem is solved:

1. Make sure that:

    – Both the blade server and the monitor are turned on.

    – The keyboard/video/mouse select button LED on the front of the blade server is lit, indicating that the blade server is connected to the shared keyboard and mouse.

    – The keyboard or mouse cable is securely connected to the active Blade management-module.

    – The keyboard or mouse works with another blade server.

2. Check for correct management-module operation (see the documentation for your Blade Chassis).

☞ Note:
Some Blade Chassis types have several management-module components that might need to be tested or replaced (see the *Installation Guide* for your management module for more information).

3. Replace the keyboard or mouse.

4. Replace the management module (see the documentation for your Blade Chassis).

If these steps do not resolve the problem, it is likely a problem with the blade server. See *Keyboard or mouse problems*, on page 86.

5.16.2   Media tray problems

To check for problems with the media tray (removable media drives and USB ports), complete the following steps until the problem is solved:

1. Make sure that:
   - The media-tray select button LED on the front of the blade server is lit, indicating that the blade server is connected to the shared media tray.
   - The media tray devices work with another blade server.

2. Check if the problem affects more than one media tray component:
   - USB ports
   - Diskette drive
   - CD or DVD drive

3. For problems affecting only a USB port:
   a. Make sure that the USB device is operational. If using a USB hub, make sure that the hub is operating correctly and that any software the hub requires is installed. Plug the USB device directly into the USB port, bypassing the hub, to check its operation.
   b. Reseat the following components:

      1) USB device cable
      2) Media tray cable (if applicable)
      3) Media tray

   c. Replace the following components one at a time, in the order shown, restarting the blade server each time:

      1) USB cable (if applicable)
      2) Media tray cable (if applicable)
      3) Media tray

   d. Continue with step 7 on page 128.

4. For problems affecting only the diskette drive:
   a. If there is a diskette in the drive, make sure that:
      - The diskette is inserted correctly in the drive.
      - The diskette is good and not damaged; the drive LED light flashes onceper second when the diskette is inserted. (Try another diskette if you have one.)
      - The diskette contains the necessary files to start the blade server.

- The software program is working properly.
- The distance between monitors and diskette drives is at least 76 mm (3 in.).

b. Continue with step 6.

5. For problems affecting only the CD or DVD drive:

a. Make sure that:

- The CD or DVD is inserted correctly in the drive. If necessary, insert the end of a straightened paper clip into the manual tray-release opening to eject the CD or DVD. The drive LED light flashes once per second when the CD or DVD is inserted.
- The CD or DVD is clean and not damaged. (Try another CD or DVD if you have one.)
- The software program is working properly. b. Continue with step 6.

6. For problems affecting one or more of the removable media drives:

a. Reseat the following components:

1) Removable-media drive cable (if applicable)

2) Removable-media drive

3) Media tray cable (if applicable)

4) Media tray

b. Replace the following components one at a time, in the order shown, restarting the blade server each time:

1) Removable-media drive cable (if applicable)

2) Media tray cable (if applicable)

3) Removable-media drive

4) Media tray

c. Continue with step 7.

7. Check for correct management-module operation (see the documentation for your Blade Chassis).

☞ Note:

Some Blade Chassis types have several management-module components that might need to be tested or replaced (see the *Installation Guide* for your management module for more information).

8. Replace the management module (see the documentation for your Blade Chassis).

If these steps do not resolve the problem, it is likely a problem with the blade server. See *Removable-media drive problems*, on page 96 or *Universal Serial Bus (USB) port problems*, on page 98.

5.16.3   Network connection problems

To check for network connection problems, complete the following steps until the problem is solved:

1. Make sure that:

    –   The network cables are securely connected to the I/O module.

    –   Power configuration of the Blade Chassis supports the I/O module configuration.

    –   Installation of the I/O-module type is supported by the Blade Chassis and blade server hardware.

    –   The I/O modules for the network interface that is being used are installed in the correct Blade bays, and are configured and operating correctly.

    –   The settings in the I/O module are correct for the blade server (settings in the

    –   I/O module are specific to each blade server).

2. Check for correct I/O-module operation; troubleshoot and replace the I/O module as indicated in the documentation for the I/O module.

3. Check for correct management-module operation (see the documentation for your Blade Chassis).

☞ Note:
Some Blade Chassis types have several management-module components that might need to be tested or replaced (see the *Installation Guide* for your management module for more information).

4. Replace the management module (see the documentation for your Blade Chassis).

If these steps do not resolve the problem, it is likely a problem with the blade server. See *Network connection problems*, on page 90.

5.16.4   Power problems

To check for power problems, make sure that:

*   The LEDs on all the Blade power modules are lit.

*   Power is being supplied to the Blade Chassis.

*   Installation of the blade server type is supported by the Blade Chassis.

*   The Blade Chassis has the correct power configuration to operate the blade bay where your blade server is installed (see the documentation for your Blade Chassis).

*   The Blade Chassis power management configuration and status support blade server operation (see the documentation for your management module for information).

*   Local power control for the blade server is correctly set (see the documentation for your management module for information).

*   The Blade Chassis blowers are correctly installed and operational.

If these operations do not solve the problem, it is likely a problem with the blade server. See *Power error messages*, on page 91 and *Power problems*, on page 94.

5.16.5   Video problems

To check for video problems, complete the following steps until the problem is solved:

1. Make sure that:

    –   Both the blade server and the monitor are turned on, and that the monitor brightness and contrast controls are correctly adjusted.

    –   The keyboard/video/mouse select button LED on the front of the blade server is lit, indicating that the blade server is connected to the shared Blade monitor.

    –   The video cable is securely connected to the Blade management-module. Non-Bull monitor cables might cause unpredictable problems.

    –   The monitor works with another blade server.

    –   Some Bull monitors have their own self-tests. If you suspect a problem with the monitor, see the information that comes with the monitor for instructions for adjusting and testing the monitor. If the monitor self-tests show that the monitor is working correctly, consider the location of the monitor. Magnetic fields around other devices (such as transformers, appliances, fluorescent lights, and other monitors) can cause screen jitter or wavy, unreadable, rolling, or distorted screen images. If this happens, turn off the monitor.

Attention:
Moving a color monitor while it is turned on might cause screen discoloration.
Move the device and the monitor at least 305 mm (12 in.) apart. Turn on the monitor. To prevent diskette drive read/write errors, make sure that the distance between the monitor and any diskette drive is at least 76 mm (3 in.).

2. Check for correct management-module operation (see the documentation for your Blade Chassis).

Note:
Some Blade Chassis types have several management-module components that might need to be tested or replaced (see the *Installation Guide* for your management module for more information).

3. Replace the monitor cable, if applicable.

4. Replace the monitor.

5. Replace the management module (see the documentation for your Blade Chassis).

If these steps do not resolve the problem, it is likely a problem with the blade server. See *Monitor or video problems*, on page 89.

5.17　Solving undetermined problems

☞ Notes:

When you are diagnosing a problem in the blade server, you must determine whether the problem is in the blade server or in the Blade Chassis.

- If all of the blade servers have the same symptom, the problem is probably in the Blade Chassis. For more information, see the documentation for your Blade Chassis.

- If the Blade Chassis contains more than one blade server and only one of the blade servers has the problem, troubleshoot the blade server that has the problem.

If the diagnostic tests did not diagnose the failure or if the blade server is inoperative, use the information in this section.

If you suspect that a software problem is causing failures (continuous or intermittent), see *Software problems*, on page 98.

Damaged data in CMOS memory or damaged BIOS code can cause undetermined problems. To reset the CMOS data, remove and replace the battery to override the power-on password and clear the CMOS memory; see *Removing the battery*, on page 48. If you suspect that the BIOS code is damaged, see *Recovering from a BIOS update failure*, on page 123.

Check the LEDs on all the power supplies of the Blade Chassis in which the blade server is installed. If the LEDs indicate that the power supplies are working correctly and reseating the blade server does not correct the problem, complete the following steps:

1. Make sure that the control panel connector is correctly seated on the system board (see *System board connectors*, on page 9 for the location of the connector).

2. If no LEDs on the control panel are working, replace the bezel assembly; then, try to turn on the blade server from the management module (see the documentation for the Blade Chassis and management module for more information).

3. Turn off the blade server.

4. Remove the blade server from the Blade Chassis and remove the cover.

5. Remove or disconnect the following devices, one at a time, until you find the failure. Reinstall, turn on, and reconfigure the blade server each time.

   – I/O-expansion card

   – Hard disk drives

   – Memory modules. The minimum configuration requirement is 1 GB (two 512 MB DIMMs on the system board).

   The following minimum configuration is required for the blade server to start:

   – System board

   – One microprocessor

   – Two 512 MB DIMMs

        –   A functioning Blade Chassis

6. Install and turn on the blade server. If the problem remains, suspect the following components in the following order:

   a. DIMM

   b. System board

   c. Microprocessor

If the problem is solved when you remove an I/O-expansion card from the blade server but the problem recurs when you reinstall the same card, suspect the I/O-expansion card; if the problem recurs when you replace the card with a different one, suspect the system board.

If you suspect a networking problem and the blade server passes all the system tests, suspect a network cabling problem that is external to the system.

Appendix A. Getting help and technical assistance

If you need help, service, or technical assistance or just more information about our products, Bull provides a wide variety of sources to assist you. This appendix indicates where to go for additional information about Bull and Bull products, what to do if you experience a problem with your Bull Blade system, and who to call for service if necessary.

Before you call

Before you call, make sure that you have taken these steps to try to solve the problem yourself:

Check all cables to make sure that they are connected.

Check the power switches to make sure that the system is turned on.

Use the troubleshooting information in your system documentation, and use the diagnostic tools that come with your system.

Go to http://www.support.bull.com and check for information to help you solve the problem.

You can solve many problems without outside assistance by following the troubleshooting procedures that are provided in your system and software documentation. Most systems, operating systems, and programs come with information that contains troubleshooting procedures and explanations of error messages and error codes. If you suspect a software problem, refer to the appropriate software documentation.

If you have not been able to solve the problem yourself, contact your Bull Support Representative.

Using the documentation

Information about your Bull Blade system and pre-installed software, if any, is available in the documentation that comes with your system. The documentation can include printed documents, online documents, readme files, and help files. See the troubleshooting information in your system documentation for instructions for using the diagnostic programs. The troubleshooting information or the diagnostic programs might tell you that you need additional or updated device drivers or other software. Bull maintains pages on the World Wide Web where you can get the latest technical information and download device drivers and updates. To access these pages, go to http://www.support.bull.com and select your system.

Appendix B. Notices

Important Notes

Processor speeds indicate the internal clock speed of the microprocessor; other factors also affect application performance.

CD or DVD drive speeds list the variable read rate. Actual speeds vary and are often less than the maximum possible.

When referring to processor storage, real and virtual storage, or channel volume, KB stands for 1024 bytes, MB stands for 1 048 576 bytes, and GB stands for 1 073 741 824 bytes.

When referring to hard disk drive capacity or communications volume, MB stands for 1 000 000 bytes, and GB stands for 1 000 000 000 bytes. Total user-accessible capacity may vary depending on operating environments.

Maximum internal hard disk drive capacities assume the replacement of any standard hard disk drives and population of all hard disk drive bays with the largest currently supported drives available from Bull.

Maximum memory may require replacement of the standard memory with an optional memory module.

Bull makes no representation or warranties regarding non-Bull products and services, including but not limited to the implied warranties of merchantability and fitness for a particular purpose. These products are offered and warranted solely by third parties.

Bull makes no representations or warranties with respect to non-Bull products. Support (if any) for the non-Bull products is provided by the third party, not Bull.

Some software may differ from its retail version (if available), and may not include user manuals or all program functionality.

Product recycling and disposal

This unit must be recycled or discarded according to applicable local and national regulations. Bull encourages owners of information technology (IT) equipment to responsibly recycle their equipment when it is no longer needed.

Notice:

This mark applies only to countries within the European Union (EU) and Norway.

This appliance is labeled in accordance with European Directive 2002/96/EC concerning waste electrical and electronic equipment (WEEE). The Directive determines the framework for the return and recycling of used appliances as applicable throughout the European Union. This label is applied to various products to indicate that the product is not to be thrown away, but rather reclaimed upon end of life per this Directive.

注意: このマークは EU 諸国およびノルウェーにおいてのみ適用されます。

この機器には、EU 諸国に対する廃電気電子機器指令 2002/96/EC(WEEE) のラベルが貼られています。この指令は、EU 諸国に適用する使用済み機器の回収とリサイクルの骨子を定めています。このラベルは、使用済みになった時に指令に従って適正な処理をする必要があることを知らせるために様々の製品に貼られています。

Remarque:

Cette marque s'applique uniquement aux pays de l'Union Européenne et à la Norvège.

L'étiquette du système respecte la Directive européenne 2002/96/EC en matière de Déchets des Equipements Electriques et Electroniques (DEEE), qui détermine les dispositions de retour et de recyclage applicables aux systèmes utilisés à travers l'Union européenne. Conformément à la directive, ladite étiquette précise que le produit sur lequel elle est apposée ne doit pas être jeté mais être récupéré en fin de vie.

In accordance with the European WEEE Directive, electrical and electronic equipment (EEE) is to be collected separately and to be reused, recycled, or recovered at end of life. Users of EEE with the WEEE marking per Annex IV of the WEEE Directive, as shown above, must not dispose of end of life EEE as unsorted municipal waste, but use the collection framework available to customers for the return, recycling, and recovery of WEEE. Customer participation is important to minimize any potential effects of EEE on the environment and human health due to the potential presence of hazardous substances in EEE. For proper collection and treatment, contact your local Bull representative.

Electronic emission notices

Federal Communications Commission (FCC) statement

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his own expense.

Properly shielded and grounded cables and connectors must be used in order to meet FCC emission limits. Bull is not responsible for any radio or television interference caused by using other than recommended cables and connectors or by unauthorized changes or modifications to this equipment. Unauthorized changes or modifications could void the user's authority to operate the equipment.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Industry Canada Class A emission compliance statement

This Class A digital apparatus complies with Canadian ICES-003.

Avis de conformité à la réglementation d'Industrie Canada

Cet appareil numérique de la classe A est conforme à la norme NMB-003 du Canada.

Australia and New Zealand Class A statement

Attention: This is a Class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

United Kingdom telecommunications safety requirement

Notice to Customers

This apparatus is approved under approval number NS/G/1234/J/100003 for indirect connection to public telecommunication systems in the United Kingdom.

European Union EMC Directive conformance statement

This product is in conformity with the protection requirements of EU Council Directive 89/336/EEC on the approximation of the laws of the Member States relating to electromagnetic compatibility. Bull cannot accept responsibility for any failure to satisfy the protection requirements resulting from a non-recommended modification of the product, including the fitting of non-Bull option cards.

This product has been tested and found to comply with the limits for Class A Information Technology Equipment according to CISPR 22/European Standard EN 55022. The limits for Class A equipment were derived for commercial and industrial environments to provide reasonable protection against interference with licensed communication equipment.

Attention: This is a Class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

Taiwanese Class A warning statement

警告使用者：
這是甲類的資訊產品，在
居住的環境中使用時，可
能會造成射頻干擾，在這
種情況下，使用者會被要
求採取某些適當的對策。

Chinese Class A warning statement

声　　明
此为 A 级产品。在生活环境中，
该产品可能会造成无线电干扰。
在这种情况下，可能需要用户对其
干扰采取切实可行的措施。

Japanese Voluntary Control Council for Interference (VCCI) statement

この装置は、情報処理装置等電波障害自主規制協議会（VCCI）の基準に
基づくクラスA情報技術装置です。この装置を家庭環境で使用すると電波妨害を
引き起こすことがあります。この場合には使用者が適切な対策を講ずるよう要求
されることがあります。

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