

Intel® Desktop Board D865GBF/D865GLC Quick Reference

This guide is written for technically qualified personnel with experience installing and configuring desktop boards.

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Items on the Intel® Express Installer CD-ROM

- Product warranty
- Intel Express Installer
- *Intel® Desktop Board D865GBF/D865GLC Product Guide*
- Software utilities and drivers
- Software license agreement
- Readme file

Part Number: C24486-002

C24486-002



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Before You Begin

Warning and Cautions



WARNING

Disconnect the desktop board's power supply from its AC power source before you connect or disconnect cables, or install or remove any board components. Failure to do this can result in personal injury or equipment damage. Some circuitry on the desktop board can continue to operate even though the front panel power switch is off.



CAUTION

Electrostatic discharge (ESD) can damage desktop board components. Install the board at an ESD-controlled workstation. If such a workstation is not available, wear an antistatic wrist strap or touch the surface of the antistatic package before handling the board.



CAUTION

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

Safety and Regulatory Notice

See the *Intel® Desktop Board D865GBF/D865GLC Product Guide* for all applicable regulatory compliance statements, product certification markings, and safety and electromagnetic compatibility (EMC) standards and regulations the desktop board is compliant with.

Replacement battery warning label provided: Place the label inside the chassis in an easy-to-see location near the battery but not on the board itself.

Intended uses: This product was evaluated as information technology equipment (ITE) for home or office use when installed into an appropriate computer chassis. Other end uses or locations may require further evaluation.

Desktop Board Components

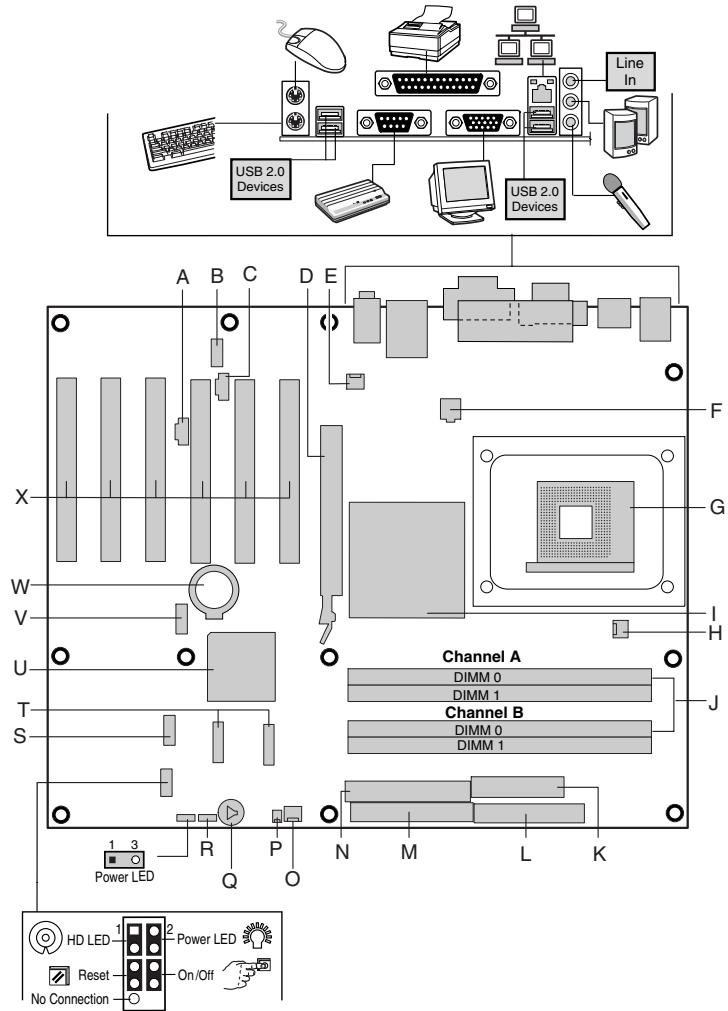


Figure 1. Desktop Board Components

continued



NOTE

Refer to the "Connecting Internal Headers" heading on page 14 for pin-outs.

Desktop Board Components (continued)

Label	Description
A	CD-ROM connector (ATAPI-style)
B	Front panel audio connector
C	Auxiliary line-in connector (ATAPI-style)
D	AGP connector
E	Rear chassis fan header
F	12 V processor core voltage connector
G	Processor socket
H	Processor fan header
I	Intel® 82865G (GMCH)
J	DIMM sockets
K	Main power connector
L	Diskette drive connector
M	Primary IDE connector
N	Secondary IDE connector
O	Front chassis fan header
P	Chassis intrusion header
Q	Speaker
R	BIOS configuration jumper block
S	Front panel USB 2.0 header
T	Serial ATA connectors
U	Intel® 82801EB (ICH5)
V	Front panel USB 2.0 header
W	Battery
X	PCI bus add-in card connectors



NOTE

The number of PCI connectors on your board may differ from those in the illustrations. Desktop Board D865GBF has six and Desktop Board D865GLC has three PCI connectors.

Supported Components

Processors

The board supports a single processor with the following features:

Type	Designation (GHz)	FSB ¹ Frequency (MHz)	L2 Cache (KB)
Intel® Pentium® 4 processor supporting Hyper-Threading Technology	3, 2.80C, 2.60C, and 2.40C	800	512
	3.06	533	512
Intel Pentium 4 processor	2.8, 2.66, 2.53, 2.4B, and 2.26	533	512
	2.6, 2.5, 2.4, 2.2, 2A, 1.80A, and 1.60A	400	512
Intel® Celeron® processor	2.2, 2.1, and 2.0	400	128

¹ Front side bus

For the latest information on processors supported by Desktop Board D865GBF/D865GLC, refer to the Intel World Wide Web site at:

<http://support.intel.com/support/motherboards/desktop>

Memory Module Requirements

The desktop board supports system memory as defined below:

Memory Speed	Processor	Front Side Bus Frequency	Memory Speed Outcome
DDR400	Pentium 4 processor	800 MHz	400 MHz
DDR333	Pentium 4 processor	800 MHz	320 MHz
	Pentium 4 processor	533 MHz	333 MHz
	Pentium 4 processor or Celeron processor	400 MHz	266 MHz
DDR266	Pentium 4 processor	533 MHz or 400 MHz	266 MHz
	Celeron processor	400 MHz	266 MHz

- Up to four 184-pin Double Data Rate (DDR) SDRAM Dual Inline Memory Module (DIMM) connectors with gold-plated contacts.
- Support for:
 - Unbuffered, non-registered single or double-sided DIMMs
 - Serial Presence Detect (SPD) memory only
 - Support for Suspend to RAM (STR), S3 ACPI state
 - Non-ECC RAM
 - 2.5 V memory



NOTES

System Resources (such as PCI and AGP) require physical memory address locations that reduce available memory addresses above 3 GB. This may result in less than 4 GB of memory being available to the operating system and applications.

All memory components and DIMMs used with the desktop board must comply with the PC SDRAM specifications. These include the PC SDRAM Specification (memory component specific) and the PC Unbuffered DIMM Specification. To view or download these specifications, refer to this Intel World Wide Web site:

<http://developer.intel.com/technology/memory/pcsdram/spec/>

For information about vendors that support these memory requirements, refer to the Desktop Board D865GBF/D865GLC link on this Intel World Wide Web site:

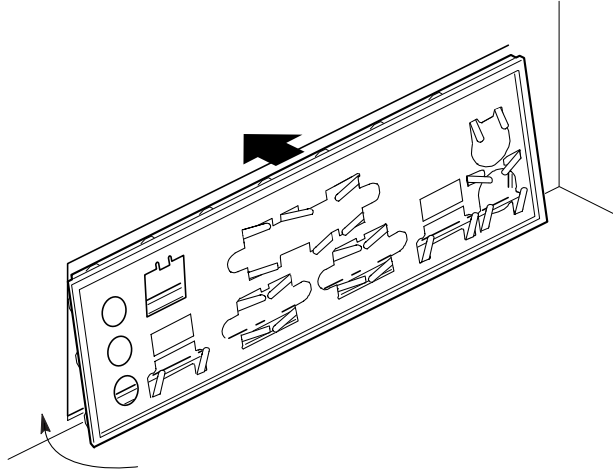
<http://support.intel.com/support/motherboards/desktop/>

Installation Steps

1. Installing the I/O Shield

The board comes with an I/O shield that is used to block radio frequency transmissions, necessary to pass emissions (EMI) certification testing, protect internal components from dust and foreign objects, and promote correct airflow within the chassis.

Install the I/O shield before installing the board in the chassis. Place the shield inside the chassis as shown Figure 2. Press the shield into place so that it fits tightly and securely. If the shield doesn't fit, obtain a properly sized shield from the chassis supplier.



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Figure 2. I/O Shield

2. Installing the Desktop Board

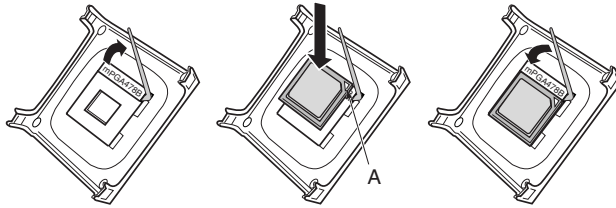
Refer to your chassis manual for specific instructions on installing and removing the desktop board.

Secure Desktop Board D865GLC to the chassis using eight screws. Secure Desktop Board D865GBF to the chassis using 11 screws. Refer to the board illustration on page 4 for the location of the mounting screw holes.

3. Installing the Processor

To install the processor, follow these steps (see Figure 3):

1. Observe the precautions in “Before You Begin” on page 3.
2. Lift the processor socket lever.
3. Install the processor so that the corner with the triangle marking (A) is aligned with the corner where the lever is attached to the socket.
4. Lower the lever back to its original position.



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Figure 3. Installing the Processor

5. The desktop board has an integrated processor fan heat sink retention mechanism (RM). For instructions on how to install the processor fan heat sink, refer to the boxed processor manual or the Intel World Wide Web site at:

<http://support.intel.com/support/processors/pentium4/intnotes478.htm>

4. Installing Memory Modules



CAUTION

Install memory in the DIMM sockets prior to installing the AGP video card to avoid interference with the memory retention mechanism.

Desktop Board D865GBF/D865GLC's four DIMM sockets are arranged as DIMM 0 and DIMM 1 in both Channel A and Channel B, as shown in Figure 4.

Dual Channel Configuration

Install a matched pair of DIMMs (equal in speed: DDR266, DDR333, or DDR400; density: 64 MB, 128 MB, 256 MB, 512 MB, or 1 GB; and technology: 128 Mb, 256 Mb, or 512 Mb) in DIMM 0 in both Channels A and B. If additional memory is to be used, install another matched pair of DIMMs in DIMM 1 in both Channels A and B.



NOTE

All other memory configurations will result in single channel memory operation.

To install DIMMs, follow these steps:

1. Observe the precautions in “Before You Begin” on page 3.
2. Remove the AGP video card if it interferes with the DIMM clips from being easily opened and closed.
3. Align the small notch at the bottom edge of the DIMM with the key in the socket.
4. Insert the bottom edge of the DIMM into the socket.
5. Push down on the top edge of the DIMM until the retaining clips snap into place. Make sure the clips are firmly in place.

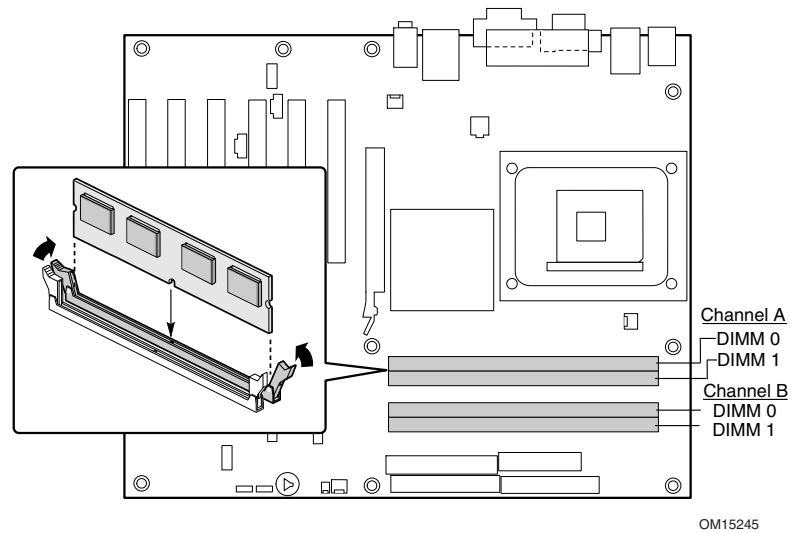


Figure 4. Installing DIMMs

5. Installing an AGP Card



CAUTION

Care must be taken when installing an AGP card into an AGP connector.

When installing any AGP card in the desktop 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 connector pins. Depending on the over-current protection of the power supply, certain board components and/or traces may be damaged.



NOTE

Desktop Board D865GBF/D865GLC is only compatible with 1.5 V and 0.8 V AGP cards. 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.

Desktop Board D865GBF/D865GLC has an integrated AGP card retention mechanism (RM). Follow these instructions to install an AGP card (see Figure 5):

1. Observe the precautions in “Before You Begin” on page 3.
2. Place the AGP card in the AGP connector.
3. Press down on the card until it is completely seated in the connector and the card retention notch snaps into place below the RM.
4. Secure the card’s metal bracket to the chassis back panel with a screw.

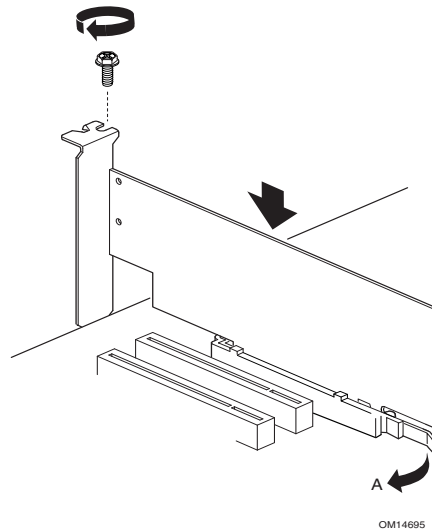


Figure 5. Installing an AGP Card

To remove the AGP card, reverse steps taken when installing an AGP card. Before removing the card, make sure to push back on the RM lever (A) until the retention pin completely clears the notch in the card.

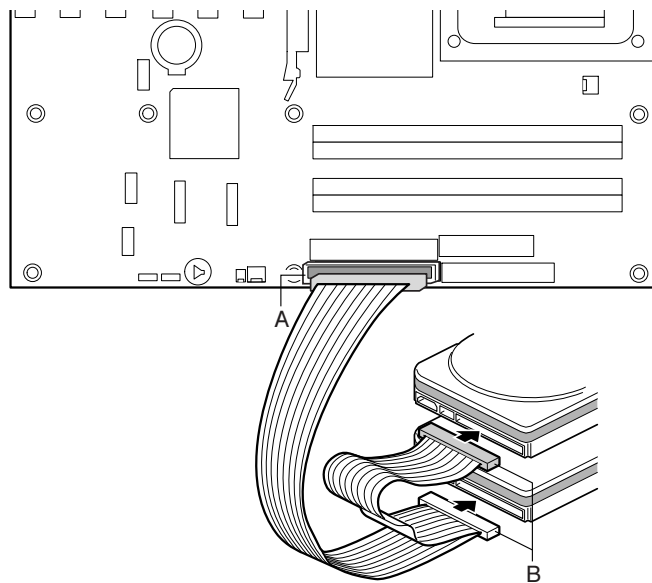
6. Attaching IDE Drives

The Intel® boxed desktop board package includes an ATA-66/100 cable.

The cable supports the ATA-66/100 (40-contact, 80-conductor) transfer protocol and is backward compatible with drives using slower IDE transfer protocols. The cable can connect two drives to the desktop board.

The cable will work correctly only when oriented as shown in Figure 6. For correct cable function:

1. Observe the precautions in “Before You Begin” on page 3.
2. Attach the cable end with the single connector (A) to the board.
3. Attach the cable end with the two closely spaced connectors (B) to the drives.



OM15247

Figure 6. Installing IDE Drives

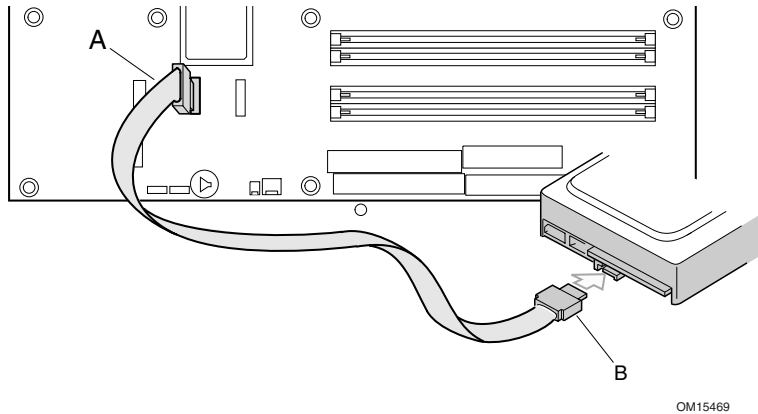
7. Attaching Serial ATA (SATA) Drives

The boxed desktop board package includes a Serial ATA (SATA) cable.

The cable (4-conductor) supports the Serial ATA protocol and connects a single drive to the desktop board. Either end of the cable can be connected to the SATA drive or the connector on the board.

For correct cable function (see Figure 7):

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



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Figure 7. Attaching the Serial ATA Drive

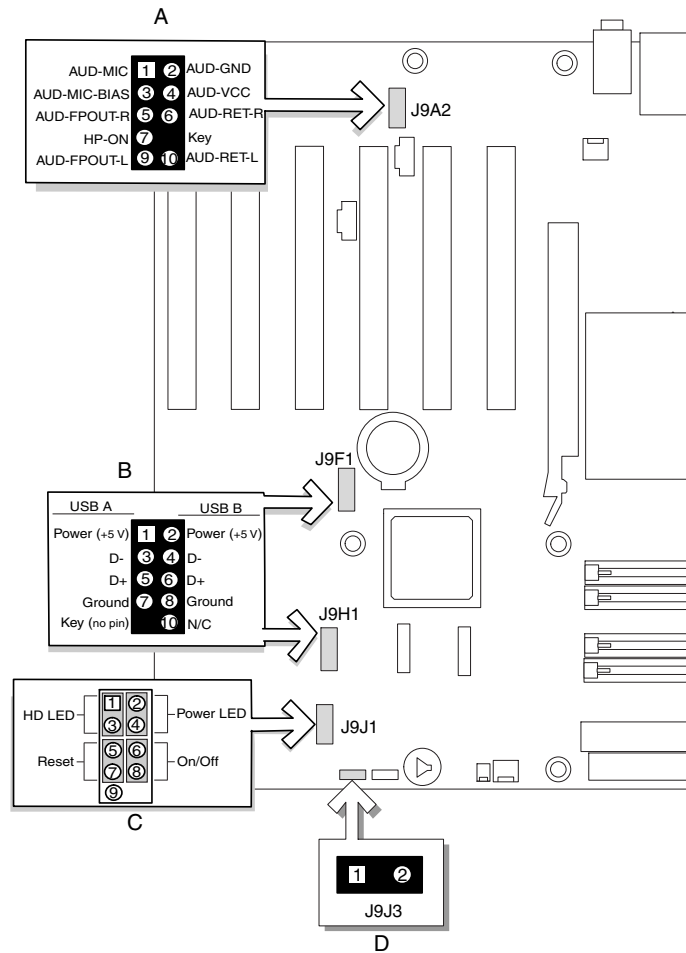


NOTE

Legacy IDE Mode (Parallel ATA controllers) is enabled by default in the BIOS Setup program. To support Serial ATA hard disks, enter BIOS Setup and enable Enhanced IDE Mode (Advanced Menu → IDE Configuration → IDE Mode).

8. Connecting Internal Headers

Figure 8 shows the location of internal headers. Observe the precautions in “Before You Begin” on page 3 before installing cables.



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Label	Description
A	Front panel audio header
B	USB 2.0 headers
C	Front panel header
D	Power LED header

Figure 8. Internal Headers

9. Connecting Hardware Control Cables

Figure 9 shows the location of the chassis intrusion and fan headers. Observe the precautions in “Before You Begin” on page 3.

Connect the chassis intrusion and fan cables to their respective headers on the desktop board.

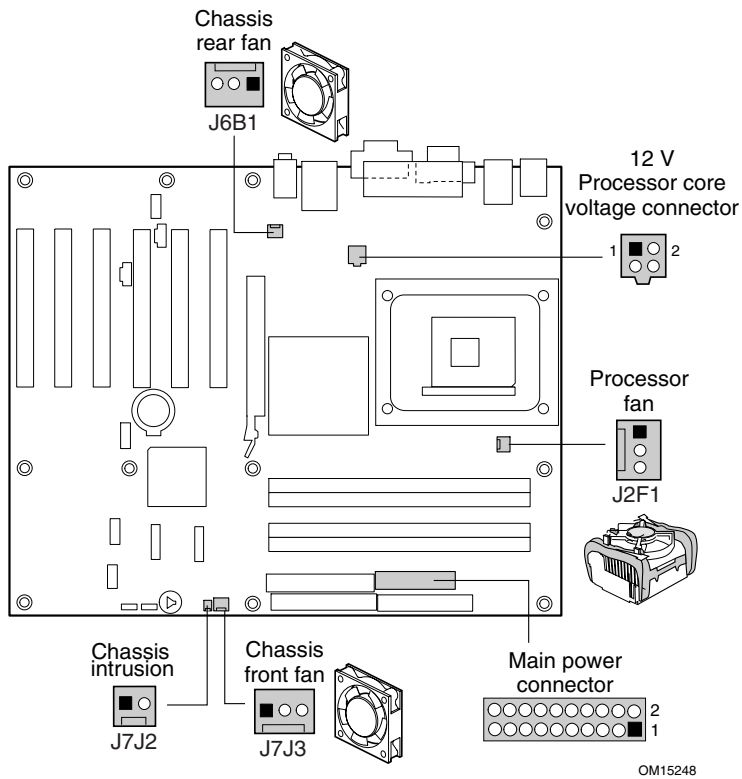


Figure 9. Location of Fan Headers and Power Connectors

10. Connecting Power Cables



CAUTION

Failure to use an ATX12V power supply, or not connecting the 12 V processor core voltage power supply connector to Desktop Board D865GBF/D865GLC may result in damage to the desktop board and/or power supply.

For more information on the ATX12V power supply, refer to the Intel Desktop Board D865GBF/D865GLC Product Guide on the Intel® Express Installer CD-ROM.

See Figure 9 for the location of the power connectors.

1. Observe the precautions in “Before You Begin” on page 3.
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.

Using the BIOS Setup Program

The BIOS Setup program can be used to view and change the BIOS settings for the computer. 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.

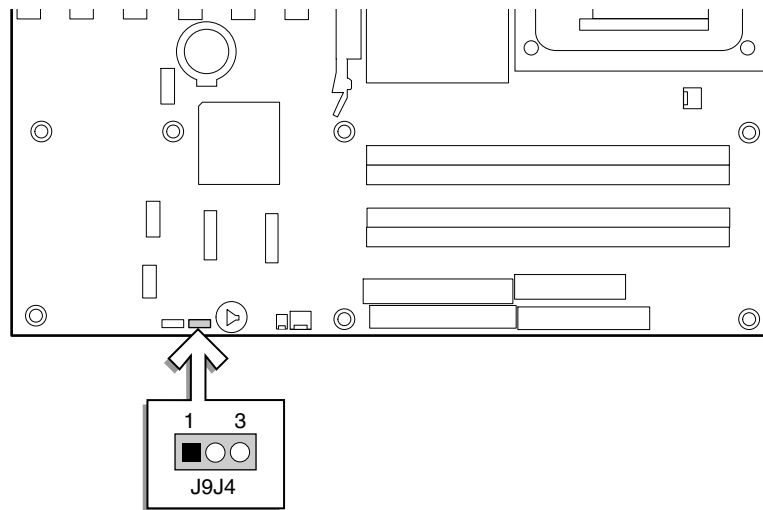
Setting the BIOS Configuration Jumper Block



CAUTION

Always turn off the power and unplug the power cord from the computer before changing the jumper block settings. Moving the jumper with the power on may result in unreliable computer operation.

The BIOS configuration jumper block (see Figure 10) determines the operating mode of the BIOS Setup Program and enables BIOS recovery in the event of a failed BIOS update.






OM15249

Figure 10. Location of the BIOS Configuration Jumper Block

The following table describes the jumper block settings for the BIOS Setup configuration jumper.

BIOS Setup Configuration Jumper Block Settings

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

* To update or recover the BIOS, see the instructions in the *Intel Desktop Board D865GBF/D865GLC Product Guide* on the Intel Express Installer CD-ROM.

For a complete list of BIOS Setup settings, see:

- The Intel Desktop Board D865GBF/D865GLC Product Guide on the Intel Express Installer CD-ROM
- The Intel World Wide Web Site at <http://support.intel.com/support/motherboards/desktop/>

Troubleshooting

Desktop Board D865GBF/D865GLC system fails to boot.

- Ensure that the power supply cable with the 4-pin connector is plugged into the 12 V processor core voltage connector located near the processor socket on the desktop board.
- Remove and re-insert the Intel Pentium 4 processor, memory, and any add-in cards to make sure they are fully seated. Remove any non-essential hardware components and boot the system.
- Disconnect all power and remove the CMOS battery. Wait 10 minutes, then re-install the battery, reconnect power, and boot the system.

A repeating beep error code is heard and the desktop board does not boot or show any video.

This beep code may indicate a problem during detection of the DDR SDRAM memory device. Check to ensure that system memory is properly installed and that the DIMMs meet the Memory Module Requirements listed in the Supported Components section of this document.

Resolving slow IDE boot times.

Extended boot time can be the result of IDE drive jumper configuration. For additional information visit <http://support.intel.com/support/motherboards/desktop/slowboot.htm>

Only 0.8 V and 1.5 V AGP 1X/4X/8X graphics cards are supported.

The AGP connector on this desktop board is keyed for 0.8 V and 1.5 V AGP cards only. The AGP connector is not mechanically compatible with 3.3 V AGP cards. To some, the 1.5 V AGP connector may appear backwards because the connector key is exactly the opposite of the 3.3 V AGP connector.

Customer Support Links

View or download product support information from Intel's World Wide Web site:

<http://support.intel.com/support/motherboards/desktop/>

Follow the link to your Intel desktop board for the following information:

- Known Issues and Solutions
- Software and Drivers (latest BIOS and driver updates)
- Compatibility (supported Intel® processors and memory information)
- Product Documentation
 - Technical Product Specification
 - Specification Update
 - Quick Reference Guide

The Intel World Wide Web site also includes telephone numbers for Intel customer support:

- Intel Customer Support World Wide Phone Numbers:
<http://support.intel.com/support/9089.htm>
- Intel Desktop Board Email Support Form:
<http://supportmail.intel.com/scripts-emff/welcome.asp?id=36>

If you can't find the information you need on the Web, contact your point of purchase.