

IMBM-H81B

Industrial Motherboard

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Chapter 1

Product overview

1.1 Package contents

Check your industrial motherboard package for the following items.

- | | |
|--|---|
| <input checked="" type="checkbox"/> 1 x Industrial Motherboard | <input checked="" type="checkbox"/> 1 x SATA 6.0 Gb/s cable (2 in 1 pack) |
| <input checked="" type="checkbox"/> 1 x I/O Shield | <input checked="" type="checkbox"/> 1 x Support DVD |



If any of the above items is damaged or missing, contact your distributor or sales representative immediately.

1.2 Features

- Intel® Socket 1150 for 4th Generation Core™ i7 / Core™ i5 / Core™ i3, Pentium®, Celeron™ 22nm LGA 1150 socket Processor
- Two DIMMs support 288-pin Dual Channel DDR3 1333/1600MHz Non-ECC, Un-buffered memory up to 16GB
- 2 x Realtek PCIe Gb LAN 8111G, RJ45 x 2
- 2 x SATA 6.0 Gb/s ports (7P, 180 degree connector)
- 1 x PCIe 3.0 [x16] Slot, 2 x PCIe 2.0 [x1] Slots

1.3 Specifications

SYSTEM	
Form factor	micro ATX
CPU	Intel® 4th Generation Core™ i7/i5/i3, Pentium®/Celeron™ 22nm LGA 1150 socket Processor Supports Intel® 22nm CPU
Memory	2 x DIMMs, DDR3 1333/1600 MHz, Max. 16GB non-ECC, un-buffered memory Dual-channel memory architecture
Chipset	Intel® H81 Express Chipset
I/O Chipset	Fintek F81866D (RS 232 COM1~6 & others) Fintek F81216HD (RS232-COM7~10)
Ethernet	2 x Realtek PCIe Gb LAN 8111G, RJ45 x 2
BIOS	1 x 64Mbit Flash ROM, AMI BIOS
Wake on LAN	Yes (WOL/PXE)
Watchdog Timer	1~255 steps by software program
TPM	Yes
H/W Status Monitor	Monitors CPU/Chassis temperature Monitors Vcore/5V/3.3V/12V voltages Monitors CPU/Chassis fan speed
Smart Fan Control	CPU Fan / Chassis Fan (3.3V colay 5V)
Power State	S3, S4, S5
Expansion slot	1 x PCIe 3.0 [x16] slot 2 x PCIe 2.0 [x1] slots
Battery	Lithium battery
Power requirement	1 x 24-pin ATX connector 1 x 4-pin (2 x 2) ATX 12V power connector
Form factor	Micro-ATX Form Factor, 9.6"x9.6" (244mmx244mm)
Gross weight	1.76 lb (0.8 Kg)
Operating temperature	32°F~140°F (0°C~60°C)
Storage temperature	-40°F~185°F (-40°C~85°C)
Operating humidity	0%~90% relative humidity, non-condensing
Certificate	CE/FCC

(continued on the next page)

DISPLAY	
Chipset	Intel® Graphics Media Accelerator
Resolution	Up to 1920 x 1200 @60Hz for VGA Up to 1920 x 1200 @60Hz for DVI-D
Output interface	VGA+DVI-D, VGA+VGA
I/O	
Storage	2 x SATA 6.0 Gb/s ports (7P, 180 degree connector) 2 x SATA 3.0 Gb/s ports (7P, 180 degree connector)
Serial port	1 x RS-232/422/485 (COM1, supports 5V/12V/RI optional) 1 x RS-232 header (COM2) 2 x RS-232 header (COM3~6, COM7~10)
USB	6 x USB 3.0/2.0 ports, (4 port via ASM1042A, 2 port via H81) 8 x USB 2.0 ports (Via H81)
Fan	1 x CPU Fan connector(s) (4-pin) 2 x Chassis Fan connectors (4-pin)
RTC	Internal RTC
Keyboard/Mouse	1 x PS/2 Keyboard / mouse combo connector
Audio	Realtek ALC887, Mic-in/Line-in/Line-out
Ethernet	2 x RJ-45 ports
Display	1 x DVI-I 1 x VGA
Others	1 x Front panel header 1 x Clear CMOS jumper

Chapter 2

Motherboard information

2.1 Before you proceed

Take note of the following precautions before you install motherboard components or change any motherboard settings.



CAUTION!

- Unplug the power cord from the wall socket before touching any component.
 - Before handling components, use a grounded wrist strap or touch a safely grounded object or a metal object, such as the power supply case, to avoid damaging them due to static electricity.
 - Hold components by the edges to avoid touching the ICs on them.
 - Whenever you uninstall any component, place it on a grounded antistatic pad or in the bag that came with the component.
 - Before you install or remove any component, ensure that the ATX power supply is switched off or the power cord is detached from the power supply. Failure to do so may cause severe damage to the motherboard, peripherals, or components.
-

2.2 Motherboard layout

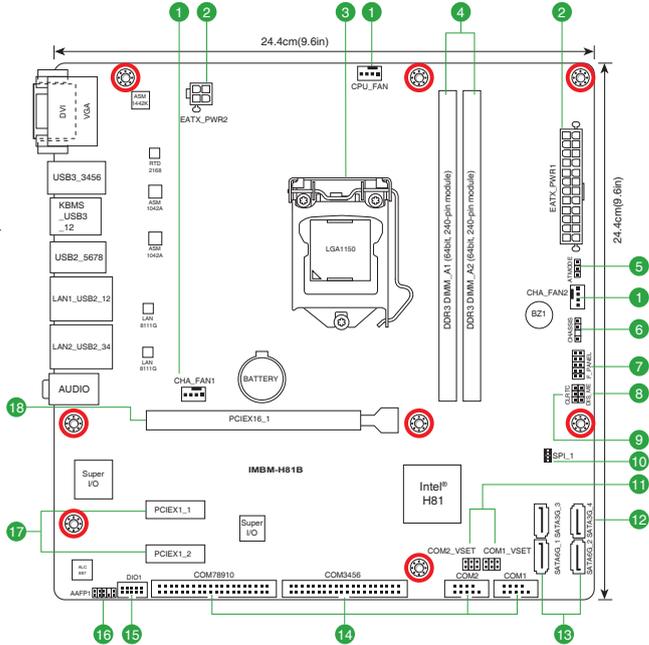


NOTE: Place eight screws into the holes indicated by circles to secure the motherboard to the chassis.



CAUTION! Do not overtighten the screws! Doing so can damage the motherboard.

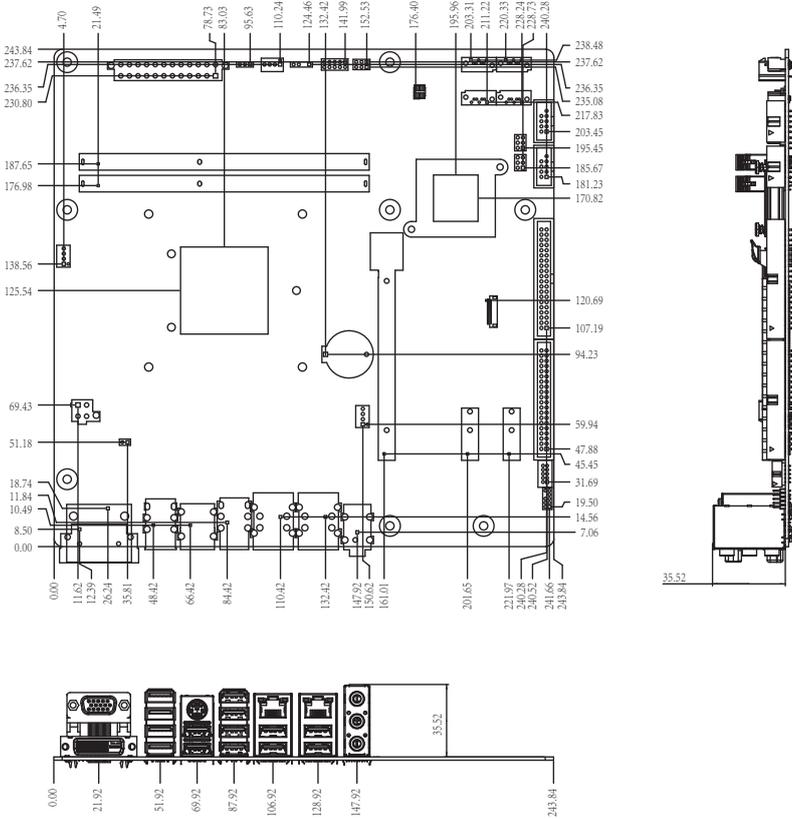
Place this side —
towards the rear
of the chassis



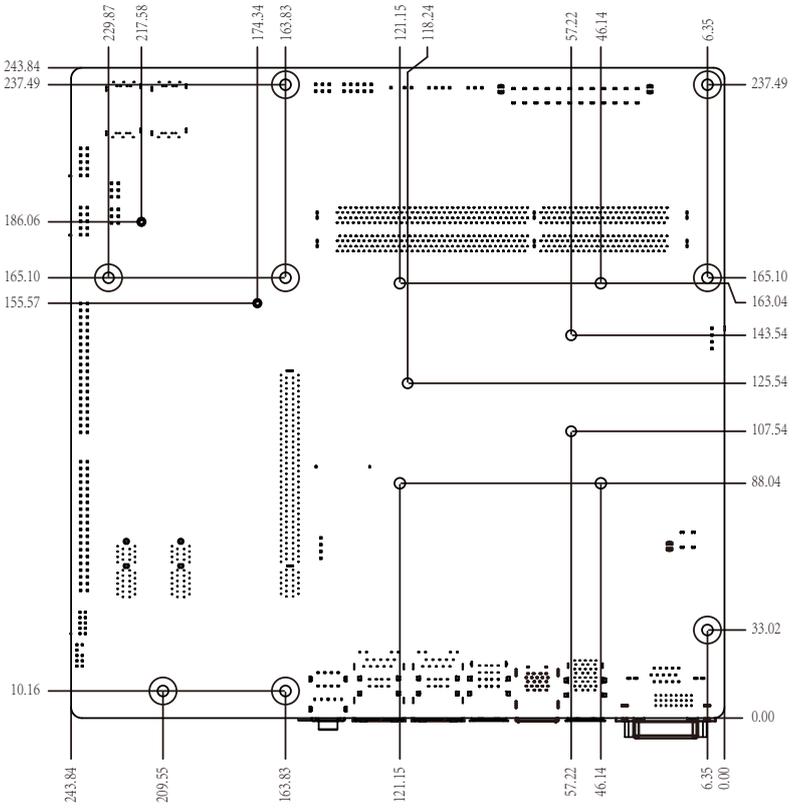
Connectors/Jumpers/LEDs	Page
1. CPU and system fan connectors (4-pin CPU_FAN1, 4-pin CHA_FAN1~2)	
2. ATX power connectors (24-pin EATXPWR1, 4-pin EATX_PWR2)	
3. Intel® LGA1150 CPU socket	
4. DIMM memory slots	
5. AT/ATX mode jumper (3-pin ATMODE)	
6. Chassis intrusion connector (4-1 pin CHASSIS)	
7. System panel connector (10-pin F_PANEL)	
8. Intel® ME Jumper (3-pin DIS_ME)	
9. Clear RTC RAM (CLRTC)	
10. BIOS programmable connector (8-pin SPI_1)	
11. COM1/2 Ring/+5V/+12V selection (COM1/2_Vset)	
12. Serial ATA 3.0Gb/s connectors (7-pin SATA3G_3~4)	
13. Serial ATA 6.0Gb/s connectors (7-pin SATA6G_1~2)	
14. Serial port connectors (10-1 pin COM1~10)	
15. Digital I/O connector (10-pin DIO1)	
16. Front panel audio connector (10-1 pin AAFP)	

2.3 Screw size

2.3.1 Component side

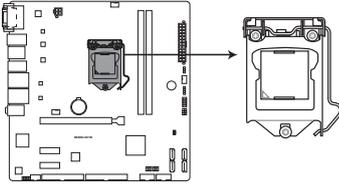


2.3.2 Solder side



2.4 Central Processing Unit (CPU)

The motherboard comes with a surface mount LGA1150 socket designed for the Intel® 4th Generation Core™ i7 / Core™ i5 / Core™ i3, Pentium® and Celeron® 22nm processors.



IMBM-H81B CPU socket LGA1150



IMPORTANT: Unplug all power cables before installing the CPU.



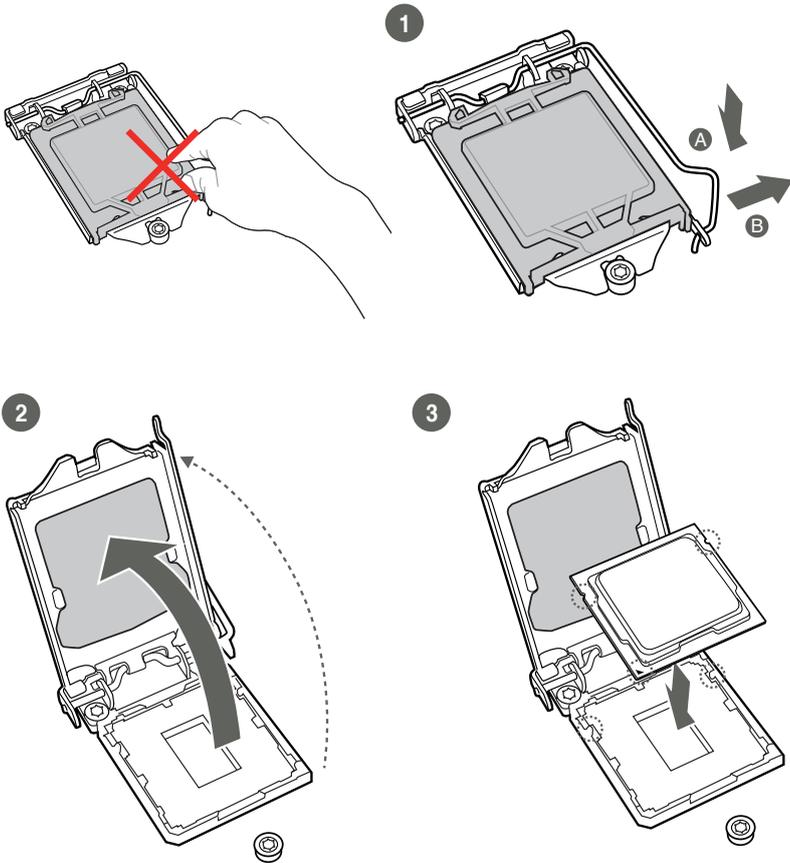
CAUTION!

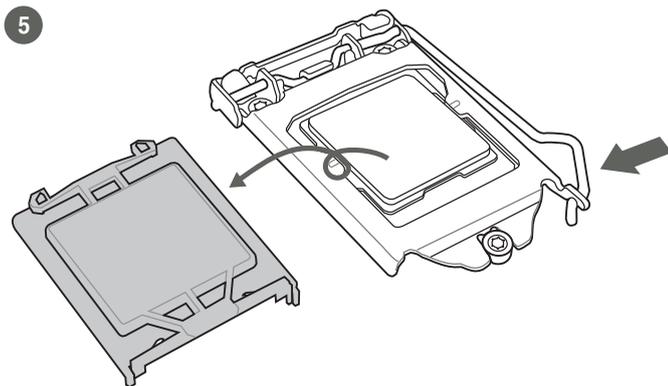
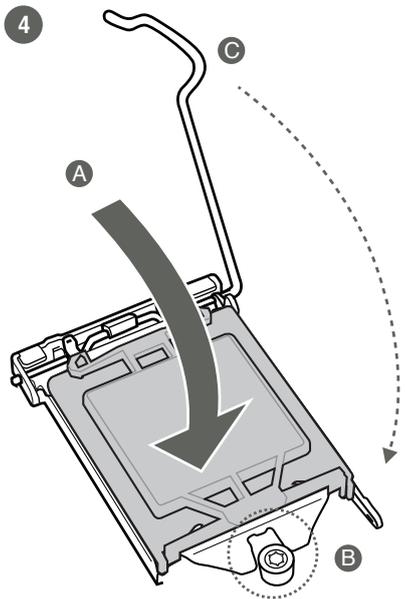
- Upon purchase of the motherboard, ensure that the PnP cap is on the socket and the socket contacts are not bent. Contact your retailer immediately if the PnP cap is missing, or if you see any damage to the PnP cap/socket contacts/motherboard components. The manufacturer will shoulder the cost of repair only if the damage is shipment/transit-related.
 - Keep the cap after installing the motherboard. The manufacturer will process Return Merchandise Authorization (RMA) requests only if the motherboard comes with the cap on the LGA1150 socket.
 - The product warranty does not cover damage to the socket contacts resulting from incorrect CPU installation/removal, or misplacement/loss/incorrect removal of the PnP cap.
-

2.4.1 Installing the CPU

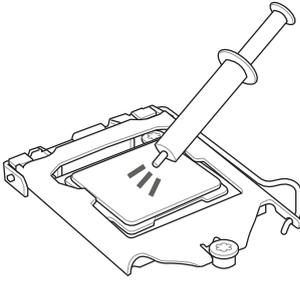


CAUTION! Ensure that you install the correct CPU designed for LGA 1150 only. DO NOT install a CPU designed for LGA1155 and LGA1156 sockets on the LGA1150 socket.



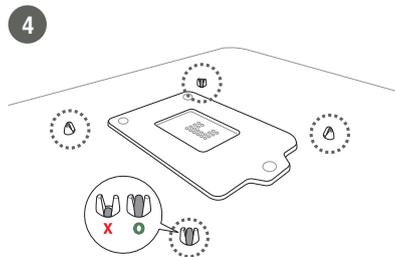
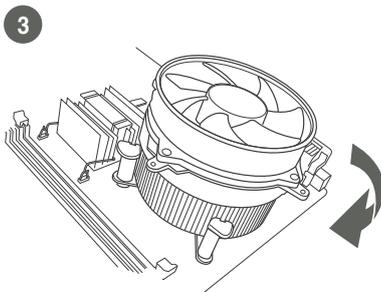
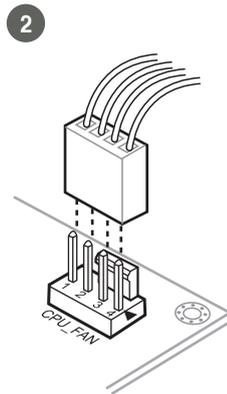
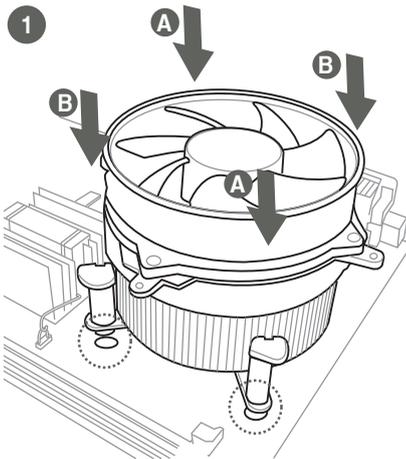


2.4.2 CPU heatsink and fan assembly installation

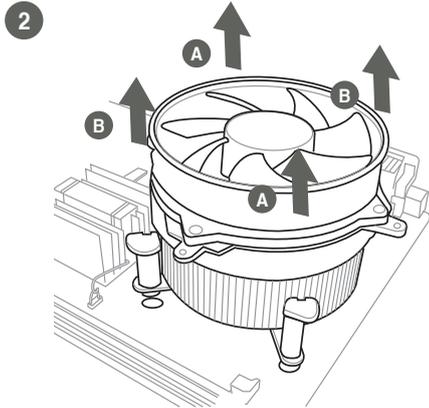
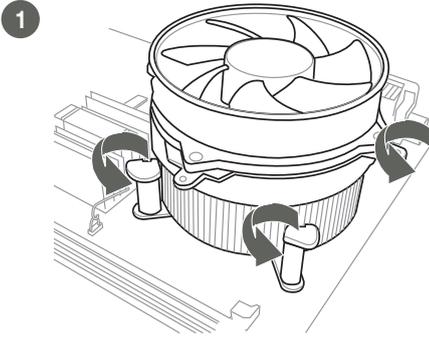


CAUTION! Apply the Thermal Interface Material to the CPU heatsink and CPU before you install the heatsink and fan if necessary.

To install the CPU heatsink and fan assembly



To uninstall the CPU heatsink and fan assembly

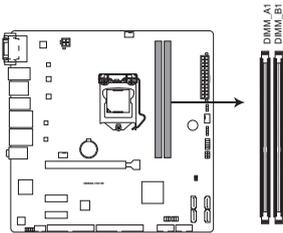


2.5 System memory

This motherboard comes with two Double Data Rate 3 (DDR3) Dual Inline Memory Module (DIMM) sockets. A DDR3 module has the same physical dimensions as a DDR2 DIMM but is notched differently to prevent installation on a DDR2 DIMM socket. DDR3 modules are developed for better performance with less power consumption.



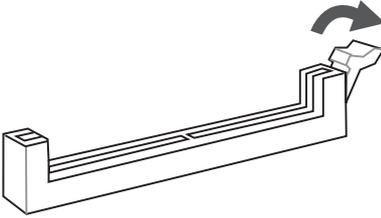
According to Intel® CPU spec, DIMM voltage below 1.2 V is recommended to protect the CPU.



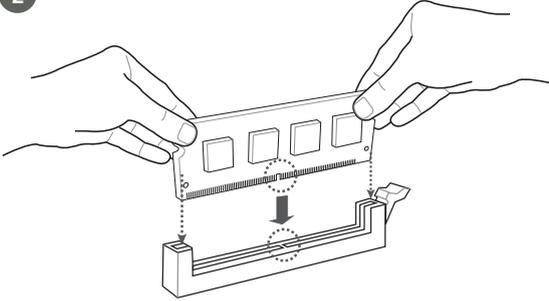
IMBM-H81B 240-pin DDR3 DIMM sockets

2.5.1 Installing a DIMM

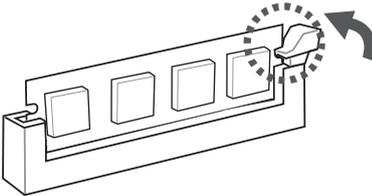
1



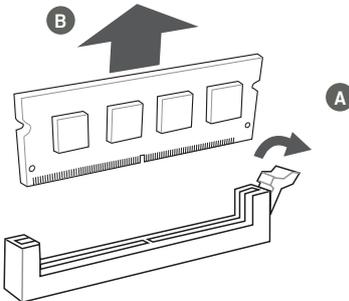
2



3



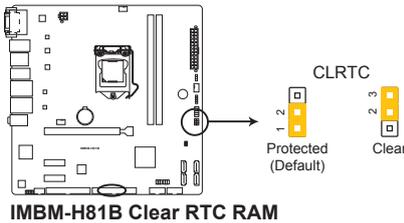
To remove a DIMM



2.6 Jumpers

1. Clear RTC RAM (CLRRTC)

This jumper allows you to clear the Real Time Clock (RTC) RAM in CMOS. You can clear the CMOS memory of system setup parameters by erasing the CMOS RTC RAM data. The onboard button cell battery powers the RAM data in CMOS, which include system setup information such as system passwords.



To erase the RTC RAM:

1. Turn OFF the computer and unplug the power cord.
2. Move the jumper cap from pins 1-2 (default) to pins 2-3. Keep the cap on pins 2-3 for about 5~10 seconds, then move the cap back to pins 1-2.
3. Plug the power cord and turn ON the computer.
4. Hold down the key during the boot process and enter BIOS setup to reenter data.



CAUTION! Except when clearing the RTC RAM, never remove the cap on CLRRTC jumper default position. Removing the cap will cause system boot failure!



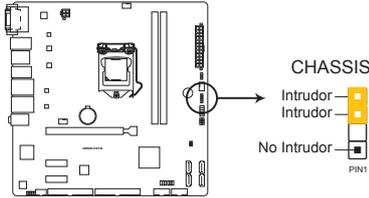
NOTES:

- If the steps above do not help, remove the onboard battery and move the jumper again to clear the CMOS RTC RAM data. After clearing the CMOS, reinstall the battery.
 - You do not need to clear the RTC when the system hangs due to overclocking. For system failure due to overclocking, use the CPU Parameter Recall (C.P.R) feature. Shut down and reboot the system so the BIOS can automatically reset parameter settings to default values.
-

2. Chassis intrusion connector (4-1 pin CHASSIS)

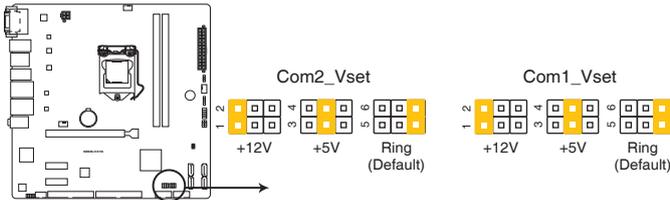
This connector is for a chassis-mounted intrusion detection sensor or switch. Connect one end of the chassis intrusion sensor or switch cable to this connector. The chassis intrusion sensor or switch sends a high-level signal to this connector when a chassis component is removed or replaced. The signal is then generated as a chassis intrusion event.

By default, the pin labeled “Chassis Signal” and “Ground” are shorted with a jumper cap. Remove the jumper caps only when you intend to use the chassis intrusion detection feature.



IMBM-H81B Chassis intrusion connector

3. COM1/2 Ring/+5V/+12V selector (6-pin COM1/2_Vset)

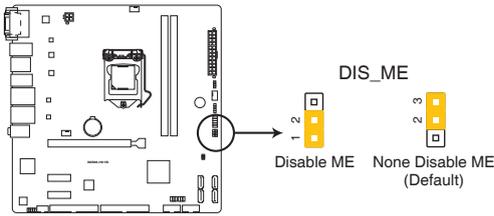


IMBM-H81B COM1 Ring/+5V/+12V selection

Setting	Pins
+12V	1-2
+5V	3-4
Ring (Default)	5-6

4. Intel® ME Jumper (3-pin DIS_ME)

This jumper allows you to force the Intel® Management Engine (ME) to boot to recovery mode when ME becomes corrupted.

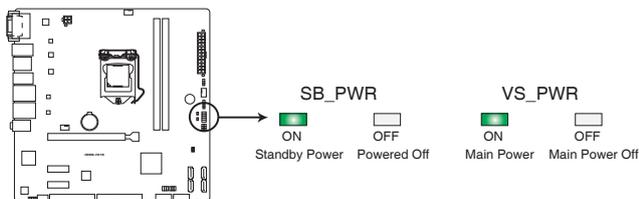


IMBM-H81B Intel® ME jumper

2.7 Onboard LEDs

1. Standby Power LED

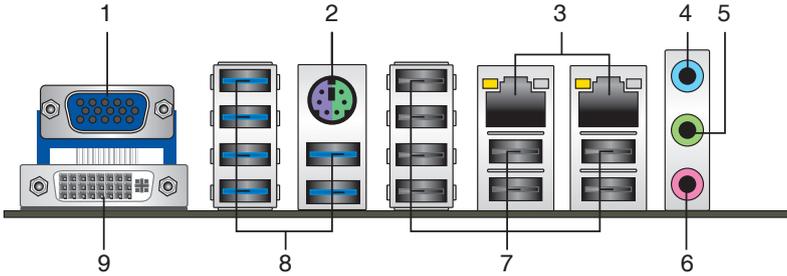
The motherboard comes with two standby power LEDs that light up to indicate that the system is ON, in sleep mode or in soft-off mode. This is a reminder that you should shut down the system and unplug the power cable before removing or plugging in any motherboard component. The illustration below shows the location of the onboard LEDs.



IMBM-H81B onboard LEDs

2.8 Connectors

2.8.1 Rear panel connectors



1. **Video Graphics Adapter (VGA) port.** This 15-pin port is for a VGA monitor or other VGA-compatible devices.

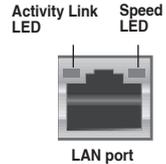


NOTE: If you use VGA port only, please disable LVDS function. Refer to section 3.4.1 **System Agent (SA) Configuration** for details.

2. **PS/2 keyboard/mouse port (purple/green).** This port is for a PS/2 keyboard or mouse.
3. **LAN1~2 (RJ-45) port.** These ports allow Gigabit connection to a Local Area Network (LAN) through a network hub. Refer to the table below for the LAN1 port LED indications.

LAN port LED indications

ACT/LINK LED		SPEED LED	
Status	Description	Status	Description
OFF	No link	OFF	10 Mbps connection
ORANGE	Linked	ORANGE	100 Mbps connection
BLINKING	Data activity	GREEN	1 Gbps connection



4. **Line In port (light blue).** This port connects the tape, CD, DVD player, or other audio sources.
5. **Line Out port (lime).** This port connects to a headphone or a speaker. In a 4-channel, 6-channel and 8-channel configurations, the function of this port becomes Front Speaker Out.
6. **Microphone port (pink).** This port connects a microphone.

7. **USB 2.0 ports.** These 4-pin Universal Serial Bus (USB) ports are available for connecting USB 2.0/1.1 devices.
8. **USB 3.0 ports (USB3).** These 9-pin Universal Serial Bus (USB) ports connect to USB 3.0/2.0 devices.



NOTES:

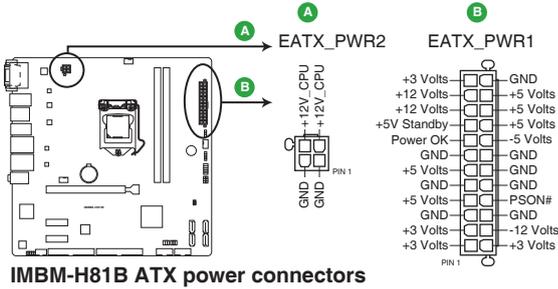
- The XHCI (USB3.0) controller is not natively supported under Windows® 7 OS. Use a P/S2 or SATA device during OS installation.
 - Due to USB 3.0 controller limitations, USB 3.0 devices can only be used under a Windows® OS environment and after USB 3.0 driver installation.
 - USB 3.0 devices can only be used for data storage.
 - We strongly recommend that you connect USB 3.0 devices to USB 3.0 ports for faster and better performance for your USB 3.0 devices.
-

9. **DVI-I port.** This port is for any DVI-D compatible device or VGA port through an inverter.

2.8.2 Internal connectors

1. ATX power connectors (24-pin EATX_PWR1, 4-pin EATX_PWR2)

These connectors are for ATX power supply plugs. The power supply plugs are designed to fit these connectors in only one orientation. Find the proper orientation and push down firmly until the connectors completely fit.

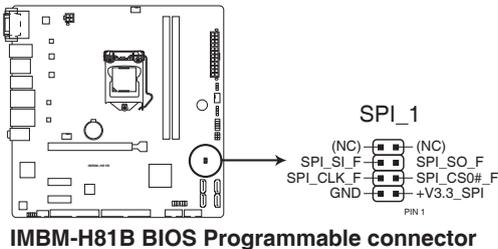


IMPORTANT:

- For a fully configured system, we recommend that you use a power supply unit (PSU) that complies with ATX 12 V Specification 2.0 (or later version) and provides a minimum power of 330W.
- We recommend that you use a PSU with higher power output when configuring a system with more power-consuming devices. The system may become unstable or may not boot up if the power is inadequate.

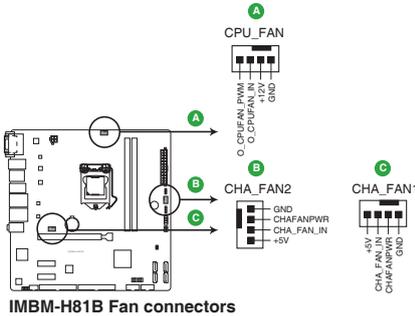
2. BIOS programmable connector (8-pin SPI)

Use this connector to flash the BIOS ROM.



3. CPU and chassis fan connectors (4-pin CPU_FAN1, 4-pin CHA_FAN1~2)

Connect the fan cables to the fan connectors on the motherboard, ensuring that the black wire of each cable matches the ground pin of the connector.



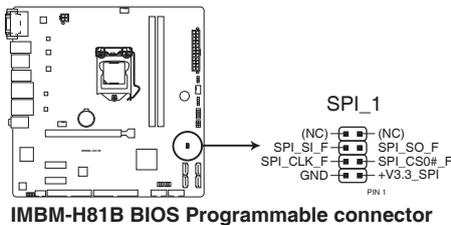
CAUTION: Do not forget to connect the fan cables to the fan connectors. Insufficient air flow inside the system may damage the motherboard components. These are not jumpers! Do not place jumper caps on the fan connectors!



NOTE: The CPU_FAN connector supports a CPU fan of maximum 12V/2A fan rating.

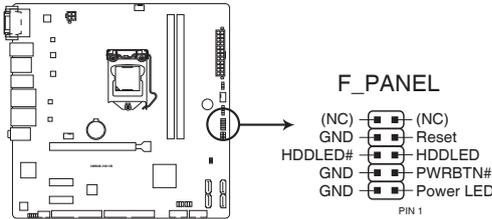
4. BIOS programmable connector (8-pin SPI1)

Use this connector to flash the BIOS ROM.



5. System panel connector (10-pin F_PANEL1)

This connector supports several chassis-mounted functions.



IBM-H81B System panel connector

- **System power LED (2-pin PWR_LED)**

This 2-pin connector is for the system power LED. Connect the chassis power LED cable to this connector. The system power LED lights up when you turn on the system power, and blinks when the system is in sleep mode.

- **Hard disk drive activity LED (2-pin HDD_LED)**

This 2-pin connector is for the HDD Activity LED. Connect the HDD Activity LED cable to this connector. The HDD LED lights up or flashes when data is read from or written to the HDD.

- **ATX power button/soft-off button (2-pin PWR_BTN)**

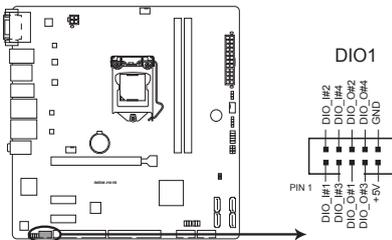
This 2-pin connector is for the system power button.

- **Reset button (2-pin RESET)**

This 2-pin connector is for the chassis-mounted reset button for system reboot without turning off the system power.

6. Digital I/O connector (10-pin DIO1)

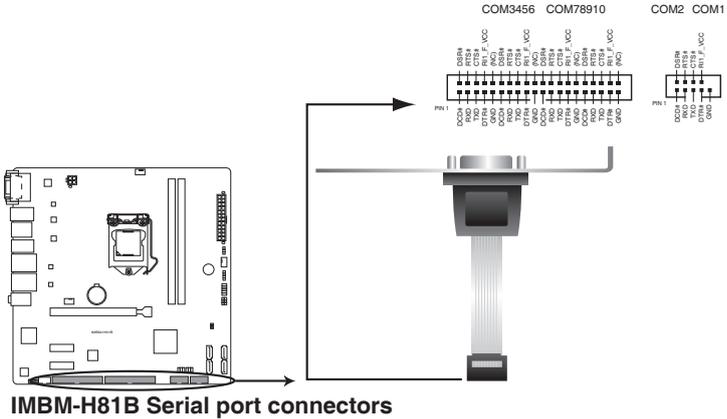
This connector includes 8 I/O lines (In/Out programmable). All of the Digital I/O lines are programmable and each I/O pin can be individually programmed to support various devices.



IBM-H81B Digital I/O connector

7. Serial port connectors (10-1 pin COM1~10)

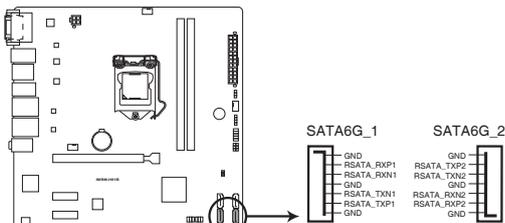
These connectors are for serial (COM) ports. Connect the serial port module cables to these connectors, then install the module to a slot opening at the back of the system chassis.



NOTE: The COM module is purchased separately.

8. Serial ATA 6.0Gb/s connector (7-pin SATA6G_1~2)

These connectors connect to Serial ATA 6.0 Gb/s hard disk drives via Serial ATA 6.0 Gb/s signal cables.



IBM-H81B Intel® SATA 6.0Gb/s connectors

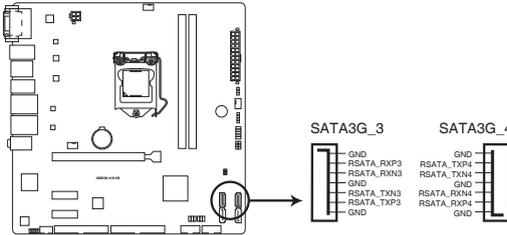


NOTES:

- You must install Windows® 7 before using Serial ATA hard disk drives.
- When using hot-plug and NCQ, set the SATA Mode Selection item in the BIOS to [AHCI]. See section 3.3.3 **SATA Configuration** for details.

9. Serial ATA 3.0Gb/s connectors (7-pin SATA3G_3~4)

These connectors connect to Serial ATA 3.0 Gb/s hard disk drives and optical drives via Serial ATA 3.0 Gb/s signal cables.



IMBM-H81B Intel® SATA 3.0Gb/s connectors



NOTES:

- You must install Windows® XP Service Pack 3 or later version before using Serial ATA hard disk drives.
 - When using hot-plug and NCQ, set the SATA Mode Selection item in the BIOS to [AHCI]. See section **3.3.4 SATA Configuration** for details.
-

Chapter 3

BIOS setup

3.1 BIOS setup program

Use the BIOS Setup program to update the BIOS or configure its parameters. The BIOS screens include navigation keys and brief online help to guide you in using the BIOS Setup program.

Entering BIOS Setup at startup

To enter BIOS Setup at startup:

Press <Delete> during the Power-On Self Test (POST). If you do not press <Delete>, POST continues with its routine.

Entering BIOS Setup after POST

To enter BIOS Setup after POST:

- Press <Ctrl>+<Alt>+ simultaneously.
- Press the reset button on the system chassis.
- Press the power button to turn the system off then back on. Do this option only if you failed to enter BIOS Setup using the first two options.



NOTE: Using the power button, reset button, or the <Ctrl>+<Alt>+ keys to reboot a running operating system can cause damage to your data or system. Always shut down the system properly from the operating system.



IMPORTANT:

- The default BIOS settings for this motherboard apply to most working conditions and ensures optimal performance. If the system becomes unstable after changing any BIOS settings, load the default settings to regain system stability. Select the option **Restore Defaults** under the Save & Exit Menu. See section **3.7 Save & Exit**.
 - The BIOS setup screens shown in this section are for reference purposes only, and may not exactly match what you see on your screen.
-

3.1.1 BIOS menu screen

3.1.2 Menu bar

The menu bar on top of the screen has the following main items:

Main	For changing the basic system configuration.
Advanced	For changing the advanced system settings.
Chipset	For viewing and changing chipset settings.
Boot	For changing the system boot configuration.
Security	For setting up BIOS security settings.
Save & Exit	For selecting the exit options and loading default settings.

To select an item on the menu bar, press the right or left arrow key on the keyboard until the desired item is highlighted.

3.2 Main menu

The Main menu provides you an overview of the basic system information, and allows you to set the system date, time, language, and security settings.

3.2.1 System Date [Day MM/DD/YYYY]

Allows you to set the system date.

3.2.2 System Time [HH:MM:SS]

Allows you to set the system time.

3.3 Advanced menu

The Advanced menu items allow you to change the settings for the CPU and other system devices.



Be cautious when changing the settings of the Advanced menu items. Incorrect field values can cause the system to malfunction.

Case Open Warning [Disable]

Allows you to enable or disable the case open detecting function. Configuration options: [Disable] [Enable] [Clear]

3.3.1 ACPI Settings

ACPI Settings

ACPI Sleep State [S3 (Suspend to RAM)]

Select the highest ACPI sleep state the system will enter when the Suspend button is pressed. Configuration options: [Suspend Disabled] [S1 only] [S3 (Suspend to RAM)] [Both S1 and S3 available for OS to choose from]

3.3.2 CPU Configuration

The items in this menu show CPU-related information the BIOS automatically detects.



The items shown in the submenu may be different depending on the type of CPU installed.

Hyper-threading [Enabled]

The Intel Hyper-Threading Technology allows a hyper-threading processor to appear as two logical processors to the operating system, allowing the operating system to schedule two threads or processes simultaneously.

[Enabled]

Two threads per activated core are enabled.

[Disabled]

Only one thread per activated core is enabled.



Configuration options for active processor cores are dependent on the installed CPU.

Intel Virtualization Technology [Enabled]

[Enabled]

Allows a hardware platform to run multiple operating systems separately and simultaneously, enabling one system to virtually function as several systems.

[Disabled]

Disables this function.

3.3.3 Dynamic Digital IO

The items listed in this screen configure Digital IO settings.

GPIO 1~4 [Input]

Configuration options: [Input] [Output]

GPIO 5-8 [Output]

Configuration options: [Input] [Output]



The following item appears only when you set **GPIO 5/6/7/8** to [Output].

Output Level [Hi]

Configuration options: [Hi] [Low]

3.3.4 Watch Dog Timer Setting

The item listed in this screen configures watch dog timer.

Watch Dog Timer [Disable]

Allows you to enable to disable the watch dog timer. Configuration options: [Disabled] [Enabled]

3.3.5 SATA Configuration

The BIOS automatically detects the presence of SATA devices. The Serial ATA Ports listed will display **Empty** if there are no Serial devices connected to the ports.

SATA Controller(s) [Enabled]

Configuration options: [Enabled] [Disabled].



The following items appear only when you set **SATA Controller(s)** to [Enabled].

SATA Mode Selection [AHCI]

Allows you to set the SATA configuration.

[IDE Mode]

Set to [IDE] when you want to use the Serial ATA hard disk drives as Parallel ATA physical storage devices.

[AHCI]

Set to [AHCI] when you want the SATA hard disk drives to use the AHCI (Advanced Host Controller Interface). The AHCI allows the onboard storage driver to enable advanced Serial ATA features that increases storage performance on random workloads by allowing the drive to internally optimize the order of commands.

[RAID]

Set to [RAID] when you want to create a RAID configuration from the SATA hard disk drives.

SATA 6G_1/2

Port 6G_1/2 [Enabled]

These items become configurable when you set the SATA Mode Selection item to [AHCI] and [RAID], and allow you to enable/disable the SATA port(s). Configuration options: [Disabled] [Enabled]

Hot Plug [Disabled]

These items become configurable when you set the SATA Mode Selection item to [AHCI] and [RAID], and allow you to enable/disable SATA Hot Plug Support. Configuration options: [Disabled] [Enabled]

SATA 3G_3/4

Port 3G_3/4 [Enabled]

These items become configurable when you set the SATA Mode Selection item to [AHCI] and [RAID], and allow you to enable/disable the SATA port(s). Configuration options: [Disabled] [Enabled]

Hot Plug [Disabled]

These items become configurable when you set the SATA Mode Selection item to [AHCI] and [RAID], and allow you to enable/disable SATA Hot Plug Support. Configuration options: [Disabled] [Enabled]

3.3.6 PCH-FW Configuration

The items listed in this screen display firmware related information.

3.3.7 USB Configuration



The USB Devices item lists auto-detected values. If no USB device is detected, the item shows None.

Legacy USB Support [Enabled]

- | | |
|------------|---|
| [Enabled] | Enables the support for USB devices on legacy operating systems (OS). |
| [Disabled] | USB devices are only available when running BIOS Setup. |
| [Auto] | Allows the system to detect the presence of USB devices at startup. If detected, the USB controller legacy mode is enabled. If no USB device is detected, the legacy USB support is disabled. |

3.3.8 F81216 Second Super IO Configuration

Serial Port 7~8 Configuration

The sub-items in this menu allow you to set the serial port configuration.

Serial Port [Enabled]

Allows you to enable or disable the serial port (COM). Configuration options: [Enabled] [Disabled]

Change Settings [Auto]

Allows you to select the Serial Port base address. Configuration options: [Auto] [IO=2B8h; IRQ=5] [IO=2B0h; IRQ=5]

Serial Port 9~10 Configuration

The sub-items in this menu allow you to set the serial port configuration.

Serial Port [Enabled]

Allows you to enable or disable the serial port (COM). Configuration options: [Enabled] [Disabled]

Change Settings [Auto]

Allows you to select the Serial Port base address. Configuration options: [Auto] [IO=2D8h; IRQ=5] [IO=2C0h; IRQ=5]

3.3.9 F81866 Super IO Configuration

Serial Port 1 Configuration

The sub-items in this menu allow you to set the serial port configuration.

Serial Port [Enabled]

Allows you to enable or disable the serial port (COM). Configuration options: [Enabled] [Disabled]

Change Settings [Auto]

Allows you to select the Serial Port base address. Configuration options: [Auto] [IO=3F8h; IRQ=4] [IO=2F8h; IRQ=3]

Device Type [RS232]

Allows you to select COM RS Mode. Configuration options: [RS232] [RS422] [RS485]

Serial Port 2 Configuration

The sub-items in this menu allow you to set the serial port configuration.

Serial Port [Enabled]

Allows you to enable or disable the serial port (COM). Configuration options: [Enabled] [Disabled]

Change Settings [Auto]

Allows you to select the Serial Port base address. Configuration options: [Auto] [IO=2F8h; IRQ=3] [IO=3F8h; IRQ=4]

Serial Port 3/4 Configuration

The sub-items in this menu allow you to set the serial port configuration.

Serial Port [Enabled]

Allows you to enable or disable the serial port (COM). Configuration options: [Enabled] [Disabled]

Change Settings [Auto]

Allows you to select the Serial Port base address. Configuration options: [Auto] [IO=2E8h; IRQ=11] [IO=3E8h; IRQ=11]

Serial Port 5/6 Configuration

The sub-items in this menu allow you to set the serial port configuration.

Serial Port [Enabled]

Allows you to enable or disable the serial port (COM). Configuration options: [Enabled] [Disabled]

Change Settings [Auto]

Allows you to select the Serial Port base address. Configuration options: [Auto] [IO=2D0h; IRQ=11] [IO=3C0h; IRQ=11]

Restore on AC Power Loss [Last State]

[Last State] The system goes into either off or on state, whatever the system state was.

[Always On] The system goes into on state after an AC power loss.

[Always Off] The system goes into off state after an AC power loss.

3.3.10 H/W Monitor

The items in this menu allow you to configure the smart fan.

Pc Health Status

Smart Fan Function [Enabled]

Allows you to enable or disable CPU Smart Fan Control. Configuration options: [Enabled] [Disabled]



The following sub-items appear only when you set **Smart Fan Function** to [Enabled].

Smart Fan Mode Configuration

CPU Fan Smart Fan Control [Auto Duty-Cycle Mode]

Allows you to select the CPU fan smart fan control mode. Configuration options: [Manual RPM Mode] [Manual Duty Mode] [Auto RPM Mode] [Auto Duty-cycle Mode]



The following sub-items appear only when you set **CPU Fan Smart Fan Control** to [Auto Duty Cycle Mode].

Temperature 1 [60] / Temperature 2 [50] / Temperature 3 [40] / Temperature 4 [30]

Determines the temperature value for the CPU smart fan. Input value range: [0~100]

Duty Cycle 1 [100] / Duty Cycle 1 [85] / Duty Cycle 2 [70] / Duty Cycle 3 [60] / Duty Cycle 4 [50]

Determines the temperature value for the duty cycle. Input value range: [0~100]



The following sub-items appear only when you set **CPU Fan Smart Fan Control** to [Auto RPM Mode].

Temperature 1 [60] / Temperature 2 [50] / Temperature 3 [40] / Temperature 4 [30]

Determines the temperature value for the CPU smart fan. Input value range: [0~100]

RPM Percentage 0 [100] / RPM Percentage 1 [85] / RPM Percentage 2 [70] / RPM Percentage 3 [60] / RPM Percentage 4 [50]

Determines the temperature value for the RPM percentage. Input value range: [0~100]



The following sub-items appear only when you set **CPU Fan Smart Fan Control** to [Manual Duty Mode].

Manual Duty Mode [60]

Determines the temperature value for the manual duty mode. Input value range: [0~100]



The following sub-items appear only when you set **CPU Fan Smart Fan Control** to [Manual RPM Mode].

Manual RPM Mode [2000]

Determines the temperature value for the manual duty mode. Input value range: [500~10000]

Chassis Fan 1/2 Smart Fan Control [Auto Duty-Cycle Mode]

Allows you to select the chassis fan smart fan control mode. Configuration options: [Manual RPM Mode] [Manual Duty Mode] [Auto RPM Mode] [Auto Duty-cycle Mode]



The following sub-items appear only when you set **Chassis Fan Smart Fan Control** to [Auto Duty Cycle Mode].

Temperature 1 [60] / Temperature 2 [50] / Temperature 3 [40] / Temperature 4 [30]

Determines the temperature value for the CPU smart fan. Input value range: [0~100]

Duty Cycle 1 [100] / Duty Cycle 1 [85] / Duty Cycle 2 [70] / Duty Cycle 3 [60] / Duty Cycle 4 [50]

Determines the temperature value for the duty cycle. Input value range: [0~100]



The following sub-items appear only when you set **Chassis Fan Smart Fan Control** to [Auto RPM Mode].

Temperature 1 [60] / Temperature 2 [50] / Temperature 3 [40] / Temperature 4 [30]

Determines the temperature value for the chassis smart fan. Input value range: [0~100]

RPM Percentage 0 [100] / RPM Percentage 1 [85] / RPM Percentage 2 [70] / RPM Percentage 3 [60] / RPM Percentage 4 [50]

Determines the temperature value for the RPM percentage. Input value range: [0~100]



The following sub-items appear only when you set **Chassis Fan Smart Fan Control** to [Manual Duty Mode].

Manual Duty Mode [60]

Determines the temperature value for the manual duty mode. Input value range: [0~100]



The following sub-items appear only when you set **Chassis Fan Smart Fan Control** to [Manual RPM Mode].

Manual RPM Mode [2000]

Determines the temperature value for the manual duty mode. Input value range: [500~10000]

3.3.11 S5 RTC Wake Settings

The items in this menu allow you to enable system to wake from S5 using RTC alarm.

Wake system with Fixed Time [Disabled]

[Disabled] Disables system wake on alarm event.

[Enabled] The system will wake up at the specified hr::min::sec.



The following items appear when Wake system with Fixed Time is enabled.

Wake up day/hour/minute/second [0]

Specify the values for day/hour/minute/second.

Wake system with Dynamic Time [Disabled]

[Disabled] Disables system wake on alarm event.

[Enabled] The system will wake up at the current time plus a specified number of minutes.



The following item appears when Wake System with Dynamic Time is enabled.

Wake up minute increase [1]

Specify the number of minutes added to the current time before waking up system. Input value range: [1~5]

3.4 Chipset menu

The Chipset menu items allow you to change the settings for the chipset.

3.4.1 PCH-IO Configuration

Power Mode [ATX]

This item allows you to select the power mode. Configuration options: [ATX Type] [AT Type]

Resume on PCIE [Enabled]

This item enables or disables resume from PCIE signal. Configuration options: [Disabled] [Enabled]

Resume on Ring [Enabled]

This item enables or disables resume from RI# signal. Configuration options: [Disabled] [Enabled]

PCIEx1_1 Speed [Auto]

This item allows you to select the PCI Express port speed. Configuration options: [Auto] [Gen1] [Gen2]

PCIEx1_2 Speed [Auto]

This item allows you to select the PCI Express port speed. Configuration options: [Auto] [Gen1] [Gen2]

Azalia [Auto]

This item controls the detection of the Azalia device.

[Disabled]	Azalia will be unconditionally disabled.
[Enabled]	Azalia will be unconditionally enabled.
[Auto]	Azalia will be enabled if present.

USB Ports Control

USB2_1~8 [Enabled]

This item allows you to enable or disable the USB 2.0 port. Configuration options: [Disabled] [Enabled]

USB3_1/2 [Enabled]

This item allows you to enable or disable the USB 3.0 port. Configuration options: [Disabled] [Enabled]

USB3_3_4/5_6 [Enabled]

This item allows you to enable or disable the PCI Express root port. Configuration options: [Disabled] [Enabled]

3.4.2 System Agent (SA) Configuration

PCIEX16 Gen X [Auto]

Allows you to configure the PEG port Gen speed.

Configuration options: [Auto] [Gen1] [Gen2] [Gen3]

Graphics Configuration

Primary IGFX Boot Display [VBIOS Default]

Select the video device which will be activated during POST. This setting has no effect if an external graphics device is present. The secondary boot display selection appears based on your selection and the VGA mode is supported only on primary display.

Configuration options: [VBIOS Default] [DVI-I(DVI)] [DVI-I(VGA)] [CRT]

3.5 Boot menu

The Boot menu items allow you to change the system boot options.

3.5.1 Boot Configuration

Quiet Boot [Enabled]

This item enables/disables Quiet Boot. Configuration options: [Disabled] [Enabled]

Launch RTL8111G PXE OpROM [Disabled]

This item controls enables or disables legacy boot option for RTL8111F.

Configuration options: [Disabled] [Enabled]

3.5.2 Boot Option Priorities

These items specify the boot device priority sequence from the available devices. The number of device items that appears on the screen depends on the number of devices installed in the system.



- To select the boot device during system startup, press <F7> during POST.
- To access Windows OS in Safe Mode, do any of the following:
 - Press <F5> during POST.
 - Press <F8> after POST.

3.6 Security menu

The Security menu items allow you to change the system security settings.

3.6.1 Administrator Password

If you have set an administrator password, we recommend that you enter the administrator password for accessing the system. Otherwise, you might be able to see or change only selected fields in the BIOS setup program.

To set an administrator password:

1. Select the **Administrator Password** item and press <Enter>.
2. From the **Create New Password** box, key in a password, then press <Enter>.
3. Confirm the password when prompted.

To change an administrator password:

1. Select the **Administrator Password** item and press <Enter>.
2. From the **Enter Current Password** box, key in the current password, then press <Enter>.
3. From the **Create New Password** box, key in a new password, then press <Enter>.
4. Confirm the password when prompted.

To clear the administrator password, follow the same steps as in changing an administrator password, but press <Enter> when prompted to create/confirm the password. After you clear the password, the **Administrator Password** item on top of the screen shows **Not Installed**.

3.6.2 User Password

If you have set a user password, you must enter the user password for accessing the system. The User Password item on top of the screen shows the default Not Installed. After you set a password, this item shows Installed.

To set a user password:

1. Select the **User Password** item and press <Enter>.
2. From the **Create New Password** box, key in a password, then press <Enter>.
3. Confirm the password when prompted.

To change a user password:

1. Select the **User Password** item and press <Enter>.
2. From the **Enter Current Password** box, key in the current password, then press <Enter>.
3. From the **Create New Password** box, key in a new password, then press <Enter>.
4. Confirm the password when prompted.

To clear the user password, follow the same steps as in changing a user password, but press <Enter> when prompted to create/confirm the password. After you clear the password, the **User Password** item on top of the screen shows **Not Installed**.

3.7 Save & Exit menu

Save Changes & Reset

Once you are finished making your selections, choose this option from the Exit menu to ensure the values you selected are saved. When you select this option or if you press <F10>, a confirmation window appears. Select Yes to save changes and exit.

Discard Changes & Reset

This option allows you to exit the Setup program without saving your changes. When you select this option or if you press <Esc>, a confirmation window appears. Select Yes to discard changes and exit.

Restore Defaults

This option allows you to restore/load default values for all setup options.

Save as User Defaults

This item saves current configuration as User Default.

Restore User Defaults

This option restores User Defaults to all setup options.

Appendix

Notices

Federal Communications Commission Statement

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

- This device may not cause harmful interference.
- This device must accept any interference received including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with manufacturer's instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment to an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.



WARNING! The use of shielded cables for connection of the monitor to the graphics card is required to assure compliance with FCC regulations. Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.



DO NOT throw the motherboard in municipal waste. This product has been designed to enable proper reuse of parts and recycling. This symbol of the crossed out wheeled bin indicates that the product (electrical and electronic equipment) should not be placed in municipal waste. Check local regulations for disposal of electronic products.



DO NOT throw the mercury-containing button cell battery in municipal waste. This symbol of the crossed out wheeled bin indicates that the battery should not be placed in municipal waste.



電子信息產品污染控制標示：圖中之數字為產品之環保使用期限。僅指電子信息產品中含有的有毒有害物質或元素不致發生外洩或突變從而對環境造成污染或對人身、財產造成嚴重損害的期限。

有毒有害物質或元素的名稱及含量說明標示：

部件名稱	有害物質或元素					
	鉛 (Pb)	汞 (Hg)	鎘 (Cd)	六價鉻 (Cr(VI))	多溴聯苯 (PBB)	多溴二苯醚 (PBDE)
印刷電路板及其電子組件	×	○	○	○	○	○
外部信號連接頭及線材	×	○	○	○	○	○

○：表示該有毒有害物質在該部件所有均質材料中的含量均在 SJ/T 11363-2006 標準規定的限量要求以下。

×

×：表示該有毒有害物質至少在該部件的某一均質材料中的含量超出 SJ/T 11363-2006 標準規定的限量要求，然該部件仍符合歐盟指令 2002/95/EC 的規範。

備註：此產品所標示之環保使用期限，係指在一般正常使用狀況下。