MITAC Desktop Board PD14TI
Product Guide

Desktop Board Features

This chapter briefly describes the main features of MITAC Desktop Board PD14TI.
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 controller.
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 1066/1333/1600 MHz SO-DIMMs (DDR3 1333 MHz and DDR3 1600 MHz SO-DIMMs operate at1066 MHz only) - Support for up to 4 GB of system memory
Chipset	Intel® NM10 Express Chipset
Integrated Graphics	Intel® Graphics Media Accelerator 3600 (Intel® GMA 3600) integrated graphics subsystem with support for VGA displays
External Graphics	External graphics support provided through the PCI bus connector
Audio	RealTek* ALC662 audio codec for 5.1 (6-channel) High Definition Audio (HD Audio) and AC '97 Audio. Included are: - Back panel audio connectors - Onboard S/PDIF digital audio header - Front panel microphone/headphone header with support for HD Audio or AC '97 Audio
Legacy I/O	Legacy I/O Controller (Nuvoton* W83677HG-I) that provides: - Two serial ports (one via a back panel connector and one via an onboard header - One back panel parallel port - One PS/2 keyboard/mouse port - Hardware management support
Expansion Capabilities	One PCI* bus add-in card connector
Peripheral Interfaces	- Eight USB 2.0 ports: - Four back panel ports - Four front panel ports (via two internal headers) - Two Serial ATA (SATA) 3.0 Gb/s connectors
Hardware Monitor Subsystem	Hardware monitoring through the Nuvoton* W83627DH-P legacy I/O controller, including: - Remote thermal sensor - One 3-pin system fan header with speed control

Table 1. Feature Summary (continued)

LAN Support	Intel® 82574L Gigabit (10/100/1000 Mb/s) Ethernet LAN controller
BIOS	Support for Advanced Configuration and Power Interface (ACPI), Plug and Play, and SMBIOS
Instantly Available PC Technology	● Support for Advanced Configuration and Power Interface (ACPI) ● Wake on USB, PCI, PCI Express, LAN, serial, PS/2, and front panel

Desktop Board Components

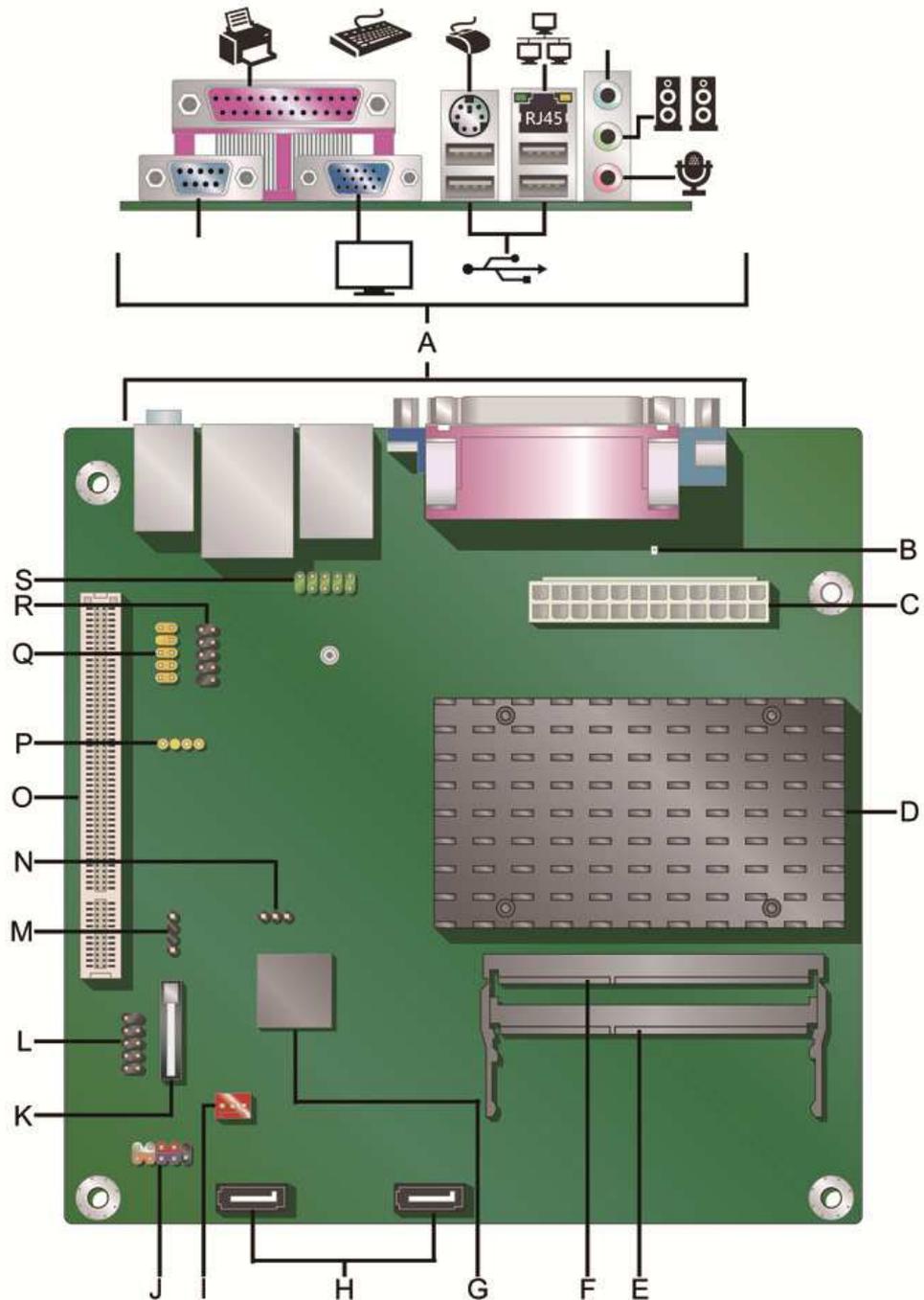Figure 1 shows the location of the major components on MITAC Desktop Board PD14TI.

Figure 1. MITAC Desktop Board PD14TI Components

TABLE 2. MITAC DESKTOP BOARD PD14TI COMPONENTS

Label	Description
A	Back panel connectors
B	Standby power indicator
C	Main power connector (2 x 12 pin)
D	Processor
E	SO-DIMM 1 slot
F	SO-DIMM 0 slot
G	Intel NM10 Express Chipset
H	SATA connectors
I	System fan header
J	Front panel header
K	Battery
L	USB front panel header
M	Piezoelectric speaker header
N	BIOS configuration jumper block
O	PCI bus connector
P	S/PDIF out header
Q	Front panel audio header
R	USB front panel header
S	Serial port header

Processor

MITAC Desktop Board PD14TI 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 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 1066/1333/1600 MHz SO-DIMMs (DDR3 1333 MHz and DDR3 1600 MHz SO-DIMMs operate at 1066 MHz only)
- Serial Presence Detect (SPD) memory only
- Non-ECC memory
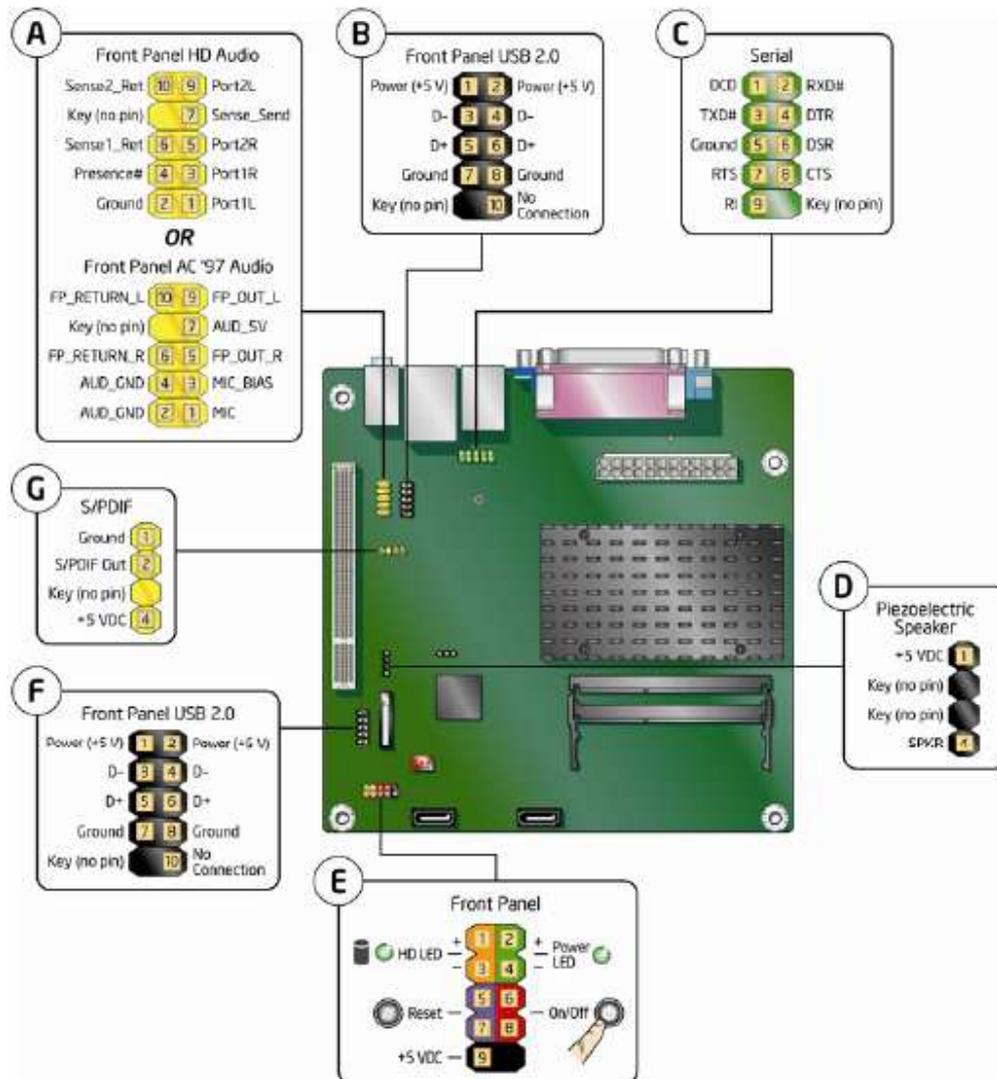- Up to 4 GB of memory

Connecting to the Internal Headers

Figure 2. Internal Headers

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, and how to recover the BIOS if an update fails.

Updating the BIOS Using the F7 Function Key

To use this BIOS update method:

1. Download and save the Recovery BIOS (.BIO) file to a temporary directory.
2. Copy the .BIO file to a USB thumb drive.
3. Plug the thumb drive into a USB port of the target computer.
4. Shut down the target computer.
5. Enable the F7 prompt display:
   a. Power the computer on.
   b. Enter the BIOS Setup by pressing the F2 key during boot.
   c. Go to the Advanced > Boot Configuration menu.
   d. Enable Display F7 to Update BIOS
   e. Press the F10 key to save and exit.
6. During boot, when the F7 prompt is displayed, press the F7 key to enter the BIOS Flash Update tool.
7. Select the USB thumb drive and press Enter.
8. Select the .BIO file and press Enter
9. Confirm you want to update the BIOS by pressing Enter.
10. Wait 2-5 minutes for the update to complete.
11. Remove the thumb drive.
12. Restart the computer.

⚠ **CAUTION**

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

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, 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.

CAUTION

DO NOT POWER DOWN YOUR COMPUTER before the update is complete. The update may take up to 5 minutes.

Recovering the BIOS

It is unlikely that anything will interrupt the BIOS update; however, if an interruption occurs, the BIOS could be damaged. Due to BIOS size and recovery requirements, a CD-R with the .BIO file in the root directory will be required.

A Board Status and Error Messages

This appendix describes status and error messages generated by the Desktop Board's BIOS. The BIOS indicates these error messages with front-panel Power LED blink codes, speaker beep codes, and by displaying text on the video monitor.

BIOS Beep Codes

The BIOS uses audible beep codes to signal status messages and error messages indicating recoverable errors that occur during the POST. The beep codes are listed in Table 13. These beep codes can be heard through a speaker attached to the board's line out audio jack (see Figure 2, B on page 16) or the piezoelectric speaker header (see Figure 9, D).

TABLE 3. BIOS BEEP CODES

Type	Pattern	Frequency
BIOS update in progress	None	
Video error (Note)	On-off (1.0 second each) two times, then a 2.5-second pause (off); the entire pattern repeats (beeps and pause) once and the BIOS will continue to boot.	932 Hz When no VGA option ROM is found.
Memory error	On-off (1.0 second each) three times, then a 2.5-second pause (off); the entire pattern repeats (beeps and pause) until the system is powered off.	932 Hz
Thermal trip warning	Alternate high and low beeps (1.0 second each) for eight beeps, followed by system shut down.	High beep 2000 Hz Low beep 1500 Hz

Note: Disabled by default BIOS Setup option.

BIOS Front-panel Power LED Blink Codes

The BIOS also blinks the front-panel power LED to signal status messages and error messages indicating certain recoverable errors that occur during the POST. The blink codes are listed in Table 14.

TABLE 4. BIOS FRONT-PANEL POWER LED BLINK CODES

Type	Pattern	Frequency
BIOS update in progress	Off when the update begins, then on for 0.5 second, and then off for 0.5 second. The pattern repeats until the BIOS update is complete.	
Video error (Note)	On-off (1.0 second each) two times, then a 2.5-second pause (off); the entire pattern repeats (blinks and pause) until the system is powered off.	When no VGA option ROM is found.
Memory error	On-off (1.0 second each) three times, then a 2.5-second pause (off); the entire pattern repeats (blinks and pause) until the system is powered off.	
Thermal trip warning	Each beep will be accompanied by the following blink pattern: 0.25 second on, 0.25 second off, 0.25 second on, 0.25 second off. This results in a total of 16 blinks followed by system shut down.	

Note: Disabled by default BIOS Setup option.

POST Error Messages

The BIOS also displays error messages on the video monitor when certain recoverable errors occur during the POST. Table 15 lists the error messages with a brief description of each.

TABLE 5. 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.

Battery Caution

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.

A suitable caution label is included with MiTAC Desktop Board PD10TI.

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.