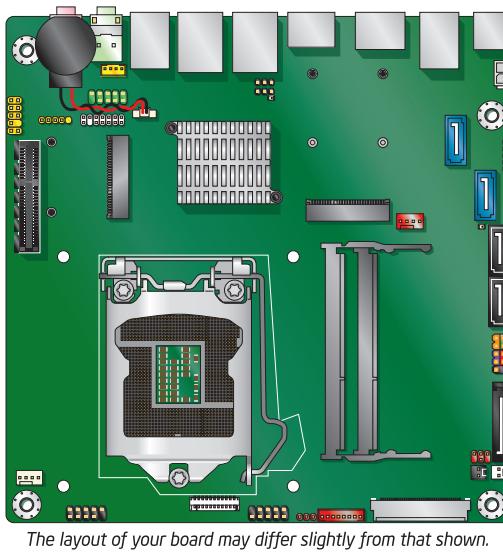


Intel® Desktop Board DQ77KB Integration Guide



This guide contains basic instructions for installing the desktop board in a compatible chassis. For a complete description of the board and its features, refer to the Technical Product Specification at: <http://www.intel.com/products/motherboard>.



G53674-002

The layout of your board may differ slightly from that shown.

Before You Begin

Follow these guidelines before you begin building your system:

- Electrostatic discharge (ESD) can damage components. Perform the procedures described in this guide only at an ESD workstation using an antistatic wrist strap and a conductive foam pad. If such a station is not available, you can provide some ESD protection by wearing an antistatic wrist strap and attaching it to a metal part of the computer chassis.
- Always follow the steps in each procedure in the listed order.
- Set up a log to record information about your computer such as serial numbers, installed options, and BIOS configuration.

Installation Precautions

When you install the desktop board, observe all warnings and cautions in this guide. To avoid injury, be careful of:

- Sharp pins on headers and connectors
- Rough edges and sharp corners on the chassis
- Damage to wires that could cause a short circuit

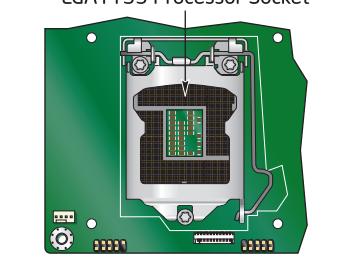
Observe Safety and Regulatory Requirements

Read and follow the instructions in this guide and the instructions supplied with the chassis and associated devices. If you do not follow these instructions and the instructions provided by the chassis and device suppliers, you increase your safety risk and possibility of noncompliance with regional laws and regulations.

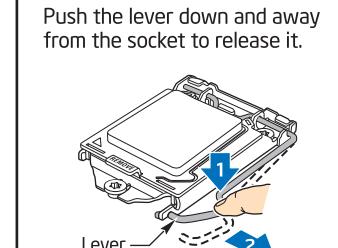
1 Install a Processor

For a list of processors this board supports, go to: <http://processormatch.intel.com>.

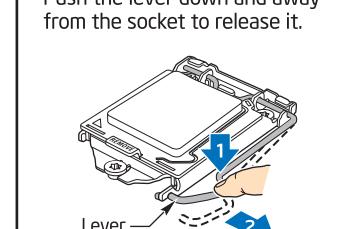
LGA1155 Processor Socket



A. Unlatch the Socket Lever



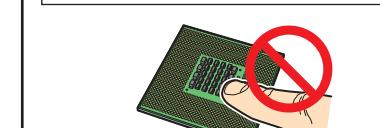
- A. Rotate the socket lever to lift the load plate away from the socket.
- B. Make sure the load plate is in the fully open position.



When opening the socket, DO NOT TOUCH the gold socket contacts.

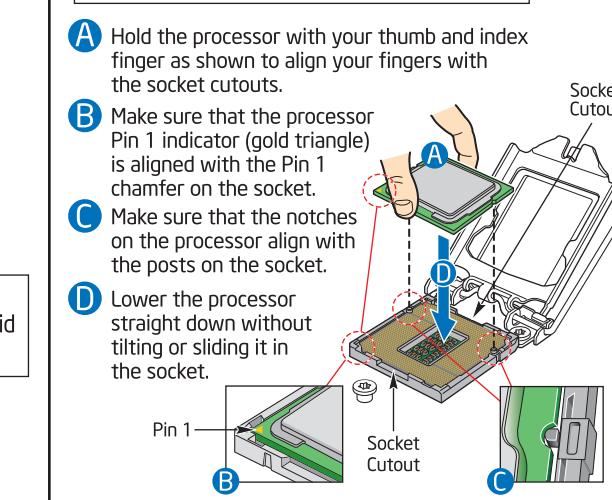


When unpacking a processor, hold by the edges only to avoid touching the gold contacts.



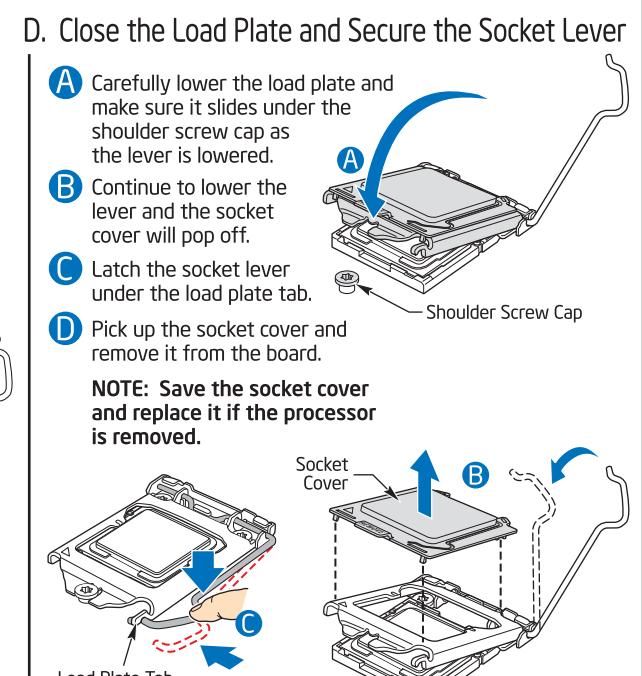
C. Install the Processor

The processor must align correctly with the socket before installation. DO NOT DROP the processor into the socket.



Pin 1

Socket Cutout



Shoulder Screw Cap

Load Plate Tab

Socket Cover

NOTE: Save the socket cover and replace it if the processor is removed.

Load Plate

Socket Cutout

Shoulder Screw Cap

2 Install a Heatsink

This step shows how to install both a standard height heatsink and a low-profile heatsink, choose the installation that matches your configuration.

Standard Height Heatsink

NOTE: Heatsinks that come with boxed Intel® processors use pre-applied thermal interface material (TIM) and do not need thermal grease. If you install a different heatsink, refer to the manufacturer's instructions.

Do not touch or disturb the TIM on the heatsink during installation.

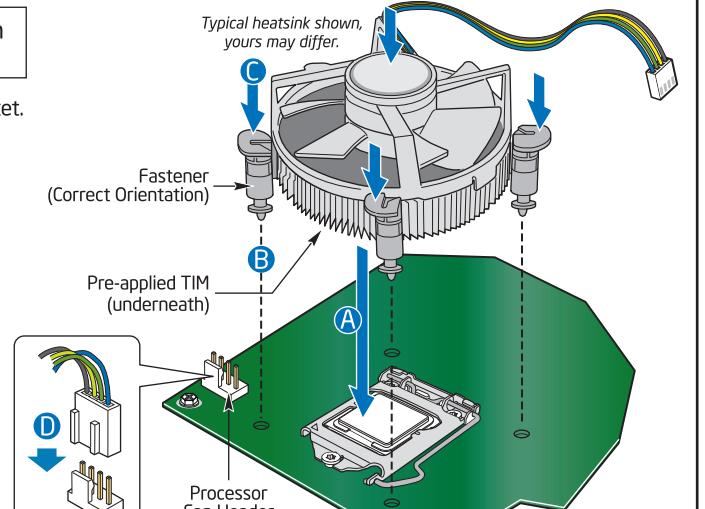
A. Place the heatsink onto the processor socket. Ensure that the fan power cable is on the side closest to the processor fan header.

B. Align the four fasteners with the corresponding board holes. Ensure that the fastener slots are pointing perpendicular to the heatsink.

Incorrect Orientation

C. While pressing down on the heatsink, press down on the top of the fasteners with your thumb to lock into place. Ensure that all four fasteners are secured.

D. Connect the heatsink fan power cable to the processor fan header.



Low-Profile Heatsink

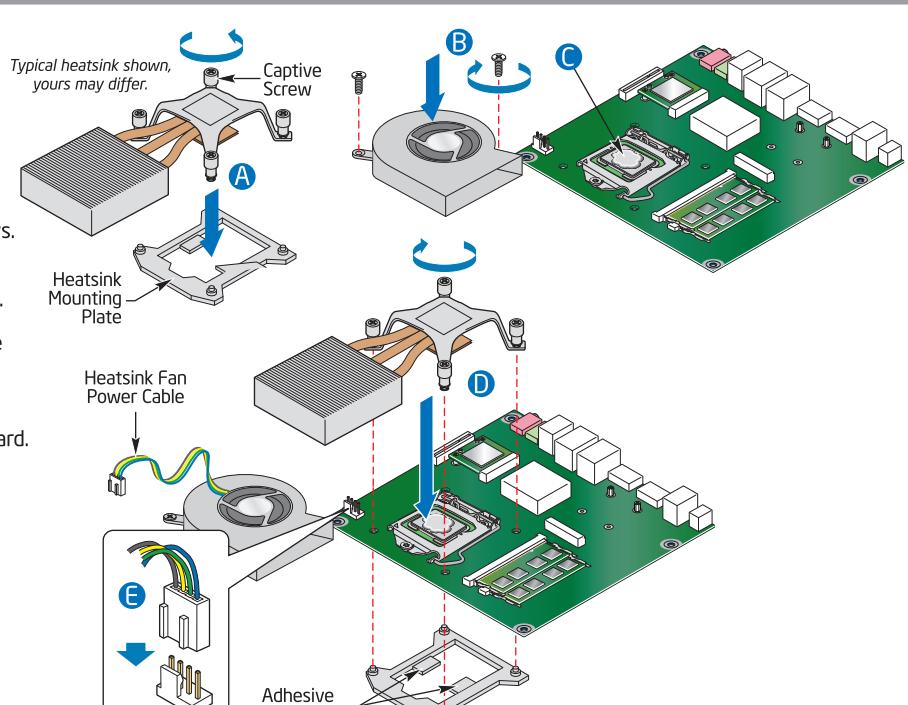
A. Remove the heatsink mounting bracket by unscrewing the four captive screws.

B. Install the fan and secure with two screws.

C. Apply the provided Thermal Interface Material (TIM) to the top of the processor.

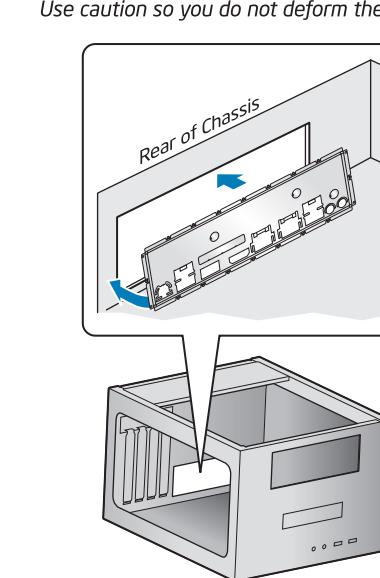
D. Remove the two adhesive strips from the heatsink mounting bracket and carefully lower the heatsink into place and secure the four captive screws to the mounting plate on the underside of the desktop board.

E. Connect the heatsink fan power cable to the processor fan header.



3 Install the I/O Shield

Place the I/O shield inside the chassis and press it into place so that it fits tightly and securely. Use caution so you do not deform the I/O shield.

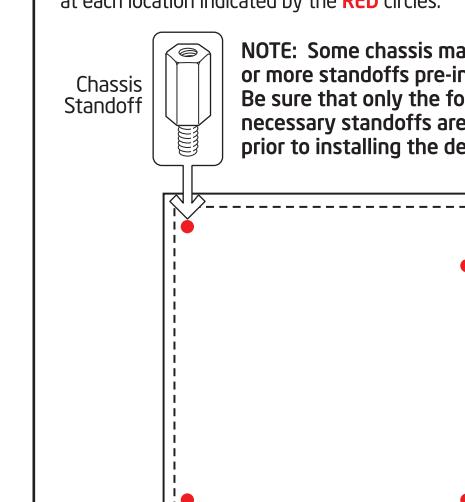


Reference chassis shown, your chassis may differ.

4 Install the Desktop Board

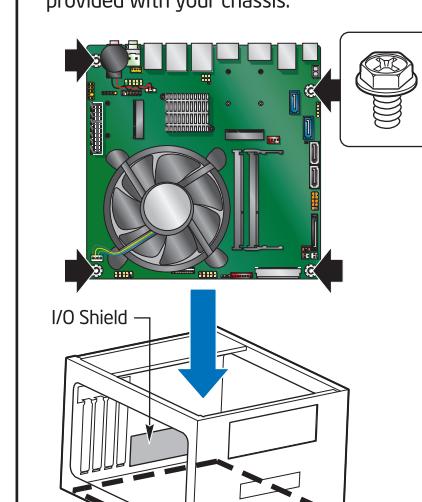
A. Install Standoffs

Four standoffs should be installed into the chassis before installing the desktop board. Locate the threaded standoff holes that match the desktop board, and install a standoff at each location indicated by the RED circles.



B. Install the Desktop Board

Install the desktop board by aligning the back panel with the I/O shield and securing the board to the standoffs using the screws provided with your chassis.

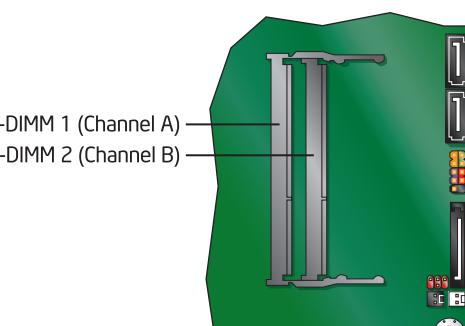


5 Install System Memory

Suggested Memory Configurations and Population Order

NOTE: This desktop board supports 204-pin DDR3 SO-DIMMs only.

For a list of tested memory go to: <http://www.intel.com/support/go/buildit>.



Minimum memory: 1 GB 1066 MHz DDR3 SO-DIMM.

Memory should be installed in DIMM number order:

- For single-channel operation, populate Slot 1.
- For dual-channel operation, populate Slot 1 and Slot 2.

For best performance, DIMM pairs should be identical in size, speed, and organization.

Do not touch the gold contacts when handling or installing DIMMs.

NOTE: If you are installing only one SO-DIMM, it must be installed in the SO-DIMM 1 socket.

Hold the SO-DIMM with the back edge tilted slightly upwards, insert it into the socket, aligning the notch in the SO-DIMM with the tab in the socket. Gently push the back edge of the SO-DIMM down until it snaps into the retention arms.

If you are installing a second SO-DIMM, repeat this procedure.

Notch
Socket Tab

Retention Arms

6 Connect a Chassis Fan

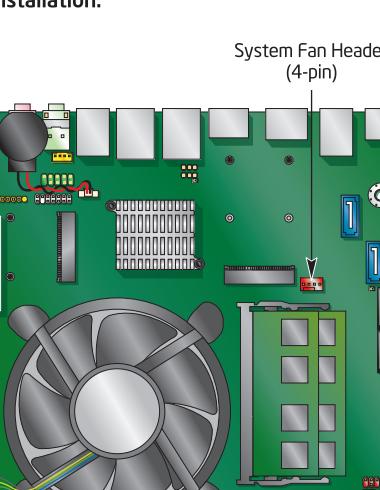
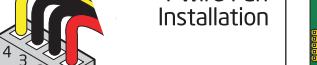
This desktop board has one fan header for connecting a chassis fan. See the details below for connecting either a 3-wire or a 4-wire fan to the desktop board fan header.

NOTE: The pin numbering for the fan connectors is shown for ease of installation.

3-wire Fan Installation

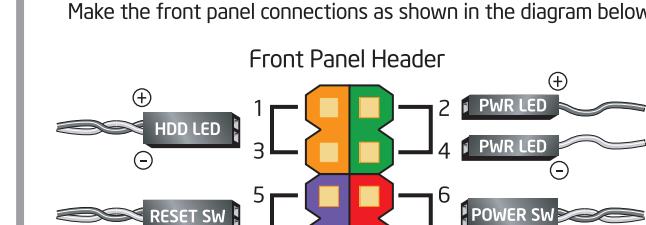


4-wire Fan Installation

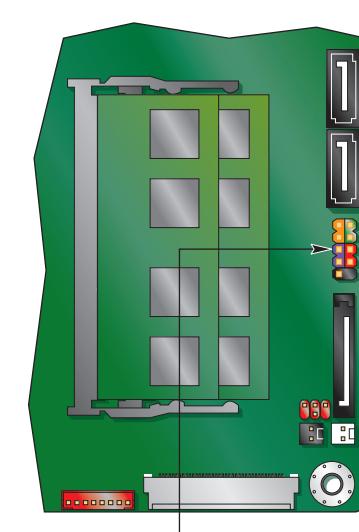


7 Connect Chassis Front Panel Cables

Make the front panel connections as shown in the diagram below.



Your chassis cables may vary in appearance and labeling depending upon the chassis model.



8 Install a PCI Express® Mini Card In the Full-Mini Card Slot (Optional)

This step shows how to install both a PCI Express Half-Mini Card and a PCI Express Full-Mini Card, choose the installation that matches your configuration.

PCI Express Half-Mini Card Installation

A. Remove the two screws and the two standoffs from the Full-Mini Card position.

B. Install the two standoffs into the Half-Mini Card position.

C. Align the notch in the card with the socket key and insert the card at a slightly upward angle as shown.

D. Push down on the card and secure with two screws.

PCI Express Full-Mini Card Installation

A. Verify that the two standoffs are in the correct locations and remove the two screws.

B. Align the notch in the card with the socket key and insert the card at a slightly upward angle as shown.

C. Push down on the card and secure with two screws.

PCI Express Full-Mini Card Installation

A. Verify that the two standoffs are in the correct locations and remove the two screws.

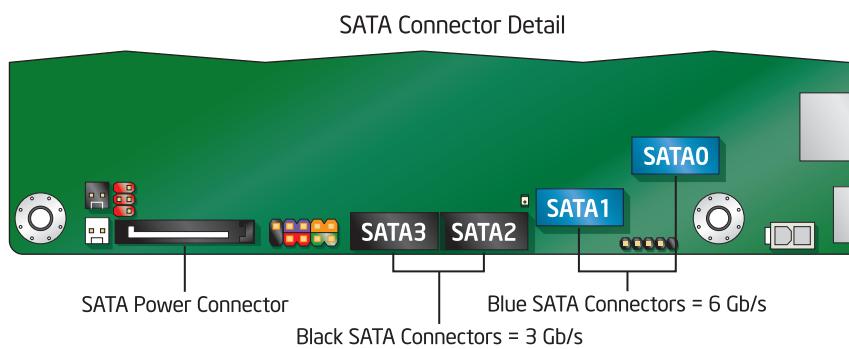
B. Align the notch in the card with the socket key and insert the card at a slightly upward angle as shown.

C. Push down on the card and secure with two screws.

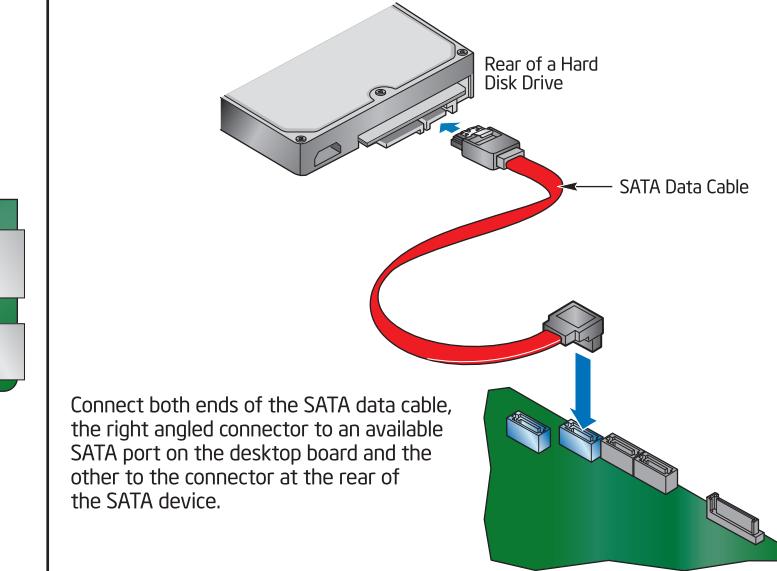
9 Install and Connect SATA Devices

A. Install SATA Devices

Install your SATA devices (Hard Disk Drive, Optical Drive, etc.). See the documentation that came with your chassis or SATA device for device installation.

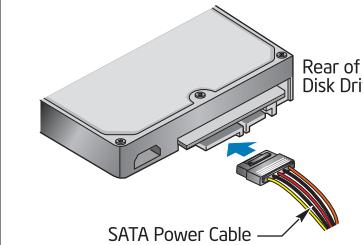


B. Connect the SATA Data Cable



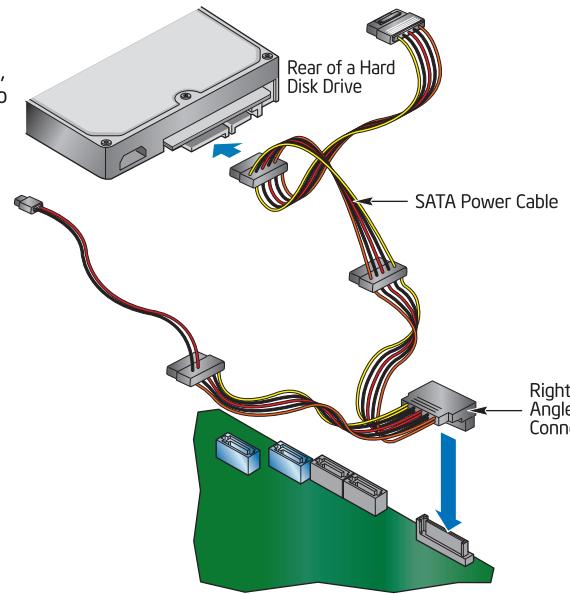
C. Connect your SATA Device to a Power Source

Power Supply
Connect the SATA power cable from the power supply to the mating connector at the rear of the SATA device.



Desktop Board Power
Using the included SATA power cable, connect the right angled connector to the SATA power connector on the desktop board and the other end to the mating connector at the rear of the SATA device.

OR

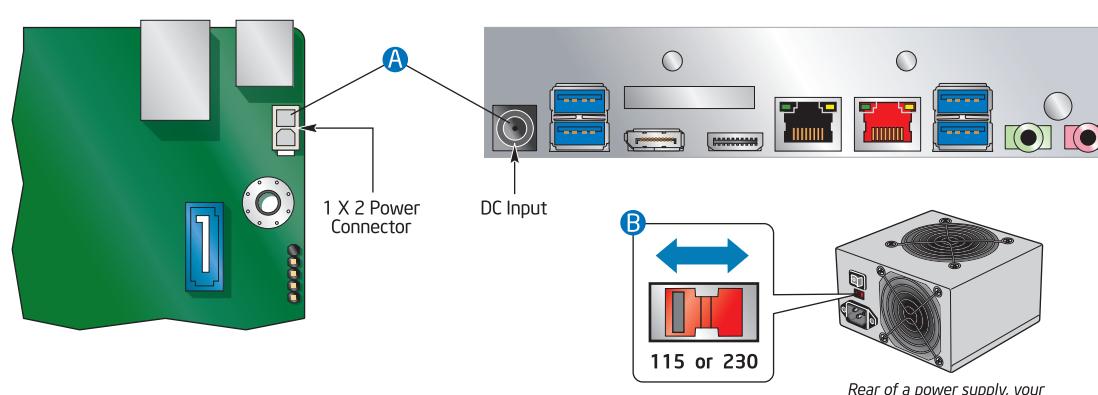


10 Make Power Connections

A Connect EITHER a 1 x 2 power supply cable to the matching 1 x 2 power connector on the board OR an external power supply to the DC Input connector on the back panel. DO NOT connect both.

B For a standard height chassis, ensure that the voltage setting on the rear of the power supply is set correctly.

Failure to use an appropriate power supply may result in damage to the board, or the system may not function properly.

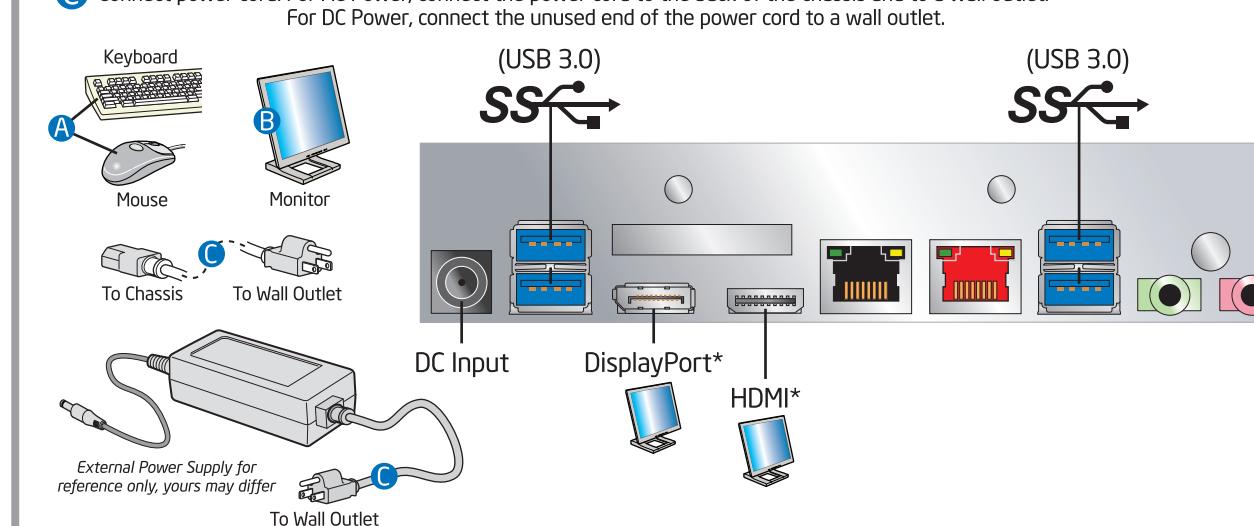


11 Finishing up

A Connect a mouse and keyboard using any of the available USB ports.

B Connect a monitor using one of the available video ports.

C Connect power cord: For AC Power, connect the power cord to the back of the chassis and to a wall outlet. For DC Power, connect the unused end of the power cord to a wall outlet.



12 Software

A Turn on your computer and install an operating system.

B Insert the Intel® Express Installer DVD to install the necessary software to complete your desktop board integration. Go to: <http://downloadcenter.intel.com> to download the latest drivers.

C (Optional) For information on configuring your system for RAID, refer to the Intel® Rapid Storage Technology User Guide at: http://www.intel.com/p/en_US/support/highlights/chpts/msm.

Troubleshooting

If your system fails to boot:

- Ensure that your desktop board is connected to a power source.
- Disconnect all power and remove and re-insert the processor, memory, and any add-in cards to make sure they are fully seated. Restart the system.
- Remove any non-essential hardware components, reconnect the power, and restart the system.

If your system still does not boot, go to: http://www.intel.com/p/en_US/support/, select product support for Intel® Desktop Board DQ77KB, and then select "Troubleshooting system 'no boot' issues". This web site contains extensive information to help you solve non-boot problems including a No Boot Wizard.

Beep Codes

When a repeating beep code is heard and your system does not boot or display video, the beeps indicate the following:

Beep Pattern	Problem
Two beeps (beep, beep [pause], beep, beep)	No video detected
Three beeps (beep, beep, beep [pause]) This beep pattern repeats until the system is powered off.	Memory error
High/Low beeps (high, low, high, low, high, low, high, low)	CPU thermal trip

For more information, go to: <http://www.intel.com/support/motherboards/desktop/sb/cs-010249.htm>.

Safety and Regulatory Information

Battery Warning

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.

FCC Declaration of Conformity

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.

Canadian Department of Communications Compliance Statement

This digital apparatus does not exceed the Class B limits for radio noise emissions from digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communications.

Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de la classe B prescrites dans le Règlement sur le brouillage radioélectrique édicté par le ministère des Communications du Canada.

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Korea Certification mark. Includes an adjacent KCC (Korean Communications Commission) certification number: KCC-REM-CPU-DQ77KB.



Date of manufacture: March 2012

Country of Origin: China

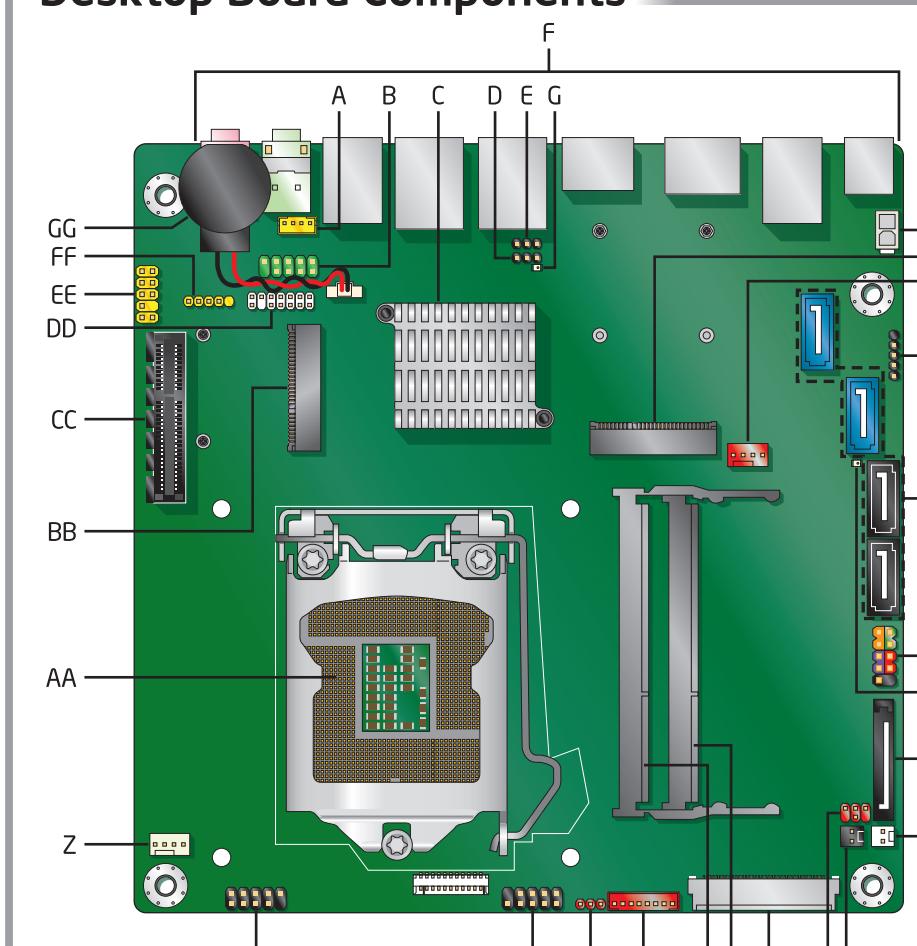
China RoHS Environmentally Friendly Use Period

The Environmentally Friendly Use Period (EFUP) for Intel Desktop Boards has been determined to be 10 years.

For detailed information about the desktop board's regulatory compliance, refer to the Technical Product Specification at: <http://www.intel.com/products/motherboard>.

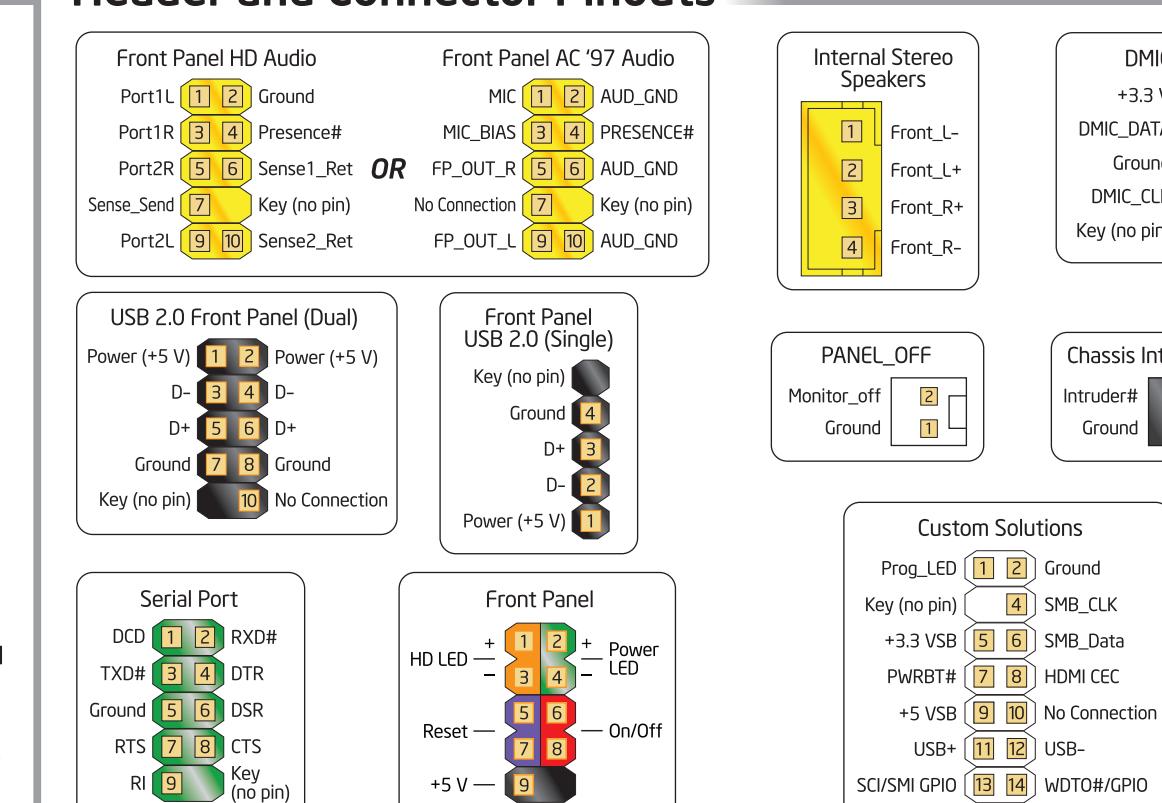
Reference

Desktop Board Components

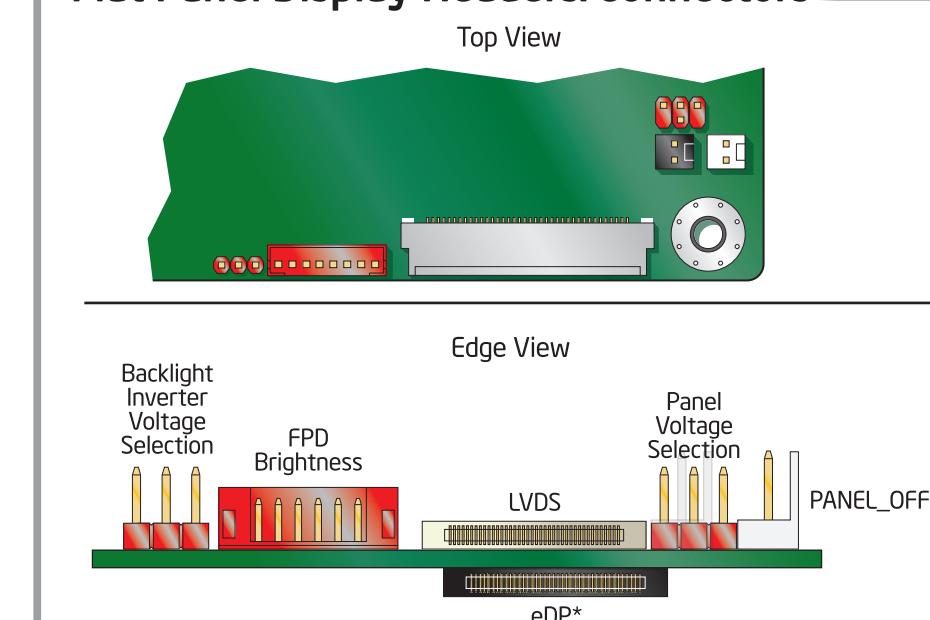


- A. Internal Stereo Speakers Connector
- B. Serial Port Header
- C. Intel® Q77 PCH
- D. MEBX_RESET Jumper
- E. BIOS Configuration Jumper
- F. Back Panel Connectors
- G. ME_STATE LED
- H. 1 x 2 Power Connector
- I. PCI Express Full-Mini/Half-Mini Card Slot
- J. System Fan Header
- K. USB 2.0 Front Panel Header (Single)
- L. SATA Data Connectors
- M. Front Panel Header
- N. Standby Power LED
- O. SATA Power Connector
- P. PANEL_OFF Header
- Q. Chassis Intrusion Header
- R. Panel Voltage Selection Header
- S. LVDS Connector
- T. SO-DIMM 2 (Channel B)
- U. SO-DIMM 1 (Channel A)
- V. FPD Brightness Connector
- W. Backplane Inverter Voltage Selection Header
- X. USB 2.0 Front Panel Header (Dual)
- Y. USB 2.0 Front Panel Header (Dual)
- Z. Processor Fan Header
- AA. Processor Socket
- BB. PCI Express Half-Mini Card Slot
- CC. PCI Express 3.0 x4 Connector
- DD. Custom Solutions Header
- EE. Front Panel HD Audio Connector
- FF. DMIC Header
- GG. Battery

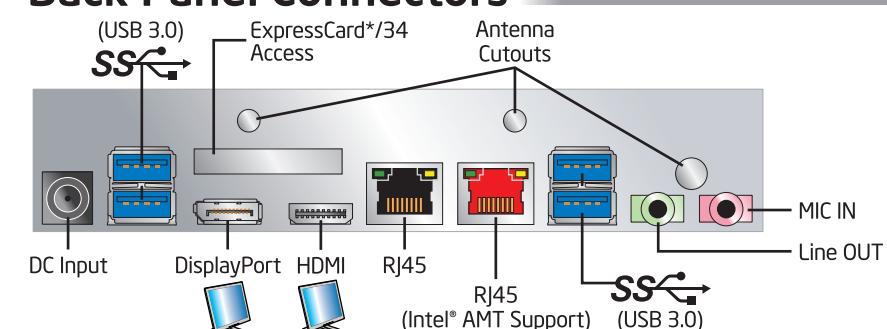
Header and Connector Pinouts



Flat Panel Display Headers/Connectors



Back Panel Connectors



BIOS Reference

The BIOS (Basic Input/Output System) controls the computer's boot process. The purpose of the BIOS is to identify and initialize peripheral components, memory, hard drives, optical drives, and other hardware.

BIOS Settings

For a list of BIOS settings along with their purpose and options, refer to the BIOS Glossary at: <http://www.intel.com/support/motherboards/desktop/sb/cs-020304.htm>.

Updating the BIOS

You should update the BIOS on your board only if the newer BIOS version solves a specific problem you have.

BIOS updates are available in Intel's Download Center at: <http://downloadcenter.intel.com>.

There are various methods of updating an Intel® Desktop Board BIOS to the latest version. The number of methods available for any particular board model varies, depending on drive support and BIOS update file size. For update instructions, go to: <http://www.intel.com/support/motherboards/desktop/sb/CS-022312.htm>.

Troubleshooting the BIOS

For tips on troubleshooting BIOS issues on Intel® Desktop Boards, refer to: <http://www.intel.com/support/motherboards/desktop/sb/CS-028780.htm>.

BIOS Configuration Jumper Settings:

1-2	Normal
2-3	Configuration
No jumper	Recovery

1-2	Reset MEBX
2-3	N/A
No jumper	Normal

Online Support

For more information on Intel Desktop Board DQ77KB, consult the following online resources:

General board information: <http://www.intel.com/products/motherboard/index.htm>

Available board configurations: <http://ark.intel.com>

Supported processors: <http://processormatch.intel.com>

Chipset information: <http://www.intel.com/products/desktop/chipsets/index.htm>

BIOS and driver updates: <http://downloadcenter.intel.com>

More integration information: <http://www.intel.com/support/go/buildit>

Customer support: http://www.intel.com/p/en_US/support/lid=hdr+support

Intel® Rapid Storage Technology: http://www.intel.com/p/en_US/support/highlights/chpts/msm

Tested memory: <http://www.intel.com/support/motherboards/desktop/sb/cs-025414.htm>

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