Intel® Server Board SE7501CW2 Product Guide

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

Order Number: C29938-002

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1 Description

Server Board Features

The Intel® Server Board SE7501CW2 offers a "flat" design, with the processors and memory subsystems residing on the board. The server board supports dual-processor operation with Intel® Xeon™ processors and the Intel® E7501 chipset. The board contains embedded devices for video, network, and IDE, and provides basic monitoring hardware and interrupt control for dual processors and PC/AT*-compatible operation.

Table 1.   Server Board Features

Feature	Description
Processor	Dual Intel Xeon processors for the Intel socket 604 that use the Flip Chip Pin Grid Array (FC-PGA) package
Chipset	Intel E7501 chipset: • Supports 533 MHz Front Side Bus (FSB), backwards compatible with 400 MHz FSB • Memory Controller Hub (MCH) (North Bridge) • I/O Controller Hub 3 (ICH3-S) (South Bridge) • P64H2 64-bit I/O hub
Memory	• DDR200 / 266 compliant ECC DIMMs providing up to 8 GB of memory[1] • DIMM Sockets: Four 72-bit, 184-pin, gold contact • Supported DIMM sizes: 128, 256, 512 MB, 1 GB, and 2 GB • Support for single channel, Error Correcting Code (ECC), registered, DDR200 or DDR266 DIMMs
Video	• Integrated onboard ATI Rage* XL 64-bit SVGA video controller • 8 MB SDRAM video memory • SVGA video port
PCI bus	Five PCI expansion slots for add-in boards: • One 64-bit, PCI-X 133 MHz expansion slot • Two 64-bit, PCI-X 100 MHz expansion slots • Two 32-bit, 33 MHz, PCI expansion slots
Hard Disk Drive (HDD)	Two IDE connectors supporting up to four ATA-100 compatible devices: • Two ATA 100 connectors controlled by the ICH3-S
Network	Dual integrated on-board Ethernet connections: • Intel® PRO 10/100 Fast Ethernet Controller (Intel® 82550PM) • Intel® PRO Gigabit Ethernet Controller (Intel® 82540EM)

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[1] DDR200 compliant ECC DIMMs can be used only if 400 MHz processors are installed.

Table 1. Server Board Features (continued)

Feature	Description
System I/O	Winbond* W83627HF Super I/O Controller (Low Pin Count [LPC] bus) that provides the following: • Hardware monitoring • PS/2*-compatible keyboard and mouse ports, 6-pin DIN • Advanced parallel port, supporting Enhanced Parallel Port (EPP) level 1.7 and 1.9, Extended Capabilities Port (ECP), compatible 25-pin • One serial port, 9-pin Three Universal Serial Bus (USB) ports Two Ethernet controllers via RJ45 connectors: one Intel Fast Ethernet 82550PM, one Intel Gigabit 82540EM
Power	• SSI-EEB 3.0 compliant • Power/Sleep Switch with LED Indicator • Wake on LAN* (WOL) • Wake on Ring (WOR)
Security	• BIOS password • Keyboard password protection
Form Factor	• SSI-EEB 3.0–compliant form factor

Back Panel Connectors

TP00094
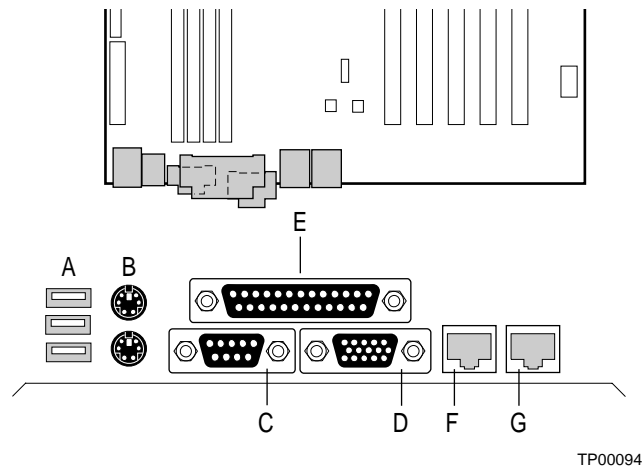
A. USB 1, 2, 3
B. Keyboard/mouse
C. Serial port A
D. Video
E. Parallel
F. NIC1 (10/100 Mbit)
G. NIC2 (1 Gb)

Figure 1. Back Panel Connectors

Server Board Connector and Component Locations
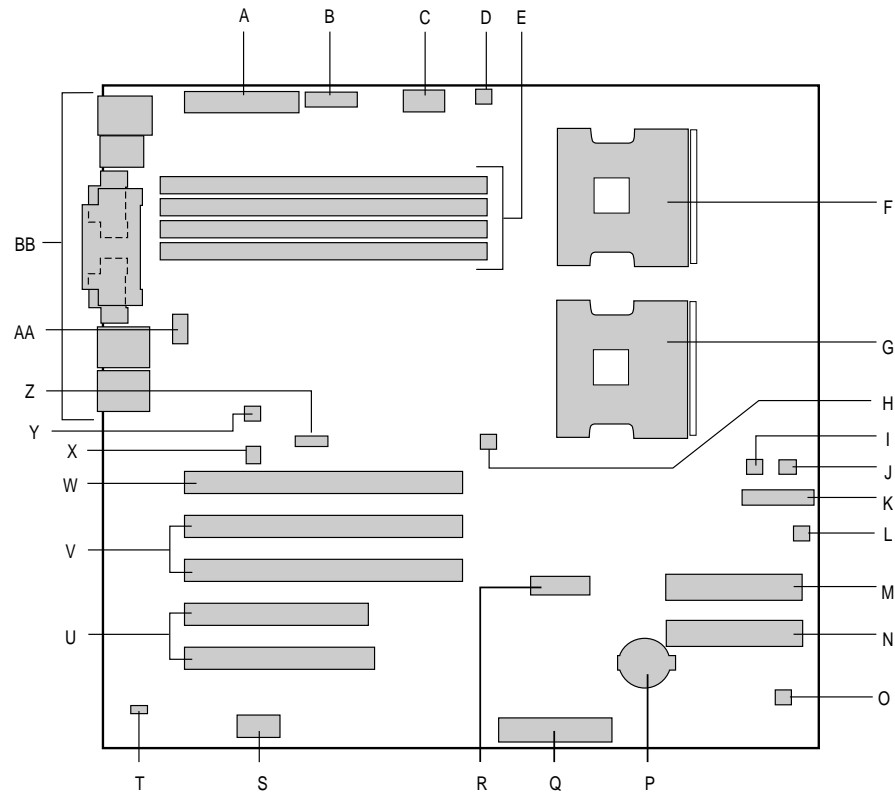
TP00087

A.	Main power connector	O.	System fan 5 header
B.	Auxiliary signal connector	P.	Battery
C.	CPU power connector	Q.	Floppy drive connector
D.	CPU1 fan header	R.	Front USB header
E.	DIMM sockets	S.	Serial port B header
F.	Primary processor socket (CPU1)	T.	Chassis Intrusion header
G.	Secondary processor socket (CPU2)	U.	PCI 32/33 slots
H.	CPU2 fan header	V.	PCI-X 64/100 slots
I.	System fan 2 header	W.	PCI-X 64/133 slot
J.	System fan 1 header	X.	System fan 4 header
K.	Front panel header	Y.	System fan 3 header
L.	Hot-swap backplane header	Z.	I2C header
M.	Secondary IDE connector (ATA 100)	AA.	Jumper block
N.	Primary IDE connector (ATA 100)	BB.	Back panel connectors

Figure 2. Server Board Connector and Component Locations

⟹ **NOTE**

DIMMs 1A and 1B are closest to the side of the board and DIMMs 2A and 2B
are in the middle of the board.

Processor

The Intel® Server Board SE7501CW2 accommodates one or two Intel Xeon processors with 512KB L2 Cache via two SKT604 604-pin zero-insertion force (ZIF) sockets. The processors interface with the system bus at 533 MHz, backwards compatible with 400 MHz. When only one processor is installed, it should be in the socket labeled CPU1.

For a complete list of supported processors, see:
http://support.intel.com/support/motherboards/server/SE7501CW2

Dual Processor Operation

The Intel Xeon interface is dual processor (DP) ready. Each processor contains a local Intel® Advanced Programmable Interrupt Controller (APIC) section for interrupt handling. When two processors are installed, both processors must be of identical revision, core voltage, and bus/core speeds.

Boxed Processor Fan Heat Sink

A processor wind tunnel is supplied with the boxed Intel Xeon processor. After the processor and heat sink are installed, install and connect the processor wind tunnel. For proper processor cooling, the fan inlet air temperature should be below 45 °C.

⇒ **NOTE**

Heat sink styles vary. If your heat sink has a flat end, the flat surface must be installed so that it faces the rear of the chassis. See the installation instructions in Chapter 3.

⚠ **CAUTION**

Clearance is required at each end of the fan heat sink to ensure unimpeded airflow for proper cooling. Restricting the airflow through the processor heat sink can cause overheating and subsequent failure of the processor.

Intel® E7501 Chipset

The Server Board SE7501CW2 includes the Intel E7501 chipset (MCH, ICH3-S, P64H2), which provides an integrated I/O bridge and memory controller, and a flexible I/O subsystem core (PCI).

MCH

The E7501 MCH North Bridge in the E7501 chipset integrates three main functions:

- An integrated high-performance main memory subsystem
- An HI 2.0 bus interface that provides a high-performance data flow path between the host bus and the I/O subsystem
- A HI 1.5 bus that provides an interface to the ICH3-S (South Bridge)

Other features provided by the MCH include the following:

- Full support of ECC on the memory bus
- Full support of Intel® x4 Single Device Data Correction on the memory interface with x4 DIMMs
- Twelve deep in-order queue
- Full support of registered DDR200 or DDR266 ECC DIMMs[2]
- Support for up to 8 GB of DDR memory
- Memory scrubbing

ICH3-S I/O Controller Hub

The primary role of the ICH3-S is to provide the gateway to all PC-compatible I/O devices and features. The Server Board SE7501CW2 uses the following ICH3-S features:

- 32-bit/33 MHz PCI bus interface
- Low Pin Count (LPC) bus interface
- IDE interface, with Ultra DMA 100 capability
- Universal Serial Bus (USB) interface
- PC-compatible timer/counter and DMA controllers
- APIC and 8259 interrupt controller
- Power management
- System real-time clock (RTC)
- General purpose I/O

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[2] DDR200 compliant ECC DIMMs can be used only if 400 MHz processors are installed.

Super I/O

The Server Board SE7501CW2 uses the Winbond W83627HF Super I/O Plug and Play Compatible with ACPI-Compliant Controller/Extender. This device provides the system with the following:

- Two serial ports
- One parallel port
- Floppy disk controller
- PS/2-compatible keyboard and mouse controller
- Two ATA 100 IDE channels
- Hardware monitor controller

The Server Board SE7501CW2 provides the connector interface for the floppy disk drive, dual serial ports, parallel port, PS/2 mouse, and PS/2 keyboard.

Serial Ports

The Server Board SE7501CW2 provides one DB9 connector on the back panel for serial port A. Serial port A is compatible with 16550A and 16450 modes. The port can be set to one of four different COM ports, and each can be enabled separately. When enabled, each port can be programmed to generate edge- or level-sensitive interrupts. When disabled, serial port interrupts are available to add-in cards.

A DH10 10-pin serial header is available on the baseboard for an optional serial port B.

Parallel Port

The Server Board SE7501CW2 provides a 25-pin parallel port back panel connector. The Super I/O provides an IEEE 1284–compliant 25-pin bidirectional parallel port. BIOS programming of the Super I/O registers enables the parallel port and determines the port address and interrupt. When disabled, the interrupt is available to add-in cards.

Floppy Disk Connector

The floppy disk connector on the server board provides the interface to the floppy disk drive from the floppy disk controller.

Keyboard and Mouse Connectors

The separate keyboard and mouse connectors, found on the back panel of the server board, are PS/2-compatible. The keyboard and mouse connectors are interchangeable.

Memory

The Server Board SE7501CW2 contains four 184-pin DIMM sockets and provides up to 8 GB of memory. Memory is partitioned as two banks of DDR DIMMs, each of which provides 144 bits of two-way interleaved memory.

The Server Board SE7501CW2 supports up to four ECC DDR DIMMs that are compliant with the JEDEC DDR200 / 266 specification. A range of DIMM sizes is supported, including the following:

- 128 MB
- 256 MB
- 512 MB
- 1 GB
- 2 GB

The minimum supported memory configuration is 128 MB with a single 128 MB DIMM in the Bank 1, DIMM 1A socket. When two DIMMS are used, the minimum memory configuration is 256 MB, with Bank 1 fully populated by two 128 MB DIMMs. For a list of supported memory, see *http://www.intel.com/support/motherboards/server/SE7501CW2/*

For maximum performance and data protection, each bank should be fully populated with two DIMMs. For cost conscious designs, the system can be operated when Bank 1 contains a single DIMM. When a single DIMM is used, it must be in the DIMM 1A socket. If only a single DIMM is populated in Bank 1, then interleaving and Intel® x4 Single Device Data Correction are unavailable.

Bank 2 can only operate with two DIMMs installed. Before Bank 2 can be used, Bank 1 must be fully populated (DIMMs installed in both Bank 1 sockets).

DIMMs must be installed in pairs and must be populated starting with DIMM 1A and 1B (see Figure 11 on page 56 for the locations of the DIMM connectors). Although the Server Board SE7501CW2 architecture allows the user to mix various sizes of DIMMs between banks, DIMMs must be identical within the banks.

PCI Subsystem

The SE7501CW2 server board provides three PCI bus segments:

- One PCI-X 64-bit / 133 MHz slots (Slot 1) on Bus A of the MCH
- Two PCI-X 64-bit / 100 MHz slots (Slot 2 and 3) on Bus B of the MCH
- Two PCI 32-bit / 33 MHz slots (Slot 4 and 5) on the ICH3-S

64-bit / 133 MHz PCI-X Capable Subsystem

The 64-bit/133 MHz PCI-X segment includes one 3.3 V keyed PCI expansion slot (slot 1) that can support PCI-X add-in cards up to 133 MHz and are backward compatible to 64 bit/66 MHz, 64 bit/33 MHz, and 32 bit/33 MHz PCI cards.

64-bit/133 MHz PCI-X features include:

- Bus speed up to 133 MHz
- 3.3 V signaling environment
- Burst transfers up to a peak of 1000 megabytes per second (MB/s)
- 8-, 16-, 32-, 64-, or 100-bit data transfers
- Plug and Play ready
- Parity enabled

⇒ **NOTE**

> The speed of the bus will run at the speed of the adapter installed.

64-bit / 100 MHz PCI-X Capable Subsystem

The 64-bit/100 MHz PCI-X segment includes two 3.3 V keyed PCI expansion slots (PCI-X slots 2 and 3) that can support add-in cards up to 100 MHz and are backward compatible to 64-bit/66 MHz, 64 bit/33 MHz, and 32 bit/33 MHz PCI cards.

64-bit/100 MHz PCI-X features include:

- Bus speed up to 100 MHz
- 3.3 V signaling environment
- Burst transfers up to a peak of 800 Megabytes per second (MB/s)
- 8-, 16-, 32-, or 64-bit data transfers
- Plug and Play ready
- Parity enabled

⇒ **NOTE**

> If you install a slower card into one of the PCI-X 64/100 connectors, the bus speed for both connectors will be lowered to the speed of the slowest adapter.

32-bit/33 MHz PCI Subsystem

The 32-bit/33 MHz PCI segment includes the following embedded devices and connectors:

- Two 5 V keyed PCI expansion slots (slots 4 and 5)
- Integrated Intel Gigabit Ethernet Controller (Intel 82540EM)
- Integrated Intel 10/100 Fast Ethernet Controller (Intel 82550PM)
- Integrated ATI Rage XL video controller with 8 MB of on-board SDRAM

32-bit/33 MHz PCI features include:

- Bus speed up to 33 MHz
- 5 V signaling environment
- Burst transfers up to a peak of 132 MB/s
- 8-, 16-, or 32-bit data transfers
- Plug and Play ready
- Parity enabled

Video Controller

The Server Board SE7501CW2 includes an ATI Rage XL video controller, 8 MB video SDRAM, and support circuitry for an embedded SVGA video subsystem.

The SVGA subsystem supports a variety of modes: up to 1600 x 1200 resolution for CRT displays and up to 1024 x 768 resolution for TFT displays, and up to 16.7 million colors. The Server Board SE7501CW2 provides a standard 15-pin VGA connector.

Network Interface Controllers (NICs)

The Intel® Server Board SE7501CW2 includes one 10/100Base-TX network connection, based on the Intel 82550PM Fast Ethernet Controller (NIC1), and one 10/100/1000Base-TX network connection, based on Intel 82540EM Gigabit Ethernet Controller (NIC2). Facing the rear of the system, the 10/100 megabit controller is on the left, next to the video connector.

You can disable the embedded NICs in BIOS Setup Utility. When disabled, the controller(s) are not visible to the operating system.

⇒ **NOTE**

> To ensure EMC (Electromagnetic Compatibility) product regulation compliance, the system must be used with a shielded LAN cable.

Supported Network Features

The SE7501CW2 supports the following features of the 82550PM and 82540EM controllers:

- Glueless 32-bit PCI Bus Master Interface (Direct Drive of Bus), compatible with PCI Bus Specification, revision 2.1 / 2.2
- Chained memory structure, with improved dynamic transmit chaining for enhanced performance
- Programmable transmit threshold for improved bus utilization
- Early receive interrupt for concurrent processing of receive data
- On-chip counters for network management
- Autodetect and autoswitching for 10 or 100 MB/s network speeds (82550 only)
- Support for 10 Mb/s, 100 Mb/s, and 1000 Mb/s networks, full or half duplex-capable, with back-to-back transmit at 100 MB/s
- Integrated physical interface to TX magnetics
- The magnetics component terminates the 100Base-TX connector interface. A flash device stores the network ID
- Support for Wake on LAN (WOL)
- Advanced Networking Service Features (Teaming, Load balancing)

NIC Connector and Status LEDs

The Intel® Server Board SE7501CW2 supports two RJ45 connectors, one for the 10/100-Megabit Fast Ethernet controller (NIC1), and the other for the Gigabit Ethernet controller (NIC2). You can disable the embedded NICs in the BIOS Setup Utility. Disabled NIC are not visible to the operating system.

NIC1 drives two LEDs on its RJ45 connector. These LEDs indicate link/activity on the LAN and the speed of operation. This connector is on the right side when looking at the I/O area at the back of the board. The green LED to the right of the connector indicates a network connection is in place when it is on and transmit/receive activity when it is blinking. The green LED to the left of the connector indicates 10 Mbps operation when it is off and100 Mbps operation when it is lit and. See the following table for an overview.

Table 2.   10/100 Megabit LEDs (NIC1)

LED Color	LED State	NIC1 State
Green (left)	Off	10-Mbps
	On	100-Mbps
Green (right)	On	On
	Blinking	Transmit / Receive activity

NIC2 drives two LEDs located on its RJ45 connector; this connector is on right side when looking at the I/O area in the back of the board. The green LED to the right of the connector indicates a network connection is in place when it is on, and transmit/receive activity when it is blinking. The bi-color LED to the left of the connector indicates 10-Mbps when it is off, 100-Mbps operation when it is green, and 1000-Mbps operation when it is yellow. See the following table for an overview.

Table 3.   Gigabit LEDs (NIC2)

LED Color	LED State	NIC2 State
Green/Yellow (left)	Off	10-Mbps
	Green	100-Mbps
	Yellow	1000-Mbps
Green (right)	On	On
	Blinking	Transmit / Receive activity

ACPI

The Advance Configuration and Power Interface (ACPI)–aware operating system can place the system into a state where the hard drives spin-down, the system fans stop, and all processing is halted. In this state the power supply is still on and the processors still dissipate some power, so the power supply fan and processor fans are still running.

⟹ **NOTE**

ACPI requires an operating system that supports this feature.

The Server Board SE7501CW2 supports sleep states S0, S4, and S5. When the server board is operating in ACPI mode, the operating system retains control of the system and the operating system policy determines the entry methods and wake-up sources for each sleep state. Sleep entry and wake-up event capabilities are provided by the hardware but are enabled by the operating system. Following is a summary of the supported sleep states:

- S0: Normal running state.
- S4: Hibernate or Save to Disk. The memory and machine state are saved to disk. Pressing the power button or another wake-up event restores the system state from the disk and resumes normal operation. This state assumes that no hardware changes were made to the system while it was off.
- S5: Soft off. Only the RTC section of the chipset is running in this state.

⚠ **CAUTION**

The system is off only when the AC power is disconnected.

AC Link Mode

The AC link mode allows the system to monitor its AC input power so that if AC input power is lost and then restored, the system returns to one of the following preselected settings:

* Last State (Factory Default Setting)
* Stay Off

The AC link mode settings can be changed by running the BIOS Setup Utility.

Wakeup Events

The SE7501CW2 system supports the following wakeup events.

Wake on LAN

Wake on LAN allows system power to be activated through the network. If the system is in the S4 state, it can be turned on remotely by sending a specific packet to the remote system. The system contains a configuration option that allows the on-board NICs to be enabled to wake the system from a S4 or S5 sleep state, even if the operating system disabled.

Wake on Ring

Wake on Ring allows system power to be activated through the serial ports when this option is enabled in Setup. If the system is in the S4 state, it can be turned on remotely by the Ring Indicate RI signals from the serial ports.

Security

The Server Board SE7501CW2 BIOS provides the ability to secure itself. Table 4 summarizes the security options available in the BIOS.

Table 4.   Security Operation Summary

Mode	Entry Method/ Event	Entry Criteria	Behavior	Exit Criteria	After Exit
User Password on boot (AT style)	Power On/Reset	User password set and password on boot enabled	System halts for User Password before booting. The system is not in secure mode. Except for the password, no mouse or keyboard input is accepted.	User password followed by [Enter]	Power and Reset switches are enabled. Keyboard and mouse inputs are accepted. The system boots normally. Boot sequence is determined by setup options.

Password Protection

The BIOS uses passwords to prevent unauthorized tampering with the system. Once secure mode is entered, access to the system is allowed only after the correct password(s) has been entered. Both user and supervisor passwords are supported by the BIOS. The user password cannot be set unless a supervisor password has been set.

When set, a password can be cleared by changing it to a null string. Clearing the supervisor password also clears the user password. Entering the user password permits modification of the time, date, language, user password, and password on boot setup fields; other setup fields can be modified only if the supervisor password is entered. The user password also allows the system to boot, if secure boot is enabled.

If a wrong password is entered three times in a row, the BIOS stops validating passwords and the BIOS security engine returns a failure for any further password validation attempt. If the user enters three wrong passwords in a row during the boot sequence (i.e., when entering Setup), the system is placed into a halt state. This feature makes is difficult to break the password by the "trial and error" method.

Using Passwords

If only the supervisor password is set, you:
- Must enter the supervisor password to enter BIOS Setup.
- Must enter the supervisor password to boot the server if Password on Boot is enabled in the BIOS Setup.
- Must enter the supervisor password to exit secure mode.

If both passwords are set, you:
- May enter the user password to enter BIOS Setup. However, you will not be able to change many of the options.
- Must enter the supervisor password if you want to enter BIOS Setup and have access to all of the options.
- May enter either password to boot the server if Password on Boot is enabled in the BIOS Setup.
- May enter either password to exit secure mode.

Password Clear Jumper

If the user or supervisor password(s) is (are) lost or forgotten, booting the system with the password clear jumper into the "clear" position clears both passwords. The password clear jumper must be restored to its original position before a new password(s) can be set. The password clear jumper is located on jumper block J32 pins [1-2] on the Server Board SE7501CW2.

Intel Server Board SE7501CW2 Product Guide

2 Configuration Software and Utilities

This chapter describes the Power-On Self-Test (POST) and server configuration utilities. Table 5 below briefly describes the utilities.

Table 5.   Configuration Utilities

Utility	Description and brief procedure	Page
BIOS Setup	If the system does not have a diskette drive or the drive is disabled or misconfigured, use BIOS Setup to enable it. Or, you can move the CMOS jumper on the server board from the default setting (Protect CMOS memory) to the Clear setting; this position will allow most server configurations to boot. Then use the recovery disk to recover.	22
BIOS Upgrade Utility	Use to upgrade the BIOS.	43

Power-On Self-Test (POST)

Each time you turn on the system, the BIOS begins executing 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. During the memory test, POST displays the amount of memory that it is able to access and test. The time needed to test memory depends on the amount of memory installed.

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, and the system beeps once. Then this message appears:

    ```
    Operating system not found
    ```

4. Press <Esc> during POST to pop up a boot menu when POST finishes. From this menu you can choose the boot device or enter BIOS Setup.

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. For a listing of common beep codes and error messages that POST can generate, see the "Solving Problems" chapter in this manual.

Using the BIOS Setup Utility

This section describes the BIOS Setup Utility options. Use BIOS Setup to change the server configuration defaults. You can run BIOS Setup with or without an operating system being present.

If You Cannot Access Setup

If you are not able to access BIOS Setup, you might need to clear the CMOS memory. For instructions on clearing the CMOS, see Clearing the CMOS on page 81.

Starting Setup

You can enter and start BIOS Setup under several conditions:

• When you turn on the server, after POST completes the memory test
• When you have moved the CMOS jumper on the server board to the "Clear CMOS" position (enabled)

In the two conditions listed above, after rebooting, you will see this prompt:

```
Press <F2> to enter SETUP
```

In a third condition, when CMOS/NVRAM has been corrupted, you will see other prompts but not the <F2> prompt:

```
Warning:  CMOS checksum invalid
Warning:  CMOS time and date not set
```

In this condition, the BIOS will load default values for CMOS and attempt to boot.

Setup Menus

Each BIOS Setup menu page contains a number of features. Except those used for information purposes, each feature is associated with a value field that contains user-selectable parameters. Parameters may be changed depending upon the security option chosen. If a value is not changeable due to insufficient security privileges (or other reasons), the feature's value field becomes inaccessible.

The bottom portion of the BIOS Setup screen provides a list of commands that are used for navigating the Setup utility. Table 6 describes the keyboard commands you can use in the BIOS Setup menus.

Table 6. Keyboard Commands

Press	Description
<F1>	Help - Pressing F1 on any menu invokes the general Help window.
← →	The left and right arrow keys are used to move between the major menu pages. The keys have no affect if a submenu or pick list is displayed.
↑	Select Item up - The up arrow is used to select the previous value in a menu item's option list, or a value field pick list. Pressing the Enter key activates the selected item.
↓	Select Item down - The down arrow is used to select the next value in a menu item's option list, or a value field pick list. Pressing the Enter key activates the selected item.
F5/-	Change Value - The minus key or the F5 function key is used to change the value of the current item to the previous value. This key scrolls through the values in the associated pick list without displaying the full list.
F6/+	Change Value - The plus key or the F6 function key is used to change the value of the current menu item to the next value. This key scrolls through the values in the associated pick list without displaying the full list. On 106-key Japanese keyboards, the plus key has a different scan code than the plus key on the other keyboard, but it has the same effect.
<Enter>	Execute Command - The Enter key is used to activate submenus when the selected feature is a submenu, or to display a pick list if a selected feature has a value field, or to select a sub-field for multi-valued features like time and date. If a pick list is displayed, the Enter key will undo the pick list, and allow another selection in the parent menu.
<Esc>	Exit - The ESC key provides a mechanism for backing out of any field. This key will undo 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 submenu, the parent menu is re-entered. When the ESC key is pressed in any major menu, the exit confirmation window is displayed and the user is asked whether changes can be discarded.
<F9>	Setup Defaults - Pressing F9 causes the following to appear: <table><tr><td>Setup Confirmation</td></tr><tr><td>Load default configuration now?</td></tr><tr><td>[Yes] [No]</td></tr></table> If "Yes" is selected and the Enter key is pressed, all Setup fields are set to their default values. If "No" is selected and the Enter key is pressed, or if the ESC key is pressed, the user is returned to where they were before F9 was pressed without affecting any existing field values.
<F10>	Save and Exit - Pressing F10 causes the following message to appear: <table><tr><td>Setup Confirmation</td></tr><tr><td>Save Configuration changes and exit now?</td></tr><tr><td>[Yes] [NO]</td></tr></table> If "Yes" is selected and the Enter key is pressed, all changes are saved and Setup is exited. If "No" is selected and the Enter key is pressed, or the ESC key is pressed, the user is returned to where they were before F10 was pressed without affecting any existing values.

Table 7 describes the on-screen options you will see in BIOS Setup and what they mean.

Table 7.   On-Screen Options

When you see this:	What it means:
On screen, an option is shown but you cannot select it or move to that field.	You cannot change or configure the option in that menu screen. Either the option is auto-configured or auto-detected, or you must use a different Setup screen.
On screen, the phrase *Press Enter* appears next to the option.	Press <Enter> to display a submenu that is either a separate full screen menu or a popup menu with one or more choices.

The following sections describe the menus and options available in BIOS Setup. Default settings are indicated in bold.

Menu Selection Bar

The Menu Selection Bar is located at the top of the screen and displays the major menu selections available to the user. The menu bar is shown below.

```
Main       Advanced  Security  Power     Boot      System    Exit
```

Table 8 lists the menus available in BIOS Setup.

Table 8.   Menu Selection Bar

Main	Advanced	Security	Power	Boot	System	Exit
Allocates resources for hardware components	Configures advanced features available through the chipset	Sets and clears passwords and security features	Allows system to disable ACPI reboot and disable power button	Selects boot options and power supply controls	Information on vendor, processor, memory, peripherals, and BIOS	Saves or discards changes to Setup program options

Main Menu

To access this menu, select Main on the menu bar at the top of the screen.

Main	Advanced	Security	Power	Boot	System	Exit
Primary Master						
Primary Slave						
Secondary Master						
Secondary Slave						

Table 9 lists the options available on the Main menu. This menu allocates resources for hardware components.

Table 9.   Main Menu

Feature	Choices	Description
System Time	HH:MM:SS	Sets the system time (hour, minutes, and seconds, on a 24-hour clock).
System Date	MM/DD/YYYY	Sets the system date (month, day, year).
Legacy Diskette A	• Disabled • **1.44 MB, 3 ½ (default)**	Selects the diskette type.
Primary Master	Select to display submenu	Displays IDE device selection.
Primary Slave	Select to display submenu	Displays IDE device selection.
Secondary Master	Select to display submenu	Displays IDE device selection.
Secondary Slave	Select to display submenu	Displays IDE device selection.

Primary/Secondary, Master/Slave Submenus

To access this submenu, select Main on the menu bar at the top of the screen and then the master or slave to be configured.

Main	Advanced	Security	Power	Boot	System	Exit

| **Primary Master** |
| **Primary Slave** |
| **Secondary Master** |
| **Secondary Slave** |

There are four IDE submenus: primary master, primary slave, secondary master, and secondary slave. Table 10 shows the format of the IDE submenus. For brevity, only one example is shown.

Table 10.   Primary/Secondary, Master/Slave Submenu

Feature	Choices	Description
Type	No options	Automatically detects the type of IDE device installed.
Multi-Sector Transfers	No options	Specifies the number of sectors that are transferred per block during multiple sector transfers. This option is disabled by default.
LBA Mode Control	No options	Enables Large Block Addressing (LBA) instead of cylinder, head, sector addressing. This option is disabled by default.
32 Bit I/O	• **Disabled (default)** • Enabled	Enables 32-bit IDE data transfers.
Transfer Mode	No options	Selects the method of moving data to and from the hard drive. Automatically set to *Standard,* which selects the optimum transfer mode.
Ultra DMA Mode	No options	Enables Ultra DMA mode.

Advanced Menu

To access this menu, select Advanced on the menu bar at the top of the screen.

Main	**Advanced**	Security	Power	Boot	System	Exit

I/O Device Configuration
On Board Device
PCI Configuration
Server Menu
Console Redirection
DMI Event Logging
Hardware Monitor

Table 11 lists the selections available on the Advanced menu. This menu configures advanced features available through the chipset.

Table 11.   Advanced Menu

Feature	Choices	Description
I/O Device Configuration	Select to display submenu	Configures the I/O ports.
On Board Device	Select to display submenu	Configures the onboard RAID, network, and USB controllers.
PCI Configuration	Select to display submenu	Configures PCI or RAID devices.
Server Menu	Select to display submenu	Sets options for server features.
Console Redirection	Select to display submenu	Provides additional options to configure the console.
DMI Event Logging	Select to display submenu	Displays the event logs.
Hardware Monitor	Select to display submenu	Displays voltages, temperatures, and fan speeds for the system.
Installed O/S	• **Win2000/.NET / XP (default)** • NT4 • NetWare • Other	Specifies the operating system installed on your system that you will use most often. An incorrect setting can cause some operating systems to behave erratically. Note: If you select *NT4,* an additional submenu item, NT4 Installation Workaround, will appear. It is disabled by default. To install Windows NT[*] 4.0, you need to change the NT4 Installation Workaround option to *Enabled.* Disable it to install pertinent service packs.

continued

Table 11. Advanced Menu (continued)

Feature	Choices	Description
Boot-time Diagnostic Screen	• Enabled • **Disabled (default)**	Enables or disables the boot-time diagnostic screen. *Disabled* will display the splash screen over the diagnostic screen. This splash screen can be changed to show an OEM-based logo.
Reset Configuration Data	• **No (default)** • Yes	Specifies if the extended server configuration data will be reset during the next boot. *Yes* clears the extended server configuration data during the next boot. The system automatically resets this field to *No* during the next boot.
Large Disk Access Mode	• Other • **DOS (default)**	UNIX*, NetWare*, and other operating systems require this option be set to *Other.* If you install an operating system and the hard drive fails to install, change this setting and try again. Different operating systems require different representations of drive geometries.
PS/2 Mouse	• Disabled • Enabled • **Auto Detect (default)**	Configures the PS/2 mouse. *Disabled* prevents any installed PS/2 mouse from functioning but frees up IRQ 12. *Enabled* forces the PS/2 mouse port to be enabled even if a mouse is not present. *Auto Detect* will enable the PS/2 mouse only if one is present.
Summary Screen	• Disabled • **Enabled (default)**	Enables or disables the boot-time hardware/BIOS summary screen.
Legacy USB Support	• Disabled • **Enabled (default)**	Enables support for legacy USB. It may be necessary to set this option to *Disable* to install NetWare 6.0 SP1.
Hyper-Threading	• Disabled • **Enabled (default)**	Allows Intel Xeon processors to run in hyperthreading mode. Enabling this setting will improve throughput significantly on certain applications.
QuickBoot Mode	• **Disabled (default)** • Enabled	Allows the system to skip the memory test while booting. This decreases the time needed to boot the system.

I/O Device Configuration Submenu

To access this submenu, select Advanced on the menu bar at the top of the screen and then I/O Device Configuration.

Main	**Advanced**	Security	Power	Boot	System	Exit

I/O Device Configuration
On Board Device
PCI Configuration
Server Menu
Console Redirection
DMI Event Logging
Hardware Monitor

Table 12 lists the options available through the I/O Device Configuration submenu. This submenu configures the I/O ports on the board.

Table 12.   I/O Device Configuration Submenu

Feature	Choices	Description
Serial port A	• Disabled • **Enabled (default)**	Enables or disables serial port A. Two devices cannot share the same IRQ. Choosing *Disabled* makes serial port A unusable.
Base I/O Address (This feature is present only when Serial Port A is set to *Enabled*)	• **3F8 (default)** • 2F8 • 3E8 • 2E8	Sets the base I/O address for serial port A.
Interrupt (This feature is present only when Serial Port A is set to *Enabled*)	• IRQ3 • **IRQ4 (default)**	Sets the interrupt for serial port A.
Serial port B	• Disabled • **Enabled (default)**	Enables or disables onboard serial port B. Two devices cannot share the same IRQ. Choosing *Disabled* makes serial port B unusable.
Base I/O Address (This feature is present only when Serial Port B is set to *Enabled*)	• 3F8 • **2F8 (default)** • 3E8 • 2E8	Sets the base I/O address for serial port B.
Interrupt (This feature is present only when Serial Port B is set to *Enabled*)	• **IRQ3 (default)** • IRQ4	Sets the interrupt for serial port B.
Parallel port	• Disabled • **Enabled (default)**	Enables or disables the onboard parallel port. Two devices cannot share the same IRQ. Also, choosing *Disabled* makes the parallel port unusable.

Table 12. I/O Device Configuration Submenu (continued)

Feature	Choices	Description
Mode (This feature is present only when Parallel Port is set to *Enabled*)	• Output only • Bi-directional • EPP • **ECP (default)**	Sets the mode for the parallel port. *Output only* is the standard printer connection mode. *Bi-directional* is the standard bidirectional mode. *EPP* is Enhanced Parallel Port mode, a high-speed bidirectional mode. Selection based on what EPP version the printer supports. Only choose a mode that the parallel port device (such as a printer) supports. Check the parallel port device documentation for this information. If this information cannot be located, use the default setting. *ECP* is Extended Capabilities Port mode, a high-speed bidirectional mode.
Base I/O Address (This feature is present only when Parallel Port is set to *Enabled*)	• **378 (default)** • 278 • 3BC	Sets the base I/O address for the parallel port.
Interrupt (This feature is present only when Parallel Port is set to *Enabled*)	• IRQ5 • **IRQ7 (default)**	Sets the interrupt for the parallel port.
DMA channel (This feature is present only when Parallel Port is set to *Enabled*)	• DMA 1 • **DMA 3 (default)**	Sets the DMA channel for the parallel port.
Floppy disk controller	• Disabled • **Enabled (default)**	Enables or disables the onboard diskette controller.

On Board Device Submenu

To access this submenu, select Advanced on the menu bar at the top of the screen and then On Board Device.

Main	**Advanced**	Security	Power	Boot	System	Exit

I/O Device Configuration
On Board Device
PCI Configuration
Server Menu
Console Redirection
DMI Event Logging
Hardware Monitor

Table 13 lists the options available through the On Board Device submenu. This submenu configures the RAID, network, and USB controllers on the board.

Table 13.   On Board Device Submenu

Feature	Choices	Description
Onboard NIC 1	• Disabled • **Enabled (default)**	Enables the onboard PCI Intel 82550PM Controller (Device 4).
Onboard NIC 2	• Disabled • **Enabled (default)**	Enables the onboard PCI Intel 82540EM Controller (Device 5).
Onboard USB	• Disabled • **Enabled (default)**	Enables the ICH3-S USB controllers.

PCI Configuration Submenu

To access this submenu, select Advanced on the menu bar at the top of the screen and then PCI Configuration.

Main	**Advanced**	Security	Power	Boot	System	Exit

I/O Device Configuration
On Board Device
PCI Configuration
Slot 1 PCI-X 133
Slot 2 PCI-X 100
Slot 3 PIC-X 100
Slot 4 PCI 32/33
Slot 5 PCI 32/33
Server Menu
Console Redirection
DMI Event Logging
Hardware Monitor

Table 14 lists the options available through the PCI Configuration submenu. This submenu configures the option ROM area for onboard RAID and PCI devices.

Table 14.   PCI Configuration Submenu

Feature	Choices	Description
Onboard NICs	Select to display submenu	Set items for configuring the onboard NICs
Slot 1 PCI-X 133	Select to display submenu	Configures the specific PCI device expansion ROM.
Slot 2 PCI-X 100	Select to display submenu	Configures the specific PCI device expansion ROM.
Slot 3 PCI-X 100	Select to display submenu	Configures the specific PCI device expansion ROM.
Slot 4 PCI 32/33	Select to display submenu	Configures the specific PCI device expansion ROM.
Slot 5 PCI 32/33	Select to display submenu	Configures the specific PCI device expansion ROM.

The table below lists the options available when the Onboard NICs option is selected. This submenu appears for each of the PCI slot options available on the Advanced PCI Configuration submenu (see Table 14). For brevity, only one example is shown.

Table 15.   Onboard NICs Submenu

Feature	Choices	Description
Onboard NIC1 PXE	• **Disabled (default)** • Enabled	Enable support for the onboard Intel 82550PM NIC PXE Note: Once PXE boot is enabled, it will not be selectable in the boot order until after the system is restarted.
Onboard NIC2 PXE	• **Disabled (default)** • Enabled	Enable support for the onboard Intel 82540EM NIC PXE Note: Once PXE boot is enabled, it will not be selectable in the boot order until after the system is restarted.

The following table lists the options available on the Option ROM Scan submenu. This submenu appears for each of the PCI slot options available on the PCI Configuration submenu (see Table 14). For brevity, only one example is shown.

Table 16.   Option ROM Scan Submenu

Feature	Choices	Description
Option ROM Scan	• **Enabled (default)** • Disabled	Initializes the device expansion ROM.

Server Menu Submenu

To access this submenu, select Advanced on the menu bar at the top of the screen and then Server Menu.

Main	**Advanced**	Security	Power	Boot	System	Exit

I/O Device Configuration
On Board Device
PCI Configuration
Server Menu
Console Redirection
DMI Event Logging
Hardware Monitor

Table 17 lists the options available through the Server Menu submenu. This submenu allows you to set options for server features.

Table 17.   Server Menu Submenu

Feature	Choices	Description
NMI on PERR	• **Disabled (default)** • Enabled	Enables or disables nonmaskable interrupts (NMI) on parity errors on the PCI bus (PERRs).
NMI on SERR	• Disabled • **Enabled (default)**	Enables or disables NMI on system errors on the PCI bus (SERRs).

Console Redirection Submenu

To access this submenu, select Advanced on the menu bar at the top of the screen and then Console Redirection.

Main	**Advanced**	Security	Power	Boot	System	Exit
	I/O Device Configuration					
	On Board Device					
	PCI Configuration					
	Server Menu					
	Console Redirection					
	DMI Event Logging					
	Hardware Monitor					

Table 18 lists the options available through the Console Redirection submenu. This submenu provides additional options to configure the console.

Table 18.   Console Redirection Submenu

Feature	Choices	Description
COM Port Address	• **Disabled (default)** • On-board COM A • On-board COM B	When enabled, console redirection uses the I/O port specified. All keyboard/mouse and video will be directed to this port. This setting is for use only under DOS in text mode.
Baud Rate	• 300 • 1200 • 2400 • 9600 • **19.2K (default)** • 38.4K • 57.6K • 115.2K	When console redirection is enabled, specifies the baud rate to be used.
Console Type	• **PC ANSI (default)** • VT100	Enables the specified console type. PC ANSI is color, 7-bit data. VT100 is monochrome, 7-bit data.
Flow Control	• None • XON/XOFF • **CTS/RTS (default)**	*None* disallows flow control. *XON/XOFF* is software-based asynchronous flow control. *CTS/RTS* is hardware-based flow control. When EMP is sharing the COM port as console redirection, the flow control must be set to *CTS/RTS.*
Console Connection	• **Direct (default)** • Via modem	Indicates whether the console is connected directly to the system or whether a modem is used.
Continue C.R. after POST	• **Off (default)** • On	Enables console redirection (C.R.) after the operating system has been loaded. If on, the system needs 4 KB of EBDA (Extended BIOS Data Area) memory space.

DMI Event Logging Submenu

To access this submenu, select Advanced on the menu bar at the top of the screen and then Event Logging.

Main	**Advanced**	Security	Power	Boot	System	Exit
	I/O Device Configuration					
	On Board Device					
	PCI Configuration					
	Server Menu					
	Console Redirection					
	DMI Event Logging					
	Hardware Monitor					

Table 19 lists the options available through the DMI Event Logging submenu. This submenu allows you to view the event logs.

Table 19.   DMI Event Logging Submenu

Feature	Choices	Description
Event log validity	No options	Indicates if the contents of the event log are valid.
Event log capacity	No options	Indicates if there is space available in the event log.
View DMI event log	<Enter>	Select <Enter> to display the current event log. Only Single Bit Error (SBE) and Multi Bit Error (MBE) events on the memory bus are supported. No Winbond 83627HF Super I/0 information is available.
Event Logging	• Disabled • **Enabled (default)**	Enables logging of events.
ECC Event Logging	• Disabled • **Enabled (default)**	Enables logging of ECC events.
Clear all DMI event logs	• **No (default)** • Yes	Clears the event log after booting. Must be set to *Yes* if the Event Log Validity option is invalid.

Hardware Monitor Submenu

To access this submenu, select Advanced on the menu bar at the top of the screen and then Hardware Monitor.

Main	**Advanced**	Security	Power	Boot	System	Exit
	I/O Device Configuration					
	On Board Device					
	PCI Configuration					
	Server Menu					
	Console Redirection					
	DMI Event Logging					
	Hardware Monitor					

Table 20 lists the settings displayed in the Hardware Monitor submenu. This submenu displays temperature, voltages, and fan speeds for the onboard Super I/O Winbond ASIC (the values listed below are for reference only). Use the up and down arrow keys to scroll through the readings.

Table 20.   Hardware Monitor Submenu

Feature	Choices	Description
Hardware Monitor IO index/data	No options	Value fluxuates. Example: 0295h
VCC_CPU_A	No options	Value fluxuates. Example: 1.45 V
+1_8V_A	No options	Value fluxuates. Example: 1.79 V
+3_3V_A	No options	Value fluxuates. Example: 3.24 V
AVCC	No options	Value fluxuates. Example: 5.02 V
AUX3V	No options	Value fluxuates. Example: 3.29 V
+12ENG	No options	Value fluxuates. Example: 12.01 V
+2_5V_A	No options	Value fluxuates. Example: 2.49 V
AUX5V	No options	Value fluxuates. Example: 4.94 V
VBAT	No options	Value fluxuates. Example: 2.92 V
Ambiance	No options	Value fluxuates. Example: 35 °C /95 °F
CPU1	No options	Value fluxuates. Example: 51 °C/123 °F
CPU2	No options	Value fluxuates. Example: 34 °C/93 °F
System FAN 1 speed	No options	Value fluxuates. Example: 5260 RPM
System FAN 2 speed	No options	Value fluxuates. Example: 4560 RPM
System FAN 3 speed	No options	Value fluxuates. Example: 4560 RPM
System FAN 4 speed	No options	Value fluxuates. Example: 4560 RPM
CPU FAN 1 speed	No options	Value fluxuates. Example: 4560 RPM
CPU FAN 2 speed	No options	Value fluxuates. Example: 4560 RPM

Security Menu

To access this menu, select Security on the menu bar at the top of the screen.

Main	Advanced	**Security**	Power	Boot	System	Exit

Table 21 lists the options available on the Security menu. Enabling the Supervisor Password field requires a password for entering Setup. The passwords are not case-sensitive.

Table 21. Security Menu

If no password entered previously:		
Feature	**Choices**	**Description**
Set User Password	<Enter>	The user password controls access to the system at boot. When the <Enter> key is pressed, you are prompted for a password; press the ESC key to abort.
		The supervisor password must be set if a user password is to be used.
		NOTE: Entering Setup with a supervisor password provides full access to all BIOS Setup utility menus.
Set Supervisor Password	<Enter>	The supervisor password controls access to the BIOS Setup utility. When the <Enter> key is pressed, you are prompted for a password; press the ESC key to abort.
		This password can be set only if a supervisor password is entered.
		When the user has entered his or her name but the supervisor is not logged in, only the following information is accessible:
		• Supervisor password is set to *Enabled.*
		• User password is set to *Enabled.*
		• Set user password [press enter] to enter a user password.
		• Password on boot is set to *Enabled/Disabled* (whichever is in effect). This option is not allowed to change.
Password on boot	• Disabled • **Enabled (default)**	Requires password entry before boot. System will remain in secure mode until password is entered. If a user or supervisor password is not entered, the operating system cannot be accessed.
Diskette access	• **User (default)** • Supervisor	Controls who can access diskette drives.
		Supervisor limits access to the diskette drive to the supervisor, who must enter a password.
		User allows access to the diskette drive by entering either the supervisor or the user password.
		Whatever setting is chosen, it becomes functional only if both a supervisor password and a user password have been set (if the User setting is chosen).

Power Menu

To access this menu, select Power on the menu bar at the top of the screen.

| Main | Advanced | Security | **Power** | Boot | System | Exit |

Table 22 lists the options available on the Power menu. This menu is designed to disable ACPI automatic reboot in the S0 or S4 states. If these submenus are enabled and AC power is lost, the server power and its operating system will remain off.

Table 22.   Power Menu

Feature	Choices	Description
Power Loss Control	• Stay Off • **Last State (default)**	Specifies the power level the system returns to after AC power is lost. *Stay Off* leaves the server power disabled and ACPI does not function to reboot the server in the event of a power failure. *Last State* reboots the system according to ACPI standards.
Power Button	• Disable • **Enable (default)**	Enables or disables the power button functionality.

Boot Menu

To access this menu, select Boot on the menu bar at the top of the screen.

Main	Advanced	Security	Power	**Boot**	System	Exit

Table 23 lists the options available on the Boot menu. This menu allows you to set the boot priority of devices installed in the system. Use the following key combinations to navigate between or view the devices and change the boot priority:

- <Enter> expands or collapses devices that have a "+" or "-" in front of them.
- <Ctrl+Enter> expands all devices.
- <Shift+1> enables or disables devices. Disabled devices appear with a "!" in front of them.
- <+> and <-> moves the device up or down in the list.
- <n> may move the removable device between the hard drive or removable disk.
- <d> removes a device that is not installed.

Table 23.   Boot Menu

Boot Priority	Device	Description
1st Boot Device 2nd Boot Device 3rd Boot Device 4th Boot Device	• Removable Devices • Hard Drive • CD-ROM Drive • Network Boot	Specifies the boot sequence according to the device type. The computer will attempt to boot from up to four devices as specified here. Only one of the devices can be an IDE hard disk drive. The default settings for the first through fourth boot devices are, respectively: • Removable Devices: Attempts to boot from the diskette drive or a removable device, such as the floppy. • Hard Drive: Attempts to boot from a hard drive device. • CD-ROM Drive: Attempts to boot from a CD-ROM drive containing bootable media. This entry appears if there is a bootable CD-ROM that is in a BIOS Boot Specification (BBS)–compliant SCSI CD-ROM. • Network Boot: If the network card ROM contains the string *$PnP*, it uses the correct BBS and the device will appear under the Boot menu as an independent device. Otherwise, it will appear under the Boot/Network Boot submenu.

System Menu

To access this menu, select System on the menu bar at the top of the screen.

Main	Advanced	Security	Power	Boot	**System**	Exit

Table 24 lists the options available on the System menu. This menu displays information on vendor, processor, memory, peripherals, and BIOS.

Table 24.   System Menu

Feature	Choices	Description
Machine Vendor	\<Enter\>	Provides basic information on the machine vendor: • Manufacturer: Intel Corporation • Product: SE7501CW2 • Version: 1.00 • Serial Number: 12345678
CPU	\<Enter\>	Provides basic information on the processor Boot Strap Processor: • Installed Speed: 2.4 GHz (for example) • Socket Name: BSP • Manufacturer: GenuineIntel • Version: Intel(R) XEON(TM) • CPUID: 0F27 • L2 Cache: 512 KB Application Processor: • Installed Speed: 1.8 GHZ (for example) • Socket Name: AP • Manufacturer: GenuineIntel • Version: Intel(R) XEON(TM) • CPUID: 0F27 • L2 Cache: 512 KB
Memory	\<Enter\>	Provides basic information on the memory: • System Memory: 640 KB • Extended Memory: 255 MB • Shadow RAM: 384 KB • Cache RAM: 512 KB • Installed Size—DIMM 1A, 1B, 2A, and 2B: DIMM size in MB

continued

Table 24.   System Menu (continued)

Feature	Choices	Description
Peripherals	<Enter>	Provides the port connectors for onboard designators. None of these can be modified in user mode

Port Connector	On Board Designator	Port Connector	On Board Designator
J52 & J28	Serial A and B	J12	Floppy
J47	Parallel		
J54	Keyboard / mouse	J53	Video
J7	Primary IDE	J48 & J45	NIC1 and NIC2
J8	Secondary IDE	J10 & J50	USB

Feature	Choices	Description
BIOS	<Enter>	ROM SIZE: 1024 KB Vendor: Phoenix Technologies LTD Version: 1.14 Release Date: 1/10/2003 – creation date

Exit Menu

To access this menu, select Exit on the menu bar at the top of the screen.

Main	Advanced	Security	Power	Boot	System	**Exit**

Table 25 lists the options available in the Exit menu. Select an option using the up or down arrow keys; then press <Enter> to execute the option. Pressing <Esc> does not exit this menu. You must select one of the items from the menu or menu bar to exit.

Table 25.   Exit Menu

Choices	Description
Exit Saving Changes	Exits after writing all modified Setup item values to CMOS.
Exit Discarding Changes	Exits leaving CMOS unmodified. User is prompted if any of the setup fields were modified.
Load Setup Defaults	Loads default values for all Setup items.
Discard Changes	Reads previous values of all Setup items from CMOS.
Save Changes	Writes all Setup item values to CMOS.
Load Custom Default	Loads custom default values for all setup items.
Save Custom Default	Saves all Setup item values to NVRAM as a custom default.

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

⇒ **NOTE**

> Do not skip step 2. You will need these settings to configure your computer
> at the end of the procedure.

Obtaining the Upgrade Utility

You can upgrade to a new version of the BIOS using the new BIOS files and the BIOS upgrade utility, PHLASH.EXE. You can obtain the BIOS upgrade file and the PHLASH.EXE utility through your computer supplier or from the Intel Customer Support Web site:

http://support.intel.com/support/motherboards/server/SE7501CW2

⇒ **NOTE**

> Please review the instructions distributed with the upgrade utility before
> attempting a BIOS upgrade. Review also any release notes in the file
> Rel_notes.pdf that accompanies the new version of the BIOS. The
> release notes may contain critical information regarding jumper settings,
> specific fixes, or other information to complete the upgrade.

This upgrade utility allows you to upgrade the BIOS in flash memory. The following steps explain how to upgrade the BIOS. In the unlikely event that a BIOS error occurs during the BIOS update process, see Recovering the BIOS on page 78 for instructions on performing a BIOS recovery.

Creating a Bootable Diskette

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

   ```
   format a:/s
   ```

   or, for a diskette that is already formatted, type:

   ```
   sys a:
   ```
4. Press <Enter>.

Creating the BIOS Upgrade Diskette

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

1. Download the BIOS image file to a temporary folder on your hard drive. The image is available from *http://support.intel.com/support/motherboards/server/SE7501CW2*
2. Insert the bootable diskette you created in the steps above into the diskette drive.
3. Type `BIOS.EXE a:` to extract the update files from the image file and place them onto the bootable diskette.

Upgrading the BIOS

1. Place the bootable diskette containing the BIOS update files into the diskette drive of your system. Boot the system with the diskette in the drive.
2. A menu will appear with two options. Use option 1 to automatically update the system BIOS. Use option 2 to manually update the system BIOS and the User Binary.
3. If you selected option 1, to automatically update the system BIOS:
   The system will execute the Phlash update utility to update the BIOS. When the update is complete, the utility will display a green box with a message that says "Completed Successfully." The system will then reboot.
4. If you selected option 2, to manually update the BIOS or to update the flash memory, you can either select "Update Flash Memory From a File" or "Update System BIOS":
   - Update Flash Memory From a File: When prompted for a file name, type BIOS.wph and press Enter.
   - Update System BIOS: The system will warn you that the BIOS will be updated. Verify the BIOS version is correct and press Enter to continue. When the update is complete, the utility will display a green box with a message that says "Completed Successfully." The system will then reboot.
5. Wait while the BIOS files are updated. **Do not power down the system during the BIOS update process!** The system will reset automatically when the BIOS update process is completed. Remove the diskette from the diskette drive.
6. Check to make sure the BIOS version displayed during POST is the new version as the system reboots.
7. Enter Setup by pressing the F2 key during boot. Once in Setup, press the F9 and <Enter> to set the parameters back to default values.
8. Re-enter the values you wrote down at the beginning of this process. Press F10 and <Enter> to exit BIOS Setup and Save Changes.
9. If you do not set the CMOS values back to defaults using the F9 key, the system may function erratically.

⟹ **NOTE**

> You may encounter a CMOS Checksum error or other problem after reboot.
> If this happens, shut down the system and boot it again. CMOS checksum
> errors require that you enter Setup, check your settings, save your settings,
> and exit Setup.

Crisis Recovery Diskette

It is unlikely that anything will damage the BIOS; however, a recovery disk should be created to ensure a quick recovery should it happen. The following steps explain how to create the crisis recovery diskette. If an incident occurs that corrupts the BIOS, such as the interruption of the BIOS update process, see Recovering the BIOS on page 78 for instructions on performing a BIOS recovery.

You can obtain the Crisdisk.exe file needed to create the crisis disk from the Intel Customer Support Web site:

http://support.intel.com/support/motherboards/server/SE7501CW2

Creating the Crisis Recovery Diskette

⟹ **NOTE**

> The crisis recovery diskette must be created on a Windows 98, Windows 2000, or Windows XP system.

Use the following steps to create the diskette:
1. Create an empty folder at the Windows workstation.
2. Copy the Crisdisk.exe folder into the folder and type Crisdisk to extract the contents of the self-extracting file into the folder.
3. Insert an empty diskette into the A: drive.
4. While in the folder with the Crisdisk contents, type Wincris. You will be prompted by a screen that contains three options:
   - Create MINIDOS Crisis Disk: Installs the necessary recovery files onto the A: drive. Use this option if the diskette you are using is already formatted and bootable.
   - Create FULLDOS Crisis Disk: Makes the floppy disk in A: bootable and then installs the necessary recovery files. Use this option if the diskette you are using is blank, but not bootable.
   - Format the A: Drive Diskette: Formats the diskette in the A: drive. Use this option if the diskette is not blank. When this option is complete, you will then need to use the "Create FULLDOS Crisis Disk option."

When the crisis diskette has been created, you will be prompted with a message to remove the diskette. You will then be asked whether you want to create additional crisis diskettes.

Changing the BIOS Language

You can use the BIOS upgrade utility to change the language the BIOS uses for messages and the Setup program. Use a bootable diskette containing the Intel flash utility and language files.

1. Boot the computer with the bootable diskette in drive A. The BIOS upgrade utility screen appears.
2. Select Update Flash Memory From a File.
3. Select Update Language Set. Press <Enter>.
4. Select drive A and use the arrow keys to select the correct .lng file. Press <Enter>.
5. When the utility asks for confirmation that you want to flash the new language into memory, select Continue with Programming. Press <Enter>.
6. When the utility displays the message upgrade is complete, remove the diskette. Press <Enter>.
7. The computer will reboot and the changes will take effect.

Hardware Monitoring

The Server Board SE7501CW2 has an integrated Winbond Heceta* 836327HF chip that is responsible for hardware monitoring. Together, the Winbond Heceta chip and LANDesk* Client Manager (LDCM) 6.3 software provide basic server hardware monitoring that alerts a system administrator if a hardware problem occurs on an Intel Server Board SE7501CW2–based system.

The LANDesk Client Manager software is for use with Windows 2000 Server and Windows 2000 Advanced Server operating systems. Other operating systems supported by the Server Board SE7501CW2 such as Windows XP, NetWare 6.0, or Red Hat* Linux* will not be monitored with the LANDesk Client Manager software. Table 26 lists the monitored headers and sensors on the Server Board SE7501CW2.

Table 26.   Monitored Headers and Sensors

Sensor Type	Item	Description
Voltage	CPU1/2	Monitors processor voltage (one CPU power plane)
	1.8 V	Chipset
	VCC3	Monitors VCC3
	VCC	Monitors VCC
	+12 V	Monitors +12 V
	2.5 V	Monitors 2.5 V (for DIMM)
	Vbat	Battery pin voltage
	5 VSB	Monitors 5 VSB (5 V stand-by)
Fan Speed	CPU1_FAN	Monitors primary processor fan speed
	CPU2_FAN	Monitors secondary processor fan speed
	CHASSIS_FAN	Monitors chassis fan speed through chassis fan header 3 only. (Total four chassis fans available)
Temperature	CPU2	Monitors primary processor temperature
	CPU1	Monitors secondary processor temperature
	CHASSIS	Monitors chassis ambient temperature

3 Server Board Installations and Upgrades

Tools and Supplies Needed

- Phillips[*] (cross head) screwdriver (#1 bit and #2 bit)
- Needle nosed pliers
- A ruler
- Pen or pencil
- Antistatic wrist strap and conductive foam pad (recommended)

Before You Begin

Emissions Disclaimer

To ensure EMC compliance with your local regional rules and regulations, the final configuration of your end system product may require additional EMC compliance testing. For more information please contact your local Intel Representative.

See "Regulatory and Integration Information" on page 87 for product Safety and EMC regulatory compliance information. This is an FCC Class A device. Integration of it into a Class B chassis does not result in a Class B device.

Safety Cautions

⚠ **CAUTIONS**

System power on/off: The power button DOES NOT turn off the system AC power. To remove power from system, you must unplug the AC power cord from the wall outlet. Make sure the AC power cord is unplugged before you open the chassis, add, or remove any components.

Hazardous conditions, devices & cables: Hazardous electrical conditions may be present on power, telephone, and communication cables. Turn off the server and disconnect the power cord, telecommunications systems, networks, and modems attached to the server before opening it. Otherwise, personal injury or equipment damage can result.

Electrostatic discharge (ESD) & ESD protection: ESD can damage disk drives, boards, and other parts. We recommend that you perform all procedures in this chapter only at an ESD workstation. If one is not available, provide some ESD protection by wearing an antistatic wrist strap attached to chassis ground—any unpainted metal surface—on your server when handling parts.

ESD and handling boards: Always handle boards carefully. They can be extremely sensitive to ESD. Hold boards only by their edges. After removing a board from its protective wrapper or from the server, place the board component side up on a grounded, static free surface. Use a conductive foam pad if available but not the board wrapper. Do not slide board over any surface.

Installing or removing jumpers: A jumper is a small plastic encased conductor that slips over two jumper pins. Some jumpers have a small tab on top that you can grip with your fingertips or with a pair of fine needle nosed pliers. If your jumpers do not have such a tab, take care when using needle nosed pliers to remove or install a jumper; grip the narrow sides of the jumper with the pliers, never the wide sides. Gripping the wide sides can damage the contacts inside the jumper, causing intermittent problems with the function controlled by that jumper. Take care to grip with, but not squeeze, the pliers or other tool you use to remove a jumper, or you may bend or break the stake pins on the board.

Safety and Regulatory Compliance

See "Regulatory and Integration Information" on page 87 for product Safety and EMC regulatory compliance information.

Intended uses: This product was evaluated for use in servers that will be installed in offices, computer rooms, and similar locations. Other uses require further evaluation.

EMC testing: Before computer integration, make sure that the chassis, power supply, and other modules have passed EMC testing using a server board with a microprocessor from the same family (or higher) and operating at the same (or higher) speed as the microprocessor used on this server board.

Server board diagram label provided: Place the label inside the chassis in an easy-to-see location, preferably oriented similarly to the server board.

Minimum Hardware Requirements

To avoid integration difficulties and possible board damage, your system must meet the following minimum requirements. For a list of qualified memory and chassis components see:

http://support.intel.com/support/motherboards/server/SE7501CW2

Processor

A minimum of one 1.8 GHz Intel Xeon processor with 512KB cache support is required. For a complete list of supported processors, see:

http://support.intel.com/support/motherboards/server/SE7501CW2

Memory

A minimum of one or two 128 MB Registered, ECC, DDR200- or DDR266- compliant, 184-pin DIMMs.[3]

Power Supply

A minimum of 450W is required. Your supply must provide a minimum of 1.2 A of 5 V standby current or the board will not boot.

Installation Notes

Installation Process Quick Reference

Step	Where the information is located
Remove the access cover	Your chassis manual
Install the I/O shield	This guide
Install memory	This guide
Install the standoffs	This guide
Install the rubber bumpers	This guide
Install the server board	This guide
Install the primary processor	This guide
Install the secondary processor (optional)	This guide
Connect cables to the server board	This guide and your chassis manual

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[3] DDR200-compliant ECC DIMMs can be used only if 400 MHz processors are installed.

Installation Procedures

Installing the I/O Gasket and Shield

➡ **NOTE**

> An ATX 2.03-compliant I/O shield is provided with the server board. The shield is required by Electromagnetic Interference (EMI) regulations to minimize EMI. If the shield does not fit the chassis, obtain a properly sized shield from the chassis supplier.

The shield fits the rectangular opening in the back of a chassis. The shield has cutouts that match the I/O ports. Install the shield from inside the chassis.

Attaching the Gasket to the I/O Shield

1. Remove the two backing strips from the gasket.
2. Press the gasket onto the inside face of the I/O shield as shown.
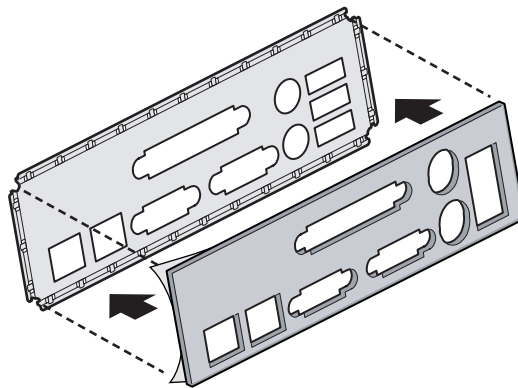
OM14074

Figure 3. Attaching the Gasket to the I/O Shield

Attaching the Label to the I/O Shield

1. Remove the backing from the label included with your server board.
2. Press the label onto the outside face of the I/O shield. See Figure 4, A.
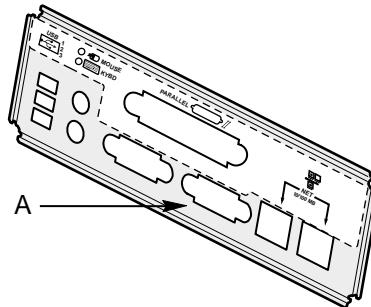
OM14360

Figure 4. Attaching the Label to the I/O Shield

Installing the I/O Shield

1. Position one edge so that the dotted groove is outside the chassis wall, and the lip of the shield rests on the inner chassis wall.
2. Hold the shield in place, and push it into the opening until it is seated. Make sure the I/O shield snaps into place all the way around.
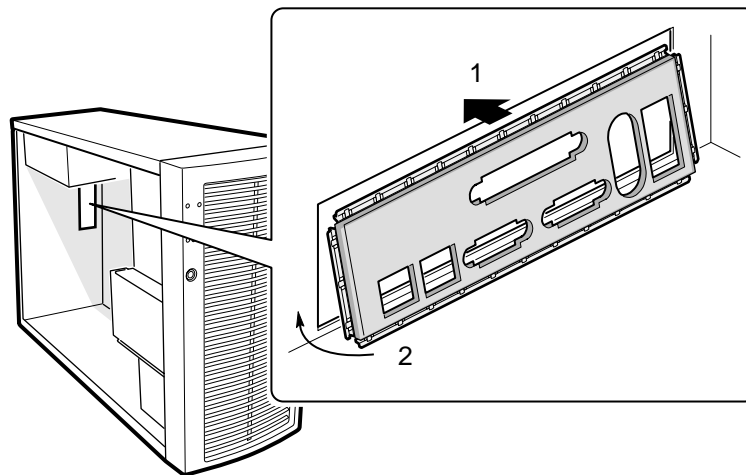
OM14427

Figure 5. Installing the I/O Shield

Installing Chassis Standoffs

Standoffs are included with your chassis. For the Intel® Server Chassis SC5200 and the Intel® Server Chassis SC5250-E, the locations where standoffs need to be installed are shown below.

If you are using a non-Intel chassis, you must rearrange the standoffs so they match the holes in the server board. Failure to properly rearrange the metal standoffs may cause the server board to malfunction and may permanently damage it. If your chassis does not include a hole for a particular standoff, install the adhesive-backed standoff that is included with your server board.

Your chassis may be different from the illustrations below.

Intel® Server Chassis SC5200

The Intel® Server Chassis SC5200 comes with standoffs pre-installed in positions 1, 4, 6, 20, 23, and 26. Install standoffs in positions (7, 18, 19, P, and S).

OM14221
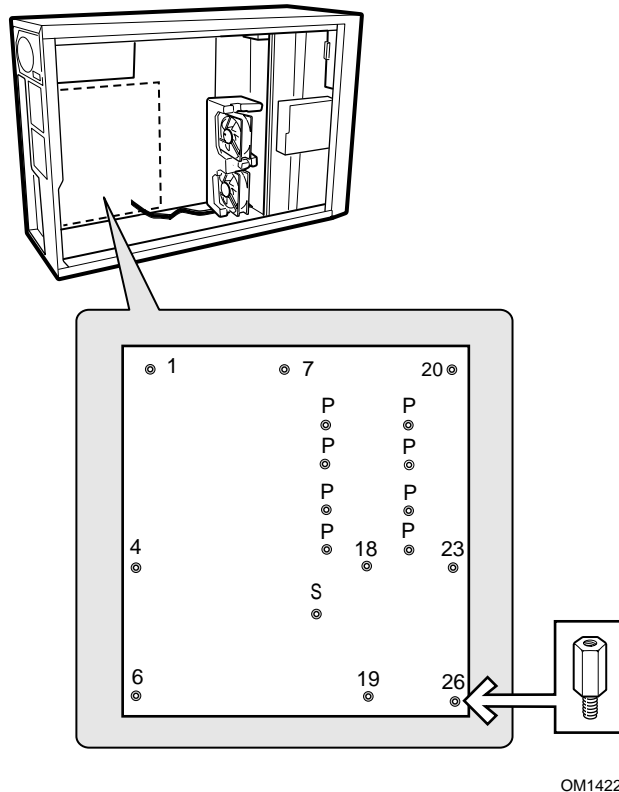
Figure 6. Installing Chassis Standoffs in the SC5200

Intel® Server Chassis SC5250-E

The Intel® Server Chassis SC5250-E comes with standoffs pre-installed in positions K, F, A, N, I, and D. Install standoffs in positions L, H, C, E, the four position marked P1, and the four positions marked P2).
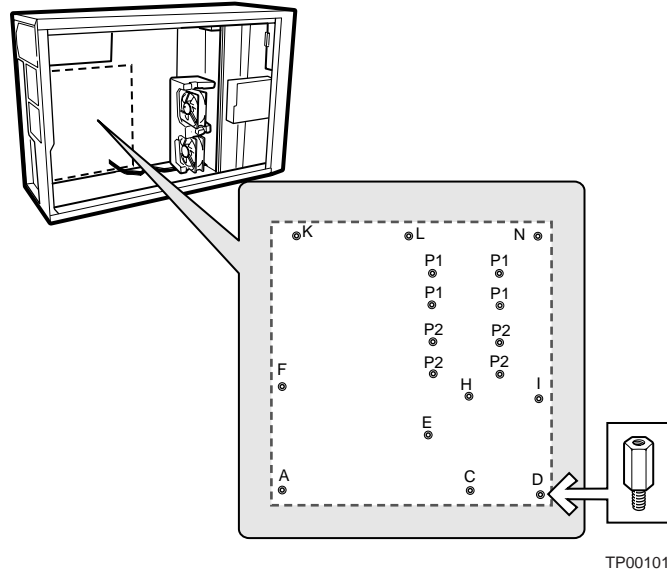
Figure 7. Installing Chassis Standoffs in the SC5250-E

Installing the Server Board

Placing the Server Board into the Chassis

When placing the board into the SC5200 chassis, insert the rear I/O connector end first, carefully positioning the board's I/O connectors into the openings in the I/O shield on the back of the chassis.
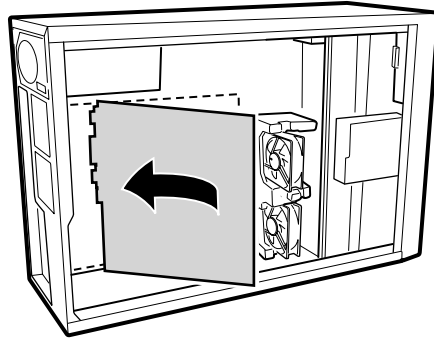
TP00103

Figure 8. Placing the Server Board in the SC5200 Chassis

When placing the board into the SC5250-E chassis, insert the front of the board first, then slide the board back so that the I/O connectors protrude through the I/O shield at the rear of the chassis.
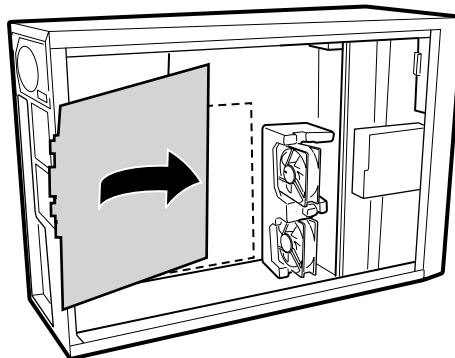
TP00102

Figure 9. Placing the Server Board in the SC5250-E Chassis

Attaching the Server Board

Using the screws that came with your chassis, mount the board to the chassis at the locations shown by the figure below.

⇒ **NOTE**

The Intel® Server Chassis SC5250 (all versions) and the Intel Server Chassis SC5250-E use different screws to attach the server board to t he chassis. Be sure to use the appropriate screw for your chassis. See the diagram below for the correct screw for each chassis.

TP00088
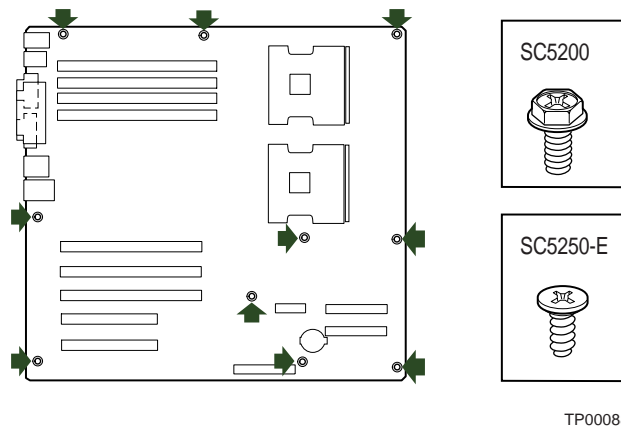
Figure 10. Attaching the Server Board

Installing or Replacing Memory

The server board supports only DDR200- and DDR266-compliant DIMMs. Install from 128 MB to 8 GB of memory, using up to four DIMMs.[4]

Memory must be installed according to the following rules:

- DIMM 1A must be populated first. This DIMM the closest to the edge of the board.
- When only a single DIMM is to be used, that DIMM must be inserted into slot 1A.
- When Bank 2 is used, both slots must be populated and Bank 1 must be fully populated with two DIMMs.

No DIMM mixing is allowed within a bank. Between banks only the DIMM size may be different. All DIMMs must be the same speed and architecture. For a list of supported memory, visit the Intel Support Web site:

http://support.intel.com/support/motherboards/server/SE7501CW2
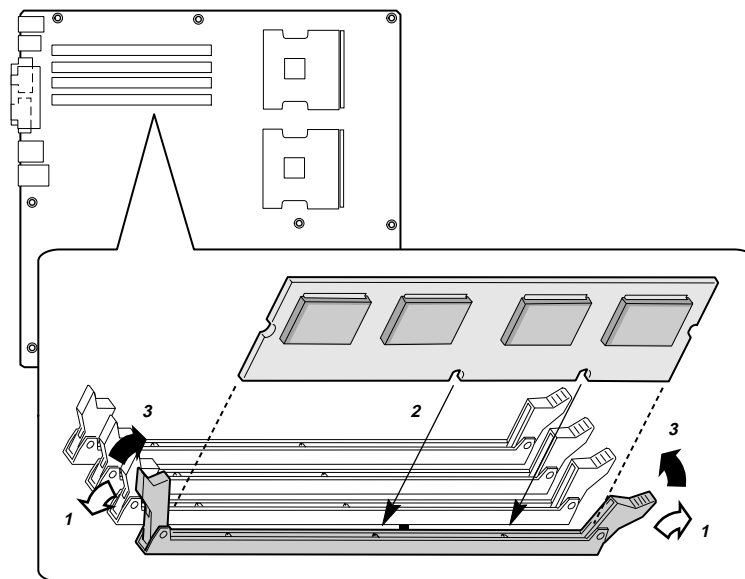
TP00089

Figure 11. Installing Memory

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[4] DDR200-compliant ECC DIMMs can be used only if 400 MHz processors are installed.

Installing or Replacing the Processor(s)

⚠ NOTES

Use the instructions provided below to install or replace a processor instead of using the instructions that came with the processor.

If you are installing only one processor, it must be installed in the labeled CPU1. This socket is located closest to the corner of the server board.

If you are installing a second processor, verify that the second processor is identical to the first processor, same voltage and speed. Do not mix processors of different types or frequencies.

⚠ CAUTIONS

Processor must be appropriate: You may damage the server board if you install a processor that is inappropriate for your server. Make sure your server can handle a newer, faster processor (thermal and power considerations). For exact information about processor interchangeability, contact your customer service representative or visit the Intel Customer Support website:

http://support.intel.com/support/motherboards/server/SE7501CW2

ESD and handling processors: Reduce the risk of electrostatic discharge (ESD) damage to the processor by doing the following: (1) Touch the metal chassis before touching the processor or server board. Keep part of your body in contact with the metal chassis to dissipate the static charge while handling the processor. (2) Avoid moving around unnecessarily.

If you are adding a second processor to your system, you must verify that the second processor is identical to the first processor, same voltage and speed. Using non-identical processors could cause system failure.

Installing the Processor(s)

Use these instructions if you are installing a processor and the Processor Wind Tunnel (PWT) in the SC5200 base chassis, SC5200 Base Redundant Power chassis, in the SC5250-E chassis, or in a reference chassis.

If you are replacing a processor for which the PWT has already been installed, follow the instructions provided on page 63 titled, "Replacing a Processor."

1. Observe the safety and ESD precautions at the beginning of this chapter and the additional precautions given here.
2. Remove power from your system by unplugging the AC power cord.
3. Remove the chassis cover (see your system or chassis documentation for instructions).
4. Lift the socket lever for the processor.
5. Align the pins of the processor with the socket, and insert the processor into the socket. Lower the socket lever completely.

NOTE

Make sure the alignment triangle mark and the alignment triangle cutout align correctly. See Figure 12.
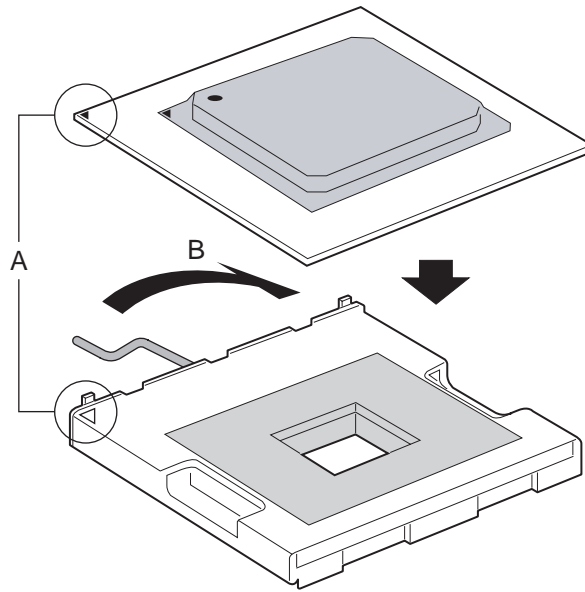
OM15042

**Figure 12. Opening Socket Lever and Attaching Processor**

Installing the Retention Mechanism(s) and the Heat Sink(s)

1. Install the PWT retention mechanism over the top of the processor with the screws provided, as shown in Figure 13.

⟹ **NOTE**

The SC5200 chassis and the SC5250-E chassis use different fasteners to connect the PWT retention mechanism to the server board. The fasteners look nearly identical, but the SC5250-E fasteners are slightly shorter.

- When using the SC5200 chassis, use the fasteners provided with the boxed processor.
- When using the SC5250-E chassis, use the fasteners provided with the chassis.
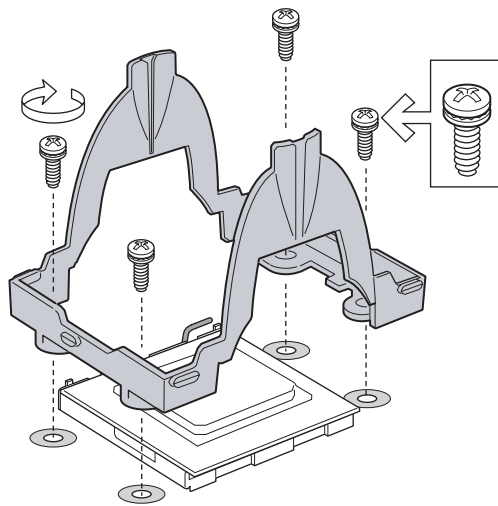
OM15037

Figure 13. Attaching Retention Mechanism

2. Apply thermal grease to the processor as shown in Figure 14.
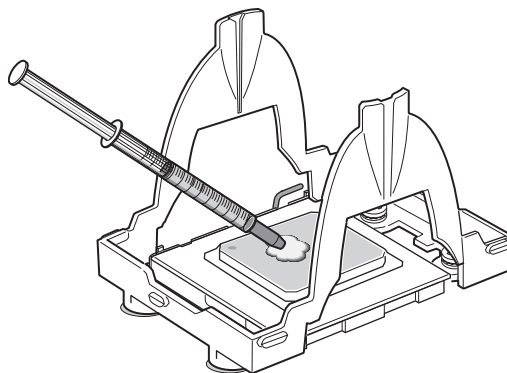
OM15040

Figure 14. Applying Thermal Grease

3. Align the heat sink over the processor and set it into place. If your heat sink has a flat end on it, the flat end must point toward the rear of the chassis.
4. Position the retention mechanism clips over the plastic tabs at the center of the retention mechanism. Note that the slot in the clip provides room for side-to-side motion. Push down on the top of each retention clip while sliding it to over. (Figure 15, 1).
5. Engage each end of the retention mechanism clips over the plastic tabs at the sides of the retention mechanism (Figure 15, 2).
6. Press downward on the ends of the retention mechanism clips to lock them into place over the plastic tabs (Figure 15, 3 and 4).

⟹ **NOTES**

The 400 MHz Intel Xeon processor and the 533 MHz Intel Xeon processor use different retention mechanism clips. Although the clips appear to be nearly identical, they vary slightly in size. Use only the clips that came with your processor.

For both the 400 MHz clips and the 533 MHz clips, make sure the center tab on the clip engages in the heat sink base.
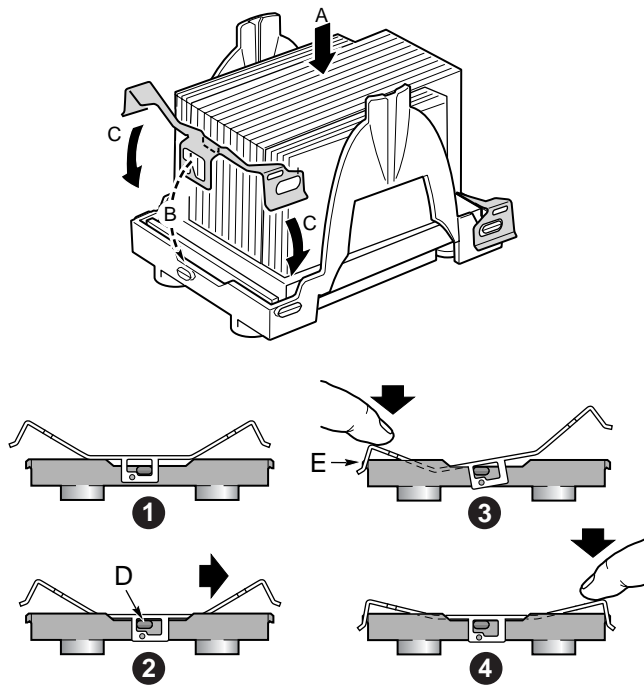
TP00099

Figure 15. Attaching the Heat Sink and Retention Clip

Assembling the Processor Wind Tunnel

1. Hold the fan case at approximately 45 degrees and engage the clip at the top of the tunnel as shown by Figure 16, 1. Rotate the fan case downward (Figure 16, 2) to insert the tabs at each side of the fan case into the matching slots on the wind tunnel (Figure 16, 3)
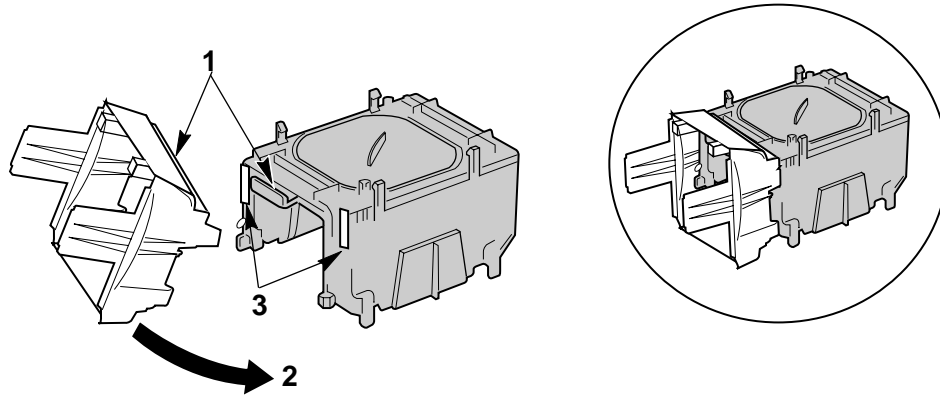
TP00041

Figure 16. Attaching the Fan Case to the Wind Tunnel

2. Insert the fan between the two large plastic tabs at each side of the wind tunnel assembly as shown in Figure 17, 1. Note the following items in the figure:
   - To ensure that the airflow direction is correct, use caution to insert the fan so that the label shows through the assembled unit (Figure 17, 2).
   - To ensure the fan power cables will reach the connection on the baseboard, note that when you are looking at the fan with the wind tunnel assembly behind it, the cable must extend from the left side for CPU2 (Figure 17, 3) and from the right side for CPU1 (Figure 17, 4).
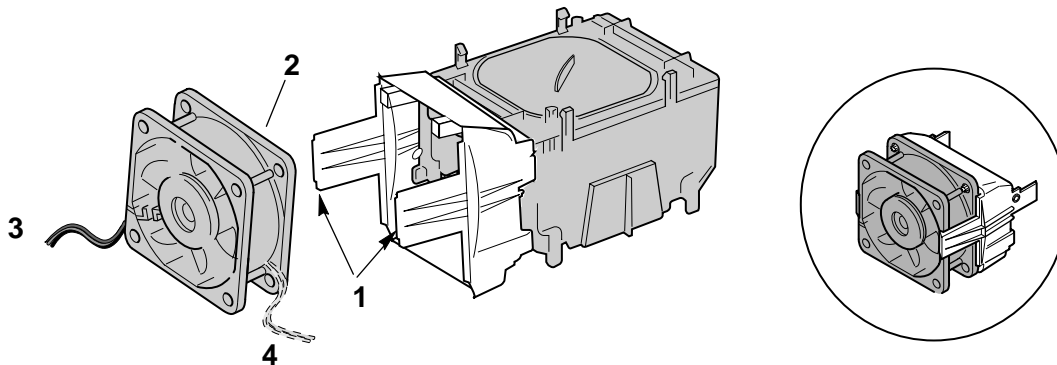
TP00042

Figure 17. Attaching the Heat Sink Fan to the PWT

Attaching the Wind Tunnel Assembly to the Board

1. Attach the fan assembly to the retention mechanism that was installed over the top of the processors. Pull the tabs at the sides of the retention mechanism apart slightly.
    See Figure 18, 1a.

2. Lower the fan assembly into the retention mechanism. The tabs on the fan assembly (Figure 18, 2a) will fit into the slots of the retention mechanism (Figure 18, 2b).

3. Pull out on the tabs located at the bottom of the fan assembly to snap them into place on the OUTSIDE of the retention mechanism (Figure 18, 3a and 3b).

4. Attach CPU Fan 1 cable to the server board at location J16 and/or attach CPU Fan 2 cable at location J14. (Figure 18, 4.)
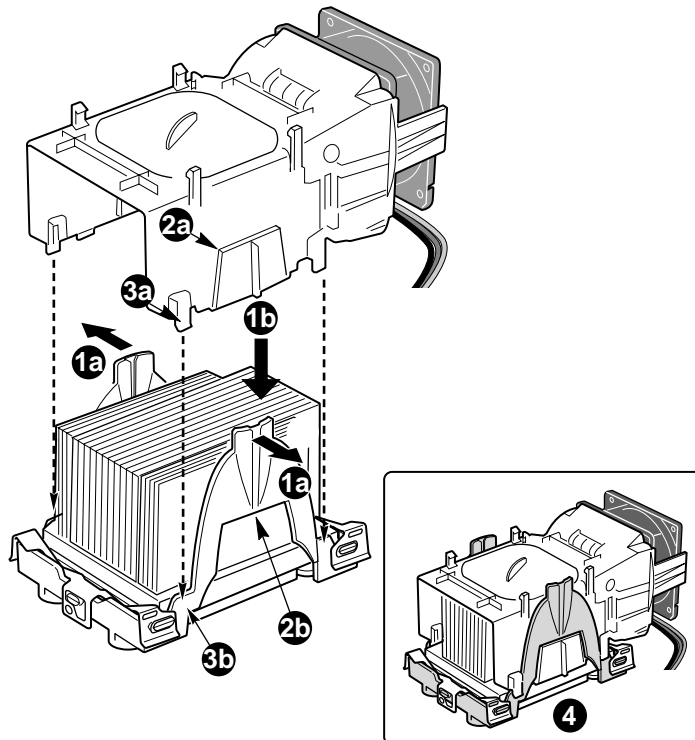
TP00100

Figure 18. Attaching the Top Assembly to the Retention Mechanism

⟹ **NOTE**

> System airflow must be from front to back. Make sure the PWT is aligned so the fan is toward the front of the chassis and the airflow is toward the I/O shield. If two processors are installed, the fans must be side by side.

When assembled, the Processor Wind Tunnel will look similar to the figure below. The dashed lines over CPU2 indicate that this processor assembly is only required when configuring the server with two processors. The direction of the airflow is indicated by the arrow at Figure 19, A.
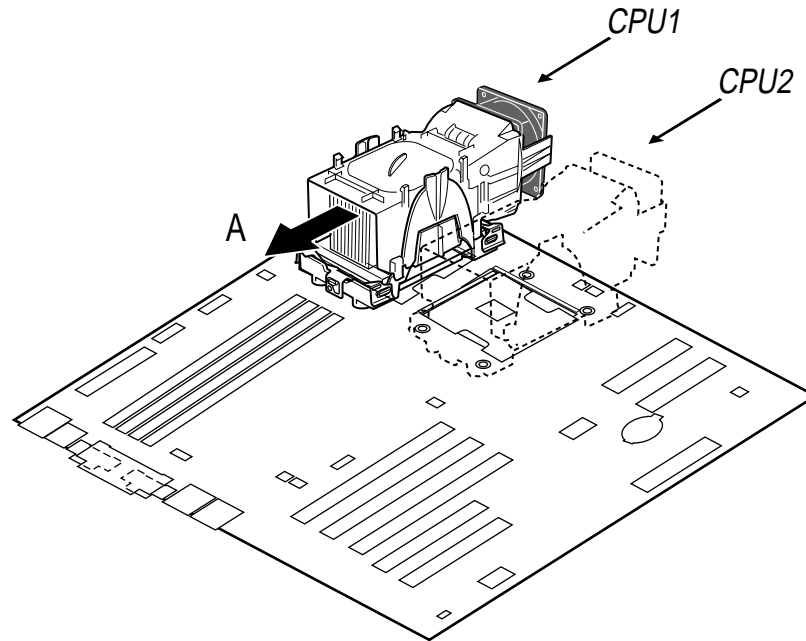
TP00095

Figure 19. Processor and Wind Tunnel Installed

Replacing a Processor

1. Observe the safety and ESD precautions at the beginning of this chapter and the additional cautions given here.
2. Unplug the processor fan cable from the server board.
3. Detach the fan assembly from the PWT retention mechanism by unlatching the clips at the bottom of the fan assembly and then lifting up on the fan assembly.
4. Remove the metal retention mechanism clips from the bottom of the retention mechanism. Unhook each side of each clip and disengage the center latch.
5. Remove the heat sink by slightly spreading the sides of the retention mechanism and lifting straight up on the heat sink.
6. Raise the socket lever on the processor socket.
7. Remove the processor from the socket.
8. Align the pins of the replacement processor with the socket, and insert the processor into the socket. Lower the socket lever completely.

⟹ **NOTE**

> Make sure the alignment triangle mark and the alignment triangle cutout align correctly.

1. Re-insert the heat sink over the top of the processor. Make sure to face the flat edge of the heat sink towards the rear of the chassis.
2. Reconnect the retention mechanism clips. See Figure 15.
3. Reattach the fan assembly to the retention mechanism. Pull the tabs at the sides of the retention mechanism apart slightly. See Figure 18, 1a. Lower the fan assembly into the retention mechanism. The tabs on the fan assembly (Figure 18, 2a) will fit into the slots of the retention mechanism (Figure 18, 2b). Pull out on the tabs located at the bottom of the fan assembly to snap them into place on the retention mechanism (Figure 18, 3a and 3b).
4. Reattach the CPU fan

Replacing the Backup Battery

The lithium battery on the server board powers the RTC for up to 10 years in the absence of power. When the battery starts to weaken, it loses voltage, and the server settings stored in CMOS RAM in the RTC (for example, the date and time) may be wrong. Contact your customer service representative or dealer for a list of approved devices.

⚠ **WARNING**

Danger of explosion if 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.

⚠ **ADVARSEL**!

Lithiumbatteri - Eksplosionsfare ved fejlagtig håndtering. Udskiftning må kun ske med batteri af samme fabrikat og type. Levér det brugte batteri tilbage til leverandøren.

⚠ **ADVARSEL**

Lithiumbatteri - Eksplosjonsfare. Ved utskifting benyttes kun batteri som anbefalt av apparatfabrikanten. Brukt batteri returneres apparatleverandøren.

⚠ **VARNING**

Explosionsfara vid felaktigt batteribyte. Använd samma batarityp eller en ekvivalent typ som rekommenderas av apparattillverkaren. Kassera använt batteri enligt fabrikantens instruktion.

⚠ **VAROITUS**

Paristo voi räjähtää, jos se on virheellisesti asennettu. Vaihda paristo ainoastaan laitevalmistajan suosittelemaan tyyppiin. Hävitä käytetty paristo valmistajan ohjeiden mukaisesti.

1. Observe the safety and ESD precautions at the beginning of this chapter.
2. Open the chassis.
3. Insert the tip of a small flat bladed screwdriver, or an equivalent, under the tab in the plastic retainer. Gently push down on the screwdriver to lift the battery.
4. Remove the battery from its socket.
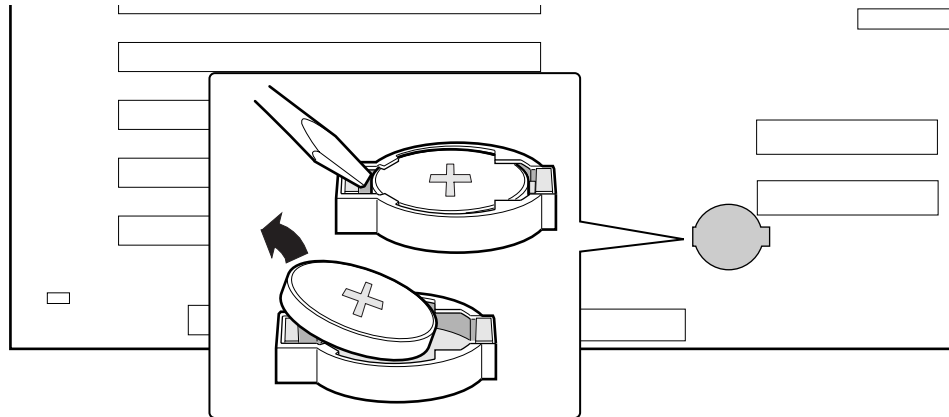
TP00091

Figure 20. Replacing the Backup Battery

5. Dispose of the battery according to local ordinance.
6. Remove the new lithium battery from its package, and, being careful to observe the correct polarity, insert it in the battery socket.
7. Close the chassis.
8. Run Setup to restore the configuration settings to the RTC.

Making Connections to the Server Board

12 V
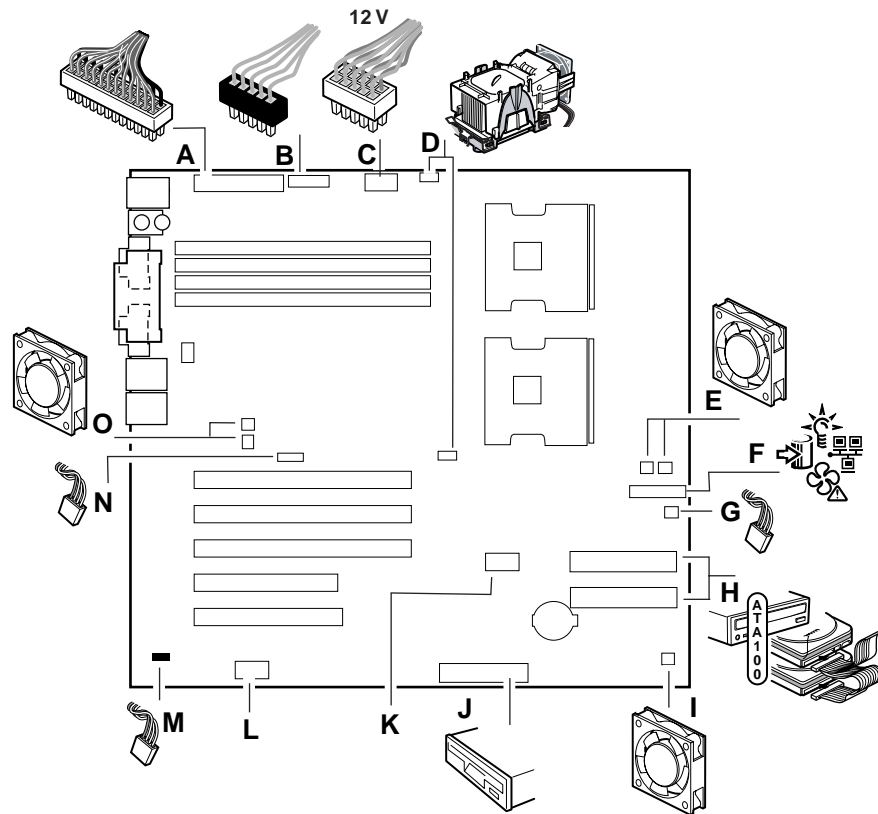
TP00090

A. Main power connector
B. Auxiliary signal connector
C. +12 V CPU power connector
D. CPU1 fan header (top)
    CPU2 fan header (bottom)
E. System fan 2 header (left)
    System fan 1 header (right)
F. Front panel header
G. Hot-swap backplane header
H. Secondary IDE connector (top, white connector)

I. Primary IDE connector (bottom, black connector)
J. System fan 5 header
K. Floppy drive connector
L. Front USB header
M. Serial B header
N. Chassis intrusion header
O. I2C header
P. System fan 3 header (top)
    System fan 4 header (bottom)

Figure 21. Making Connections to the Server Board

Routing Cables

To ensure proper airflow within the chassis, follow the cable routing guidelines below.

IDE Cables

For the server chassis SC5200, IDE cables that connect to devices in the lower device bays should be routed around the EPAC as shown below.

1. Remove the top half of the EPAC.
2. Route cables as shown in Figure 22.
3. Replace the top half of the EPAC.
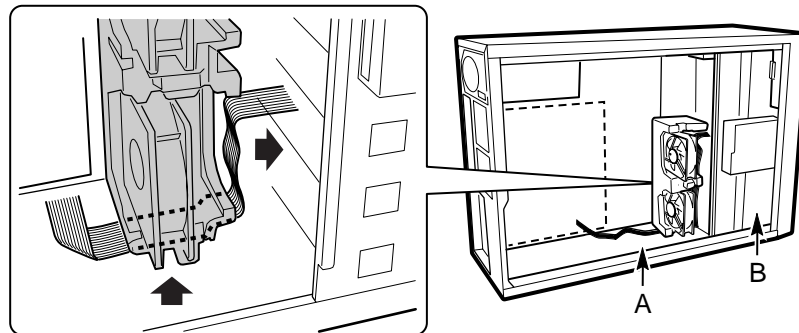
OM14196

A. Ribbon Cable(s)
B. Lower Device Bay

Figure 22. Routing IDE Cables

For the SC5250-E chassis, route the cables along the sides of the chassis, being careful to avoid blocking the airflow from the fans.

Floppy Drive Cable

For the server chassis SC5200, route the floppy drive cable as shown in Figure 23, A.
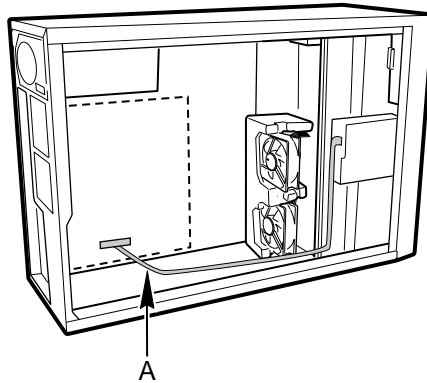
OM14421

Figure 23. Routing the Floppy Drive Cable

For the SC5250-E chassis, route the cables along the sides of the chassis, being careful to avoid blocking the airflow from the fans.

Finishing Up

⚠ **WARNING**

An electrical shock hazard exists if the chassis cover is not replaced before connecting the chassis to the main power.

1. Install the chassis cover according to the instructions for your chassis.
2. See your chassis documentation to complete rack or pedestal installation.
3. Connect the keyboard, mouse, and video cables to the back panel.
4. Connect the power cable to the back panel and to an AC outlet.
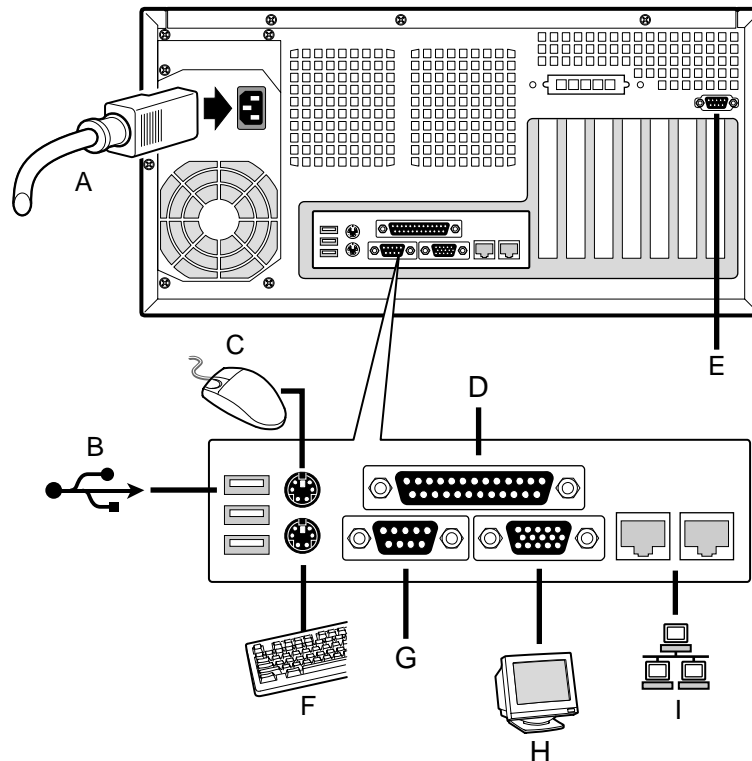
OM14424

A.	AC Power	F.	Keyboard
B.	USB 1, 2, and 3	G.	Serial port A
C.	Mouse	H.	Video
D.	Parallel port	I.	Network
E.	Serial port B		NIC1 (10/100 Mb left)
			NIC2 (1 Gb right)

Figure 24. Making Back Panel Connections

Intel Server Board SE7501CW2 Product Guide

4 Solving Problems

This chapter 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 a less frequent cause.

Checklist

❑ Is AC power available at the wall outlet?

❑ Are the power supplies plugged in? Check the AC cable on the back of the chassis and at the AC source.

❑ Are all cables correctly connected and secured?

❑ Are the processors fully seated in their sockets on the server board?

❑ Are all standoffs in the proper location and not touching any through hole components, causing a potential short?

❑ Are all add-in PCI boards fully seated in their slots on the server board?

❑ Are all jumper settings on the server board correct?

❑ Are all jumper and switch settings on add-in boards and peripheral devices correct? To check these settings, refer to the manufacturer's documentation that comes with them. If applicable, ensure that there are no conflicts—for example, two add-in boards sharing the same interrupt.

❑ 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?

❑ Are the configuration settings made in Setup correct?

❑ 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~?

❑ 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.

Running New Application Software

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

Checklist

❑ Does the system meet the minimum hardware requirements for the software? See the software documentation.

❑ Is the software an authorized copy? Unauthorized copies often do not work.

❑ If you are running the software from a diskette, 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 may indicate equipment failure. Many situations that are easy to correct, however, can also cause such 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.

❑ Reinstall the software 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**

Random errors in data files: If you are getting random errors in your data files, they may be getting corrupted by voltage spikes on your power line. If you are experiencing any of the above symptoms that might indicate voltage spikes on the power line, you may want to install a surge suppressor between the power outlet and the system power cord.

More Problem Solving Procedures

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

Preparing the System for Diagnostic Testing

⚠ **CAUTION**

> **Turn off devices before disconnecting cables:** Before disconnecting any
> peripheral cables from the system, turn off the system and any external
> peripheral devices. Failure to do so can cause permanent damage to the
> system 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 system 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 its 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 diskette in drive A. Otherwise, place a diskette 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" on page 75.

Monitoring POST

See Chapter 2.

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:

❑ Does the diskette drive activity light turn on briefly? If not, see "Diskette Drive Activity Light Does Not Light" on page 75.

❑ If a second diskette drive is installed, does its activity light turn on briefly? If not, see "Diskette Drive Activity Light Does Not Light" on page 75.

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 the Screen" on page 74.

Specific Problems and Corrective Actions

This section provides possible solutions for these specific problems:

- Power light does not light.
- No characters appear on screen.
- Characters on the screen appear distorted or incorrect.
- System cooling fans do not rotate.
- Diskette 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 below 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 might be defective or the cable from the front panel to the server board might be loose.

❑ Are there other problems with the system? If so, check the items listed under 'System Cooling Fans Do Not Rotate Properly."

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 board, do the following:

1. Verify that the video works using the onboard video controller.
2. Verify that the video controller board is fully seated in the server board connector.
3. Reboot the system for changes to take effect.
4. 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.
5. 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's 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 AC power available at the wall outlet?

❑ 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 server board?

❑ Is the cable from the front panel board connected to the server board?

❑ Are the power supply cables properly connected to the server board?

❑ 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 AC power is available at the wall outlet, contact your service representative or authorized dealer for help.

Diskette Drive Activity Light Does Not Light

Check the following:

❑ Are the diskette drive's power and signal cables properly installed?

❑ Are all relevant switches and jumpers on the diskette drive set correctly?

❑ Is the diskette drive properly configured?

❑ Is the diskette drive activity light always on? If so, the signal cable may be plugged in incorrectly.

If you are using the onboard diskette controller, use the BIOS setup to make sure that "Onboard Floppy" is set to "Enabled." If you are using an add-in diskette controller, make sure that "Onboard Floppy" is set to "Disabled."

If the problem persists, there may be a problem with the diskette drive, server board, or drive signal cable. Contact your service representative or authorized dealer for help.

CD-ROM Drive Activity Light Does Not Light

Check the following:

❑ Are the CD-ROM drive's power and signal cables properly installed?

❑ Are all relevant switches and jumpers on the drive set correctly?

❑ Is the drive properly configured?

Cannot Connect to a Server

❑ 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. 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

The server hangs when the drivers are loaded.

❑ Change the PCI BIOS interrupts. Try the "PCI Installation Tips" below.

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 Activity LED does not light.

The network activity light is not connected to the Server Board SE7501CW2.

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. Try the "PCI Installation Tips" below.

❑ Make sure the other adapter supports shared interrupts. Also, make sure your operating system supports shared interrupts.

❑ 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.

PCI Installation Tips

❑ Certain drivers may require interrupts that are not shared with other PCI drivers. For these drivers, it may be necessary to alter settings so that interrupts are not shared.

Problems with Application Software

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

❑ Verify that the software is properly configured for the system. See the software installation and operation documentation for instructions on setting up and using the software.

❑ Try a different copy of the software to see if the problem is with the copy you are using.

❑ Make sure all cables are installed correctly.

❑ Verify that the server board jumpers are set correctly. See Chapter 5.

❑ 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 configured to allow the CD-ROM to be the first bootable device?

Recovering the BIOS

In the rare event that the BIOS becomes damaged a recovery process needs to be followed to return the system to service. Two methods are available to recover the BIOS: automatically with the crisis recovery diskette, and manually by moving a jumper on the system board. These methods are described below.

$\Longrightarrow$ **NOTE**

> BIOS recovery is the mode of last resort, used only when the main system BIOS will not come up.

Recovering the BIOS with the Crisis Recovery Diskette

Automatically Recovering the BIOS

If a ROM checksum error occurs during POST, the system will automatically enter BIOS recovery mode. This is indicated by system beeping with one long beep followed by two short beeps. When you hear this beep pattern, use the following steps to initiate an automatic recovery:

1. Insert the Crisis Recovery Diskette into the A: diskette drive. (See the section titled Crisis Recovery Diskette on page 45 for instructions on creating the diskette.)
2. A blue screen will be displayed and the recovery process will automatically run. The system will continue to beep throughout the recovery process. The recovery process is complete when the beeping stops.
3. Remove the diskette and power down the system.
4. Power the system up to restart it and confirm that the recovery was successful.

Manually Recovering the BIOS

A BIOS recovery can also be manually initiated. This option would be used only when the BIOS is corrupt, but the ROM checksum error does not occur during POST. To manually initiate a BIOS recovery, use the following steps:

1. Power down and uplug the system from the AC power source.
2. Move the recovery jumper at J32 from the spare location at pins 9 and 10 to cover pins 3 and 4. See the figure below.
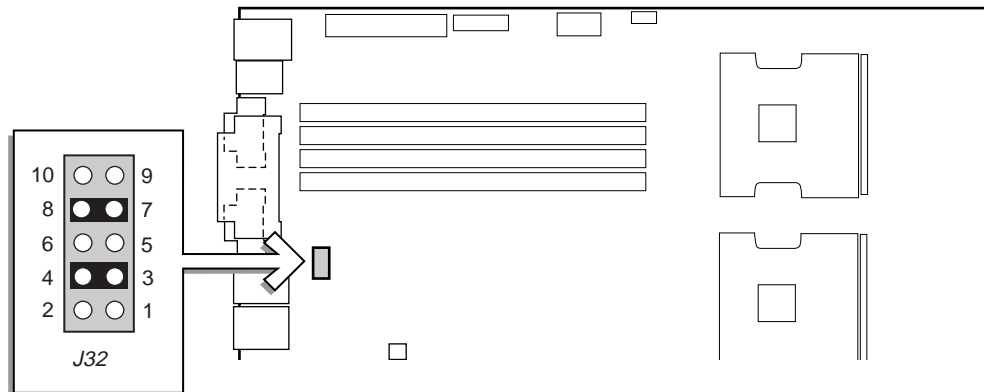
TP00096

Figure 25. BIOS Recovery Jumper

3. Insert the Crisis Recovery Diskette into the A: diskette drive. (See the section titled Crisis Recovery Diskette on page 45 for instructions on creating the diskette.)
4. Plug the system into the AC power source and power it on.
5. A blue screen will be displayed and the recovery process will automatically run. The system will continue to beep throughout the recovery process. The recovery process is complete when the beeping stops.
6. Remove the diskette.
7. Power down and unplug the system from the AC power source.
8. Move the BIOS recovery jumper at J32 back to the original position, covering storage pins 9 and 10.
9. Plug the system into the AC power source and power it up to confirm that the recovery was successful.

Clearing the Password

If the user or administrator password(s) is lost or forgotten, moving the password clear jumper into the "clear" position clears both passwords. The password clear jumper must be restored to its original position before a new password(s) can be set. The password clear jumper is located on jumper block J32 on the SE7501CW2 board.

1. Power down the system and disconnect the AC power.
2. Open the server chassis.
3. Move the jumper from the spare at pins 9 and 10 to the Clear Password position, covering pins 1 and 2 as indicated in the following diagram.
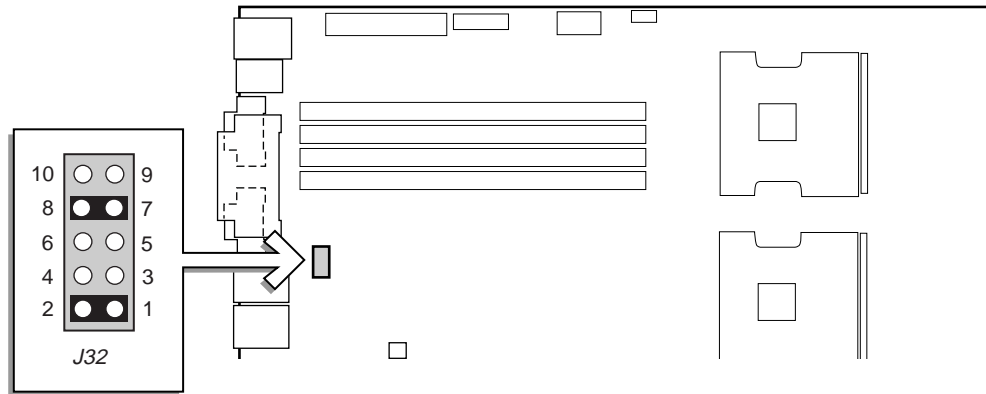
TP00097

Figure 26. Password Recovery Jumper

4. Reconnect the AC power, power up the system.
5. Power down the system and disconnect the AC power.
6. Return the Password Clear jumper to the spare location, covering pins 9 and 10.
7. Close the server chassis.

Clearing the CMOS

If you are not able to access the BIOS setup screens, the CMOS Clear jumper will need to be used to reset the configuration RAM. The CMOS Clear jumper is located on jumper block J32 on the SE7501CW2 board.

1. Power down the system and disconnect the AC power.
2. Open the server.
3. Move the jumper from the spare location at pins 9 and 10 to the Clear CMOS position, covering pins 5 and 6 as indicated in the following diagram.
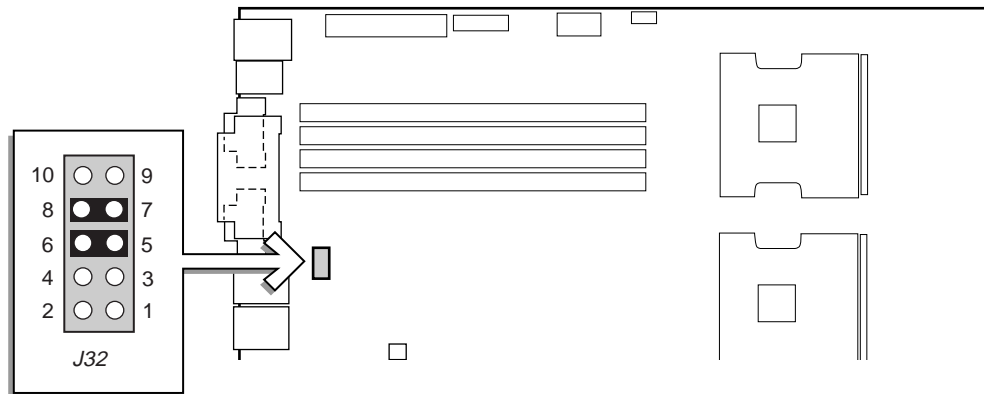
TP00098

Figure 27. CMOS Recovery Jumper

4. Reconnect the AC power, power up the system.
5. Power down the system and disconnect the AC power.
6. Return the CMOS Clear jumper to the spare location, covering pins 9 and 10.
7. Close the server chassis.

5 Getting Help

World Wide Web

http://support.intel.com/support/motherboards/server/SE7501CW2

Telephone

All calls are billed US $25.00 per incident, levied in local currency at the applicable credit card exchange rate plus applicable taxes. (Intel reserves the right to change the pricing for telephone support at any time without notice).

In U.S. and Canada		1-800-404-2284	
In Europe			
UK	0870 6072439	Finland	9 693 79297
France	01 41 918529	Denmark	38 487077
Germany	069 9509 6099	Norway	23 1620 50
Italy	02 696 33276	Sweden	08 445 1251
Spain	91 377 8166	Holland	020 487 4562
In Asia-Pacific region			
Australia	1800 649931	Indonesian	001-803 65 7249
Hong Kong	852 2 844 4456	Malaysia	1-800 80 1390
Korea	822 767 2595	New Zealand	0800 444 365
PRC	800 820 1100	Pakistan	632 6368415 (IDD via Philippines)
Singapore	65 213-1311	Philippines	1-800 1 651 0117
Taiwan	2 2545-1640	Thailand	1-800 6310003
India	0006517-830 3634	Vietnam	632 6368416 (IDD via Philippines)
In Japan			
0120-868686 (Domestic)		81-298-47-0800 (outside country)	
In Latin America			
Brazil	0021-0811-408-5540	Ecuador	999-119, 800-628-8686 (via AT&T)
Mexico	001-800-628-8686	Guatemala	99-99-190, 800-628-8686 (via AT&T)
Colombia	980-9-122-118	Venezuela	800-11-120, 800-628-8686 (via AT&T)
Costa Rica	0-800-011-0395	Argentina	001-800-222-1001, 800-628-8686 (via AT&T)
Panama	001-800-628-8686	Paraguay	008-11, 800-628-8686 (via AT&T)
Chile	800-532-992	Peru	0-800-50000, 800-628-8686 (via AT&T)
Miami	1-800-621-8423	Uruguay	000-410, 800-628-8686 (via AT&T)

For an updated support contact list, see *http://www.intel.com/support/9089.htm/*

Intel Server Board SE7501CW2 Product Guide

6 Technical Reference

Configuration Jumpers
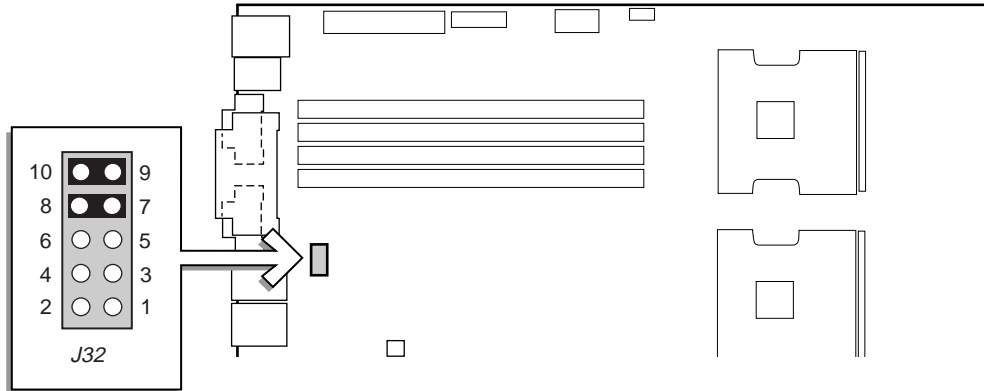
TP00092

Figure 28. Configuration Jumper Location

Table 27.   Configuration Jumper (J32)

Jumper Name	Pins	What happens at system reset
Spare location	9-10	Leave the jumper here unless performing one of the operations below..
BIOS Boot Block Write Protect	7-8	These pins, when jumpered, protect the BIOS Boot Block code. If it becomes necessary to update the BIOS Boot Block, this jumper should be removed during the update process. These pins should be jumpered for normal operation. NOTE: This jumper should remain in place for normal BIOS operational code updates.
CMOS Clear	5-6	If these pins are jumpered, the CMOS settings will be cleared on the next reset. These pins should **not** be jumpered for normal operation.
BIOS Recovery	3-4	If these pins are jumpered, the system will attempt BIOS recovery. These pins should **not** be jumpered for normal operation.
Password Clear	1-2	If these pins are jumpered, the password will be cleared on the next reset. These pins should **not** be jumpered for normal operation.

⟹ **NOTE**

The jumper should remain on pins 7-8 at all times unless you are instructed
to perform a BIOS Boot Block update. At this time, remove the jumper, run
the BIOS update, and then replace the jumper when completed.

Front Panel Header

The front panel header provides connection to the front panel for power switching and LED operation.
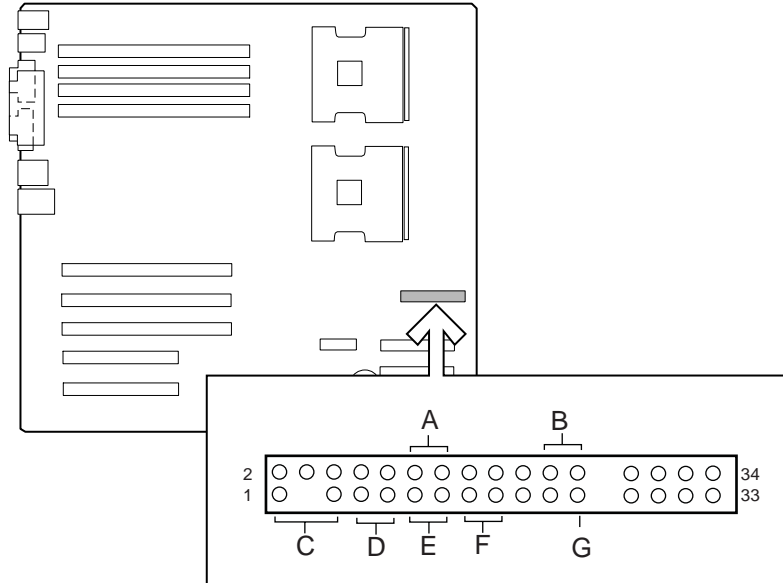
OM14434

A. NIC1 LED   E. Power Switch
B. NIC2 LED   F. Reset Switch
C. Power LED   G. NMI Switch
D. HDD LED

Figure 29. Front Panel Header Connection Location

Table 28.   Front Panel Header Connection Descriptions

Location	Pins	Description
A	12 & 14	LED shows network interface controller activity
B	22 & 24	LED shows network interface controller activity
C	1 & 5	LED shows power on
D	7 & 9	LED shows hard drive activity
E	11 & 13	Pressing the power switch removes all by standby power from the board
F	15 & 17	Pressing the reset button restarts the boot process
G	23	Pressing the NMI button causes a non-maskable interrupt

7 Regulatory and Integration Information

Product Regulatory Compliance

Product Safety Compliance

The Server Board SE7501CW2 complies with the following safety requirements:

- UL 1950 - CSA 950 (US/Canada)
- EN 60 950 (European Union)
- IEC60 950 (International)
- CE – Low Voltage Directive (73/23/EEC) (European Union)
- EMKO-TSE (74-SEC) 207/94 (Nordics)
- GOST R 50377-92 (Russia)

Product EMC Compliance

The Server Board SE7501CW2 has been has been tested and verified to comply with the following electromagnetic compatibility (EMC) regulations when installed a compatible Intel® host system. For information on compatible host system(s) refer to Intel's Server Builder Web site or contact your local Intel representative.

- FCC (Class A Verification) – Radiated & Conducted Emissions (USA)
- ICES-003 (Class A) – Radiated & Conducted Emissions (Canada)
- CISPR 22, 3rd Edition (Class A) – Radiated & Conducted Emissions (International)
- EN55022 (Class A) – Radiated & Conducted Emissions (European Union)
- EN55024 (Immunity) (European Union)
- CE – EMC Directive (89/336/EEC) (European Union)
- VCCI (Class A) – Radiated & Conducted Emissions (Japan)
- AS/NZS 3548 (Class A) – Radiated & Conducted Emissions (Australia / New Zealand)
- RRL (Class A) Radiated & Conducted Emissions (Korea)
- BSMI CNS13438 (Class A) Radiated & Conducted Emissions (Taiwan)
- GOST R 29216-91 (Class A) Radiated & Conducted Emissions (Russia)
- GOST R 50628-95 (Immunity) (Russia)

Product Regulatory Compliance Markings

This product is marked with the following Product Certification Markings:

Table 29.   Product Certification Markings

UL Recognition Mark	
CE Mark	
Russian GOST Mark	**ME06**
Australian C-Tick Mark	**N232**
BSMI DOC Marking	D33025
BSMI EMC Warning	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
RRL MIC Mark	MIC

Electromagnetic Compatibility Notices

FCC (USA)

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
5200 N.E. Elam Young Parkway
Hillsboro, OR 97124
1-800-628-8686

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 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 to an outlet on a circuit other than the one 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 or B limits may be attached to this computer product. Operation with noncompliant 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.

Industry Canada (ICES-003)

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.

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

Europe (CE Declaration of Conformity)

This product has been tested in accordance too, and complies with the Low Voltage Directive (73/23/EEC) and EMC Directive (89/336/EEC). The product has been marked with the CE Mark to illustrate its compliance.

Taiwan Declaration of Conformity

This product has been tested and complies with CNS13438. The product has been marked with the BSMI DOC mark to illustrate compliance.

Korean RRL Compliance

This product has been tested and complies with MIC Notices No. 1997-41 and 1997-42. The product has been marked with the MIC logo to illustrate compliance.

1. 기기의 명칭(모델명) :
2. 인증번호 :
3. 인증받은 자의 상호 :
4. 제조년월일:
5. 제조자/제조국가 :

The English translation for the above is as follows:
1. Type of Equipment (Model Name): SE7501CW2
2. Certification No.: Contact Intel Representative
3. Name of Certification Recipient: Intel
4. Date of Manufacturer: Marked on Product
5. Manufacturer / Nation : Intel

Australia / New Zealand

This product has been tested and complies with AS/NZS 3548. The product has been marked with the C-Tick mark to illustrate compliance.

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