

A guide for technically qualified persons

SBT2 Server Board

Quick Start Guide

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您可在下列網址上查閱到本指南的譯文：

<http://support.intel.com/support/motherboards/server/sbt2/manual.htm>

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Order Number: A28558-002

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 the *SBT2 Server Board Product Guide* for product Safety and EMC regulatory compliance information. This is an FCC Class A device. Integration of it into a Class B chassis does not result in a Class B device.

Safety Cautions



CAUTIONS

Pressing the power button does not turn off power to this board. Disconnect the server board from its power source and from any telecommunications links, networks, or modems before doing any of the procedures described in this guide. Failure to do this can result in personal injury or equipment damage. Some circuitry on the server board may continue to operate even though front panel power button is off.

Completely close the system to the original state in which you received it. Failure to do this can result in personal injury, property and / or equipment damage.

Read and adhere to all warnings, cautions, and notices in this guide and the documentation supplied with the chassis, power supply, and accessory modules. If the instructions for the chassis and power supply are inconsistent with these instructions or the instructions for accessory modules, contact the supplier to find out how you can ensure that your computer meets safety and regulatory requirements.

Electrostatic discharge (ESD) can damage server board components. Do the described procedures only at an ESD workstation. If no such station is available, you can provide some ESD protection by wearing an antistatic wrist strap and attaching it to a metal part of the computer chassis.

Items Provided on the Bootable CD-ROM

SBT2 Server Board Product Guide

Intel® SC5000 Server Chassis Subassembly Product Guide

Software drivers and utilities

To view the product guides, boot to Windows† 95/Windows NT†/
Windows 98/Windows 2000 and use Adobe† Acrobat†.

Safety and Regulatory Compliance

See the *SBT2 Server Board Product Guide* for product Safety and EMC regulatory compliance information.

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

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

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

I/O panel label provided: Place the label on the I/O shield. The cut outs are for the top serial port and the parallel port.

Minimum Hardware Requirements

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

<http://support.intel.com/support/motherboards/server/SBT2/compat.htm>

Processor

Minimum of one Intel® Pentium® III Xeon™ processor and a processor termination card. The SBT2 server board only supports processors with the following product codes: BX80526KB866256, BX80526KB001256, BX80526KB933256.

Memory

Minimum of 64 MB of 133 MHz, 3.3 V, PC/133 compliant registered SDRAM on 168 pin gold DIMMs.

Power Supply

Minimum of 350 W with 0.8 A +5 V standby current (in order to support Wake On LAN† (WOL)). You must provide standby current, or the board will not boot.

Installation Notes

Before installing the SBT2 server board into your chassis, you **must** install the processor retention mechanisms. The NIC LED, HD activity LED, and NMI switch on the SC5000 front panel do not function with the SBT2 server board.

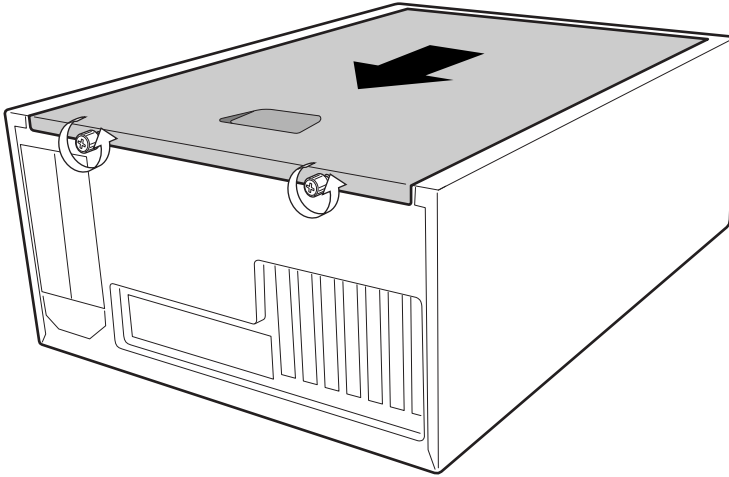
Installation Process Quick Reference

Step	Where the information is located
Remove the access cover	This guide
Install the I/O shield	This guide
Install the server board bumpers	This guide
Rearrange the standoffs	This guide
Install the processor retention mechanisms	This guide
Install the server board	This guide
Install the auxiliary cooling fan brackets	This guide
Install the primary processor	This guide
Install the processor termination card (or second processor)	This guide
Install the processor cooling epac and fans	This guide
Install memory	This guide
Connect cables to the server board	This guide and the SC5000 Product Guide
Finish setting up your chassis (start with "Install the Diskette Drive")	SC5000 Product Guide

Remove the Access Cover

Facing the front of the chassis, the access cover is on the right side for pedestal-mounted (tower) servers, and on the top for rack-mounted servers.

- 1 Loosen the captive thumbscrews that secure the access cover in place.
- 2 Slide the cover backward a short distance, until it stops.
- 3 Pull the entire cover outward, straight away from the chassis, to disengage the rows of tabs from the notches in the top and bottom edges of the chassis. Set the cover aside.



OM09083

Install the I/O Shield

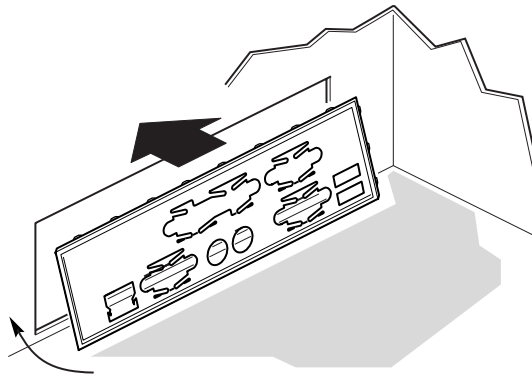


NOTE

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

The shield fits the rectangular opening near the power supply in the back of the chassis. The shield has cutouts that match the I/O ports.

- 1** Install the EMI gasket on the I/O shield. Peel the paper strip off of the adhesive on the EMI gasket. Place the gasket on the board side of the I/O shield (the side with the metal fingers). Make sure the holes in the EMI gasket line up with the holes in the I/O shield.
- 2** Install the shield from inside the chassis. Orient the shield so that the cutouts align with the corresponding I/O connectors on the server board. Make sure the metal fingers are on the inside of the chassis.
- 3** Position one edge so that the dotted groove is outside the chassis wall, and the lip of the shield rests on the inner chassis wall.
- 4** Hold the shield in place, and push it into the opening until it is seated. Make sure the I/O shield snaps into place all the way around.



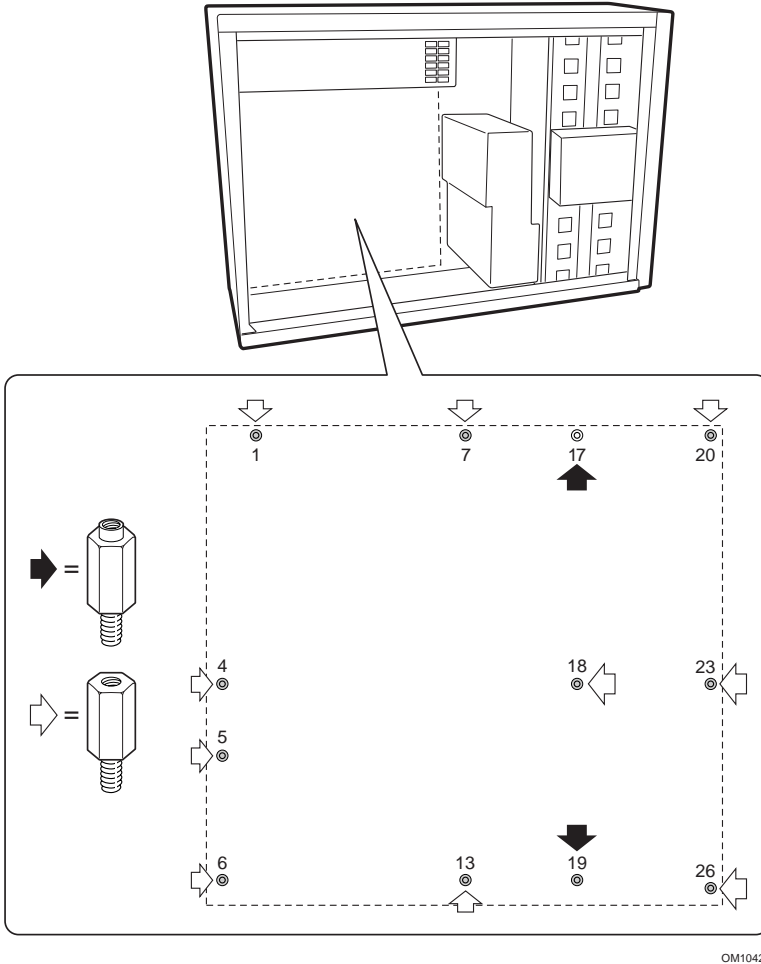
OM10628

- 5** Place the I/O label on the I/O shield. The cut outs on the label are for the top serial port and the parallel port.

Rearrange the Standoffs

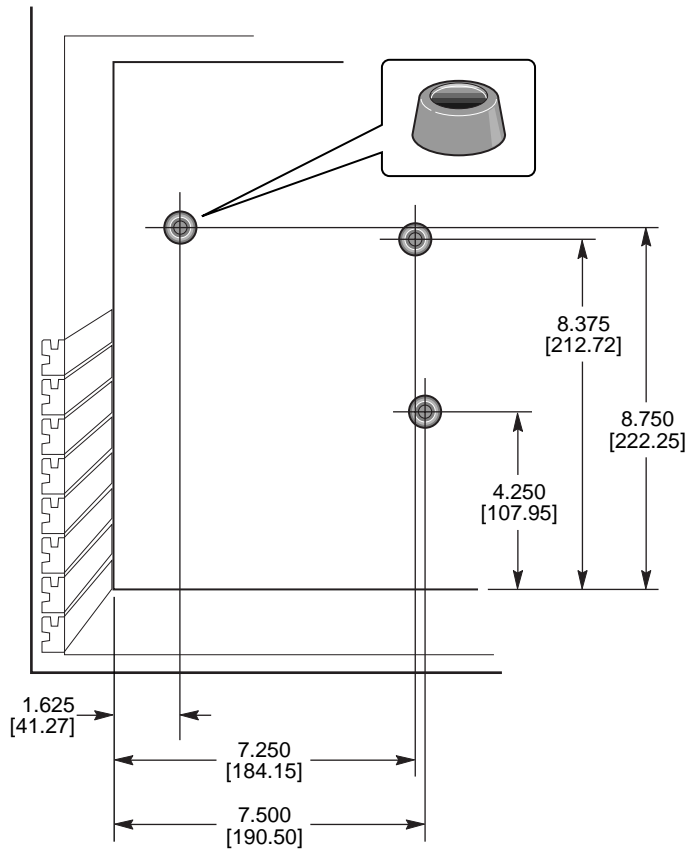
The standoffs in the chassis must be installed in screw holes 1,4,5,6,7,13,17,18,19,20,23,26. The hole numbers are stamped in the chassis sheet metal. Make sure the two positioning standoffs are in holes 17 and 19.

Failure to properly rearrange the metal standoffs may cause the server board to malfunction and may permanently damage the server board.



Install the Server Board Bumpers

Peel the adhesive backing from three rubber bumpers; stick the bumpers to the chassis wall.



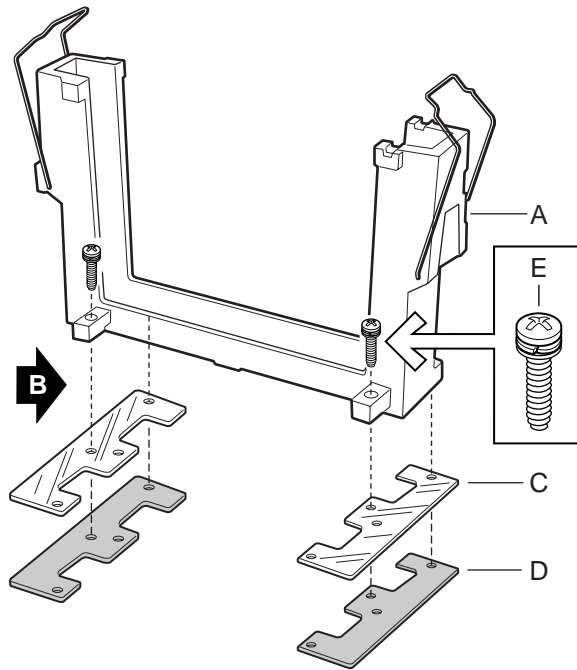
OM10422

Install the Retention Mechanisms

The retention mechanism assembly consists of two plastic retention mechanisms that go on the top of the server board, two steel stiffeners that go underneath the board, and two plastic insulators that go between the steel stiffeners and the server board.

Install the retention mechanism on the server board before installing the board in the chassis.

- 1 Lay one steel stiffener (D) down on your work surface. Place one plastic insulator (C) on top of it. Position the server board (B) over the stiffener and insulator so the screw holes in the server board, insulator, and the stiffener line up.
- 2 Place one plastic retention mechanism (A) on the top of the server board.



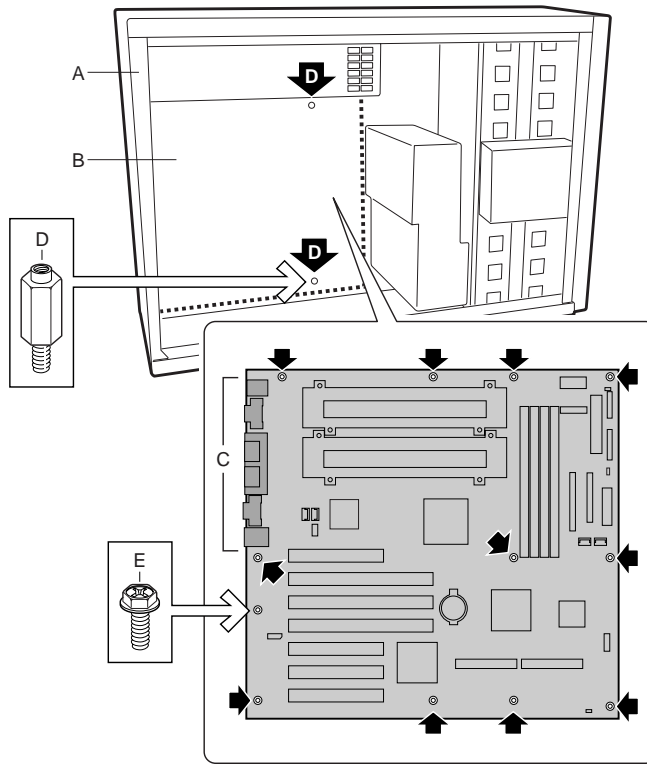
OM10414

- 3 Insert and tighten two screws to hold all the pieces in place.
- 4 Place the second stiffener and insulator on your work surface. Position the server board over the stiffener and insulator so the screw holes line up.
- 5 Insert and tighten two screws to hold all the pieces in place.
- 6 Place the second plastic retention mechanism in place. Insert and tighten four screws to hold it in place.

Install the Server Board

The screws for installing the server board are shipped with the chassis. You may need to move cables out of the way to properly install your server board.

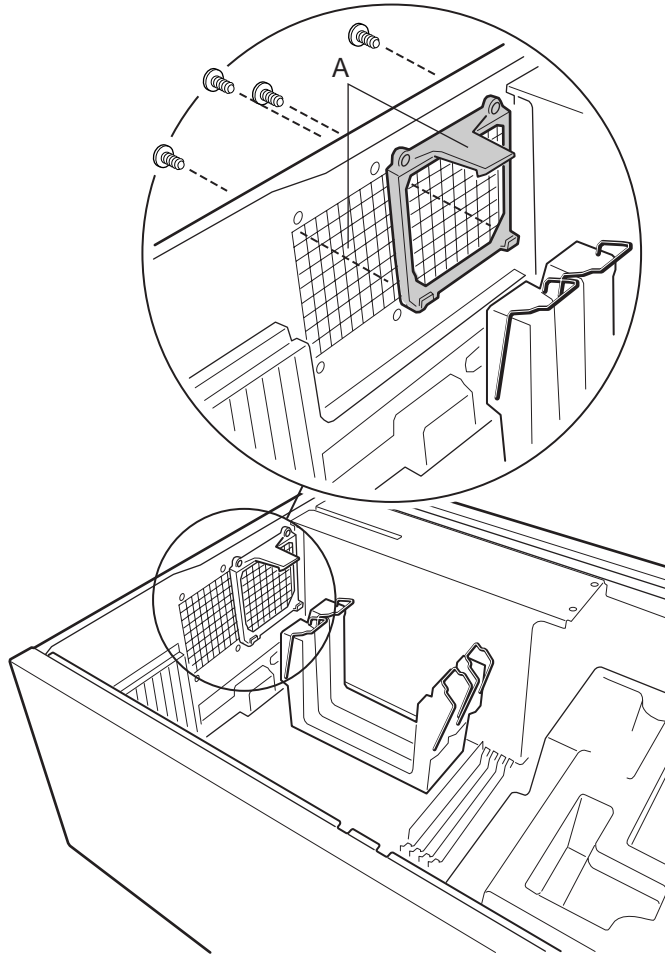
- 1 Remove the top piece of foam epac from the system fans.
- 2 Tilt the board into the chassis I/O connector end first. Position the board so the screw holes line up with the standoffs. There are two positioning standoffs (D) that extend into the holes on the server board. These two standoffs will help you position the board correctly. Make sure the I/O connectors stick out through the I/O shield. Look through the holes in the I/O shield to make sure that the metal tabs on the I/O shield are on top of the USB and NIC connectors, not inside.
- 3 Insert one screw through one of the mounting holes of the board and into a threaded standoff. Do not tighten the screw until the next step.
- 4 Insert the remaining screws through the mounting holes and into the threaded standoffs. Make sure the board is properly seated, then tighten all the screws firmly, starting with the screws in the center of the board.



OM10427

Install the Auxiliary Cooling Fan Brackets

- 1 Place one fan bracket into the chassis as shown in the illustration. Make sure the screw holes in the bracket line up with the screw hole in the chassis.
- 2 Insert and tighten four screws to hold the bracket in place.
- 3 Repeat for the second fan bracket.



OM10418

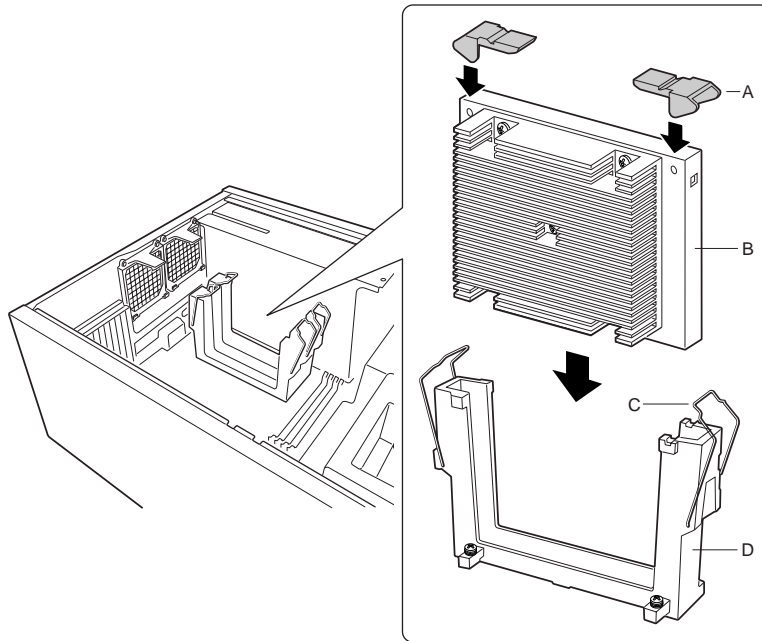
Installing Processors

NOTE

The SBT2 server board only supports processors with the following order numbers: BX80526KB866256, BX80526KB001256, BX80526KB933256.

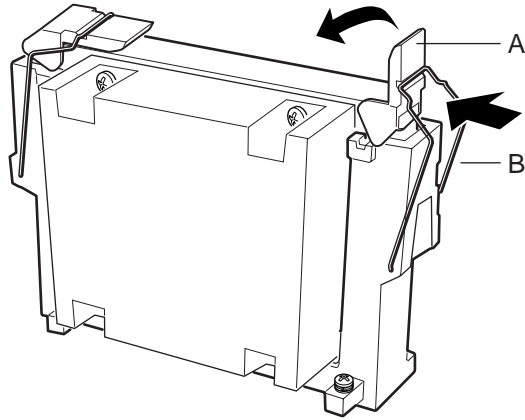
If you are installing only one processor, you must install a termination card in the secondary processor slot.

- 1 Observe the safety and ESD precautions at the beginning of this document.
- 2 Clip two plastic ejectors (A) to the processor (B).



- 3 Slide the processor into the primary processor slot (slot closest to power supply). Push down firmly, with even pressure on both sides of the top, until the processor is seated in the processor connector on the server board.

- 4 Move the retention wires over the plastic ejectors to hold the processor in place.



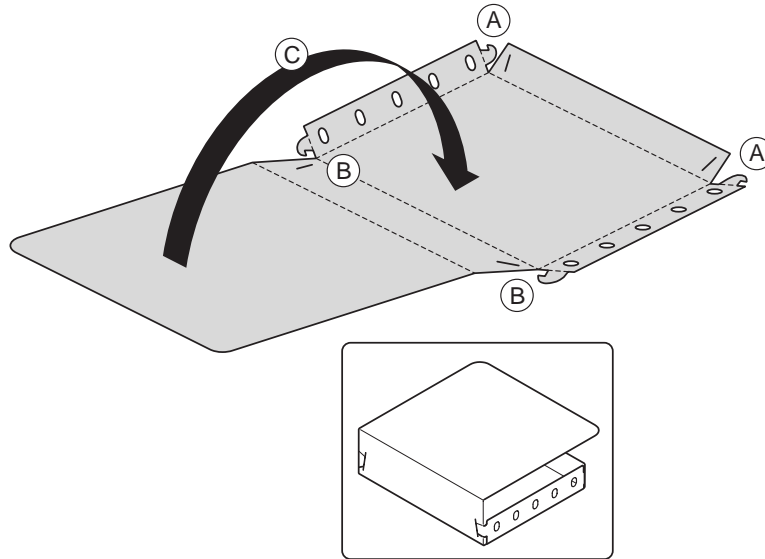
OM10415

- 5 After you have installed the processor(s), you must configure the speed jumpers. See the CPU Clock Speed table on page 25.
- 6 Repeat for the second processor. If you are installing two processors, skip the section titled "Install the Processor Termination Card."

Install the Processor Termination Card

If you are installing only one processor, you must install a termination card in the secondary processor slot. For proper cooling you must install the air baffle on the termination card.

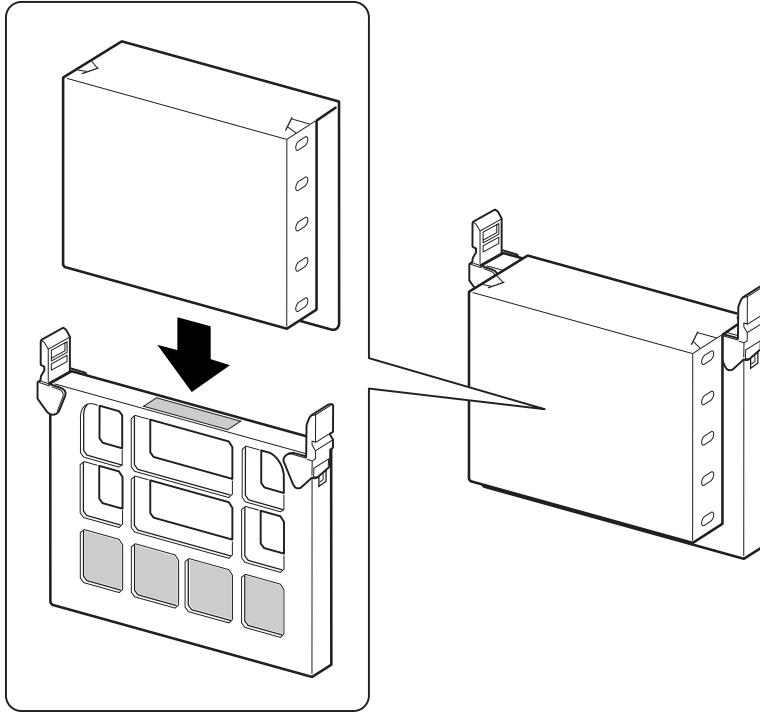
- 1 For easier assembly of the air baffle, prefold all of the folds.



OM10621

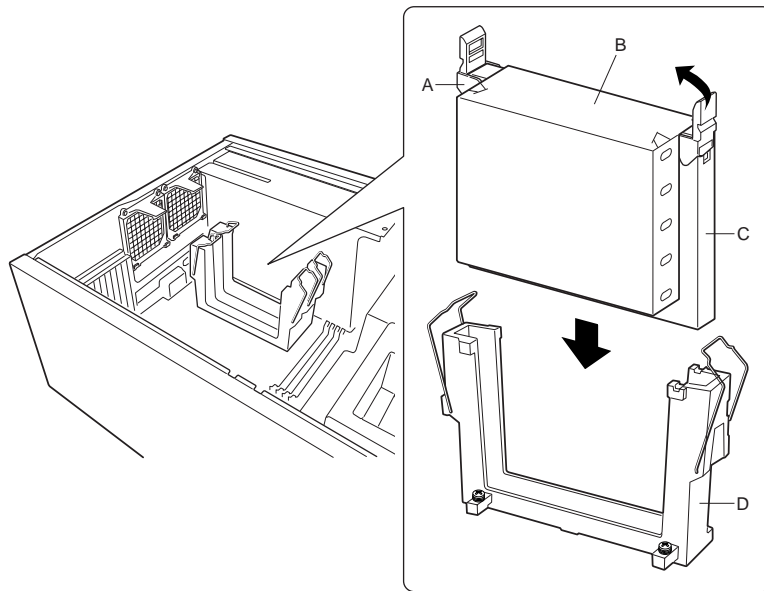
- 2 Fold the sides of the air baffle up. Fold the bottom the air baffle up. Insert the tabs from the outside into the slots (A).
- 3 Fold the top of the air baffle up. Insert the tabs from the outside into the slots (B).
- 4 Fold the back of the air baffle over (C).

- 5 Slide the air baffle over the termination card assembly.



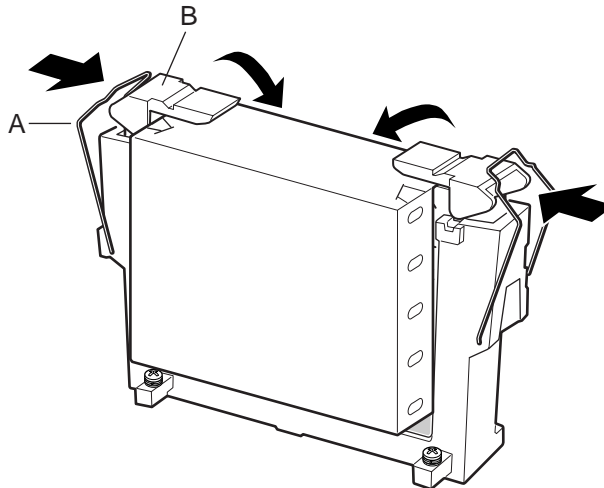
OM10620

- 6** Slide the termination card into the secondary processor slot. Make sure the air baffle fits inside the retention mechanism. Push down firmly, with even pressure on both sides of the top, until the card is seated in the processor connector on the server board. See Server Board Components on page 26 for the location of the secondary processor slot.



OM10619

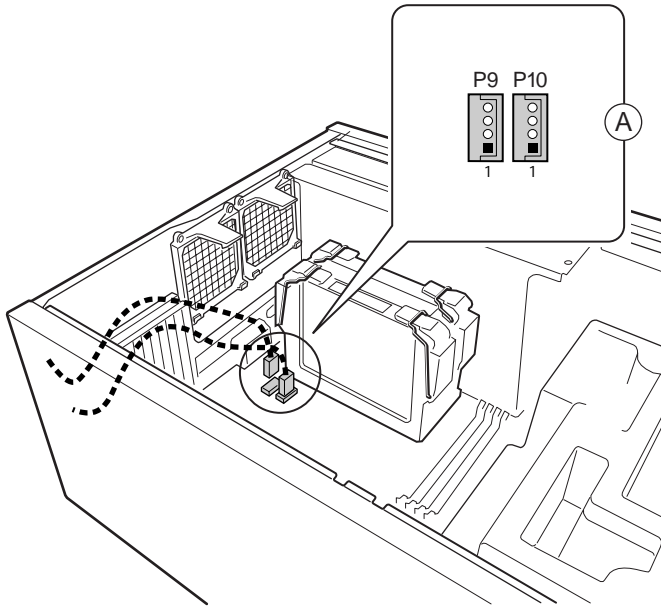
- 7** Move the retention wires over the plastic ejectors to hold the processor in place. Make sure the air baffle is inside the retention mechanism and is flush against the termination card.



OM10618

Install the Processor Cooling Epac and Auxiliary Fans

- 1 Connect the fan cables to the server board. Do not install the fans in their brackets yet. Let the fans lie on the PCI slots.



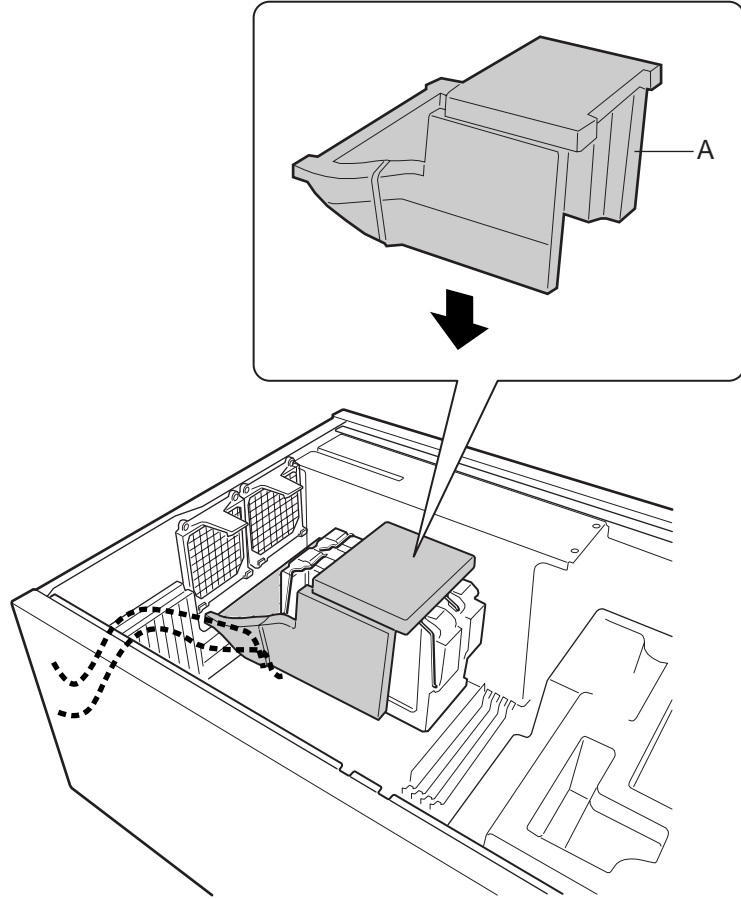
OM10421

- 2 Place the bottom piece of epac into the chassis as shown. Make sure it is fully seated in the chassis. If it isn't, the cover will not fit properly.



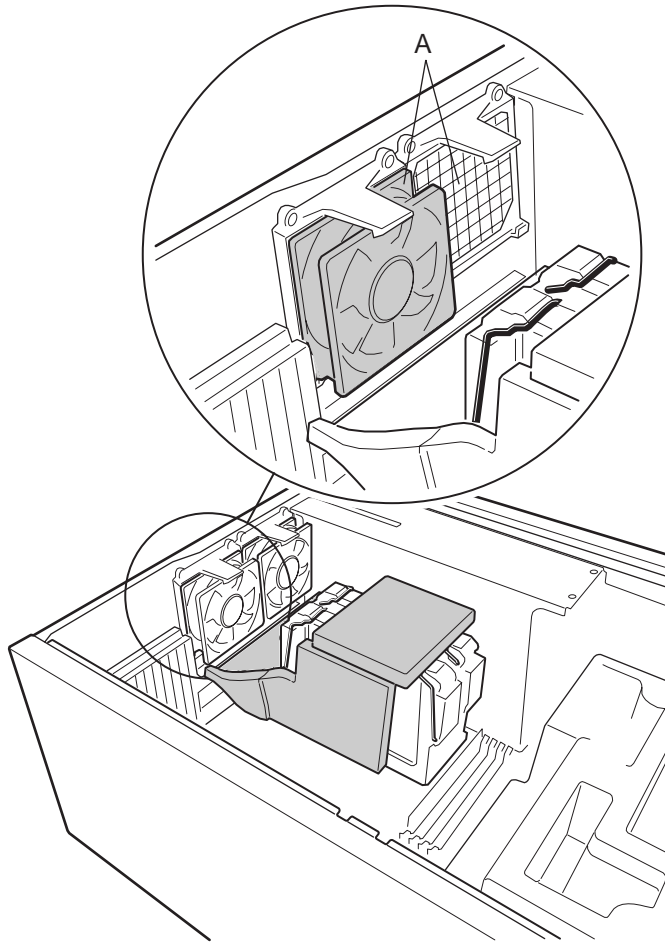
NOTE

The epac drops straight in. Do not tilt it in; trying to straighten it in will break the epac.



OM10425

- 3 Clip the fans into place. Make sure that the label on the fan faces the air holes in the chassis (away from the processors).



OM10419

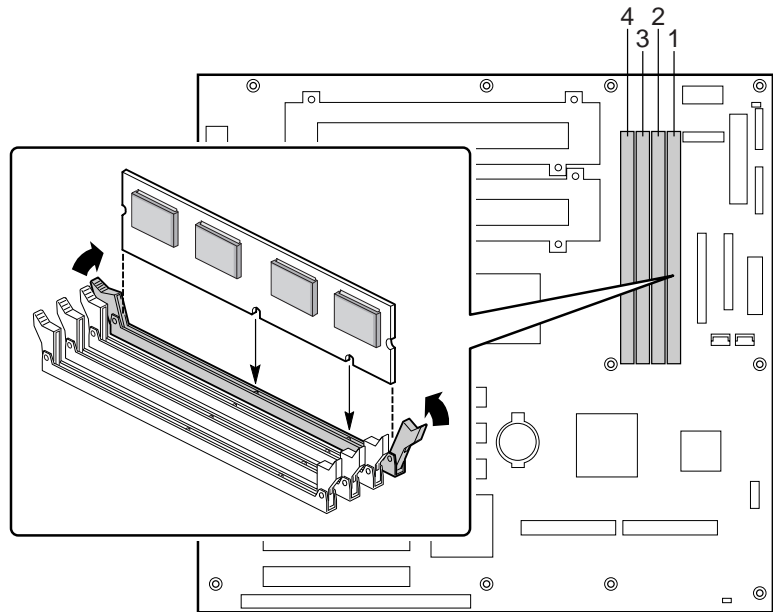
Memory

Only PC133-compliant SDRAM is supported by the server board. Install from 64 MB to 4 GB of registered memory, using up to four single- or double-banked DIMMs.

DIMMs must be installed in order from slot 1 to slot 4, no empty slots between installed DIMMs. Slot 1 is the slot farthest from the processors.

Installed DIMMs must be the same speed and must all be registered. For a list of supported memory, call your service representative or visit the Intel Support website:

<http://support.intel.com/support/motherboards/server/SBT2/compat.htm>

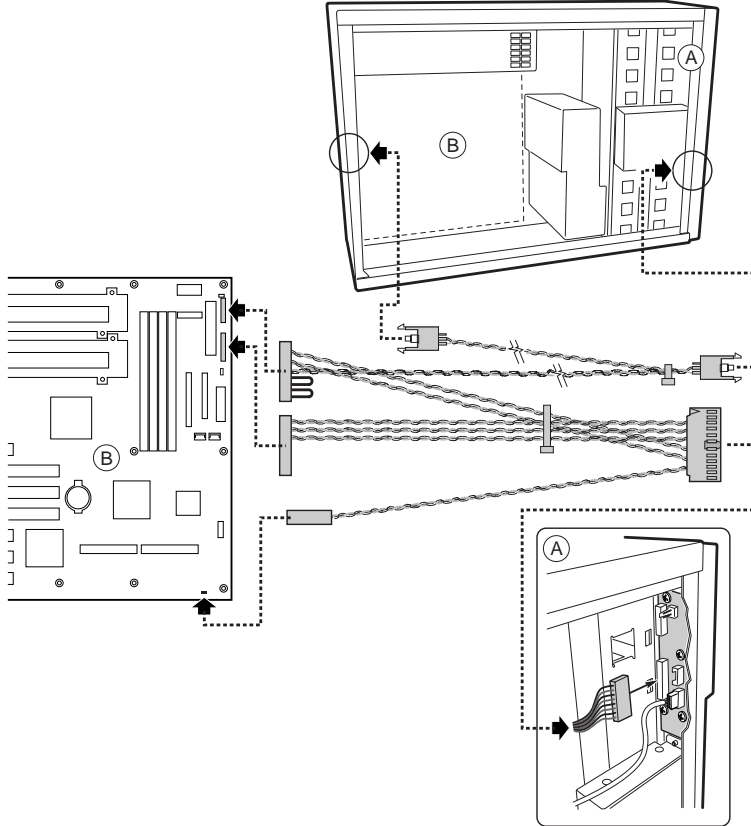


OM10426

Connect Cables

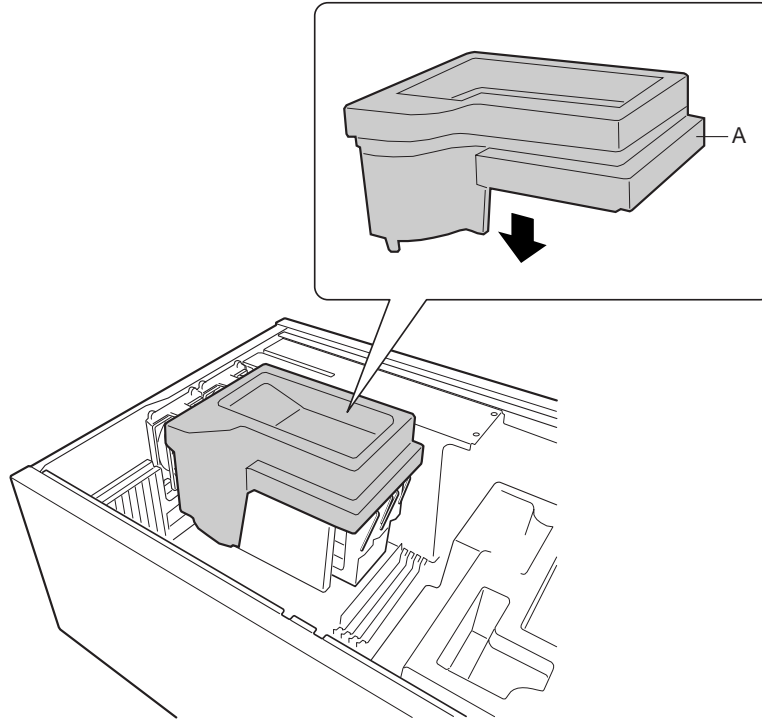
See Server Board Components for connector locations.

- 1 Connect the front panel cable to the SSI connector on the front panel and the reset (1M7), P26, and P27 connectors on the server board. Remove the chassis intrusion switches from the chassis and install the switches attached to the front panel cable.



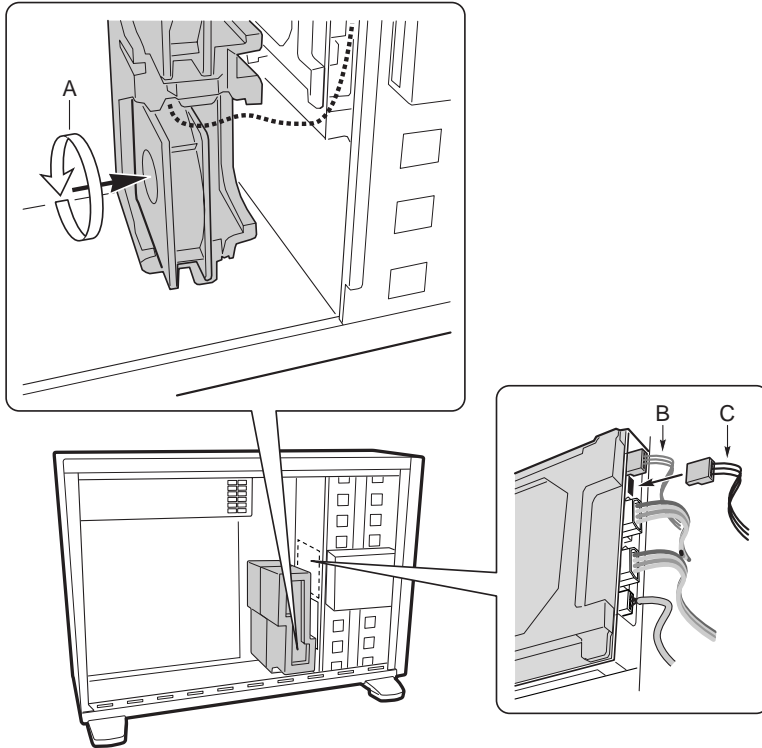
OM10601

- 2 Place the top piece of foam epac into the chassis as shown.



OM10420

- 3 Connect the main chassis fans to the fan connectors on the hot swap backplane. You will need to remove the bottom fan from the epac and rotate it so the fan cable will reach the connector on the hot swap bay.



OM10602

- 4 Connect the speaker cable to the connector on the server board (P25).
- 5 Connect the hot swap SCSI cable to the LVD SCSI connector on the server board.

Finish Setting up Your Chassis

You are now ready to install drives into your chassis. Start at the section titled: "Install Diskette Drive" in the *Intel® SC5000 Server Chassis Subassembly Product Guide*. We recommend you install any drives before connecting their data cables to the server board. Connect the floppy cable to the server board before you connect the IDE cable.

There is only one IDE connector on the SBT2 server board, you must route the cable to either the top drive bays or the bottom drive bays. The cable is not long enough to reach both. Connect the blue connector on the cable to the server board. Pin one (the red stripe on the cable) is oriented the same as the floppy connector. Since the IDE cable is not keyed, use the floppy cable as a reference.

Common Problems

The system does not boot or show video at power on.

- If configuring with only one processor verify that the processor is in the Primary Processor slot and the termination card is in the Secondary Processor slot. (See the server board components diagram on page 26).
- Beep code 1-3-3-1 means you have unrecognized or bad memory. Remove DIMMs one at a time to isolate which one is causing problems.
- Your power supply must provide 0.8 A of +5 V Standby current to support WOL. If the standby current is not present, your board will not boot.

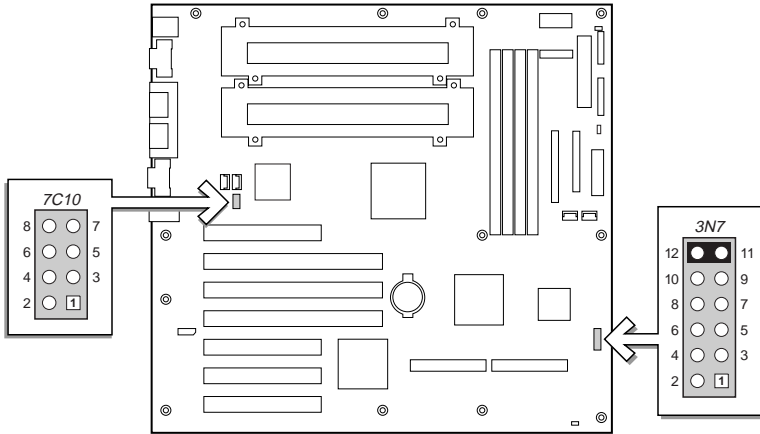
The reset button does not work.

- You may have installed the reset cable backwards. Turn off your system, open the chassis, unplug the reset cable from the server board, turn it around, and plug it back in. Then close your system and turn it on.

The system sometimes works, but is exhibiting erratic behavior.

- This is typically the result of using a under-powered power supply. Make sure it's at least a 350 W power supply.

Jumpers



OM10428

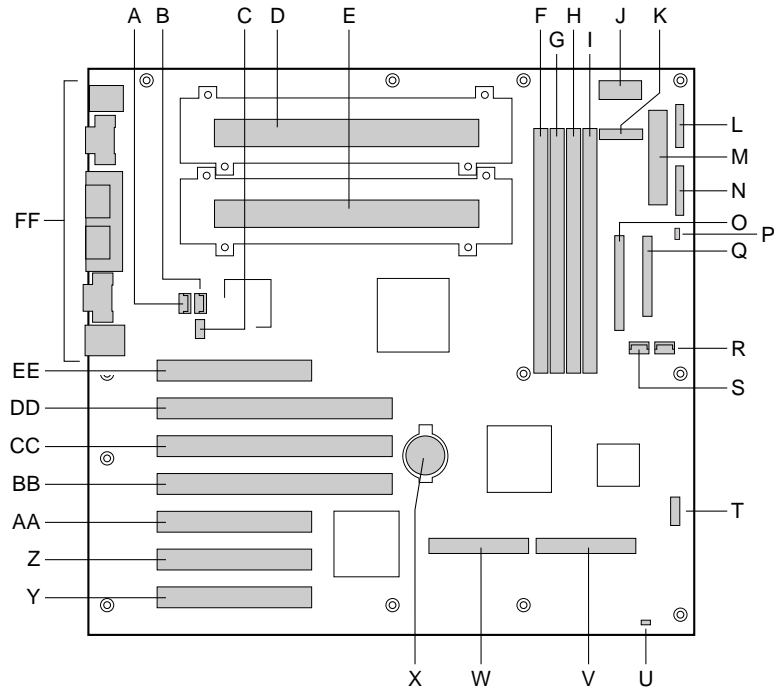
CPU Clock Speed (7C10)

CPU Speed	Pin 1-2	Pins 3-4	Pins 5-6	Pins 7-8
866	✓	✓		
900	✓			✓
1000	✓			

Configuration Jumper (3N7)

Jumper Name	Pins	What it does at system reset
Configuration Jumper	11-12	Normal operation. These pins should always be jumpered.
BIOS Recovery	9-10	For normal operation, these pins should not be jumpered.
Reserved	7-8	Reserved. These pins should not be jumpered.
Reserved	5-6	Reserved. These pins should not be jumpered.
Password Disable	3-4	If these pins are jumpered, the password will be cleared on the next reset. These pins should not be jumpered for normal operation.
CMOS clear	1-2	If these pins are jumpered, the CMOS settings will be cleared on the next reset. These pins should not be jumpered for normal operation.

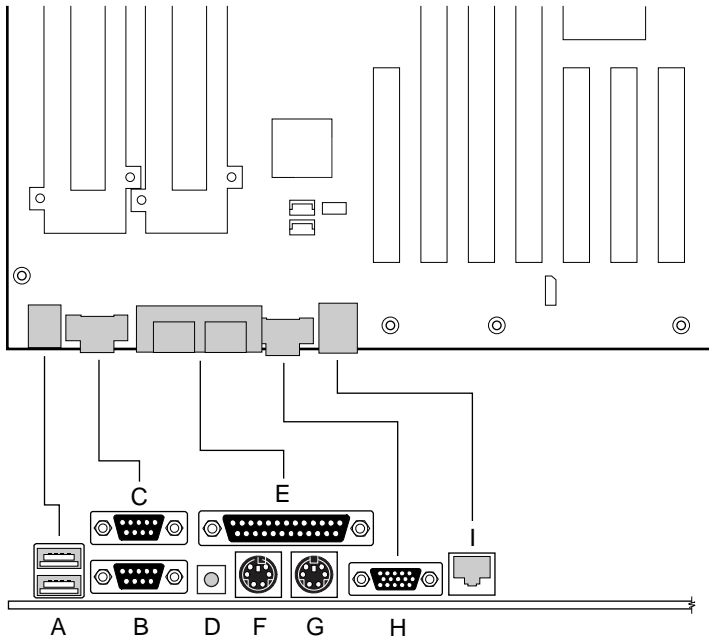
Server Board Components



OM10423

- | | |
|----------------------------------|---|
| A. Fan connector | R. Fan connector |
| B. Fan connector | S. Fan connector |
| C. CPU speed jumper block | T. Configuration jumper block |
| D. Primary processor | U. Reset switch connector |
| E. Secondary processor | V. Single Ended (SE) SCSI connector |
| F. DIMM slot 4 | W. LVD SCSI connector |
| G. DIMM slot 3 | X. Battery |
| H. DIMM slot 2 | Y. 33 MHz/32-bit PCI connector |
| I. DIMM slot 1 | Z. 33 MHz/32-bit PCI connector |
| J. Power supply signal connector | AA. 33 MHz/32-bit PCI connector |
| K. Auxiliary power connector | BB. 33 MHz/64-bit PCI connector |
| L. Front panel connector P27 | CC. 66 MHz/64-bit PCI connector |
| M. Power connector | DD. 66 MHz/64-bit PCI connector |
| N. Front panel connector P26 | EE. Half length 33 MHz/32-bit PCI connector |
| O. IDE connector | FF. I/O ports |
| P. Speaker connector | |
| Q. Floppy drive connector | |

Back Panel Connectors



OM10424

- A. USB connectors
- B. Serial port 2 connector
- C. Serial port 1 connector
- D. NMI switch
- E. Keyboard connector
- F. Mouse connector
- G. Parallel port connector
- H. Video connector
- I. Network connector

Getting Help

World Wide Web

<http://support.intel.com/support/motherboards/server/sbt2>

Telephone

Talk to a Customer Support Technician* (Intel reserves the right to change pricing for telephone support at any time without notice).

In U.S.: **1-900-555-5800** (M–F, 7:00 *am*–5:00 *pm*, Th 7:00 *am*–3:00 *pm*, PST).
Calls billed at U.S. \$2.50 per minute.

In U.S. and Canada: **1-800-404-2284** (M–F, 7:00 *am*–5:00 *pm*,
Th 7:00 *am*–3:00 *pm*, PST). Credit card calls billed at U.S. \$25 per incident.

In Europe:

English language: +44-131-458-6847

French language: +44-131-458-6848

German language: +44-131-458-6954

Italian language: +44-131-458-6951

(M, Th, F, 8:00 *am*–5:00 *pm*, T–W, 8:00 *am*–4:00 *pm*, UK time)

Credit card calls billed at U.S. \$25 per incident (levied in local currency at the applicable credit card exchange rate plus applicable VAT).

In Asia-Pacific region (Singapore local time, Oct–April: M–F, 6:00 *am*–4:00 *pm*;
April–Oct: M–F, 5:00 *am*–4:00 *pm*).

Credit card calls billed at U.S. \$25 per incident.

Australia (Sydney): +1-800-649-931

Hong Kong: +852-2-844-4456

Korea: +822-767-2595

PRC: +852-2-844-4456

Singapore: +65-831-1311

Taiwan: +886-2-718-9915

Rest of the world: Call the North American Service Center at **+1-916-377-7000**
(M–F, 7:00 *am*–5:00 *pm*, U.S. pacific standard time).

Credit card calls billed at U.S. \$25 per incident.

* Or contact your local dealer or distributor.

Technical Training & Support

If you are registered in the Intel Product Dealer Program (North America), the Genuine Intel Dealer Program (Asia-Pacific Region), or the Intel Product Integrator Program (Europe/Latin America), you are eligible for technical training and support.

In U.S. and Canada: **1-800-538-3373**, ext. 442 (M–F, 5:00 *am*–5:00 *pm*, PST)

In Europe: contact your distributor or fax your details to European Literature on **+44 (0) 1793 513142**.

In Asia: **+65-831-1379** (M–F, 8:30 *am*–5:30 *pm*, Singapore local time) or via e-mail: **APAC_gid@ccm.isin.intel.com**