(intel®)

Intel® Desktop Board D525MW Product Guide

Revision History

Revision	Revision History	Date
-001	First release of the Intel® Desktop Board D525MW Product Guide	June 2010

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Contact your local Intel sales office or your distributor to obtain the latest specifications and before placing your product order.

Copies of documents which have an ordering number and are referenced in this document, or other Intel literature, may be obtained from Intel Corporation by going to the World Wide Web site at: http://www.intel.com/ or by calling 1-800-548-4725.

Preface

This Product Guide gives information about board layout, component installation, and regulatory requirements for Intel® Desktop Board D525MW.

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)

Contents

3 Updating the BIOS

A Board Status and Error Messages

B Regulatory Compliance

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Tables

1 Desktop Board Features

This chapter briefly describes the main features of Intel® Desktop Board D525MW. Table 1 summarizes the features of the Desktop Board.

Table 1.   Feature Summary

Form Factor	Mini-ITX ([170 millimeters [6.7 inches] x 170 millimeters [6.7 inches])
Processor	Passively-cooled, soldered-down dual-core Intel® Atom™ processor with integrated graphics and memory controllers.
Main Memory	• Two 204-pin Double Data Rate 3 (DDR3) Small Outline Dual Inline Memory Module (SO-DIMM) sockets with gold-plated contacts • Support for DDR3 800/1066/1333 MHz SO-DIMMs (DDR3 1066 MHz and DDR3 1333 MHz SO-DIMMs operate at 800 MHz only) • Support for up to 4 GB of system memory
Chipset	Intel® NM10 Express Chipset
Integrated Graphics	Intel® Graphics Media Accelerator 3150 (Intel® GMA 3150) integrated graphics subsystem with support for analog displays (VGA)
Audio	RealTek* ALC662 audio codec for 5.1 (6-channel) Intel® High Definition Audio (Intel® HD Audio) and AC '97 Audio. Included are: • Back panel connectors • Front panel microphone/headphone header with support for Intel® HD Audio or AC '97 Audio • S/PDIF digital audio header
Expansion Capabilities	One PCI* bus add-in card connector One PCI Express* Full-Mini Card slot with optional Half-Mini Card support

Peripheral Interfaces	• Seven USB 2.0 ports:
	  — Four back panel ports
	  — Three front panel ports (via two internal headers; one header supports an Intel® Z-U130 USB Solid-State Drive or compatible device
	• Two Serial ATA (SATA) 3.0 Gb/s connectors

Legacy I/O Control	Winbond* W83627DGH-A legacy I/O controller providing: • One serial port header • One serial port back panel connector • One parallel port back panel connector • PS/2 keyboard and mouse connectors
Hardware Monitor Subsystem	Hardware monitoring through the Winbond legacy I/O controller, including: • Remote thermal sensor • One 3-pin chassis fan header with speed control
LAN Support	10/100/1000 Mb/s (Gigabit) Ethernet LAN Subsystem using a RealTek* 8111E Gigabit Ethernet Controller

BIOS	• Intel® BIOS
	• Support for Advanced Configuration and Power Interface (ACPI), Plug and Play, and SMBIOS
Instantly Available PC Technology	• Support for PCI Local Bus Specification, Revision 2.3
	• Support for Advanced Configuration and Power Interface (ACPI)
	• Wake on USB, PCI, PCI Express, PS/2, LAN, serial, and front panel

For more information on Intel Desktop Board D525MW consult the following online resources:

To find information about...	Visit this World Wide Web site:
Intel Desktop Board D525MW	http://www.intel.com/products/motherboard/index.htm
Desktop Board Support	http://www.intel.com/p/en_US/support?iid=hdr+support
Available configurations for Intel Desktop Board D525MW	http://ark.intel.com
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 D525MW.
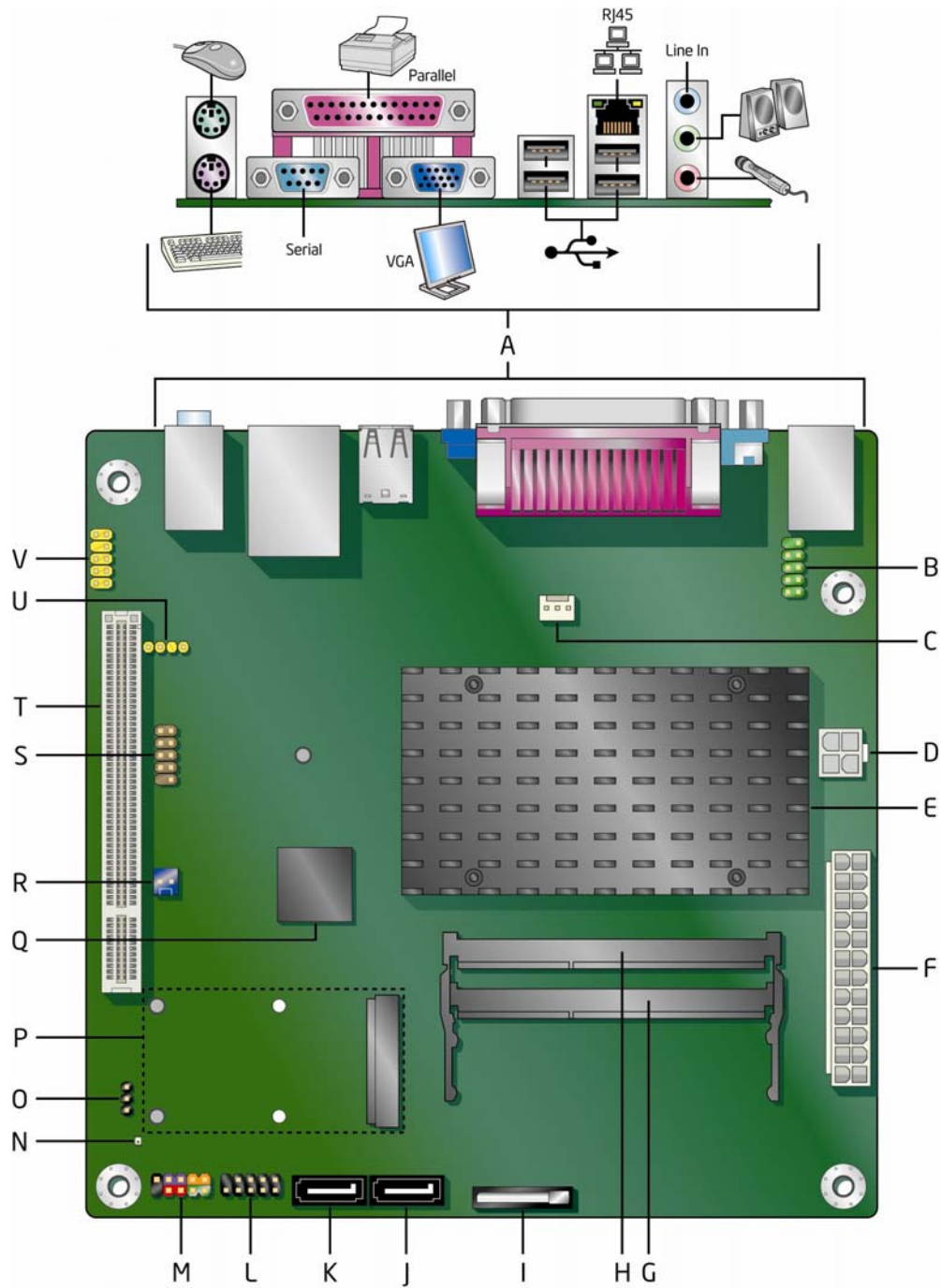
Figure 1. Intel Desktop Board D525MW Components

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Table 2. Intel Desktop Board D525MW Components

Label	Description
A	Back panel connectors
B	Serial header (COM1)
C	Chassis fan header
D	12 V processor core voltage connector (2 x 2 pin)
E	Processor
F	Main power connector (2 x 12 pin)
G	SO-DIMM 0 slot
H	SO-DIMM 1 slot
I	Battery
J	SATA 1
K	SATA 0
L	USB front panel header
M	Front panel header
N	Standby power indicator
O	BIOS configuration jumper block
P	PCI Express Mini Card slot
Q	Intel NM10 Express Chipset
R	Front panel wireless activity LED header
S	USB front panel header with Intel Z-U130 USB Solid-State Drive (or compatible device) support
T	PCI bus connector
U	S/PDIF header
V	Front panel audio header

Processor

Intel Desktop Board D525MW includes a passively-cooled, dual-core Intel Atom processor with integrated graphics and memory controller. 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 DIMMs that support the Serial Presence Detect (SPD) data structure. If your memory modules do 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 two 204-pin DDR3 SO-DIMM sockets with gold-plated contacts. These sockets support:

- Support for DDR3 800/1066/1333 MHz SO-DIMMs (DDR3 1066 MHz and DDR3 1333 MHz SO-DIMMs operate at 800 MHz only)
- Serial Presence Detect (SPD) memory only
- Non-ECC memory
- Up to 4 GB of memory

Integrated Graphics Subsystem

The integrated Intel GMA 3150 graphics controller features the following:

- 400 MHz core frequency
- High quality texture engine
  - DX9.0c* and OpenGL* 1.4 compliant
  - Hardware Pixel Shader 2.0
  - Vertex Shader Model 2.0
- 3D Graphics Rendering enhancements
  - 1.6 dual texture GigaPixel/s max fill rate
  - 16-bit and 32-bit color
  - Vertex cache
- Video
  - Software DVD at 30 fps full screen
  - DVMT support up to 256 MB
- Supports analog displays up to 2048 x 1536 at 75 Hz refresh (QXGA)

Intel® NM10 Express Chipset

The Intel NM10 Express Chipset is a centralized controller for the board's I/O paths. For more information about the Intel NM10 Express Chipset, go to http://www.intel.com/products/chipsets/index.htm?iid=prod+prod_chipset.

Operating System Support

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

- Microsoft Windows Vista* Basic Service Pack 1
- Microsoft Windows* XP Home Service Pack 3
- Microsoft Windows* 7 Home Basic and Starter

Onboard Audio Subsystem

The Intel Desktop Board D525MW 6-channel (5.1) onboard audio subsystem supports both Intel HD Audio and AC '97 Audio. The subsystem is based on the following components:

- Intel NM10 Express Chipset
- RealTek ALC662 audio codec

The subsystem includes the following headers and connectors:

- Front panel audio header (supports both Intel HD Audio and AC '97), including functionality for:
  - Line out (headphones/speaker)
  - Microphone in
- Three back panel analog audio jacks
- Onboard S/PDIF output header (3 pin)

The front/back panel audio connectors are configurable through the audio device drivers. Table 3 lists the supported functions of the front panel and back panel jacks.

Table 3. Audio Jack Support

Audio Jack	Line In	Line/ Front Out	Rear Out	Center/ LFE	Microphone	Headphones
Front panel – Green	No	Yes	No	No	No	Yes
Front panel – Pink	No	No	No	No	Yes	No
Back panel – Blue	Yes	No	Yes	No	No	No
Back panel – Green	No	Yes	No	No	No	Yes
Back panel – Pink	No	No	No	Yes	Yes	No

Figure 2 shows the default assignment of the back panel audio connectors.
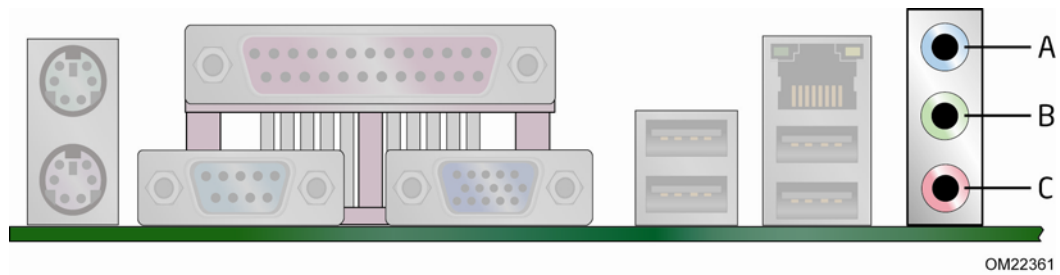
Item	Description
A	Line In
B	Line Out
C	Mic In

Figure 2. Back Panel Audio Connectors

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 provides the following:

- Two serial ports (one via a back panel connector and one via an onboard header)
- One parallel port with Extended Capabilities Port (ECP) and Enhanced Parallel Port (EPP) support via a back panel connector
- Serial IRQ interface compatible with serialized IRQ support for PCI systems
- PS/2-style keyboard and mouse ports
- Intelligent power management, including a programmable wake up event interface
- PCI power management support

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

LAN Subsystem

The LAN subsystem consists of the following:

- Intel NM10 Express Chipset
- Realtek 8111E Gigabit Ethernet Controller for 10/100/1000 Mbits/s 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/.

Two LEDs are built into the RJ-45 LAN connector located on the back panel (see Figure 3). These LEDs indicate the operating states of the LAN.

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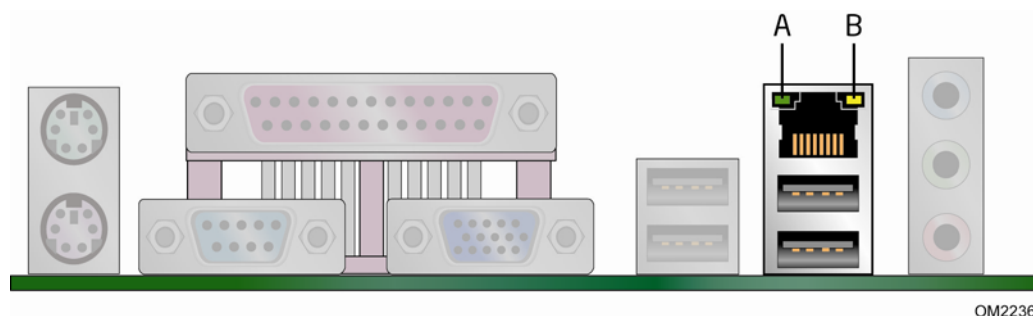
Figure 3. LAN Status LEDs

Table 4 describes the LED states when the board is powered up and the LAN subsystem is operating.

Table 4. LAN Status LEDs

LED	LED Color	LED State	Indicates
Activity (A)	Green	Blinking	LAN activity is occurring.
Speed (B)	N/A	Off	10 Mbits/s data rate is selected.
	Green	On	100 Mbits/s data rate is selected.
	Yellow	On	1000 Mbits/s data rate is selected.

USB 2.0 Support

The Desktop Board supports up to seven USB 2.0 ports (four ports routed to the back panel and three 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 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.

SATA Interface

The Desktop Board supports two SATA 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 SATA auto-configuration utilities, and the video BIOS.

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 40.

Power Management Features

Power management is implemented at several levels, including:

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

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 13 on page 37 for the location of the chassis fan header.

+5 V Standby Power Indicator

⚠️ **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 4, is lit when there is standby power to the system. This includes the DIMM sockets and the PCI bus connector, even though the computer appears to be off.
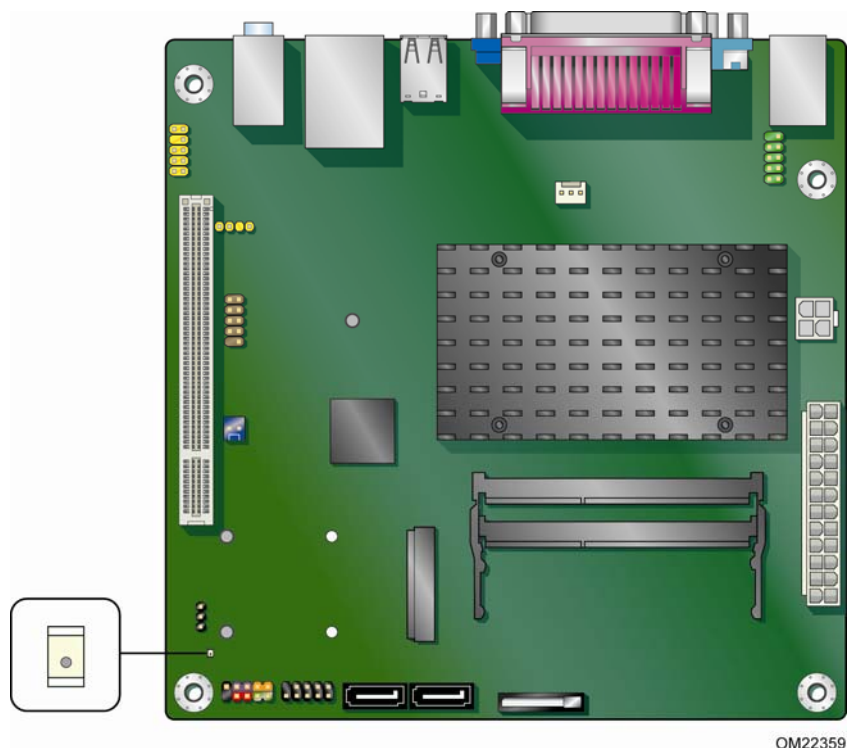
Figure 4. Location of the Standby Power Indicator

For more information on standby current requirements for the Desktop Board, refer to the Technical Product Specification on the Intel Desktop D525MW web page at http://www.intel.com/products/motherboard/D525MW/index.htm.

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.

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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 Alt + Print Screen key combination or 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.

Wake from Serial Port

Serial port activity wakes the computer from an ACPI S1 or S3 state.

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 41 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 chassis fan and power supply cables
- Set the BIOS configuration jumper
- Clear passwords
- Replace the battery

Before You Begin

⚠ **CAUTION**

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.

⚠ **CAUTION**

Failure to ensure appropriate airflow may result in reduced performance of both the processor and/or voltage regulator or, in some instances, damage to the board.

All responsibility for determining the adequacy of any thermal or system design remains solely with the reader. Intel makes no warranties or representations that merely following the instructions presented in this document will result in a system with adequate thermal performance.

⚠ **CAUTION**

Ensure that the ambient temperature does not exceed the board's maximum operating temperature. Failure to do so could cause components to exceed their maximum case temperature and malfunction. For information about the maximum operating temperature, see the environmental specifications in the Intel Desktop Board Technical Product Specification.

⚠ **CAUTION**

The board is designed to be passively cooled on a properly ventilated chassis. Chassis venting locations are recommended over the processor, voltage regulator, and system memory areas for maximum heat dissipation effectiveness.

Ensure that proper airflow is maintained around the processor, processor voltage regulator circuit, and the DIMM. Failure to do so may result in damage to these components.

⚠ **CAUTION**

A thermal rating of 85 ^{o}C is required for the DIMMs used on this board.

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 5. 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.
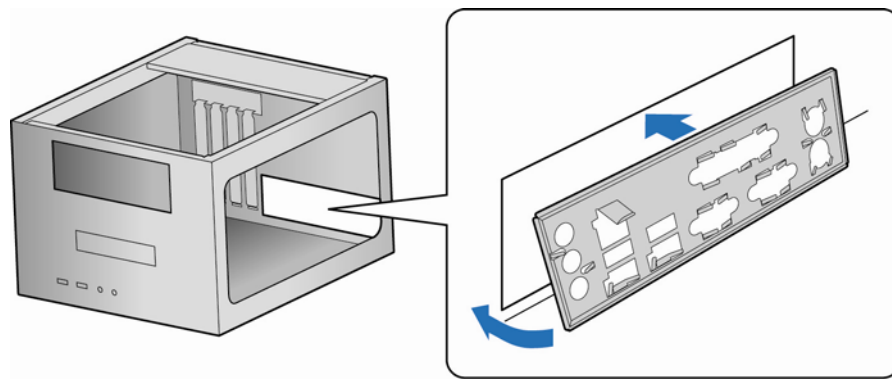
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Figure 5. Installing the I/O Shield

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.

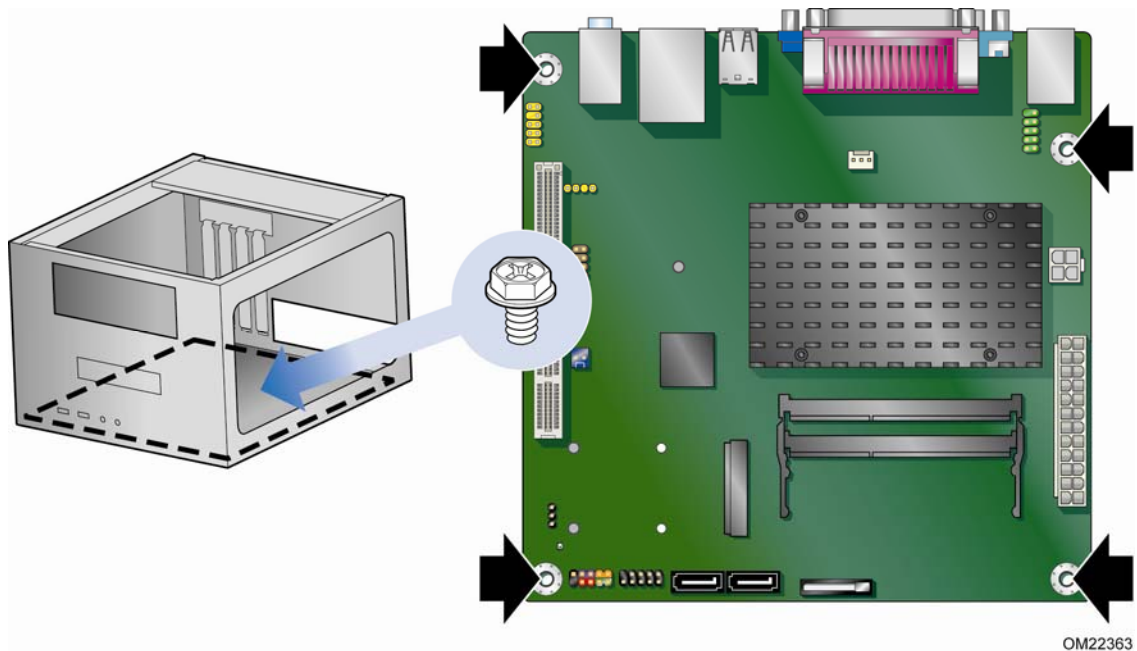Figure 6 shows the location of the mounting screw holes for Intel Desktop Board D525MW.

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Figure 6. Intel Desktop Board D525MW Mounting Screw Holes

Installing and Removing Memory

NOTE

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

The Desktop Board has two 204-pin DDR3 SO-DIMM sockets that support up to 4 GB of system memory. To install system memory on the Desktop Board, see Figure 7 and follow these steps:

1. Observe the precautions in "Before You Begin" on page 23.
2. Install the first DIMM (Figure 7, A) in the bottom (DIMM 0) socket. Align the notch in the DIMM with the key in the socket (Figure 7, B), while holding the DIMM with the back edge tilted slightly upwards, insert it in the socket, and gently push the back edge down until it snaps into the retention arms (Figure 7, C).
3. If you are installing a second DIMM, repeat Step 2 using the top (DIMM 1) socket (Figure 7, D).
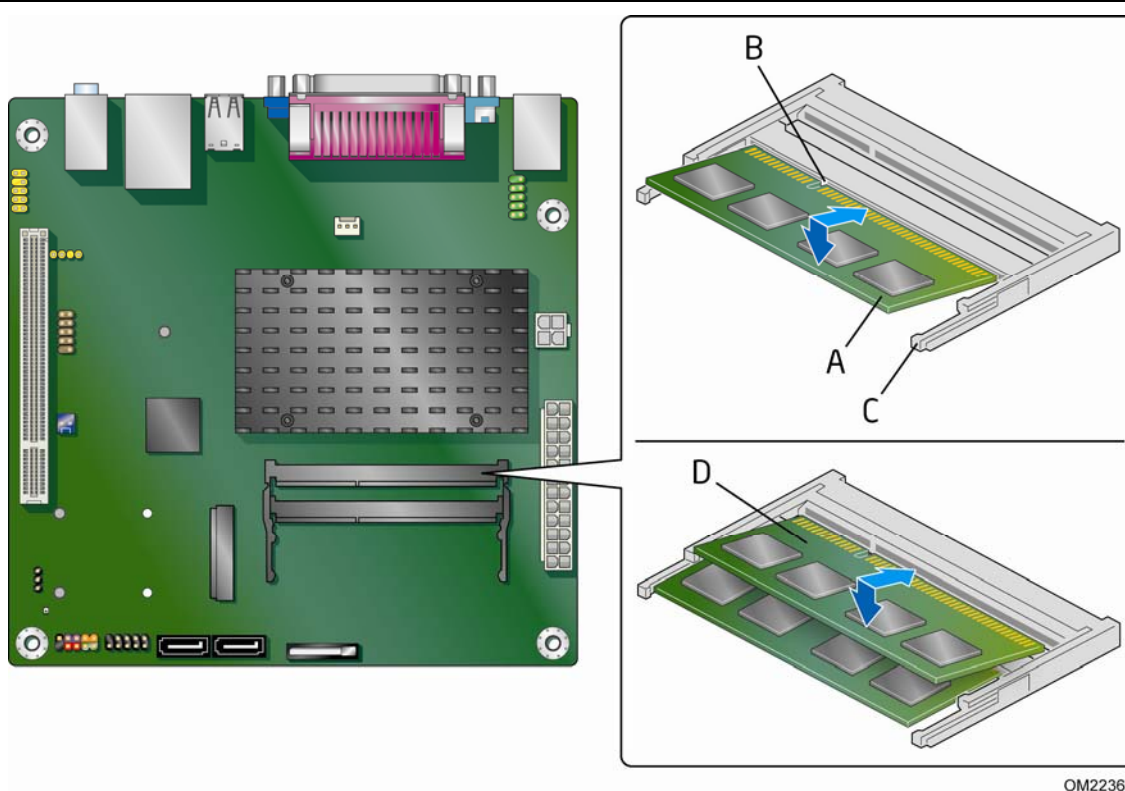
Figure 7. Installing System Memory

To remove an SO-DIMM from a socket, gently spread the socket's retention arms (Figure 7, C) to disengage them from the SO-DIMM.

Connecting SATA Drives

The board has two SATA connectors each supporting one SATA drive. The included SATA cables support the Serial ATA protocol. For correct cable and drive function:

1. Observe the precautions in "Before You Begin" on page 23.
2. Attach one end of the cable to the connector on the board (Figure 8, A) and connect the other end to the drive (Figure 8, B).
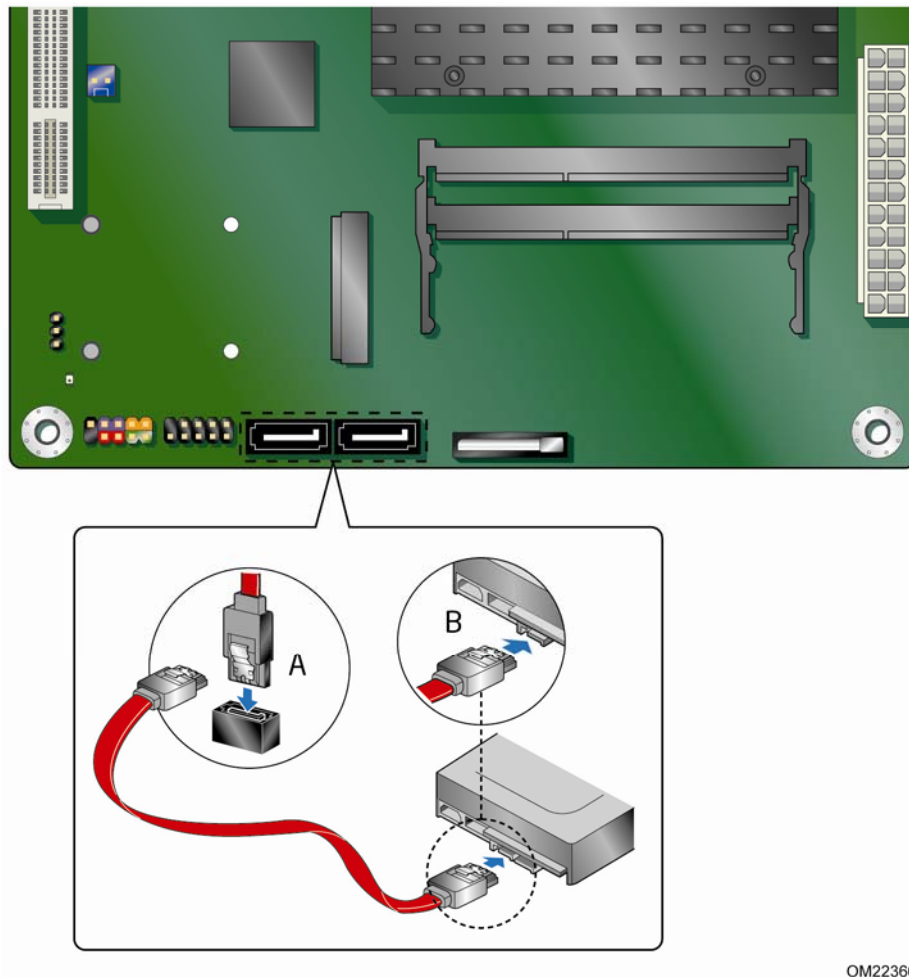
Figure 8. Connecting the Serial ATA Cable

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

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

To install a Full-Mini Card wireless LAN card, see Figure 9 and follow these steps:

1. Observe the precautions in "Before You Begin" on page 23.
2. Insert the wireless LAN card into the PCI Express Mini Card connector (Figure 9, A) at a slightly upward angle.
3. Align the card's mounting holes over the board's steel mounting posts (Figure 9, B) and attach the card with the supplied screws.
4. Attach your system's antenna wires to the connectors (Figure 9, C) on the wireless LAN card as shown.

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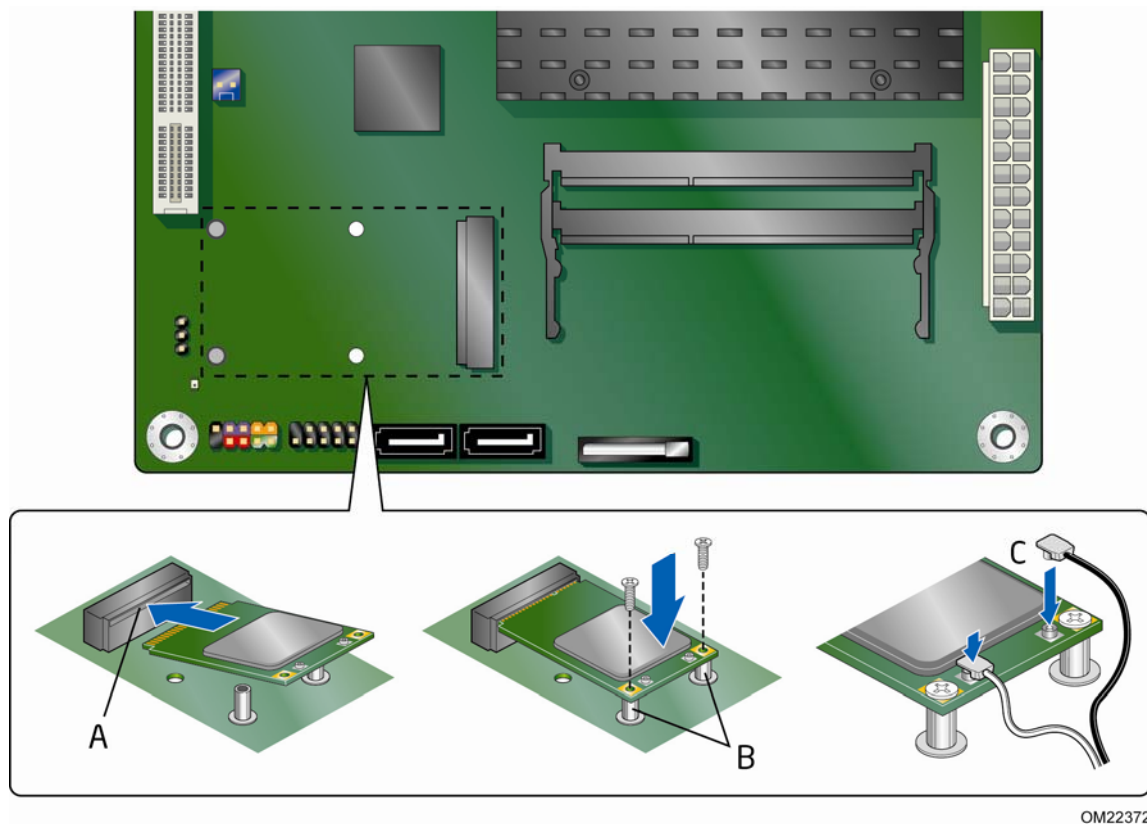
Figure 9. Installing a Full-Mini Card Wireless LAN Card

To install a Half-Mini Card wireless LAN card, see Figure 10 and follow these steps:

1. Observe the precautions in "Before You Begin" on page 23.
2. Insert the plastic Half-Mini Card latch in the mounting holes as shown in Figure 10, A.
3. Insert the wireless LAN card into the PCI Express Mini Card connector (Figure 10, B) at a slightly upward angle.
4. Align the card's mounting holes (Figure 10, C) with the plastic latch and snap it into place.
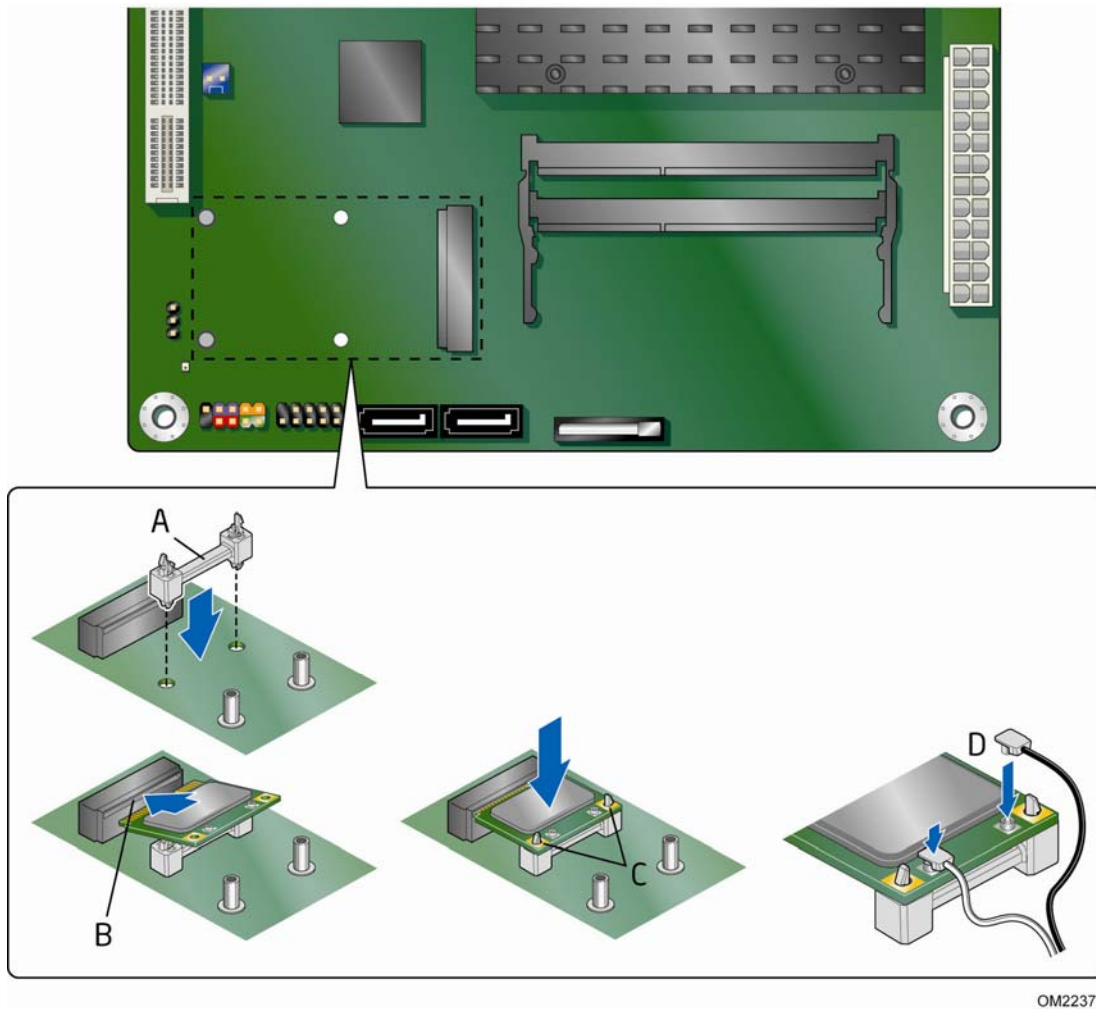5. Attach your system's antenna wires to the connectors (Figure 10, D) on the wireless LAN card as shown.

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Figure 10. Installing a Half-Mini Card Wireless LAN Card

> **NOTE**
>
> *External antennas can be connected through the I/O shield by removing one or both of the cut-outs on the I/O shield.*

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, T. 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 23.
2. Align the connector (Figure 11, 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 11.
3. Secure the solid state drive to the board with the provided screw (Figure 11, B).
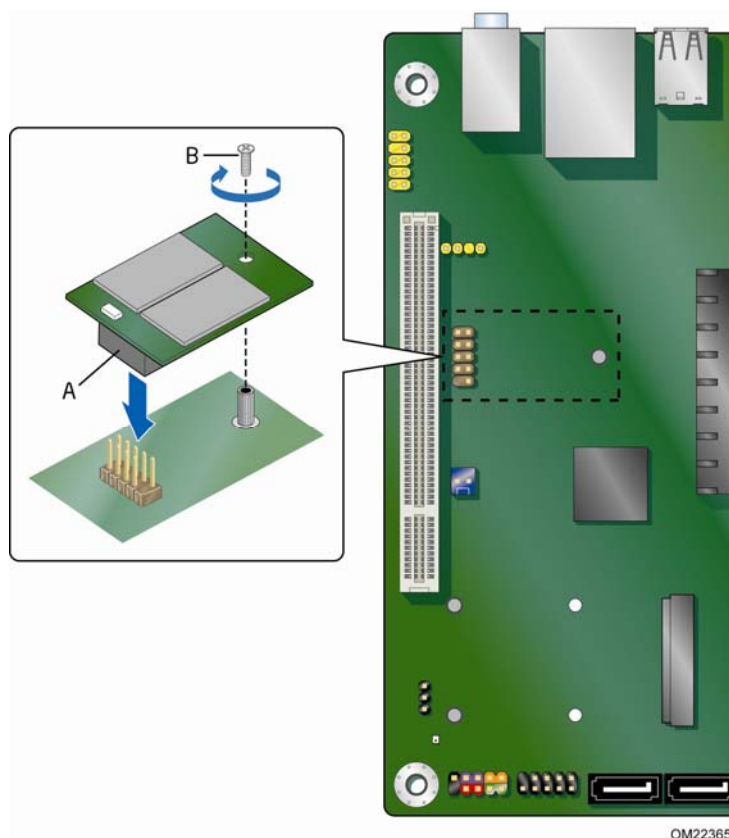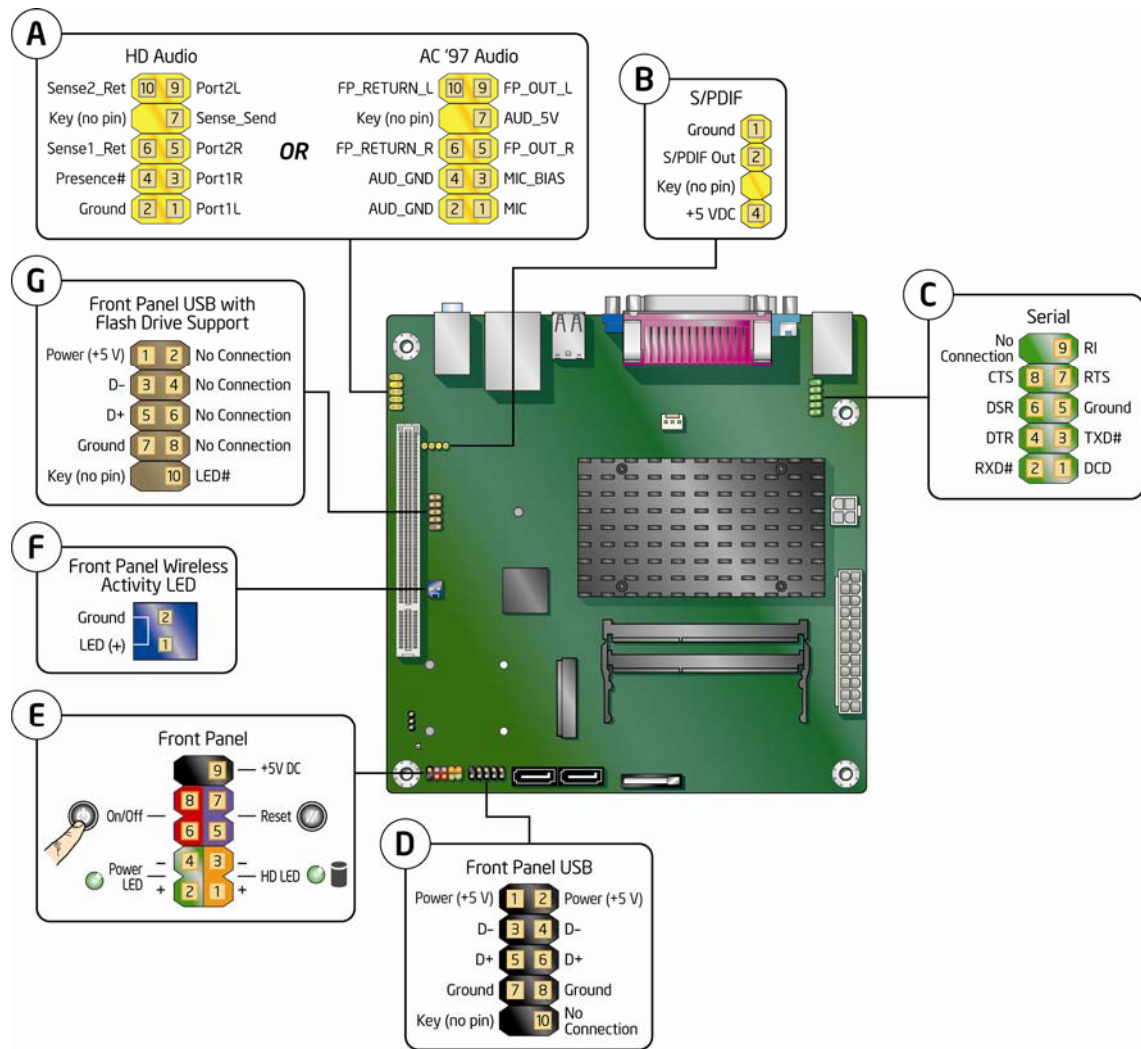

Figure 11. Installing an Intel Z-U130 USB Solid-State Drive (or Compatible Device)

Connecting to the Internal Headers

Before connecting cables to the internal headers, observe the precautions in "Before You Begin" on page 23. Figure 12 shows the location of the board's internal headers.

Figure 12. Internal Headers

Connecting to the Front Panel Audio Header

Figure 12, A shows the location of the front panel audio header. The front panel audio header can be used for both Intel HD Audio and AC '97 Audio.

Table 5 shows the pin assignments for the Intel HD Audio and Table 6 shows the pin assignments for AC '97 Audio.

Table 5. 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 6. 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

Connecting to the S/PDIF Header

Before connecting to the S/PDIF connector, observe the precautions in "Before You Begin" on page 23. See Figure 12, B on page 33 for the location of the S/PDIF header.

Table 7 shows the pin assignments for the S/PDIF header.

Table 7. S/PDIF Header

Pin	Signal Name
1	Ground
2	S/PDIF out
3	Key (no pin)
4	5 VDC

Connecting to the Serial Port Header

Before connecting to the serial port header, observe the precautions in "Before You Begin" on page 23. See Figure 12, C on page 33 for the location of the serial port header.

Table 8 shows the pin assignments for the serial port header.

Table 8. Serial Port Header (COM 1)

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)

Connecting to the Front Panel USB 2.0 Headers

Before connecting to the USB 2.0 headers, observe the precautions in "Before You Begin" on page 23. See Figure 12, D and G on page 33 for the location of the USB 2.0 headers. Table 9 and Table 10 show the pin assignments for the headers.

The brown USB header (Figure 12, G) supports a single USB port while the black USB header (Figure 12, D) supports two USB ports. The single USB port header is designed to support a Flash Memory Drive such as the Intel Z-U130 USB Solid-State Drive (or compatible device). Refer to Installing an Intel® Z-U130 USB Solid-State Drive or Compatible Device on page 32 for more information.

Table 9. 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 10. 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	No Connect
3	D-	4	No Connect
5	D+	6	No Connect
7	Ground	8	No Connect
9	KEY (no pin)	10	LED#

Connecting to the Front Panel Header

Before connecting to the front panel header, observe the precautions in "Before You Begin" on page 23. See Figure 12, E on page 33 for the location of the front panel header.

Table 11 shows the pin assignments for the front panel header.

Table 11. Front Panel Header Signal Names

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 (330 Ω) 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	SWITCH_ON#	In	Power switch
7	FP_RESET#	In	Reset switch	8	Ground		Ground
Power				**Not Connected**			
9	+5 V		Power	10	N/C		No pin

Connecting to the Front Panel Wireless Activity LED Header

Before connecting to the front panel wireless activity LED header, observe the precautions in "Before You Begin" on page 23. See Figure 12, F on page 33 for the location of the front panel wireless activity LED header.

Table 12 shows the pin assignments for the front panel wireless activity LED header.

Table 12. Front Panel Wireless Activity LED Header

Pin	Signal Name
1	LED (+)
2	Ground

Connecting a Chassis Fan

Figure 13 shows the location of the chassis fan header. Connect the chassis fan cable to this header.
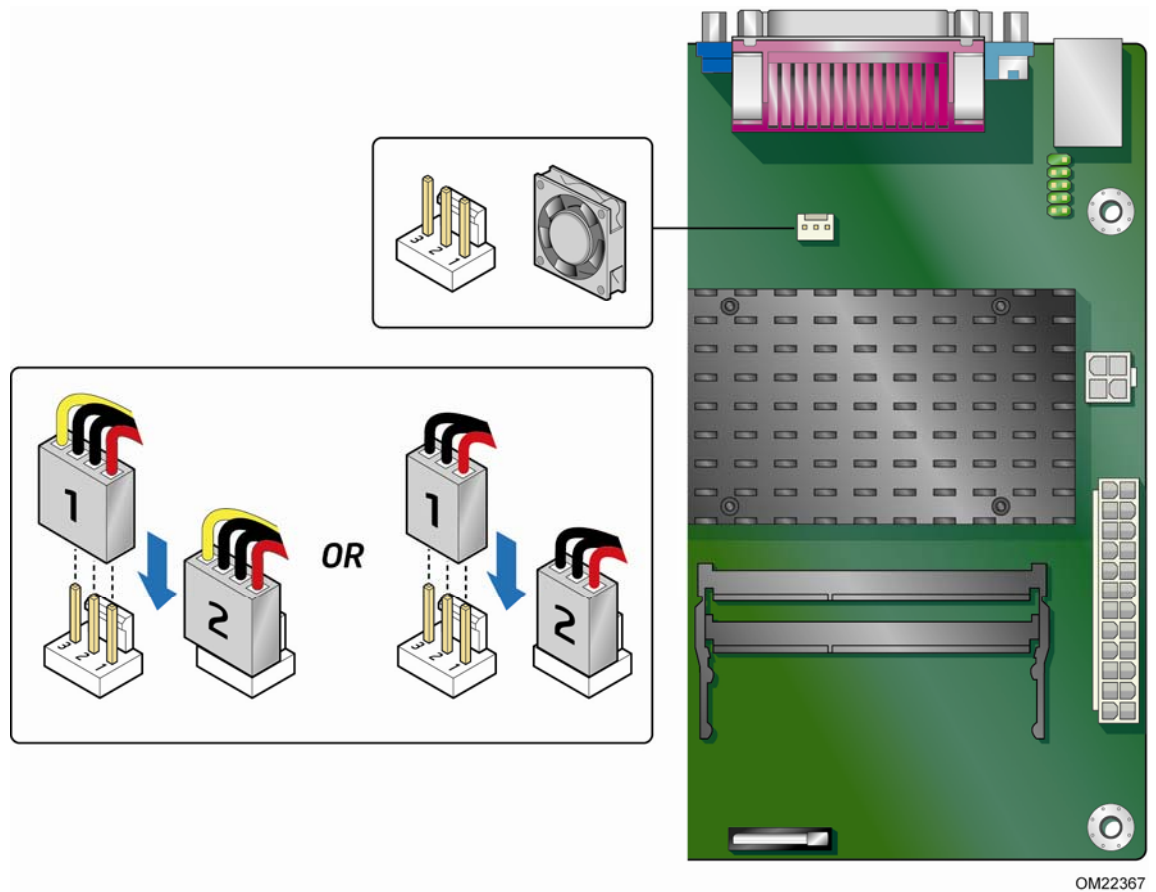

Figure 13. Location of the Chassis Fan Header

Connecting a Power Supply

⚠ CAUTION

Failure to connect an appropriate power supply to the Desktop Board may result in damage to the board or the system may not function properly.

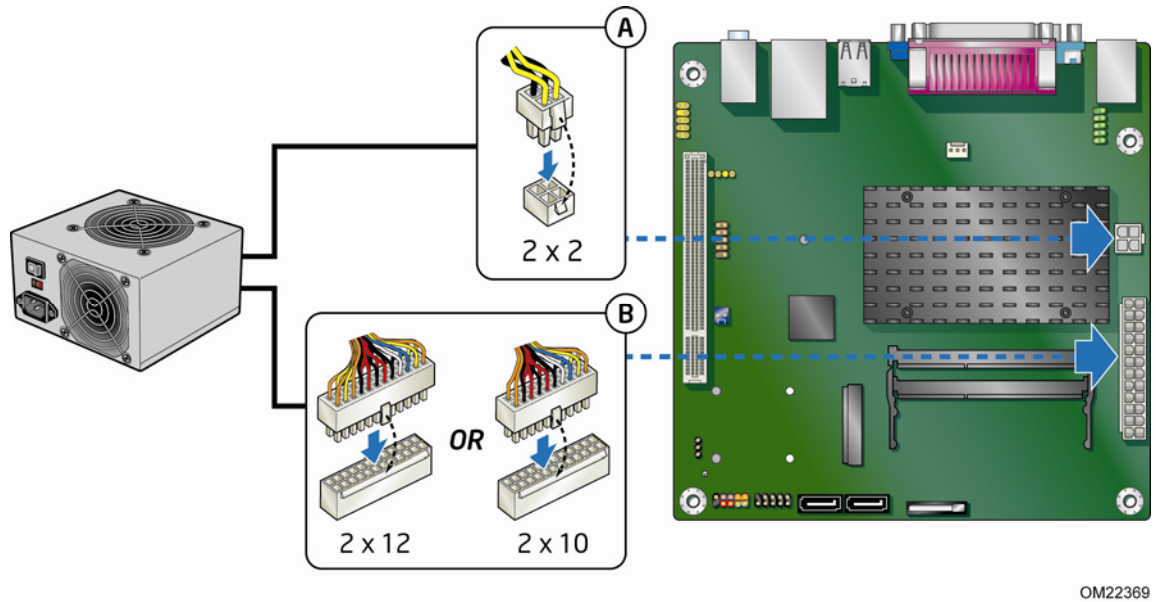Figure 14 shows the location of the power connectors.

Figure 14. Connecting Power Supply Cables

1. Observe the precautions in "Before You Begin" on page 23.
2. Connect the main power supply cable to the 2 x 12 pin connector (Figure 14, B).
3. Connect the 12 V processor core voltage power supply cable to the 2 x 2 pin connector (Figure 14, A).
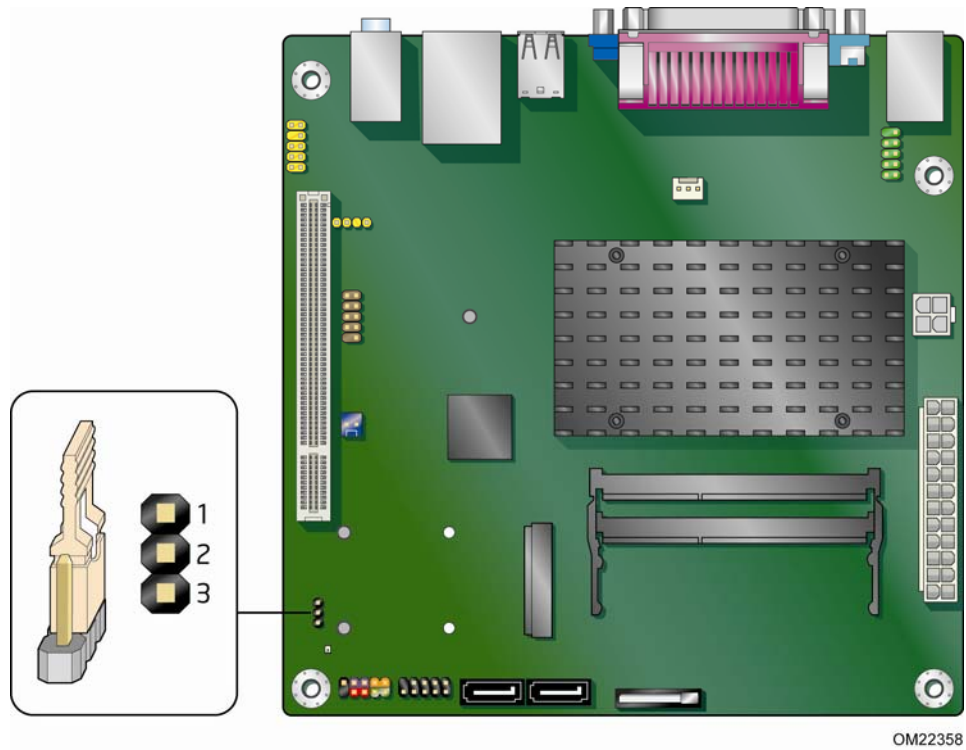
Setting the BIOS Configuration Jumper

📝 **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.

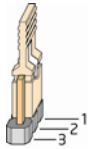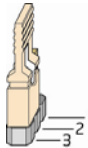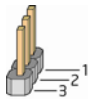Figure 15 shows the location of the Desktop Board's BIOS configuration jumper block.

Figure 15. BIOS Configuration Jumper Block

The three-pin BIOS configuration jumper block enables board operating modes. Table 13 shows the jumper settings for each of the available modes.

Figure 15 shows the location of the Desktop Board's BIOS configuration jumper block.

Table 13. 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 23.
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 15).
5. Place the jumper on pins 2-3 as shown below.
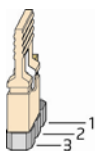
6. Replace the cover, plug in the computer, turn on the computer, and allow it to boot.
7. The computer starts the Setup program. Setup displays the Maintenance menu.
8. Use the arrow keys to select Clear Passwords. Press <Enter> and Setup displays a pop-up screen requesting that you confirm clearing 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.
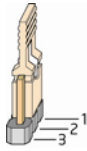
13. Replace the cover, plug in the computer, and turn on the computer.

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 16 on page 45 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 неправільнага 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.