Intel® SRMK2 Internet Server Product Guide

Order Number: A39183-001

A Guide for Technically Qualified Assemblers of Intel Identified Subassemblies/Products

Contents

1 About the server

Accessory kit contents

The accessory kit shipped with the server contains these items:

- Red Hat Linux 6.2 SBE2 CD-ROM
- SRMK2 Resource CD-ROM, which contains:
  - *Intel SRMK2 Internet Server Quick Start Guide*
  - *Intel SRMK2 Internet Server Product Guide*
  - *Intel SRMK2 Internet Server Technical Product Specification*
  - *Installation Guide for the Advanced Server Management (ASM) Software for Windows NT and Linux*
  - Software drivers
- Heat sinks (2)
- AC power cord (SRMK2S only)
- Front/mid-mount brackets (2)
- Bracket screws (4)
- License agreements
- Late Breaking News

If you find that any parts of the accessory kit are missing, contact the supplier immediately.

Physical description

Table 1 lists the dimensions and weight of the server chassis.

Table 1. Physical characteristics

Height	4.32 cm (1.70 inches)
Width	42.55 cm (16.75 inches) Fits standard 48.26 cm (19-inch) rack with slide rails installed
Depth	60.96 cm (24 inches)
Weight	66 kg (30 lbs) – Shipping weight (Boxed)

Feature summary

Table 2 summarizes the main server features.

Table 2. Feature summary

Feature	Description
Processors	One or two Intel® Pentium® III processors in PGA370 sockets
Memory	• Four 168-pin dual in-line memory module (DIMM) sockets • Supports up to 4 GB of registered PC-100 or PC-133 ECC registered SDRAM DIMMs
Chipset	ServerWorks ServerSet* IIILE chipset consisting of: • ServerWorks CNB30LE North Bridge Front Side Bus Interface chip • ServerWorks OSB4 South Bridge chip
I/O Control	SMSC FDC37B782 I/O controller
LAN Support	Integrated dual Intel 82559 Pro/100+ Ethernet controllers with PXE 2.0 option ROM's for remote network installations of operating systems
Add-in Board Support	One 64/66 PCI riser card PCI bus slot that supports one low-profile and one standard full-length PCI add-in board
System Management	Two Heceta 3 hardware monitoring ASICs that operate in conjunction with Web-based management software (ASM)
Peripheral Interfaces	• One internal and one external Ultra 160 SCSI channels • One IDE interface with UDMA support • One rear serial port • Two 10/100 82559 LAN connectors • One high-density floppy drive interface for slim-line floppy drive • LCD/LED panel interface • Two USB ports • One rear panel video interface • Two PS/2 ports
BIOS	• Intel/AMI BIOS with Intel 8 Mbit boot block flash memory • Supports SMBIOS, Advanced Configuration and Power Interface (ACPI), and Plug and Play

Feature	Description
Installed Drives	• Externally accessible standard 1.44 MB, slim-line 3.5-inch floppy drive • Optional slim-line CD-ROM or DVD-ROM (operates in conjunction with standard floppy drive)
Expansion Capability	• Two 1-inch SCSI Ultra 160 hot-swappable, front removable hard drives • External SCSI channel for external SCSI drives
Power Supply	• One 200-watt AC power supply with detachable AC power cord (SRMK2S). • One 200-watt 48 VDC power supply (SRMK2D).
Cooling	Nine system fans (eight 40mm x 25mm and one 40mm x 17mm)
Other Features	• Speaker • Two hardware monitor chips • Wake on ring • Wake on LAN† • SCSI LED connector

Base configuration

Table 3 lists the SRMK2 Internet Server base configuration components.

Table 3. Base configuration

Description	Quantity
SRMK2 serverboard	1
Dual-slot 66/64 PCI riser card	1
Front panel board	1
200W power supply	1
System fans	9
SCSI hard drive carriers	2
SCSI hot swap backplane	1
SCSI hard disk drive cable	1
3.5-inch slim-line floppy drive with bracket	1
3.5-inch slim-line floppy drive cable	1
Front panel flex cable	1
Front-/mid-mount brackets	2

Optional accessories

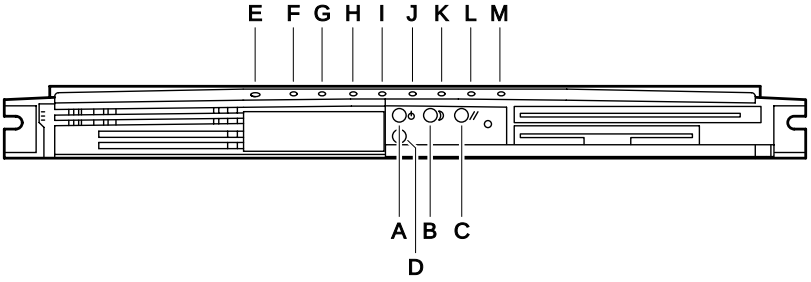
Table 4 lists the server available options.

Table 4. Available options

Description	Quantity
Slim-line CD-ROM with one IDE cable and backplane	1
Jonathan Manufacturing Sliding Rail Kit	1

Controls, indicators, and connectors

Front panel



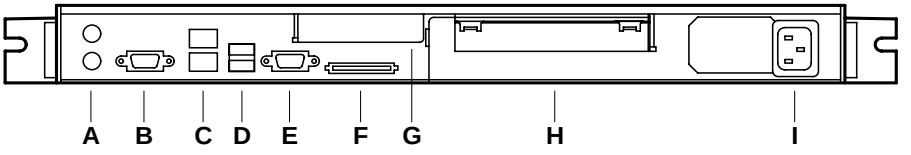
Item	Name	Function
		Controls
A	Power	When pressed: 1. Turns the power subsystem on if the server is off. 2. Brings the server out of sleep state if the server is in sleep state. 3. And held down for more than four seconds, overrides ACPI mode and power is turned off.
B	Sleep	When pressed: 1. Puts an operating system supporting ACPI mode to sleep. 2. During sleep state, activates operating system. (This server does not have a service mode.)
C	Reset	When pressed, resets the server.

Item	Name	Function
D	NMI	When pressed: 1. Issues an NMI to the system. 2. Clears the system state when system is hung.
	Indicators	
E	Power (green) Off On Blinking	Indicates system power is off. (see “Warnings and cautions” under “Before you begin” in section 4). Indicates system power is on. Indicates a system message is waiting or system is in ACPI sleep mode.
F	System sleep/fault (amber) On Blinking	Indicates a critical system fault, such as a power supply problem, or is in Sleep mode. Indicates a non-critical system fault, such as a hard drive problem.
G	IDE activity / Additional SCSI card light (green)	Indicates activity from either of the following: 1. IDE activity (CDROM), or 2. External SCSI drive connected to internal SCSI activity connector.
H	LAN1 activity / Link (green) On Blinking	Indicates a successful 10/100 Mb link to an Ethernet port. Indicates activity on LAN1 channel.
I	LAN1 speed (green) On Off	Indicates LAN1 controller is detected and configured to run at 100 Mbps. Indicates LAN1 controller is detected and configured to run at 10 Mbps.
J	LAN2 activity / Link (green) On Blinking	Indicates a successful 10/100 Mb link to an Ethernet port. Indicates activity on LAN2 channel.

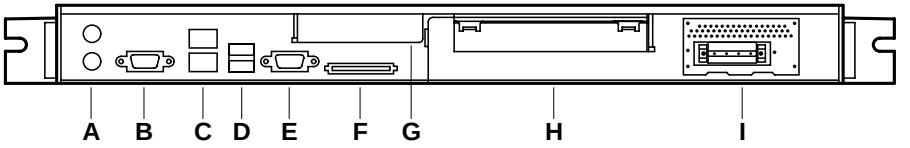
Item	Name	Function
K	LAN2 speed (green) On Off	 Indicates LAN2 controller is detected and configured to run at 100 Mbps. Indicates LAN2 controller is detected and configured to run at 10 Mbps.
L	SCSI HDD activity #1 (green) On Off	 Indicates activity on SCSI HDD #1. Indicates no activity on SCSI HDD #1.
M	SCSI HDD activity #2 (green) On Off	 Indicates activity on SCSI HDD #2. Indicates no activity on SCSI HDD #2.

Figure 1. Front panel controls, indicators, and connectors

Rear panel



AC power supply (SRMK2S)



DC power supply (SRMK2D)

Locator	Description
A	Mouse/keyboard connectors
B	Serial port A, COM1
C	Dual RJ-45 connectors
D	USB port connectors
E	VGA monitor connector
F	U160 SCSI connector
G	Low-profile PCI slot

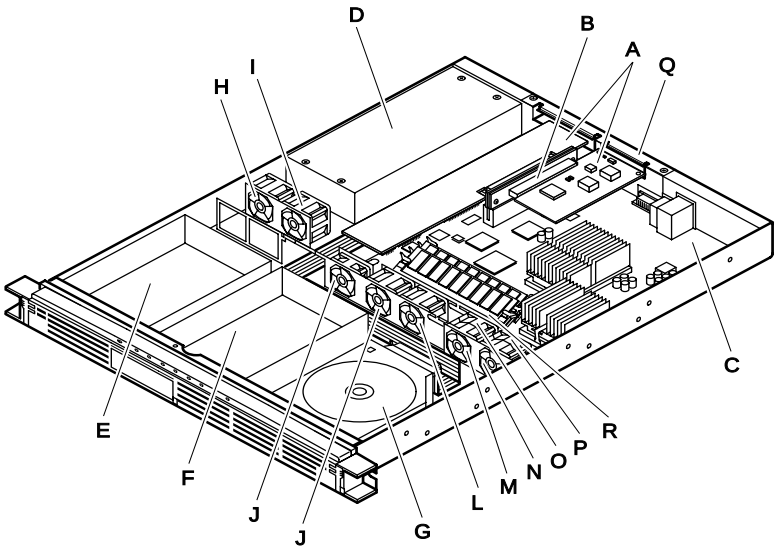
Locator	Description
H	Full length PCI slot
I	AC power supply connector (SRMK2S) DC power supply connector (SRMK2D)

Figure 2. Rear panel connectors

Component locations

This subsection describes and shows the locations of the server system and serverboard components.

Server system



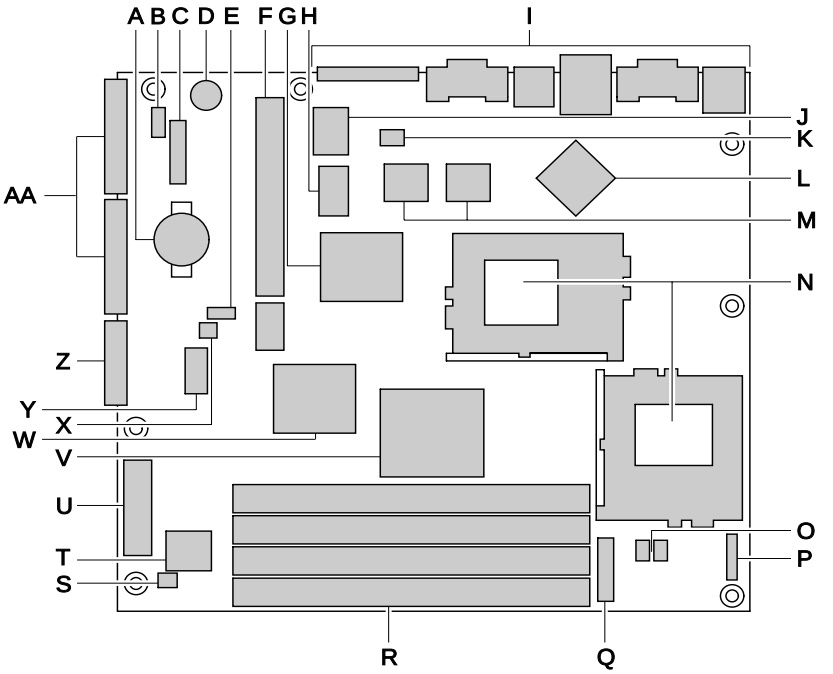
Locator	Description	Locator	Description
A	PCI add-in boards	J	Fan 3
B	PCI riser card	K	Fan 4
C	Serverboard	L	Fan 5
D	Power supply	M	Fan 6
E	1-inch hard drive bracket/carrier	N	Fan 7
F	1-inch hard drive bracket/carrier	O	Fan 8

G	3.5-inch slim-line floppy drive	P	Fan 9
H	Fan 1	Q	Add-in board retention bracket
I	Fan 2	R	DIMM sockets

Figure 3. System component locations

Serverboard

Figure 4 shows the locations of the serverboard components.



Locator	Description	Locator	Description
A	Battery	N	PGA370 processor
B	Wake on LAN header	O	Heceta 3 hardware monitor controllers
C	High-density diskette	P	Fan backplane
D	Speaker	Q	Front panel connector
E	BIOS configuration	R	DIMM sockets
F	64/66 PCI Bridge	S	SCSI LED header
G	ServerWorks ServerSet	T	Gluechip
H	BIOS flash memory	U	Power supply connector

Locator	Description	Locator	Description
I	Back panel I/O	V	ServerWorks ServerSet
J	SMSC I/O controller	W	Adaptec 7899 SCSI
K	Wake on ring header	X	Password override
L	ATI Rage XL video	Y	Clock generator
M	Intel 82559 10/100	Z	Internal SCSI connector
		AA	Primary and secondary

Figure 4. Serverboard component locations

Component functions

The following is a brief description of the major component functions. Refer to the *Intel SRMK2 Internet Server Technical Product Specification* included on the server Resource CD for detailed component function information.

Processors

The SRMK2 serverboard supports dual Pentium III processors. The appropriate host bus speed (100 MHz or 133 MHz) is automatically selected as determined by the speed of the installed processors. The processors plug into the serverboard via two PGA370 socket connectors that use a zero-insertion-force (ZIF) arms to secure the processor chips to the serverboard.

The serverboard can run in either a uniprocessor (UP) mode or dual processor (DP) mode. For UP mode operation a terminator must be placed in the second processor PGA370 socket. A terminator card is factory-installed in the second processor socket. Remove the terminator card (see section 5, Removing and installing system components, for detailed procedures) if you want to run in DP mode. Table 5 lists the processors supported by the serverboard.

Table 5. Supported processors

Processor Type	L2 Cache Size	FSB Speed	Speed
Pentium III	256 KB	100 MHz	800 MHz
	256 KB	133 MHz	733 MHz 800 MHz 866 MHz 933 MHz 1 GHz

CAUTION

The serverboard supports Pentium III processors with a 133 MHz host bus. Processors with a 133 MHz host bus should be used only with 133 MHz SDRAM. The serverboard may not operate reliably if a processor with a 133 MHz host is paired with 100 MHz SDRAM.

Memory

The serverboard has four DIMM sockets. The serial presence detect (SPD) data structure, which is programmed into an E^2PROM on the DIMM, instructs the BIOS on the SDRAM's size and speed. The memory size is 64 MB to 4 GB. Memory size can vary between sockets, and slot vacancy between DIMMs is permitted. You can mix DIMM sizes since only registered SDRAM is allowed.

The serverboard supports these memory features:

- 168-pin SPD DIMMs with gold-plated contacts.
- 133 MHz and 100 MHz registered SDRAM DIMMs, 72-bit ECC, 3.3V only memory.
- Single- or double-sided DIMMs in the sizes listed in the "Supported memory" table in the *Intel SRMK2 Internet Server Technical Product Specification* included on the server Resource CD.
- Registered DIMMs of the following sizes: 64M, 128M, 256M, 512M and 1G for a maximum memory size of 4 GB. Double-stacked DIMMs may only be used if they are within the 4.33 mm maximum thickness imposed by the 25 degree DIMM socket spacing on the serverboard.

NOTE

All memory components used with this serverboard must comply with the following PC SDRAM specifications:

PC SDRAM Specification (memory component specific)

PC SDRAM Registered DIMM Specification

See the *Intel SRMK2 Internet Server Technical Product Specification* about how to obtain these specifications.

A list of validated memory is supplied at *support.intel.com*. The mapping at time of print is*:

Servers → Platforms → SRMK2 → Compatibility → Tested Memory List

* This path could alter slightly in the future, but the document should be in this relative area.

Chipset

The ServerWorks ServerSet III LE chipset consists of the ServerWorks CNB30LE North Bridge and ServerWorks OSB4 South Bridge chips. The CNB30LE provides an optimized DRAM controller. The I/O subsystem of the ServerWorks chipset is based on the OSB4 South Bridge, which is a highly integrated PCI ISA IDE Xcelerator Bridge.

SCSI host bus interface

The serverboard uses an Adaptec* AIC-7899 Ultra 3 SCSI controller for the SCSI host bus interface. The AIC provides two independent Ultra 160/m SCSI channels combined with a full-featured PCI 2.1/2.2-compliant bus master. The AIC-7899 operates at up to 66 MHz and functions as a 64-bit bus master capable of supporting zero wait state 64-bit memory transfers at a maximum data burst rate of 533 Mbytes/sec. The AIC-7899 SCSI controller complies with the SCSI-3 standard providing multimode SCSI support for both single-ended (SE) and low voltage differential (LVD) SCSI peripherals. The serverboard has two SCSI Ultra 160, 68 pin D-shell connectors, one internal and one external on the rear panel. Both SCSI connectors are protected from over-current conditions via a separate polyfuse.

SCSI hard drive LED connector (optional)

The optional SCSI hard drive LED connector is a 1 x 2-pin connector that allows add-in SCSI controller applications to use the same LED as the IDE controller. This LED connector can be connected to the LED output of the add-in controller card.

PCI add-in cards

The PCI riser board allows for one full-length and one low-profile PCI card to be added to the system. These cards *must* be either +3.3 V or Universal power cards **+5V add-in cards are not supported on this system.** A list of supported and tested add-in cards for the SRMK2 system can be found at *support.intel.com*.

NOTE

With the extensive SRMK2 on-board hardware, approximately half of the 128k Boot ROM space has been used. Add-in cards that use over 60k of Boot ROM space or add-in card combinations that use over 60k of Boot ROM space will report an error message during BIOS POST. Generally, with SCSI

card adapters, an error message similar to the following appears at bootup if you have exceeded the Boot ROM space limit:

```
Error:
0146: PCI Bus Number:00,Device:07,Function:0  Insufficient
Memory to shadow PCI ROM
```

You can free up Boot ROM space by either disabling the on-board Adaptec 7899 SCSI Boot ROM or by disabling the Boot ROM on the add-in card. Doing so willdisable your ability to boot from either the on-board Adaptec SCSI controller or the add-in card depending on which you disable. You will still be able to see and use the drives on the Adaptec device if you disable the on-board Boot ROM and you will be able to see and use the add-in card drives if you disable its Boot ROM.

To disable the on-board Adaptec 7899 SCSI controller Boot ROM follow these procedures:

1. Press **Ctrl-A** when prompted at bootup to enter the Adaptec 7899 BIOS.

   NOTE

   Closely observe which controller card is being listed on the screen since having multiple SCSI cards in the system will give multiple prompts for SCSI setup.

2. After entering the SCSI Select setup, you are prompted with a choice of **Bus:Device:Channel** for either Channel A or B. Choose one and press **Enter**.
3. At the next screen you have two options. Choose **Configure/View Host Adapter Settings** and press **Enter**.
4. You will then see a list of options. Choose **Advanced Configuration Options** and press **Enter**.
5. Choose **Host Adapter BIOS** from the options on the next screen and press **Enter**.
6. You will then be in the **Host Adapter BIOS** options menu. Choose **Disabled:scan bus** and press **Enter**.
7. Press **Esc** several times to exit this utility and remember to save changes whenever you are prompted.

You can also use these same steps to disable the Boot ROM option on the add-in cards although the steps may vary slightly depending on the card manufacturer. After rebooting the server the Insufficient Memory error should be cleared.

IDE interface

The serverboard has one bus-mastering IDE interfaces through the ServerWorks ServerSet OSB4 South bridge. This interface support ATA and ATAPI devices, such as the CD-ROM drive. You may order an optional CD-ROM drive for the IDE interface.

Universal serial bus

The serverboard has two universal serial bus (USB) ports that accommodate one USB peripheral connected to each port. For more than two USB devices, an external hub can be connected to either port. The two USB ports are implemented with stacked back panel I/O connectors. The serverboard fully supports UHCI and uses UHCI-compatible software drivers. See the *Intel SRMK2 Internet Server Technical Product Specification* for information about the USB and UHCI specifications.

- Self-identifying peripherals that can be plugged in while the computer is running
- Automatic mapping of function to driver and configuration
- Support for isochronous and asynchronous transfer types over the same set of wires
- Guaranteed bandwidth and low latencies appropriate for telephony, audio, and other applications
- Error-handling and fault-recovery mechanisms built into the protocol

NOTE

Computer systems that have an unshielded cable attached to a USB port may not meet FCC Class B requirements, even if no device or a low-speed USB device is attached to the cable. Use shielded cable that meets the requirements for full-speed devices.

I/O controller

The FDC37B782 I/O controller from SMSC is an ISA plug-and-play compatible, multifunctional I/O device that provides the following features. See the *Intel SRMK2 Internet Server Technical Product Specification* for plug-and-play specification information and details on the FDC37B782 controller.

Intel 82559 10/100 Ethernet controllers

Two Intel® 82559 LAN controllers provide two 10/100 Base-T, RJ-45 interfaces. The two LAN ports are available through a double stacked RJ45 connector on the server rear panel.

The LAN circuitry supports Wake on LAN technology on both LAN ports. Wake on LAN enables remote wakeup of the computer through a network. If a PCI add-in network interface card (NIC) with remote wakeup capabilities is desired, the remote wakeup connector on the NIC must be connected to the on-board Wake on LAN header. See the *Intel SRMK2 Internet Server Technical Product Specification* for plug and play specification information and detailed information on the 82559 LAN controller.

CAUTION

Wake on LAN requires that the +5V standby line for the power supply must be capable of delivering +5V ± 5% at 720mA. Failure to provide adequate standby current when implementing Wake on LAN can damage the power supply.

Video interface

The on-board video interface is implemented using the ATI RAGE XL video controller. The video controller is accessed over the 32-bit PCI bus interface on the CNB30 bridge. See the *Intel SRMK2 Internet Server Technical Product Specification* for additional details.

Hardware monitor

Two Heceta controllers are provided on the serverboard to monitor temperature, voltage, and fan speed. In addition to on-chip temperature sensing, each controller provides input pins for an external temperature sensor. These inputs are connected to the Pentium III thermistor outputs. See the *Intel SRMK2 Internet Server Technical Product Specification* for additional details.

Wake-on-ring and resume-on-ring

The SRMK2 serverboard provides three methods for implementing wake on ring (WOR). An external modem connected to the serial port can toggle the super I/O controller Ring Indicator pin which will cause a wakeup event. The WOR output of an internal modem card may be connected to an internal 2-pin WOR header to cause a wakeup event or, a PCI modem may implement a WOR circuit that uses PCI PME# to cause a wakeup event.

Speaker

A 47-ohm inductive speaker is mounted on the serverboard. The speaker provides audible error (beep) code information during the power-on self-test (POST).

Cooling

The HDD backplane powers nine fans that provide cooling. Two fans are dedicated to cooling the power supply; four provide cooling for the CPU, two provide cooling for the processor, memory and serverboard, and one cools the full-length PCI slot.

A two-speed control circuit powers the fans. The control circuit is driven by several sensors, one of which is located on the front panel to monitor the incoming air temperature. The fans have a tachometer output that is monitored by the Heceta 3 hardware monitor chip. The fans are easily removed by unplugging the fan connector from the back plane board and lifting the fan out of the fan bracket.

Rack-mounting

The server is designed to be front- or mid-mounted in a relay-style rack. Two brackets for rack-mounting the server are shipped with the server. The server can also be rack-mounted with an optional slide-rail adapter kit. Contact your supplier for ordering information.

Table 7 lists the dimensions and required clearances for a rack-mounted SRMK2 Internet Server.

Table 7. Server dimensions and required clearances

Height	4.32 cm (1.70 inches)
Width	42.55 cm (16.75 inches). Fits standard 48.26 cm (19-inch) rack
Depth	60.96 cm (24 inches)
Required front clearance	30.48 cm (12 inches) with inlet airflow 35°C/95°F or less
Required rear clearance	21.60 cm (9 inches) with no airflow restriction
Required side clearance	N/A

WARNINGS

- **The equipment rack must be anchored to prevent tipping when devices are extended on slides rails. The anchors must withstand a force of up to 113 kilograms (250 pounds). You must also consider the weight of any other device installed in the rack.**
- **An AC power disconnect for the entire rack unit must be installed. This main disconnect must be readily accessible and labeled as controlling power to the entire unit, not just to the server(s).**
- **To avoid the potential for electrical shock, include a third-wire safety-grounding conductor with the rack installation. If server power cords are plugged into AC outlets that are part of the rack, then you must provide proper grounding for the rack itself. If server power cords are plugged into wall AC outlets, the safety grounding conductor in each power cord provides proper grounding only for the server. You must provide additional grounding for the rack and other devices installed in it.**
- **The SRMK2S server is designed for an AC line voltage source with up to 20 amperes of over-current protection. If the power system for the equipment rack is installed on a branch circuit with more than 20 amperes of protection, you must provide supplemental protection for the server. If more than one server is installed in the rack, the power source for each server must be from a separate branch circuit.**

CAUTIONS

- The operating temperature of the server, when installed in an equipment rack, must not go below 5 °C (41 °F) or rise above 35 °C (95 °F). Extreme fluctuations in temperature can cause a variety of server problems.
- The equipment rack must provide sufficient airflow to the front of the server to maintain proper cooling. There should be sufficient ventilation to exhaust at least 988 BTU per hour for each maximum configured server running at maximum temperature (BTU ratings are lower for standard configured servers). The rack selected and the ventilation provided must be suitable to the environment in which the server will be used.

2 Powering up

This procedure describes how to:

1. Connect keyboard, monitor, and mouse
2. Apply AC power
3. Run the power-on self test (POST)
4. Boot from CD
5. Run the SCSI*Select* utilities
6. Configure the SCSI adapters

Before proceeding, be sure you are thoroughly familiar with the "Before you begin" information at the front of this guide.

AC power cord requirements

Verify that the AC power cord is the exact type required in your region. Do not modify or use the supplied power cord if it does not meet these requirements:

- **Rating—**power cords must be rated for the AC voltage in your region and have a current rating at least 125% of the server current rating. (Refer to the *Intel SRMK2 Internet Server Technical Product Specification* included in the accessory kit for power requirement information.)
- **Connector, wall outlet end—**power cords must be terminated in a grounding-type male plug designed for use in your region. Cords must have certification marks showing certification by an agency that is acceptable in your region.
- **Connector, AC power supply end—**connector that plugs into the AC receptacle on the server AC power supply must be an IEC 320, sheet C13, type female connector.
- **Cord length and flexibility—**power cord length must be 4.5 meters (14.76 feet) or less and composed of flexible (harmonized HAR) cord or VDE-certified cordage to comply with server safety certifications.

NOTE

In geographic regions that are susceptible to electrical storms, we recommend that you plug the server into an AC surge suppressor.

System power requirements

The total maximum server system power requirement is 200 W which includes the serverboard, front panel, one floppy disk, one CDROM, two peripheral cards, and two hard disk drives. Table 9 lists the system power requirements.

Table 9. System power requirements

	+3.3V	+5V	+12V	-12V	+5Vs/b
Total Current	13.0 A	22.1 A	3.6 A	0.20 A	1.0 A
Total Power Consumption	42.9 W	110.5 W	43.2 W	2.4 W	5.0 W
Tolerance	±5%	±5%	±5%	±5%	±5%

Connecting the monitor, keyboard, and mouse

CAUTION

Before connecting external devices, make sure the server is not plugged into an AC power source or wall outlet. Failure to observe this caution could damage the server.

Connect the monitor, keyboard and mouse to the appropriate connectors on the rear panel of the server (see "Controls, indicators, and connectors"in section 1 for the location of the rear panel connectors). **DO NOT CONNECT THE AC POWER CORD**.

Applying power

This procedure describes how to apply power to the server. Refer to "Controls, indicators, and connectors" in section 1 for the location of the controls, indicators, and connectors mentioned in this procedure.

1. Attach the appropriate power cord to the mating power connections on the server back panel.
2. Plug the opposite end of the power cord into the power source or wall outlet.
3. Open the bezel door and press the Power switch. Notice that the green LED power indicator is lit.

Running the power-on self test

Each time you power on the server, the BIOS executes the power-on self test (POST) which is stored in flash memory. POST discovers, configures, and tests the processors, memory, keyboard, and most installed peripheral devices.

Turn on your video monitor and server. After a few seconds, POST begins to run and a splash screen is displayed.

While the splash screen is displayed, you can:

1. Press **F2** to enter the BIOS Setup. See "Using BIOS setup" in section 5, or
2. Once the SCSISelect Utility appears, press Ctrl+A to run the Utility. See "Running the SCSISelect utility" later in this section.

NOTE

The server system is shipped with the floppy diskette drive set as the first boot device. Thus, the server tries to boot from a diskette rather than from a CD-ROM, regardless of whether there is a CD-ROM drive installed. If you want to set a CD-ROM as the first boot device, press **F2** to change the boot device priority in the BIOS setup.

After POST completes, the system beeps once. If you have an operating system loaded, the operating system takes control of the server system. If no operating system is loaded, the `Operating System not found` message appears.

Booting from a CD

During POST, you can change the boot device priority for the current boot process by performing the following procedure:

1. Boot the server (the CD must be in the CD-ROM drive).
2. Press **Esc** when you see the Intel logo screen at startup.
3. When you see "`Hit <F2> if you want to run setup`" at the bottom of the screen during POST, then press **F2**. When POST completes and the SCSI drives have spun up, the BIOS setup screen will appear.
4. Use the arrow keys to highlight the Boot menu.
5. Use the down arrow key to select `1st Boot Device`, then press **Enter**. A menu appears from which you can select the device that you want the server system to boot from first. For example, if you want the server system to boot from the CD-ROM first, you select `ATAPI CDROM` and press **Enter.**
6. Press **F10** and then **Enter** to save your changes and exit the BIOS setup program.

Running the SCSI*Select* utility

Use the SCSI*Select* utility to:

- Change default values for the SCSI adapter.
- Check and/or change SCSI device settings that may conflict with those of other devices in the server.
- Do a low-level format on SCSI devices installed in the server.

The onboard host adapter includes an onboard SCSI*Select* configuration utility that allows you to configure/view the settings of the host adapters and devices in the server.

NOTE

The system is shipped with the SCSI adapter already set to the default settings. Set up other parameters only if you need specific settings.

The system will find the Adaptec SCSI adapter and displays `Adaptec AIC-7899 SCSI BIOS vx.xx` (where `x.xx` is the version number of the SCSI*Select* utility, usually v2.57). Press **Ctrl+A** at this time to configure the Adaptec SCSI adapter.

If you have more than one SCSI adapter in your system and you enter the configuration menu for one of the host adapters, you **cannot** switch to the other adapter. For example, once you press **Ctrl+A** to configure the Adaptec SCSI adapter, you must reboot the system to configure any added SCSI host adapters.

If the second SCSI adapter is not an Adaptec 7899 adapter, then you must wait for the SCSI*Select* utility on the second SCSI adapter to appear on the screen before you press **Ctrl+A**. If the second SCSI adapter is an Adaptec 7899 adapter, then when you press **Ctrl+A** you will see a prompt asking which controller you want to configure.

Use the following keys to navigate through the menus and submenus.

Press	To
Esc	Exit the utility
Enter	Select an option
↑	Return to a previous option
↓	Move to the next option
F5	Switch between color and monochrome
F6	Reset to host adapter defaults

Configuring the Adaptec SCSI adapter

The Adaptec adapter has two buses. Select the bus from the following menu.

Main menu

You have an AIC 7899 SCSI controller in your system. Move the cursor to the bus:device:channel of the one to be configured and press **Enter.**	Bus:Device:Channel 01:046:A 01:046:B
F5 - Toggle color/monochrome	

After selecting the bus, the following menu is displayed. The internal drives are located on channel B.

Menu for each SCSI channel

Each SCSI channel has its own configuration menu similar to this:

```
AIC-7899 at Bus :01h  Device :04h  Channel B
```

To configure the host adapter or run the SCSI Disk Utilities, select the desired option and press **Enter**. Press **F5** to switch between color and monochrome modes.

Option	Comment
Configure/View Host Adapter Settings	Press **Enter** to view the Configuration Menu.
SCSI Disk Utilities	Press **Enter** to view the SCSI Disk Utilities Menu. This menu allows you to format hard disks and/or verify disk media.

When you are finished, press **Esc** (you may need to press **Esc** several times to display the Exit menu) and make your selection from the following Exit menu.

Exit menu

Feature	Option	Comment
Exit Utility?	Yes **No**	When you finish configuring your SCSI devices, press **Esc.** Then select **Yes** and press **Enter**. When this message appears: `Please press any key to reboot` Press any key to reboot the server.

3 Accessing the resource CD documents

This section describes how to access the documents available on the Resource CD (see the accessory kit contents information in the “Unpacking and inspecting” subsection). These documents are formatted as .PDF files.

Reading and printing the document files

Before you can read or print the documents, you must have a computer with:

- Windows* 95 or later installed.
- Adobe Acrobat* Reader installed.
- A printer connected.

1. Use your mouse or the up- and down-arrow keys and select the desired document. Double-click the left mouse button or press **Enter** to load the document .PDF file.
2. Double-click the left mouse button or **Enter** to read the .PDF file.
3. Follow the program options and prompts. If you need to access the Help menu, double-click on Help or press **Alt+h**.

4 Removing and installing system components

This section provides procedures for removing and installing replaceable and/or upgradable components in the SRMK2 Internet Server.

Before you begin

Before performing the procedures in this section, be sure to read and become familiar with the environmental and regulatory specifications in appendix B and the following information.

Warnings and cautions

Read and adhere to all warnings and cautions in this guide and the documentation referenced and supplied with the server. If the additional instructions supplied with the server are inconsistent with these instructions, contact the supplier to find out how you can ensure that your server meets safety and regulatory requirements.

WARNINGS

- **This section is intended for qualified technical personnel with experience installing and configuring servers.**
- **The Power button on the server front panel DOES NOT remove power to the server system. Some circuitry in the server may continue to operate even though the front panel Power button is off. Always disconnect the power cord from the power source or wall outlet before performing any of the procedures in this guide. Failure to do so can result in personal injury or equipment damage.**
- **Hazardous voltage, current, and energy levels are present inside the power supply. There are no user-serviceable parts inside the power supply; servicing should be done by technically qualified personnel.**

- **Hazardous electrical conditions may be present on power, telephone, and communication cables. Press the Power button to turn off the server and disconnect the power cord from the power source, telecommunications systems, networks, and modems attached to the server before removing the cover. Otherwise, personal injury or equipment damage can result.**

⚠ CAUTIONS

Perform the procedures in this section only at an electrostatic discharge (ESD) workstation because the server components can be extremely sensitive to ESD. If no such station is available, you can reduce the risk of electrostatic discharge ESD damage by doing the following:

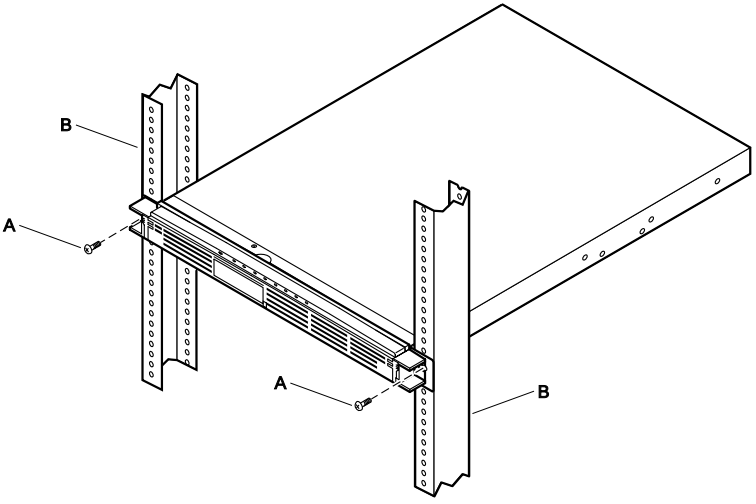
- Wear an antistatic wrist strap and attach it to a metal part of the server.
- Touch the metal on the server chassis before touching the server components.
- Keep part of your body in contact with the metal server chassis to dissipate the static charge while handling the components.
- Avoid moving around unnecessarily.
- Hold the server components (especially boards) only by the edges.
- Place the server components on a grounded, static-free surface. Use a conductive foam pad if available but **not** the component wrapper.
- Do not slide the components over any surface.
- For proper cooling and airflow, the cover must be installed. Operating the server for an extended period without the cover installed can cause overheating and damage the server components.

Tools and supplies needed

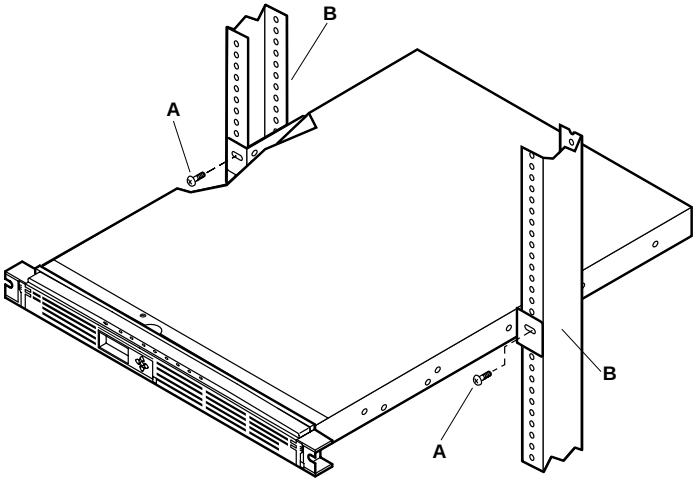
1. Phillips (cross-head) screwdriver (number 1 and 2 bit)
2. Flat-head screwdriver (3/16-inch)
3. Pen or pencil
4. Antistatic wrist strap and conductive foam pad (recommended)

Removing the server from the rack

The following procedure describes how to remove a front-and mid-mounted server from the rack. Before proceeding, be sure you are thoroughly familiar with the information in "Before you begin" at the front of this section. Refer to Figure 5 while performing this procedure.



Front-mounted server



Mid-mounted server

Figure 5. Removing/installing a rack-mounted server

1. Hold the server in place while you use a Phillips screwdriver to remove the two screws (A) that secure the mounting brackets to the rack posts (B).
2. Carefully remove the server from the front of the rack.

Installing the server in the rack

The following procedure describe how to install a front- and mid-mounted server in the rack. Before proceeding, be sure and familiarize yourself with the rack-mount information in section 1 of this guide and the "Before you begin" information at the front of this section. Refer to Figure 5 while performing this procedure.

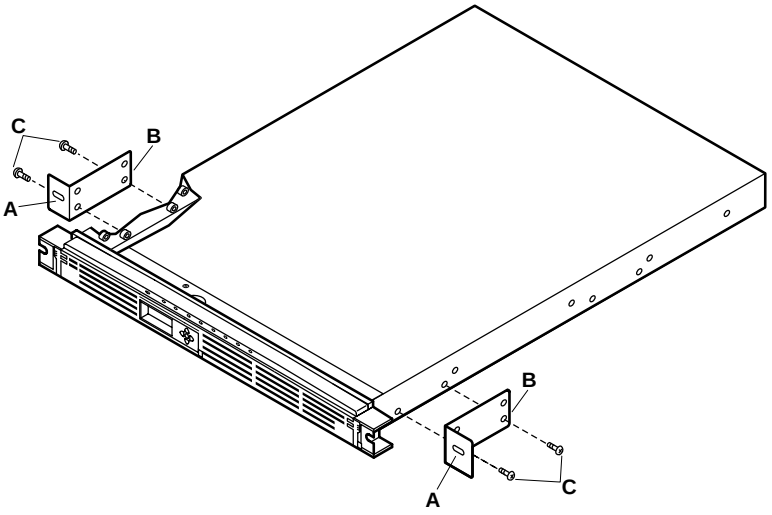
NOTE

If you are installing the server in a rack for the first time and the rack-mount brackets shipped with the server have not been installed, perform the following "Attaching the rack-mount brackets" procedure before proceeding.

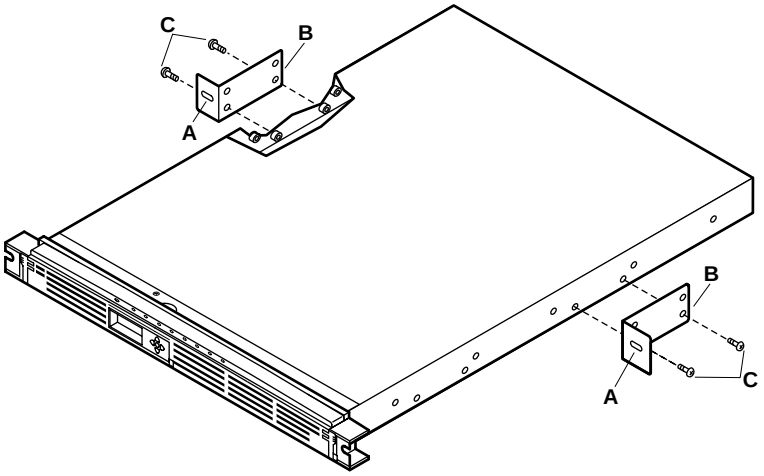
1. Align the server rack-mount brackets with the desired mounting holes in the rack posts (B).
2. Use a Phillips screwdriver and start, but do not tighten, the two screws (A) to loosely attach the mounting brackets (one on each side of the server) to the rack posts..
3. Properly align and hold the server in the rack.
4. Use a Phillips screwdriver and tighten the two screws (C) to secure the mounting brackets to the rack posts.

Attaching the rack-mount brackets

This procedure describes how to attach the brackets for a front- or mid-mounted rack-mount installation. Refer to Figure 6 while performing this procedure.



Front-mounted server



Mid-mounted server

Figure 6. Attaching the rack-mount brackets

1. Position the small flange with the elongated hole (A) against the slotted bracket at the end of the front panel.
2. Align the longest flange (B) with the two mating holes at the bottom edge of the server chassis.
3. Use a Phillips screwdriver and two of the four screws (C) supplied with the brackets to secure the bracket to the side of the server chassis.

4. Install the remaining rack-mount bracket to the opposite side of the server chassis by repeating steps 1 through 3.

Removing the cover

This procedure describes how to remove the cover from the server. Before proceeding, be sure you are thoroughly familiar with the information in "Before you begin" at the front of this section. Refer to Figure 7 while performing this procedure.

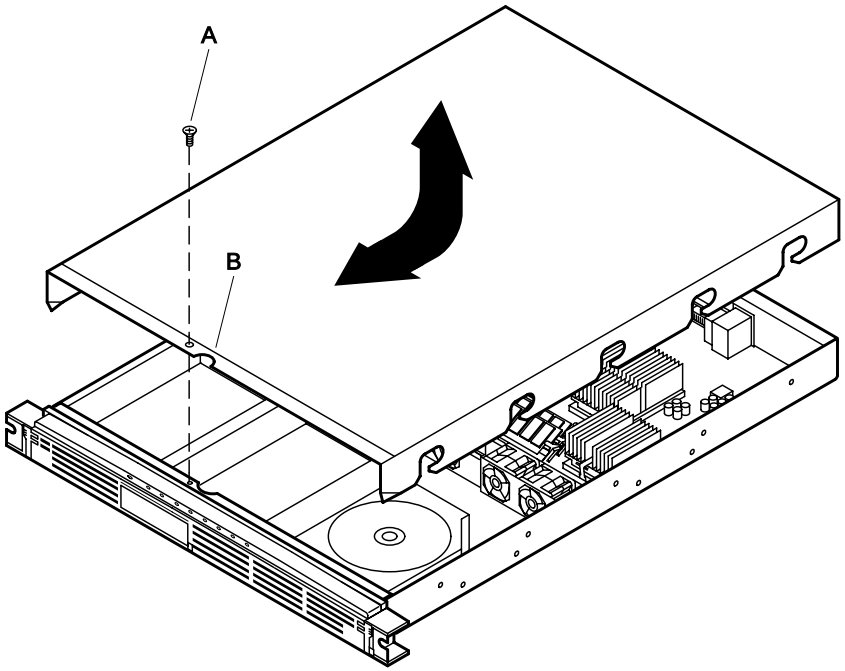


Figure 7. Removing/replacing the cover

1. Use a Phillips screwdriver and remove the screw (A) from the front edge of the cover.
2. Grasp the back edge of the cover and simultaneously pull from the back edge and push near the front until the cover slides out from under the edge of the server front panel.
3. Grasp the notch (B) in the front center of the cover and lift to remove the cover.

Replacing the cover

This procedure describes how to replace the cover on the server. Before proceeding, be sure you are thoroughly familiar with the information in "Before you begin" at the front of this section. Refer to Figure 7 while performing this procedure.

1. Position the cover on the chassis with the notched edge (A) facing the front and the slotted sides of the cover **inside** the chassis frame.
2. Grasp the back edge of the cover and simultaneously push from the back and top until the front edge of the cover slides all the way under the edge of the server front panel.
3. Use a Phillips screwdriver and tighten the screw (B) to secure the cover to the chassis.

Removing the processors

Perform this procedure to to remove the processors on the serverboard. Before proceeding, be sure you are thoroughly familiar with the information in "Before you begin" at the front of this section.

WARNING

If the server has been running recently, the processor chip, heat sink, terminator, and adjacent components will be hot. To avoid burns, allow time for these components to cool before you proceed.

Removing the processor heat sinks

This procedure describes how to remove the processor heatsinks from the processor chips. Refer to Figure 8 while performing this procedure.

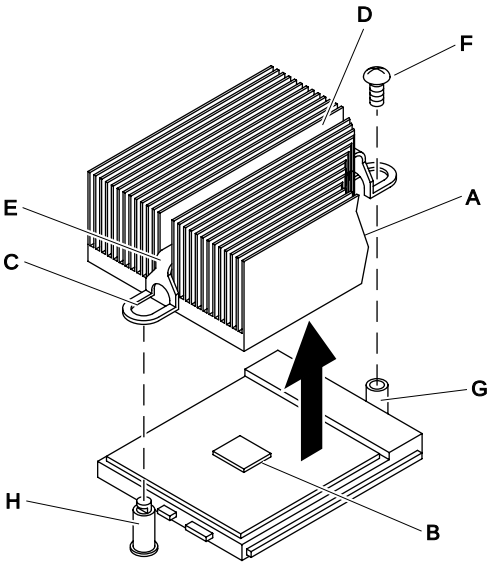


Figure 8. Removing the processor heat sinks

1. Use a Phillips screwdriver and remove the screw (F) from the post (G).
2. Slide the clamp (E) back to disengage the clamp from the post notch (H).
3. Gently lift the heat sink and clamp from the processor chip.

Removing the processor chips

This procedure describes how to remove the processor chips from the socket. Refer to Figure 9 while performing this procedure.

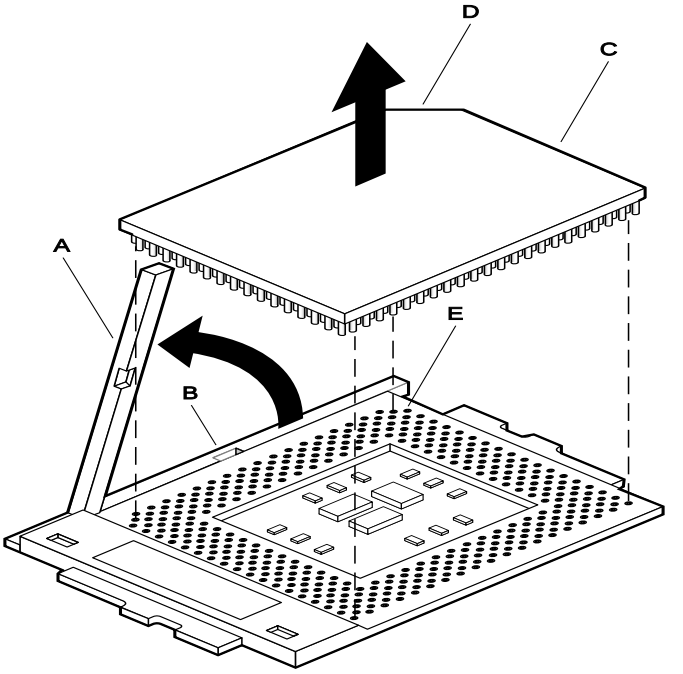


Figure 9. Removing the processor chips

1. Face the front of the server and grasp the end of the zero-insertion-force (ZIF) arm (A) on the left side of the processor socket.
2. Grasp the end of the zero-insertion-force (ZIF) arm (A) and bend it out slightly until it disengages from the socket tab (B).
3. Swing the arm up until it stops in the straight up position. The processor chip is now loose in the socket.
4. Grasp the processor chip on the outside edges and lift it from the socket.

Installing the processors

Perform this procedure to install the processors on the serverboard. Before proceeding, be sure you are thoroughly familiar with the information in “Before you begin” at the front of this section.

Installing the processor chips

This procedure describes how to install processor chips in the socket. Refer to Figure 10 while performing this procedure.

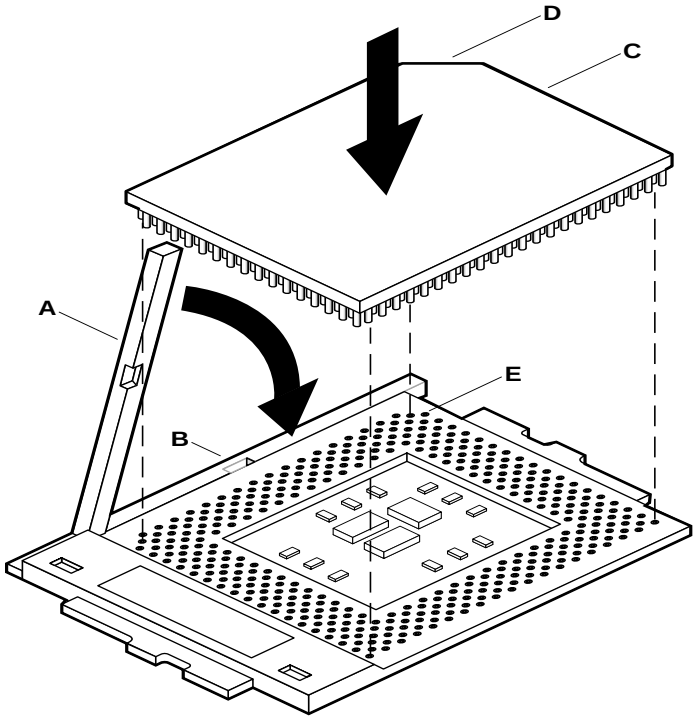


Figure 10. Installing the processor chips

1. Grasp the end of the zero-insertion-force (ZIF) arm (A) and bend it out slightly until it disengages from the socket tab (B).
2. Swing the ZIF arm up until it stops in the straight up position. The processor socket is now unlocked.
3. Face the front of the server and orient the processor chip (C) with the notch (D) in the upper left corner of the processor socket (E).
4. Gently place the processor chip on the socket so that the processor pins mate exactly with the corresponding socket pins. Do not force the processor into the socket because only a slight pressure can bend the pins.
5. With the processor in place, swing the arm (A) down until it snaps into the socket tab (B). The processor is now properly socketed.

Installing the processor heat sinks

This procedure describes how to install the heat sinks on the processor chips for a the first time and for replacing an existing processor. Be sure to read the following “Preliminary Considerations” information before proceeding with the installation procedure. Refer to Figure 11 while performing this procedure.

Preliminary considerations

If you are installing a processor for the first time: Remove the air baffle installed in the system after the top is open before installing the heat sinks. The baffle is the black plastic or cardboard-looking piece already installed in the system. Note the orientation of this baffle before removing it.

Two custom heat sinks are supplied in the server accessory kit. Most purchased processors include heat sinks and fans. Remove the heat sink and fan supplied with the processors and discard them. Each of the two supplied custom heat sinks is designed to fit onto a specific processor (either primary or secondary). The smaller of the two heat sinks is the primary heat sink which must be installed on the primary processor (the one closest to the memory DIMMs).

When Perform the following procedure to install the custom heat sinks supplied in the server accessory kit (no heat sink fan required) on the processors.

If you are replacing an existing processor: Discard any fans and heat sinks that come with the replacement processor. Reuse the custom heat sinks from the existing processor. Perform the following procedure to install the custom heat sink on the replacement processor.

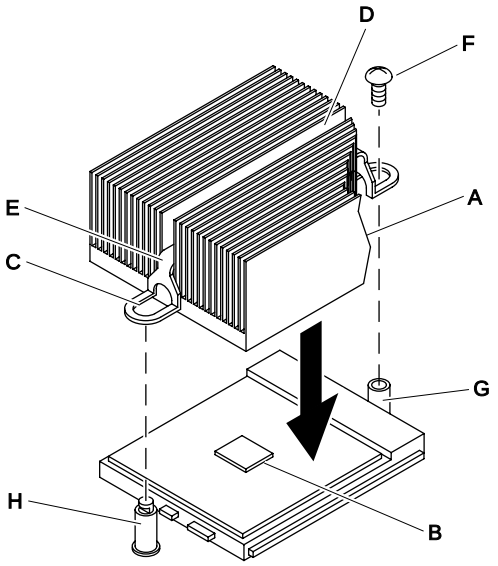


Figure 11. Installing the processor heat sinks

1. Orient the heat sink so the thermal grease pad on the heat sink is exactly aligned with the corresponding thermal grease pad (B) on top of the processor chip.
2. Drop the clamp (E) in the bottom of the heat sink center groove (D) and slide the notched end (C) of the clamp into the notch (H) in the mounting post.
3. Place the screw (F) through the clamp slot and into the threaded hole in the top of the opposite mounting post (G).
4. Use a Phillips screwdriver and tighten the screw (F) to secure the clamp to the post.

Removing the memory (DIMM) boards

This procedure describes how to remove DIMM boards from the serverboard sockets. Before proceeding, be sure you are thoroughly familiar with the information in “Before you begin” at the front of this section. Refer to Figure 12 while performing this procedure.

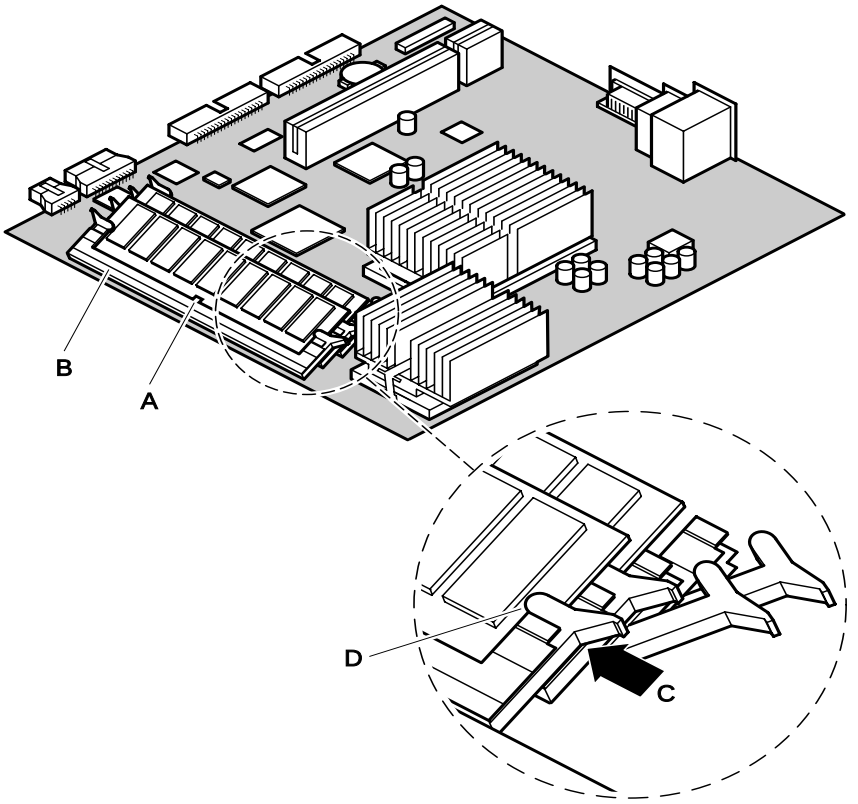


Figure 12. Removing/installing the DIMM boards

1. Grasp the ejector lever (A) on one end of the DIMM board and pull the lever out until the end of the board edge connector just lifts out of the serverboard socket (B).

   ⚠ **CAUTION**

   Hold the tips of your fingers lightly on the back edge of the DIMM board to prevent the board from suddenly ejecting from the socket when you perform step 2 of this procedure. The DIMM board or other components on the serverboard could be damaged if the DIMM board is allowed to suddenly eject from the socket.

2. Grasp the ejector lever on the other end of the DIMM board and carefully pull out on the lever until the DIMM board is loose from the socket.

Installing the memory (DIMM) boards

This procedure describes how to install DIMM boards on the serverboard. Before proceeding, be sure you are thoroughly familiar with the information in "Before you begin" at the front of this section. Refer to Figure 12 while performing this procedure.

⚠ CAUTIONS

- Make sure that the DIMM boards have the correct characteristics. Refer to the "Supported memory" table on the support.intel.com website.
- Use extreme care when installing a DIMM board. Applying too much pressure or misaligning the board in the socket can damage the sockets or DIMM board edge connectors. The DIMM board edge connectors are keyed and can be inserted only one way.
- DIMM boards can be populated in any order, but due to the 25- degree angle of the DIMM sockets there is a potential risk for damage to the DIMM board or the socket. You can reduce the risk of damage by installing the DIMM boards starting with the back socket on the serverboard and moving toward the front (DIMM0 to DIMM3).
- Mixing dissimilar metals can cause memory failures that result in data corruption. Because the DIMM board sockets on the serverboard are gold plated, install DIMM boards with gold-plated edge connectors.

NOTE

Memory size can vary between sockets, and slot vacancy between DIMM boards is permitted.

1. Orient the DIMM board so the key slot (C) in the DIMM board edge connector is properly aligned with the corresponding slot in the mating serverboard socket (B). (The connectors are keyed to mate in only one direction.)
2. Firmly press the DIMM module down and all the way into the serverboard socket.
3. Make sure the DIMM board is locked in by pressing the lever (A) on each end of the serverboard socket into the mating notch (D) on each edge of the DIMM board.

Removing the bezel

Perform the following procedure to remove the bezel and access the drive bays if you are removing or installing the SCSI or slim-line CD-ROM drives. Before proceeding, be sure you are thoroughly familiar with the information in "Before you begin" at the front of this section. Refer to Figure 13 while performing this procedure.

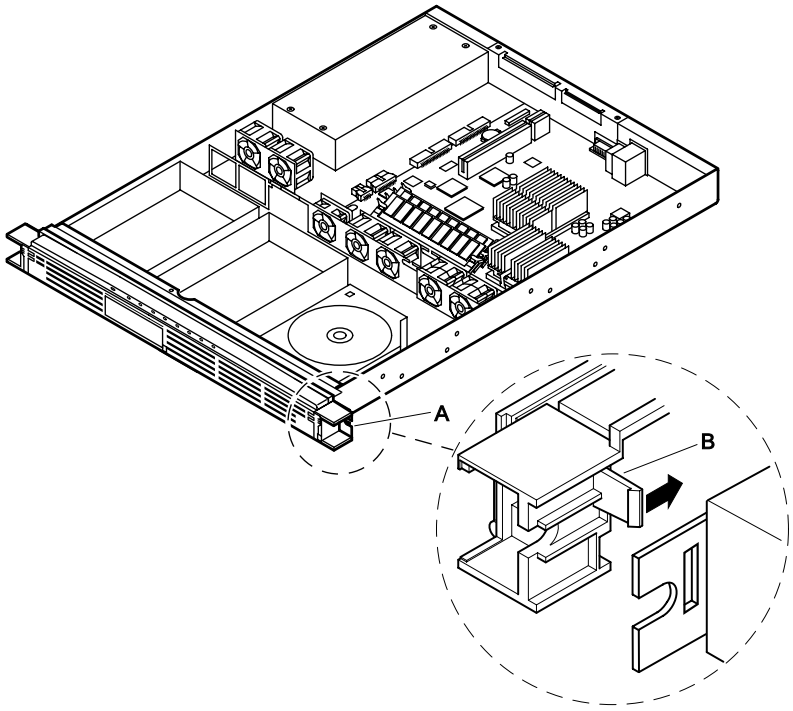


Figure 13. Removing/installing the bezel

1. Reach behind either end of the bezel (A) and press the plastic clip (B) to release the end of the bezel from the locking slot (C) in the front panel rack-mounting ear.
2. Gently pull the end of the bezel out just far enough to release the plastic clip (B) from the front panel rack-mounting ear.
3. Hold the bezel and repeat steps 1 and 2 for the other end to release the bezel from the server.

Installing the bezel

Perform the following procedure to install the bezel on the server. Before proceeding, be sure you are thoroughly familiar with the information in "Before you begin" at the front of this section. Refer to Figure 13 while performing this procedure.

1. Check that the front panel board is closed and secured in the clip.
2. Position the bezel on the front of the server so that the plastic clip (B) at both ends of the bezel is aligned with the locking slot (C) in the front panel rack-mounting ears.
3. Press the bezel firmly against the server front panel until the plastic clip (B) at both ends of the bezel snaps into the locking slot (C) in the front panel rack-mounting ears.

Removing the SCSI drives

Perform the following procedure to remove the hot-swappable SCSI hard disk drives/carriers from the server and remove the drives from the carriers. Before proceeding, be sure you are thoroughly familiar with the information in "Before you begin" at the front of this section.

Removing the SCSI drive/carrier from the drive bay

This procedure describes how to remove the SCSI drive/carrier from the hot swappable drive bay. Refer to Figure 14 while performing this procedure.

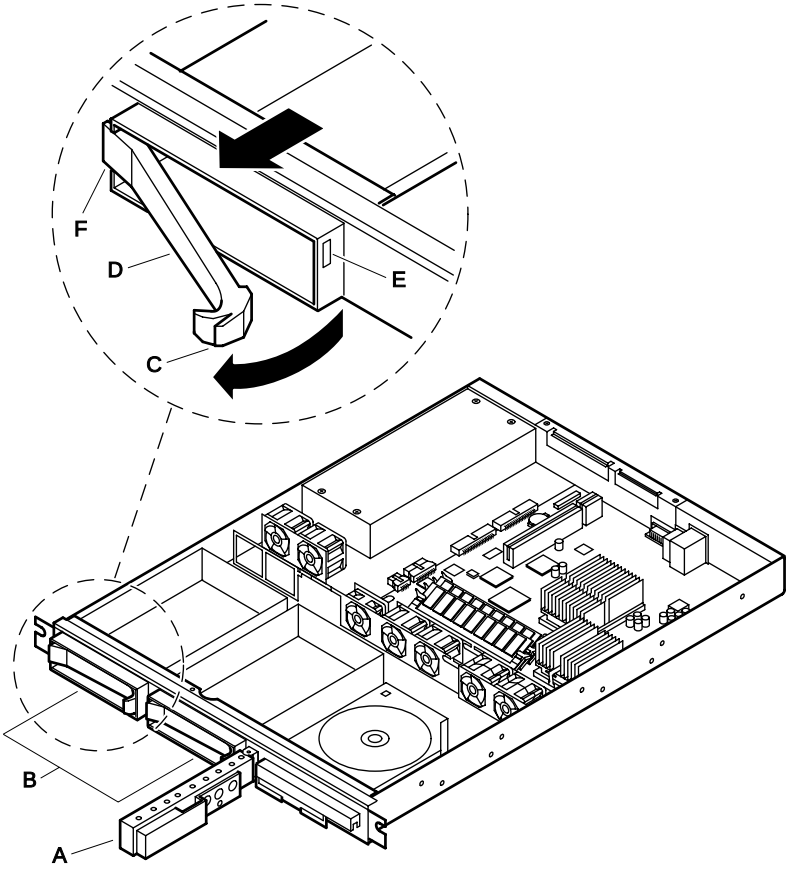


Figure 14. Removing the SCSI drive/carrier from the drive bay

1. Remove the bezel from the front of the server as describe in the previous "Removing the bezel" procedure.
2. Grasp the left edge of the hinged front panel board (A) and swing it away from the front panel to access the SCSI drive bays (B).
3. Press down on the clip (C) at the end of the plastic carrier handle (D) to disengage the clip from the locking slot (E) in the drive bay.
4. Swing the carrier handle outward to disengage the carrier handle latch (F) from the locking slot at the opposite side of the drive bay.
5. Carefully pull on the carrier handle to slide the drive/carrier out of the drive bay.

CAUTION

Do not operate the server without carriers installed in the SCSI drive bays. Operating with an open drive bay reduces cooling efficiency and can cause overheating, which can affect performance or damage components.

Removing the SCSI drive from the carrier

This procedure describes how to remove the SCSI drive from the carrier. Refer to Figure 15 while performing this procedure.

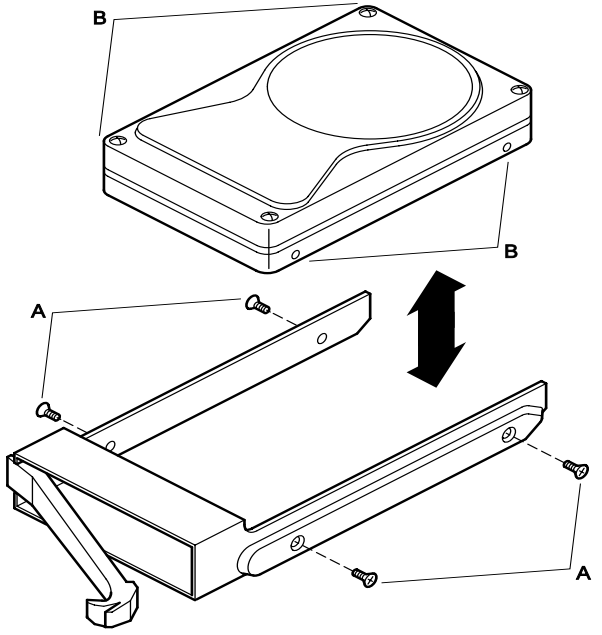


Figure 15. Removing/installing the SCSI drive

1. Use a Phillips screwdriver and remove the four screws (A) from the carrier slide track. **Save the screws**.
2. Carefully lift the drive out of the carrier.

Installing the SCSI drives

Perform the following procedure to install the SCSI hard disk drive in the carrier and install the drive/carrier in the hot-swappable SCSI drive bay. Before proceeding, be sure you are thoroughly familiar with the information in "Before you begin" at the front of this section.

Installing the SCSI drive in the carrier

This procedure describes how to install the SCSI drive in the carrier. Refer to Figure 15 while performing this procedure.

1. Position the drive in the carrier with the connector end of the drive facing the back of the carrier and the drive top facing upward.
2. Align the two drive holes on each side of the drive with the mating screw holes in the carrier slide track (B).
3. Use a Phillips screwdriver and tighten the four mounting screws (A) to secure the carrier to the drive.

Installing the SCSI carrier/drive in the drive bay

This procedure describes how to install the SCSI carrier/drive in the drive bay. Refer to Figure 16 while performing this procedure.

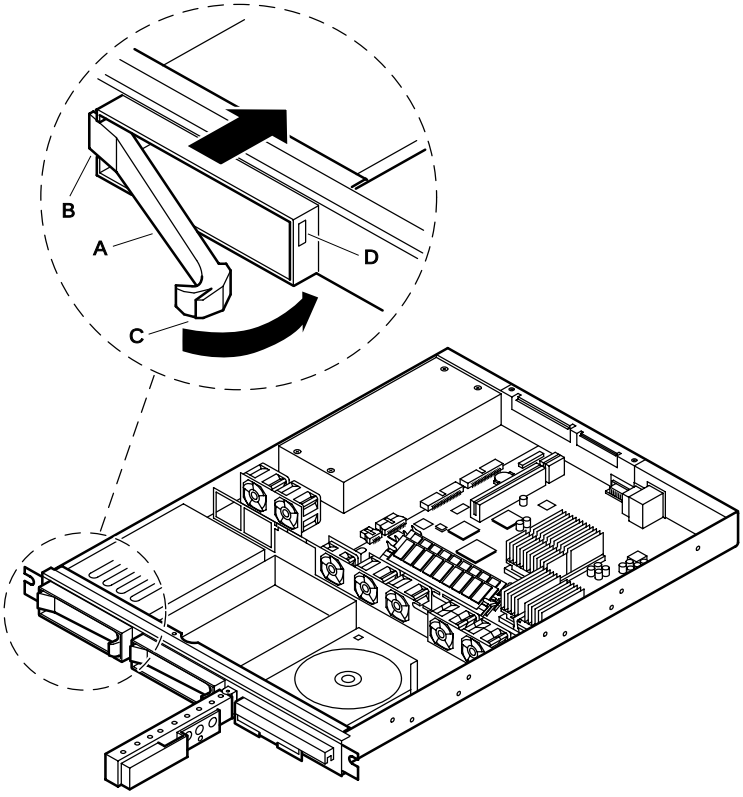


Figure 16. Installing the SCSI carrier/drive in the drive bay

1. With the carrier handle (A) extended in the open position, slide the carrier/drive into the drive bay.
2. Push the carrier handle into the drive bay until the carrier handle latch (B) engages the locking slot and the clip (C) clicks into the locking slot (D) at the opposite side of the drive bay indicating that the carrier/drive is securely locked in the bay.

NOTE

A list of validated SCSI drives is supplied at *support.intel.com*. The mapping at time of print is*:

Servers → Platforms → SRMK2 → Compatibility → Supported Hardware List

* This path could alter slightly in the future, but the document should be in this relative area.

Removing the slim-line CD-ROM and diskette drives

Perform this procedure to remove the slim-line CD-ROM and diskette drives and mounting bracket from the server and from the mounting bracket. Before proceeding, be sure you are thoroughly familiar with the information in “Before you begin” at the front of this section.

NOTE

Both the slim-line CD-ROM and diskette drives are attached to the same bracket. The bracket must first be removed from the server before the drives can be removed from the bracket.

Removing the mounting bracket/drives from the server

This procedure describes how to remove the mounting bracket and slim-line CD-ROM and diskette drives from the server. Refer to Figure 17 while performing this procedure.

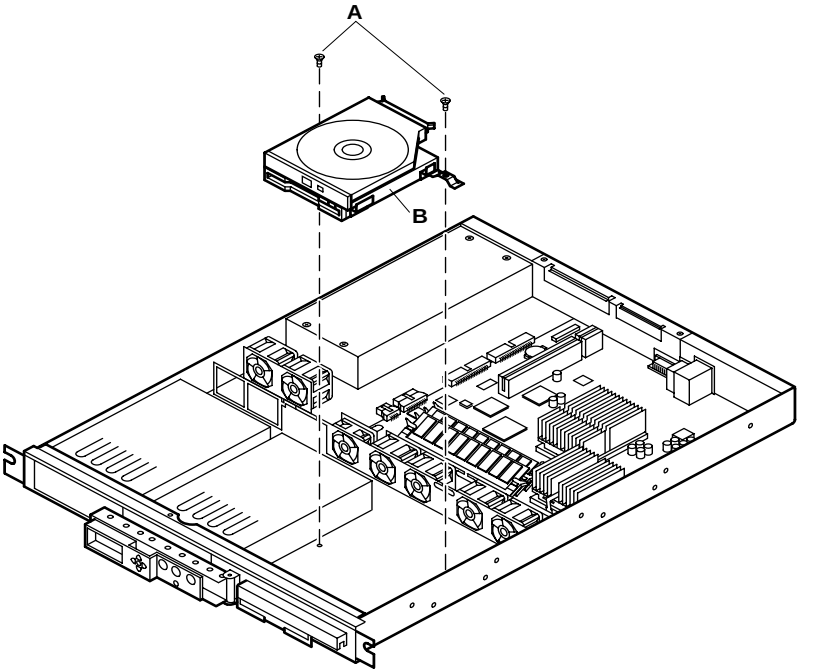


Figure 17. Removing the mounting bracket/drives from the server

1. Remove the CD-ROM and/or diskette drive power cables from the back of the drive(s).
2. Use a Phillips screwdriver to remove the two screws (A) that secure the mounting bracket (B) to the server chassis.
3. Slide the mounting bracket with the drive(s) attached backward and out of the drive slots in the server front panel.

Removing the drives from the mounting bracket

This procedure describes how to remove the slim-line CD-ROM and/or diskette drives from the mounting bracket. Refer to Figure 18 while performing this procedure.

NOTE

The following procedure applies to either the slim-line CD-ROM or diskette drive. However, to gain access to the diskette drive you must first remove the slim-line CD-ROM drive.

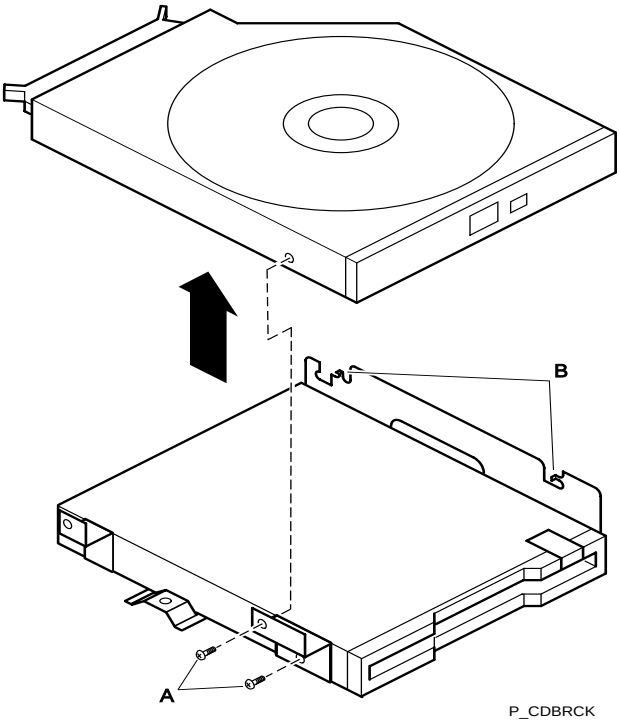


Figure 18. Removing the drives from the mounting bracket

1. Use a Phillips screwdriver and remove the screw (A) securing the left side of the drive housing to the mounting bracket.
2. Lift the left side of the drive housing and slide the drive to the left to release it from the two pin tabs (B) on the right side of the mounting bracket.

CAUTION

If you do not intend to replace the CD-ROM or diskette drives, install a filler panel in the empty drive slot.

Installing the slim-line CD-ROM and diskette drives

Perform this procedure to install the slim-line CD-ROM and/or diskette drives in the mounting bracket and the mounting bracket/drive(s) in the server. Before proceeding, be sure you are thoroughly familiar with the information in "Before you begin" at the front of this section.

Installing the drives in the mounting bracket

This procedure describes how to install the slim-line CD-ROM and/or diskette drives in the mounting bracket. Refer to Figure 19 while performing this procedure.

NOTE

The following procedure applies to either the slim-line CD-ROM or diskette drives. The diskette drive is mounted on the bottom of the drive bracket. Thus, the slim-line CD-ROM drive must be removed first as described in the previous "Removing the slim-line CD-ROM and diskette drives" procedure before the diskette drive can be installed.

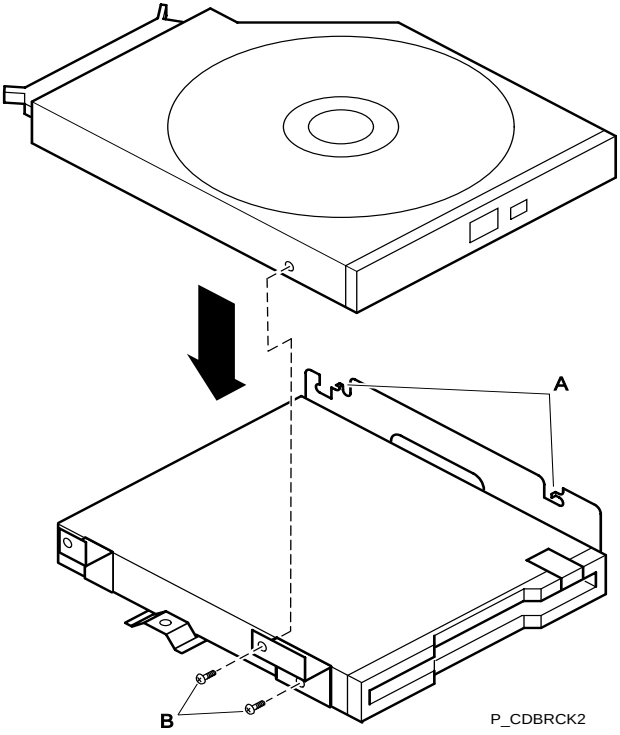


Figure 19. Installing the drives in the mounting bracket

1. Position the drive in the bracket so that the two pin tabs (A) on the right side of the mounting bracket are inserted in the two mating holes in the drive housing.
2. Lower the left side of the drive into the drive bracket.
3. Use a Phillips screwdriver and tighten the mounting screw (B) to secure the drive to the mounting bracket.

Installing the slim-line CD-ROM and diskette drives in the server

This procedure describes how to install the CD-ROM and/or diskette drives in the server. Refer to Figure 20 while performing this procedure.

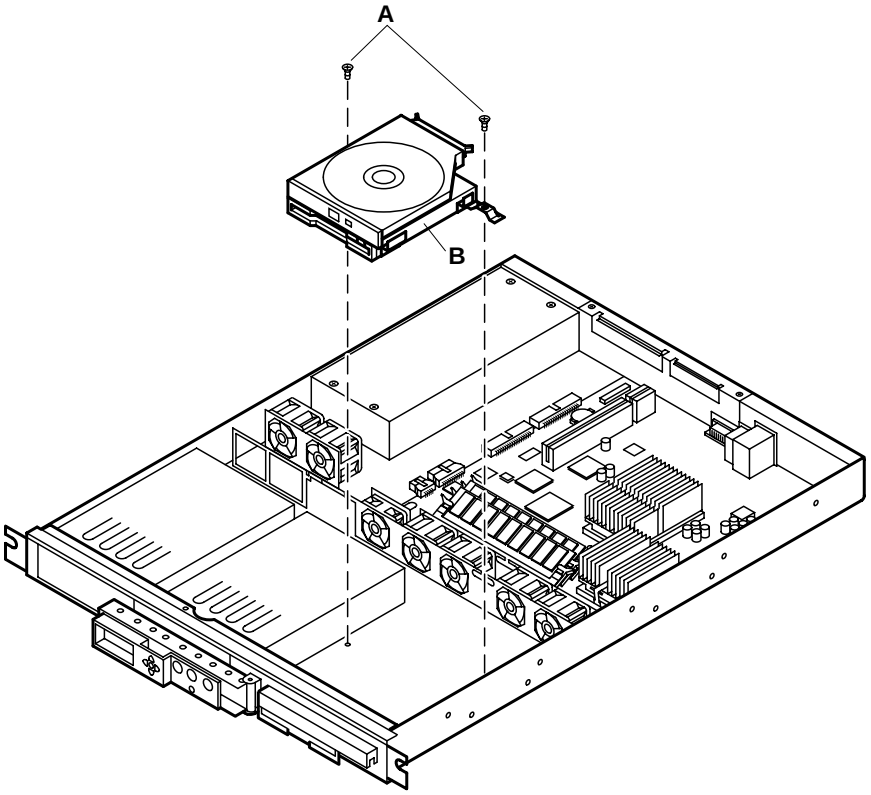


Figure 20. Installing the slim-line CD-ROM and diskette drive in the server

1. Place the mounting bracket with the drive(s) attached in the server with the front of the drives inserted through the drive slots (A) in the server front panel.
2. Align the mounting bracket with the two mating holes (B) in the server chassis.
3. Use a Phillips screwdriver and two screws to secure the mounting bracket/drive(s) to the server chassis.

Removing the PCI add-in cards

Perform this procedure to remove the PCI add-in cards from the serverboard. Before proceeding, be sure you are thoroughly familiar with the information in “Before you begin” at the front of this section.

Removing the retention bracket and rear I/O filler panels

This procedure describes how to remove the retention bracket and I/O filler panels from the PCI board expansion slots. Refer to Figure 21 while performing this procedure.

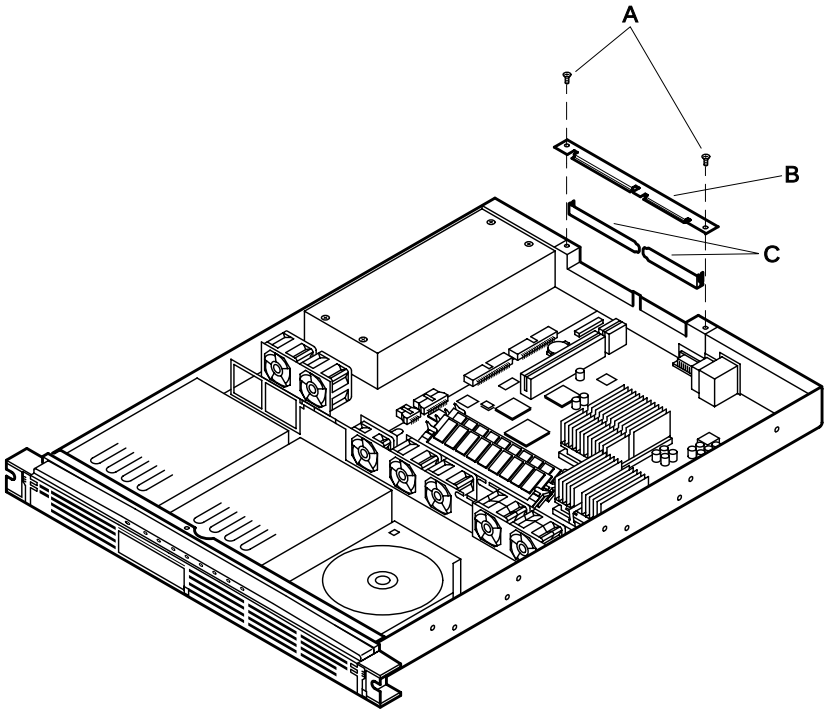


Figure 21. Removing the retention bracket and rear I/O filler panels

1. Use a Phillips screwdriver and remove the two screws (A) securing the filler panel retention bracket (B) to the top edge of the server back panel.
2. Remove the retention bracket.
3. Remove the filler panel (C) to the server back panel.

Removing the riser board and add-in cards

This procedure describes how to remove the riser board and add-in cards from the serverboard. Refer to Figure 22 while performing this procedure.

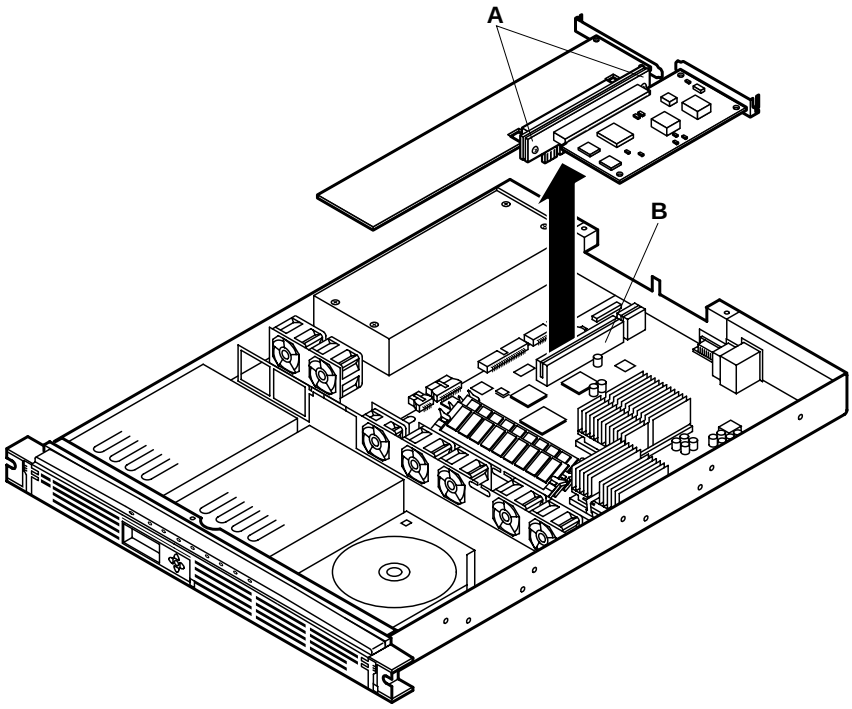


Figure 22. Removing the riser and add-in cards

CAUTION

Do not attempt to remove an add-in card without first removing the riser card from the serverboard because you can damage the card(s) or connectors due to clearance limitations. If there are any add-in cards already installed, remove the riser and the attached add-in card(s) together as described in the following procedure.

1. Grasp the riser card, with add-in card(s) attached, at each end (A) and gently rock and lift until the riser releases from the serverboard connector (B).
2. Remove the riser and add-in cards from the serverboard.

Removing the add-in cards from the riser

This procedure describes how to remove the add-in cards from the riser card. Refer to Figure 23 while performing this procedure.

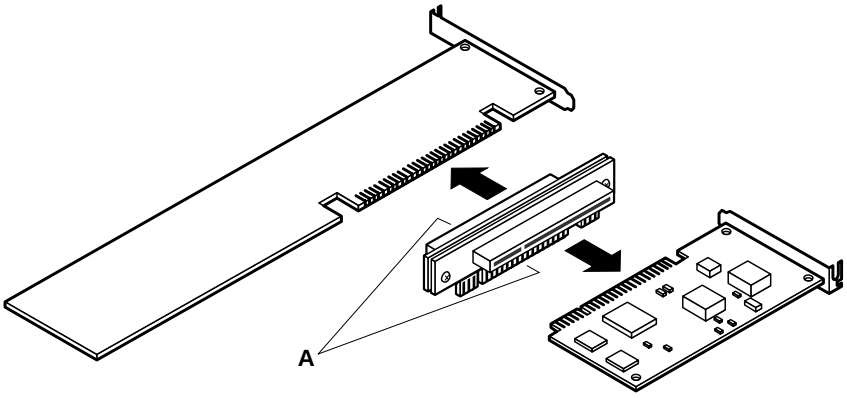


Figure 23. Removing the add-in cards from the riser

1. Grasp the edges of the riser board and the add-in card you wish to remove.
2. Disconnect the add-in card(s) from the riser connector (A).

Installing the rear I/O filler panels and retention bracket

NOTE

Perform this procedure only if you are **not** immediately reinstalling another add-in card in the same expansion slot from which an add-in card was removed.

This procedure describes how to install the rear I/O filler panel(s) in any unused PCI card expansion slots and the retention bracket. Refer to Figure 24 while performing this procedure.

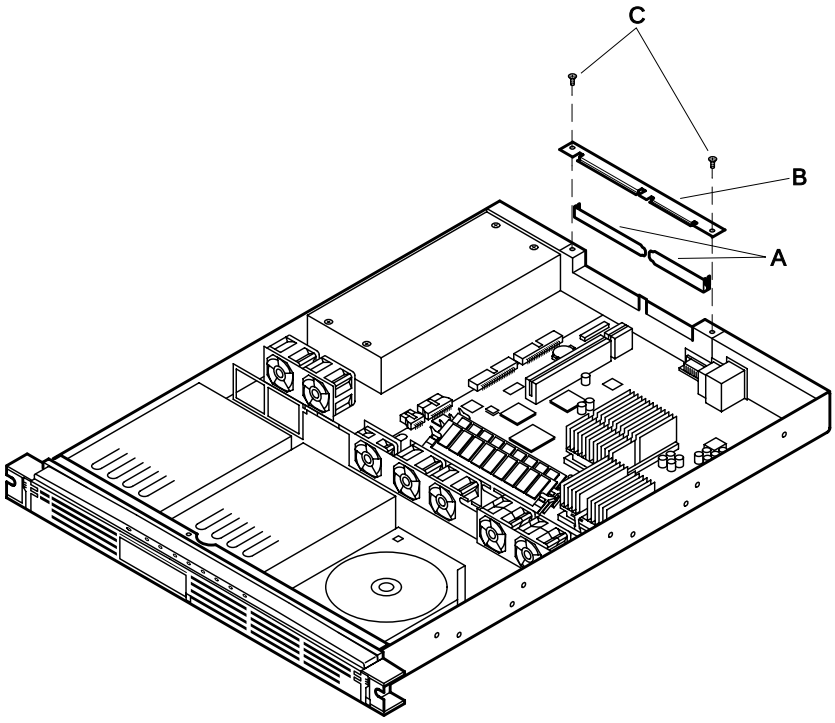


Figure 24. Installing the rear I/O filler panels and retention bracket

1. Position the filler panels (A) and insert them into the rear bracket.
2. Align the filler panel retention bracket (B) with the two mating screw holes on top of the server back panel.
3. Use a Phillips screwdriver and tighten the two screws (C) to secure the retention bracket (B) to the top edge of the server back panel.

Installing the PCI add-in cards

Perform the following procedure to install the PCI add-in cards in the server expansion slots. The vertically mounted riser card accommodates one standard (left side) and one low-profile (right side) PCI add-in card. Before proceeding, be sure you are thoroughly familiar with the information in “Before you begin” at the front of this section.

NOTE

If applicable, check that the add-in card jumpers or switches are set according to the manufacturer's instructions before proceeding.

Removing the riser board

This procedure describes how to remove the riser board from the serverboard. Refer to Figure 25 while performing this procedure.

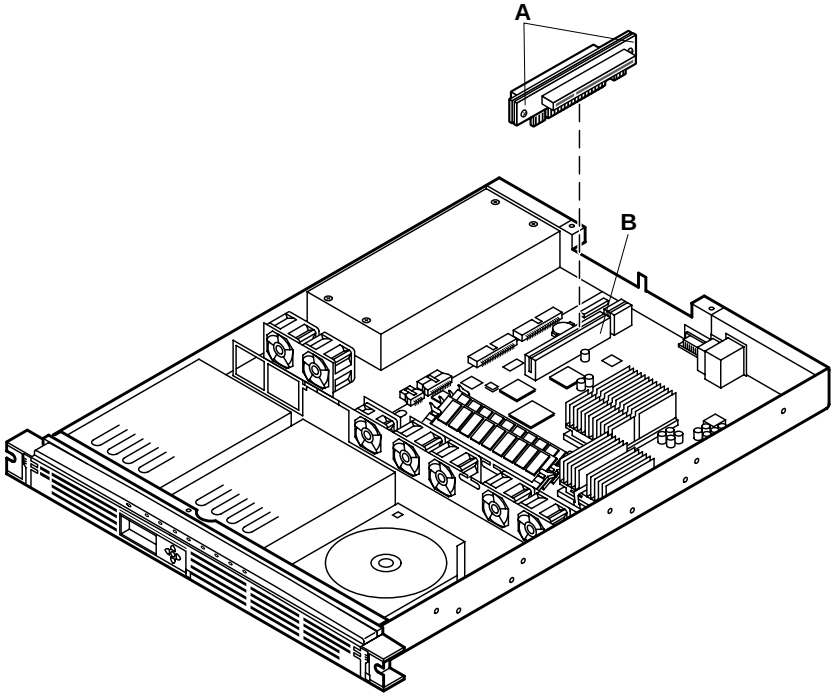


Figure 25. Removing the riser board

NOTE

This procedure assumes that there are no PCI add-in cards installed on the riser card. If so, remove the existing add-in card(s) as described in the previous "Removing the PCI add-in cards" procedure.

1. Grasp the riser card at each end (A) and gently rock and lift the riser board until it releases from the serverboard connector (B).
2. Remove the riser card from the serverboard.

Installing the add-in cards on the riser board

This procedure describes how to install the standard or low-profile add-in cards on the riser board. Refer to Figure 26 while performing this procedure.

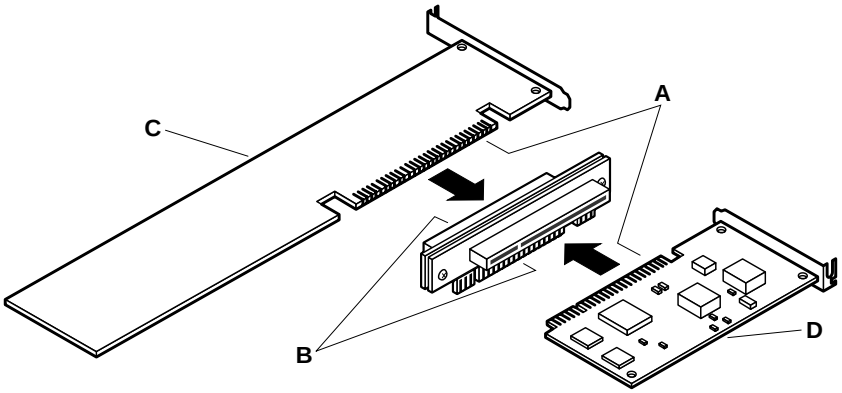


Figure 26. Installing the add-in cards on the riser board

NOTE

Before you begin, examine the length of the bracket at the end of the add-in card you wish to install to determine whether it is a standard or a low-profile type. The low-profile card bracket is shorter than the standard card; approximately 3.11 in. (7.9 cm) compared to approximately 4.75 in. (12.06 cm) long. The low-profile card (D) fits into the right expansion slot (when facing the front of the server) and the standard card (C) fits in the left slot.

1. Align the add-in card edge connector (A) with the proper riser connector (B). For example: If the add-in card is a standard type (C), the component side faces down and the add-in card edge connector mates with the connector on the left side of the riser card when the riser is pointing toward the back of the server
2. If the add-in card is a low-profile type (D), the component side faces up and the add-in card edge connector mates with the connector on the right side of the riser card.

3. The connectors are keyed to mate in only one direction.
4. Firmly press the add-in card all the way into the mating connector on the riser card.

Removing the retention bracket and rear I/O filler panels

NOTE

Perform this procedure only if you are installing PCI add-in cards in unused expansion slots that still have an I/O filler panel installed.

This procedure describes how to remove the retention bracket and rear I/O filler panels. Refer to Figure 27 while performing this procedure.

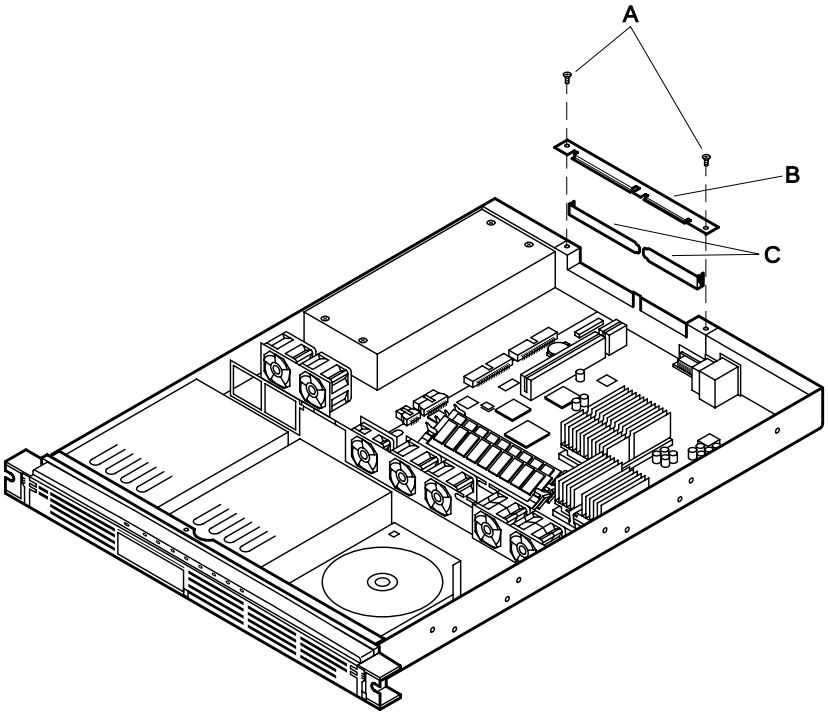


Figure 27. Removing the retention bracket and rear I/O filler panels

1. Use a Phillips screwdriver and remove the two screws (A) securing the filler panel retention bracket (B) to the top edge of the server back panel.
2. Remove the retention bracket.

3. Remove the filler panel (C) to the expansion slot opening.

Installing the riser and add-in cards in the server

This procedure describes how to install the riser and add-in cards in the server PCI expansion slots. Refer to Figure 28 while performing this procedure.

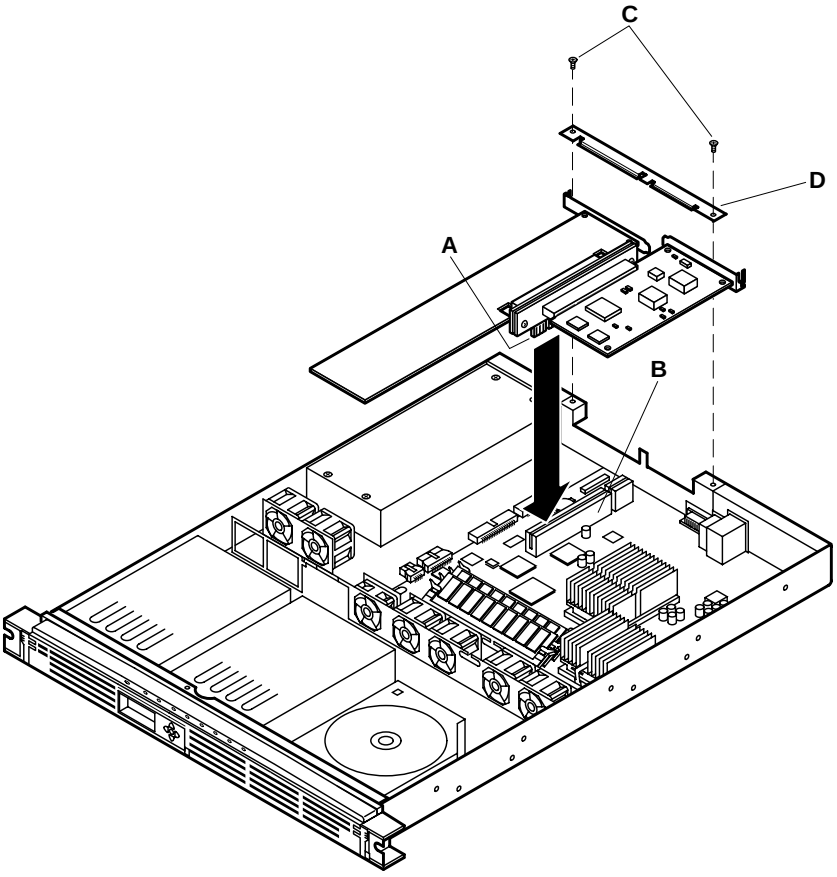


Figure 28. Installing the riser and add-in cards in the server

1. Align the riser card edge connector (A) with the mating riser connector (B) on the serverboard. (The connectors are keyed to mate in only one direction.)
2. Firmly press the riser/add-in card(s) straight down and all the way into the mating connector on the serverboard.

3. Use the Phillips screwdriver and the two screws (C) removed in the "Removing the retention bracket and rear I/O filler panels" procedure to securely attach the filler panel retention bracket (D) to the top of the server back panel.

CAUTION

If you installed only one add-in card, make sure the empty expansion slot has a filler panel installed. An open expansion slot will reduce the cooling and EMI integrity of the server. Refer to the preceding "Installing the rear I/O filler panel."

Removing the power supply

Perform the following procedure to remove the power supply. Before proceeding, be sure you are thoroughly familiar with the information in "Before you begin" at the front of this section. Refer to Figure 29 while performing this procedure.

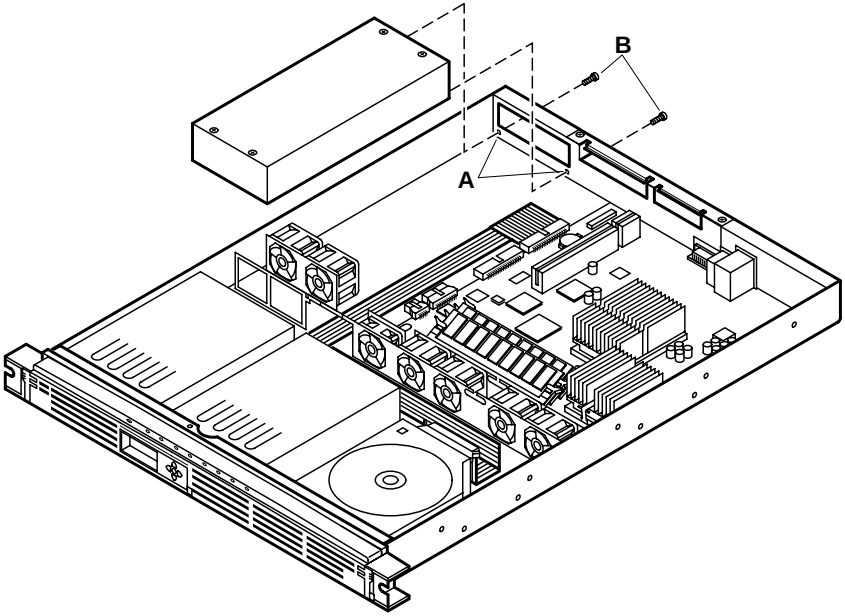


Figure 29. Removing/installing the power supply

1. Remove the server cover as described in the "Removing the cover" procedure earlier in this section.
2. Disconnect the power supply cables from the server components.

3. Use a Phillips screwdriver and remove the two screws (B) that secure the power supply to the server rear panel.
4. Lift the power supply from the server chassis.

Installing the power supply

Perform the following procedure to install the power supply. Before proceeding, be sure you are thoroughly familiar with the information in "Before you begin" at the front of this section. Refer to Figure 29 while performing this procedure.

1. Remove the server cover as described in the "Removing the cover" procedure.
2. Position the power supply so that the two screw holes (A) on the front panel of the power supply are aligned with the two mating holes in the server rear panel.
3. Use a Phillips screwdriver and tighten the two screws (B) to secure the power supply to the server rear panel.
4. Connect the power supply cables to the server components.

Replacing the serverboard battery

Perform the following procedure to replace the lithium battery in the server. Before proceeding, be sure you are thoroughly familiar with the information in "Before you begin" at the front of this section. Refer to Figure 30 while performing this procedure.

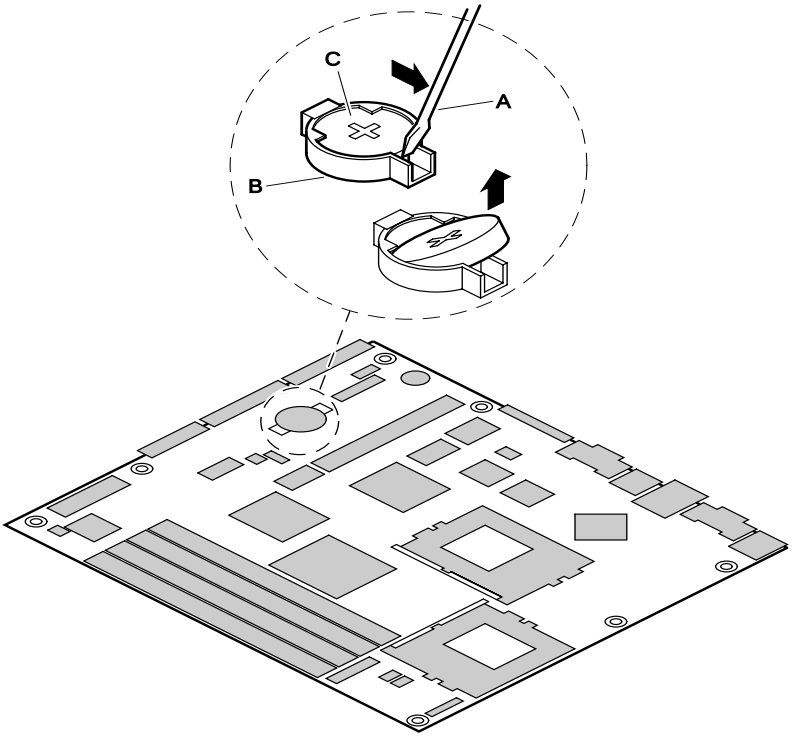


Figure 30. Replacing the lithium serverboard battery

WARNING

Replace the lithium battery only with the same or equivalent type recommended by the dealer. The battery can explode and cause harm to personnel or equipment if it is not the proper type or incorrectly installed. Discard used batteries according to manufacturer's instructions.

NOTE

The lithium battery powers the realtime clock (RTC) in the absence of line voltage. The lithium battery lasts up to 10 years. When the battery starts to lose voltage, the server settings stored in the CMOS RAM in the RTC (for example, the date and time) may be incorrect. Contact your supplier or dealer for a list of approved batteries.

1. Remove the server cover as described in the "Removing the cover" procedure.
2. Insert the tip of a flat bladed screwdriver (A), or equivalent, under the tab in the plastic battery retainer (B).
3. Gently push down on the screwdriver to lift the battery (C).

4. Remove the battery from the socket.
5. Remove the new lithium battery from its package.
6. Insert the battery in the battery socket with the + side up.
7. Replace the server cover as described in the “Replacing the cover” procedure earlier in this section.
8. Run the system setup utility (SSU) as described in section 5, “Configuration software and utilities” to restore the configuration settings to the real-time clock (RTC).

5 Configuration software and utilities

This section describes the power-on self-test (POST) and server configuration utilities. Table 10 describes the configuration utilities.

Table 10. Configuration utilities

Utility	Description	Procedure
BIOS Setup	The BIOS Setup program is for viewing and changing BIOS settings for the server.	Using BIOS Setup
BIOS Update Utility	Use to update the BIOS or recover from a corrupted BIOS update.	Obtaining the Upgrade Utility

Hot keys

Use the keyboard's numeric pad to enter numbers and symbols. Table 11 describes the hot keys.

Table 11. Hot keys

To do this:	Press these keys
Clear memory and reload the operating system—this is a system reset.	**Ctrl+Alt+Del**

Power-on self-test (POST)

Each time you turn on the system POST will run. POST checks the serverboard, processor, memory, keyboard, and most installed peripheral devices. During the memory test, POST displays the amount of memory that it is able to access and test. The length of time needed to test memory depends on the amount of memory installed. POST is stored in flash memory.

1. Turn on your video monitor and server. After a few seconds, POST begins to run.
2. After the memory test, these screen prompts and messages appear:

   ```
   Press F2 key if you want to run SETUP
   ```

3. If you **do not** press **F2** and **do not** have a device with an operating system loaded, the above message remains for a few seconds while the boot process continues. The SCSI devices will then boot up and the system beeps once. Then this message appears:

   ```
   Missing Operating System
   ```

What appears on the screen after this depends on whether you have an operating system loaded and, if so, which one.

If the system halts before POST completes running, it emits a beep code indicating a fatal system error that requires immediate attention. If POST can display a message on the video display screen, it causes the speaker to beep twice as the message appears.

Note the screen display and write down the beep code you hear; this information is useful for your service representative. See section 6, “Solving problems” for a list of beep codes and error messages that POST can generate.

Using BIOS setup

The BIOS Setup program is used for viewing and changing the BIOS settings of this system. The user accesses Setup by pressing **F2** after the POST memory test begins and before the operating system boot begins. The menu bar and brief description of each is shown in Table 12.

Table 12. BIOS setup menu bar

Main	Advanced	Security	Boot	System Management	Exit
Allocates resources for hard-ware component s	Configures advanced features available through the chipset	Set pass-words and security features	Selects boot options and power supply control	Configures server man-agement features, such as console redirection	Saves or dis-cards changes to Setup program options

If “Quiet Boot” is enabled, an OEM logo will display instead of the “Press F2 to enter Setup” message. You can still enter Setup by pressing **F2** during the time an OEM logo is displayed.

NOTE

A few seconds might pass before Setup is entered. This is the result of POST completing test and initialization functions that must be completed before Setup can be entered. When Setup is entered, the Main Menu options page is displayed.

Table 13 shows the function keys available for menu screens.

Table 13. BIOS setup function keys

Setup Key	Description
Enter	Select Submenu: The **Enter** key activates sub-menus when the selected feature is a sub-menu, displays a pick list if a selected feature has a value field, or selects a sub-field for multi-valued features like time and date. If a pick list is displayed, the **Enter** key undoes the pick list, and allows another selection in the parent menu.
ESC	Exit: The **ESC** key provides a mechanism for backing out of any field. This key undoes the pressing of the **Enter** key. When the **ESC** key is pressed while editing any field or selecting features of a menu, the parent menu is re-entered. When the **ESC** key is pressed in any sub-menu, the parent menu is re-entered. When the **ESC** key is pressed in any major menu, the exit confirmation window displays and the user is asked whether changes can be discarded.
Tab	Select Field: The **Tab** key selects a field within a configurable field. For example, when configuring the system time, use the **Tab** key to move between the hour, minute, and second fields.
↑ or ↓	Select Item: The up or down arrow selects the previous or next value in a pick list, or the previous or next feature in a menu item’s option list. The selected item must then be activated by pressing the **Enter** key.
→ or ←	Select Menu: The left and right arrow keys move between the major menu pages. The keys have no effect if a sub-menu or pick list is displayed.
F9	Setup Defaults: Load the default configuration values for all fields. A menu will appear asking user to confirm. Click on **Yes** to load defaults. Click on **No** to cancel loading defaults.
F10	Save and Exit: Save the current values and exit Setup. A menu will appear asking user to confirm. Click on **Yes** to save and exit. Click on **No** to remain in Setup.

Main menu

The menu bar is shown below.

Main	Advanced	Security	Boot	System Management	Exit

Table 14 shows the Main menu. This menu reports processor and memory information and is for configuring the system date and time.

Table 14. Main menu

Feature	Options	Description
System Time	HH:MM:SS	Sets the system time.
System Date	MM/DD/YYYY	Sets the system date.
Floppy A	Not Installed 360 KB 5 ¼ inch 1.2 MB 5 ¼ inch 720 KB 3 ½ inch **1.44/1.25 MB 3 ½ inch (Default)** 2.88 MB 3 ½ inch	Sets the floppy disk type. In the SRMK2 systems, this should not be changed.
Hard Disk Pre-delay	**Disabled (Default)** 3 to 30 seconds	When enabled provides an IDRE drive spin-up delay at boot. Used mostly for older IDE drives that have long spin-up times.
Primary IDE Master Primary IDE Slave Secondary IDE Master Secondary IDE Slave	**Not Installed (Default)** Shows drive type	When an IDE device is present, it is shown as one of these four devices. See the IDE Configuration Submenu table.
Processor Configuration	No options	Shows the type, speed, and L2 cache size of the processor.
(Submenu of Processor Configuration) Processor Serial Number	Disabled **Enabled (Default)**	Enables or disables PSN. PSN is only available for a Pentium III processor.
Language	**English (US) (Default)** Espãnol (SP) Deutsch (GR)	Selects the displayed BIOS language.

Feature	Options	Description
	Italiano (IT) Francais (FR)	
BIOS Version	No options	Displays the version of the BIOS.
Total Memory	No options	Displays total memory (MB).

Advanced menu

The menu bar is shown below.

Main	**Advanced**	Security	Boot	System Management	Exit

Table 15 shows the Advanced menu. This menu configures advanced features that are available through the chipset.

Table 15. Advanced menu

Feature	Options	Description
Peripheral Configuration	See Peripheral Configuration Submenu table	Configures peripheral ports and devices.
Plug-and-Play O/S	**No (Default)** Yes	Tells the BIOS if the system has a Plug and Play operating system.
Reset Config Data	**No (Default)** Yes	Clears the BIOS PCI/PnP configuration data stored in Flash on the next boot.
Numlock	**On (Default)** Off	Selects the Numlock key on/off during power up.
Memory Bank 0-4	**No options**	Shows the type of memory in each DIMM socket.

Table 16. Peripheral configuration submenu

Feature	Options	Description
Serial Port A	**Auto (Default)** Disabled Enabled	Disables or enables serial port A.
Diskette Controller	**Enabled (Default)** Disabled	Enables/disables the floppy disk controller.
Diskette Write Protect	**Disabled (Default)** Enabled	When enabled, the user cannot copy to the floppy disk drive.
Legacy USB Support	**Auto (Default)** Disabled Enabled	Disables/enables support for legacy USB.
Onboard SCSI	**Enabled (Default)** Disabled	Enables/disables the onboard SCSI controller.

Table 17. Event log configuration submenu

Feature	Options	Description
Event Log	No options	Displays whether or not there is space available in the event log.
Event Log Validity	No options	Displays whether or not the contents of the event log are valid.
View Event Log	Press **Enter** to view log.	Displays event log or “No Unread Events.”
Clear All Event Logs	Yes **No (Default)**	Clears the event log after rebooting.
Event Logging	Disabled **Enabled (Default)**	Disables or enables logging of events.
ECC Event Logging	Disabled **Enabled (Default)**	Disables or enables logging of ECC events.
Mark Events As Read	Press **Enter** to mark all events read.	Marks all DMI events in the log as read.

Security menu

The menu bar is shown below.

Main	Advanced	**Security**	Boot	System Management	Exit

Table 18 shows the Security menu. This menu sets passwords and security features.

Table 18. Security menu

Feature	Options	Description
Set Supervisor Password	Press **Enter** to input a supervisor password.	Password can be up to seven alphanumeric characters. Default is no supervisor password.
Set User Password	Press **Enter** to input an Administrator password.	Password can be up to seven alphanumeric characters. Default is no Administrator password.
Set User Administrator	Press **Enter** to input a user password.	Password can be up to seven alphanumeric characters. Default is no user password.
User Access Level	Limited No Access View Only **Full (Default)**	"Limited" allows only limited fields to be changed, such as, Date and Time. "No Access" prevents user access to the Setup Utility. "View Only" allows access to the Setup Utility but the fields cannot be changed. "Full" allows any field to be changed.

Boot menu

The menu bar is shown below.

Main	Advanced	Security	**Boot**	System Management	Exit

Table 19 shows the Boot menu. This menu sets boot features and the boot sequence.

Table 19. Boot menu

Feature	Options	Description
Quiet Boot	Disabled **Enabled (Default)**	"Disabled" displays normal POST messages. "Enabled" displays OEM logo instead of POST messages.
Quick Boot	Disabled **Enabled (Default)**	Allows the BIOS to skip certain tests while booting, which decreases the time needed to boot the system.
After Power Failure	Stays Off **Last State (Default)** Power On	Determines the mode of operation if a power loss occurs. "Stays Off" keeps system off once power is restored. "Power On" boots the system after power is restored. "Last State" restores the system to the same state it was in before the power failed.
On Modem Ring	**Stay Off (Default)** Power On	Determines the action of the system when the system power is off and the modem is ringing.
On LAN	Stay Off **Power On (Default)**	Determines the action of the system when a LAN wake up event occurs.
On PME	**Stay Off (Default)** Power On	Determines the action of the system when a PCI Power Management Enabled wake up event occurs.
IDE Drive Configuration	Primary Master IDE **1st IDE (Default)** 2nd IDE 3rd IDE 4th IDE Primary Slave IDE **2nd IDE (Default)** Secondary Master IDE **3rd IDE (Default)** Secondary Slave IDE **4th IDE (Default)**	Configures the peripheral devices. Configurable options for other IDE devices are similar to Primary Master IDE.

Feature	Options	Description
1st to 7th Boot Devices	Floppy ARMD-FDD ARMD-FDD IDE-HDD ATAPI CD-ROM AIC-7899 Intel UNDI, PXE-2.0 (LAN 1) Intel UNDI, PXE-2.0 (LAN 2) AIC-7899 Disabled	Configures the boot sequence from the available devices. ARMD-FDD = ATAPI removable device-diskette drive. IDE-HDD = Hard disk drive. Intel UNDI, PXE-2.0 = Network boot using PXE. AIC-7899 = Attempts to boot from a device attached to the Adaptec 7899 onboard SCSI device.

System management menu

The menu bar is shown below.

Main	Advanced	Security	Boot	**System Management**	Exit

Table 20 shows the System Management menu. This menu sets server management features.

Table 20. System management menu

Feature	Options	Description
Serial Features	See Table 21, Serial Features Submenu.	Sets serial port features.
LAN Features	LAN Console Redirection	Sets whether LAN console redirection is enabled/disabled.
	LAN Device	Selects which LAN device (1 or 2) is enabled for console redirection.
Event Log Configuration	Clear All Event Logs	When set to “Yes” clears all event logs upon exit.
	Event :Logging	Enables/disables the event log.
	Critical Event :Logging	Enables/disables the critical event log.
ASM Control Override	No options	

Table 21. Serial features submenu

Feature	Options	Description
Serial Console Redirection	Disabled **Enabled (Default)**	Disables/enables serial console redirection.
Serial Port	Disabled **COM1 3F8 IRQ4 (Default)** COM2 2F8 IRQ3 COM3 3E8 IRQ4	Configures which COM port to use for serial console redirection.
Baud Rate	9600 **19.2K (Default)** 38.4K 115.2K	Sets the baud rate.
Flow Control	No flow control **CTS/RTS (Default)** XON/XOFF CTS/RTS+CD	If enabled, it will use the flow control selected. CTS/RTS = Hardware. XON/XOFF = Software. CTS/RTS + CD = Hardware + Carrier Detect for modem use.

Exit menu

The menu bar is shown below.

Main	Advanced	Security	Boot	System Management	Exit

Table 22 shows the Exit menu. This menu exits the Setup program–saving, discarding, and loading default settings.

Table 22. Exit menu

Feature	Options	Description
Exit Saving Changes	No options	Exits system Setup and saves your changes in CMOS.
Exit Discarding Changes	No options	Exits system setup without saving your changes in CMOS.
Load Setup Defaults	No options	Loads setup defaults.
Load Custom Defaults	No options	Loads custom defaults.

Feature	Options	Description
Save Custom Defaults	No options	Save custom defaults.
Discard Changes	No options	Discards changes.

Upgrading the BIOS

Preparing for the upgrade

Before you upgrade the BIOS, prepare for the upgrade by recording the current BIOS settings, obtaining the upgrade utility, and making a copy of the current BIOS.

Recording the current BIOS settings

1. Boot the computer and press **F2** when you see the message:

   ```
   Press F2 Key if you want to run SETUP
   ```

   NOTE

   You may need to press **Esc** at boot up to see this message. Do not skip step 2. You will need these settings to configure your computer at the end of the procedure.

2. Write down the current settings in the BIOS Setup program.

Obtaining the upgrade utility

You can upgrade to a new version of the BIOS using the new BIOS files and the BIOS upgrade utility, iFLASH.EXE. You can obtain the BIOS upgrade file and the iFLASH.EXE utility through your computer supplier or from the Intel Customer Support web site at *http://www.intel.com/isp.*

NOTE

Please review the instructions distributed with the upgrade utility before attempting a BIOS upgrade.

This upgrade utility allows you to:

- Upgrade the BIOS in flash memory.
- Update the language section of the BIOS.

The following steps explain how to upgrade the BIOS.

Creating a bootable floppy disk

1. Use a DOS or Windows 95 system to create the floppy boot disk.
2. Insert a diskette in floppy disk drive A.
3. At the C:\ prompt, for an unformatted floppy disk, type:

   ```
   format a:/s
   ```

   or, for a formatted floppy disk, type:

   ```
   sys a:
   ```
4. Press **Enter**.

Creating the BIOS upgrade floppy disk

The BIOS upgrade file is a compressed self-extracting archive that contains the files you need to upgrade the BIOS.

1. Copy the BIOS upgrade file to a temporary directory on your hard disk.
2. From the C:\ prompt, change to the temporary directory.
3. To extract the file, type the name of the BIOS upgrade file, for example:

   ```
   CB01BI.EXE
   ```
4. Press **Enter.** The extracted file contains the following files:

   LICENSE.TXT
   README.TXT
   BIOS.EXE
5. **Read the LICENSE.TXT file, which contains the software license agreement and the README.TXT file, which contains the instructions for the BIOS upgrade.**
6. **Insert the bootable floppy disk into drive A.**
7. **To extract the BIOS.EXE file to the floppy disk, change to the temporary directory that holds the BIOS.EXE file and type:**

   BIOS A:
8. **Press Enter.**
9. The floppy disk now holds the BIOS upgrade and recovery files.

Performing the upgrade

1. Boot the computer on which you wish to upgrade the BIOS with the newly created BIOS upgrade floppy disk in drive A. (Be sure that the floppy disk is the first boot drive in the BIOS on the current system.) The BIOS upgrade utility screen appears.
2. Select **Update Flash Memory From a File**.
3. Select **Update System BIOS**. Press **Enter**.
4. Use the arrow keys to select the correct **.bio** file. Press **Enter**.
5. When the utility asks for confirmation that you want to flash the new BIOS into memory, select **Continue with Programming**. Press **Enter**.
6. When the utility displays the message upgrade is complete, remove the floppy disk. Press **Enter**.
7. As the computer reboots, check the BIOS identifier (version number) to make sure the upgrade was successful.
8. To enter the Setup program, press **F2** when you see the message:
9. Press F2 Key if you want to run SETUP
10. For proper operation, load the Setup program defaults. To load the defaults, press **F9**.
11. To accept the defaults, press **Enter**.
12. Set the options in the Setup program to the settings you wrote down before the BIOS upgrade.
13. To save the settings, press **F10**.
14. To accept the settings, press **Enter**.
15. Turn off the computer and reboot.

Recovering the BIOS

It is unlikely that anything will interrupt the BIOS upgrade; however, if an interruption occurs, the BIOS could be damaged. The following steps explain how to recover the BIOS if an upgrade fails. The following procedure uses recovery mode for the Setup program.

NOTE

Because of the small amount of code available in the non-erasable boot block area, there is no video support. You will not see anything on the screen during the procedure. Monitor the procedure by listening to the speaker and looking at the floppy disk drive LED.

1. Turn off all peripheral devices connected to the computer. Turn off the computer.
2. Remove the computer cover.
3. Locate jumper block J19.
4. Remove the BIOS configuration jumper.
5. Insert the bootable BIOS upgrade floppy disk into diskette drive A.
6. Replace the cover, turn on the computer, and allow it to boot. The recovery process will take a few minutes.
7. Listen to the speaker.
8. Two beeps and the end of activity in drive A indicate successful BIOS recovery.
9. A series of continuous beeps indicates failed BIOS recovery.
10. If recovery fails, return to step 1 and repeat the recovery process.
11. If recovery is successful, turn off the computer. Remove the computer cover and continue with the following steps.
12. Set the BIOS configuration jumper to pins 1-2.
13. Replace the computer cover. Leave the upgrade disk in drive A and turn on the computer.
14. Continue with the BIOS upgrade (see “BIOS upgrade” earlier in this section).

6 Solving problems

This section helps you identify and solve problems that might occur while you are using the system.

Resetting the system

To do this:	Press:
Soft boot reset, which clears system memory and reloads the operating system.	**Ctrl+Alt+Del**
Clear system memory, restart POST, and reload the operating system.	Reset button
Cold boot reset. Turn the system power off and then on. This clears system memory, restarts POST, reloads the operating system, and halts power to all peripherals.	Power off/on

Initial system startup

Problems that occur at initial system startup are usually caused by incorrect installation or configuration. Hardware failure is less frequent. Use the following checklist to verify that you correctly installed and configured your system.

Checklist

- ❑ Are all cables correctly connected and secured?
- ❑ Are the processors or processor termination board fully seated in their slots on the serverboard?
- ❑ Are all add-in PCI cards fully seated in their slots on the serverboard?
- ❑ Are all switch and jumper settings on the serverboard correct?
- ❑ Are all jumper and switch settings on add-in cards and peripheral devices correct? To check these settings, refer to the manufacturer's documentation included with them. If applicable, ensure that there are no conflicts—for example, two add-in cards sharing the same interrupt.
- ❑ Are all SDRAM DIMM boards installed correctly?
- ❑ Are all peripheral devices installed correctly?

- ❑ If the system has a hard disk drive, is it properly formatted or configured?
- ❑ Are all device drivers properly installed?
- ❑ Is the operating system properly loaded? Refer to the operating system documentation.
- ❑ Did you press the system power on/off switch on the front panel to turn the server on (power on light should be lit)?
- ❑ Is the system power cord properly connected to the system and plugged into a NEMA 5-15R outlet for 100-120 V~ or a NEMA 6-15R outlet for 200-240 V~?
- ❑ Is AC power available at the wall outlet?
- ❑ Are all integrated components from the tested components lists? Check the tested memory, and chassis lists, as well as the supported hardware and operating system list on the Intel Customer Support web site: *http://www.intel.com/isp*

Running new application software

Problems that occur when you run new application software are usually related to the software. Faulty equipment is less likely, especially if other software runs correctly. Use the following checklist to verify that you are using the software correctly.

Checklist

- ❑ Does the system meet the minimum hardware requirements for the software? See the software documentation.
- ❑ Is the software an authorized copy? If not, get one; unauthorized copies often do not work.
- ❑ If you are running the software from a floppy disk, is it a good copy?
- ❑ If you are running the software from a CD-ROM disk, is the disk scratched or dirty?
- ❑ If you are running the software from a hard disk drive, is the software correctly installed? Were all necessary procedures followed and files installed?
- ❑ Are the correct device drivers installed?
- ❑ Is the software correctly configured for the system?
- ❑ Are you using the software correctly?

If the problems persist, contact the software vendor's customer service representative.

After the system has been running correctly

Problems that occur after the system hardware and software have been running correctly often indicate equipment failure. Many situations that are easy to correct, however, can also cause such problems. Use the following checklist if you encounter problems.

Checklist

- ❑ If you are running the software from a diskette, try a new copy of the software.
- ❑ If you are running the software from a CD-ROM disk, try a different disk to see if the problem occurs on all disks.
- ❑ If you are running the software from a hard disk drive, try running it from a floppy disk. If the software runs correctly, there may be a problem with the copy on the hard disk drive. Reinstall the software on the hard disk, and try running it again. Make sure all necessary files are installed.
- ❑ If the problems are intermittent, there may be a loose cable, dirt in the keyboard (if keyboard input is incorrect), a marginal power supply, or other random component failures.
- ❑ If you suspect that a transient voltage spike, power outage, or brownout might have occurred, reload the software and try running it again. (Symptoms of voltage spikes include a flickering video display, unexpected system reboots, and the system not responding to user commands.)

NOTE

If you are experiencing any of the above symptoms, you may have voltage spikes on your power line. We recommend that you install a surge suppressor between the power source and the system power cord.

More problem solving procedures

This subsection provides a more detailed approach to identifying a problem and locating its source.

Preparing the system for diagnostic testing

CAUTION

Before disconnecting any peripheral cables from the server, turn off the server and any external peripheral devices. Failure to do so can cause permanent damage to the server and/or the peripheral devices.

1. Turn off the system and all external peripheral devices. Disconnect all of them from the system, except the keyboard and video monitor.
2. Make sure the power cord is plugged into a properly grounded AC outlet.
3. Make sure your video display monitor and keyboard are correctly connected to the system. Turn on the video monitor. Set brightness and contrast controls to at least two-thirds of their maximum ranges (see the documentation supplied with your video display monitor).
4. If the operating system normally loads from the hard disk drive, make sure there is no floppy disk in drive A. Otherwise, place a floppy disk containing the operating system files in drive A.
5. Turn on the system. If the power LED does not light, see "Power light does not light" later in this section.

Monitoring POST

See "Power-on self test" in section 5, "Configuration software and utilities."

Verifying proper operation of key system lights

As POST determines the system configuration, it tests for the presence of each mass storage device installed in the system. As each device is checked, its activity light should turn on briefly. Check for the following:

Checklist

- ❑ Does the floppy disk drive activity light turn on briefly? If not, see "Floppy disk drive activity light does not light" later in this section.
- ❑ If a second floppy disk drive is installed, does its activity light turn on briefly? If not, see "Floppy disk drive activity light does not light" later in this section.
- ❑ If there is a hard disk drive or SCSI devices installed in the system, does the hard disk drive activity light on the control panel turn on briefly? If not, see "Hard drive activity light does not light" later in this section.

Confirming loading of the operating system

Once the system boots up, the operating system prompt appears on the screen. The prompt varies according to the operating system. If the operating system prompt does not appear, see "No characters appear on screen."

Specific problems and corrective actions

This subsection provides possible solutions for these specific problems:

- Power light does not light.
- There is no beep or an incorrect beep pattern.
- No characters appear on screen.
- Characters on the screen appear distorted or incorrect.
- System cooling fans do not rotate.
- Floppy disk drive activity light does not light.
- Hard disk drive activity light does not light.
- CD-ROM drive activity light does not light.
- There are problems with application software.
- The bootable CD-ROM is not detected.

Try the solutions in the order given. If you cannot correct the problem, contact your service representative or authorized dealer for help.

Power light does not light

Check the following:

- Is the system operating normally? If so, the power LED is probably defective or the cable from the front panel to the serverboard is loose.
- Are there other problems with the system? If so, check the items listed under "System cooling fans do not rotate properly."

If all items are correct and problems persist, contact your service representative or authorized dealer for help.

No characters appear on screen

Check the following:

- Is the keyboard functioning? Check to see that the Num Lock light is functioning.
- Is the video monitor plugged in and turned on?

- ❑ Are the brightness and contrast controls on the video monitor properly adjusted?
- ❑ Are the video monitor switch settings correct?
- ❑ Is the video monitor signal cable properly installed?
- ❑ Is the onboard video controller enabled?

If you are using an add-in video controller card, do the following:

1. Verify that the video controller card is fully seated in the serverboard connector.
2. Reboot the system for changes to take effect.
3. If there are still no characters on the screen after you reboot the system and POST emits a beep code, write down the beep code you hear. This information is useful for your service representative. See "Error codes and error messages" later in this section.
4. If you do not receive a beep code and characters do not appear, the video display monitor or video controller may have failed. Contact your service representative or authorized dealer for help.

Characters are distorted or incorrect

Check the following:

- ❑ Are the brightness and contrast controls properly adjusted on the video monitor? See the manufacturer's documentation.
- ❑ Are the video monitor signal and power cables properly installed?

If the problem persists, the video monitor may be faulty or it may be the incorrect type. Contact your service representative or authorized dealer for help.

System cooling fans do not rotate properly

If the system cooling fans are not operating properly, system components could be damaged.

Check the following:

- Is power available at the source?
- Is the system power cord properly connected to the system and the wall outlet?
- Did you press the power button?
- Is the power on light lit?
- Have any of the fan motors stopped (use the server management subsystem to check the fan status)?
- Are the fan power connectors properly connected to the backplane?
- Is the cable from the front panel board connected to the backplane?
- Are the power supply cables properly connected to the backplane?
- Are there any shorted wires caused by pinched cables or power connector plugs forced into power connector sockets the wrong way?

If the switches and connections are correct and power is available at the source, contact your service representative or authorized dealer for help.

Floppy disk drive activity light does not light

Check the following:

- Are the floppy disk drive power and signal cables properly installed?
- Is the floppy disk drive properly configured?
- Is the floppy disk drive activity light always on? If so, the signal cable may be plugged in incorrectly.

If the problem persists, there may be a problem with the floppy disk drive, serverboard, or drive signal cable. Contact your service representative or authorized dealer for help.

Hard disk drive activity light does not light

If you have installed one or more hard disk drives in your system, check the following:

- ❑ Are the power and signal cables to the drive properly installed?
- ❑ Are all relevant switches and jumpers on the hard drive and adapter card set correctly?
- ❑ Is the hard disk drive properly configured?

CD-ROM drive activity light does not light

Check the following:

- ❑ Are the power and signal cables to the CD-ROM drive properly installed?
- ❑ Are all relevant switches and jumpers on the drive set correctly?
- ❑ Is the drive properly configured?
- ❑ Is the onboard IDE controller enabled?

Cannot connect to a server

Check the following:

- ❑ Make sure you are using the drivers that are shipped on the system Configuration Software CD for the onboard network controller.
- ❑ Make sure the driver is loaded and the protocols are bound.
- ❑ Make sure the network cable is securely attached to the connector at the system back panel and that the network controller Link LED is on (visible at back panel). If the cable is attached but the problem persists, try a different cable.
- ❑ Make sure the hub port is configured for the same duplex mode as the network controller.
- ❑ Check with your LAN administrator about the correct networking software that needs to be installed.
- ❑ If you are directly connecting two servers (no hub), you will need a crossover cable (see your hub documentation for more information on crossover cables).
- ❑ Check the network controller LEDs that are visible through an opening at the system back panel.

Problems with network

Check the following:

The server hangs when the drivers are loaded.

- ❑ Change the PCI BIOS interrupt settings.

Diagnostics pass, but the connection fails.

- ❑ Make sure the network cable is securely attached.
- ❑ Make sure you specify the correct frame type in your NET.CFG file.

The Link LED doesn't light.

- ❑ Make sure you have loaded the network drivers.
- ❑ Check all cable connections.
- ❑ Try another port on the hub.
- ❑ Make sure you have the correct type of cable between the adapter and the hub. Some hubs require a crossover cable while others require a straight-through cable (for more information about crossover cabling, see your hub documentation).

The Activity LED doesn't light.

- ❑ Make sure you have loaded the correct network drivers.
- ❑ Network may be idle. Try accessing a server.

The controller stopped working when an add-in adapter was installed.

- ❑ Make sure the cable is connected to the port from the onboard network controller.
- ❑ Make sure your PCI BIOS is current.
- ❑ Make sure the other adapter supports shared interrupts. Also, make sure your operating system supports shared interrupts; OS/2* does not.
- ❑ Try reseating the add in adapter.

The add-in adapter stopped working without apparent cause.

- ❑ Try reseating the adapter first; then try a different slot if necessary.
- ❑ The network driver files may be corrupt or deleted. Delete and then reinstall the drivers.
- ❑ Run the diagnostics.

Problems with application software

If you have problems with application software, check the following:

- ❑ Verify that the software is properly configured for the system. See the software installation and operation documentation for instructions about setting up and using the software.
- ❑ Try a different copy of the software to determine whether the problem is the copy you are using.
- ❑ Make sure all cables are installed correctly.
- ❑ If other software runs correctly on the system, contact your vendor about the failing software.

If the problem persists, contact the software vendor's customer service representative for help.

Bootable CD-ROM is not detected

Check the following:

- ❑ Is the BIOS set to allow the CD-ROM to be the first bootable device?

Error and informational messages

When you turn on the system, POST displays messages that provide information about the system. If a failure occurs, POST emits beep codes that indicate errors in hardware, software, or firmware. If POST can display a message on the video display screen, it causes the speaker to beep twice as the message appears.

Error codes and error messages

Tables 23 and 24 show the beep codes and error messages for AMIBIOS.

Table 23. Beep codes

Beeps	Error message	Description
1	Refresh Failure	The memory refresh circuitry is faulty.
2	Parity Error	Parity error in the base memory (the first 64 KB block) of memory.
3	Base 64 KB Memory Failure	Memory failure in first 64 KB.
4	Timer Not Operational	A memory failure in the first 64 KB of memory, or Timer 1 is not functioning.
5	Processor Error	The CPU generated an error.
6	8042 - Gate A20 Failure	Cannot switch to protected mode.
7	Processor Exception Interrupt Error	The CPU on the CPU card generated an exception interrupt.
8	Display Memory Read/Write Error	The system video adapter is either missing or its memory is faulty. This is not a fatal error.
9	ROM Checksum Error	The ROM checksum value does not match the value encoded in AMIBIOS.
10	CMOS Shutdown Register Read/Write Error	The shutdown register for CMOS RAM has failed.
11	Cache Memory Bad – Do Not Enable Cache	The cache memory test failed. Cache memory is disabled. Do not press **Ctrl+Alt+Shift** to enable cache memory.

Table 24. Error messages

Error Message	Description
8042 Gate-A20 Error	Gate A20 on the keyboard controller (8042) is not working. Replace the 8042.
Address Line Short!	Error in the address decoding circuitry.
C: Drive Error	No response from drive C. Run the AMIDiag Hard Disk Utility. Check the C hard disk type in Standard Setup.
C: Drive Failure	No response from hard disk drive C. Replace the drive.
Cache Memory Bad, Do Not Enable Cache!	Cache memory is defective.
CH-2 Timer Error	An AT system has two timers. There is an error in timer 2.
CMOS Battery State Low	CMOS RAM is powered by a battery. The battery power is low. Replace the battery.
CMOS Checksum Failure	CMOS RAM checksum is different than the previous value.
CMOS System Options Not Set	The values stored in CMOS RAM have been destroyed.
CMOS Display Type Mismatch	The video type in CMOS RAM does not match the type detected.
CMOS Memory Size Mismatch	The amount of memory found by AMIBIOS is different than the amount in CMOS RAM.
CMOS Time and Date Not Set	Run Standard Setup to set the date and time.
D: Drive Error	No response from drive D. Check the hard disk type in Standard Setup.
D: Drive failure	No response from hard disk drive D. Replace the drive.
Floppy disk Boot Failure	The boot floppy disk in drive A cannot be used to boot the system. Use another boot floppy disk and follow the screen instructions.
Display Switch Not Proper	Some systems require a video switch be set to either color or monochrome. Turn the system off, set the switch properly, then power on.
DMA Error	Error in the DMA controller.
DMA 1 Error	Error in the first DMA channel.
DMA 2 Error	Error in the second DMA channel.

Error Message	Description
FDD Controller Failure	AMIBIOS cannot communicate with the floppy disk drive controller. Check all appropriate connections after the system is powered down.
HDD Controller Failure	AMIBIOS cannot communicate with the hard disk drive controller. Check all appropriate connections after the system is powered down.
INTR1 Error	Interrupt channel 1 failed POST.
INTR2 Error	Interrupt channel 2 failed POST.
Invalid Boot Floppy Disk	AMIBIOS can read the floppy disk in floppy drive A, but it cannot boot the system with it. Use another boot floppy disk and follow the screen instructions.
Keyboard Is Locked...Unlock It	The keyboard lock on the system is engaged. The system must be unlocked to continue to boot.
Keyboard Error	The keyboard has a timing problem. Make sure a Keyboard Controller AMIBIOS is installed. Set Keyboard in Advanced Setup to Not Installed to skip the keyboard POST routines.
KB/Interface Error	There is an error in the keyboard connector.
No ROM BASIC	Cannot find a proper bootable sector on drive A, C, or CD-ROM drive. AMIBIOS cannot find ROM Basic.
Off Board Parity Error	Parity error in memory installed on an adapter card in an expansion slot. The format is: OFF BOARD PARITY ERROR ADDR = (XXXX) XXXX is the hex address where the error occurred.
On Board Parity Error	Parity error in serverboard memory. The format is: ON BOARD PARITY ERROR ADDR = (XXXX) XXXX is the hex address where the error occurred.
Parity Error	Parity error in system memory at an unknown address.

Appendix A – Environmental and regulatory specifications

Environmental specifications

Table 25 lists the environmental specifications for the SRMK2S and SRMK2D Internet Server.

Table 25. Environmental specifications

Temperature Nonoperating Operating	 –40° to 70 °C (–55° to 150 °F) 10° to 35 °C (41° to 95 °F); derated 0.5 °C for each 1000 ft (305 m) Altitude to 5,000 ft max; maximum rate of change = 10°C per hour
Humidity Nonoperating	 95% relative humidity (noncondensing) at 30 °C (86 °F)
Shock Operating Packaged	 2.0 g, 11 msec, 1/2 sine 80 to 100 lb - Operational after 18 in. drop at 118 in/sec 100 to 120 lb - Operational after 12 in. drop at 96 in/sec 120 lb or more - Operational after 9 in. drop at 83 in/sec
Acoustic noise	47 dBA or less with one power supply at 28 °C +/- 2 °C 50 dBA or less with two power supplies at 28 °C +/- 2 °C 55 dBA or less with three power supplies at 28 °C +/- 2 °C
Electrostatic discharge (ESD)	Tested to 15 kilovolts (kV) per Intel environmental test specifications; no component damage
AC Input Power 100-120 VAC 200-240 VAC	 7.6 A, 50/60 Hz 3.8 A, 50/60 Hz

Declaration of the manufacturer or importer

We hereby certify that the SRMK2S is in compliance with European Union EMC Directive 89/336/EEC, using standards EN55022 (Class A) and EN55024 and Low Voltage Directive 73/23/EEC, Standard EN60950. Class B certification(s) has been achieved for SRMK2D using the same standards.

Safety compliance

USA/Canada	UL 1950, 3rd Edition/CSA 22.2, No. 950M93, 3rd Edition
Europe	Low Voltage Directive, 73/23/EEC TUV/GS to EN60950 2nd Edition with Amendments, A1 = A2 + A3 + A4
International	CB Certificate and Report to IEC 60950, 3rd Edition including EMKO-TSE (74-SEC) 207/94 and other national deviations

Electromagnetic compatibility

SRMK2S

USA	FCC 47 CFR Parts 2 and 15, Verified Class A Limit
Canada	IC ICES-003 Class A Limit
Europe	EMC Directive, 89/336/EEC EN55022, Class A Limit, Radiated & Conducted Emissions EN55024, Immunity Standard for Information Technology Equipment EN61000-3-2 Harmonic Currents EN61000-3-3 Voltage Flicker
Australia/New Zealand	AS/NZS 3548, Class A Limit
Japan	VCCI Class A ITE (CISPR 22, Class A Limit). IEC 1000-3-2; Harmonic Currents
Taiwan	BSMI, Class A (CISPR 22)
Korea	RRL, Class A (CISPR 22)
Russia	Gost Approval
International	CISPR 22, Class A Limit

SRMK2D

USA	FCC 47 CFR Parts 2 and 15, Verified Class B Limit
Canada	IC ICES-003 Class B Limit
Europe	EMC Directive, 89/336/EEC EN55022, Class B Limit, Radiated & Conducted Emissions EN55024, Immunity Standard for Information Technology Equipment
Australia/New Zealand	AS/NZS 3548, Class B Limit
Japan	VCCI Class B ITE (CISPR 22, Class A Limit).
Taiwan	BSMI, Class B(CISPR 22)
Korea	RRL, Class B (CISPR22)
Russia	Gost Approval
International	CISPR 22, Class B Limit

Electromagnetic compatibility notices (SRMK2S)

Japan

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。

English translation of the notice above:

This is a Class A product based on the standard of the Voluntary Control Council for Interference by Information Technology Equipment (VCCI). If this equipment is used in a domestic environment, radio disturbance may arise. When such trouble occurs, the user may be required to take corrective actions.

Canada

Cet appareil numérique respecte les limites bruits radioélectriques applicables aux appareils numériques de Classe A prescrites dans la norme sur le matériel brouilleur: "Appareils Numériques", NMB-003 édictée par le Ministre Canadian des Communications.

English translation of the notice above:

This digital apparatus does not exceed the Class A limits for radio noise emissions from digital apparatus set out in the interference-causing equipment standard entitled "Digital Apparatus," ICES-003 of the Canadian Department of Communications.

FCC/emissions disclaimer – class A (USA)

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 operating in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference. In this case, the user is required to correct the interference at their own expense. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and the receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Any changes or modifications not expressly approved by the grantee of this device could void the user's authority to operate the equipment. The customer is responsible for ensuring compliance of the modified product.

Only peripherals (computer input/output devices, terminals, printers, etc.) that comply with FCC Class A limits may be attached to this computer product. Operation with non-compliant peripherals is likely to result in interference to radio and TV reception.

All cables used to connect to peripherals must be shielded and grounded. Operation with cables, connected to peripherals that are not shielded and grounded may result in interference to radio and TV reception.

Taiwan (BSMI)

The BSMI Certification number and the following warning is located on the product safety label which is located visibly on the external chassis.

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。

Electromagnetic compatibility notices (SRMK2D)

Japan

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Ｂ情報技術装置です。この装置は、家庭環境で使用することを目的としていますが、この装置がラジオやテレビジョン受信機に近接して使用されると、受信障害を引き起こすことがあります。
取扱説明書に従って正しい取り扱いをして下さい。

English translation of the notice above:

This is a Class B product based on the standard of the Voluntary Control Council for Interference by Information Technology Equipment (VCCI). If this is used near a radio or television receiver in a domestic environment, it may cause radio interference. Install and use the equipment according to the instruction manual.

Canada

Cet appareil numérique respecte les limites bruits radioélectriques applicables aux appareils numériques de Classe B prescrites dans la norme sur le matériel brouilleur: "Appareils Numériques", NMB-003 édictée par le Ministre Canadian des Communications.

English translation of the notice above:

This digital apparatus does not exceed the Class B limits for radio noise emissions from digital apparatus set out in the interference-causing equipment standard entitled "Digital Apparatus," ICES-003 of the Canadian Department of Communications.

FCC/emissions disclaimer – class B (USA)

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on; the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and the receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Any changes or modifications not expressly approved by the grantee of this device could void the user's authority to operate the equipment. The customer is responsible for ensuring compliance of the modified product.

Only peripherals (computer input/output devices, terminals, printers, etc.) that comply with FCC Class B limits may be attached to this computer product. Operation with non-compliant peripherals is likely to result in interference to radio and TV reception.

All cables used to connect to peripherals must be shielded and grounded. Operation with cables, connected to peripherals that are not shielded and grounded may result in interference to radio and TV reception.

NOTE

If a Class A device is installed within this system, then the system is to be considered a Class A system. In this configuration, operation of this equipment in a residential area is likely to cause harmful interference.

FCC Declaration of conformity

SRMK2D

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.

For questions related to the EMC performance of this product, contact:

Intel Corporation
100 Center Point Circle
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Taiwan (BSMI)

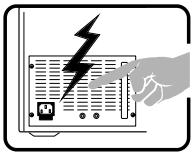
The following BSMI Class B EMC Warning along with the BSMI ID number are located on the external left side chassis of the product.

警告使用者:

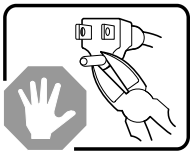
這是甲類的資訊產品，在居住的環境中使用時，可能會造成射頻干擾，在這種情況下，使用者會被要求採取某些適當的對策。

Appendix B – Warnings

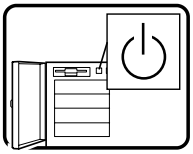
WARNING: English (US)



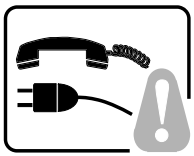
The power supply in this product contains no user-serviceable parts. There may be more than one supply in this product. Refer servicing only to qualified personnel.



Do not attempt to modify or use the supplied AC power cord if it is not the exact type required. A product with more than one power supply will have a separate AC power cord for each supply.



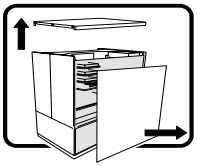
The DC push-button on/off switch on the system does not turn off system AC power. To remove AC power from the system, you must unplug each AC power cord from the wall outlet or power supply.



SAFETY STEPS: Whenever you remove the chassis covers to access the inside of the system, follow these steps:

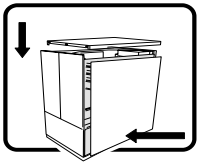
1. Turn off all peripheral devices connected to the system.
2. Turn off the system by using the push-button on/off power switch on the system.
3. Unplug all AC power cords from the system or from wall outlets.
4. Label and disconnect all cables connected to I/O connectors or ports on the back of the system.
5. Provide some electrostatic discharge (ESD) protection by wearing an antistatic wrist strap attached to the chassis ground of the system—any unpainted metal surface—when handling components.
6. Do not operate the system with the chassis covers removed.

Continued



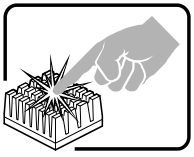
After you have completed the six SAFETY steps above, you can remove the system covers. To do this:

1. Unlock and remove the padlock from the back of the system if a padlock has been installed.
2. Remove and save all screws from the covers.
3. Remove the covers.

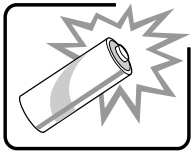


For proper cooling and airflow, always reinstall the chassis covers before turning on the system. Operating the system without the covers in place can damage system parts. To install the covers:

1. Check first to make sure you have not left loose tools or parts inside the system.
2. Check that cables, add-in cards, and other components are properly installed.
3. Attach the covers to the chassis with the screws removed earlier, and tighten them firmly.
4. Insert and lock the padlock to the system to prevent unauthorized access inside the system.
5. Connect all external cables and the AC power cord(s) to the system.

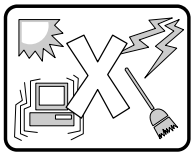


A microprocessor and heat sink may be hot if the system has been running. Also, there may be sharp pins and edges on some board and chassis parts. Contact should be made with care. Consider wearing protective gloves.



Danger of explosion if the battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the equipment manufacturer. Discard used batteries according to manufacturer's instructions.

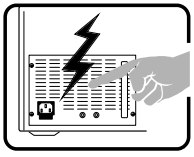
continuedWARNING: English **(continued)**



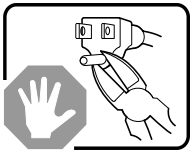
The system is designed to operate in a typical office environment. Choose a site that is:

- Clean and free of airborne particles (other than normal room dust).
- Well ventilated and away from sources of heat including direct sunlight.
- Away from sources of vibration or physical shock.
- Isolated from strong electromagnetic fields produced by electrical devices.
- In regions that are susceptible to electrical storms, we recommend you plug your system into a surge suppresser and disconnect telecommunication lines to your modem during an electrical storm.
- Provided with a properly grounded wall outlet.
- Provided with sufficient space to access the power supply cords, because they serve as the product's main power disconnect.

AVERTISSEMENT: Français



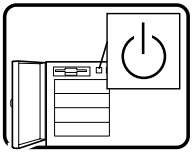
Le bloc d'alimentation de ce produit ne contient aucune pièce pouvant être réparée par l'utilisateur. Ce produit peut contenir plus d'un bloc d'alimentation. Veuillez contacter un technicien qualifié en cas de problème.



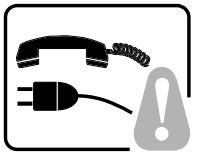
Ne pas essayer d'utiliser ni modifier le câble d'alimentation CA fourni, s'il ne correspond pas exactement au type requis. Le nombre de câbles d'alimentation CA fournis correspond au nombre de blocs d'alimentation du produit.

suite

AVERTISSEMENT: **Français** (suite

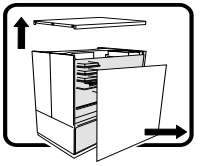


Notez que le commutateur CC de mise sous tension /hors tension du panneau avant n'éteint pas l'alimentation CA du système. Pour mettre le système hors tension, vous devez débrancher chaque câble d'alimentation de sa prise.



CONSIGNES DE SÉCURITÉ - Lorsque vous ouvrez le boîtier pour accéder à l'intérieur du système, suivez les consignes suivantes :

1. Mettez hors tension tous les périphériques connectés au système.
2. Mettez le système hors tension en mettant l'interrupteur général en position OFF (bouton-poussoir).
3. Débranchez tous les cordons d'alimentation c.a. du système et des prises murales.
4. Identifiez et débranchez tous les câbles reliés aux connecteurs d'E-S ou aux accès derrière le système.
5. Pour prévenir les décharges électrostatiques lorsque vous touchez aux composants, portez une bande antistatique pour poignet et reliez-la à la masse du système (toute surface métallique non peinte du boîtier).
6. Ne faites pas fonctionner le système tandis que le boîtier est ouvert.

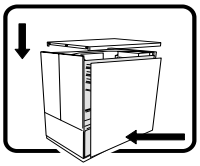


Une fois TOUTES les étapes précédentes accomplies, vous pouvez retirer les panneaux du système. Procédez comme suit :

1. Si un cadenas a été installé sur à l'arrière du système, déverrouillez-le et retirez-le.
2. Retirez toutes les vis des panneaux et mettez-les dans un endroit sûr.
3. Retirez les panneaux.

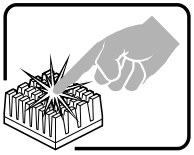
suite

AVERTISSEMENT: **Français** (suite)

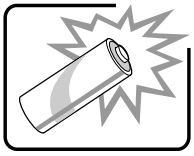


Afin de permettre le refroidissement et l'aération du système, réinstallez toujours les panneaux du boîtier avant de mettre le système sous tension. Le fonctionnement du système en l'absence des panneaux risque d'endommager ses pièces. Pour installer les panneaux, procédez comme suit :

1. Assurez-vous de ne pas avoir oublié d'outils ou de pièces démontées dans le système.
2. Assurez-vous que les câbles, les cartes d'extension et les autres composants sont bien installés.
3. Revissez solidement les panneaux du boîtier avec les vis retirées plus tôt.
4. Remettez le cadenas en place et verrouillez-le afin de prévenir tout accès non autorisé à l'intérieur du système.
5. Rebranchez tous les cordons d'alimentation c. a. et câbles externes au système.



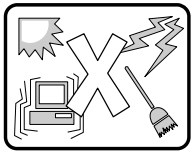
Le microprocesseur et le dissipateur de chaleur peuvent être chauds si le système a été sous tension. Faites également attention aux broches aiguës des cartes et aux bords tranchants du capot. Nous vous recommandons l'usage de gants de protection.



Danger d'explosion si la batterie n'est pas remontée correctement. Remplacer uniquement avec une batterie du même type ou d'un type équivalent recommandé par le fabricant. Disposez des piles usées selon les instructions du fabricant.

suite

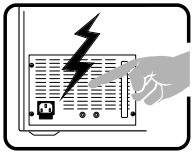
AVERTISSEMENT: **Français** (suite)



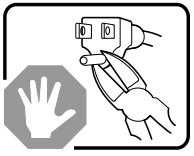
Le système a été conçu pour fonctionner dans un cadre de travail normal. L'emplacement choisi doit être :

- Propre et dépourvu de poussière en suspension (sauf la poussière normale).
- Bien aéré et loin des sources de chaleur, y compris du soleil direct.
- A l'abri des chocs et des sources de vibrations.
- Isolé de forts champs électromagnétiques géenérés par des appareils électriques.
- Dans les régions sujettes aux orages magnétiques il est recomandé de brancher votre système à un supresseur de surtension, et de débrancher toutes les lignes de télécommunications de votre modem durant un orage.
- Muni d'une prise murale correctement mise à la terre.
- Suffisamment spacieux pour vous permettre d'accéder aux câbles d'alimentation (ceux-ci étant le seul moyen de mettre le système hors tension).

WARNUNG: Deutsch

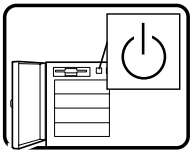


Benutzer können am Netzgerät dieses Produkts keine Reparaturen vornehmen. Das Produkt enthält möglicherweise mehrere Netzgeräte. Wartungsarbeiten müssen von qualifizierten Technikern ausgeführt werden.

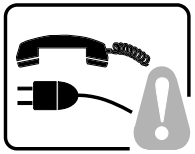


Versuchen Sie nicht, das mitgelieferte Netzkabel zu ändern oder zu verwenden, wenn es sich nicht genau um den erforderlichen Typ handelt. Ein Produkt mit mehreren Netzgeräten hat für jedes Netzgerät ein eigenes Netzkabel.

fortsetzung

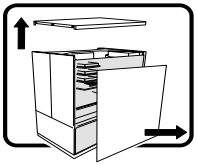


Der Wechselstrom des Systems wird durch den Ein-/Aus-Schalter für Gleichstrom nicht ausgeschaltet. Ziehen Sie jedes Wechselstrom-Netzkabel aus der Steckdose bzw. dem Netzgerät, um den Stromanschluß des Systems zu unterbrechen.



SICHERHEISMASSNAHMEN: Immer wenn Sie die Gehäuseabdeckung abnehmen um an das Systeminnere zu gelangen, sollten Sie folgende Schritte beachten:

1. Schalten Sie alle an Ihr System angeschlossenen Peripheriegeräte aus.
2. Schalten Sie das System mit dem Hauptschalter aus.
3. Ziehen Sie den Stromanschlußstecker Ihres Systems aus der Steckdose.
4. Auf der Rückseite des Systems beschriften und ziehen Sie alle Anschlußkabel von den I/O Anschlüssen oder Ports ab.
5. Tragen Sie ein geerdetes Antistatik Gelenkband, um elektrostatische Ladungen (ESD) über blanke Metallstellen bei der Handhabung der Komponenten zu vermeiden.
6. Schalten Sie das System niemals ohne ordnungsgemäß montiertes Gehäuse ein.

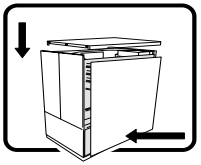


Nachdem Sie die oben erwähnten ersten sechs SICHERHEITSSCHRITTE durchgeführt haben, können Sie die Abdeckung abnehmen, indem Sie:

1. Öffnen und entfernen Sie die Verschlußeinrichtung (Padlock) auf der Rückseite des Systems, falls eine Verschlußeinrichtung installiert ist.
2. Entfernen Sie alle Schrauben der Gehäuseabdeckung.
3. Nehmen Sie die Abdeckung ab.

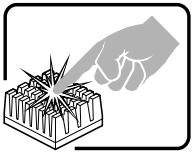
fortsetzung

WARNUNG: Deutsch (fortsetzung)

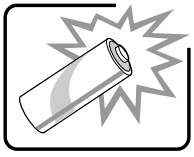


Zur ordnungsgemäßen Kühlung und Lüftung muß die Gehäuseabdeckung immer wieder vor dem Einschalten installiert werden. Ein Betrieb des Systems ohne angebrachte Abdeckung kann Ihrem System oder Teile darin beschädigen. Um die Abdeckung wieder anzubringen:

1. Vergewissern Sie sich, daß Sie keine Werkzeuge oder Teile im Innern des Systems zurückgelassen haben.
2. Überprüfen Sie alle Kabel, Zusatzkarten und andere Komponenten auf ordnungsgemäßen Sitz und Installation.
3. Bringen Sie die Abdeckungen wieder am Gehäuse an, indem Sie die zuvor gelösten Schrauben wieder anbringen. Ziehen Sie diese gut an.
4. Bringen Sie die Verschlußeinrichtung (Padlock) wieder an und schließen Sie diese, um ein unerlaubtes Öffnen des Systems zu verhindern.
5. Schließen Sie alle externen Kabel und den AC Stromanschlußstecker Ihres Systems wieder an.



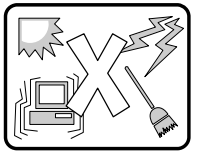
Der Mikroprozessor und der Kühler sind möglicherweise erhitzt, wenn das System in Betrieb ist. Außerdem können einige Platinen und Gehäuseteile scharfe Spitzen und Kanten aufweisen. Arbeiten an Platinen und Gehäuse sollten vorsichtig ausgeführt werden. Sie sollten Schutzhandschuhe tragen.



Bei falschem Einsetzen einer neuen Batterie besteht Explosionsgefahr. Die Batterie darf nur durch denselben oder einen entsprechenden, vom Hersteller empfohlenen Batterietyp ersetzt werden. Entsorgen Sie verbrauchte Batterien den Anweisungen des Herstellers entsprechend.

fortsetzung

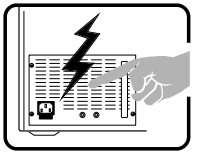
WARNUNG: Deutsch (fortsetzung)



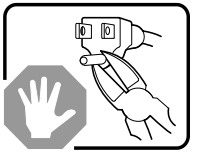
Das System wurde für den Betrieb in einer normalen Büroumgebung entwickelt. Der Standort sollte:

- sauber und staubfrei sein (Hausstaub ausgenommen);
- gut gelüftet und keinen Heizquellen ausgesetzt sein (einschließlich direkter Sonneneinstrahlung);
- keinen Erschütterungen ausgesetzt sein;
- keine starken, von elektrischen Geräten erzeugten elektromagnetischen Felder aufweisen;
- in Regionen, in denen elektrische Stürme auftreten, mit einem Überspannungsschutzgerät verbunden sein; während eines elektrischen Sturms sollte keine Verbindung der Telekommunikationsleitungen mit dem Modem bestehen;
- mit einer geerdeten Wechselstromsteckdose ausgerüstet sein;
- über ausreichend Platz verfügen, um Zugang zu den Netzkabeln zu gewährleisten, da der Stromanschluß des Produkts hauptsächlich über die Kabel unterbrochen wird.

AVVERTENZA: Italiano



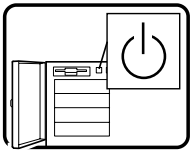
Rivolgersi ad un tecnico specializzato per la riparazione dei componenti dell'alimentazione di questo prodotto. È possibile che il prodotto disponga di più fonti di alimentazione.



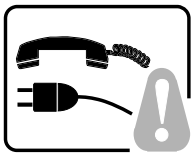
Non modificare o utilizzare il cavo di alimentazione in c.a. fornito dal produttore, se non corrisponde esattamente al tipo richiesto. Ad ogni fonte di alimentazione corrisponde un cavo di alimentazione in c.a. separato.

continua

AVVERTENZA: **Italiano** (continua)

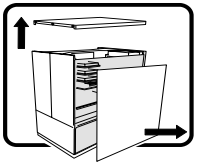


L'interruttore attivato/disattivato nel pannello anteriore non interrompe l'alimentazione in c.a. del sistema. Per interromperla, è necessario scollegare tutti i cavi di alimentazione in c.a. dalle prese a muro o dall'alimentazione di corrente.



PASSI DI SICUREZZA: Qualora si rimuovano le coperture del telaio per accedere all'interno del sistema, seguire i seguenti passi:

1. Spegnere tutti i dispositivi periferici collegati al sistema.
2. Spegnere il sistema, usando il pulsante spento/acceso dell'interruttore del sistema.
3. Togliere tutte le spine dei cavi del sistema dalle prese elettriche.
4. Identificare e sconnettere tutti i cavi attaccati ai collegamenti I/O od alle prese installate sul retro del sistema.
5. Qualora si tocchino i componenti, proteggersi dallo scarico elettrostatico (SES), portando un cinghia anti-statica da polso che è attaccata alla presa a terra del telaio del sistema – qualsiasi superficie non dipinta – .
6. Non far operare il sistema quando il telaio è senza le coperture.

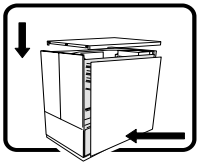


Dopo aver seguito i sei passi di SICUREZZA sopracitati, togliere le coperture del telaio del sistema come seque:

1. Aprire e rimuovere il lucchetto dal retro del sistema qualora ve ne fosse uno installato.
2. Togliere e mettere in un posto sicuro tutte le viti delle coperture.
3. Togliere le coperture.

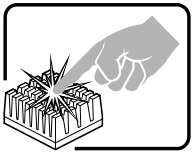
continua

AVVERTENZA: **Italiano** (continua)

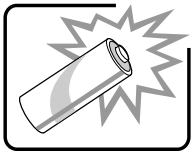


Per il giusto flusso dell'aria e raffreddamento del sistema, rimettere sempre le coperture del telaio prima di riaccendere il sistema. Operare il sistema senza le coperture al loro proprio posto potrebbe danneggiare i componenti del sistema. Per rimettere le coperture del telaio:

1. Controllare prima che non si siano lasciati degli attrezzi o dei componenti dentro il sistema.
2. Controllare che i cavi, dei supporti aggiuntivi ed altri componenti siano stati installati appropriatamente.
3. Attaccare le coperture al telaio con le viti tolte in precedenza e avvitarle strettamente.
4. Inserire e chiudere a chiave il lucchetto sul retro del sistema per impedire l'accesso non autorizzato al sistema.
5. Ricollegare tutti i cavi esterni e le prolunghe AC del sistema.



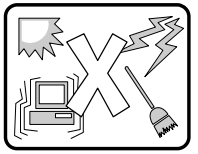
Se il sistema è stato a lungo in funzione, il microprocessore e il dissipatore di calore potrebbero essere surriscaldati. Fare attenzione alla presenza di piedini appuntiti e parti taglienti sulle schede e sul telaio. È consigliabile l'uso di guanti di protezione.



Esiste il pericolo di un esplosione se la pila non viene sostituita in modo corretto. Utilizzare solo pile uguali o di tipo equivalente a quelle consigliate dal produttore. Per disfarsi delle pile usate, seguire le istruzioni del produttore.

continua

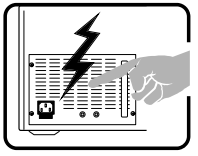
AVVERTENZA: **Italiano** (continua)



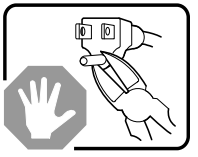
Il sistema è progettato per funzionare in un ambiente di lavoro tipo. Scegliere una postazione che sia:

- Pulita e libera da particelle in sospensione (a parte la normale polvere presente nell'ambiente).
- Ben ventilata e lontana da fonti di calore, compresa la luce solare diretta.
- Al riparo da urti e lontana da fonti di vibrazione.
- Isolata dai forti campi magnetici prodotti da dispositivi elettrici.
- In aree soggette a temporali, è consigliabile collegare il sistema ad un limitatore di corrente. In caso di temporali, scollegare le linee di comunicazione dal modem.
- Dotata di una presa a muro correttamente installata.
- Dotata di spazio sufficiente ad accedere ai cavi di alimentazione, i quali rappresentano il mezzo principale di scollegamento del sistema.

ADVERTENCIAS: Español



El usuario debe abstenerse de manipular los componentes de la fuente de alimentación de este producto, cuya reparación debe dejarse exclusivamente en manos de personal técnico especializado. Puede que este producto disponga de más de una fuente de alimentación.



No intente modificar ni usar el cable de alimentación de corriente alterna, si no corresponde exactamente con el tipo requerido.

El número de cables suministrados se corresponden con el número de fuentes de alimentación de corriente alterna que tenga el producto.

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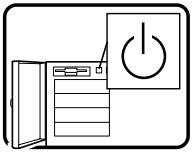
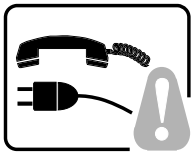
ADVERTENCIAS: **Español** (continúa)

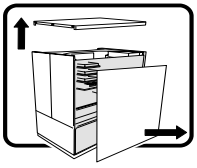


Nótese que el interruptor activado/desactivado en el panel frontal no desconecta la corriente alterna del sistema. Para desconectarla, deberá desenchufar todos los cables de corriente alterna de la pared o desconectar la fuente de alimentación.



INSTRUCCIONES DE SEGURIDAD: Cuando extraiga la tapa del chasis para acceder al interior del sistema, siga las siguientes instrucciones:

1. Apague todos los dispositivos periféricos conectados al sistema.
2. Apague el sistema presionando el interruptor encendido/apagado.
3. Desconecte todos los cables de alimentación CA del sistema o de las tomas de corriente alterna.
4. Identifique y desconecte todos los cables enchufados a los conectores E/S o a los puertos situados en la parte posterior del sistema.
5. Cuando manipule los componentes, es importante protegerse contra la descarga electrostática (ESD). Puede hacerlo si utiliza una muñequera antiestática sujetada a la toma de tierra del chasis — o a cualquier tipo de superficie de metal sin pintar.
6. No ponga en marcha el sistema si se han extraído las tapas del chasis.



Después de completar las seis instrucciones de SEGURIDAD mencionadas, ya puede extraer las tapas del sistema. Para ello:

1. Desbloquee y extraiga el bloqueo de seguridad de la parte posterior del sistema, si se ha instalado uno.
2. Extraiga y guarde todos los tornillos de las tapas.
3. Extraiga las tapas.

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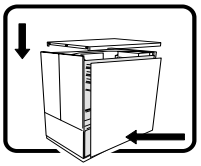
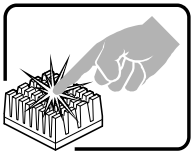
ADVERTENCIAS: **Español** (continúa)

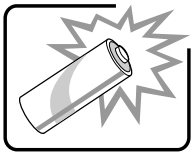


Para obtener un enfriamiento y un flujo de aire adecuados, reinstale siempre las tapas del chasis antes de poner en marcha el sistema. Si pone en funcionamiento el sistema sin las tapas bien colocadas puede dañar los componentes del sistema. Para instalar las tapas:

1. Asegúrese primero de no haber dejado herramientas o componentes sueltos dentro del sistema.
2. Compruebe que los cables, las placas adicionales y otros componentes se hayan instalado correctamente.
3. Incorpore las tapas al chasis mediante los tornillos extraídos anteriormente, tensándolos firmemente.
4. Inserte el bloqueo de seguridad en el sistema y bloquéelo para impedir que pueda accederse al mismo sin autorización.
5. Conecte todos los cables externos y los cables de alimentación CA al sistema.



Si el sistema ha estado en funcionamiento, el microprocesador y el disipador de calor pueden estar aún calientes. También conviene tener en cuenta que en el chasis o en el tablero puede haber piezas cortantes o punzantes. Por ello, se recomienda precaución y el uso de guantes protectores.



Existe peligro de explosión si la pila no se cambia de forma adecuada. Utilice solamente pilas iguales o del mismo tipo que las recomendadas por el fabricante del equipo. Para deshacerse de las pilas usadas, siga igualmente las instrucciones del fabricante.

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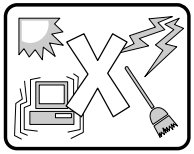
ADVERTENCIAS: Español (continúa)



El sistema está diseñado para funcionar en un entorno de trabajo normal. Escoja un lugar:

- Limpio y libre de partículas en suspensión (salvo el polvo normal).
- Bien ventilado y alejado de fuentes de calor, incluida la luz solar directa.
- Alejado de fuentes de vibración.
- Aislado de campos electromagnéticos fuertes producidos por dispositivos eléctricos.
- En regiones con frecuentes tormentas eléctricas, se recomienda conectar su sistema a un eliminador de sobrevoltage y desconectar el módem de las líneas de telecomunicación durante las tormentas.
- Provisto de una toma de tierra correctamente instalada.
- Provisto de espacio suficiente como para acceder a los cables de alimentación, ya que éstos hacen de medio principal de desconexión del sistema.

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