Intel® Desktop Board D945GSEJT
Product Guide

Revision History

Revision	Revision History	Date
-001	First release of the Intel® Desktop Board D945GSEJT Product Guide	February 2009
-002	Second release of the Intel® Desktop Board D945GSEJT Product Guide	May 2009

Preface

This Product Guide gives information about board layout, component installation, and regulatory requirements for Intel® Desktop Board D945GSEJT.

Intended Audience

The Product Guide is intended for technically qualified personnel. It is not intended for general audiences.

Intended Uses

All Intel® Desktop Boards are evaluated as Information Technology Equipment (I.T.E.) for use in personal computers (PC) for installation in homes, offices, schools, computer rooms, and similar locations. The suitability of this product for other PC or embedded non-PC applications or other environments, such as medical, industrial, alarm systems, test equipment, etc. may not be supported without further evaluation by Intel.

Document Organization

The chapters in this Product Guide are arranged as follows:

1   Desktop Board Features: a summary of product features
2   Installing and Replacing Desktop Board Components: instructions on how to install the Desktop Board and other hardware components
3   Updating the BIOS: a description of how to update the BIOS
A   BIOS Error Messages: information about BIOS error messages and beep codes
B   Regulatory Compliance: safety and EMC regulations and product certifications

Conventions

The following conventions are used in this manual:

⚠ **CAUTION**

Cautions warn the user about how to prevent damage to hardware or loss of data.

📝 **NOTE**

Notes call attention to important information.

Terminology

The table below gives descriptions to some common terms used in the product guide.

Term	Description
GB	Gigabyte (1,073,741,824 bytes)
GHz	Gigahertz (one billion hertz)
KB	Kilobyte (1024 bytes)
MB	Megabyte (1,048,576 bytes)
Mbit	Megabit (1,048,576 bits)
MHz	Megahertz (one million hertz)

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Tables

1 Desktop Board Features

This chapter briefly describes the main features of Intel® Desktop Board D945GSEJT. Table 1 summarizes the features of the Desktop Board.

Table 1. Feature Summary

Form Factor	Low-profile Mini-ITX (20 millimeters [0.79 inches] x 170 millimeters [6.7 inches] x 170 millimeters [6.7 inches])
Processor	Passively-cooled, soldered-down Intel® Atom™ processor N270
Main Memory	• One 200-pin Double Data Rate 2 (DDR2) Small Outline Dual Inline Memory Module (SO-DIMM) socket with gold-plated contacts • Support for DDR2 533 MHz SO-DIMMs (DDR2 800 MHz and DDR2 667 MHz validated to run at 533 MHz only) • Support for up to 2 GB of system memory
Chipset	Passively cooled mobile Intel® 945GSE Express Chipset consisting of: • Intel® 82945GSE Express Chipset Graphics and Memory Controller Hub (GMCH) • Intel® 82801GBM I/O Controller Hub (ICH7-M)
Internal Graphics	Intel® Graphics Media Accelerator 950 (Intel® GMA 950) onboard graphics subsystem with support for: • Analog displays (VGA) • Digital displays (DVI-D)
Audio	RealTek* ALC662 audio codec for 2 + 2-channel (multi-streaming) Intel® High Definition Audio (Intel® HD Audio): • Front panel microphone/headphone header • S/PDIF digital audio header • Internal mono speaker header
Expansion Capabilities	One PCI* bus add-in card connector One PCI Express* Full-Mini Card slot
Peripheral Interfaces	• Seven USB 2.0 ports: — Three back panel ports — Four front panel ports (via two internal headers; one header supports an Intel® Z-U130 USB Solid-State Drive (or compatible device)) • One parallel ATA (PATA) interface (44-pin) with ATA-100/66 support • Two Serial ATA (SATA) 3.0 Gb/s connectors (supporting IDE and ACHI) • One SATA device power connector
Legacy I/O Control	Winbond* W83627DGH-A legacy I/O controller: • Two serial port headers • One parallel port header • One PS/2 keyboard header
Hardware Monitor Subsystem	• Hardware monitoring through the Winbond I/O controller • Voltage sense to detect out of range power supply voltages • Thermal sense to detect out of range thermal values • One fan header • One fan sense input used to monitor fan activity • Fan speed control

BIOS	• Intel® BIOS • Support for Advanced Configuration and Power Interface (ACPI), Plug and Play, and SMBIOS
LAN Support	• 10/100/1000 Mb/s (Gigabit) Ethernet LAN Subsystem using a RealTek* 8111DL Gigabit Ethernet Controller
Power	• Integrated DC-to-DC circuitry • 12 VDC jack on back panel for external power supply • ATX12V 2 x 2 power connector for alternate internal power supply
Power Management	• Support for Advanced Configuration and Power Interface (ACPI) • Wake on USB, PCI, PCI Express, PS/2, LAN, and front panel

For more information on Intel Desktop Board D945GSEJT consult the following online resources:

To find information about...	Visit this World Wide Web site:
Intel Desktop Board D945GSEJT	http://www.intel.com/products/motherboard/D945GSEJT/index.htm
Desktop Board Support	http://support.intel.com/support/motherboards/desktop
Available configurations for Intel Desktop Board D945GSEJT	http://www.intel.com/products/motherboard/D945GSEJT/index.htm
Chipset information	http://www.intel.com/products/desktop/chipsets/index.htm
BIOS and driver updates	http://downloadcenter.intel.com/
Integration information	http://www.intel.com/support/go/buildit

Desktop Board Components

Figure 1 shows the location of the major components on Intel Desktop Board D945GSEJT.
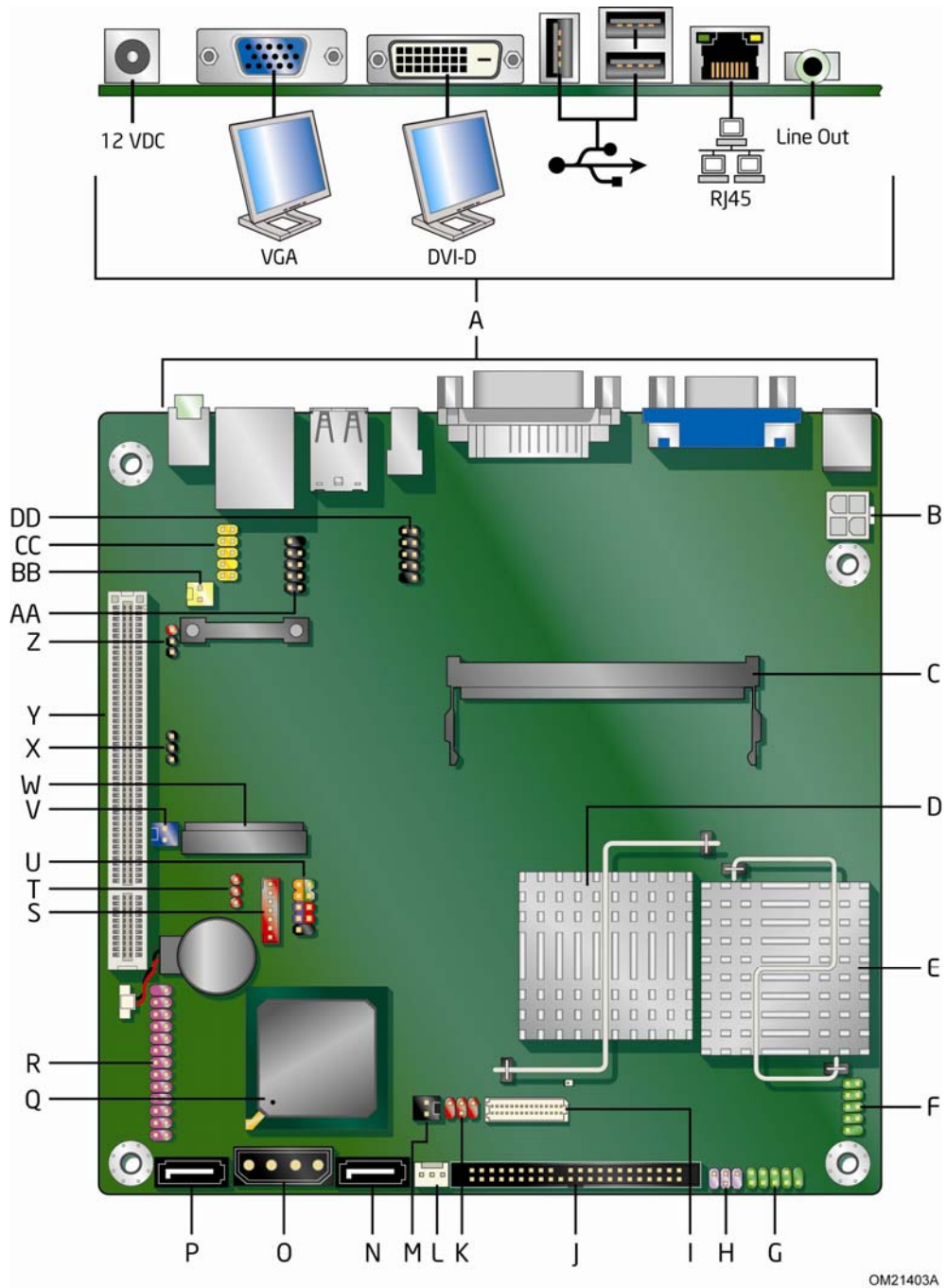
Figure 1. Intel Desktop Board D945GSEJT Components

Table 2. Intel Desktop Board D945GSEJT Components

Label	Description
A	Back panel connectors
B	12 V processor core voltage connector (2 x 2)
C	SO-DIMM Connector
D	Intel 82945GSE GMCH
E	Intel Atom processor N270
F	Serial port (COM 2)
G	Serial port (COM 1)
H	PS/2 keyboard port header
I	Reserved
J	PATA connector (44 pin)
K	Reserved
L	Chassis fan header
M	Chassis intrusion header
N	SATA 0 connector
O	SATA power connector
P	SATA 1 connector
Q	Intel 82801GBM I/O Controller Hub (ICH7-M)
R	Parallel port header
S	Reserved
T	Reserved
U	Front panel header
V	Front panel wireless activity LED header
W	PCI Express Mini Card connector
X	BIOS configuration jumper block
Y	PCI bus connector
Z	S/PDIF header
AA	Front panel USB header
BB	Internal mono speaker header
CC	Front panel audio header
DD	Front panel USB header with Intel Z-U130 USB Solid-State Drive (or compatible device) support

Processor

Intel Desktop Board D945GSEJT includes an Intel Atom processor N270. The processor is soldered to the Desktop Board and is not customer upgradeable.

NOTE

The board is designed to be passively cooled in a properly ventilated chassis. Chassis venting locations are recommended above the processor heatsink area for maximum heat dissipation effectiveness.

System Memory

NOTE

To be fully compliant with all applicable Intel® SDRAM memory specifications, the board should be populated with an SO-DIMM that supports the Serial Presence Detect (SPD) data structure. If the SO-DIMM does not support SPD, you will see a notification to this effect on the screen at power up. The BIOS will attempt to configure the memory controller for normal operation.

The Desktop Board has one 200-pin DDR2 SO-DIMM connector with gold-plated contacts. It supports:

- 533 MHz unbuffered, non-registered DDR2 SO-DIMMs
- Serial Presence Detect (SPD) memory only
- Non-ECC memory
- Up to 2 GB of memory

Mobile Intel® 945GSE Express Chipset

The Mobile Intel 945GSE Express Chipset consists of the following devices:

- Intel 82945GSE Express Chipset Graphics and Memory Controller Hub (GMCH) with Direct Media Interface (DMI) interconnect
- Intel 82801GBM I/O Controller Hub (ICH7-M) with DMI

The GMCH component provides interfaces to the processor, memory, and the DMI interconnect. This component also provides integrated graphics capabilities via the Intel® Graphics Media Accelerator 950 (Intel® GMA 950).

The ICH7 is a centralized controller for the board's I/O paths. For more information about the Intel 945GSE Express Chipset, go to http://www.intel.com/design/chipsets/embedded/945gse/

NOTE

The board is designed to be passively cooled in a properly ventilated chassis. Chassis venting locations are recommended above the GMCH heatsink area for maximum heat dissipation effectiveness.

Intel 945GSE Graphics Subsystem

Intel® GMA950 Graphics Controller

The Intel GMA950 graphics controller features the following:

- 166 MHz core frequency
- High performance 3-D setup and render engine
- High quality texture engine
  — DX9* Compliant Hardware Pixel Shader 2.0
  — Alpha and luminance maps
  — Texture color-keying/chroma-keying
  — Cubic environment reflection mapping
  — Enhanced texture blending functions
- 3D Graphics Rendering enhancements
  — 1.3 Dual Texture GigaPixel/second Fill Rate
  — 16 and 32 bit color
  — Maximum 3D supported resolution of 1600 x 1200 x 32 at 85 Hz
  — Vertex cache
  — Anti-aliased lines
  — OpenGL* version 1.4 support with vertex buffer and EXT_Shadow extensions
- 2D Graphics enhancements
  — 8, 16, and 32 bit color
  — Optimized 256-bit BLT engine
  — Color space conversion
  — Anti-aliased lines
- Video
  — Hardware motion compensation for MPEG2
  — Software DVD at 30 fps full screen
- Intel® Zoom Utility

Video Memory Allocation

Video memory is allocated from the total available system memory for the efficient balancing of 2-D/3-D graphics performance and overall system performance. Dynamic allocation of system memory to video memory is as follows:

- 256 MB total RAM results in 32 MB video RAM
- 512 MB total RAM results in 64 MB video RAM
- 1 GB total RAM results in 128 MB video RAM
- 2 GB total RAM results in 224 MB video RAM

Analog Display (VGA) Support

The VGA port supports analog displays. The maximum supported resolution is 2048 x 1536 (QXGA) at a 75 Hz refresh rate.

Digital Visual Interface (DVI) Support

The DVI-D port supports digital DVI displays. The maximum supported resolution is 1600 x 1200 (UXGA). The DVI port is compliant with the DVI 1.0 specification.

NOTE

The default monitor can be dynamically switched with the following keyboard hot-keys:

- *<Ctrl+Alt+F1> for VGA*
- *<Ctrl+Alt+F4> for DVI*

Operating System Support

The following Microsoft* 32-bit operating systems are fully supported by the Desktop Board:

- Microsoft Windows Vista* Home Basic
- Microsoft Windows Vista Business
- Microsoft Windows* XP Home
- Microsoft Windows XP Professional

The board has also been validated against the following Linux distributions:

- SUSE* Linux Enterprise Desktop
- Red Hat* ENTERPRISE LINUX*
- Ubuntu

Onboard Audio Subsystem

Intel Desktop Board D945GSEJT has a 2 + 2-channel (stereo) onboard audio subsystem that includes a Realtek ALC662 audio codec.

The subsystem includes the following headers and connectors:

- Front panel audio header (supports both AC '97 and Intel HD Audio) , including functionality for:
  — Line out
  — Microphone in
- Back panel audio line-out connector
- S/PDIF header (3 pin)
- Internal mono speaker header (2 pin) for support of a 1.5 W/ 8 Ω speaker

The front/back panel audio connectors are configurable through the audio device drivers.

The audio stream for the line-out port is routed according to the following dependencies:

- By default, the audio stream is down-mixed to mono and amplified for an internal mono speaker.
- If a connection is detected at the back panel line-out port, the audio stream is sent to the rear line-out port and the internal mono speaker is disabled.

NOTE

The back panel audio line out connector is designed to power headphones or amplified speakers only. Poor audio quality occurs if passive (non-amplified) speakers are connected to this output.

Legacy Input/Output (I/O) Controller

The legacy I/O controller features the following:

- Two serial ports
- 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 keyboard interface
- Intelligent power management, including a programmable wake up event interface
- PCI power management support

Network Bootloader Support

The LAN subsystem supports the traditional Pre-Execution Environment (PXE) as well as the open-source gPXE (http://etherboot.org/) network bootloaders.

gPXE is an open source network bootloader providing traditional PXE environment compatibility and additional protocol support, such as TCP, HTTP, DNS and iSCSI. Refer to http://etherboot.org/ for further information.

System deployments where gPXE features are leveraged allow for diskless client configurations, eliminating the power consumption, thermal, acoustic, and cost disadvantages of having a local storage device per station.

NOTE

gPXE source code is available on the Intel® Express Installer Drivers DVD shipped with the desktop board, as well as upon request.

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LAN Subsystem

The LAN subsystem consists of the following:

- Intel 82801GBM ICH7-M
- Realtek 8111D Gigabit Ethernet Controller for 10/100/1000 Mbits/sec Ethernet LAN connectivity
- RJ-45 LAN connector with integrated status LEDs

Additional features of the LAN subsystem include:

- CSMA/CD protocol engine
- LAN connect interface that supports the ethernet controller
- PCI bus power management
  - Supports ACPI technology
  - Supports LAN wake capabilities

LAN drivers are available from Intel's World Wide Web site at http://downloadcenter.intel.com/.

LAN Status LEDs

Two LEDs are built into the RJ-45 LAN connector located on the back panel (see Figure 2). These LEDs indicate the operating states of the LAN.
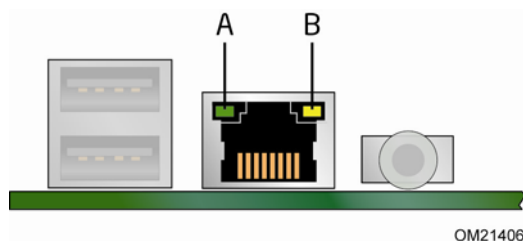
Figure 2. LAN Status LEDs

Table 3 describes the LED states when the board is powered up and the LAN subsystem is operating.

Table 3. LAN Status LEDs

LED	LED Color	LED State	Indicates
Link (A)	N/A	Off	LAN link is not established.
	Green	On (steady state)	LAN link is established.
		Blinking	LAN activity is occurring.
Speed (B)	N/A	Off	10 Mbits/s data rate is selected.
	Green	On (steady state)	100 Mbits/s data rate is selected.
	Yellow	On (steady state)	1000 Mbits/s data rate is selected.

USB 2.0 Support

The Desktop Board supports up to seven USB 2.0 ports (three ports routed to the back panel and four ports routed to two front panel USB 2.0 headers). One of the front panel USB headers supports an Intel Z-U130 USB Solid-State Drive (or compatible device). The 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 the 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.

> **NOTE**
>
> *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. Use a shielded cable that meets the requirements for a full-speed USB device.*

Mass Storage Support

The board provides three ATA connectors that can be used to add storage capability to the board. The following connectors are included:

- One PATA connector that supports two devices
- Two SATA connectors that support one device per connector

PATA Interface

The ICH7-M's PATA controller has one bus-mastering PATA interface that is accessible through a 44-pin connector that is compatible with 2.5 or 3.5 inch PATA hard drives (including power support for 2.5 inch hard drives). The PATA interface supports the following modes:

- Programmed I/O (PIO)
- 8237-style DMA
- Ultra DMA
- ATA-66
- ATA-100

> **NOTE**
>
> *ATA-66 and ATA-100 are faster timings and require a specialized cable to reduce reflections, noise, and inductive coupling.*

The PATA interface also supports 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.

SATA Interface

The Desktop Board supports two Serial ATA channels (3.0 Gb/s) that support one device per channel. The SATA controller supports IDE and ACHI configuration and can operate in both legacy and native modes.

Expandability

The Desktop Board provides the following expansion capability:

- One PCI connector. The connector can support either a single PCI add-in card or a single- or dual-slot PCI riser card.
- One PCI Express Full-Mini Card slot.

BIOS

The BIOS provides the Power-On Self-Test (POST), the BIOS Setup program, the PCI and IDE auto-configuration utilities, and the video BIOS.

ATA Auto Configuration

If you install an ATA device (such as a hard drive) in your computer, the auto-configuration utility in the BIOS automatically detects and configures the device for your computer. You do not need to run the BIOS Setup program after installing an ATA device. You can override the auto-configuration options by specifying manual configuration in the BIOS Setup program.

PCI/PCI Express Auto Configuration

If you install a PCI/PCI Express add-in card in your computer, the PCI/PCI Express auto-configuration utility in the BIOS automatically detects and configures the resources (IRQs, DMA channels, and I/O space) for that add-in card. You do not need to run the BIOS Setup program after you install a PCI/PCI Express add-in card.

Security Passwords

The BIOS includes security features that restrict whether the BIOS Setup program can be accessed and who can boot the computer. A supervisor password and a user password can be set for the BIOS Setup and for booting the computer, 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 computer. The password prompt is displayed before the computer is booted. If only the supervisor password is set, the computer boots without asking for a password. If both passwords are set, you can enter either password to boot the computer.

For instructions on resetting the password, see Clearing Passwords on page 48.

Power Management Features

Power management is implemented at several levels, including:

- Advanced Configuration and Power Interface (ACPI)
- Hardware support:
  — Fan header
  — +5 V standby power indicator LED
  — LAN Wake capabilities
  — Instantly Available PC technology
  — Wake from USB
  — Wake from PS/2 keyboard/mouse
  — PME# wakeup support
  — WAKE# signal wakeup support

ACPI

ACPI gives the operating system direct control over the power management and Plug and Play functions of a computer. The use of ACPI with the Desktop Board requires an operating system that provides full ACPI support.

Hardware Support

Fan Header

The Desktop Board has a 3-pin chassis fan header. See Figure 15 on page 46 for the location of the chassis fan header.

+5 V Standby Power Indicator LED

⚠ **CAUTION**

If the 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.

The Desktop Board's standby power indicator, shown in Figure 3, is lit when there is standby power to the system. This includes the DIMM socket and the PCI bus connector, even though the computer appears to be off.

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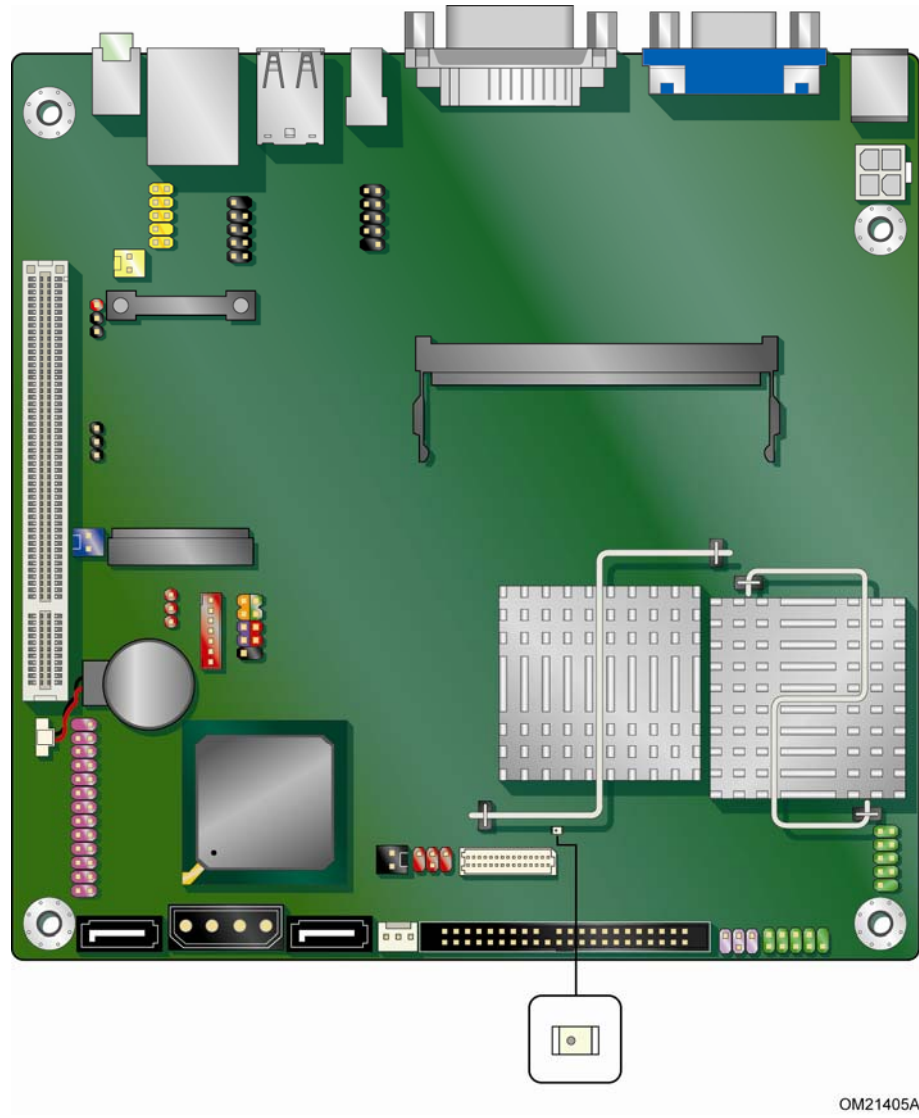
Figure 3. Location of the Standby Power Indicator

For more information on standby current requirements for the Desktop Board, refer to the Technical Product Specification on the Intel Desktop D945GSEJT web page at http://www.intel.com/products/motherboard/D945GSEJT/index.htm.

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Instantly Available PC Technology

Instantly Available PC technology enables the board to enter the ACPI S3 (Suspend-to-RAM) sleep-state. While in the ACPI S3 sleep-state, the computer will appear to be off (the hard drive(s) and fan will power off, the front panel power LED will blink). When signaled by a wake-up device or event, the system quickly returns to its last known state.

The board supports the *PCI Bus Power Management Interface Specification*. Add-in boards that also support 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 2.3 compliant add-in cards and drivers.

LAN Wake Capabilities

The board's LAN wake capabilities enable remote wake-up of the computer through a network. The LAN subsystem network adapter monitors network traffic at the Media Independent Interface. The board supports LAN wake capabilities with ACPI in the following ways:

- By Ping
- By Magic Packet

Upon detecting the configured wake packet type, the LAN subsystem asserts a wake-up signal that powers up the computer.

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 Device

PS/2 keyboard activity wakes the computer from an ACPI S1, S3, S4, or S5 state. However, when the computer is in an ACPI S4 or S5 state, the only PS/2 activity that will wake the computer is the power key available only on some keyboards.

PME# Wakeup Support

When the PME# signal is asserted on the PCI bus, the computer wakes from an ACPI S1, S3, S4, or S5 state.

WAKE# Signal Wakeup Support

When the WAKE# signal is asserted on the PCI Express bus, the computer wakes from an ACPI S1, S3, S4, or S5 state.

ENERGY STAR*, e-Standby, and EuP Compliance

Intel Desktop Board D945GSEJT meets the ENERGY STAR requirements listed in Table 4 when used in corresponding system configurations.

Table 4.   ENERGY STAR Requirements

ENERGY STAR Specification	Computer Type	Required States	Capability Adjustments	Typical Electricity Consumption (TEC) Criteria
v4.0	Desktop Computer	Idle State (Cat A) Sleep Mode Standby Level	With and without Wake On LAN (Sleep, Standby)	N/A
v4.0	Integrated Computer			
v5.0	Desktop Computer	Off Mode Sleep Mode Idle State Active State	With and without additional internal storage	Cat A under "desktop conventional" and "desktop proxying" operational mode weightings
v5.0	Integrated Desktop Computer			
v5.0	Thin Client	Off Mode Sleep Mode Idle State (Cat B)	With and without Wake On LAN (Sleep, Standby)	N/A

For information about ENERGY STAR requirements and recommended configurations, go to http://www.intel.com/go/energystar.

The Desktop Board also meets the following international requirements:

- Republic of Korea e-Standby program
- European Union Energy using Products (EuP) directive

Battery

A coin-cell battery on the Desktop Board keeps the values in CMOS RAM and the clock current when the computer is turned off. Go to page 49 for instructions on how to replace the battery.

Real-Time Clock

The Desktop Board includes a time-of-day clock and a 100-year calendar. The coin-cell battery keeps the clock current when the computer is turned off.

2 Installing and Replacing Desktop Board Components

This chapter tells you how to:

- Install the I/O shield
- Install and remove the Desktop Board
- Install and remove system memory
- Connect SATA drives
- Install a Wireless LAN card
- Install an Intel Z-U130 USB Solid-State Drive (or compatible device)
- Connect to internal headers
- Connect a chassis fan cable
- Set the BIOS configuration jumper
- Clear passwords
- Replace the battery

Before You Begin

⚠ **CAUTIONS**

The procedures in this chapter assume familiarity with the general terminology associated with personal computers and with the safety practices and regulatory compliance required for using and modifying electronic equipment.

Disconnect the computer from its power source and from any telecommunications links, networks, or modems before performing any of the procedures described in this chapter. Failure to disconnect power, telecommunications links, networks, or modems before you open the computer or perform any procedures can result in personal injury or equipment damage. Some circuitry on the board can continue to operate even though the front panel power button is off.

Follow these guidelines before you begin installing the Desktop Board:

- Always follow the steps in each procedure in the correct order.
- Set up a log to record information about your computer, such as model, serial numbers, installed options, and configuration information.
- Electrostatic discharge (ESD) can damage components. Perform the procedures described in this chapter 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.

Installation Precautions

When you install and test the Intel Desktop Board, observe all warnings and cautions in the installation instructions.

To avoid injury, be careful of:

- Sharp pins on connectors or headers
- Sharp pins on printed circuit assemblies
- Rough edges and sharp corners on the chassis
- Hot components (such as 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.

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 the power supply.

Observe Safety and Regulatory Requirements

Read and adhere to the instructions in this section and the instructions supplied with the chassis and associated modules. 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.

Refer to Appendix B for safety and regulatory requirements.

Installing the I/O Shield

The Desktop Board comes with an I/O shield. 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 Desktop Board in the chassis. Place the shield inside the chassis as shown in Figure 4. Press the shield into place so that it fits tightly and securely. If the shield does not fit, obtain a properly-sized shield from the chassis supplier.
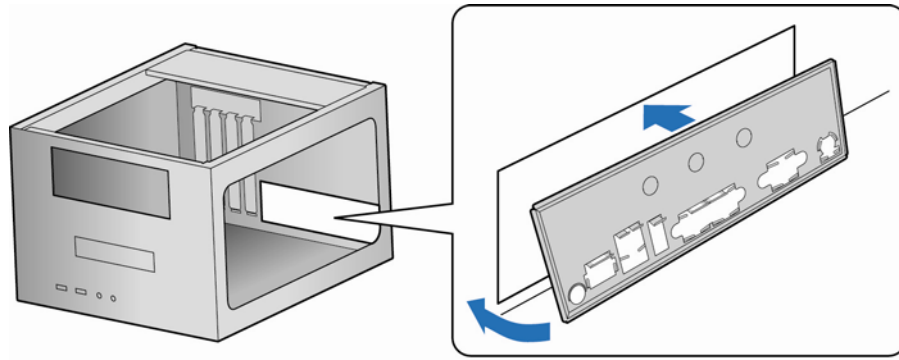
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Figure 4. Installing the I/O Shield

Installing and Removing the Desktop Board

⚠️ **CAUTION**

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

Refer to your chassis manual for instructions on installing and removing the Desktop Board.

Figure 5 shows the location of the mounting screw holes for Intel Desktop Board D945GSEJT.

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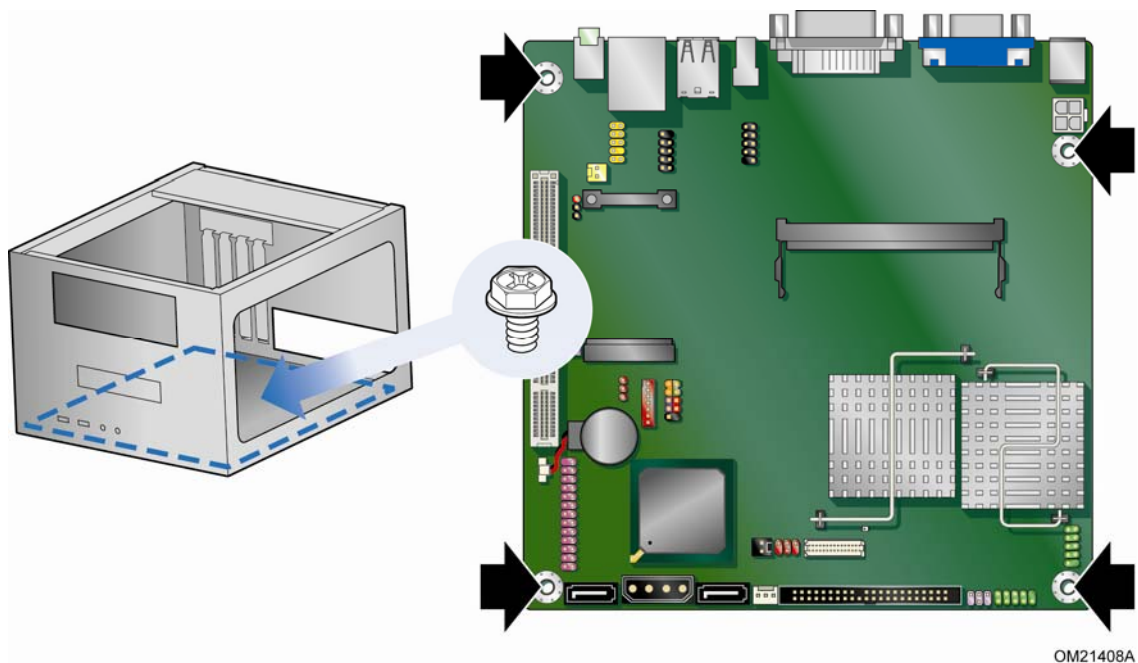
Figure 5. Intel Desktop Board D945GSEJT Mounting Screw Holes

Installing System Memory

NOTE

To be fully compliant with all applicable Intel SDRAM memory specifications, the board requires SO-DIMMs that support the Serial Presence Detect (SPD) data structure.

The Desktop Board has one 200-pin DDR2 SO-DIMM socket that supports up to 2 GB of system memory. To install system memory on the Desktop Board, see Figure 6 and follow these steps:

1. Observe the precautions in "Before You Begin" on page 27.
2. Install the SO-DIMM in the socket. Hold the DIMM with the back edge tilted slightly upwards, insert the SO-DIMM into the socket, and gently push the back edge of the SO-DIMM down until it snaps into the retention arms.
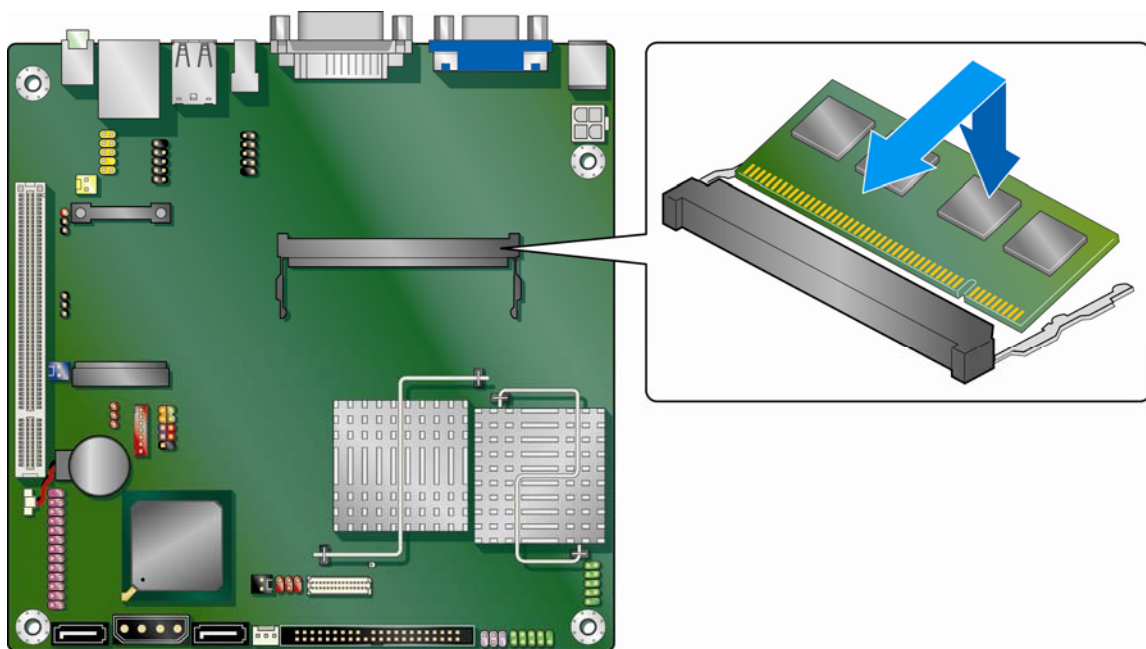
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Figure 6. Installing System Memory

To remove an SO-DIMM from the socket, gently spread the socket's retention arms as shown in Figure 7 to disengage them from the SO-DIMM.
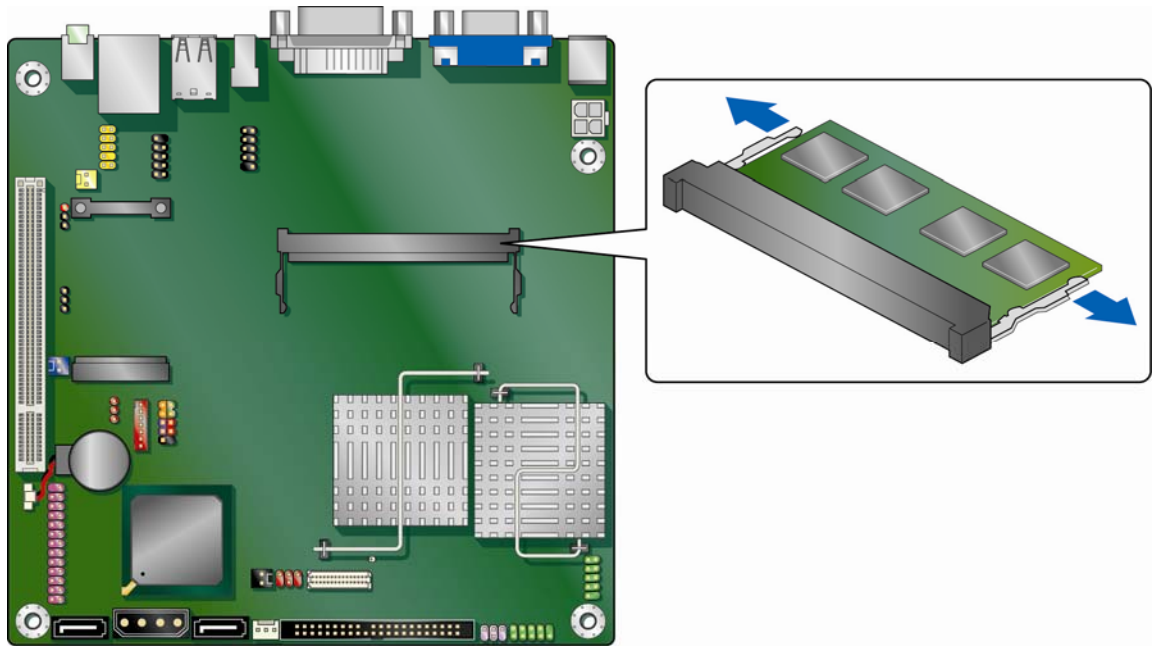
Figure 7. Removing System Memory

Connecting SATA Drives

Intel Desktop Board D945GSEJT supports two SATA drives with two data connectors. The board ships with an in-line power cable that provides:

* a right-angled female-gender 1 x 4 connector for low-profile board connectivity
* a 15-pin SATA power connector for SATA drive power
* a female-gender 1 x 4 connector for system component power flexibility

To connect a SATA drive to the Desktop Board:

1. Observe the precautions in "Before You Begin" on page 27.
2. Attach one end of the SATA data cable to a SATA connector on the board (Figure 8, A).
3. Attach the other end of the SATA data cable to the SATA drive (Figure 8, B).
4. Attach the right-angled 4-pin power connector on the power cable to the 4-pin connector on the Desktop Board (Figure 8, C).
5. Attach the SATA power connector (Figure 8, D) on the power cable to the mating connector on a SATA drive.
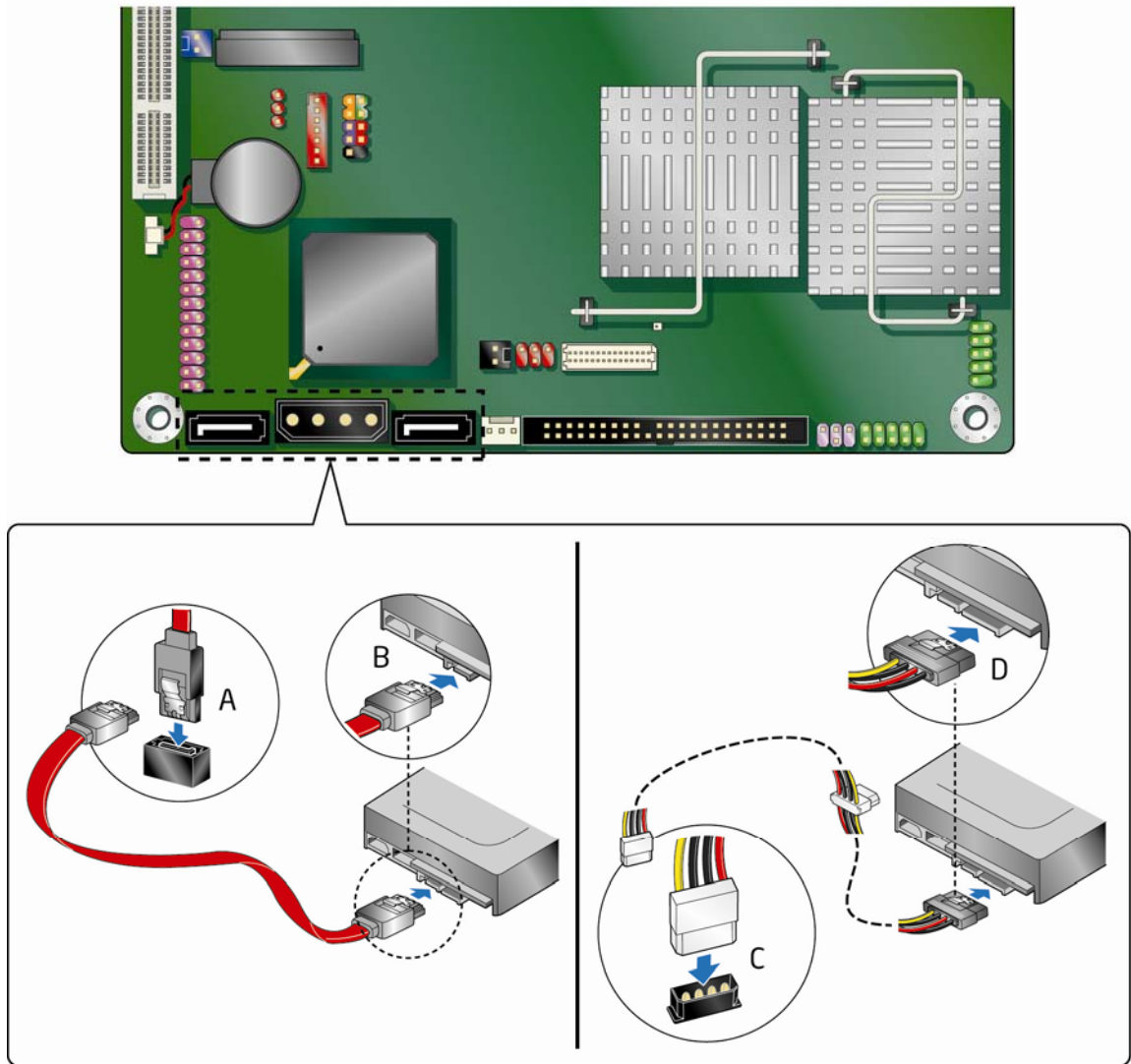
Figure 8. Connecting the SATA Data and Power Cables

Installing a Wireless LAN Card in the PCI Express Full-Mini Card Slot

A wireless LAN card can be installed in the Desktop Board's PCI Express Full-Mini Card slot.

To install a wireless LAN card on the Desktop Board, see Figure 9 and follow these steps:

1. Observe the precautions in "Before You Begin" on page 27.
2. Locate the PCI Express Full-Mini Card slot (Figure 1, W).
3. Insert the wireless LAN card into the PCI Express Mini Card connector (Figure 9, A) at a slightly upward angle.
4. Align the mounting holes (Figure 9, B) and snap the card in place.
5. Attach your system's antenna wires to the connectors (Figure 9, C) on the wireless LAN card as shown.

NOTE

External antennas can be connected through the I/O shield by removing any or all of the cut-outs above the back panel I/O section.
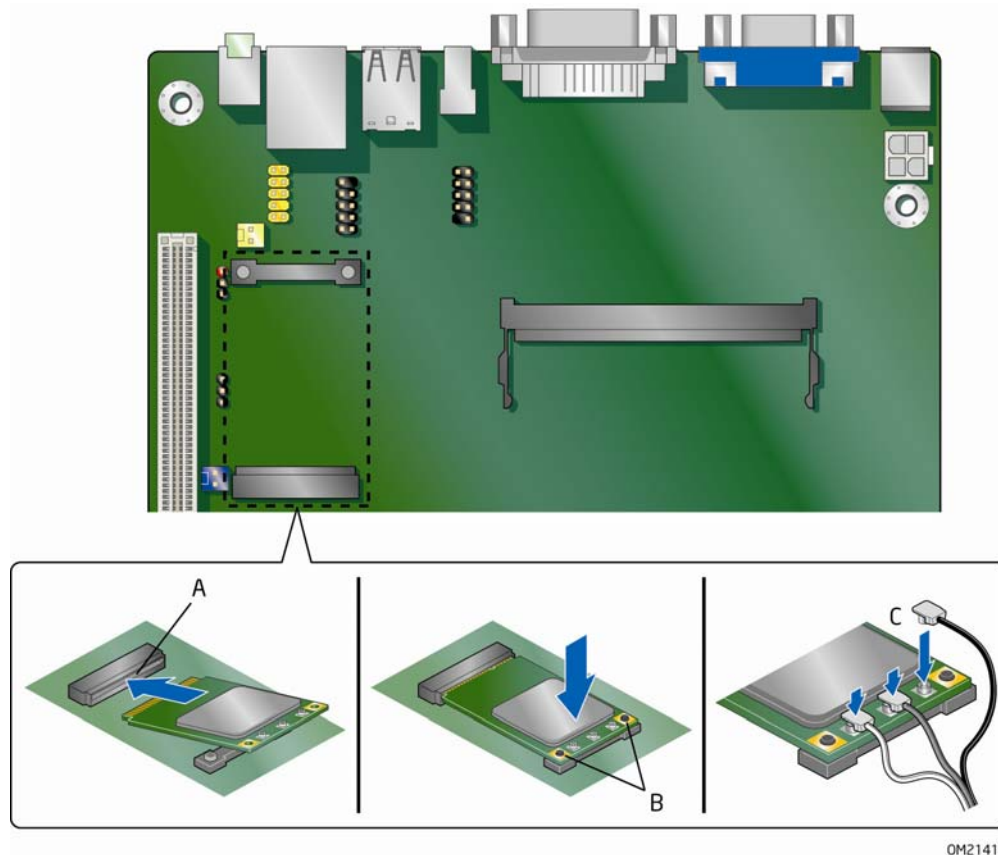
Figure 9. Installing a Wireless LAN Card

Installing an Intel® Z-U130 USB Solid-State Drive (or Compatible Device)

An Intel Z-U130 USB Solid-State Drive (or compatible device) can be installed on the Desktop Board by using the onboard USB 2.0 header indicated in Figure 1, DD. This header provides support for the solid state drive.

To install an Intel Z-U130 USB Solid-State Drive (or compatible device) on the Desktop Board, follow these steps:

1. Observe the precautions in "Before You Begin" on page 27.
2. Align the connector (Figure 10, A) on the bottom of the solid state drive with the USB 2.0 header on the Desktop Board. The connectors are keyed and will mate correctly when the solid state drive is oriented as shown in Figure 10.
3. Secure the solid state drive to the Desktop Board with the screw (Figure 10, B) included with the drive.
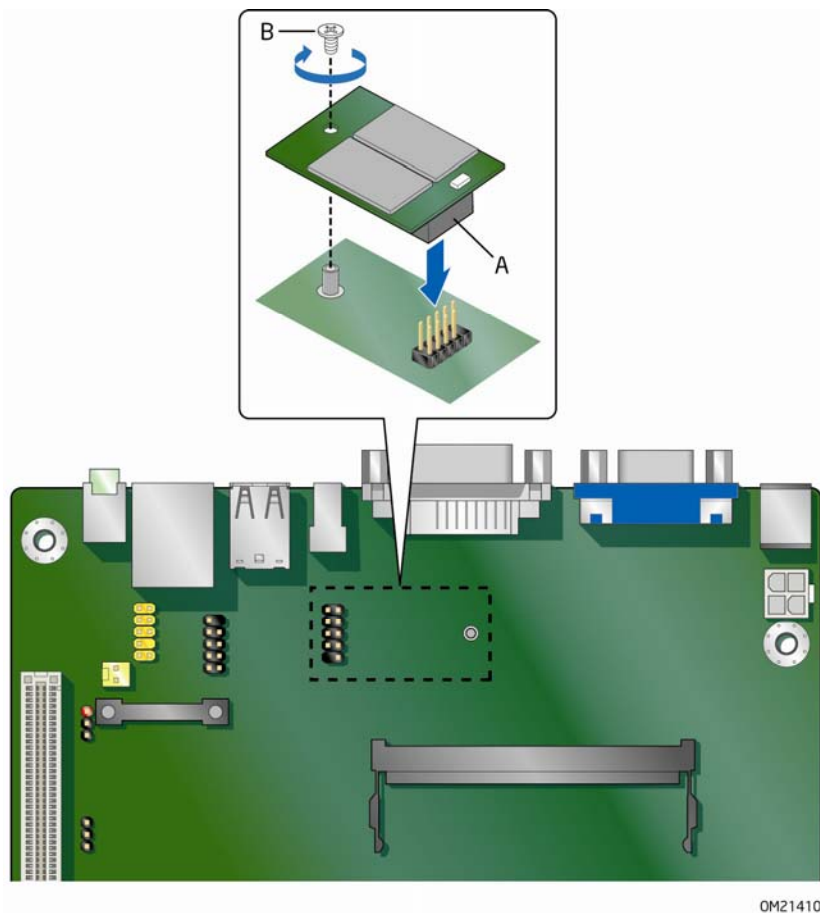
Figure 10. Installing an Intel Z-U130 USB Solid-State Drive (or Compatible Device)

Connecting to the Internal Headers and Connectors

Before connecting cables to the internal headers or connectors, observe the precautions in "Before You Begin" on page 27. Figure 11 shows the location of the board's internal connectors and headers; Table 5 describes the internal connectors and headers identified in Figure 11.
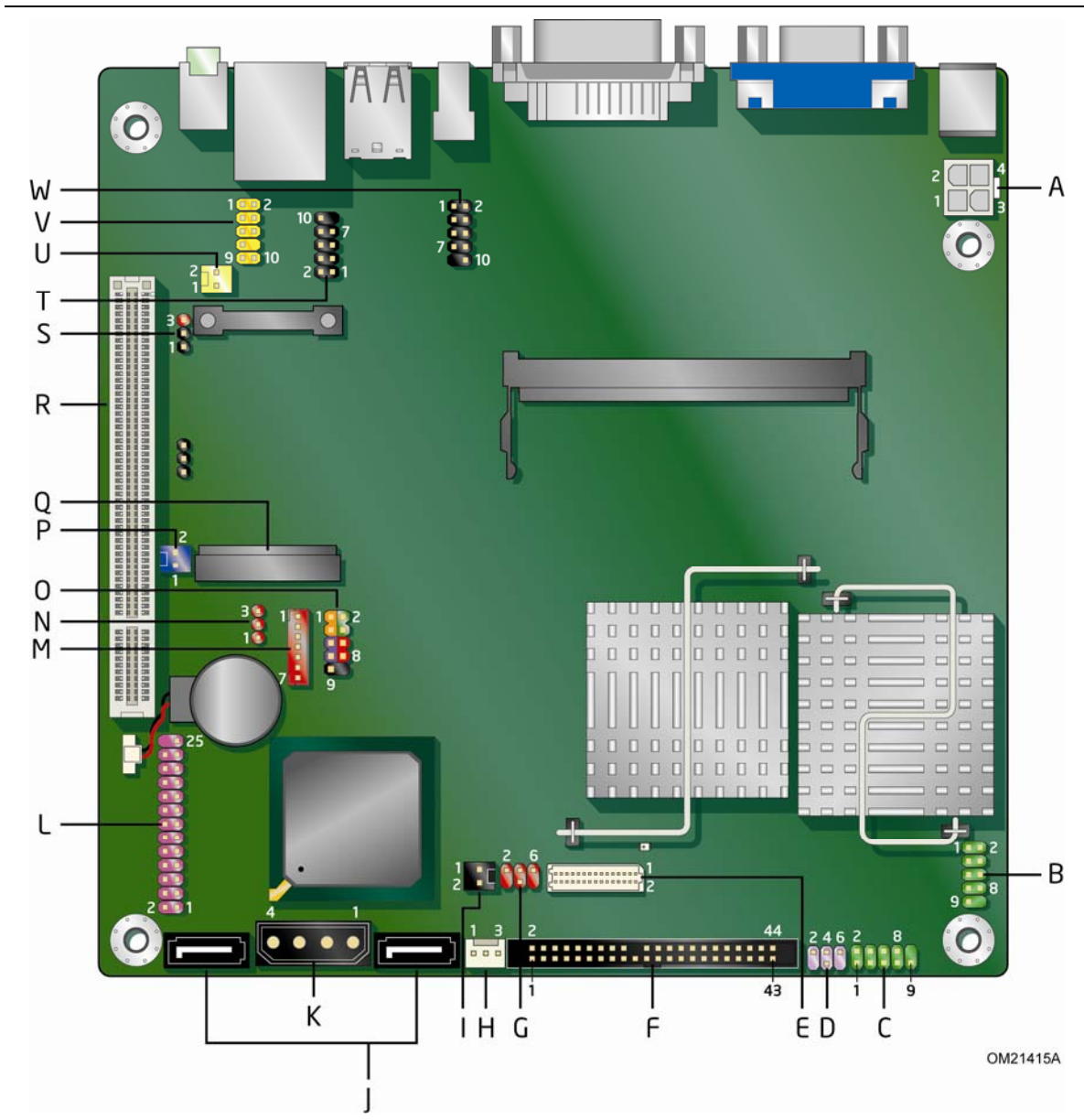
Figure 11. Internal Headers and Connectors

Table 5. Internal Connectors and Headers

Item	Description
A	+12 V internal power connector (ATX12V)
B	Serial port header (COM 2)
C	Serial port header (COM 1)
D	PS/2 keyboard port header
E	Reserved
F	PATA connector (44-pin)
G	Reserved
H	Chassis fan header
I	Chassis intrusion header
J	SATA connectors
K	SATA power connector
L	Parallel port header
M	Reserved
N	Reserved
O	Front panel header
P	Front panel wireless activity LED header
Q	PCI Express Mini Card connector
R	PCI bus add-in card connector
S	S/PDIF header
T	Front panel USB header
U	Internal mono speaker header
V	Front panel audio header
W	Front panel USB header with Intel Z-U130 USB Solid-State Drive (or compatible device) support

Internal Connectors and Headers

Table 6 through Table 21 list the signal names for the connectors and headers in Figure 11 and Table 5.

Table 6. Serial Port Header (COM 1 and COM 2)

Pin	Signal Name	Pin	Signal Name
1	DCD (Data Carrier Detect)	2	RXD# (Receive Data)
3	TXD# (Transmit Data)	4	DTR (Data Terminal Ready)
5	Ground	6	DSR (Data Set Ready)
7	RTS (Request To Send)	8	CTS (Clear To Send)
9	RI (Ring Indicator)	10	Key (no pin)

Table 7.   PS/2 Keyboard Port Header

Pin	Signal Name	Pin	Signal Name
1	Data	2	Key (no pin)
3	Ground	4	+5V
5	Clock	6	Key (no pin)

Table 8.   PATA Connector (44-Pin)

Pin	Signal Name	Pin	Signal Name
1	#Reset	2	GND
3	Data 7	4	Data 8
5	Data 6	6	Data 9
7	Data 5	8	Data 10
9	Data 4	10	Data 11
11	Data 3	12	Data 12
13	Data 2	14	Data 13
15	Data 1	16	Data 14
17	Data 0	18	Data 15
19	GND	20	Key (no pin)
21	DMA Request	22	GND
23	#IOW	24	GND
25	#IOR	26	GND
27	IO Chrdy	28	Cable Select
29	DMA Acknowledge	30	GND
31	IRQ14	32	#IOCS16
33	Addr 1	34	Passed Diagnostics
35	Addr 0	36	Addr 2
37	#CS0 (1F0-1F7)	38	#CS1 (3f6-3f7)
39	#Active (LED driver)	40	GND
41	+5V_DC (logic)	42	+5V_DC (motor)
43	GND	44	Type (GND = ATA)

Table 9.   Chassis Fan Header

Pin	Signal Name
1	Control
2	+12 V
3	Tach

Table 10. Chassis Intrusion Header

Pin	Signal Name
1	Intruder#
2	Ground

Table 11. SATA Power Connector

Pin	Signal Name
1	+12 VDC
2	Ground
3	Ground
4	+5 VDC

Table 12. Parallel Port Header

Pin	Standard Signal Name	ECP Signal Name	EPP Signal Name
1	STROBE#	STROBE#	WRITE#
2	AUTOFD#	AUTOFD#, HOSACK	DATASTB#
3	PD0	PD0	PD0
4	FAULT#	FAULT#, PERIPHREQST#	FAULT#
5	PD1	PD1	PD1
6	INT#	INT#, REVERSERQST#	RESET#
7	PD2	PD2	PD2
8	SLCTIN#	SLCTIN#	ADDRSTB#
9	PD3	PD3	PD3
10	GROUND	GROUND	GROUND
11	PD4	PD4	PD4
12	GROUND	GROUND	GROUND
13	PD5	PD5	PD5
14	GROUND	GROUND	GROUND
15	PD6	PD6	PD6
16	GROUND	GROUND	GROUND
17	PD7	PD7	PD7
18	GROUND	GROUND	GROUND
19	ACK#	ACK#	INTR
20	GROUND	GROUND	GROUND
21	BUSY	BUSY#, PERIPHACK	WAIT#
22	GROUND	GROUND	GROUND
23	PERROR	PE, ACKREVERSE#	PE
24	GROUND	GROUND	GROUND
25	SELECT	SELECT	SELECT
26	KEY (no pin)	KEY (no pin)	KEY (no pin)

Table 13. Front Panel Wireless Activity LED Header

Pin	Signal Name
1	LED (+)
2	Ground

Table 14. S/PDIF Header

Pin	Signal Name
1	Ground
2	S/PDIF out
3	VCC (5V)

Table 15. Internal Mono Speaker Header

Pin	Signal Name
1	+
2	–

Table 16. Front Panel Audio Header for Intel HD Audio

Pin	Signal Name	Pin	Signal Name
1	[Port 1] Left channel	2	Ground
3	[Port 1] Right channel	4	PRESENCE# (Dongle present)
5	[Port 2] Right channel	6	[Port 1] SENSE_RETURN
7	SENSE_SEND (Jack detection)	8	Key (no pin)
9	[Port 2] Left channel	10	[Port 2] SENSE_RETURN

Table 17. Front Panel Audio Header for AC '97 Audio

Pin	Signal Name	Pin	Signal Name
1	MIC	2	AUD_GND
3	MIC_BIAS	4	AUD_GND
5	FP_OUT_R	6	FP_RETURN_R
7	AUD_5V	8	KEY (no pin)
9	FP_OUT_L	10	FP_RETURN_L

Table 18. Front Panel USB Header

Pin	Signal Name	Pin	Signal Name
1	+5 VDC	2	+5 VDC
3	D-	4	D-
5	D+	6	D+
7	Ground	8	Ground
9	KEY (no pin)	10	No Connect

Table 19. Front Panel USB Header (with Intel Z-U130 USB Solid-State Drive (or Compatible Device) Support)

Pin	Signal Name	Pin	Signal Name
1	+5 VDC	2	+5 VDC
3	D-	4	D-
5	D+	6	D+
7	Ground	8	Ground
9	KEY (no pin)	10	LED#

Add-in Card Connectors

The board has the following add-in card connectors:

- PCI Express Mini Card (revision 1.2 compliant) connector
- PCI (revision 2.3 compliant) bus connector

Note the following considerations for the PCI bus connector:

- The PCI bus connector is bus master capable.
- SMBus signals are routed to the PCI bus connector. This enables PCI bus add-in boards with SMBus support to access sensor data on the board. The specific SMBus signals are as follows:
  — The SMBus clock line is connected to pin A40.
  — The SMBus data line is connected to pin A41.

The PCI bus connector also supports single-slot and dual-slot riser cards for use of up to two bus master PCI expansion cards. In order to support two PCI bus master expansion cards, the riser card must support the following PCI signal routing:

- Pin A11: additional 33 MHz PCI clock
- Pin B10: additional PCI request signal (i.e., PREQ#2)
- Pin B14: additional PCI Grant signal (i.e., GNT#2)

Power Supply Connectors

The board has the following power supply connectors:

- **External Power Supply** – the board can be powered with a 12 V external power supply though a DC connector on the back panel. The rear 12 VDC jack accepts plugs with an inner diameter (ID) of 2.5 mm and an outer diameter (OD) of 5.5 mm, where the inner contact is 12 V and the shell is GND.
- **Internal Power Supply** – the board can alternatively be powered via an ATX12V 2 x 2 power connector. The signal names for the ATX12V power connector are shown in Table 20

Table 20. ATX12V Power Connector

Pin	Signal Name	Pin	Signal Name
1	Ground	2	Ground
3	+12 V	4	+12 V

NOTE

Use of an external 12 VDC power supply is preferred.

The recommended power rating is 60 W (12 V/5 A) for general purpose use. Total power consumption will depend on the system configuration selected by the integrator; refer to Intel Desktop Board D945GSEJT Technical Product Specification for further guidance.

CAUTION

The external 12 VDC jack is the primary power input connector of Intel Desktop Board D945GSEJT. However, the Desktop Board also provides an internal 2 x 2 power connector that can used be with a target system that already has an internal power supply.

There is no isolation circuitry between the external 12 VDC jack and the internal 2 x 2 power connector. It is the system integrator's responsibility to ensure no more than one power supply unit is or can be attached to the board at any time and to ensure the external 12 VDC jack is covered if the internal 2 x 2 power connector is to be used.

Simultaneous connection of both external and internal power supply units could result in potential damage to the desktop board, power supplies, or other hardware.

Front Panel Header

This section describes the functions of the front panel header. Table 21 lists the signal names of the front panel header. Figure 12 is a connection diagram for the front panel header.

Table 21. Front Panel Header

Pin	Signal	In/Out	Description	Pin	Signal	In/Out	Description
Hard Drive Activity LED				**Power LED**			
1	HD_PWR	Out	Hard disk LED pull-up to +5 V	2	HDR_BLNK_GRN	Out	Front panel green LED
3	HDA#	Out	Hard disk active LED	4	HDR_BLNK_YEL	Out	Front panel yellow LED
Reset Switch				**On/Off Switch**			
5	Ground		Ground	6	FPBUT_IN	In	Power switch
7	FP_RESET#	In	Reset switch	8	Ground		Ground
Power				**Not Connected**			
9	+5 V		Power	10	N/C		Not connected
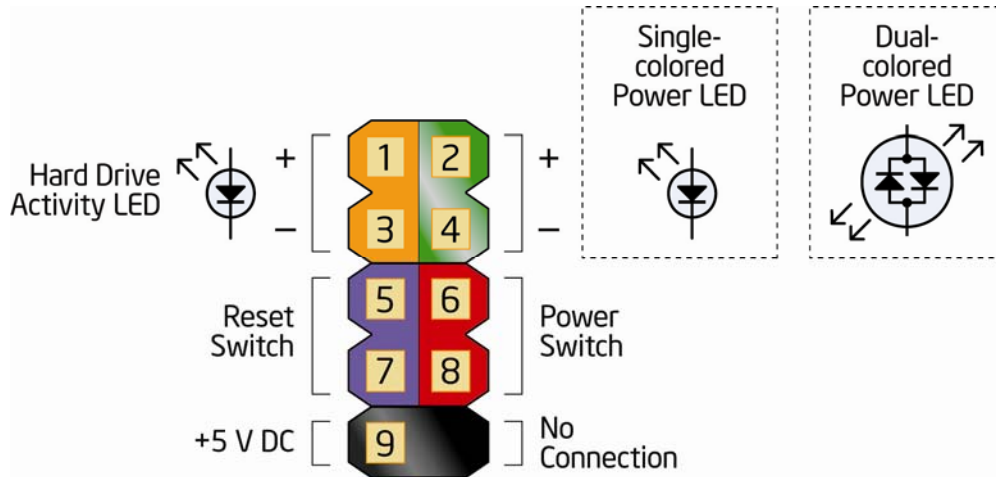
Figure 12. Connection Diagram for Front Panel Header

Hard Drive Activity LED Pins

Pins 1 and 3 can be connected to an LED to provide a visual indicator that data is being read from or written to a hard drive. Proper LED function requires one of the following:

- A SATA hard drive connected to an onboard SATA connector
- A PATA hard drive connected to an onboard PATA connector
- Intel Z-U130 USB Solid State Drive (or compatible device) connected to one of the front panel USB headers

Reset Switch Pins

Pins 5 and 7 can be connected to a momentary single pole, single throw (SPST) type switch that is normally open. When the switch is closed, the board resets and runs the POST.

Power/Sleep LED Pins

Pins 2 and 4 can be connected to a one- or two-color LED. Table 22 shows the possible states for a one-color power LED.

Table 22. States for a One-Color Power LED

LED State	Description
Off	Power off/hibernate (S5/S4)
Blinking	Sleeping (S3)
Steady Green	Running/Away (S0/S1)

NOTE

The LED states listed in Table 22 are default settings and can be modified through the BIOS setup. Systems built with a dual-color front panel power LED can also use alternate color state options.

Power Switch Pins

Pins 6 and 8 can be connected to a front panel momentary-contact power switch. The switch must pull the SW_ON# pin to ground for at least 50 ms to signal the power supply to switch on or off. (The time requirement is due to internal debounce circuitry on the board.) At least two seconds must pass before the power supply will recognize another on/off signal.

Front Panel USB Headers

Figure 13 is a connection diagram for the standard front panel USB header (see Figure 11, T).
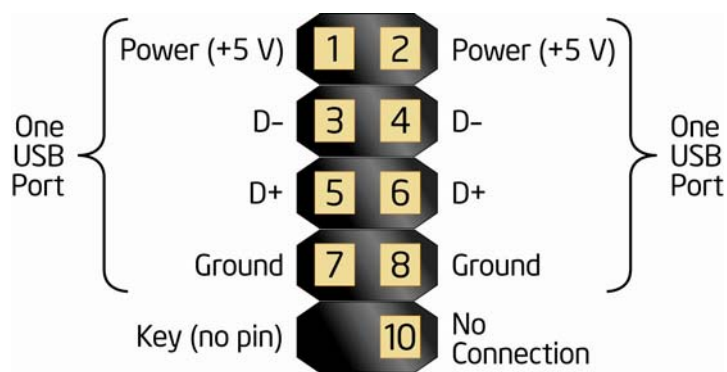
Figure 13. Connection Diagram for the Standard Front Panel USB Header

Figure 14 is a connection diagram for the front panel USB header (see Figure 11, W).
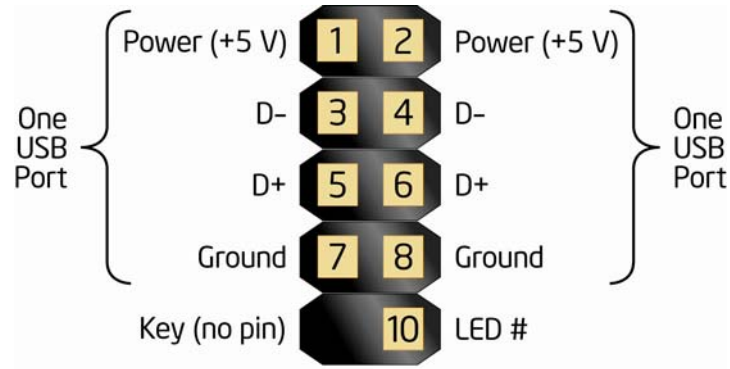
**Figure 14. Connection Diagram for the Front Panel USB Header
with Intel Z-U130 USB Solid-State Drive (or Compatible Device) Support**

Connecting a Chassis Fan

Figure 15 shows the location of the chassis fan header. Connect the chassis fan cable to this header.

OM21412A
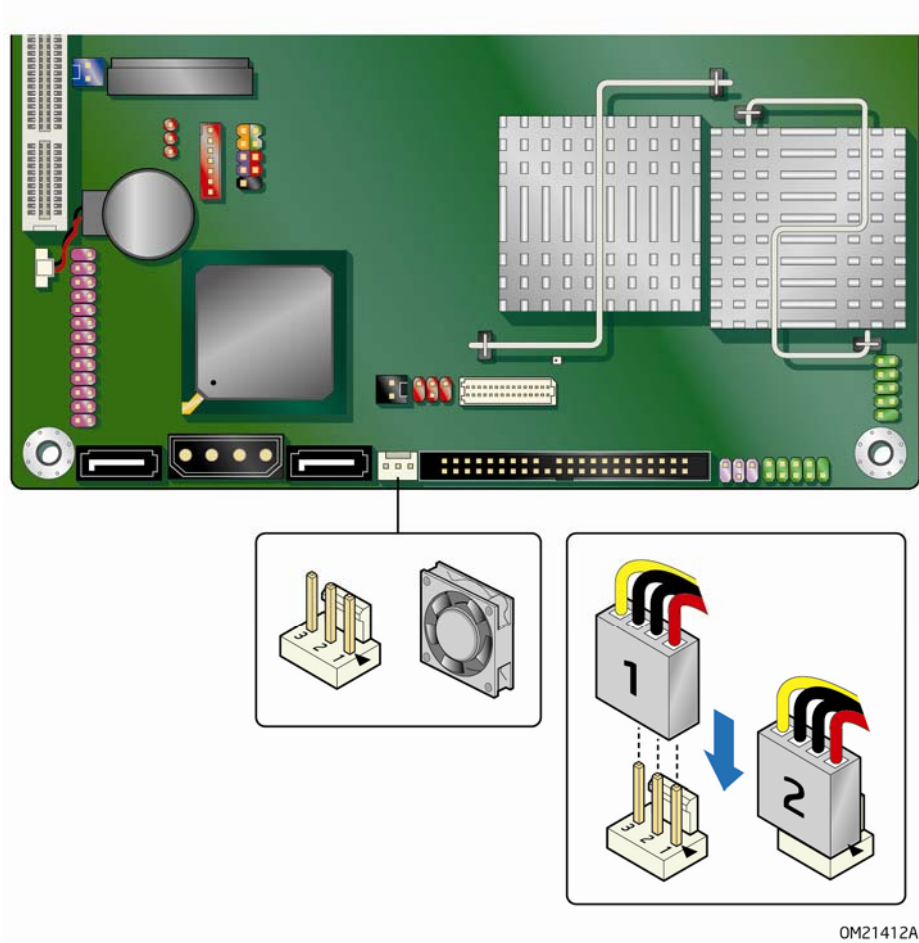
Figure 15. Location of the Chassis Fan Header

Setting the BIOS Configuration Jumper

NOTE

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

Figure 16 shows the location of the Desktop Board's BIOS configuration jumper block.
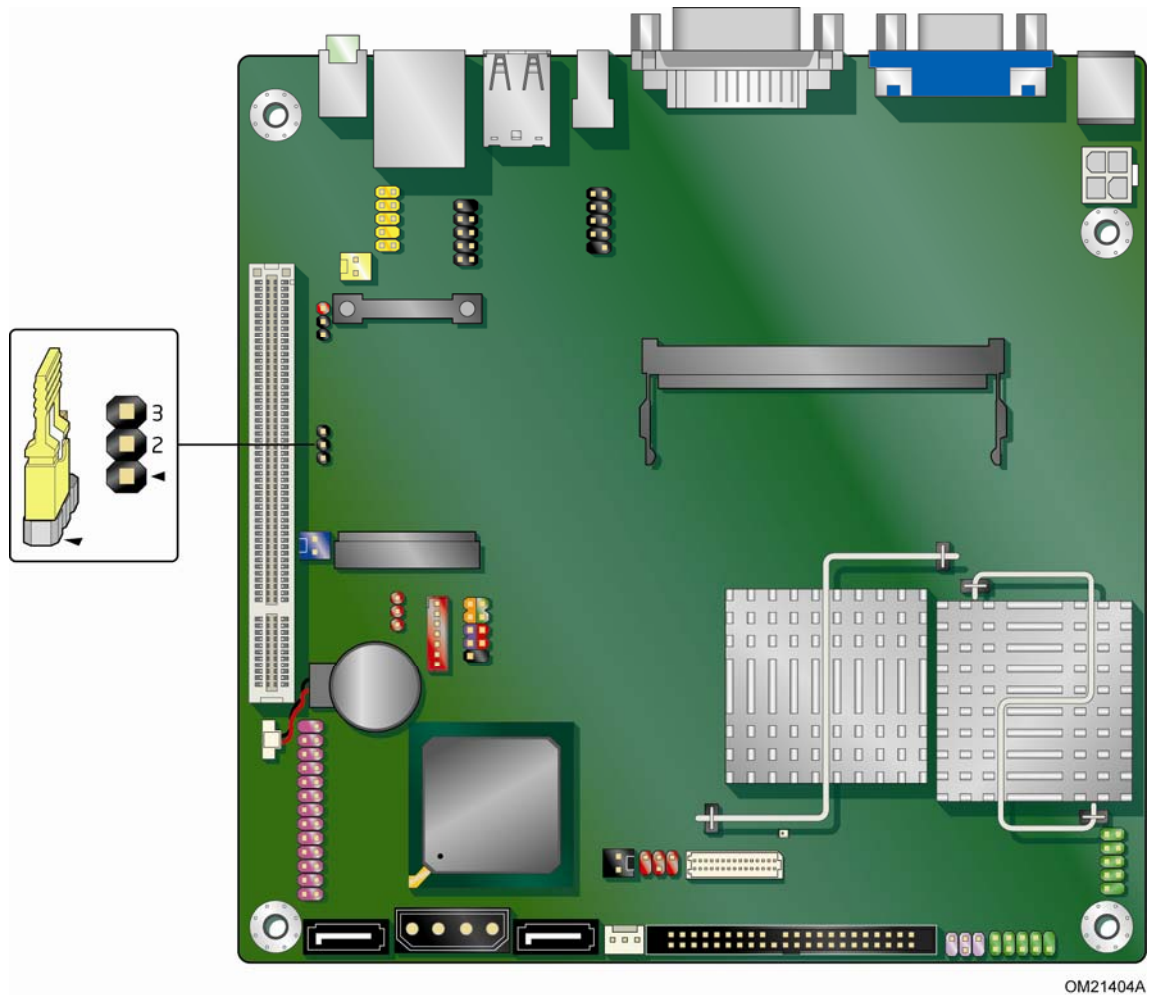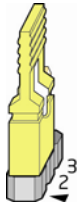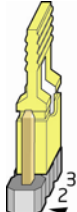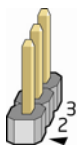
Figure 16. BIOS Configuration Jumper Block

The three-pin BIOS jumper block enables board operating modes. Table 23 shows the jumper settings for each of the available modes.

Figure 16 shows the location of the Desktop Board's BIOS configuration jumper block.

Table 23. Jumper Settings for the BIOS Setup Program Modes

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.

Clearing Passwords

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

1. Observe the precautions in "Before You Begin" on page 27.
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 16, B).
5. Place the jumper on pins 2-3 as shown below.

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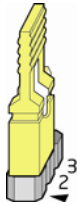
13. Replace the cover, plug in the computer, and turn on the computer.

Replacing the Battery

A coin-cell battery powers the Desktop Board's 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.

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. Figure 17 on page 53 shows the location of the 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.

⚠ PRÉCAUTION

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.

⚠ 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.

⚠ OBS!

Det kan oppstå eksplosjonsfare hvis batteriet skiftes ut med feil type. Brukte batterier bør kastes i henhold til gjeldende miljølovgivning.

⚠ **VIKTIGT!**

Risk för explosion om batteriet ersätts med felaktig batterityp. Batterier ska kasseras enligt de lokala miljövårdsbestämmelserna.

⚠ **VARO**

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

⚠ **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.

⚠ **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.

⚠ **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.

⚠ **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.

⚠ **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.

⚠ **AŚCIAROŽZNAŚĆ**

Існуе рызыка выбуху, калі заменены акумулятар няправільнага тыпу. Акумулятары павінны, па магчымасці, перепрацоўвацца. Пазбаўляцца ад старых акумулятараў патрэбна згодна з мясцовым заканадаўствам па экалогіі.

⚠ **UPOZORNÌNÍ**

V případě výměny baterie za nesprávný druh může dojít k výbuchu. Je-li to možné, baterie by měly být recyklovány. Baterie je třeba zlikvidovat v souladu s místními předpisy o životním prostředí.

⚠️ **Προσοχή**

Υπάρχει κίνδυνος για έκρηξη σε περίπτωση που η μπαταρία αντικατασταθεί από μία λανθασμένου τύπου. Οι μπαταρίες θα πρέπει να ανακυκλώνονται όταν κάτι τέτοιο είναι δυνατό. Η απόρριψη των χρησιμοποιημένων μπαταριών πρέπει να γίνεται σύμφωνα με τους κατά τόπο περιβαλλοντικούς κανονισμούς.

⚠️ **VIGYÁZAT**

Ha a telepet nem a megfelelő típusú telepre cseréli, az felrobbanhat. A telepeket lehetőség szerint újra kell hasznosítani. A használt telepeket a helyi környezetvédelmi előírásoknak megfelelően kell kiselejtezni.

⚠️ **注意**

異なる種類の電池を使用すると、爆発の危険があります。リサイクル
が可能な地域であれば、電池をリサイクルしてください。使用後の電
池を破棄する際には、地域の環境規制に従ってください。

⚠️ **AWAS**

Risiko letupan wujud jika bateri digantikan dengan jenis yang tidak betul. Bateri sepatutnya dikitar semula jika boleh. Pelupusan bateri terpakai mestilah mematuhi peraturan alam sekitar tempatan.

⚠️ **OSTRZEŻENIE**

Istnieje niebezpieczeństwo wybuchu w przypadku zastosowania niewłaściwego typu baterii. Zużyte baterie należy w miarę możliwości utylizować zgodnie z odpowiednimi przepisami ochrony środowiska.

⚠️ **PRECAUŢIE**

Risc de explozie, dacă bateria este înlocuită cu un tip de baterie necorespunzător. Bateriile trebuie reciclate, dacă este posibil. Depozitarea bateriilor uzate trebuie să respecte reglementările locale privind protecţia mediului.

⚠️ **ВНИМАНИЕ**

При использовании батареи несоответствующего типа существует риск ее взрыва. Батареи должны быть утилизированы по возможности. Утилизация батарей должна проводится по правилам, соответствующим местным требованиям.

⚠️ **UPOZORNENIE**

Ak batériu vymeníte za nesprávny typ, hrozí nebezpečenstvo jej výbuchu.
Batérie by sa mali podľa možnosti vždy recyklovať. Likvidácia použitých batérií sa musí vykonávať v súlade s miestnymi predpismi na ochranu životného prostredia.

⚠️ **POZOR**

Zamenjava baterije z baterijo drugačnega tipa lahko povzroči eksplozijo.
Če je mogoče, baterije reciklirajte. Rabljene baterije zavrzite v skladu z lokalnimi okoljevarstvenimi predpisi.

⚠️ **คำเตือน**

*ระวังการระเบิดที่เกิดจากเปลี่ยนแบตเตอรี่ผิดประเภท หากเป็นไปได้ ควรนำแบตเตอรี่ไปรีไซเคิล การ
ทิ้งแบตเตอรี่ใช้แล้วต้องเป็นไปตามกฎข้อบังคับด้านสิ่งแวดล้อมของท้องถิ่น.*

⚠️ **UYARI**

*Yanlış türde pil takıldığında patlama riski vardır. Piller mümkün olduğunda geri dönüştürülmelidir.
Kullanılmış piller, yerel çevre yasalarına uygun olarak atılmalıdır.*

⚠️ **ОСТОРОГА**

*Використовуйте батареї правильного типу, інакше існуватиме ризик вибуху.
Якщо можливо, використані батареї слід утилізувати. Утилізація використаних батарей має бути
виконана згідно місцевих норм, що регулюють охорону довкілля.*

⚠️ **UPOZORNĚNÍ**

*V případě výměny baterie za nesprávný druh může dojít k výbuchu. Je-li to možné, baterie
by měly být recyklovány. Baterie je třeba zlikvidovat v souladu s místními předpisy
o životním prostředí.*

⚠️ **ETTEVAATUST**

*Kui patarei asendatakse uue ebasobivat tüüpi patareiga, võib tekkida plahvatusoht.
Tühjad patareid tuleb võimaluse korral viia vastavasse kogumispunkti. Tühjade
patareide äraviskamisel tuleb järgida kohalikke keskkonnakaitse alaseid reegleid.*

⚠️ **FIGYELMEZTETÉS**

*Ha az elemet nem a megfelelő típusúra cseréli, felrobbanhat. Az elemeket lehetőség
szerint újra kell hasznosítani. A használt elemeket a helyi környezetvédelmi előírásoknak megfelelően
kell kiselejtezni.*

⚠️ **UZMANĪBU**

*Pastāv eksplozijas risks, ja baterijas tiek nomainītas ar nepareiza veida baterijām.
Ja iespējams, baterijas vajadzētu nodot attiecīgos pieņemšanas punktos. Bateriju izmešanai
atkritumos jānotiek saskaņā ar vietējiem vides aizsardzības noteikumiem.*

⚠️ **DĖMESIO**

*Naudojant netinkamo tipo baterijas įrenginys gali sprogti. Kai tik įmanoma, baterijas
reikia naudoti pakartotinai. Panaudotas baterijas išmesti būtina pagal vietinius aplinkos
apsaugos nuostatus.*

⚠️ **ATTENZJONI**

*Riskju ta' splużjoni jekk il-batterija tinbidel b'tip ta' batterija mhux korrett. Il-batteriji
għandhom jiġu riċiklati fejn hu possibbli. Ir-rimi ta' batteriji użati għandu jsir skond
ir-regolamenti ambjentali lokali.*

⚠ OSTRZEŻENIE

Ryzyko wybuchu w przypadku wymiany na baterie niewłaściwego typu. W miarę możliwości baterie należy poddać recyklingowi. Zużytych baterii należy pozbywać się zgodnie z lokalnie obowiązującymi przepisami w zakresie ochrony środowiska.

To replace the battery, follow these steps:

1. Observe the precautions in "Before You Begin" (see page 27).
2. Turn off all peripheral devices connected to the computer. Disconnect the computer's power cord from the AC power source (wall outlet or power adapter).
3. Remove the computer cover.
4. Locate the battery on the board (see Figure 17).
5. Disconnect the battery cable from the Desktop Board battery connector (Figure 17, A).
6. Lift up on the battery (Figure 17, B) and carefully remove it from the board. It is attached to the board with a non-permanent adhesive pad.
7. Connect the cable on the new battery to the Desktop Board battery connector and reattach the battery to the board.
8. Replace the computer cover.
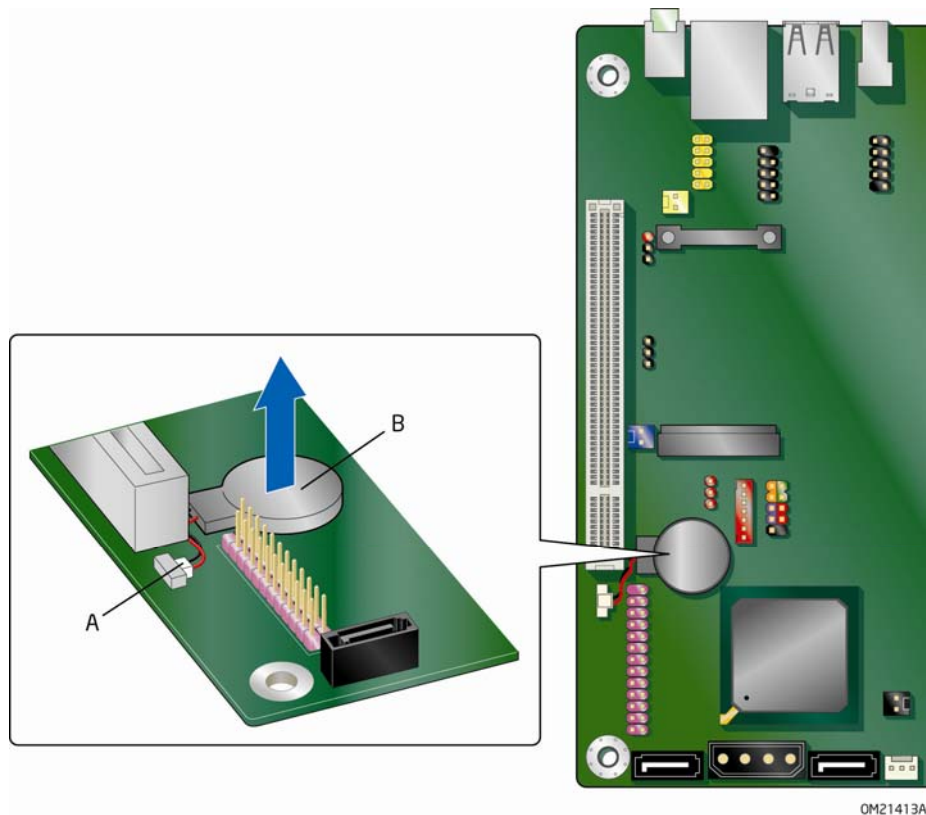
Figure 17. Removing the Battery

3 Updating the BIOS

The BIOS Setup program can be used to view and change the BIOS settings for the computer. You can access the BIOS Setup program by pressing the <F2> key after the Power-On Self-Test (POST) memory test begins and before the operating system boot begins.

This chapter tells you how to update the BIOS by either using the Intel Express BIOS Update utility or the Iflash Memory Update utility, and how to recover the BIOS if an update fails.

Updating the BIOS with the Intel® Express BIOS Update Utility

With the Intel Express BIOS Update utility you can update the system BIOS while in the Windows environment. The BIOS file is included in an automated update utility that combines the functionality of the Intel® Flash Memory Update Utility and the ease of use of Windows-based installation wizards.

To update the BIOS with the Intel Express BIOS Update utility:

1. Go to http://support.intel.com/support/motherboards/desktop/.
2. Navigate to the Intel Desktop Board D945GSEJT page, click "[view] Latest BIOS updates," and select the Express BIOS Update utility file.
3. Download the file to your hard drive. (You can also save this file to a removable USB device. This is useful if you are updating the BIOS for multiple identical systems.)
4. Close all other applications. This step is required. Your system will be rebooted at the last Express BIOS Update window.
5. Double-click the executable file from the location on your hard drive where it was saved. This runs the update program.
6. Follow the instructions provided in the dialog boxes to complete the BIOS update.

Updating the BIOS with the Iflash Memory Update Utility

You can use the information in this section to update the BIOS using the Iflash Memory Update Utility.

Obtaining the BIOS Update File

You can update to a new version of the BIOS by using the Iflash BIOS update file.

The Iflash BIOS update file is a compressed file that contains the files you need to update the BIOS. The Iflash BIOS update file contains:

- New BIOS file
- Intel Flash Memory Update Utility

You can obtain either of these files through your computer supplier or by navigating to the Intel Desktop Board D945GSEJT page at
http://support.intel.com/support/motherboards/desktop.

Navigate to the Intel Desktop D945GSEJT page, click "[view] Latest BIOS updates," and select the Iflash BIOS Update utility file.

⚠️ **CAUTION**

Do not interrupt the process or the system may not function properly.

Using the Iflash Memory Update Utility

With the Iflash Memory update utility you can update the system BIOS from a bootable USB flash drive or other bootable USB media. The Iflash BIOS update files can be extracted locally to your hard drive and copied to a bootable USB flash drive or other bootable USB media.

📝 **NOTE**

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

⚠️ **CAUTION**

Do not interrupt the process or the system may not function properly.

1. Uncompress the BIOS update file and copy the .BIO file and IFLASH.EXE to a bootable USB flash drive or other bootable USB media.
2. Configure the BIOS or use the F10 key option during POST to boot to the USB device.
3. Manually run the IFLASH.EXE file from the USB device and manually update the BIOS.

Recovering the BIOS

It is unlikely that anything will interrupt a BIOS update; however, if an interruption occurs, the BIOS could be damaged. Table 24 lists the drives and media types that can and cannot be used for BIOS recovery. The BIOS recovery media does not have to be bootable.

Table 24. Acceptable Drives/Media Types for BIOS Recovery

Media Type	Can be used for BIOS recovery?
CD-ROM drive connected to the PATA interface	Yes
CD-ROM drive connected to the SATA interface	Yes
USB removable drive (a USB Flash Drive, for example)	Yes
USB diskette drive (with a 1.44 MB diskette)	No
USB hard disk drive	No

NOTE

For more information about BIOS update and recovery, go to http://support.intel.com/support/motherboards/desktop/sb/CS-022312.htm.

A Board Status and Error Messages

This appendix describes status error messages generated by the Desktop Board's BIOS. The BIOS indicates these error messages with LED blink codes, speaker beep codes, and by text displayed on the PC monitor.

Front-panel Power LED Blink and Internal Speaker Beep Codes

Basic status and error messages are provided through the front-panel power LED blink codes as well as through audible beep codes on systems with an internal speaker connected to the internal speaker header. Blink/beep codes represent their respective messages as shown in Table 25.

Table 25. Front-panel Power LED Blink and Internal Speaker Beep Codes

Type	Pattern
CPU Initialization	Beep and blink code: 0.1 second beep/blink within the first second after pressing the power button.
Completion of POST	Beep and blink code: 0.1 second beep/blink between POST completion and boot device continuing the boot process.
BIOS update in progress	Beep code: none. Blink code: on-off (0.5 second each); pattern repeats until BIOS update is complete.
Video error	Beep and blink code: on-off (0.5 second each) two times, then 3.0 second pause (off); entire pattern repeats (beeps/blinks and pause) until system is powered off.
Memory error	Beep and blink code: on-off (0.1 second each) three times, then 1.5 second pause (off); entire pattern repeats (beeps/blinks and pause) until system is powered off.
Thermal warning	Beep and blink code: on-off (0.5 second each) four times, then 3.0 second pause (off); entire pattern repeats (beeps/blinks and pause) 16 times, then ends.

NOTE

BIOS status and error beep codes can be heard through an internal speaker if the internal speaker is connected to the internal mono speaker header (see Figure 1, BB on page 12).

POST Error Messages

The BIOS also displays an error message on the PC monitor when a recoverable error occurs during POST. Table 26 lists the BIOS error messages and a brief description of each.

Table 26. POST Error Messages

Error Message	Explanation
CMOS Battery Low	The battery may be losing power.
CMOS Checksum Bad	The CMOS checksum is incorrect. The CMOS memory may have been corrupted. Run Setup to reset values.
Memory Size Decreased	Memory size has decreased since the last boot. If no memory was removed, then memory may be bad.
No Boot Device Available	System did not find a device to boot.

B Regulatory Compliance

This appendix contains the following regulatory compliance information for Intel Desktop Board D945GSEJT:

- Safety standards
- European Union Declaration of Conformity statement
- Product Ecology statements
- Electromagnetic Compatibility (EMC) regulations
- Product certifications

Safety Standards

Intel Desktop Board D945GSEJT complies with the safety standards stated in Table 27 when correctly installed in a compatible host system.

Table 27. Safety Standards

Regulation	Title
CSA/UL 60950-1, First Edition	Information Technology Equipment – Safety - Part 1: General Requirements (USA and Canada)
EN 60950-1:2006, Second Edition	Information Technology Equipment – Safety - Part 1: General Requirements (European Union)
IEC 60950-1:2005, Second Edition	Information Technology Equipment – Safety - Part 1: General Requirements (International)

Place Battery Marking

There is insufficient space on this Desktop Board to provide instructions for replacing and disposing of the Lithium ion coin cell battery. For system safety certification, the statement below or an equivalent statement is required to be permanently and legibly marked on the chassis near the 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.

A suitable caution label is included with Intel Desktop Board D945GSEJT.

For information about replacing the battery, go to page 49.

European Union Declaration of Conformity Statement

We, Intel Corporation, declare under our sole responsibility that the product Intel® Desktop Board D945GSEJT is in conformity with all applicable essential requirements necessary for CE marking, following the provisions of the European Council Directives 2004/108/EC (EMC Directive) and 2006/95/EC (Low Voltage Directive).

The product is properly CE marked demonstrating this conformity and is for distribution within all member states of the EU with no restrictions.

ϵ

This product follows the provisions of the European Directives 2004/108/EC and 2006/95/EC.

Čeština Tento výrobek odpovídá požadavkům evropských směrnic 2004/108/EC a 2006/95/EC.

Dansk Dette produkt er i overensstemmelse med det europæiske direktiv 2004/108/EC & 2006/95/EC.

Dutch Dit product is in navolging van de bepalingen van Europees Directief 2004/108/EC & 2006/95/EC.

Eesti Antud toode vastab Euroopa direktiivides 2004/108/EC ja 2006/95/EC kehtestatud nõuetele.

Suomi Tämä tuote noudattaa EU-direktiivin 2004/108/EC & 2006/95/EC määräyksiä.

Français Ce produit est conforme aux exigences de la Directive Européenne 2004/108/EC & 2006/95/EC.

Deutsch Dieses Produkt entspricht den Bestimmungen der Europäischen Richtlinie 2004/108/EC & 2006/95/EC.

Ελληνικά Το παρόν προϊόν ακολουθεί τις διατάξεις των Ευρωπαϊκών Οδηγιών 2004/108/EC και 2006/95/EC.

Magyar E termék megfelel a 2004/108/EC és 2006/95/EC Európai Irányelv előírásainak.

Icelandic Þessi vara stenst reglugerð Evrópska Efnahags Bandalagsins númer 2004/108/EC & 2006/95/EC.

Italiano Questo prodotto è conforme alla Direttiva Europea 2004/108/EC & 2006/95/EC.

Latviešu Šis produkts atbilst Eiropas Direktīvu 2004/108/EC un 2006/95/EC noteikumiem.

Lietuvių Šis produktas atitinka Europos direktyvų 2004/108/EC ir 2006/95/EC nuostatas.

Malti Dan il-prodott hu konformi mal-provvedimenti tad-Direttivi Ewropej 2004/108/EC u 2006/95/EC.

Norsk Dette produktet er i henhold til bestemmelsene i det europeiske direktivet 2004/108/EC & 2006/95/EC.

Polski Niniejszy produkt jest zgodny z postanowieniami Dyrektyw Unii Europejskiej 2004/108/EC i 2006/95/EC.

Portuguese Este produto cumpre com as normas da Diretiva Européia 2004/108/EC & 2006/95/EC.

Español Este producto cumple con las normas del Directivo Europeo 2004/108/EC & 2006/95/EC.

Slovensky Tento produkt je v súlade s ustanoveniami európskych direktív 2004/108/EC a 2006/95/EC.

Slovenščina Izdelek je skladen z določbami evropskih direktiv 2004/108/EC in 2006/95/EC.

Svenska Denna produkt har tillverkats i enlighet med EG-direktiv 2004/108/EC & 2006/95/EC.

Türkçe Bu ürün, Avrupa Birliği'nin 2004/108/EC ve 2006/95/EC yönergelerine uyar.

Product Ecology Statements

The following information is provided to address worldwide product ecology concerns and regulations.

Recycling Considerations

As part of its commitment to environmental responsibility, Intel has implemented the Intel® Product Recycling Program to allow retail consumers of Intel's branded products to return used products to selected locations for proper recycling.

Please consult http://www.intel.com/intel/other/ehs/product_ecology
for the details of this program, including the scope of covered products, available locations, shipping instructions, terms and conditions, etc.

中文

作为其对环境责任之承诺的部分，英特尔已实施 Intel Product Recycling Program
（英特尔产品回收计划），以允许英特尔品牌产品的零售消费者将使用过的产品退还至指定地点作恰当的重复使用处理。

请参考http://www.intel.com/intel/other/ehs/product_ecology
了解此计划的详情，包括涉及产品之范围、回收地点、运送指导、条款和条件等。

Deutsch

Als Teil von Intels Engagement für den Umweltschutz hat das Unternehmen das Intel Produkt-Recyclingprogramm implementiert, das Einzelhandelskunden von Intel Markenprodukten ermöglicht, gebrauchte Produkte an ausgewählte Standorte für ordnungsgemäßes Recycling zurückzugeben.

Details zu diesem Programm, einschließlich der darin eingeschlossenen Produkte, verfügbaren Standorte, Versandanweisungen, Bedingungen usw., finden Sie auf der http://www.intel.com/intel/other/ehs/product_ecology

Español

Como parte de su compromiso de responsabilidad medioambiental, Intel ha implantado el programa de reciclaje de productos Intel, que permite que los consumidores al detalle de los productos Intel devuelvan los productos usados en los lugares seleccionados para su correspondiente reciclado.

Consulte la http://www.intel.com/intel/other/ehs/product_ecology
para ver los detalles del programa, que incluye los productos que abarca, los lugares disponibles, instrucciones de envío, términos y condiciones, etc.

Français

Dans le cadre de son engagement pour la protection de l'environnement, Intel a mis en œuvre le programme Intel Product Recycling Program (Programme de recyclage des produits Intel) pour permettre aux consommateurs de produits Intel de recycler les produits usés en les retournant à des adresses spécifiées.

Visitez la page Web http://www.intel.com/intel/other/ehs/product_ecology pour en savoir plus sur ce programme, à savoir les produits concernés, les adresses disponibles, les instructions d'expédition, les conditions générales, etc.

日本語

インテルでは、環境保護活動の一環として、使い終えたインテル
ブランド製品を指定の場所へ返送していただき、リサイクルを適切に行えるよう、インテル製品リサイクル
プログラムを発足させました。

対象製品、返送先、返送方法、ご利用規約など、このプログラムの詳細情報は、http://www.intel.com/intel/other/ehs/product_ecology （英語）をご覧ください。

Malay

Sebagai sebahagian daripada komitmennya terhadap tanggungjawab persekitaran, Intel telah melaksanakan Program Kitar Semula Produk untuk membenarkan pengguna-pengguna runcit produk jenama Intel memulangkan produk terguna ke lokasi-lokasi terpilih untuk dikitarkan semula dengan betul.

Sila rujuk http://www.intel.com/intel/other/ehs/product_ecology untuk mendapatkan butir-butir program ini, termasuklah skop produk yang dirangkumi, lokasi-lokasi tersedia, arahan penghantaran, terma & syarat, dsb.

Portuguese

Como parte deste compromisso com o respeito ao ambiente, a Intel implementou o Programa de Reciclagem de Produtos para que os consumidores finais possam enviar produtos Intel usados para locais selecionados, onde esses produtos são reciclados de maneira adequada.

Consulte o site http://www.intel.com/intel/other/ehs/product_ecology (em Inglês) para obter os detalhes sobre este programa, inclusive o escopo dos produtos cobertos, os locais disponíveis, as instruções de envio, os termos e condições, etc.

Russian

В качестве части своих обязательств к окружающей среде, в Intel создана программа утилизации продукции Intel (Product Recycling Program) для предоставления конечным пользователям марок продукции Intel возможности возврата используемой продукции в специализированные пункты для должной утилизации.

Пожалуйста, обратитесь на веб-сайт http://www.intel.com/intel/other/ehs/product_ecology за информацией об этой программе, принимаемых продуктах, местах приема, инструкциях об отправке, положениях и условиях и т.д.

Türkçe

Intel, çevre sorumluluğuna bağımlılığının bir parçası olarak, perakende tüketicilerin Intel markalı kullanılmış ürünlerini belirlenmiş merkezlere iade edip uygun şekilde geri dönüştürmesini amaçlayan Intel Ürünleri Geri Dönüşüm Programı'nı uygulamaya koymuştur.

Bu programın ürün kapsamı, ürün iade merkezleri, nakliye talimatları, kayıtlar ve şartlar v.s dahil bütün ayrıntılarını ögrenmek için lütfen http://www.intel.com/intel/other/ehs/product_ecology web sayfasına gidin.

Lead-free 2LI/Pb-free 2LI Board

The electronics industry is transitioning to European Union (EU) Restriction of Hazardous Substances (RoHS)-compliant products. The RoHS legislation restricts the use of six materials. One of these restricted materials is lead. Lead is the most common and problematic of the RoHS restricted materials.

There are exemptions in RoHS that allow the use of lead in some very limited locations in electronic products. Maximum lead concentration values have been established for RoHS-compliant electronic products that allow up to 1000 ppm of lead.
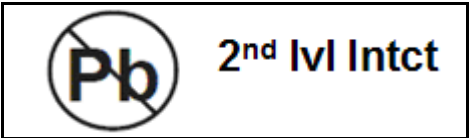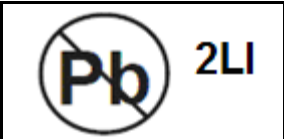
Lead-free/Pb-free is a nickname that is often used (or misused) for RoHS-compliant products. In this case, the term "Lead-free/Pb-free" means that lead has been removed where required by the RoHS legislation but still may exist as an impurity below 1000 ppm.

The term "Lead-free 2LI/Pb-free 2LI" means lead-free second level interconnect (2LI). The balls, leads, or pads used to connect the component to a printed circuit board are lead-free, but the first level interconnect (FLI) is not lead-free. The use of lead in the FLI is acceptable because of the RoHS "flip chip" or "die bump" interconnect exemption.

Intel Desktop Board D945GSEJT is a lead-free second level interconnect product. Table 28 shows the lead-free second level interconnect marks as they appear on the board and accompanying collateral. These marks are based on JEDEC standard J-STD-609, "Marking and Labeling of Components, PCBs and PCBAs to Identify Lead, Lead Free and Other Attributes."

For more information concerning Intel's lead-free initiatives, refer to http://www.intel.com/technology/silicon/leadfree.htm.

Table 28. Lead-Free Second Level Interconnect Marks

Description	Mark
This symbol is used to identify electrical and electronic assemblies and components in which the Pb concentration level in the Desktop Board substrate and the solder connections from the board to the components (second-level interconnect) is not greater than 0.1% by weight (1000 ppm).	(Pb) 2nd Level Interconnect or (Pb) 2nd lvl Intct or (Pb) 2LI

Restriction of Hazardous Substances (RoHS)

European Union RoHS

EU RoHS Directive 2002/95/EC restricts the use of the following six materials in various types of electronic and electrical equipment:

- Lead
- Mercury
- Cadmium
- Hexavalent chromium
- Polybrominated biphenyls (PBB)
- Polybrominated diphenyl ether (PBDE)

The maximum concentrations allowed are 0.1% or 1000 ppm (except for cadmium, which is limited to 0.01% or 100 ppm) by weight of homogeneous material.

Intel Desktop Board D945GSEJT complies with these restrictions.

China RoHS

"China RoHS" is the term used by industry generally to describe legislation implemented by the Ministry of Information Industry (MII) in the People's Republic of China for the control of pollution by electronic information products (EIP). The official title of the China RoHS regulation is "Management Methods for Controlling Pollution by Electronic Information Products."

China RoHS bans the same substances and has the same limits as EU RoHS. However, the China RoHS regulation requires specific product marking and a self-declaration of the controlled substances contained in each product.

Intel Desktop Board D945GSEJT is a China RoHS-compliant product.

The required China RoHS mark indicates the product's Environmental Friendly Usage Period (EFUP). The EFUP is defined as the number of years for which listed controlled substances will not leak or chemically deteriorate while in the product. The EFUP for Intel Desktop Boards has been determined to be 10 years.

The EFUP for Intel Desktop Board D945GSEJT is shown in Table 29.

Table 29. China RoHS Environmentally Friendly Use Period Mark

Description	Mark
This is an example of the symbol used on Intel Desktop Boards and associated collateral. The color of the mark may vary depending upon the application. The Environmental Friendly Usage Period (EFUP) for Intel Desktop Boards has been determined to be 10 years.	

The China MII also stipulates that a material Self Declaration Table (SDT) must be included in a product's user documentation. The SDT for Intel Desktop Board D945GSEJT is shown in Figure 18.

关于符合中国《电子信息产品污染控制管理办法》的声明

Management Methods on Control of Pollution from

Electronic Information Products

(China RoHS declaration)

产品中有毒有害物质的名称及含量

部件名称 (Parts)	有毒有害物质或元素					
	铅 (Pb)	汞 (Hg)	镉 (Cd)	六价铬 (Cr6+)	多溴联苯 (PBB)	多溴二苯醚 (PBDE)
主板组件 Motherboard Assembly	×	○	○	○	○	○

○：表示该有毒有害物质在该部件所有均质材料中的含量均在 SJ/T 11363-2006 标准规定的限量要求以下。

○ : Indicates that this hazardous substance contained in all homogeneous materials of this part is below the limit requirement in SJ/T 11363-2006.

×：表示该有毒有害物质至少在该部件的某一均质材料中的含量超出 SJ/T 11363-2006 标准规定的限量要求。

× : Indicates that this hazardous substance contained in at least one of the homogeneous materials of this part is above the limit requirement in SJ/T 11363-2006.

对销售之日的所售产品,本表显示我公司供应链的电子信息产品可能包含这些物质。注意：在所售产品中可能会也可能不会含有所有所列的部件.

This table shows where these substances may be found in the supply chain of our electronic information products, as of the date of sale of the enclosed product. Note that some of the component types listed above may or may not be a part of the enclosed product.

Figure 18. Intel Desktop Board D945GSEJT China RoHS Material Self Declaration Table

EMC Regulations

Intel Desktop Board D945GSEJT complies with the EMC regulations stated in Table 30 when correctly installed in a compatible host system.

Table 30. EMC Regulations

Regulation (Class B)	Title
FCC 47 CFR Part 15, Subpart B	Title 47 of the Code of Federal Regulations, Part 15, Subpart B, Radio Frequency Devices. (USA)
ICES-003 Issue 4	Interference-Causing Equipment Standard, Digital Apparatus. (Canada)
EN55022:2006	Limits and methods of measurement of Radio Interference Characteristics of Information Technology Equipment. (European Union)
EN55024:1998	Information Technology Equipment – Immunity Characteristics Limits and methods of measurement. (European Union)
EN55022:2006	Australian Communications Authority, Standard for Electromagnetic Compatibility. (Australia and New Zealand)
CISPR 22:2005 +A1:2005 +A2:2006	Limits and methods of measurement of Radio Disturbance Characteristics of Information Technology Equipment. (International)
CISPR 24:1997 +A1:2001 +A2:2002	Information Technology Equipment – Immunity Characteristics – Limits and Methods of Measurement. (International)
VCCI V-3/2007.04, V-4/2007.04	Voluntary Control for Interference by Information Technology Equipment (Japan)
KN-22, KN-24	Korean Communications Commission – Framework Act on Telecommunications and Radio Waves Act. (South Korea).
CNS 13438:2006	Bureau of Standards, Metrology and Inspection. (Taiwan)

Japanese Kanji statement translation: This is a Class B product based on the standard of the Voluntary Control Council for Interference from Information Technology Equipment (VCCI). If this is used near a radio or television receiver in a domestic environment, it may cause radio interference. Install and use the equipment according to the instruction manual.

この装置は、情報処理装置等電波障害自主規制協議会（ＶＣＣＩ）の基準に基づくクラスＢ情報技術装置です。この装置は、家庭環境で使用することを目的としていますが、この装置がラジオやテレビジョン受信機に近接して使用されると、受信障害を引き起こすことがあります。
　取扱説明書に従って正しい取り扱いをして下さい。

Korean Class B statement translation: This is household equipment that is certified to comply with EMC requirements. You may use this equipment in residential environments and other non-residential environments.

이 기기는 가정용으로 전자파적합등록을 한 기기로서
주거지역에서는 물론 모든 지역에서 사용할 수 있습니다.

Ensure Electromagnetic Compatibility (EMC) Compliance

Before computer integration, make sure that the power supply and other modules or peripherals, as applicable, have passed Class B EMC testing and are marked accordingly.

Pay close attention to the following when reading the installation instructions for the host chassis, power supply, and other modules:

- Product certifications or lack of certifications
- External I/O cable shielding and filtering
- Mounting, grounding, and bonding requirements
- Keying connectors when mating the wrong connectors could be hazardous

If the power supply and other modules or peripherals, as applicable, are not Class B EMC compliant before integration, then EMC testing may be required on a representative sample of the newly completed computer.

Product Certifications

Board-Level Certification Markings

Intel Desktop Board D945GSEJT has the product certification markings shown in Table 31.

Table 31. Product Certification Markings

Description	Mark
UL joint US/Canada Recognized Component mark. Includes adjacent UL file number for Intel Desktop Boards: E210882.	
FCC Declaration of Conformity logo mark for Class B equipment. Includes Intel name and D945GSEJT model designation.	
CE mark. Declaring compliance to European Union (EU) EMC directive and Low Voltage directive.	
Australian Communications Authority (ACA) and New Zealand Radio Spectrum Management (NZ RSM) C-tick mark. Includes adjacent Intel supplier code number, N-232.	
Japan VCCI (Voluntary Control Council for Interference) mark.	
S. Korea KCC (Korean Communications Commission) mark. Includes adjacent KCC certification number: CPU-D945GSEJT (B).	
Taiwan BSMI (Bureau of Standards, Metrology and Inspections) mark. Includes adjacent Intel company number, D33025.	
Printed wiring board manufacturer's recognition mark. Consists of a unique UL recognized manufacturer's logo, along with a flammability rating (solder side).	V-0

Chassis and Component Certifications

Ensure that the chassis and certain components; such as the power supply, peripheral drives, wiring, and cables; are components certified for the country or market where used. Agency certification marks on the product are proof of certification. Typical product certifications include:

In Europe

The CE marking signifies compliance with all applicable European requirements. If the chassis and other components are not properly CE marked, a supplier's Declaration of Conformity statement to the European EMC directive and Low Voltage directive (as applicable), should be obtained. Additionally, other directives, such as the Radio and Telecommunications Terminal Equipment (R&TTE) directive may also apply depending on product features.

In the United States

A certification mark by a Nationally Recognized Testing Laboratory (NRTL) such as UL, CSA, or ETL signifies compliance with safety requirements. Wiring and cables must also be UL listed or recognized and suitable for the intended use. The FCC Class B logo for home or office use signifies compliance with electromagnetic interference (EMI) requirements.

In Canada

A nationally recognized certification mark such as CSA or cUL signifies compliance with safety requirements. The Industry Canada statement at the front of this product guide demonstrates compliance with Canadian EMC regulations.