Intel® Server Board S875WP1-E Product Guide

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

Important Safety Instructions

Read all caution and safety statements in this document before performing any of the instructions. See also *Intel Server Boards and Server Chassis Safety Information* on the Resource CD and/or at http:\\support.intel.com.

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1 Server Board Features

This chapter briefly describes the main features of Intel® Server Board S875WP1-E. This server board is available in two options:

- The server board S875WP1 includes dual-channel Serial ATA support with two Serial ATA connectors. Support for RAID 0 and 1 support is planned.
- The server board S875WP1LX includes an additional four-port Serial ATA controller to support a total of six Serial ATA connectors with support for RAID 0, 1, and 10.

Table 1 summarizes the major features of the desktop board.

Table 1.   Server Board Features

Feature	Description
Processors	Support for an Intel® Pentium® 4 processor in an mPGA478 package with an 800/533/400 MHz system bus
Memory	• Four 184-pin DDR SDRAM Dual Inline Memory Module (DIMM) sockets • Support for up to 4 GB Unbuffered ECC system memory • Support for single-sided or double-sided DIMMs (DDR266/333/400)
Chipset	Intel® 875P Chipset, consisting of: • Intel® 82875P Memory Controller Hub (MCH) • Intel® 82801EB I/O Controller Hub (ICH5-R) with support for up to six High-Speed Universal Serial Bus 2.0 (USB 2.0) ports • Intel® 82802AC 8 megabit Firmware Hub (FWH)
I/O Control	SMSC* LPC47M172 super I/O controller
Peripheral Interfaces	• Four external USB ports on the back panel with an additional internal header, which provides support for an optional two USB ports for front panel support (total possible six USB ports) • One serial port and one serial header • One parallel port • Two IDE interfaces with ATA-66/100 support • Two Serial ATA connectors (S875WP1) with support for RAID 0 and 1 planned or six Serial ATA connectors (S875WP1LX) with support for RAID 0, 1, and 10 • One floppy drive interface with support for one drive • PS/2* keyboard and mouse ports
LAN	• One Intel® 82562ET 10/100 Fast Ethernet Controller • One Intel® 82547EI Gigabit Ethernet Controller
Expansion Capabilities	One independent PCI bus (32-bit/33 MHz, 5 V) with three PCI connectors and two embedded devices: • 2D/3D graphics controller – ATI Rage* XL Video Controller with 8 MB of SDRAM • Serial ATA: SATA-150 controller, Promise Technology* PDC20319 • Accelerated Graphics Port (AGP) connector providing AGP 8x support

Table 1.   Server Board Features (continued)

BIOS	Intel/AMI BIOS with support for:
	• Advanced Configuration and Power Interface (ACPI)
	• 8 megabit symmetrical flash memory
	• Support for SMBIOS
	• Intel® Rapid BIOS Boot
	• Intel® Express BIOS Update
Power Management	Support for ACPI:
	• Suspend to RAM (STR)
	• Wake on USB, PCI, RS-232, PS/2, LAN, and front panel
Hardware Management	Hardware monitor with:
	• Four fan sensing inputs used to monitor fan activity
	• Remote diode temperature sensing
	• Intel® Precision Cooling Technology fan speed control that automatically adjusts chassis fan speeds based on system temperature
	• Voltage sensing to detect out of range values

Server Board Connector and Component Locations

TP00182

A. System Fan 4 Header
B. +12V CPU Power Connector
C. Processor Socket
D. CPU Fan
E. DIMM Sockets
F. Main Power Connector
G. Floppy Drive Connector
H. Auxiliary Power Connector
I. Primary IDE Connector
J. Secondary IDE Connector
K. Serial B Header
L. System Fan 1 Header
M. System Fan 2 Header
N. Front Panel Connector
O. BIOS Configuration Jumper (J8J2)
P. SCSI LED Header
Q. Hot Swap Backplane Header
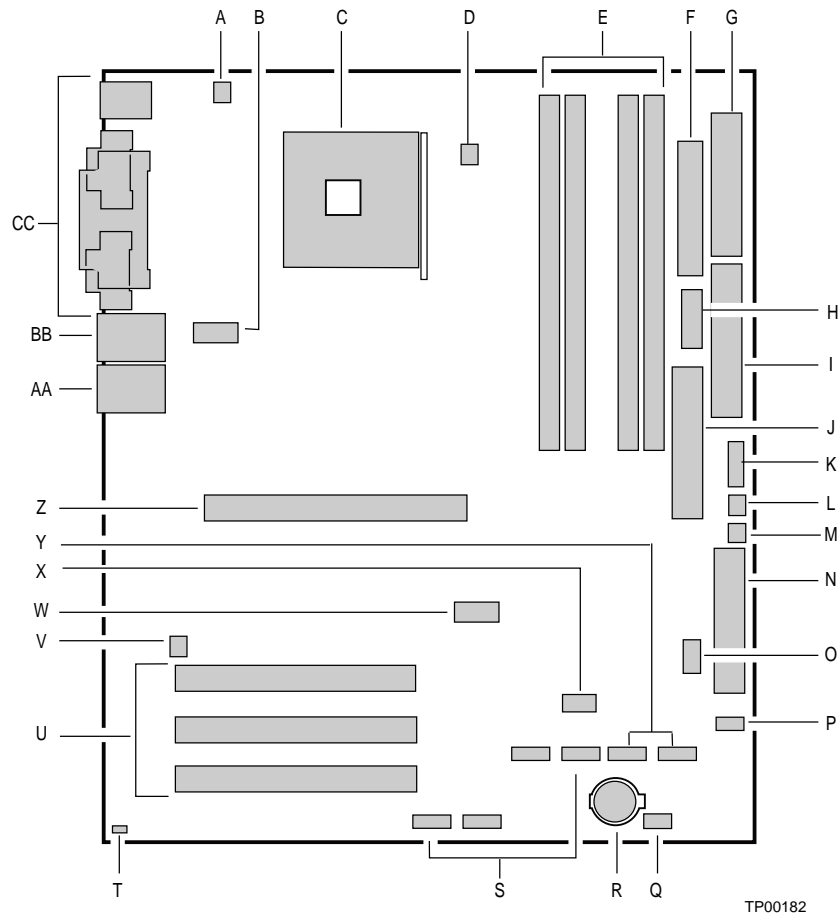
R. Battery
S. SATA-A1 through SATA-A4 Connector
(S875WP1LX only, from left to right: SATA-A4,
SATA-A2, SATA-A3, SATA-A1)
T. Chassis Intrusion Header
U. PCI 32/33 Slots 1 – 3
(slots numbered from top to bottom)
V. System Fan 3 Header
W. Front Panel USB Header
X. Clear CMOS Jumper J8G1
Y. SATA-B1 and SATA-B2 Connectors
(slots numbered from left to right)
Z. AGP Connector
AA. NIC2 (10/100 Mb)
BB. NIC1 (1 Gb)
CC. Back Panel I/O Ports

Figure 1. Server Board Components

Back Panel Connectors

The back panel connectors are color-coded in compliance with PC 99 recommendations.
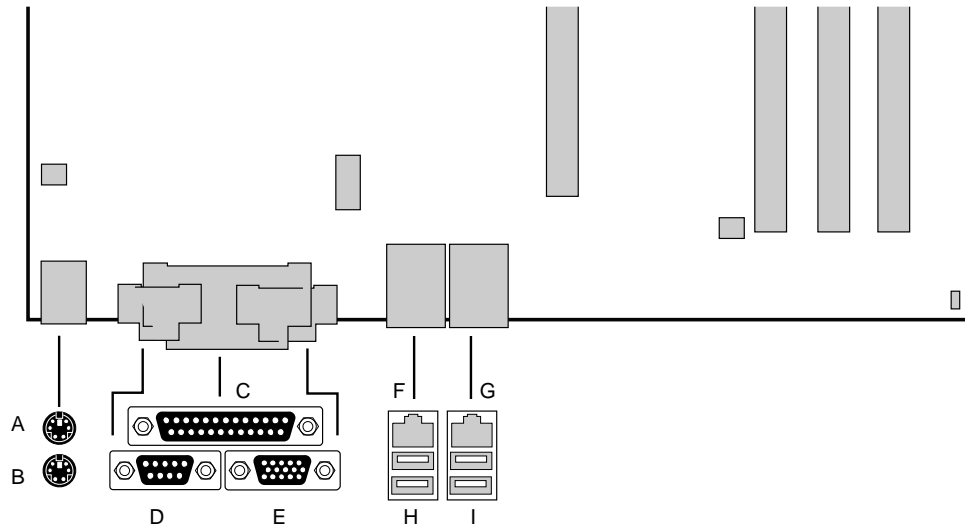
A.	PS/2 mouse	F.	NIC 1 (1 Gb)
B.	PS/2 keyboard	G.	NIC 2 (10/100 Mb)
C.	Parallel port	H.	USB ports 1 and 2
D.	Serial port A	I.	USB ports 3 and 4
E.	Video port		

Figure 2. Back Panel Connectors

Front Panel Connectors

Figure 3 shows the location of the front panel connectors.
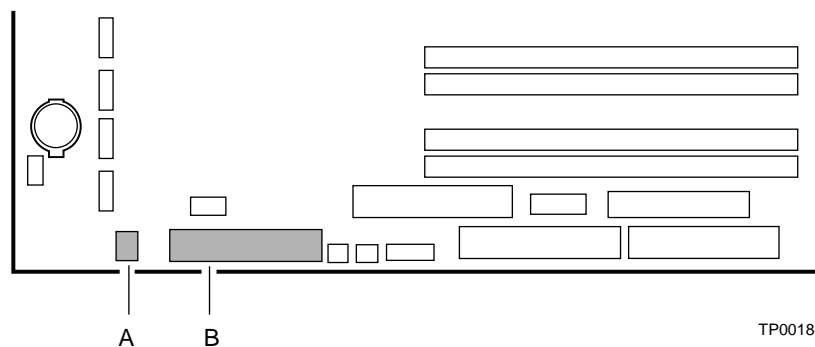
A. SCSI LED Header
B. Front Panel Header

Figure 3. Front Panel Connectors

Processor

The S875WP1-E server board supports a single Intel Pentium 4 processor with an mPGA478 socket. The processor connects to the server board through the mPGA478 socket. The Intel Pentium 4 processor can be removed and replaced to accommodate a supported higher speed processor.

The server board S875WP1-E supports the following processors.

Table 2.   Supported Processors

Type	Designation	System Bus	L2 Cache Size
Pentium 4 processor with Hyper-threading (HT) Technology	2.40, 2.60, 2.80, and 3.0 GHz	800 MHz	512 KB
	3.06 GHz	533 MHz	512 KB
Pentium 4 processor	2.0, 2.26, 2.4B, 2.53, 2.66, and 2.80 GHz	533 MHz	512 KB
	2.0, 2.4 GHz	400 MHz	512 KB

⇒ **NOTE**

   The processor is not included with the server board and must be purchased separately.

Memory

The S875WP1-E server board contains four 184-pin DIMM sockets and supports up to four DDR SDRAM DIMMs. The minimum supported memory configuration is 128 MB and the maximum configurable memory size is 4 GB with stacked unbuffered DDR266/333/400 ECC DIMMs.

Supported memory configurations are as follows:

*   Up to four dual-channel 184-pin Double Data Rate (DDR) SDRAM DIMMs connectors with gold-plated contacts. Supported memory configuration are:
    —   DDR400: to run DDR400 memory at full speed requires an Intel Pentium 4 processor with 800 MHz front side bus (FSB) frequency.
    —   DDR333: to run DDR333 memory at full speed requires an Intel Pentium 4 processor with 533 MHz FSB frequency. DDR333 memory will run at 320 MHz frequency when using an Intel Pentium 4 processor with 800 MHz FSB frequency.
    —   DDR266: DDR266 memory may only be used with an Intel Pentium 4 processor with 400 MHz or 533 MHz FSB frequency only.
*   Support for:
    —   Single-channel memory
    —   Unbuffered, single or double-sided DIMMs
    —   Serial Presence Detect (SPD) memory only
    —   Support for Suspend to RAM (STR), S3 ACPI state
    —   ECC and non-ECC RAM
    —   2.5 V memory

- Support for 128 Mb, 256 Mb, and 512 Mb memory technologies for the following memory configurations:
  — Up to 1.0 GB utilizing 128 Mb technology
  — Up to 2.0 GB utilizing 256 Mb technology
  — Up to 4.0 GB utilizing 512 Mb technology

Only DIMMs tested and qualified by Intel or a designated memory test vendor will be supported on the S875WP1-E server board. Note that all DIMMs are supported by design, but only fully qualified DIMMs will be supported. Mixed mode DDR DS-DIMMs (x8 and x16 on the same DIMM) is not supported. Check the Intel Customer Support website for the latest tested memory list:

http://support.intel.com/support/motherboards/server/S875WP1-E

Intel 875P Chipset

The Intel 875P chipset consists of the following devices:
- Intel 82875P Memory Controller Hub (MCH) with Accelerated Hub Architecture (AHA) bus
- Intel 82801EB I/O Controller Hub (ICH5) with AHA bus
- Intel 82802AC Firmware Hub (FWH)

The MCH is a centralized controller for the system bus, the memory bus, the AGP bus, and the Accelerated Hub Architecture interface. The ICH5-R is a centralized controller for the board's I/O paths. The FWH provides the nonvolatile storage of the BIOS.

Intel 82875P Memory Controller Hub (MCH)

The MCH supports the data integrity features supported by the Pentium 4 processor bus, including address, request, and response parity. The 875P chipset always generates ECC data while it is driving the processor data bus, although the data bus ECC can be disabled or enabled by BIOS. It is enabled by default. The MCH controls the Intel 82547EI from the CSA interface.

The MCH provides the following:
- An integrated DDR memory controller with auto detection.
- Support for ACPI Rev 2.0 compliant power management.
- AGP 2.0 slot, also known as AGP 8x

Intel 82801EB I/O Controller Hub (ICH5-R)

The Intel 82801EB ICH5-R has these features:

- Upstream Hub Interface to the MCH
- Integrated IDE controller (supports two Ultra ATA-100/66 mode, Ultra DMA 33 mode, and PIO mode).
- Integrated SATA controller supports two SATA devices with transfer speeds up to 150 MB/s and independent DMA operation on the two ports
- One USB 2.0-compliant host controller that supports all six USB ports
- SMBus 2.0 interface
- FWH interface
- Support for the Low Pin Count (LPC) interface.
- Integrated LAN controller (Intel 8562ET) for interfacing the ICH5-R LAN connect interface to the LAN connect component
- 33 MHz Peripheral Component Interface (PCI) Local Bus slots supporting PCI specification, Rev 2.3.
- Power management logic (ACPI Rev 2.0-compliant).
- Support for two Ultra DMA 33 / ATA 100/66 connectors.

Intel 82802AC Firmware Hub (FWH)

The Intel 82802AC Firmware Hub (FWH) includes an 8 megabit symmetrical flash memory device. Internally, the device is grouped into eight 64 KB blocks that are individually erasable, lockable, and unlockable.

The FWH provides the following:

- System BIOS program
- Logic that enables protection for storing and updating of platform information

Video

The server board S875WP1-E contains two separate, mutually exclusive graphics subsystems. You can use either the AGP connector or the ATI Rage XL video controller. When an AGP card is installed, the integrated 8 MB video controller is disabled.

AGP Connector

AGP is a high-performance interface for graphics-intensive applications. AGP is independent of the PCI bus and is intended for exclusive use with graphical display devices. The AGP bus follows the AGP 3.0 specification.

The AGP connector on the server board S875WP1-E supports the following:

- 2X, 4X, or 8X AGP protocol
- 1.5 V add-in cards only
- Maximum bus bandwidth of 2.13 GB/sec

⇒ **NOTE**

> The AGP connector is keyed for 1.5 V AGP cards only. Do not attempt to install a legacy 3.3 V AGP card. The AGP connector is not mechanically compatible with legacy 3.3 V AGP cards.

ATA Rage XL Video Controller

The S875WP1-E server board provides an ATI Rage XL PCI graphics accelerator, along with 8 MB of video SDRAM and support circuitry for an embedded SVGA video subsystem. The ATI Rage XL chip contains a SVGA video controller, clock generator, 2D and 3D engine, and RAMDAC in a 272-pin PBGA. One 2Mx32 SDRAM chip provides 8 MB of video memory.

The SVGA subsystem supports a variety of modes, up to 1600 x 1200 resolution in 8/16/24/32 bpp modes under 2D, and up to 1024 x 768 resolution in 8/16/24/32 bpp modes under 3D. It also supports both CRT and LCD monitors up to 100 Hz vertical refresh rate.

The server board S875WP1-E provides a standard 15-pin VGA connector and supports disabling of the on-board video through the BIOS Setup menu or when a plug-in video card is installed in the AGP slot or any of the PCI slots.

Video Modes

The Rage XL chip supports all standard IBM* VGA modes. The following table shows the 2D/3D modes supported for both CRT and LCD. The table specifies the minimum memory requirement for various display resolution, refresh rates, and color depths.

Table 3.   Video Modes

2D Mode	Refresh Rate (Hz)	S875WP1-E 2D Video Mode Support			
		8 bpp	16 bpp	24 bpp	32 bpp
640x480	60, 72, 75, 90, 100	Supported	Supported	Supported	Supported
800x600	60, 70, 75, 90, 100	Supported	Supported	Supported	Supported
1024x768	60, 72, 75, 90, 100	Supported	Supported	Supported	Supported
1280x1024	43, 60	Supported	Supported	Supported	Supported
1280x1024	70, 72	Supported	–	Supported	Supported

Table 3.   Video Modes (continued)

1600x1200	60, 66	Supported	Supported	Supported	Supported
1600x1200	76, 85	Supported	Supported	Supported	–
3D Mode	**Refresh Rate (Hz)**	**S875WP1-E 3D Video Mode Support with Z Buffer Enabled**			
640x480	60,72,75,90,100	Supported	Supported	Supported	Supported
800x600	60,70,75,90,100	Supported	Supported	Supported	Supported
1024x768	60,72,75,90,100	Supported	Supported	Supported	Supported
1280x1024	43,60,70,72	Supported	Supported	–	–
1600x1200	60,66,76,85	Supported	–	–	–

Video Memory Interface

The memory controller subsystem of the Rage XL arbitrates requests from direct memory interface, the VGA graphics controller, the drawing coprocessor, the display controller, the video scalar, and hardware cursor. Requests are serviced in a manner that ensures display integrity and maximum CPU/coprocessor drawing performance.

The server board S875WP1-E supports an 8 MB (512Kx32bitx4 Banks) SDRAM device for video memory.

Super I/O

The SMSC LPC47M172 I/O Controller provides the following features:

- Low pin count (LPC) interface
- 3.3 V operation
- One serial port and one serial port header
- One parallel port with Extended Capabilities Port (ECP) and Enhanced Parallel Port (EPP) support
- Serial IRQ interface compatible with serialized IRQ support for PCI systems
- PS/2-style mouse and keyboard interfaces
- Interface for one 1.2 MB, 1.44 MB, or 2.88 MB diskette drive
- Intelligent power management, including a programmable wake up event interface
- PCI power management support

The BIOS Setup program provides configuration options for the I/O controller.

Serial Port

The server board S875WP1-E has one serial port connector and one serial port header. The serial port A connector is located on the back panel. The serial ports' NS16C550-compatible UART supports data transfers at speeds up to 115.2 kb/s with BIOS support.

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

Parallel Port

The 25-pin D-Sub parallel port connector is located on the back panel. In the BIOS Setup program, the parallel port can be set to the following modes:

- Output only (PC AT*-compatible mode)
- Bi-directional (PS/2 compatible)
- EPP
- ECP

Floppy Drive Controller

The I/O controller supports one diskette drive that is compatible with the 82077 diskette drive controller and supports both PC-AT and PS/2 modes.

Keyboard and Mouse Connectors

PS/2 keyboard and mouse connectors are located on the back panel. The +5 V lines to these connectors are protected with a PolySwitch* circuit that, like a self-healing fuse, reestablishes the connection after an overcurrent condition is removed.

⟹   **NOTE**

The keyboard is supported in the bottom PS/2 connector and the mouse is supported in the top PS/2 connector. Power to the computer should be turned off before a keyboard or mouse is connected or disconnected.

The keyboard controller contains the AMI keyboard and mouse controller code, provides the keyboard and mouse control functions, and supports password protection for power-on/reset. A power-on/reset password can be specified in the BIOS Setup program.

USB

High-Speed USB 2.0 Support

➡ **NOTES**

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

USB devices are limited to USB 1.1 transfer rates prior to operating system and driver initialization.

The server board supports up to six USB 2.0 ports via the ICH5. Four ports are routed to the back panel. One header, supporting up to two ports, is routed to the front panel. USB 2.0 ports are backward compatible with USB 1.1 devices. USB 1.1 devices will function normally at USB 1.1 speeds.

USB 2.0 support requires both an operating system and drivers that fully support USB 2.0 transfer rates. Disabling High-Speed USB in BIOS reverts all USB 2.0 ports to USB 1.1 operation. This may be required to accommodate operating systems that do not support USB 2.0.

Legacy USB Support

Legacy USB support allows USB devices such as keyboard, mice, and hubs to be used even when the operating system's USB drivers are not available. Legacy USB support is used to access the BIOS Setup program, and to install an operating system that supports USB. By default, Legacy USB support is set to Enabled.

Four of the USB ports are implemented with stacked back panel connectors; the other two are accessible via the front panel USB header. The S875WP1-E server board fully supports UHCI and uses UHCI-compatible software drivers.

➡ **NOTE**

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

Legacy USB support operates as follows:

1. When the user applies power to the computer, legacy support is disabled.
2. POST begins.
3. Legacy USB support is enabled by the BIOS allowing the user to use a USB keyboard to enter and configure the BIOS Setup program and the maintenance menu.
4. POST completes.
5. The operating system loads. While the operating system is loading, USB keyboard and mice are recognized and may be used to configure the operating system. (Keyboard and mice are not recognized during this period if Legacy USB support is set to Disabled in the BIOS Setup program.)
6. After the operating system loads the USB drivers, all legacy and non-legacy USB devices are recognized by the operating system, and Legacy USB support from the BIOS is no longer used.

To install an operating system that supports USB, verify that Legacy USB support in the BIOS Setup program is set to Enabled and follow the operating system's installation instructions.

⟹ **NOTE**

> Legacy USB support is for keyboard, mice, and hubs only. Other USB devices are not supported in legacy mode.

PCI I/O Subsystem

The primary I/O bus for the server board S875WP1-E is PCI, with one independent PCI bus. The PCI bus complies with the *PCI Local Bus Specification, Rev 2.3*. The PCI bus is directed through the Intel 82801EB I/O Controller Hub (ICH5-R). The table below lists the characteristics of the PCI bus.

Table 4.   PCI Bus Characteristics

Voltage	Width	Speed	Type	Comments
5 V	32-bits	33 MHz	Independent Bus	Supports full-length cards

32-bit, 33-MHz PCI Subsystem

All 32-bit, 33-MHz PCI I/O for the server board S875WP1-E is directed through the Intel 82801EB I/O Controller Hub (ICH5-R). The PCI bus supports the following embedded devices and connectors:

- 2D/3D Graphics Accelerator: ATI Rage XL Video Controller.
- Serial ATA-100 controller: Promise Technology PDC20319.
- Three PCI slots

Each of the embedded devices listed above, with exception to the Ultra DMA 33 / ATA 100/66 connectors, will be allocated a GPIO to disable the device.

Device IDs (IDSEL)

Each device under the PCI hub bridge has its IDSEL signal connected to one bit of AD[31:16], which acts as a chip select on the PCI bus segment in configuration cycles. This determines a unique PCI device ID value for use in configuration cycles. The following table shows each IDSEL value for the PCI bus devices and the corresponding device description.

Table 5.   PCI Bus Configuration IDs

IDSEL Value	Device
16	PCI slot 1 (closest to AGP connector)
17	PCI slot 2 (middle slot)
18	PCI slot 3 (closest to left edge of board)
22	ATI Rage XL Video Controller
23	Promise Technology PDC20319 ATA-100 controller

Data Storage

Serial ATA (SATA)

The server board S875WP1-E supports Serial ATA devices using the ICH5-R controller. The ICH-5 provides the following Serial ATA support:

- 150 MB/sec transfer rate
- Up to two SATA devices on the server board S875WP1-E. These are indicated by the connectors labeled SATA-B1 and SATA-B2 on the server board.
- Support for RAID 0 (Striping) and 1 (Mirroring) is planned, but not currently available.

The server board S875WP1LX supports an additional four Serial ATA devices using the Promise Technology PDC20319 host controller. These are indicated by the connectors labeled from left to right on the server board: SATA-A4, SATA-A2, SATA-A3, and SATA-A1. The Promise PDC20319 controller provides the following Serial ATA support:

- 150 MB/sec transfer rate
- Support for RAID 0 (Striping), 1 (Mirroring), and 10 (Mirroring and Striping).

⟹   **NOTES**

Although the Promise Technology PDC20319 Serial ATA controller on this product supports up to 150 MB/sec transfer rate, the PCI bus limits some SATA devices are limited to a maximum of 133 MB/sec.

For instructions on installing and configuring Serial ATA RAID on the 4-port Promise Controller that is available on the server board S875WP1LX, please see

http://support.intel.com/support/motherboards/server/s875wp1e/sata-install.htm

IDE Interfaces

The ICH5-R IDE controller has two independent bus-mastering IDE interfaces that can be independently enabled. The interface handles the exchange of information between the processor and peripheral devices like hard disks and CD-ROM drives. The IDE interfaces supports:

- Up to four IDE devices (such as hard drives)
- ATAPI devices (such as CD-ROM drives)
- Laser servo (LS-120) drives
- PIO Mode devices
- Ultra DMA-33: DMA protocol on IDE bus supporting host and target throttling and transfer rates of up to 33 MB/sec.
- ATA-100/66: DMA protocol on IDE bus supporting host and target throttling and transfer rates of up to 100 MB/sec. The ATA-100/66 protocol is similar to Ultra DMA and is device driver compatible.

⇒ **NOTE**

ATA-100/66 is a faster timing and requires a specialized cable to reduce reflections, noise, and inductive coupling.

The IDE interfaces also support ATAPI devices (such as CD-ROM drives) and ATA devices using the transfer modes.

The BIOS supports Logical Block Addressing (LBA) and Extended Cylinder Head Sector (ECHS) translation modes. The drive reports the transfer rate and translation mode to the BIOS.

The S875WP1-E server board supports Laser Servo (LS-120) diskette technology through the IDE interfaces. An LS-120 drive can be configured as a boot device by setting the BIOS Setup program's Boot menu to one of the following:

- ARMD-FDD (ATAPI removable media device – floppy disk drive)
- ARMD-HDD (ATAPI removable media device – hard disk drive)

SCSI Hard Drive Activity LED Connector

The SCSI hard drive activity LED connector is a 1 x 2-pin connector that allows an add-in SCSI controller to use the same LED as the onboard IDE controller. For proper operation, this connector should be wired to the LED output of the add-in SCSI controller. The LED indicates when data is being read from, or written to, both the add-in SCSI controller and the IDE controller.

Network Interface Controller (NIC)

The server board S875WP1-E supports two Network Interface Controllers (NICs), one that runs at 10/100Mb and is based on the Intel 82562ET NIC and the other that runs at one gigabit and is based on the Intel 82547EI NIC. When looking at the rear of the chassis, the gigabit NIC is at the left (closest to the video port) and the 10/100Mb NIC is at the right. You can disable either or both NICs through BIOS Setup.

The 82562ET is controlled by the ICH5-R and supports the following features:

- Integrated IEEE 802.3 10Base-T and 100Base-TX compatible PHY
- IEEE 802.3u auto-negotiation support
- Full duplex support at both 10 Mbps and 100 Mbps operation
- Low power +3.3 V device with reduced power in unplugged mode and automatic detection of unplugged mode
- 3-port LED support

The 82547EI is controlled by the CSA interface off of the MCH. It supports the following features:

- Basic 10/100/1000 Ethernet LAN connectivity
- Integrated Gigabit Ethernet Media Access Control (MAC) and physical layer (PHY)
- IEEE 802.3 10BASE-T/100BASE-TX/1000BASE-T compliant physical layer interface
- IEEE 802.3ab auto-negotiation support
- Low power (less than 350mW in active transmit mode)
- Reduced power in "unplugged mode" (less than 50mW)
- Automatic detection of "unplugged mode"
- Communication Streaming Architecture (CSA) port provides higher throughput and lower latencies resulting in up to 30% higher bus throughput (up to wirespeed)
- Full device driver compatibility
- Programmable transit threshold
- Configuration EEPROM that contains the MAC address
- Teaming and Fail over support

NIC Connector and Status LEDs

Two LEDs are built into each RJ-45 LAN connector. For the 82562ET NIC, the yellow LED indicates a link to the LAN and the green LED indicates the connection speed. Table 6 describes the LED states when the board is powered up and the 82562ET 10/100 Ethernet LAN subsystem is operating.

Table 6.   10/100 Ethernet LAN Connector LEDs

LED Color	LED State	Indicates
Green (left LED)	Off	10 Mbit/sec data rate is selected.
	On	100 Mbit/sec data rate is selected.
Yellow (right LED)	Off	LAN link is not established.
	On (steady state)	LAN link is established.
	On (brighter and pulsing)	The computer is communicating with another computer on the LAN.

Table 7 describes the LED states when the board is powered up and the 82547EI 10/100/1000 Gigabit Ethernet LAN subsystem is operating.

Table 7.   10/100/1000 Gigabit Ethernet LAN Connector LEDs

LED Color	LED State	Indicates
Green (left LED)	Off	LAN link is not established.
	On (steady state)	LAN link is established.
	On (brighter and pulsing)	The computer is communicating with another computer on the LAN.
Bi-color LED (right LED)	Off	10 Mbit/sec data rate is selected.
	Green	100 Mbit/sec data rate is selected.
	Yellow	1000 Mbit/sec data rate is selected.

Power Management

Power management is implemented at several levels, including:

- Software support through Advanced Configuration and Power Interface (ACPI)
- Hardware support:
    — Suspend to RAM (Instantly Available PC technology)
    — Power connectors
    — Fan connectors
    — Resume on Ring
    — Wake from USB
    — Wake from PS/2 keyboard/mouse
    — PME# wakeup support

Software Support through 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.

Under ACPI, the operating system directs all system and device power state transitions. The operating system puts devices in and out of low-power states based on user preferences and knowledge of how devices are being used by applications. Devices that are not being used can be turned off. The operating system uses information from applications and user settings to put the system as a whole into a low-power state.

ACPI features include:

- Plug and Play (including bus and device enumeration)
- Power management control of individual devices, add-in boards (some add-in boards may require an ACPI-aware driver), video displays, and hard disk drives
- Methods for achieving less than 15-watt system operation in the power-on/standby sleeping state
- A soft-off feature that enables the operating system to power-off the computer
- Support for multiple wake-up events
- Support for a front panel power and sleep mode switch

The Server Board S875WP1-E supports sleep states S0, S1, S2, S3, 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. The following is a summary of the supported sleep states:

- S0: Normal running state.
- S1: Processor sleep state. No context will be lost in this state and the processor caches will maintain coherency.
- S3: Suspend to RAM (Instantly Available PC Technology).
- 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.

Table 8 lists the system states based on how long the power switch is pressed, depending on how ACPI is configured with an ACPI-aware operating system.

Table 8.   Effects of Pressing the Power Switch under ACPI

If the system is in this state…	…and the power switch is pressed for	…the system enters this state
Off (ACPI S5 – Soft off)	Less than four seconds	Power-on (ACPI S0 – working state)
On (ACPI S0 – working state)	Less than four seconds	Soft-off/Standby (ACPI S1 – sleeping state)
On (ACPI S0 – working state)	More than four seconds	Fail safe power-off (ACPI S5 – Soft off)
Sleep (ACPI S1 – sleeping state)	Less than four seconds	Wake-up (ACPI S0 – working state)
Sleep (ACPI S1 – sleeping state)	More than four seconds	Power-off (ACPI S5 – Soft off)

Wake-up Devices and Events

⚠ CAUTION

> For LAN wake capabilities, the 5 V standby line for the power supply must be capable of providing adequate +5 V standby current. Failure to provide adequate standby current when implementing LAN wake capabilities can damage the power supply.

Table 9 provides an overview of the devices or events that can wake the computer from specific states.

Table 9.   Wake-up Devices and Events

These devices/events can wake up the computer…	…from this state
Power button	S1, S3, S4 (Note 1), S5
RTC alarm	S1, S3, S4 (Note 1), S5
LAN	S1, S3, S4 (Note 1), S5
PCI via PME# signal	S1, S3, S4 (Note 1), S5
Resume on Ring (back panel Serial Port A)	S1, S3
USB	S1, S3
PS/2	S1, S3

Notes:

1.   For LAN and PME#, S5 is disabled by default in the BIOS Setup program. Setting this option to Power On will enable a wake-up event from LAN in the S5 state.

⇒ NOTE

> The use of these wake-up events from an ACPI state requires an operating system that provides full ACPI support. In addition, software, drivers, and peripherals must fully support ACPI wake events.

LAN Wake

LAN wake capabilities enable remote wake-up of the computer through a network. The LAN subsystem PCI bus network adapter monitors network traffic at the Media Independent Interface. Upon detecting a Magic Packet* frame, the LAN subsystem asserts a wake-up signal that wakes up the computer from ACPI S1, S3, S4, and S5 state.

Depending on the LAN implementation, the S875WP1-E server board supports LAN wake capabilities with ACPI in the following ways:

- The PCI bus PME# signal for PCI 2.2 compliant LAN designs
- The onboard LAN subsystem

PCI via PME# Wake-up Support

When the PME# signal on the PCI bus is asserted, the computer wakes from an ACPI S1, S3, S4, or S5 state (with Wake on PME enabled in BIOS).

Resume on Ring

Resume on Ring enables telephony devices to access the computer when it is in a power-managed state. The operation of Resume on Ring wakes the system from the S1 or S3 sleep states when a signal is sent to the serial port at the rear or the chassis or to an internally installed modem. Resume on ring can be summarized as follows:

- Resumes operation from ACPI S1 or S3 states
- Requires only one call to access the computer
- Detects incoming call similarly for external and internal modems
- Requires modem interrupt be unmasked for correct operation

Wake from USB

USB bus activity wakes the computer from an ACPI S1 or S3 state.

⇒ **NOTE**

> Wake from USB requires the use of a USB peripheral that supports Wake from USB.

Wake from PS/2 Devices

PS/2 device activity, such as moving a PS/2 mouse or pressing a key on a PS/2 keyboard, wakes the computer from an ACPI S1 or S3 state.

Hardware Support

The S875WP1-E server board provides several power management hardware features, including:

- Power connector
- Fan connectors
- Instantly Available PC technology

Instantly Available PC technology and LAN Wake require power from the +5 V standby line. The sections discussing these features describe the incremental standby power requirements.

⚠ **CAUTION**

> Ensure that the power supply provides adequate +5 V standby current if Instantly Available PC technology features is used. Failure to do so can damage the power supply. The total amount of standby current required depends on the wake devices supported and manufacturing options.

Power Connector

When used with an ATX12V or EPS12V compliant power supply that supports remote power on/off, the S875WP1-E server board can turn off the system power through software control. When the system BIOS receives the correct command from the operating system, the BIOS turns off power to the computer.

With soft-off enabled, if power to the computer is interrupted by a power outage or a disconnected power cord, when power resumes, the computer returns to the power state it was in before power was interrupted (on or off). The computer's response can be set using the After Power Failure feature in the BIOS Setup program's Boot menu.

⟹ **NOTE**

> A standard ATX 20 pin power connector and standard ATX 12V 4-pin 2x2 connector can be used to power the S875WP1-E board. Plug the power cables into the pin 1 end of their respective motherboard connectors, leaving pins 21-24 unused on the main power connector and 5-8 unused on the 12V connector.

Fan Connectors

Table 10 summarizes the function/operation of the fan connectors.

Table 10.   Fan Connector Function/Operation

Connector	Description
Processor fan (CPU FAN)	• +12 V DC connection for a processor fan or active fan heat sink. • Fan is on in the S0 or S1 state. Fan is off when the system is off or in the S3, S4, or S5 state. • Wired to a fan tachometer input of the Hardware Management ASIC.
Front and rear chassis fans (FAN1, FAN2, FAN3, and FAN4)	• +12 V DC connection for a system or chassis fan. • Fan is on in the S0 or S1 state. Fan is off when the system is off or in the S3, S4, or S5 state. • Wired to a fan tachometer input of the Hardware Management ASIC (Fans 1, 2, and 4 only).

Instantly Available PC Technology

⚠ CAUTION

> For Instantly Available PC technology, the +5 V standby line for the power supply must be capable of providing adequate +5 V standby current. Failure to provide adequate standby current when implementing Instantly Available PC technology can damage the power supply.

The S875WP1-E server board supports the *PCI Bus Power Management Interface Specification*. An add-in board that supports this specification can participate in power management and can be used to wake the computer.

The use of Instantly Available PC technology requires operating system support and PCI 2.2 compliant add-in cards and drivers.

The standby power indicator LED shows that power is still present even when the computer appears to be off. Figure 4 shows the location of the standby power indicator LED.

⚠ CAUTION

> If AC power has been switched off and the standby power indicator is still lit, disconnect the power cord before installing or removing any devices connected to the board. Failure to do so could damage the board and any attached devices.
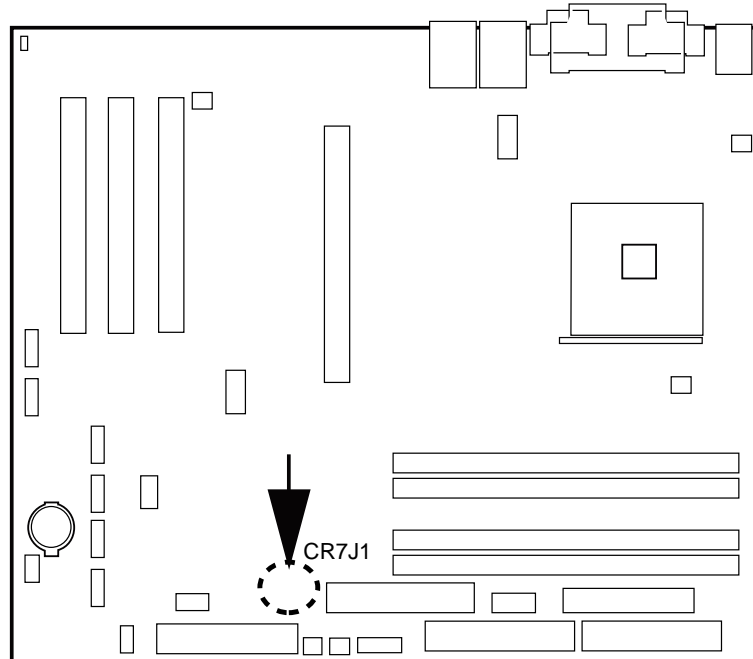
TP00185

Figure 4. Location of the Standby Power Indicator LED CR7J1

Hardware Management and Monitoring

The Hardware Management features enable the board to be compatible with the Wired for Management (WfM) specification. The board has several hardware management features, including the following:

- Remote temperature sensing near the Vreg
- Power supply monitoring (+5 V, +3.3 V, 3.3 VSB, +1.5 V, and VCCP) to detect levels above or below acceptable values
- Fan monitoring though four fan tachometer inputs. Monitoring can be implemented using LANDesk[*] Client Manager or other third-party software.
- Chassis intrusion detection

The server board S875WP1-E has an integrated Hardware Management ASIC that is responsible for hardware monitoring. Together, the Hardware Management ASIC and the 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 S875WP1-E based system.

The LDCM software is for use with Windows 2000 Server and Windows 2000 Advanced Server operating systems. Other operating systems, such as Red Hat[*] Linux[*] are not be monitored with LDCM.

Intel LANDesk Client Manager software and user guides that provide more information on using Intel LDCM software are available on the *Intel Server Board S875WP1-E Resource CD* and are also available for download at:

http://www.support.intel.com/support/motherboards/server/S875WP1-E

Chassis Intrusion and Detection

The server board S875WP1-E supports a chassis security feature that detects the removal of the chassis cover. For the chassis intrusion circuit to function, the chassis' power supply must be connected to AC power. The security feature uses a mechanical switch on the chassis that attaches to the chassis intrusion connector. Chassis intrusion options can be configured through the BIOS Setup screens.

⇒ **NOTE**

Chassis intrusion detection may be implemented using LANDesk Client Manager or third-party software.

Password Security

The BIOS includes security features that restrict whether the BIOS Setup program can be accessed and who can boot the server. A supervisor password and a user password can be set for the Setup menu and for booting the server, with the following restrictions:

- The supervisor password gives unrestricted access to view and change all Setup options. If only the supervisor password is set, pressing <Enter> at the password prompt of Setup gives the user restricted access to Setup.
- If both the supervisor and user passwords are set, you must enter either the supervisor password or the user password to access Setup. Setup options are then available for viewing and changing depending on whether the supervisor or user password was entered.
- Setting a user password restricts who can boot the server. The password prompt is displayed before the server is booted. If only the supervisor password is set, the server boots without asking for a password. If both passwords are set, you can enter either password to boot the server.

Table 11. Supervisor and User Password Functions

Password Set	Supervisor Mode	User Mode	Setup Options	Password to Enter Setup	Password During Boot
Neither	Can change all options (Note)	Can change all options (Note)	None	None	None
Supervisor only	Can change all options	Can change a limited number of options	Supervisor Password	Supervisor	None
User only	N/A	Can change all options	Enter Password Clear User Password	User	User
Supervisor and user set	Can change all options	Can change a limited number of options	Supervisor Password Enter Password	Supervisor or user	Supervisor or user

Note: If no password is set, any user can change all Setup options.

Real-Time Clock, CMOS SRAM, and Battery

The real-time clock provides a time-of-day clock and a multi-century calendar with alarm features. The real-time clock supports 256 bytes of battery-backed CMOS SRAM in two banks that are reserved for BIOS use.

A coin-cell battery (CR2032) powers the real-time clock and CMOS memory. When the computer is not plugged into a wall socket, the battery has an estimated life of three years. When the computer is plugged in, the standby current from the power supply extends the life of the battery. The clock is accurate to ± 13 minutes/year at 25 ºC with 3.3 VSB applied.

The time, date, and CMOS values can be specified in the BIOS Setup program. The CMOS values can be returned to their defaults by using the BIOS Setup program.

⇒ **NOTE**

> If the battery and AC power fail, custom defaults, will be loaded into CMOS
> RAM at power-on if they defaults have been previously saved.

Recovering the CMOS

In the unlikely event that the CMOS should be corrupt, it can be cleared by using a jumper setting on the server board. To recover the CMOS and return the settings to the default value:

1. Power down the server and unplug all AC power cables.
2. Remove the cover from the chassis.
3. Move the jumper at jumper block J8G1 to cover pins 2 and three. For the location of jumper block J8G1, see the figure below.
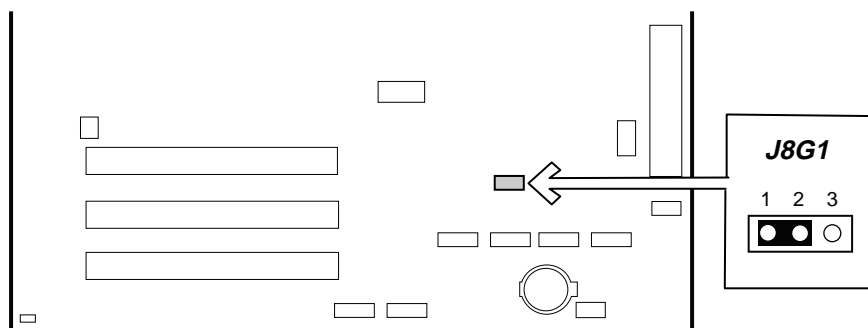
TP00200

Figure 5. Location of Clear CMOS Jumper

4. Reattach the AC power cables and power on the server.
5. Power down the server and again remove all AC power cables.
6. Replace the jumper at jumper block J8G1 so that it covers pins 1 and 2.
7. Replace the chassis cover and re-attach the AC power cables.
8. Power on the server.
9. Reconfigure settings as necessary.

BIOS

The S875WP1-E server board uses an Intel/AMI BIOS that is stored in the Firmware Hub (FWH) and can be updated using a disk-based program. The FWH contains the BIOS Setup program, POST, the PCI auto-configuration utility, and Plug and Play support.

The S875WP1-E server board supports system BIOS shadowing, allowing the BIOS to execute from 64-bit onboard write-protected system memory.

The BIOS displays a message during POST identifying the type of BIOS and a revision code. The initial production BIOS is identified as WP87510A.86B.

When the S875WP1-E server board's jumper is set to configuration mode and the server is powered-up, the BIOS compares the processor version and the microcode version in the BIOS and reports if the two match.

PCI Auto Configuration

The BIOS can automatically configure PCI devices. PCI devices may be onboard or add-in cards. Auto configuration lets a user insert or remove PCI cards without having to configure the system. When a user turns on the system after adding a PCI card, the BIOS automatically configures interrupts, the I/O space, and other system resources. Any interrupts set to Available in Setup are considered to be available for use by the add-in card. Auto configuration information is stored in ESCD format.

IDE Auto Configuration

If you select Auto in the BIOS Setup program, the BIOS automatically sets up the two IDE connectors with independent I/O channel support. The IDE interface supports hard drives up to ATA-66/100 and recognizes any ATAPI compliant devices, including CD-ROM drives, tape drives, and Ultra DMA drives.

The BIOS determines the capabilities of each drive and configures them to optimize capacity and performance. To take advantage of the high capacities typically available today, hard drives are automatically configured for Logical Block Addressing (LBA) and to PIO Mode 3 or 4, depending on the capability of the drive. You can override the auto-configuration options by specifying manual configuration in the BIOS Setup program.

To use ATA-66/100 features the following items are required:

- An ATA-66/100 peripheral device
- An ATA-66/100 compatible cable
- ATA-66/100 operating system device drivers

⇒ **NOTE**

> ATA-66/100-compatible cables are backward-compatible with drives using slower
> IDE transfer protocols. If an ATA-66/100 disk drive and a disk drive using any
> other IDE transfer protocol are attached to the same cable, the maximum transfer
> rate between the drives is reduced to that of the slowest device.

BIOS Updates

The BIOS can be updated with the Intel® Flash Memory Update Utility. This utility is available on
the Intel World Wide Web site. The Intel® Flash Memory Update Utility requires creation of a
boot diskette and manual rebooting of the system. With this utility, the BIOS can be updated from
a file on a 1.44 MB diskette (from a legacy diskette drive or an LS-120 diskette drive) or from a
CD-ROM disk.

This utility support the following BIOS maintenance functions:

- Verifies that the updated BIOS matches the target system to prevent accidentally installing an
  incompatible BIOS.
- Updates both the BIOS boot block and the main BIOS. This process is fault tolerant to prevent
  boot block corruption.
- Updates the BIOS boot block separately.
- Changes the language section of the BIOS.
- Updates replaceable BIOS modules, such as the video BIOS module.
- Inserts a custom splash screen.

⇒ **NOTE**

> Review the instructions distributed with the upgrade utility before attempting
> a BIOS update.

Language Support

The BIOS Setup program and help messages are supported in two languages: US English and
Spanish. Additional languages may be flashed in if desired (German, Italian, and French available).
The default language of US English is used unless another language is selected in the BIOS Setup
program.

Custom Splash Screen

During POST, an Intel splash screen is displayed by default. This splash screen can be replaced with a custom splash screen. A utility is available from Intel to assist with creating a custom splash screen. The custom splash screen can be programmed into the flash memory using the BIOS upgrade utility. Information about this capability is available on the Intel Support World Wide Web site.

Recovering BIOS Data

Some types of failure can destroy the BIOS. For example, the data can be lost if a power outage occurs while the BIOS is being updated in flash memory. The BIOS can be recovered from a diskette using the BIOS recovery mode. When recovering the BIOS, be aware of the following:

- Because of the small amount of code available in the non-erasable boot block area, there is no video support. The user can only monitor this procedure by listening to the speaker or looking at the diskette drive LED.
- The recovery process may take several minutes; larger BIOS flash memory devices require more time.
- Two beeps and the end of activity in the diskette drive indicate successful BIOS recovery.
- A series of continuous beeps indicates a failed BIOS recovery.

To create a BIOS recovery diskette, a bootable diskette must be created and the BIOS update files copied to it. BIOS upgrades and the Intel Flash Memory Update Utility are available from Intel Customer Support through the Intel World Wide Web site.

⇒ **NOTE**

Even if the computer is configured to boot from an LS-120 diskette, the BIOS recovery diskette must be a standard 1.44 MB diskette, not a 120 MB diskette.

Boot Options

In the BIOS Setup program, the user can choose to boot from a diskette drive, a hard drive, a CD-ROM drive, or the network. The default setting is for the diskette drive to be the first boot device, the hard drive second, and the ATAPI CD-ROM third. The fourth device is disabled.

CD-ROM and Network Boot

Booting from CD-ROM is supported in compliance with the El Torito bootable CD-ROM format specification. Under the Boot menu in the BIOS Setup program, ATAPI CD-ROM is listed as a boot device. Boot devices are defined in priority order. Accordingly, if there is not a bootable CD in the CD-ROM drive, the system will attempt to boot from the next defined drive.

The network can be selected as a boot device. This selection allows booting from the on-board NIC or a network add-in card with a remote boot ROM installed.

Booting Without Attached Devices

For use in embedded applications, the BIOS has been designed so that after passing the POST, the operating system loader is invoked even if the following devices are not present:

- Video adapter
- Keyboard
- Mouse

Fast Booting Systems with Intel® Rapid BIOS Boot

These factors affect system boot speed:

- Selecting and configuring peripherals properly
- Using an optimized BIOS, such as the Intel Rapid BIOS

Intel Rapid BIOS Boot

Using the following BIOS Setup program settings reduces the POST execution time. In the Boot Menu:

- Set the hard disk drive as the first boot device. As a result, the POST does not first seek a diskette drive, which saves about one second from the POST execution time.
- Disable Quiet Boot, which eliminates display of the logo splash screen. This could save several seconds of painting complex graphic images and changing video modes.
- Enabled Intel® Rapid BIOS Boot. This feature bypasses memory count and the search for a diskette drive.

⟹ **NOTE**

It is possible to optimize the boot process to the point where the system boots so quickly that the Intel logo screen (or a custom logo splash screen) will not be seen. Monitors and hard disk drives with minimum initialization times can also contribute to a boot time that might be so fast that necessary logo screens and POST messages cannot be seen.

This boot time may be so fast that some drives might be not be initialized at all. If this condition should occur, it is possible to introduce a programmable delay ranging from three to 30 seconds (using the Hard Disk Pre-Delay feature of the Advanced Menu in the Drive Configuration Submenu of the BIOS Setup program).

System Management BIOS (SMBIOS)

SMBIOS is a Server Management Interface (DMI) compliant method for managing computers in a managed network.

The main component of SMBIOS is the Management Information Format (MIF) database, which contains information about the computing system and its components. Using SMBIOS, a system administrator can obtain the system types, capabilities, operational status, and installation dates for system components. The MIF database defines the data and provides the method for accessing this information. The BIOS enables applications such as third-party management software to use SMBIOS.

The BIOS stores and reports the following SMBIOS information:

- BIOS data, such as the BIOS revision level
- Fixed-system data, such as peripherals, serial numbers, and asset tags
- Resource data, such as memory size, cache size, and processor speed
- Dynamic data, such as event detection and error logging

Non-Plug and Play operating systems, such as Windows NT[*], require an additional interface for obtaining the SMBIOS information. The BIOS supports an SMBIOS table interface for such operating systems. Using this support, an SMBIOS service-level application running on a non-Plug and Play operating system can obtain the SMBIOS information.

2 Server Board Installation and Upgrades

Tools and Supplies Needed

- Phillips* (cross head) screwdriver (#1 bit and #2 bit)
- Jumper removal tool or needle nosed pliers
- 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 107 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.

Warnings and Cautions

These warnings and cautions apply throughout this chapter. Only a technically qualified person should configure the server board.

⚠ **WARNING**

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.

⚠ **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.

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, but not squeeze, with the pliers or other tool you use to remove a jumper, or you may bend or break the stake pins on the board.

Installing the I/O Shield

⚠ CAUTION

Systems based on the S875WP1-E server board need the I/O shield properly installed to pass emissions (EMI) certification testing and to meet Class A emissions compliance levels. Without the I/O shield, or with an improperly installed I/O shield, the server system will not meet Class A regulatory compliance requirements.

The boxed server board comes with an I/O shield for a general-purpose chassis. When installed in the chassis, the shield blocks radio frequency transmissions, protects internal components from dust and foreign objects, and promotes correct airflow within the chassis.

Install the I/O shield before installing the server board in the chassis. Place the shield inside the chassis and press the shield into place so that it fits tightly and securely. If the shield does not fit, obtain a proper-sized shield from the chassis supplier.
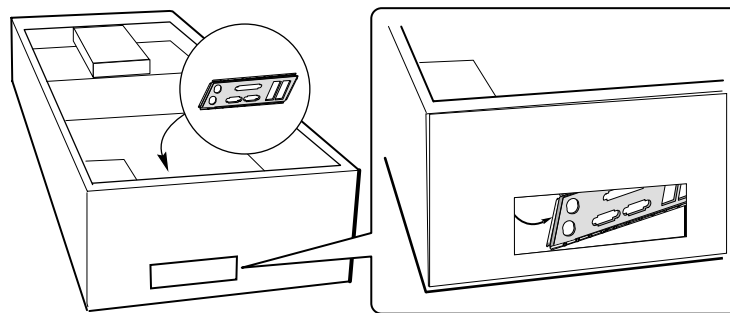
TP00186

Figure 6. Installing the I/O Shield

Installing Chassis Standoffs

If your chassis does not have standoffs placed as shown below, you must rearrange them 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. Your chassis may be different from the illustration.

Intel Server Chassis SC5200

The chassis comes with standoffs installed in positions 1, 4, 6, 20, 23, and 26. Install standoffs in the bottom of the chassis at positions 7, 10, 13, 17, 18, and 19. Standoffs are included with your chassis.
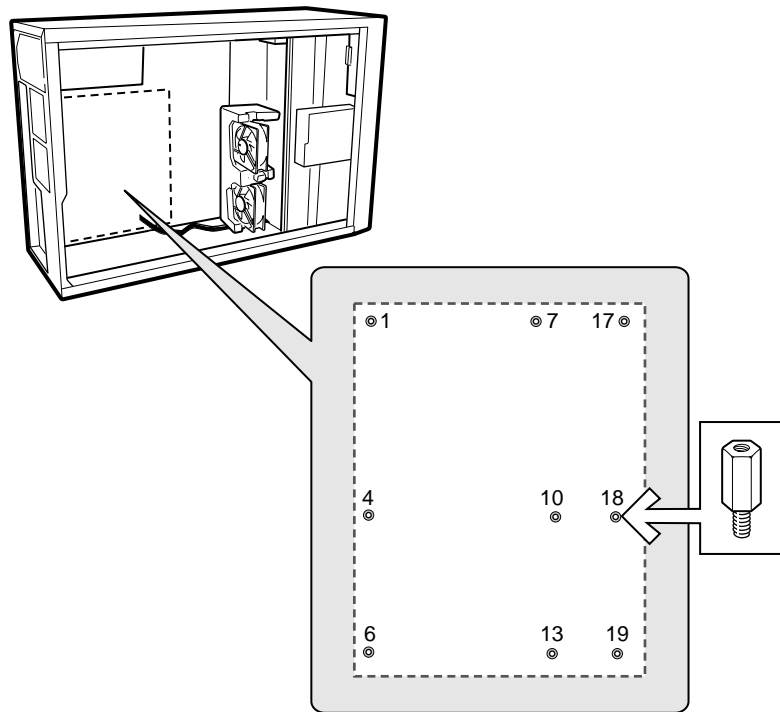
TP00187

Figure 7. Installing Chassis Standoffs in the SC5200 Chassis

Intel® Server Chassis SC5250-E

The Intel® Server Chassis SC5250-E comes with standoffs pre-installed in positions K, E, A, N, I, and D. Install standoffs in the bottom of the chassis at positions L, 3, 1, M, H, and C. Standoffs are included with your chassis.
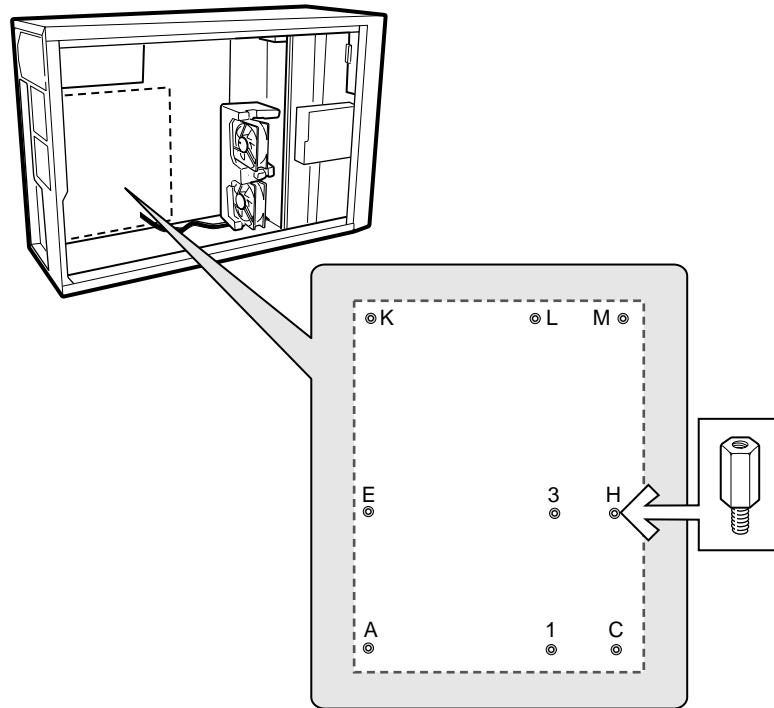
TP00188

Figure 8. Installing Chassis Standoffs in the SC5250-E Chassis

Installing the Server Board

Placing the Server Board into the Chassis

When placing the board into the 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.
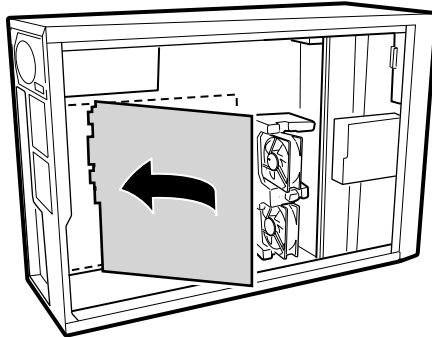
TP00103

Figure 9. Placing the Server Board into the Chassis

Attaching the Server Board

⇒ **NOTES**

You will need a Phillips (#2 bit) screwdriver.

Refer to Page 107 for regulatory requirements and installation instructions and precautions.

The Intel® Server Chassis SC5200 and the Intel Server Chassis SC5250-E use different screws to attach the server board to the chassis. Be sure to use the appropriate screw for your chassis. See the diagram below for the correct screw for each chassis.

⚠ **WARNING**

Only qualified technical personnel should attempt this procedure. Disconnect the server from its power source before performing the procedures described here. Failure to disconnect the power before you open the server can result in personal injury or equipment damage.

Using the screws that came with your chassis, mount the board to the chassis at the 9 locations shown in Figure 10.

TP00189
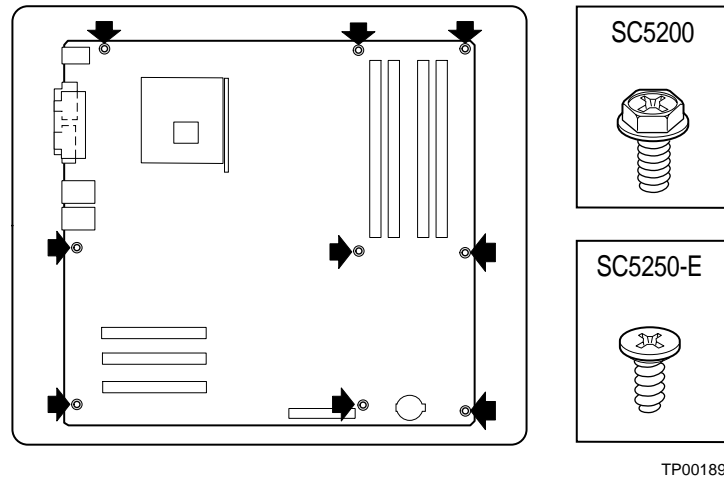
Figure 10. Attaching the Server Board

Installing the Processor

To install a processor, follow these instructions:
1. Observe the safety and ESD precautions at the beginning of this chapter.
2. Locate the processor socket and raise the socket handle completely (see Figure 11, B).
3. Aligning the pins of the processor with the socket, insert the processor into the socket (see Figure 11, A and C).
4. Close the handle completely (see Figure 11, D).

OM14263
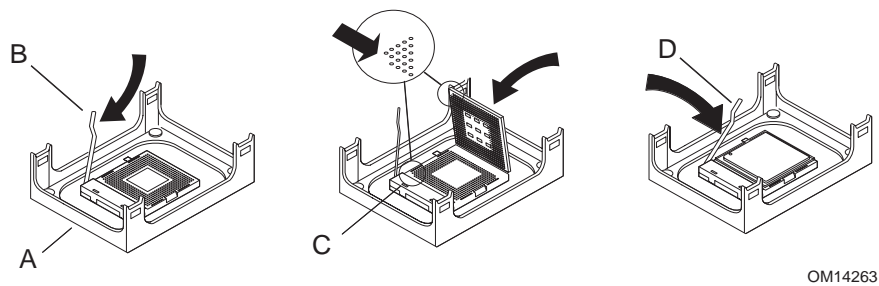
Figure 11. Installing the Processor in the Processor Socket

⟹   **NOTE**

> The bottom of the heat sink may have thermal interface material (TIM)
> already applied. Be careful not to damage the thermal interface material.

5. If there is no thermal interface material on the bottom of the heat sink, use the enclosed syringe
    and apply the thermal interface material to the top of the processor.
6. Place the fan heat sink on top of the processor.
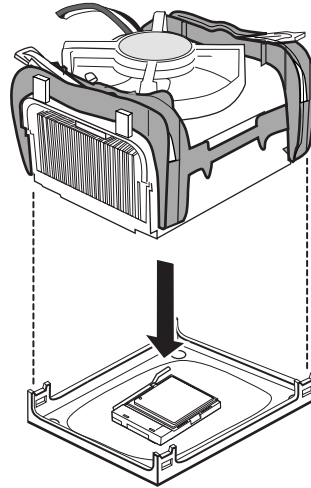
TP00208

Figure 12. Attaching the Heat Sink to the Processor

7. Fully open the levers at the top of the heat sink, as shown by letter "A" in the figure below.
8. With the levers in their fully opened position, push down firmly to secure the retention mechanism clips, represented by letter "B" in the figure below.
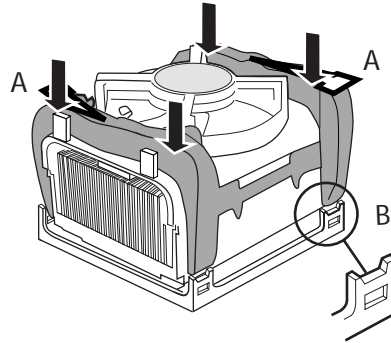
TP00209

Figure 13. Attaching the Fan Heat Sink Clips to the Processor Socket

9. Firmly push the levers closed. It may be necessary to exert pressure to close the levers. See Figure 14.
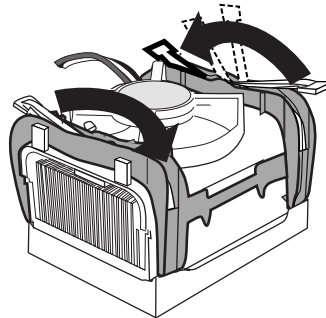
TP00206

Figure 14. Attaching the Fan Heat Sink Clips to the Processor Socket

10. Connect the processor fan cable to the processor fan connector (see Figure 15).
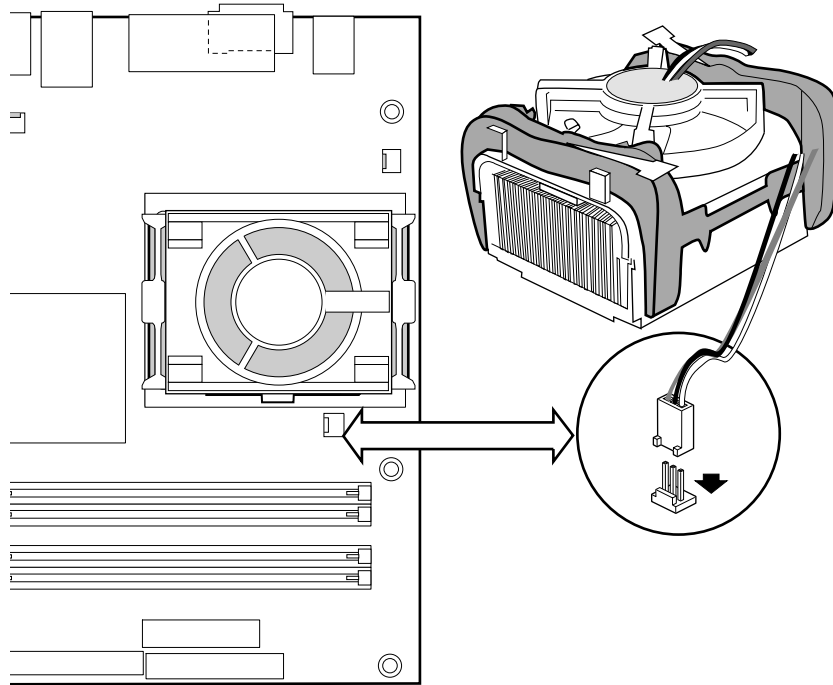
TP00201

Figure 15. Connecting the Processor Fan Cable to the Processor Fan Connector

Removing the Processor

To remove the processor, follow these instructions:

1. Observe the safety and ESD precautions at the beginning of this chapter.
2. Disconnect the processor fan cable.
3. Open the levers on the heat sink.
4. Disengage the retention mechanism hooks at the bottom of the heat sink.
5. Lift the heat sink from the processor.
6. Lift the processor lever.
7. Remove the processor.

Installing and Removing Memory

The S875WP1-E server board contains four 184-pin DIMM sockets and supports up to four DDR SDRAM DIMMs. The minimum supported memory configuration is 128 MB, using one DIMM in DIMM socket 1A. The maximum configurable memory size is a 4 GB, using four 1 GB stacked unbuffered DDR266/333/400 ECC DIMMs.

The silkscreen on the board for the DIMMs displays DIMM1A, DIMM2A, DIMM1B, and DIMM2B, starting from the inside of the board. The DIMM1A is the socket closest to the processor socket. One, two, or four DIMMs may be used at a time.

For dual-channel interleave, a minimum of two DIMMs must be installed and the DIMMs must be populated as follows:

- DIMM1A and DIMM 1B: Populate these two sockets together first
- DIMM 2A and DIMM 2B: Populate these sockets in addition to DIMM 1A and DIMM 2A if four DIMMs are to be used

When four DIMMs are installed, the system will use dual-channel interleave. For single-channel memory, a single DIMM can be installed in socket DIMM 1A. For single-channel memory using two DIMMs, populate the DIMM sockets in the following order:

- DIMM1A: Populate this socket if a single DIMM is to be installed
- DIMM2A: Populate this socket and the DIMM1A socket if two DIMMs are to be used

Check the Intel Customer Support website for the latest tested memory list:

http://support.intel.com/support/motherboards/server/S875WP1-E

DIMM Installation Guidelines

All memory components and DIMMs used with the server board S875WP1-E must comply with the DDR specifications.

Installing DIMMs

To install DIMMs, follow these steps:

1. Observe the safety and ESD precautions at the beginning of this chapter.
2. Turn off all peripheral devices connected to the server. Turn off the server and disconnect the AC power cord.
3. Remove the server's cover and locate the DIMM sockets (see Figure 16).
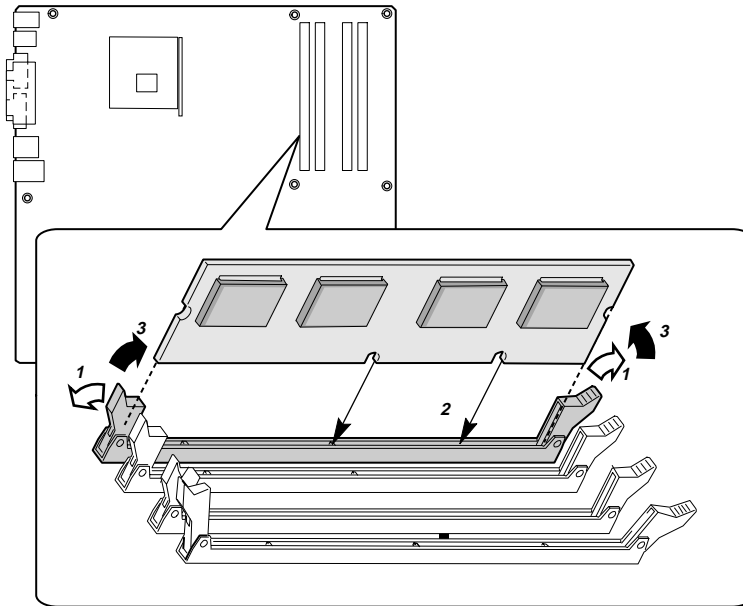
TP00190

Figure 16. DIMM Socket Locations

4. Make sure the clips at either end of the DIMM socket(s) are pushed outward to the open position.
5. Holding the DIMM by the edges, remove it from its anti-static package.
6. Position the DIMM above the socket. Align the two small notches in the bottom edge of the DIMM with the keys in the socket (see inset in Figure 16).
7. Insert the bottom edge of the DIMM into the socket.
8. When the DIMM is inserted, push down on the top edge of the DIMM until the retaining clips snap into place. Make sure the clips are firmly in place.
9. Replace the server's cover and reconnect the AC power cord.

Removing DIMMs

To remove a DIMM, follow these steps:

1. Observe the safety and ESD precautions at the beginning of this chapter.
2. Turn off all peripheral devices connected to the server. Turn off the server.
3. Remove the AC power cord from the server.
4. Remove the server's cover.
5. Gently spread the retaining clips at each end of the socket. The DIMM pops out of the socket.
6. Hold the DIMM by the edges, lift it away from the socket, and store it in an anti-static package.
7. Reinstall and reconnect any parts you removed or disconnected to reach the DIMM sockets.
8. Replace the server's cover and reconnect the AC power cord.

Installing and Removing an AGP Card

⚠ CAUTION

When installing any AGP card in the server board, ensure that it is fully seated in the AGP connector before you power on the system. If the card is not fully seated in the AGP connector, an electrical short may result across the AGP slot pins. Depending on the over-current protection of the power supply, certain board components and/or traces may be damaged.

⟹ NOTE

The AGP connector is keyed for 1.5 V AGP cards only. Do not attempt to install a legacy 3.3 V AGP card. The AGP connector is not mechanically compatible with legacy 3.3 V AGP cards.

The AGP connector supports 1.5 V 8X, 4X, and 2X AGP cards. The server board has an integrated AGP card retention mechanism (RM).

Installing an AGP Card

Follow these instructions to install an AGP card:

1. Observe the precautions in "Before You Begin" on page 39.
2. Place the card in the AGP connector.
3. Press down on the card until it is fully seated in the AGP connector. A retention notch on the card will snap into place around the retention pin on the lever that is marked "A" in the figure below.
4. Secure the card's metal bracket to the chassis back panel with a screw.
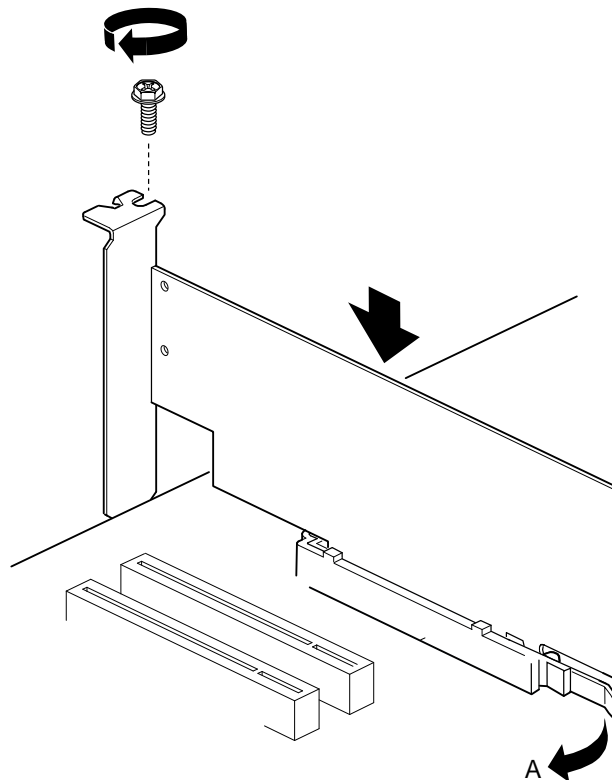
TP00191

Figure 17. Installing the AGP Card

Removing the AGP Card

Follow these instructions to remove the AGP card from the server board:

1. Observe the precautions in "Before You Begin" on page 39.
2. Remove the screw that secures the card's metal bracket to the chassis back panel.
3. Pull back on the retention mechanism lever (marked "A" in the figure above to release the retention pin from the notch in the card.
4. Pull straight up on the card to pull it from the socket.

Connecting the IDE Cable

The Intel® boxed server board package includes a 40-contact, 80-conductor IDE cable. This cable is capable of connecting two drives to the server board. The cable supports Ultra ATA/100/66 and Ultra ATA/100 transfer protocols and is backward-compatible with drives using slower IDE transfer protocols.

⇒ **NOTE**

> ATA-66/100 cables are backward compatible with drives using slower IDE transfer protocols. If an ATA-66/100 disk drive and a disk drive using any other IDE transfer protocol are attached to the same cable, the maximum transfer rate between the drives may be reduced to that of the slowest drive.
>
> Do not connect an ATA device as a slave on the same IDE cable as an ATAPI master device. For example, do not connect an ATA hard drive as a slave to an ATAPI CD-ROM drive.

For the cable to function correctly:

- Attach the end of the cable that has a single connector (A) to the server board as shown in Figure 18. The connector at this end of the cable is black and is labeled PRI IDE.
- Attach the end of the cable that has two closely spaced connectors (B) to the drive(s). The connectors at this end of the cable are gray and black and are labeled P2 and P3.
- If connecting only one IDE drive, connect the drive to the gray connector (P3).
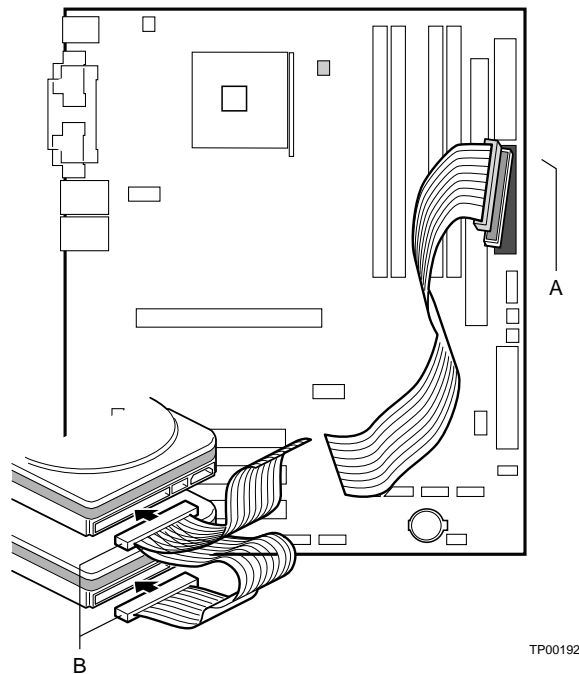
Figure 18. Connecting the IDE Cable

Connecting the Serial ATA Cable (Optional)

The Intel server board S875WD1 includes two Serial ATA (SATA) cables and the server board S875WD1LX includes three SATA cables. These 4-conductor cables support the Serial ATA protocol. Each cable connects a single drive to the server board.

For correct cable function, either end of the cable can be connected to the SATA drive or to the connector on the board (see Figure 19).

1. Observe the precautions in "Before You Begin" on page 39.
2. Attach either cable end to the connector (A) on the board.
3. Attach either cable end to the connector (B) on the drive.

TP00193
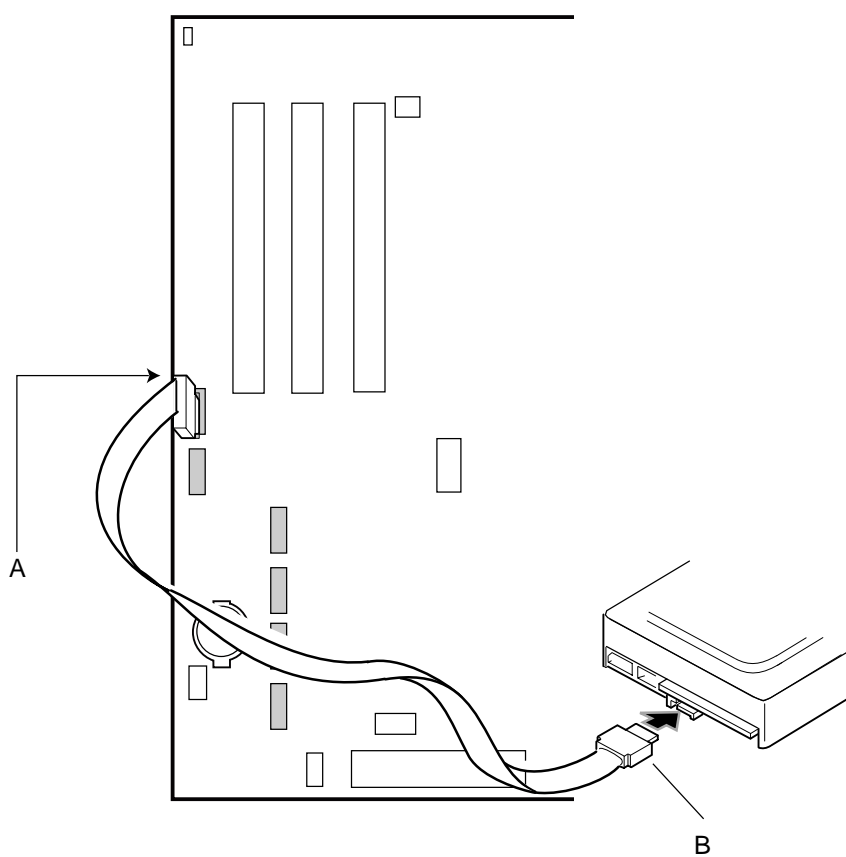
Figure 19. Connecting the SATA Cable

⟹ **NOTE**

For instructions on installing and configuring Serial ATA RAID on the 4-port Promise Controller that is available on the server board S875WP1LX, please see

http://support.intel.com/support/motherboards/server/s875wp1e/sata-install.htm

Connecting Internal Headers

Before connecting internal headers, observe the precautions in "Before You Begin" on page 39.
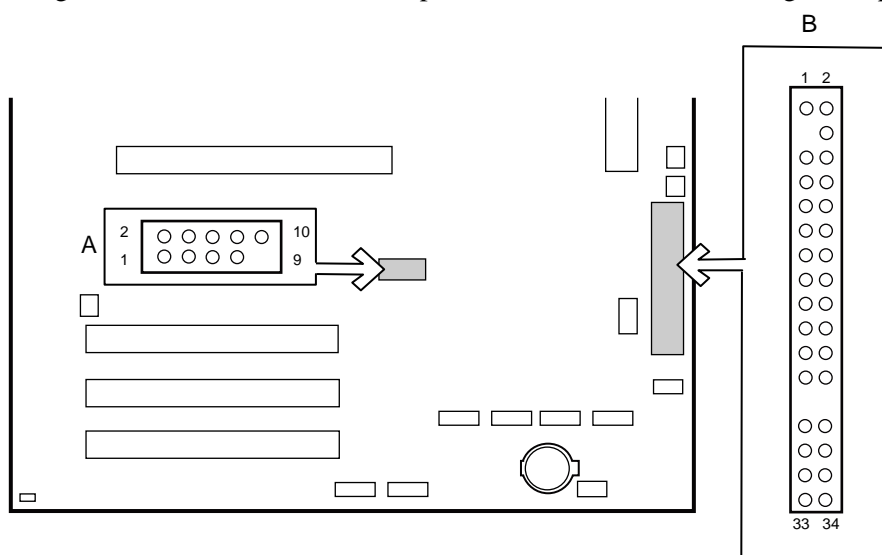
TP00194

A	Front Panel USB 2.0 Header
B	Front Panel Header

Figure 20. Location of Internal Headers

Connecting the Front Panel Header

Before connecting the front panel header, observe the precautions in "Before You Begin" on page 39. Figure 20 (above) shows the location of the front panel header. Table 12 shows the pin assignments for the front panel header.

Table 12.   Front Panel Header (J7J1)

Pin	Signal Name	Pin(s)	Function
1	Power LED Anode	2	5VSB
3	Key	4	Unused
5	GND	6	Unused
7	HDD Activity LED Anode	8	Unused
9	HDD Activity LED Cathode	10	Unused
11	Power Switch	12	NIC#1 Activity LED Anode
13	GND (Power Switch)	14	NIC#1 Activity LED Cathode
15	FP_RST*	16	I1C SDA
17	GND (Reset Switch)	18	I2C SDA

Table 12.   Front Panel Header (J7J1) (continued)

19	ACPI Sleep Switch	20	Chassis Intrusion
21	GND (ACPI Sleep Switch	22	NIC#2 Activity LED Anode
23	Unused	24	NIC#2 Activity LED Cathode
25	Key	26	Key
27	Unused	28	Unused
29	Unused	30	Unused
31	Unused	32	Unused
33	Unused	34	Unused

Connecting the USB 2.0 Header

Before connecting the USB 2.0 header, observe the precautions in "Before You Begin" on page 39. Figure 20 shows the location of the USB 2.0 header. Table 13 shows the pin assignments for the front panel header.

Table 13.   USB 2.0 Header (J7E1)

Pin	Signal name	Pin	Signal name
1	USB_FNT1_PWR	2	USB_FNT1_PWR
3	USB_FRONT1_L*	4	USB_FRONT2_L*
5	USB_ FRONT1_L	6	USB_FRONT2_L
7	Ground	8	Ground
9	Key	10	USB_ OC_FNT_R1

Note: USB ports may be assigned as needed.

Connecting Hardware Control and Power Cables

Figure 21 shows the location of the hardware control (fans and chassis intrusion) headers and power supply connectors.
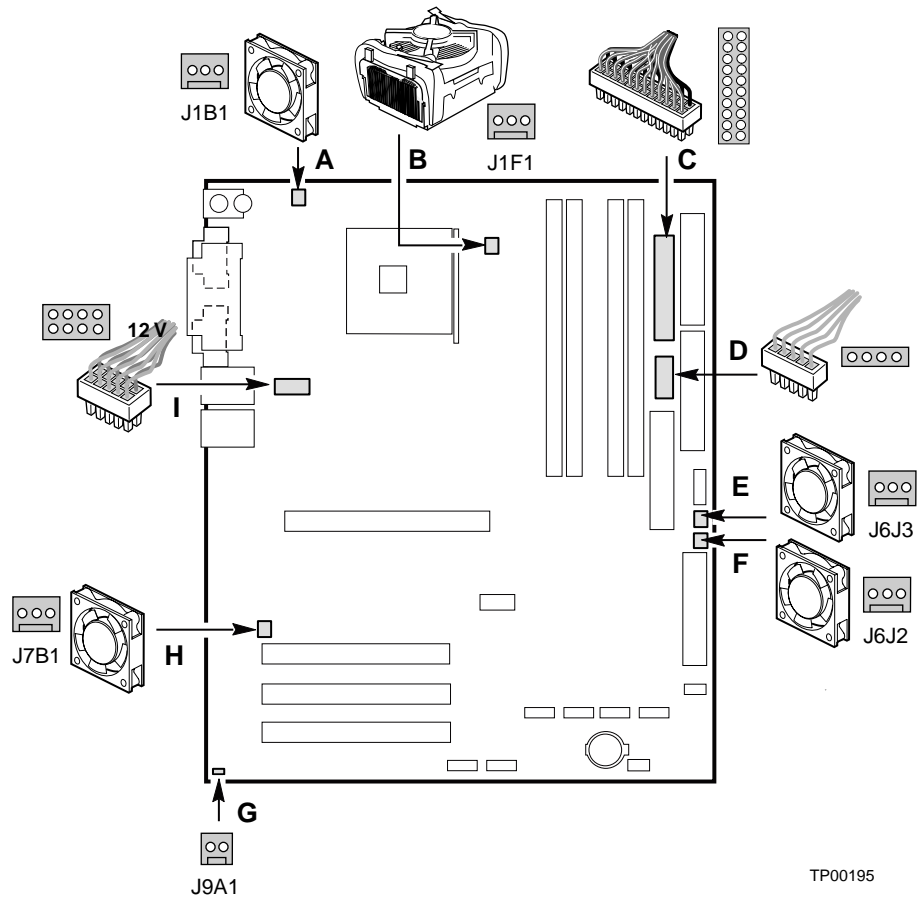
A.   System Fan 4 Header   F.   System Fan 2 Header

B.   CPU Fan   G.   Chassis Intrusion Header

C.   Main Power Connector   H.   System Fan 3 Header

D.   Auxiliary Power Connector   I.   +12V CPU Power Connector

E.   System Fan 1 Header

Figure 21. Location of the Fan Headers and Power Connectors

Connecting Fans

Connect the processor's fan heatsink cable to the processor fan header on the board. Connect the chassis fan cables to the board fan headers. See Figure 21 for fan header locations.

Chassis Intrusion

Connect the chassis intrusion cable from the chassis to the 1 x 2 header on the board.

Connecting Power Cables

⚠ **CAUTION**

> Failure to use an ATX12V power supply, or not connecting the 12 V
> processor core voltage power supply connector to the desktop board may
> +result in damage to the desktop board and/or power supply.

Figure 21 shows the location of power connectors.

1. Observe the precautions in "Before You Begin" on page 39.
2. Connect the 12 V processor core voltage power supply cable to the 2x2 connector.
3. Connect the main power cable to the 2x10 connector.

Setting the BIOS Configuration Jumper

⚠ **CAUTION**

> Always turn off the power and unplug the power cord from the server before
> changing the jumper. Moving the jumper with the power on may result in
> unreliable server operation.
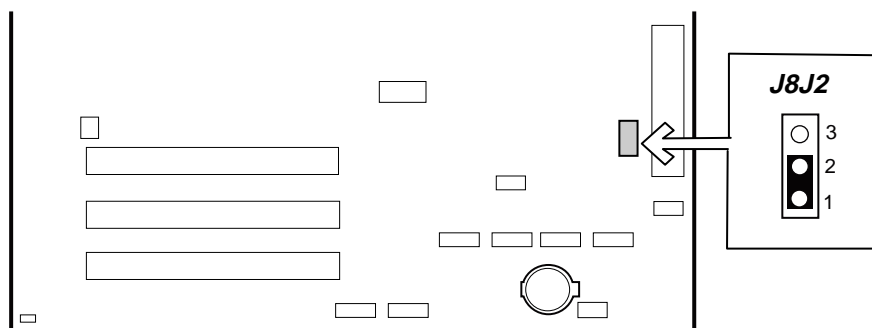
TP00196

Figure 22. BIOS Configuration Jumper Block Location

This three-pin jumper block, shown in Figure 22, enables all server board configurations to be done in BIOS Setup. Table 14 shows the jumper settings for the Setup program modes.

Table 14.   Jumper Settings for the BIOS Setup Program Modes (J8J2)

Jumper Setting	Mode	Description
  1 3	Normal (default) (1-2)	The BIOS uses the current configuration and passwords for booting.
  1 3	Configure (2-3)	After the Power-On Self-Test (POST) runs, the BIOS displays the Maintenance Menu. Use this menu to clear passwords.
  1 3	Recovery (None)	The BIOS recovers data from a recovery diskette in the event of a failed BIOS update.

Clearing Passwords

This procedure assumes that the board is installed in the computer and the configuration jumper block is set to normal mode.

1. Observe the precautions in "Before You Begin" on page 39.
2. Turn off all peripheral devices connected to the computer. Turn off the computer. Disconnect the computer's power cord from the AC power source (wall outlet or power adapter).
3. Remove the computer cover.
4. Find the configuration jumper block (see (figure to be indicated)).
5. Place the jumper on pins 2-3 as shown below.

1   3

6. Replace the cover, plug in the computer, turn on the computer, and allow it to boot.
7. The computer starts the Setup program. Setup displays the Maintenance menu.
8. Use the arrow keys to select Clear Passwords. Press <Enter> and Setup displays a pop-up screen requesting that you confirm clearing the password. Select Yes and press <Enter>. Setup displays the maintenance menu again.
9. Press <F10> to save the current values and exit Setup.
10. Turn off the computer. Disconnect the computer's power cord from the AC power source.
11. Remove the computer cover.
12. To restore normal operation, place the jumper on pins 1-2 as shown below.

1   3

Replace the cover, plug in the computer, and turn on the computer.

Replacing the Battery

When your server is turned off, a lithium battery maintains the time-of-day clock and the keeps the values in CMOS RAM. The location of the server board battery is shown in Figure 23 on page 62.

The battery should last about seven years whereupon it begins to lose voltage. When the voltage drops below a certain level, the BIOS Setup program settings stored in CMOS RAM (for example, the date and time) might not be accurate. Replace the battery with an equivalent one.

⚠ **CAUTION**

Refer to technically qualified persons only for replacement of battery.

⚠ **CAUTION**

Risk of explosion if the battery is replaced with an incorrect type. Batteries should be recycled where possible. Disposal of used batteries must be in accordance with local environmental regulations.

⚠ **PRECAUTION**

Risque d'explosion si la pile usagée est remplacée par une pile de type incorrect. Les piles usagées doivent être recyclées dans la mesure du possible. La mise au rebut des piles usagées doit respecter les réglementations locales en vigueur en matière de protection de l'environnement.
(French)

⚠ **FORHOLDSREGEL**

Eksplosionsfare, hvis batteriet erstattes med et batteri af en forkert type. Batterier bør om muligt genbruges. Bortskaffelse af brugte batterier bør foregå i overensstemmelse med gældende miljølovgivning.
(Danish)

⚠ **OBS!**

Det kan oppstå eksplosjonsfare hvis batteriet skiftes ut med feil type. Batterier bør sendes til gjenvinning hvis det er mulig. Brukte batterier bør kastes i henhold til gjeldende miljølovgivning.
(Norwegian)

⚠ **VIKTIGT!**

Risk för explosion om batteriet ersätts med felaktig batterityp. Batterier bör om möjligt återvinnas. Batterier ska kasseras enligt de lokala miljövårdsbestämmelserna.
(Swedish)

⚠️ VARO

Räjähdysvaara, jos pariston tyyppi on väärä. Paristot on kierrätettävä, jos se on mahdollista. Käytetyt paristot on hävitettävä paikallisten ympäristömääräysten mukaisesti.
(Finnish)

⚠️ VORSICHT

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

⚠️ AVVERTIMENTO

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

⚠️ PRECAUCIÓN

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

⚠️ WAARSCHUWING

Er bestaat ontploffingsgevaar als de batterij wordt vervangen door een onjuist type batterij. Batterijen moeten zoveel mogelijk worden gerecycled. Houd u bij het weggooien van gebruikte batterijen aan de plaatselijke milieuwetgeving.
(Dutch)

⚠️ ATENÇÃO

Haverá risco de explosão se a bateria for substituída por um tipo de bateria incorreto. As baterias devem ser recicladas nos locais apropriados. A eliminação de baterias usadas deve ser feita de acordo com as regulamentações ambientais da região.
(Brazilian Portuguese)

To replace the battery, follow these steps:

1. Observe the safety and ESD precautions at the beginning of this chapter.
2. Turn off all peripheral devices connected to the server. Disconnect the server's power cord from the AC power source (wall outlet or power adapter).
3. Remove the server cover.
4. Locate the battery on the board (see Figure 23).
5. With your fingertip or a flathead screwdriver, gently pull back the tab away from the battery. Pull out the battery. Note the orientation of the "+"on the battery.
6. Install the new battery in the connector, orienting the "+" as shown in Figure 23.
7. Replace the server cover.
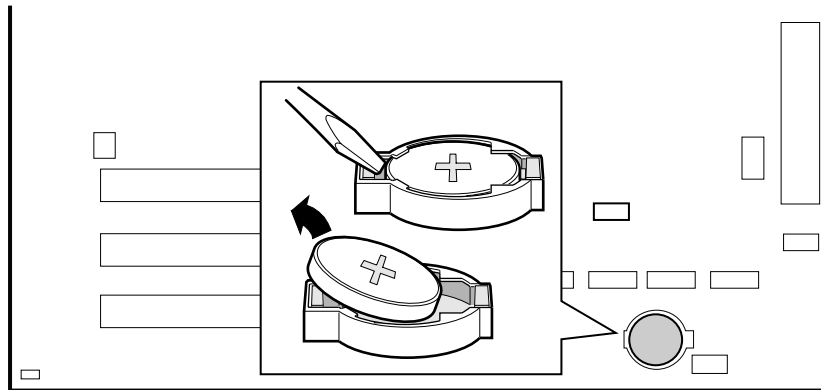
TP00197

Figure 23. Removing the Battery

3 Configuration Software and Utilities

This chapter tells you how to update the BIOS by with the Intel Flash Memory Update Utility, and how to recover the BIOS if an update fails.

Updating the BIOS with the Intel® Flash Memory Update Utility

With the Intel Flash Memory Update Utility you can update the system BIOS from a floppy disk or other bootable media. The utility available from the Web provides a simple method for creating a bootable flash memory update floppy that will automatically update your BIOS.

- Prepare for the update
- Update the BIOS
- Recover the BIOS if an update fails

Obtaining the BIOS Update File

You can update to a new version of the BIOS or change the language section of the BIOS by using the BIOS update file. The BIOS update file is a compressed self-extracting archive that contains all the files you need to update the BIOS. The BIOS update file contains:

- New BIOS files
- BIOS recovery files
- Intel Flash Memory Update Utility

You can obtain the BIOS update file through your server supplier or from the Intel World Wide Web site:

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

⇒ **NOTE**

Review the instructions distributed with the update utility before attempting a BIOS update.

Recording the Current BIOS Settings

1. Boot the server and press `<F2>` when you see the message:

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

⟹ **NOTE**

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

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

Creating Bootable Media

You can create bootable media with a:

- CD writer
- Normal diskette drive or an LS-120 diskette drive

Creating a Bootable CD

The instructions below assume a bootable diskette is used. When using a CD writer to use a CD, follow the instructions provided with your CD writer to make a bootable CD using floppy emulation and bootable files.

Creating a Bootable Diskette

⟹ **NOTE**

If your drive A is an LS-120 diskette drive, you must use a 1.44 MB diskette as the bootable BIOS update diskette. The server is unable to recover a BIOS from an LS-120 diskette.

To create a bootable diskette using a DOS system:

- Place an unformatted diskette in the diskette drive and format the diskette using the /s option. Example: `format a: /s`
- Alternatively, place a formatted diskette in the diskette drive and use the sys command. Example: `sys a:`

To create a bootable diskette using a non-DOS system:

1. Obtain the BIOS update file through your server supplier or from the Intel World Wide Web site: http://support.intel.com/support/motherboards/server/
2. Copy the BIOS update file to a temporary directory on your hard disk.
3. Change to the temporary directory.
4. To extract the files, double click on the BIOS update file, for example, EABIOSxx.EXE.
5. One of the extracted files is MK_BOOTZ.EXE. Double click on this file to extract the README.TXT file.
6. Follow the directions in the README.TXT file.

Creating a BIOS Update Media

1. Obtain the BIOS update file through your server supplier or from the Intel World Wide Web site:

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

2. Copy the BIOS update file to a temporary directory on your hard disk.
3. From the C:\ prompt, change to the temporary directory.
4. To extract the file, type the name of the BIOS upgrade file, for example, EABIOSxx.
5. Press <Enter>. The extracted file contains the following files:
   - LICENSE.TXT
   - BIOINSTR.TXT
   - BIOS.EXE
   - MK_BOOTZ.EXE
6. Read the LICENSE.TXT file, which contains the software license agreement, and the BIOINSTR.TXT file, which contains the instructions for the BIOS update.
7. Insert the bootable diskette into drive A.
8. Extract the BIOS.EXE file to the diskette. From the directory that contains the BIOS.EXE file type:

   BIOS A:

9. Press <Enter>.
10. The diskette now holds the new BIOS files, the Intel Flash Update Utility, and the recovery files.

Updating the BIOS

⚠ CAUTION

The AUTOEXEC.BAT file provided with the update files updates the BIOS in two parts: first updating the boot block and displaying the `Operation completed successfully` message and second, updating the BIOS core. You will be asked to reboot the system when the update process is complete. Do not interrupt the process or the system may not be capable of rebooting.

1. Boot the server with the bootable BIOS upgrade diskette in drive A. During system boot, the AUTOEXEC.BAT file provided with the update files will automatically run the BIOS update process.

   The AUTOEXEC.BAT file updates the BIOS in two parts: first updating the boot block and displaying the `Operation completed successfully` message and then updating the BIOS core.

2. When the update process is complete, the monitor will display a message telling you to remove the diskette and to reboot the system.

3. As the server boots, check the BIOS identifier (version number) to make sure the upgrade was successful. If a logo appears, press <Esc> to view the POST messages.

4. Enter BIOS Setup program by pressing <F2> when you see the message:

   `Press <F2> to Run SETUP`

5. For proper operation, load the BIOS Setup program defaults. To load the defaults, press <F9>.

6. To accept the defaults, press <Enter>.

7. In Setup, enter the settings you wrote down before beginning the BIOS upgrade.

8. To save the settings, press <F10>.

9. To accept the settings, press <Enter>.

10. Turn off the server and reboot.

Recovering the BIOS

It is unlikely that anything will interrupt the BIOS update, however, if an interruption occurs, the BIOS could be damaged. The following steps explain how to recover the BIOS if an update fails. The following procedure uses recovery mode for the Setup program. See page 58 for more information on Setup modes.

⟹ **NOTE**

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

1. Turn off the server, disconnect the server's power cord, and disconnect all external peripherals.
2. Remove the server cover and locate the configuration jumper block (J8J2) (see Figure 22).
3. Remove the jumper from all pins as shown below to set recovery mode for Setup.

   3 ⬜⭕⭕⬜ 1
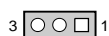
4. Insert the bootable BIOS update diskette into diskette drive A.
5. Replace the server cover, connect the power cord, turn on the server, and allow it to boot. The recovery process will take a few minutes. Listen to the speaker and watch for drive A activity.
   - Upon applying power, drive A will begin to show activity. In about a minute, two beeps are heard and drive A activity ceases (temporarily) indicating the successful recovery of the BIOS core. Drive A activity will begin again followed by two more beeps indicating the successful recovery of the boot block. This sequence of events indicates that successful BIOS recovery has taken place.
   - A series of continuous beeps indicates that BIOS recovery has failed.
6. If recovery fails, return to step 1 and repeat the recovery process.
7. If recovery is successful, turn off the server, disconnect the power cord, and remove the server cover.
8. On the jumper block (J8J2), reinstall the jumper back on pins 1-2 as shown below to set normal mode for Setup.

   3 ⬜⭕⬛ 1

9. Leave the update diskette in drive A, replace the server cover, and connect the server's power cord.
10. Turn on the server and continue with the BIOS update (see page 66).

Using the Setup Program

You can use the BIOS Setup program to change the configuration information and boot sequence for the server. This chapter tells you how to access the BIOS Setup program and lists Setup features, options, and default settings.

⟹ **NOTE**

> For reference purposes, you should write down the current Setup settings. When you make changes to the settings, update this record.

BIOS Setup Program Modes

The BIOS Setup program has three modes of operation:

- Normal mode for normal operations
- Configure mode for clearing passwords (see Chapter 2 for instructions)
- Recovery mode for BIOS recovery

The BIOS Setup Program Operating mode is controlled by the setting of the configuration jumper block. The jumper is set to normal mode at the factory. The Maintenance menu is not available when Setup is used with the jumper in normal mode. The Maintenance menu is available only when the BIOS configuration jumper covers pins two and three.

The BIOS Setup program can be used to view and change the BIOS settings for the server. The BIOS Setup program is accessed by pressing the <F2> key after the Power-On Self-Test (POST) memory test begins and before the operating system boot begins. The menu bar is shown below.

```
Maintenance    Main    Advanced   Security    Power     Boot      Exit
```

Table 15.   BIOS Setup Program Menu Bar

Maintenance	Main	Advanced	Security	Power	Boot	Exit
Clears passwords and Boot Integrity Service (BIS)* credentials. View and change the CPU frequency ratio	View BIOS versions, processor speed and type, memory and memory mode. Set language, system date and time.	Allocate resources for hardware components Configures advanced features available through the chipset	Sets passwords and security features	Configures power management features	Selects boot options and power supply controls	Saves or discards changes to Setup program options

* For information about the BIS, refer to the Intel Web site at: http://developer.intel.com/design/security/index1.htm

Table 16 shows the function keys available for menu screens.

Table 16.   BIOS Setup Program Function Keys

BIOS Setup Program Function Key	Description
<←> or <→>	Selects a different menu screen.
<↑> or <↓>	Moves cursor up or down.
<Tab>	Moves cursor to the next field.
<Enter>	Executes command or selects the submenu.
<F9>	Load the default configuration values for the current menu.
<F10>	Save the current values and exits the BIOS Setup program.
<Esc>	Exits the menu.

Maintenance Menu

This menu is used to clear passwords and to access processor information. Setup only displays this menu when the BIOS Configuration jumper is in the configure mode. See page 58 for information about setting the configure mode. To access this menu, select Maintenance on the menu bar at the top of the screen.

Maintenance	Main	Advanced	Security	Power	Boot	Exit

Table 17.   Maintenance Menu

Feature	Options	Description
CPU Frequency	• 8 to 1 ratio (default) • 12 to 1 ratio through 39 to 1 ratio	
Clear All Passwords	• Ok (default) • Cancel	Clears the user and administrative passwords.
Clear BIS Credentials	• Ok (default) • Cancel	Clears the Wired for Management Boot Integrity Service (BIS) credentials.
CPU Stepping Signature	No options	Displays CPU's Stepping Signature.
CPU Microcode Update Revision	No options	Displays CPU's Microcode Update Revision.

Main Menu

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

Maintenance	**Main**	Advanced	Security	Power	Boot	Exit

Table 18 describes the Main Menu. This menu reports processor and memory information and is for configuring the system date and system time.

Table 18.   Main Menu

Feature	Options	Description
BIOS Version	No options	Displays the version of the BIOS.
Processor Type	No options	Displays processor type.
Processor Speed	No options	Displays processor speed.
System Bus Speed	No options	Displays the system bus speed.
System Memory Speed	No options	Displays the memory speed.
Cache RAM	No options	Displays the size of second-level cache.
Total Memory	No options	Displays the total amount of RAM.
Memory Mode	No options	Displays whether interleaved or single-channel memory mode is in place.
DIMM Slot 1A DIMM Slot 2A DIMM Slot 1B DIMM Slot 2B	No options	Displays the amount and type of DIMMs in the memory banks.
Memory Configuration	• Non-ECC • ECC	Allows the user to enable error reporting in the system and all installed memory supported ECC. If non-ECC memory is installed, BIOS will detect and change the setting to non-ECC.
Language	• English (default) • Español	Selects the current default language used by the BIOS (Deutsch, Italiano, and Français available via .lng files).
System Time	• Hour, minute, and second	Set current time. Use the Tab key to navigate fields
System Date	• Day of week Month/day/year	Set current date. Use the Tab key to navigate fields.

⟹ **NOTE**

Additional language support is available. For more information visit Intel's support web site at: *www.support.intel.com/support/motherboards/server/S875WP1-E*

Advanced Menu

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

Maintenance	Main	**Advanced**	Security	Power	Boot	Exit

PCI Configuration
Boot Configuration
Peripheral Configuration
Drive Configuration
Floppy Configuration
Event Log Configuration
Video Configuration
USB Configuration
Chipset Configuration
Fan Control Configuration
Hardware Monitoring
Remote Access Configuration

Table 19 describes the Advanced Menu. This menu is used for setting advanced features that are available through the chipset.

Table 19.   Advanced Menu

Feature	Options	Description
PCI Configuration	Select to display submenu	Displays the PCI Configuration submenu.
Boot Configuration	Select to display submenu	Displays the Boot Configuration submenu.
Peripheral Configuration	Select to display submenu	Displays the Peripheral Configuration submenu.
Drive Configuration	Select to display submenu	Displays the Drive Configuration submenu.
Floppy Configuration	Select to display submenu	Displays the Floppy Configuration submenu.
Event Log Configuration	Select to display submenu	Displays the Event Log Configuration submenu.
Video Configuration	Select to display submenu	Displays the Video Configuration submenu
USB Configuration	Select to display submenu	Displays the USB Configuration submenu
Chipset Configuration	Select to display submenu	Displays the Chipset Configuration submenu
Fan Control Configuration	Select to display submenu	Displays the Fan Control Configuration submenu
Hardware Monitoring	Select to display submenu	Displays the Hardware Monitoring submenu.
Remote Access Configuration	Select to display submenu	Displays the Remote Access Configuration submenu.

PCI Configuration Submenu

To access this submenu, select Advanced on the menu bar, then PCI Configuration.

Maintenance	Main	**Advanced**	Security	Power	Boot	Exit

PCI Configuration
Boot Configuration
Peripheral Configuration
Drive Configuration
Floppy Configuration
Event Log Configuration
Video Configuration
USB Configuration
Chipset Configuration
Fan Control Configuration
Hardware Monitoring
Remote Access Configuration

The submenu represented by Table 20 is for configuring the IRQ priority of PCI slots individually.

Table 20.   PCI Configuration Submenu

Feature	Options	Description
PCI Slot 1 IRQ Priority	• Auto (default) • 5 • 9 • 10 • 11	Allows selection of IRQ priority.
PCI Slot 2 IRQ Priority (Note 1)	• Auto (default) • 5 • 9 • 10 • 11	Allows selection of IRQ priority.
PCI Slot 3 IRQ Priority (Note 1)	• Auto (default) • 5 • 9 • 10 • 11	Allows selection of IRQ priority.

Notes:

1. Additional interrupts may be available if certain on-board devices (such as the serial and parallel ports) are disabled.

Boot Configuration Submenu

To access this submenu, select Advanced on the menu bar, then Boot Configuration.

Maintenance	Main	**Advanced**	Security	Power	Boot	Exit

PCI Configuration
Boot Configuration
Peripheral Configuration
Drive Configuration
Floppy Configuration
Event Log Configuration
Video Configuration
USB Configuration
Chipset Configuration
Fan Control Configuration
Hardware Monitoring
Remote Access Configuration

The submenu represented by Table 21 is for setting Plug and Play (PnP) options, resetting configuration data, and the power-on state of the Numlock key.

Table 21.   Boot Configuration Submenu

Feature	Options	Description
Plug and Play O/S	• No (default) • Yes	Specifies if manual configuration is desired. *No* lets the BIOS configure all devices. This setting is appropriate when using a Plug and Play operating system. *Yes* lets the operating system configure Plug and Play devices not required to boot the system. This option is available for use during lab testing.
Numlock	• Off • On (default)	Specifies the power-on state of the Numlock feature on the numeric keypad of the keyboard.

Peripheral Configuration Submenu

To access this submenu, select Advanced on the menu bar, then Peripheral Configuration.

Maintenance	Main	**Advanced**	Security	Power	Boot	Exit

PCI Configuration
Boot Configuration
Peripheral Configuration
Drive Configuration
Floppy Configuration
Event Log Configuration
Video Configuration
USB Configuration
Chipset Configuration
Fan Control Configuration
Hardware Monitoring
Remote Access Configuration

The submenu represented in Table 22 is used for configuring server peripherals.

Table 22.   Peripheral Configuration Submenu

Feature	Options	Description
Serial Port A	• Disabled • Enabled • Auto (default)	Configures serial port A. *Auto* assigns the first free COM port, normally COM1, the address 3F8h, and the interrupt IRQ4. An * (asterisk) displayed next to an address indicates a conflict with another device.
Base I/O Address	• 3F8 (default) • 2F8 • 3E8 • 2E8	This option is available only when Serial Port A is set to Enabled. Specifies the base I/O address for serial port A.
Interrupt	• IRQ 3 • IRQ 4 (default)	This option is available only when Serial Port A is set to Enabled. Specifies the interrupt for serial port A.
Serial Port B	• Disabled • Enabled • Auto (default)	Configures serial port B. Auto assigns the first free COM port, normally COM 2, the address 3F8h, and the interrupt IRQ4. An * (asterisk) displayed next to an address indicates a conflict with another device.
Mode	• Normal • IrDA SIR-A • ASK_IR	This option is available to set Serial Port B Mode. This includes Normal and Infared Modes.
Base I/O address	• 3F8 • 2F8 (default) • 3E8 • 2E8	This option is displayed only if Serial Port B is set to Enabled. Specifies the base I/O address for serial port B.
Interrupt	• IRQ 3 (default) • IRQ 4	This option is displayed only if Serial Port B is set to Enabled Specifies the interrupt for serial port B.

continued

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Table 22.   Peripheral Configuration Submenu (continued)

Feature	Options	Description
Parallel Port	• Disabled • Enabled • **Auto (default)**	Configures the parallel port. Auto assigns LPT1 the address 378h and the interrupt IRQ7. An * (asterisk) displayed next to an address indicates a conflict with another device.
Mode	• Output Only • **Bi-directional (default)** • EPP • ECP	Selects the mode for the parallel port. Not available if the parallel port is disabled. Output Only operates in AT-compatible mode. Bi-directional operates in PS/2-compatible mode. EPP is Extended Parallel Port mode, a high-speed bi-directional mode. ECP is Enhanced Capabilities Port mode, a high-speed bi-directional mode.
Base I/O Address	• **378 (default)** • 278	This feature is present only when Parallel Port is set to Enabled Specifies the base I/O address for the parallel port.
Interrupt	• IRQ 5 • **IRQ 7 (default)**	This feature is present only when Parallel Port is set to Enabled Specifies the interrupt for the parallel port.
DMA	• 1 • **3 (default)**	This feature is present only when Parallel Port Mode is set to ECP Specifies the DMA channel.
10/100 NIC	• Disabled • **Enabled (default)**	Enables or disables the on-board LAN#1 device.
Gigabit NIC	• Disabled • **Enabled (default)**	Enables or disables the on-board LAN#2 device.
ATI Rage XL Video	• Disabled • **Enabled (default)**	Enables or disables the on-board ATI* Rage XL video controller.
Promise PDC20319 S150 TX4	• Disabled • **Enabled (default)**	Enables or disables RAID support.

Drive Configuration Submenu

To access this submenu, select Advanced on the menu bar, then Drive Configuration.

Maintenance	Main	**Advanced**	Security	Power	Boot	Exit

PCI Configuration
Boot Configuration
Peripheral Configuration
Drive Configuration
Floppy Configuration
Event Log Configuration
Video Configuration
USB Configuration
Chipset Configuration
Fan Control Configuration
Hardware Monitoring
Remote Access Configuration

The menu represented in Table 23 is used to configure drive options.

Table 23.   Drive Configuration Submenu

Feature	Options	Description
ATA / IDE Configuration	• Disabled • Legacy • Enhanced (default)	Selects the mode for the integrated IDE controller. When Legacy is selected, a maximum of 4 drives can be installed. When Enhanced is selected, a maximum of 6 drives can be installed.
Legacy IDE Channels	• PATA Pri Only • PATA Sec Only • PATA Pri and Sec (default) • P0 / P1 Only • SATA P0 / P1, PATA Sec • SATA P0 / P1, PATA Pri	This option is available only when Legacy is selected as the IDE Mode.
PCI IDE Bus Master	• Enabled (default) • Disabled	

continued

Table 23. Drive Configuration Submenu (continued)

Hard Disk Pre-Delay	• Disabled (default) • 3 Seconds • 6 Seconds • 9 Seconds • 12 Seconds • 15 Seconds • 21 Seconds • 30 Seconds	Specifies the hard disk drive pre-delay.
Intel (R) RAID Technology	• Disabled (default) • Enabled	
SATA Port -0	Select to display sub-menu	Reports type of connected SATA device. When selected, displays SATA Port-0 submenu.
SATA Port -1	Select to display sub-menu	Reports type of connected SATA device. When selected, displays SATA Port-1 submenu.
PATA Primary Master	Select to display sub-menu	Reports type of connected IDE device. When selected, displays the Primary IDE Master submenu.
PATA Primary Slave	Select to display sub-menu	Reports type of connected IDE device. When selected, displays the Primary IDE Slave submenu.
PATA Secondary Master	Select to display sub-menu	Reports type of connected IDE device. When selected, displays the Secondary IDE Master submenu.
PATA Secondary Slave	Select to display sub-menu	Reports type of connected IDE device. When selected, displays the Secondary IDE Slave submenu.

Primary/Secondary/SATA-0/SATA-1 Master/Slave Submenus

To access these submenus, select Advanced on the menu bar, then Drive Configuration, and then the master or slave to be configured.

Maintenance	Main	**Advanced**	Security	Power	Boot	Exit

```
PCI Configuration
Boot Configuration
Peripheral Configuration
Drive Configuration
Floppy Configuration
Event Log Configuration
Video Configuration
USB Configuration
Chipset Configuration
Fan Control Configuration
Hardware Monitoring
Remote Access Configuration
```

There are four IDE submenus: primary master, primary slave, secondary master, and secondary slave. Table 24 shows the format of the IDE submenus. For brevity, only one example is shown.

Table 24. Primary/Secondary/SATA-0/SATA-1 Master/Slave Submenus

Feature	Options	Description
Drive Installed	No options	Displays the type of drive installed.
Type	• User • Auto (default)	Specifies the drive configuration. *User* allows capabilities to be changed. *Auto* fills-in capabilities from the device.
Maximum Capacity	No options	Displays the capacity of the drive. (SATA only)
LBA / Large Mode	• Disabled • Auto (default)	This option can be changed only if User is selected as the type.
Block Mode	• Disabled • Auto (default)	This option can be changed only if User is selected as the type.
PIO Mode	• Auto (default) • 0 • 1 • 2 • 3 • 4	This option can be changed only if User is selected as the type.
DMA Mode	• Auto (default) • SWDMA 0, 1, or 2 • MWDMA 0, 1, or 2 • UDMA 0, 1, 2, 3, 4, 5	This option can be changed only if User is selected as the type. SWDMA = Single Word DMA MWDMA = Multi Word DMA UDMA = Ultra DMA

continued

Table 24.   Primary/Secondary/SATA-0/SATA-1 Master/Slave Submenus (continued)

Feature	Options	Description
S.M.A.R.T	• Auto (default) • Disabled • Enabled	This option can be changed only if User is selected as the type. If Auto is selected, this option is not displayed. Enables or disables Self-monitoring, Analysis, and Reporting Technology.
Cable Detected (Note)	No options	Displays the type of cable connected to the IDE interface: 40-conductor or 80-conductor (for ATA-66/100 devices).

Note: These configuration options appear only if an IDE device is installed.

Floppy Configuration Submenu

To access this menu, select Advanced on the menu bar, then Floppy Configuration.

Maintenance	Main	**Advanced**	Security	Power	Boot	Exit

PCI Configuration
Boot Configuration
Peripheral Configuration
Drive Configuration
Floppy Configuration
Event Log Configuration
Video Configuration
USB Configuration
Chipset Configuration
Fan Control Configuration
Hardware Monitoring
Remote Access Configuration

The submenu represented by Table 25 is used for configuring the diskette drive.

Table 25.   Floppy Configuration Submenu

Feature	Options		Description
Diskette Controller	• Disabled • Enabled (default)		Disables or enables the integrated diskette controller.
Floppy A	• Disabled • 360 KB • 1.2 MB • 720 KB • 1.44 MB • 2.88 MB	5¼ inch 5¼ inch 3½ inch 3½ inch (default) 3½ inch	Specifies the capacity and physical size of diskette drive A.
Diskette Write-Protect	• Disabled (default) • Enabled		Disables or enables write-protect for the diskette drive.

Event Log Configuration Submenu

To access this menu, select Advanced on the menu bar, then Event Log Configuration.

Maintenance	Main	**Advanced**	Security	Power	Boot	Exit

PCI Configuration
Boot Configuration
Peripheral Configuration
Drive Configuration
Floppy Configuration
Event Log Configuration
Video Configuration
USB Configuration
Chipset Configuration
Fan Control Configuration
Hardware Monitoring
Remote Access Configuration

The submenu represented by Table 26 is used to configure the event logging features.

Table 26.   Event Log Configuration Submenu

Feature	Options	Description
Event Log	No options	Indicates if there is space available in the event log.
View Event Log	[Enter]	Displays the event log.
Clear Event Log	• OK (default) • Cancel	Clears the event log after rebooting.
Event Logging	• Disabled • Enabled (default)	Enables logging of events.
ECC Event Logging	• Disabled • Enabled (default)	Enables logging of ECC events.
Mark Events As Read	• OK (default) • Cancel	Marks all events as read.

Video Configuration Submenu

To access this menu, select Advanced on the menu bar, then Video Configuration.

Maintenance	Main	**Advanced**	Security	Power	Boot	Exit

PCI Configuration
Boot Configuration
Peripheral Configuration
Drive Configuration
Floppy Configuration
Event Log Configuration
Video Configuration
USB Configuration
Chipset Configuration
Fan Control Configuration
Hardware Monitoring
Remote Access Configuration

The submenu represented by Table 27 is used to configure the video features.

Table 27. Video Configuration Submenu

Feature	Options	Description
AGP Aperture Size	• 4MB • 8MB • 16MB • 32MB • 64MB (default) • 128MB • 256MB	Sets the aperture size for the AGP video controller.
Primary Video Adapter	• AGP (default) • PCI	Allows selecting an AGP or PCI video controller as the display device that will be active when the system boots.

USB Configuration Submenu

To access this menu, select Advanced on the menu bar, then USB Configuration.

Maintenance	Main	**Advanced**	Security	Power	Boot	Exit

PCI Configuration
Boot Configuration
Peripheral Configuration
Drive Configuration
Floppy Configuration
Event Log Configuration
Video Configuration
USB Configuration
Chipset Configuration
Fan Control Configuration
Hardware Monitoring
Remote Access Configuration

The submenu represented by Table 28 is used to configure the USB features.

Table 28.   USB Configuration Submenu

Feature	Options	Description
High-Speed USB	• Enabled (default) • Disabled	Enables or disables the USB 2.0 driver. Disable this option if the driver is not available.
Legacy USB support	• Disabled • Enabled (default)	Allows the use of legacy USB accessories.
USB 2.0 Legacy Support	• FullSpeed (default) • HiSpeed	FullSpeed = 480 Mbps HiSpeed = 12 Mbps
USB Data Area Relocation	• Disabled (default) • Enabled	

Chipset Configuration Submenu

To access this menu, select Advanced on the menu bar, then Chipset Configuration.

Maintenance	Main	**Advanced**	Security	Power	Boot	Exit

PCI Configuration
Boot Configuration
Peripheral Configuration
Drive Configuration
Floppy Configuration
Event Log Configuration
Video Configuration
USB Configuration
Chipset Configuration
Fan Control Configuration
Hardware Monitoring
Remote Access Configuration

The submenu represented by Table 29 is used to configure the chipset features.

Table 29.   Chipset Configuration Submenu

Feature	Options	Description
ISA Enable Bit	• Disabled • Enabled (default)	This option is required by some IDE expansion devices.
PCI Latency Timer	• 32 • 64 • 96 • 128 • 160 • 192 • 224 • 248	

continued

Table 29.   Chipset Configuration Submenu (continued)

Extended Configuration	• Default (default) • User Defined	
SDRAM Frequency	• Auto (default) • 266 • 333 • 400	This option is available only if User Defined is selected as the Extended Configuration option. It allows the user to override the detected memory frequency value.
SDRAM Timing Control	• Auto (default) • Manual – Aggressive • Manual – User Defined	This option is available only if User Defined is selected as the Extended Configuration option. Auto: Timings are programmed according to the memory detected. Manual – Aggressive: Selects the most aggressive user-defined timings. Manual – User Defined: Allows manual override of detected SDRAM settings.
CPC Override	• Auto (default) • Enable • Disable	Command Per Clock. When enabled, it allows the DRAM controller to attempt chip select assertions in two consecutive common clocks.
SDRAM RAS Act. To Pre.	No options	
SDRAM CAS# Latency	No options	
SDRAM RAS# to CAS delay	No options	
SDRAM RAS# Precharge	No options	

Fan Control Configuration Submenu

To access this menu, select Advanced on the menu bar, then Fan Control Configuration.

Maintenance	Main	**Advanced**	Security	Power	Boot	Exit

PCI Configuration
Boot Configuration
Peripheral Configuration
Drive Configuration
Floppy Configuration
Event Log Configuration
Video Configuration
USB Configuration
Chipset Configuration
Fan Control Configuration
Hardware Monitoring
Remote Access Configuration

The submenu represented by Table 30 is used to configure the fan control features.

Table 30.   Fan Control Configuration Submenu

Feature	Options	Description
Fan Control	• Disabled • Enabled (default)	
Lowest Fan Speed	• Slow (default) • Off	This option is available only if Enabled is selected as the Fan Control. Slow: At low system temperatures, the fans will continue to run at a slow speed. Off: At low system temperatures, the fans will turn off.

Hardware Monitoring Submenu

To access this menu, select Advanced on the menu bar, then Hardware Monitoring.

Maintenance	Main	**Advanced**	Security	Power	Boot	Exit

PCI Configuration
Boot Configuration
Peripheral Configuration
Drive Configuration
Floppy Configuration
Event Log Configuration
Video Configuration
USB Configuration
Chipset Configuration
Fan Control Configuration
Hardware Monitoring
Remote Access Configuration

The submenu represented by Table 30 is used to view the hardware that is monitored. These options can be viewed only, not changed.

Table 31.   Hardware Monitoring Submenu

Feature	Options	Description
Processor Zone Temperature	No options	Displays processor zone temperature.
System Zone 1 Temperature	No options	Displays system zone 1 temperature.
System Zone 2 Temperature	No options	Displays system zone 2 temperature.
Processor Fan Speed	No options	Displays the speed at which the processor fan is running.
VReg Fan Speed	No options	Displays the speed for the rear fan.
Front Fan Speed	No options	Displays the speed for the front fan.
+1.5Vin	No options	Displays voltage level.
Vccp	No options	Displays voltage level.
+3.3Vin	No options	Displays voltage level.
+5Vin	No options	Displays voltage level.
+12Vin	No options	Displays voltage level.

Remote Access Configuration Submenu

To access this menu, select Advanced on the menu bar, then Remote Access Configuration.

Maintenance	Main	**Advanced**	Security	Power	Boot	Exit

PCI Configuration
Boot Configuration
Peripheral Configuration
Drive Configuration
Floppy Configuration
Event Log Configuration
Video Configuration
USB Configuration
Chipset Configuration
Fan Control Configuration
Hardware Monitoring
Remote Access Configuration

The submenu represented by Table 32 is used to configure the remote access features.

Table 32.   Remote Access Configuration Submenu

Feature	Options	Description
Remote Access	• Disabled (default) • Enabled	Permits or denies the ability to remotely manage the system.
Serial Port Number	• COM1 (default) • COM2	This option is available only if Enabled is set for the Remote Access option. Specifies the serial port to use for console redirection. In addition to selecting the port number in BIOS setup, make sure the selected port is enabled for use.
Serial Port Mode	• 115200 8,n,1 • 57600 8,n,1 (default) • 19200 8,n,1	This option is available only if Enabled is set for the Remote Access option. Specifies the modem parameters for the selected Com port.
Terminal Type	• VT100	This option is available only if Enabled is set for the Remote Access option.
Post Boot Support	• Disabled (default) • Enabled	This option is available only if Enabled is set for the Remote Access option. Specifies whether redirection should remain active after booting to DOS. When enabled, redirection remains active. When disabled, redirection is disabled upon booting to DOS.

Security Menu

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

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

The menu represented by Table 33 is for setting passwords and security features.

Table 33. Security Menu

If no password entered previously:		
Feature	**Options**	**Description**
Supervisor Password Is	No options	Reports if there is a supervisor password set.
User Password Is	No options	Reports if there is a user password set.
Set Supervisor Password	Password can be up to seven alphanumeric characters.	Specifies the supervisor password.
Set User Password	Password can be up to seven alphanumeric characters.	Specifies the user password.
Clear User Password (Note 1)	• Ok (default) • No	Clears the user password.
User Access Level (Note 2)	• No Access • View Only • Limited • Full (default)	Sets BIOS Setup Utility access rights for user level. No Access: User cannot access BIOS Setup. View Only: User can view BIOS Setup, but cannot make any changes. Limited: User can make limited changes in BIOS Setup. Full: User can change any field in BIOS Setup, except for the Supervisor Password.
Chassis Intrusion	• Disabled (default) • Log • Log, notify once • Log, notify till cleared	Determines whether the chassis will be monitored for intrusions and how intrusion logging should be handled.

Notes:

1. This feature appears only if a user password has been set.
2. This feature appears only if both a user password and a supervisor password have been set.

Power Menu

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

Maintenance	Main	Advanced	Security	**Power**	Boot	Exit
				ACPI		

The menu represented in Table 34 is for setting the power management features.

Table 34.   Power Menu

Feature	Options	Description
ACPI	No Options	When selected, displays the ACPI submenu.
After Power Failure	• Stays Off • Last State (default) • Power On	Specifies the mode of operation if an AC power loss occurs. Power On restores power to the server. Stay Off keeps the power off until the power button is pressed. Last State restores the previous power state before power loss occurred.
Wake on PCI PME	• Stay Off (default) • Power On	Specifies how the computer responds to a PCI power management event.

ACPI Submenu

To access this menu, select Power on the menu bar, then ACPI.

Maintenance	Main	Advanced	Security	**Power**	Boot	Exit
				ACPI		

The submenu represented in Table 35 is for setting the ACPI features.

Table 35.   ACPI Submenu

Feature	Options	Description
ACPI Suspend State	• S1 State • S3 State (default)	Specifies the ACPI sleep state.
Wake on LAN from S5	• Stay Off (default) • Power On	In ACPI soft-off mode only, determines how the system responds to a LAN wake-up event.

Boot Menu

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

Maintenance	Main	Advanced	Security	Power	**Boot**	Exit

The menu represented in Table 36 is used to set the boot features and the boot sequence.

Table 36.   Boot Menu

Feature	Options	Description
Silent Boot	• Disabled (default) • Enabled	Disabled displays normal POST messages. Enabled displays OEM graphic instead of POST messages.
AddOn ROM Display Mode	• Enabled (default) • Disabled	
Intel® Rapid BIOS Boot	• Disabled • Enabled (default)	Enables the computer to boot without running certain POST tests.
Scan User Flash Area	• Disabled • Enabled (default)	Enables the BIOS to scan the flash memory for user binary files that are executed at boot time.
PXE Boot to LAN	• Disabled (default) • Enabled	Enables PXE boot.
USB Boot	• Disabled • Enabled (default)	Enables the computer to boot from USB boot devices.
Boot Device Priority	Select to display submenu	Specifies the boot sequence from the available types of boot devices.
Removable Devices	Select to display submenu	Specifies the boot sequence from the available removable devices.
ATAPI CD-ROM Drives	Select to display submenu	Specifies the boot sequence from the available ATAPI CD-ROM drives.

Boot Device Priority Submenu

To access this menu, select Boot on the menu bar, then Boot Devices Priority.

Maintenance	Main	Advanced	Security	Power	**Boot**	Exit
					Boot Device Priority	
					Hard Disk Drives	
					Removable Devices	
					ATAPI CDROM Drives	

The submenu represented in Table 37 is for setting boot devices priority.

Table 37.   Boot Device Priority Submenu

Feature	Options	Description
1st Boot Device 2nd Boot Device 3rd Boot Device 4th Boot Device (Note 1)	• Removable Dev. • Hard Drive • ATAPI CD-ROM • Intel® UNDI, PXE • Disabled	Specifies the boot sequence from the available types of boot devices. To specify boot sequence: 1. Select the boot device with <↑> or <↓>. 2. Press <Enter> to set the selection as the intended boot device. The default settings for the first through fourth boot devices are, respectively: • Removable Dev. • Hard Drive • ATAPI CD-ROM • Intel UNDI, PXE-2.0

Hard Disk Drives Submenu

To access this menu, select Boot on the menu bar, then Hard Disk Drives.

Maintenance	Main	Advanced	Security	Power	**Boot**	Exit
					Boot Device Priority	
					Hard Disk Drives	
					Removable Devices	
					ATAPI CDROM Drives	

The submenu represented in Table 38 is for setting hard disk drive priority.

Table 38.   Hard Disk Drives Submenu

Feature	Options	Description
1st Hard Disk Drive (Note)	Dependent on installed hard drives	Specifies the boot sequence from the available hard disk drives. To specify boot sequence: 1. Select the boot device with <↑> or <↓>. 2. Press <Enter> to set the selection as the intended boot device.

Note: This boot device submenu appears only if at least one boot device of this type is installed. This list will display up to twelve hard disk drives, the maximum number of hard disk drives supported by the BIOS.

Removable Devices Submenu

To access this menu, select Boot on the menu bar, then Removable Devices.

Maintenance	Main	Advanced	Security	Power	**Boot**	Exit
					Boot Device Priority	
					Hard Disk Drives	
					Removable Devices	
					ATAPI CDROM Drives	

The submenu represented in Table 39 is for setting removable device priority.

Table 39. Removable Devices Submenu

Feature	Options	Description
1st Removable Device (Note)	Dependent on installed removable devices	Specifies the boot sequence from the available removable devices. To specify boot sequence: 1. Select the boot device with <↑> or <↓>. 2. Press <Enter> to set the selection as the intended boot device.

Note: This boot device submenu appears only if at least one boot device of this type is installed. This list will display up to four removable devices, the maximum number of removable devices supported by the BIOS.

ATAPI CDROM Drives Submenu

To access this menu, select Boot on the menu bar, then ATAPI CDROM Drives.

Maintenance	Main	Advanced	Security	Power	**Boot**	Exit
					Boot Device Priority	
					Hard Disk Drives	
					Removable Devices	
					ATAPI CDROM Drives	

The submenu represented in Table 40 is for setting ATAPI CDROM drive priority.

Table 40. ATAPI CDROM Drives Submenu

Feature	Options	Description
1st ATAPI CDROM Drive (Note)	Dependent on installed ATAPI CDROM drives	Specifies the boot sequence from the available ATAPI CDROM drives. To specify boot sequence: 1. Select the boot device with <↑> or <↓>. 2. Press <Enter> to set the selection as the intended boot device.

Note: This boot device submenu appears only if at least one boot device of this type is installed. This list will display up to four ATAPI CDROM drives, the maximum number of ATAPI CDROM drives supported by the BIOS.

Exit Menu

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

Maintenance	Main	Advanced	Security	Power	Boot	**Exit**

The menu represented in Table 41 is for exiting the BIOS Setup program, saving changes, and loading and saving defaults.

Table 41.   Exit Menu

Feature	Description
Exit Saving Changes	Exits and saves the changes in CMOS SRAM.
Exit Discarding Changes	Exits without saving any changes made in the BIOS Setup program.
Load Setup Defaults	Loads the factory default values for all the Setup options.
Load Custom Defaults	Loads the custom defaults for Setup options.
Save Custom Defaults	Saves the current values as custom defaults. Normally, the BIOS reads the Setup values from flash memory. If this memory is corrupted, the BIOS reads the custom defaults. If no custom defaults are set, the BIOS reads the factory defaults.
Discard Changes	Discards changes without exiting Setup. The option values present when the server was turned on are used.

4 Solving BIOS Problems

The board reports POST errors in two ways:

- By sounding a beep code
- By displaying an error message on the monitor

BIOS Beep Codes

The BIOS beep codes are listed in Table 42. The BIOS also issues a beep code (one long tone followed by two short tones) during POST if the video configuration fails, or if an external ROM module does not properly checksum to zero.

Table 42.   Beep Codes

Number of Beeps	Description
1	Refresh failure
2	Parity cannot be reset
3	First 64 Kb memory failure
4	Timer not operational
5	Processor failure (Reserved; not used)
6	8042 GateA20 cannot be toggled (memory failure or not present)
7	Exception interrupt error
8	Display memory R/W error
9	(Reserved; not used)
10	CMOS Shutdown register test error
11	Invalid BIOS (such as, POST module not found)

BIOS Error Messages

When a recoverable error occurs during the POST, the BIOS displays an error message describing the problem (see Table 43).

Table 43.   BIOS Error Messages

Error Message	Explanation
GA20 Error	An error occurred with Gate A20 when switching to protected mode during the memory test.
Pri Master HDD Error Pri Slave HDD Error Sec Master HDD Error Sec Slave HDD Error	Could not read sector from corresponding drive.
Pri Master Drive - ATAPI Incompatible Pri Slave Drive - ATAPI Incompatible Sec Master Drive - ATAPI Incompatible Sec Slave Drive - ATAPI Incompatible	Corresponding drive is not an ATAPI device. Run Setup to make sure device is selected correctly.
A: Drive Error	No response from diskette drive.
CMOS Battery Low	The battery may be losing power. Replace the battery soon.
CMOS Display Type Wrong	The display type is different than what has been stored in CMOS. Check Setup to make sure type is correct.
CMOS Checksum Bad	The CMOS checksum is incorrect. CMOS memory may have been corrupted. Run Setup to reset values.
CMOS Settings Wrong	CMOS values are not the same as the last boot. These values have either been corrupted or the battery has failed.
CMOS Date/Time Not Set	The time and/or date values stored in CMOS are invalid. Run Setup to set correct values.
DMA Error	Error during read/write test of DMA controller.
FDC Failure	Error occurred trying to access diskette drive controller.
HDC Failure	Error occurred trying to access hard disk controller.
Checking NVRAM.....	NVRAM is being checked to see if it is valid.
Update OK!	NVRAM was invalid and has been updated.
Updated Failed	NVRAM was invalid but was unable to be updated.
Keyboard Error	Error in the keyboard connection. Make sure keyboard is connected properly.
KB/Interface Error	Keyboard interface test failed.

Table 43.   BIOS Error Messages (continued)

Error Message	Explanation
Memory Size Decreased	Memory size has decreased since the last boot. If no memory was removed, then memory may be bad.
Memory Size Increased	Memory size has increased since the last boot. If no memory was added, there may be a problem with the system.
Memory Size Changed	Memory size has changed since the last boot. If no memory was added or removed, then memory may be bad.
No Boot Device Available	System did not find a device to boot.
Off Board Parity Error	A parity error occurred on an off-board card. This error is followed by an address.
On Board Parity Error	A parity error occurred in onboard memory. This error is followed by an address.
Parity Error	A parity error occurred in onboard memory at an unknown address.
NVRAM / CMOS / PASSWORD cleared by Jumper	NVRAM, CMOS, and passwords have been cleared. The system should be powered down and the jumper removed.
<CTRL_N> Pressed	CMOS is ignored and NVRAM is cleared. User must enter Setup.

5   Getting Help

World Wide Web

http://support.intel.com/support/motherboards/server/S875WP1-E

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)

* Or contact your local dealer or distributor.

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

6 Technical Reference

Server Board Connectors

⚠ **CAUTION**

Many of the baseboard and front panel connectors provide operating voltage (+5 V DC and +12 V DC, for example) to devices inside the server chassis, such as fans and internal peripherals. These connectors are not overcurrent protected. Do not use these connectors for powering devices external to the server chassis. A fault in the load presented by the external devices could cause damage to the server, the interconnecting cable, and the external devices themselves.

⟹ **NOTE**

A standard ATX 20 pin power connector and standard ATX 12V 4 pin 2x2 connector can be used to power the server board S875WP1-E. Plug the power cables into the pin 1 end of their respective motherboard connectors, leaving pins 21-24 unused on the main power connector and 5-8 unused on the 12V connector.

Baseboard Connectors

Power, Fan, Chassis Intrusion Connectors

Figure 24 shows the power, fan, and chassis intrusion connectors.
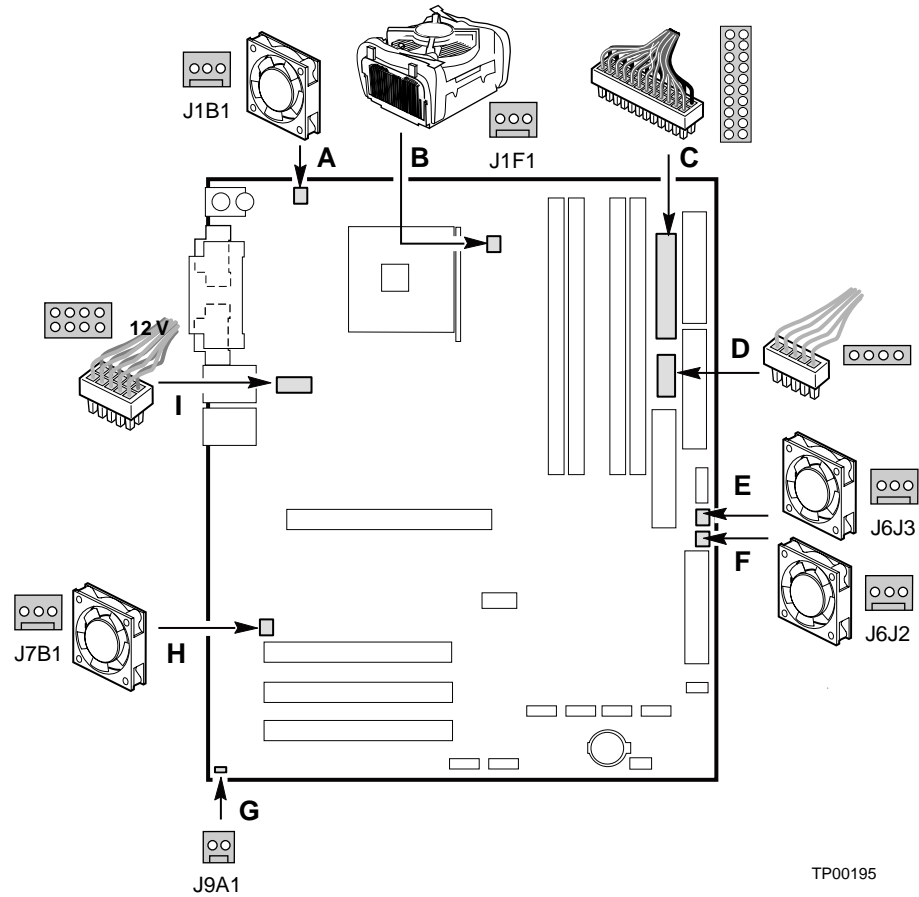
A. Chassis fan	E. Chassis fan
B. Processor fan	F. Chassis fan
C. Main power	G. Chassis intrusion
D. Auxiliary power	H. +12V power

Figure 24. Power, Fan, and Chassis Intrusion Connectors

Add-In Board and Peripheral Interface Connectors

Figure 25 shows the add-in board and peripheral interface connectors.

TP00199

A. PCI slot 1
B. PCI slot 2
C. PCI slot 3
D. Serial ATA Drive SATA-A4 (S875WP1LX only)
E. Serial ATA Drive SATA-A2 (S875WP1LX only)
F. Serial ATA Drive SATA-A3 (S875WP1LX only)
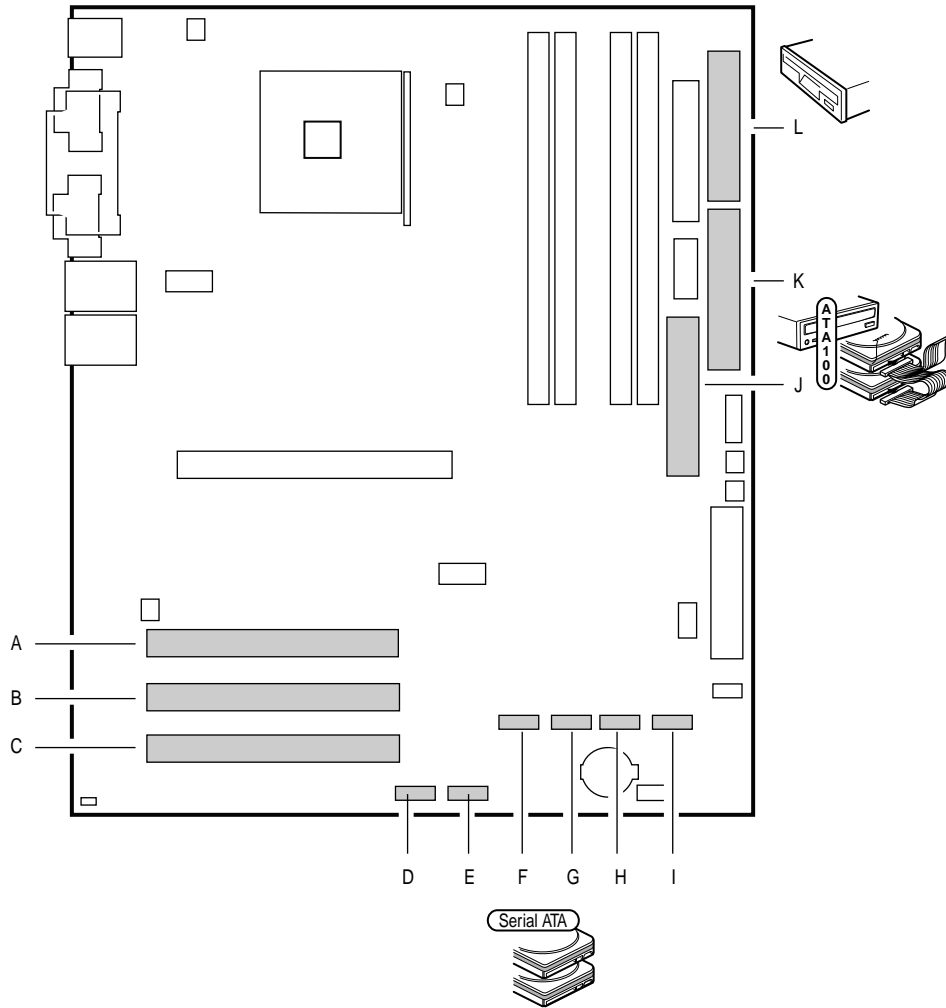
G. Serial ATA Drive SATA-A1 (S875WP1LX only)
H. Serial ATA Drive SATA-B1
I. Serial ATA Drive SATA-B2
J. Secondary IDE
K. Primary IDEFloppy drive

Figure 25. Add-in Board and Peripheral Interface Connectors

Server Board Resources

Memory Map

Table 44.   System Memory Map

Address Range (decimal)	Address Range (hex)	Size	Description
1024 K - 4194304 K	100000 - FFFFFFFF	4095 MB	Extended memory
960 K - 1024 K	F0000 - FFFFF	64 KB	Runtime BIOS
896 K - 960 K	E0000 - EFFFF	64 KB	Reserved
800 K - 896 K	C8000 - DFFFF	96 KB	Available high DOS memory (open to the PCI bus)
640 K - 800 K	A0000 - C7FFF	160 KB	Video memory and BIOS
639 K - 640 K	9FC00 - 9FFFF	1 KB	Extended BIOS data (movable by memory manager software)
512 K - 639 K	80000 - 9FBFF	127 KB	Extended conventional memory
0 K - 512 K	00000 - 7FFFF	512 KB	Conventional memory

DMA Channels

Table 45.   DMA Channels

DMA Channel Number	Data Width	System Resource
0	8 or 16 bits	Open
1	8 or 16 bits	Parallel port
2	8 or 16 bits	Diskette drive
3	8 or 16 bits	Parallel port (for ECP or EPP)
4	8 or 16 bits	DMA controller
5	16 bits	Open
6	16 bits	Open
7	16 bits	Open

I/O Map

Table 46.   I/O Map

Address (hex)	Size	Description
0000 - 00FF	256 bytes	Used by the Server Board S875WP1-E. Refer to the ICH5-R data sheet for dynamic addressing information.
0170 - 0177	8 bytes	Secondary IDE channel
01F0 - 01F7	8 bytes	Primary IDE channel
0228 - 022F (Note 1)	8 bytes	LPT3
0278 - 027F (Note 1)	8 bytes	LPT2
02E8 - 02EF (Note 1)	8 bytes	COM4/video (8514A)
02F8 - 02FF (Note 1)	8 bytes	COM2
0376	1 byte	Secondary IDE channel command port
0377, bits 6:0	7 bits	Secondary IDE channel status port
0378 - 037F	8 bytes	LPT1
03B0 - 03BB	12 bytes	Intel 82875P MCH
03C0 - 03DF	32 bytes	Intel 82875P MCH
03E8 - 03EF	8 bytes	COM3
03F0 - 03F5	6 bytes	Diskette channel 1
03F6	1 byte	Primary IDE channel command port
03F8 - 03FF	8 bytes	COM1
04D0 - 04D1	2 bytes	Edge/level triggered PIC
LPTn + 400	8 bytes	ECP port, LPTn base address + 400h
0CF8 - 0CFB (Note 2)	4 bytes	PCI configuration address register
0CF9 (Note 3)	1 byte	Reset control register
0CFC - 0CFF	4 bytes	PCI configuration data register
FFA0 - FFA7	8 bytes	Primary bus master IDE registers
FFA8 - FFAF	8 bytes	Secondary bus master IDE registers

Notes:

1.   Default, but can be changed to another address range

2.   Dword access only

3.   Byte access only

Interrupts

The interrupts can be routed through the Advanced Programmable Interrupt Controller (APIC) portion of the ICH5-R component. The APIC is supported in Windows[*] 2000 Server and Windows XP and supports a total of twenty-four interrupts.

Table 47.   Interrupts

IRQ	System Resource
NMI	I/O channel check
0	Reserved, interval timer
1	Reserved, keyboard buffer full
2	Reserved, cascade interrupt from slave PIC
3	COM2 (Note 1)
4	COM1 (Note 1)
5	LPT2 (Plug and Play option)/User available
6	Diskette drive
7	LPT1 (Note 1)
8	Real-time clock
9	Reserved for ICH5-R system management bus
10	User available
11	User available
12	Onboard mouse port (if present, else user available)
13	Reserved, math coprocessor
14	Primary IDE (if present, else user available)
15	Secondary IDE (if present, else user available)
16	USB UHCI controller 1 (through PIRQA)
17	User available (through PIRQB)
18	ICH5-R USB controller 3 (through PIRQC)
19	ICH5-R USB controller 2 (through PIRQD)
20	ICH5-R LAN (through PIRQE)
21	User available (through PIRQF)
22	User available (through PIRQG)
23	ICH5-R USB 2.0 EHCI controller/User available (through PIRQH)

Note:

1.   Default, but can be changed to another IRQ.

7 Regulatory and Integration Information

Product Regulatory Compliance

Product Safety Compliance

The server board S875WP1-E 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 S875WP1-E 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 website 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 48.   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	

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 to, 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): S875WP1-E
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.

Installation Precautions

When you install and test the server board, observe all warnings and cautions in the installation instructions.

To avoid injury, be careful of:

- Sharp pins on connectors
- Sharp pins on printed circuit assemblies
- Rough edges and sharp corners on the chassis
- Hot components (like processors, voltage regulators, and heat sinks)
- Damage to wires that could cause a short circuit

Observe all warnings and cautions that instruct you to refer computer servicing to qualified technical personnel.

Installation Requirements

⚠ CAUTION

Follow these guidelines to meet safety and regulatory requirements when installing this board assembly.

Read and adhere to all of these instructions and the instructions supplied with the chassis and associated modules. If the instructions for the chassis are inconsistent with these instructions or the instructions for associated modules, contact the supplier's technical support to find out how you can ensure that your computer meets safety and regulatory requirements. If you do not follow these instructions and the instructions provided by chassis and module suppliers, you increase safety risk and the possibility of noncompliance with regional laws and regulations.

Prevent Power Supply Overload

Do not overload the power supply output. To avoid overloading the power supply, make sure that the calculated total current loads of all the modules within the computer is less than the output current rating of each of the power supplies output circuits.

Place Battery Marking

There is insufficient space on this server board to provide instructions for replacing and disposing of the battery. For system safety certification, the following statement or equivalent statement may be required to be placed permanently and legibly on the chassis near the battery.

⚠ **CAUTIONS**

Risk of explosion if battery is incorrectly replaced.

Replace with only the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions.

Use Only for Intended Applications

This server board was evaluated as Information Technology Equipment (I.T.E.) for use in computers that will be installed in offices, homes, schools, computer rooms, and similar locations. The suitability of this product for other applications or environments, (such as medical, industrial, alarm systems, test equipment, etc.) may require further evaluation.