

EMB-Q170C

Industrial Motherboard

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Chapter 1

Product overview

1.1 Package contents

Check your industrial motherboard package for the following items.

- 1 x Industrial Motherboard
- 1 x SATA cable
- 1 x I/O Shield
- 1 x Support CD



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

1.2 Features

- Intel® Socket 1151 for 6th/7th Generation Core™ i7/Core™ i5 / Core™ i3, Pentium® and Celeron™ Processors up to 65W
- 2 x SO-DIMM, max. 32GB, 260-pin DDR4 2133/1867 MHz, Non-ECC, Un-buffered Memory
- 6 x SATA 6.0 Gb/s, 6 x USB3.0
- 1 x PCIe 3.0 [x8], 1 x M.2 E key (22 x 30mm) for PCIe
- Multi Display: 1 x VGA, 2 x HDMI

1.3 Specifications

SYSTEM	
CPU	Intel® Socket 1151 for 6th/7th Generation Core™ i7/Core™ i5 / Core™ i3, Pentium® and Celeron™ Processors up to 65W
Chipset	Intel® Q170 Express Chipset
Memory	2 x SO-DIMM, Max. 32GB, DDR4 2133/1867 MHz, Non-ECC (Vertical Type) Dual channel memory architecture
Graphics	Intel® HD Graphics
I/O Chipset	NCT6791D
Storage	6 x SATA 6Gb/s
Ethernet	1 x Intel PCIe Gb LAN 219LM for vPro 1 x Intel PCIe Gb LAN 211AT
Audio	Realtek® ALC887 with Amp.
TPM	Infineon SLB9665 TT2.0 (Optional, Default: No)
Expansion Slots	1 x PCIe [x8] 1 x M.2 slot (E-key), 22 x 30mm (PCIe) @ top side
BIOS	128Mbit Flash ROM, AMI BIOS
H/W Monitor	Temperature Monitor on CPU/Chassis Voltage Monitor on Vcore/5V/12V Fan Monitor on CPU/Chassis
WatchDog Timer	1~255 step by software program
Smart Fan Control	CPU Fan / Chassis Fan
Wake On LAN / PXE	Yes (WOL / PXE)
Power State	S3, S4, S5
GRAPHICS	
Graphics Multi Display	VGA+HDMI+HDMI
VGA	Up to 1920 x 1200 @ 60 Hz
HDMI	Up to 4096 x 2160 @ 24 Hz / 2560 x 1600 @ 60 Hz, with Digital Audio
I/O	
Storage	6 x SATA 6.0Gb/s
USB	6 x USB 3.0 ports (4 pots at Rear IO, 1 box header supports 2 ports internally)
Display I/O	1 x VGA, 2 x HDMI
Audio I/O	Mic-in, Line-out
LAN I/O	2 x RJ-45
FAN	1 x CPU Fan connector (4-pin) 1 x Chassis Fan connector (4-pin)

(continued on the next page)

ENVIRONMENT & POWER & ME	
Battery	Lithium battery
Power Requirement	ATX
Operating Temperature	0~60°C
Operating Humidity	0% ~ 90%RH, non-condensing
Certificate	CE & FCC Class A
Form Factor	Mini ITX 6.7 in. x 6.7 in. (170mmx170mm)
Weight	1.1 lb (0.5 Kg)
PLACEMENT	
Rear panel I/O Ports	1 x VGA port 2 x HDMI ports 1 x LAN (RJ45) + 2 x USB 3.0 ports 1 x LAN (RJ45) + 2 x USB 3.0 ports 1 x Audio jacks for Min-in & Line out
Internal connectors	1 x PCIe [x8] 1 x M.2 slot(E-key), 22 x 30mm (PCIe) @ top side 6 x SATA 6Gb/s 1 x USB 3.0 connector supports additional 2 USB ports 1 x 4 PIN (2x2) internal power connector 1 x 4 PIN CPU Fan connector 1 x 4 PIN Chassis Fan connector 1 x Front Panel connector 1 x Speaker for 2W/4Ω 1 x Chassis Intrusion follow ASUS pin out 1 x Buzzer on board 1 x AT/ATX mode select jumper (default: No) 1 x Clear CMOS jumper
OS support	Windows® 7 32 / 64 bit (not supported when a Kaby Lake processor is used) Windows® 8.1 64 bit (not supported when a Kaby Lake processor is used) Windows® 10 64 bit Linux Fedora(uBuntu)



NOTE: Specifications are subject to change without notice.

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.



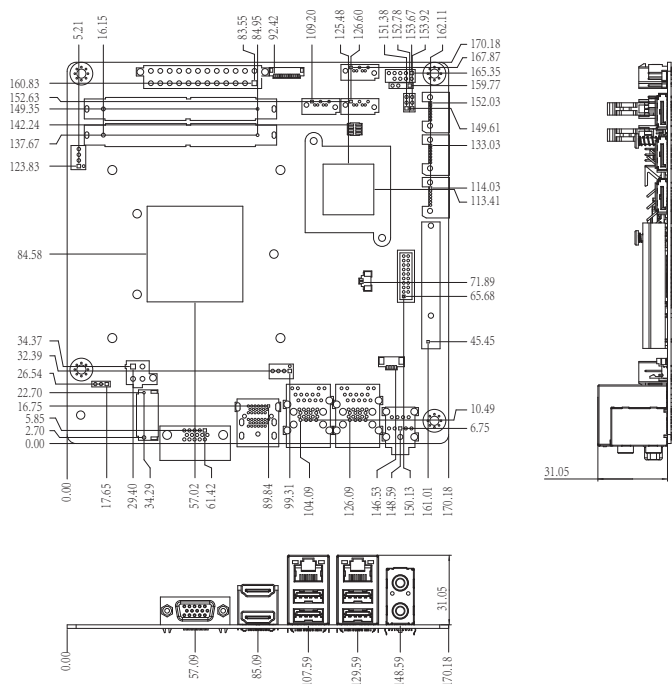
CAUTION!

- 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.
-

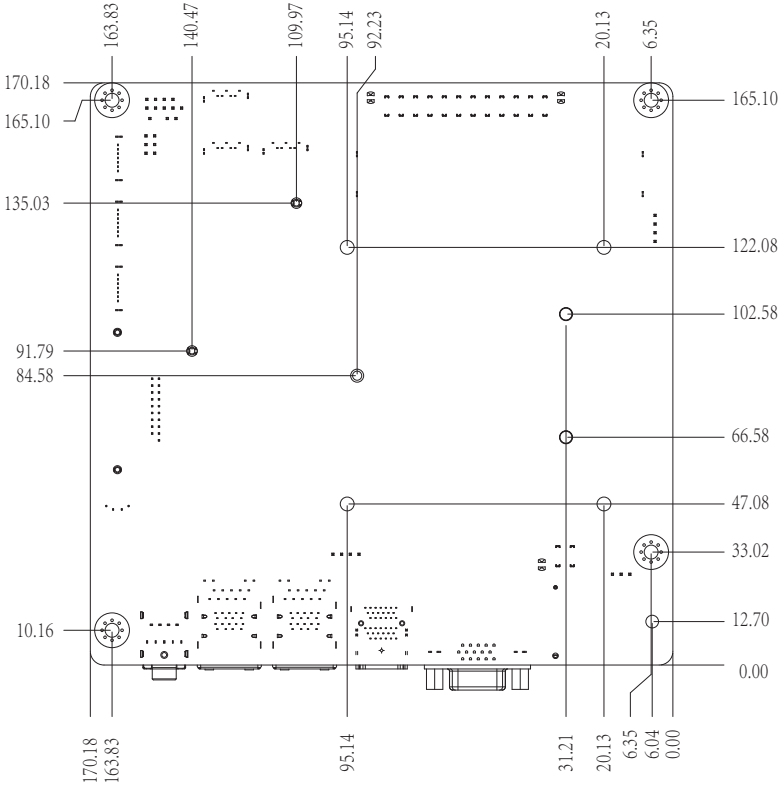
Connectors/Jumpers/Slots	Page
1. M.2 E-Key (Top)	2-18
2. ATX power connectors (24-pin EATX_PWR1, 4-pin EATX_PWR2)	2-15
3. CPU and chassis fan connectors (4-pin CPU_FAN1, 4-pin CHA_FAN1)	2-16
4. Intel® LGA1151 CPU socket	2-5
5. DDR4 SO-DIMM memory slots	2-10
6. AT Mode (AT_ATX)	2-12
7. BIOS programmable connector (8-pin SPL_1)	2-17
8. Serial ATA 6.0Gb/s connectors (7-pin SATA6G_1~6)	2-16
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10. System panel connector (10-1 pin F_PANEL)	2-18
11. Chassis intrusion connector (4-1 pin CHASSIS)	2-13
12. Battery connector (2-pin BATTERY1)	2-15
13. USB 3.0 connector (20-1 pin USB3_56)	2-19
14. Speaker out connector (AMP_CON1)	2-17

2.3 Screw size

2.3.1 Component side

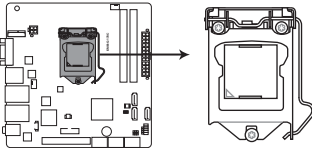


2.3.2 Solder side



2.4 Central Processing Unit (CPU)

This motherboard comes with a surface mount LGA1151 socket designed for the Intel® 6th/7th Generation Core™ i7 / Core™ i5 / Core™ i3, Pentium® and Celeron® processors.



EMB-Q170C CPU socket LGA1151



IMPORTANT: Unplug all power cables before installing the CPU.



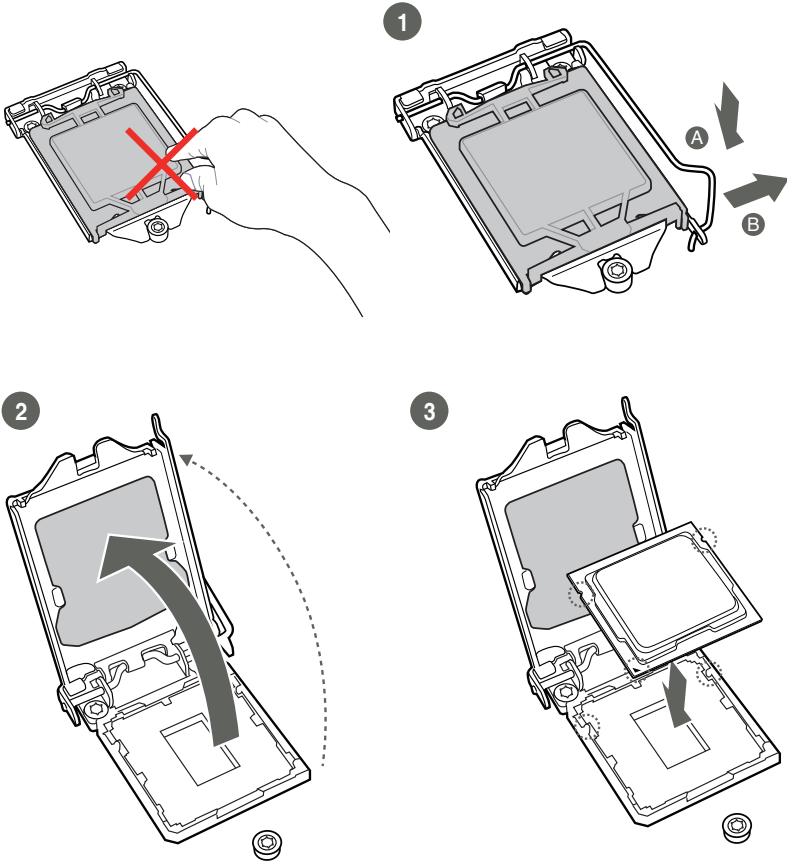
CAUTION!

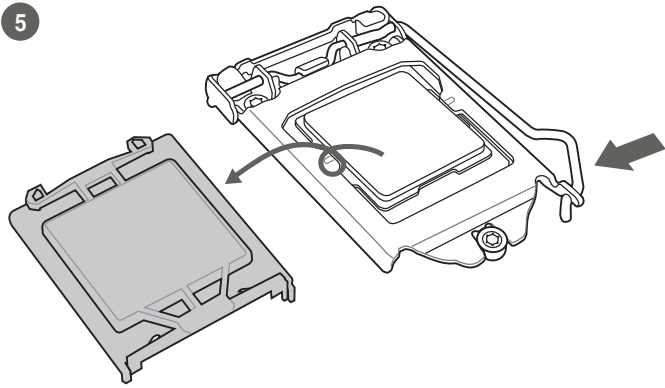
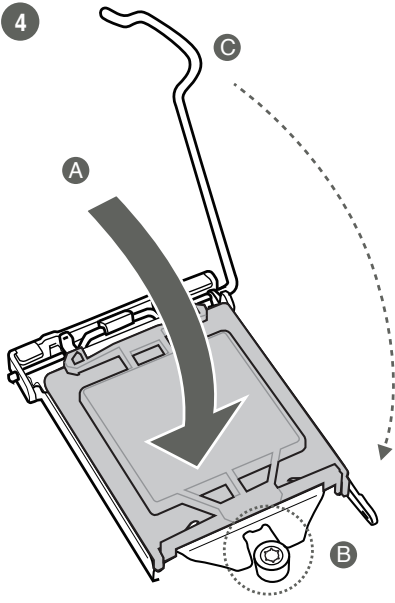
- Upon purchase of the motherboard, ensure that the PnP cap is on the socket and the socket contacts are not bent. Contact your retailer immediately if the PnP cap is missing, or if you see any damage to the PnP cap/socket contacts/motherboard components. The manufacturer will shoulder the cost of repair 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 LGA1151 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

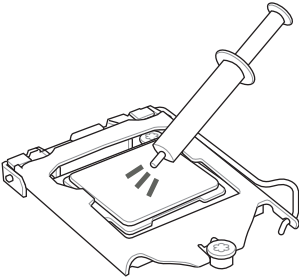


CAUTION! Ensure that you install the correct CPU designed for LGA 1151 only. DO NOT install a CPU designed for LGA1155 and LGA1156 sockets on the LGA1151 socket.



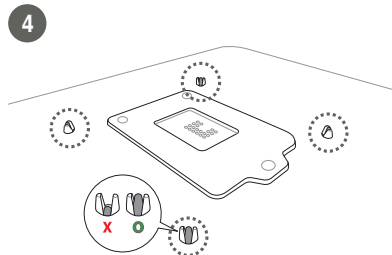
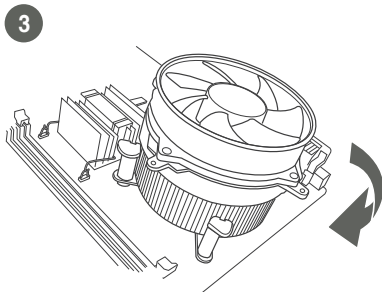
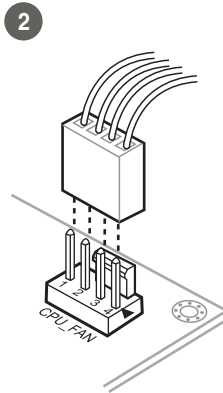
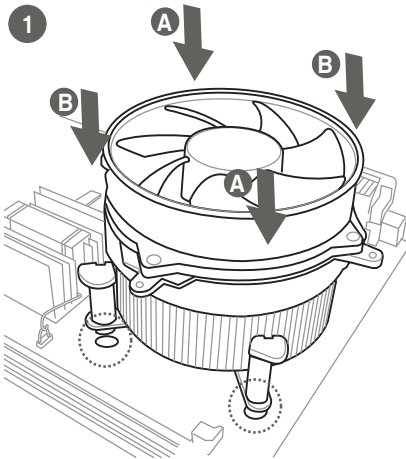


2.4.2 CPU heatsink and fan assembly installation

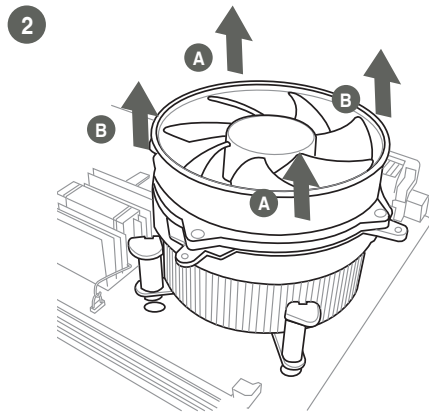
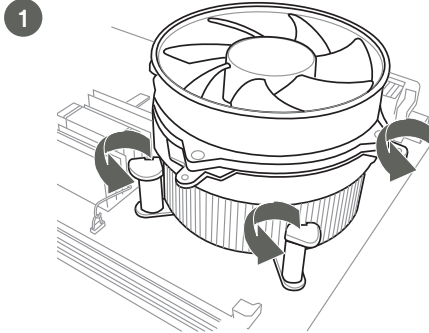


CAUTION! Apply the Thermal Interface Material to the CPU heatsink and CPU before you install the heatsink and fan if necessary.

To install the CPU heatsink and fan assembly

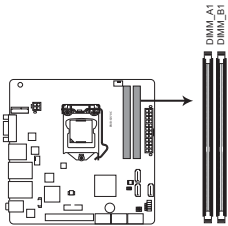


To uninstall the CPU heatsink and fan assembly



2.5 System memory

This motherboard comes with two Double Data Rate 4 (DDR4) Small Outline Dual Inline Memory Modules (SO-DIMM) sockets. The figure illustrates the location of the DDR4 SO-DIMM sockets:

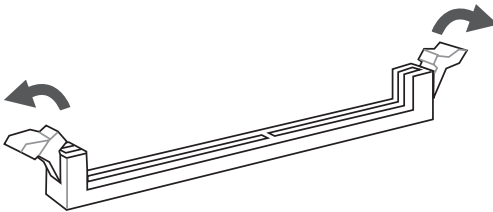


EMB-Q170C 260-pin DDR4 DIMM sockets

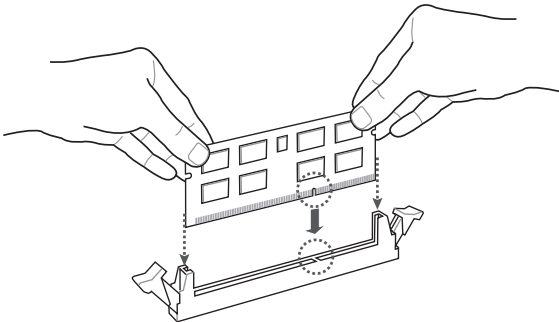
2.5.1 Installing a DIMM

To install a SO-DIMM

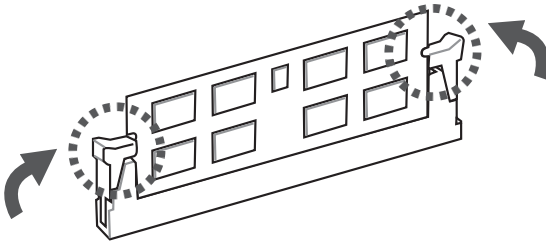
1



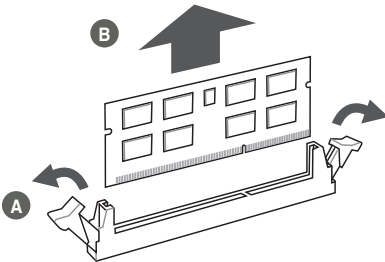
2



3



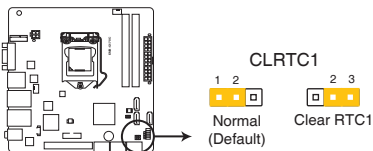
To remove a DIMM



2.6 Jumpers

1. Clear RTC RAM (CLRRTC1)

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.



EMB-Q170C Clear RTC RAM

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.



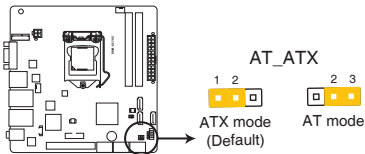
CAUTION! Except when clearing the RTC RAM, never remove the cap on CLRRTC jumper default position. Removing the cap will cause system boot failure!



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. AT Mode (AT_ATX)



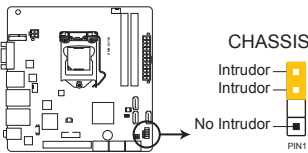
EMB-Q170C ATMODE setting

H/W AT/ATX mode Selection	
ATX MODE	1-2
AT MODE	2-3

3. Chassis intrusion header (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.

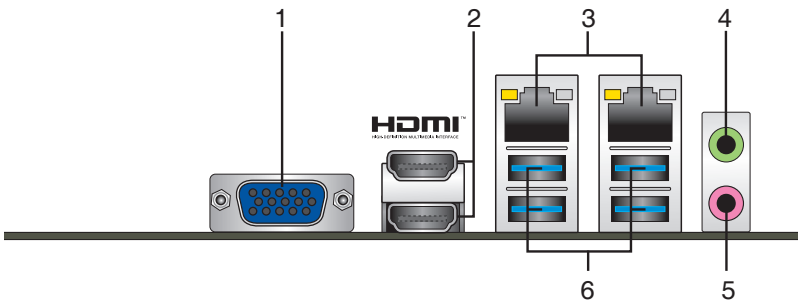
By default, the pin labeled “Chassis Signal” and “Ground” are shorted with a jumper cap. Remove the jumper caps only when you intend to use the chassis intrusion detection feature.



EMB-Q170C Chassis intrusion connector

2.7 Connectors

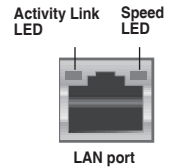
2.7.1 Rear panel connectors



1. **Video Graphics Adapter (VGA) port.** This 15-pin port is for a VGA monitor or other VGA-compatible devices.
2. **HDMI ports.** These ports are for High-Definition Multimedia Interface (HDMI) connectors, and are HDCP compliant allowing playback of HD DVD, Blu-ray, and other protected content.
3. **LAN2 (RJ-45) ports.** This port allows Gigabit connection to a Local Area Network (LAN) through a network hub. Refer to the table below for the LAN2 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 Out port (lime).** This port connects to a headphone or a speaker.
- 5. Microphone port (pink).** This port connects to a microphone.
- 6. USB 3.0 ports.** These four 9-pin Universal Serial Bus (USB) ports connect to USB 3.0/2.0 devices.



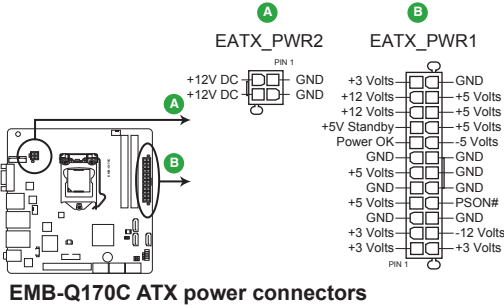
NOTES:

- DO NOT connect a keyboard / mouse to any USB 3.0 port when installing Windows® operating system.
 - Due to USB 3.0 controller limitation, USB 3.0 devices can only be used under Windows® OS environment and after the USB 3.0 driver installation.
 - USB 3.0 devices can only be used as data storage only.
 - 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.
-

2.7.2 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.

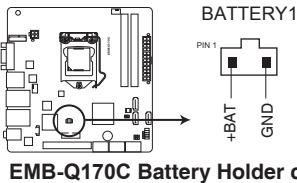


IMPORTANT:

- 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 350 W.
- DO NOT forget to connect the 4-pin ATX +12V power plug. Otherwise, the system will not boot up.
- 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.

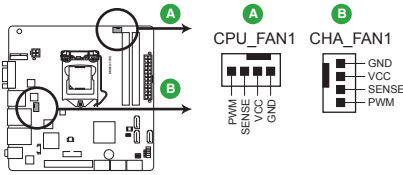
2. Battery connector (2-pin BATTERY1)

This connector is for the lithium CMOS battery.



3. Chassis / CPU fan connectors (4-pin CHA_FAN1, 4-pin CPU_FAN1)

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.



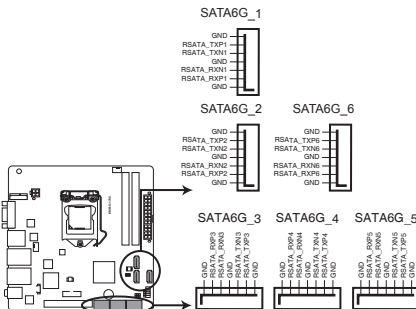
EMB-Q170C Fan connectors



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!

4. Serial ATA 6.0Gb/s connector (7-pin SATA6G_1-6)

This connector connects to Serial ATA 6.0 Gb/s hard disk drives via Serial ATA 6.0 Gb/s signal cables.



EMB-Q170C SATA 6.0Gb/s connectors

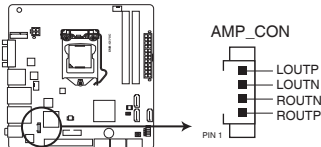


IMPORTANT:

- You must install Windows® 7 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 3.3.3 **SATA Configuration** for details.

5. Speaker out connector (4-pin AMP_CON)

The 4-pin connector is for the chassis-mounted speaker.



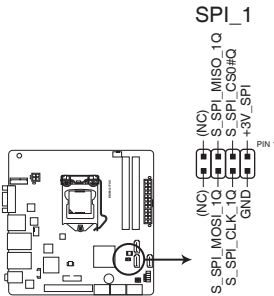
**EMB-Q170C Audio Stere.
Output with Amp connector**



NOTE: The Speaker module is purchased separately.

6. BIOS programmable connector (8-pin SPI)

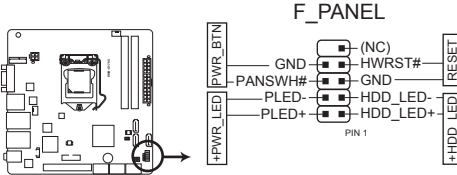
Use this connector to flash the BIOS ROM.



EMB-Q170C BIOS Programmable connector

7. System panel connector (10-1 pin F_PANEL)

This connector supports several chassis-mounted functions.



EMB-Q170C 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 IDE 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)**

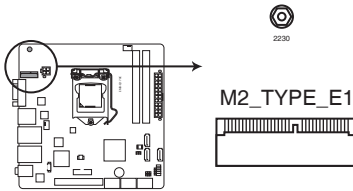
This 2-pin connector is for the system power button.

- **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.

8. M.2 E-Key (Top)

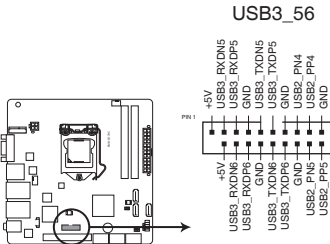
This socket allows you to install an M.2 (NGFF) PCIe/USB/I2C-ME/SDIO/UART/PCM module.



EMB-Q170C M.2 E-Key (Top)

9. USB 3.0 connector (20-pin USB3_56)

This connector is for the additional USB 3.0 ports. Connect the USB 3.0 bracket cable to this connector, then install the USB 3.0 bracket to the rear side of the chassis. If your chassis support customized front panel installation, with USB 3.0 header, you can have a front panel USB 3.0 solution.



EMB-Q170C USB3.0 Front panel connectors



NOTE: The USB module cable is purchased separately.



IMPORTANT!

- Before you install Windows® 7, go to the Advanced tab of the BIOS Setup program and configure the following items: XHCI mode [Disabled] and USB (EHCI support) [Enabled]. You can re-configure these BIOS items after the Windows® 7 installation.
 - You can download the Intel-released XHCI Driver Creator Utility for Windows 7 from: <https://downloadcenter.intel.com/download/25476/Windows-7-USB-3-0-Creator-Utility>
-

Installing Windows® 7 in Skylake platform

1. Use the Windows® 7 XHCI Driver Creator Utility to pack the XHCI driver into the original Windows® 7 OS image. A new Windows® 7 OS image will be created.
2. Use the new OS image to install Windows® 7.

Chapter 3

BIOS setup

3.1 BIOS setup

Use the BIOS Setup to update the BIOS or configure settings. The BIOS screens include navigation keys and 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 Exit Menu**.
 - 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 Menu bar

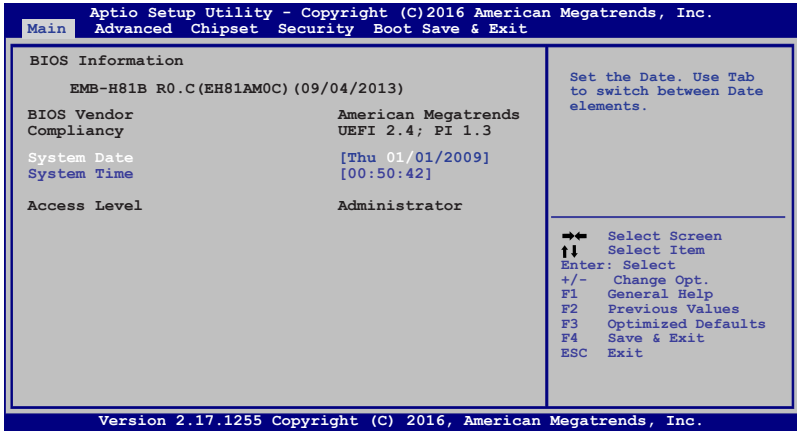
The menu bar on top of the screen has the following main items:

- Main** For changing the basic system configuration.
- Advanced** For changing the advanced system settings.
- Chipset** For viewing and changing chipset settings.
- Security** For setting up BIOS security settings.
- Boot** For changing the system boot configuration.
- 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]

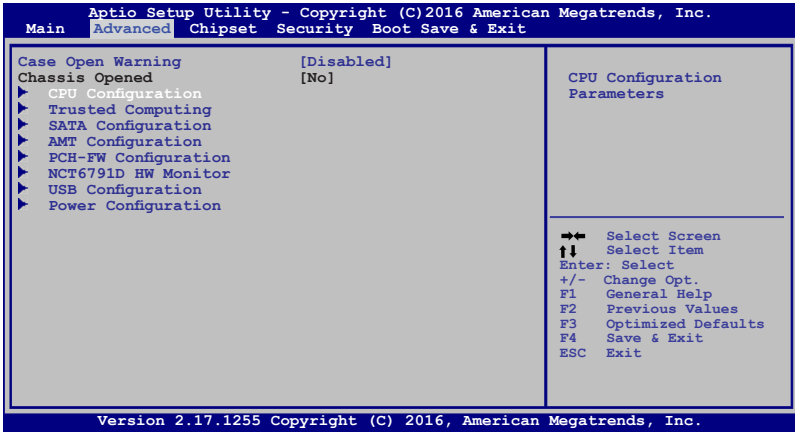
Allows you to set the system time.

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 [Disabled]

Allows you to enable or disable case open warning function. Configuration options: [Disabled] [Enabled] [Clear]

3.3.1 CPU Configuration

The items in this menu show CPU-related information.

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.

3.3.2 Trusted Computing

Security Device Support [Enable]

Allows you to enable or disable BIOS support for security devices. Configuration options: [Disable] [Enable]

SHA-1 PCR Bank [Enabled]

Allows you to enable or disable SHA-1 PCR Bank. Configuration options: [Enabled] [Disabled]

SHA256 PCR Bank [Disabled]

Allows you to enable or disable SHA256 PCR Bank. Configuration options: [Enabled] [Disabled]

Pending operation [None]

Allows you to schedule an operation for security devices. Reboot your system for the changes to take effect. Configuration options: [None] [TPM Clear]

Platform Hierarchy [Enabled]

Allows you to enable or disable Platform Hierarchy. Configuration options: [Enabled] [Disabled]

Storage Hierarchy [Enabled]

Allows you to enable or disable Storage Hierarchy. Configuration options: [Enabled] [Disabled]

Endorsement Hierarchy [Enabled]

Allows you to enable or disable Endorsement Hierarchy. Configuration options: [Enabled] [Disabled]

TPM2.0 UEFI Spec Version [1.0]

Allows you to select the TCG2 spec version support.

[1.0] Compatible mode for Windows® 8 / Windows® 10.

[1.x] Newer TCG2 sec version for Windows® 10.

Device Select [Auto]

Allows you to schedule an operation for security devices. Reboot your system for the changes to take effect. Configuration options: [Auto] [TPM 1.2] [TPM 2.0]

[Auto] Select this item to support both TPM 1.2 and TPM 2.0 devices with default support of TPM 2.0 devices. If TPM 2.0 devices are not found, TPM 1.2 devices will be enumerated.

[TPM 1.2] Select this item to support TPM 1.2 devices only.

[TPM 2.0] Select this item to support TPM 2.0 devices only. T H/W is always enabled. Configuration options: [Enabled] [Disabled]

3.3.3 SATA Configuration

SATA Controller(s) [Enabled]

Allows you to enable or disable SATA devices. Configuration options: [Enabled] [Disabled]

SATA Mode Selection [AHCI]

Allows you to set the SATA configuration.

[AHCI] Set to [AHCI] when you want the SATA hard disk drives to use AHCI (Advanced Host Controller Interface). 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.

SATA6G_1~6

Allows you to enable or disable Serial-ATA Ports.

Port 0~5 [Enabled]

Configuration options: [Enabled] [Disabled]

Hot Plug [Disabled]

Configuration options: [Enabled] [Disabled]

3.3.4 AMT Configuration

Intel AMT [Enabled]

Allows you to enable or disable Intel(R) Active Management Technology BIOS Extension. The iAMT H/W is always enabled. Configuration options: [Enabled] [Disabled]

3.3.5 PCH-FW Configuration

Firmware Update Configuration

Allows you to configure the management engine technology parameters.

Me FW Image Re-Flash [Disabled]

Allows you to enable or disable the Me FW Image Re-Flash function. Configuration options: [Enabled] [Disabled]

3.3.6 NCT6791D HW Monitor

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

Smart Fan Configuration

CPU Smart Fan Control [Enabled]

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



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

Fan Control Mode [Auto Mode]

Configuration options: [Manual Mode] [Auto Mode]



The following item appears only when you set Fan Control Mode to [Manual Mode].

PWM/DC Voltage Output [255]

Sets the voltage allocated for Fan Control. Input value range: [0~255]



The following items appear only when you set Fan Control Mode to [Auto Mode].

Temperature Source [PECI Agent 0]

Allows you to select the temperature source. Configuration options: [SYSTIN] [PECI Agent 0]

Temperature 1~4 [xx]

Input temperature setting. The values range from 0~255.

Fan PWM 1~4 [xx]

Input the amount of Fan PWM 4 for Smart Fan IV Mode. The values range from 0~255.

Tolerance of Temperature [xx]

Input the tolerance of target temperature. The values range from 0~7.

Critical Temperature [xx]

Determines the time that Fan Out takes to decrease its value by one step. The values range from 0~255.

Critical Temp Tolerance [xx]

Input the tolerance of critical temperature. The values range from 0~7.

Chassis 1 Smart Fan Control [Disabled]

Allows you to enable or disable Chassis 1 Smart Fan Control. Configuration options: [Enabled] [Disabled]



The following sub-items appear only when you set Chassis 1 Smart Fan Control to [Enabled].

Fan Out Mode [PWM Mode]

Configuration options: [PWM Mode] [DC Mode]

Fan Control Mode [Manual Mode]

Configuration options: [Manual Mode] [Auto Mode]

PWM/DC Voltage Output [255]

This item appears only when you set the previous item to [Manual Mode] and allows you to set the voltage allocated for Fan Control. Input value range: [0~255]



The following items appear only when you set **Fan Control Mode** to [Auto Mode].

Temperature Source [SYSTIN]

Allows you to select the temperature source. Configuration options: [SYSTIN] [PECI Agent 0]

Temperature 1~4 [xx]

Input temperature setting. The values range from 0~255.

Fan PWM 1~4 [xx]

Input the amount of Fan PWM 4 for Smart Fan IV Mode. The values range from 0~255.

Tolerance of Temperature [xx]

Input the tolerance of target temperature. The values range from 0~7.

Critical Temperature [xx]

Determines the time that Fan Out takes to decrease its value by one step. The values range from 0~255.

Critical Temp Tolerance [xx]

Input the tolerance of critical temperature. The values range from 0~7.

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

3.3.8 Power Management

Power Mode [ATX Type]

Select power supply mode. Configuration options: [ATX Type] [AT Type]

Restore AC Power Loss [Always Off]

- [Always Off] The system goes into off state after an AC power loss.
- [Always On] The system goes into on state after an AC power loss.
- [Last State] The system goes into either off or on state, whatever the system state was before the AC power loss.

RTC wake system from S5 [Disabled]

- [Disabled] Disables system wake up from S5.
- [Fixed Time] The system will wake up at the specified hr::min::sec. Configuration options: [Disabled] [Enabled] .
- [Dynamic Time] The system will wake up at the current time plus a specified number of minutes.



The following items appear when RTC wake system from S5 is set **[Fixed Time]**.

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

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



The following items appear 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.

Resume from PME# [Enabled]

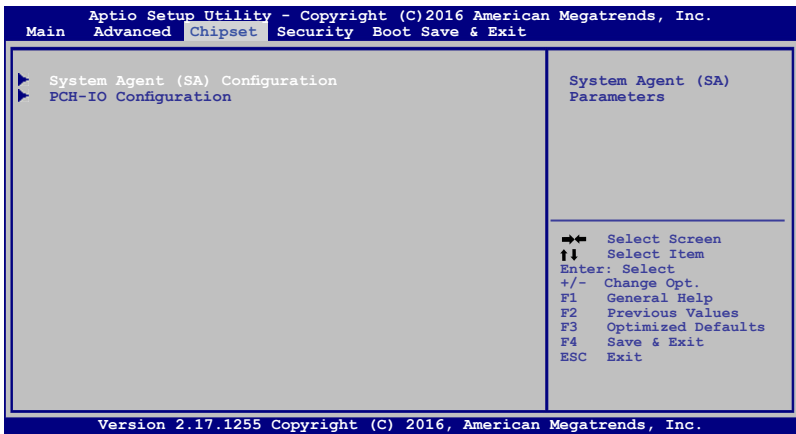
Enables or disables the resume from PCI PME# function. Configuration options: [Enabled] [Disabled]

Resume from PMCI/RI [Enabled]

Enables or disables the resume from PCIE/RI function. Configuration options: [Enabled] [Disabled]

3.4 Chipset menu

The Chipset menu items allow you to change configuration options for the North Bridge and South Bridge.



3.4.1 System Agent (SA) Configuration

PCIEx8 Gen Speed [Auto]

Allows you to configure the PEG 0:1:0 maximum speed. Configuration options: [Auto] [Gen1] [Gen2] [Gen3]

Graphics Configuration

Primary Display [Auto]

Allows you to decide which graphics controller to use as the primary boot device. Configuration options: [Auto] [IGFX] [PEG]

display. Configuration options: [VBIOS Default] [HDMI #1] [HDMI #2] [CRT]

Primary IGFX Boot Display [VBIOS Default]

Select the Video Device which will be activated during POST. Your selection does not take effect if you have installed an external graphics device.

Secondary boot display selection will appear based on your selection. VGA modes can be supported only on the primary

3.4.2 PCH-IO Configuration

HD Audio [Auto]

Allows you to control the detection of the high-definition audio device.

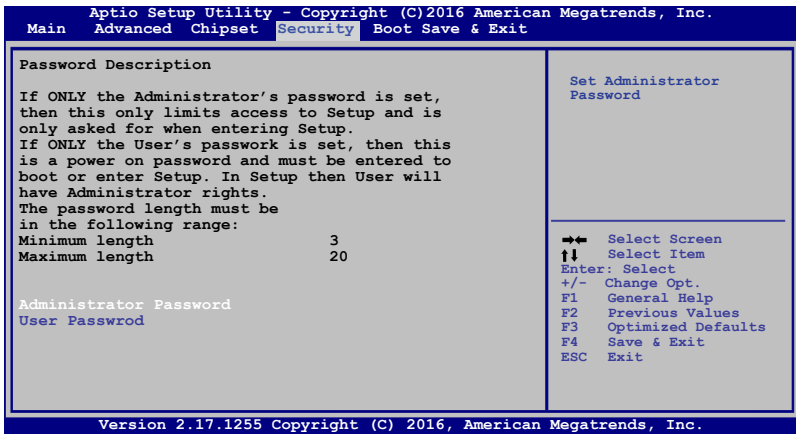
Configuration options: [Auto] [Disabled] [Enabled]

PCIEx4 (M.2 Slot) Speed [Auto]

Allows you to select the PCIEx4 card speed. Configuration options: [Auto] [Gen1] [Gen2] [Gen3]

3.5 Security menu

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



3.5.1 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.

3.5.2 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.

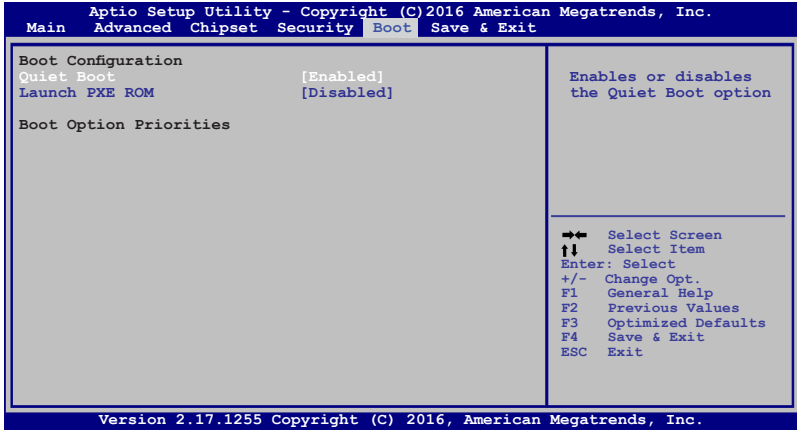
To change a user password:

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**.

3.6 Boot menu

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



Boot Configuration

Quiet Boot [Enabled]

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

Launch PXE ROM [Disabled]

This item enables/disables the execution of UEFI and Legacy PXE OpROM. Configuration options: [Disabled] [Enabled]

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.

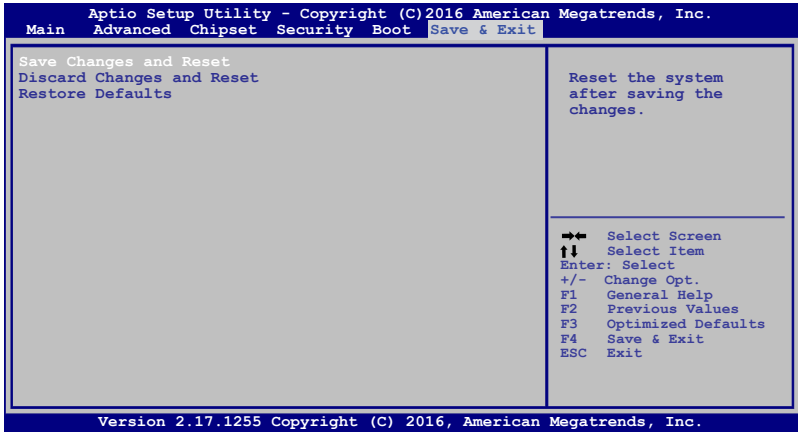


- To select the boot device during system startup, press <F7> during POST.
- To access Windows OS in Safe Mode, do any of the following:
 - Press <F5> during POST.
 - Press <F8> after POST.

Boot Override

These items displays the available devices. The number of device items that appears on the screen depends on the number of devices installed in the system. Click an item to start booting from the selected device.

3.7 Save & Exit menu



Save Changes and Reset

Once you are finished making your selections, choose this option from the Save & Exit menu to ensure the values you selected are saved. When you select this option, a confirmation window appears. Select Yes to save changes and reset.

Discard Changes and 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 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.



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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	×	○	○	○	○	○

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×

×：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。

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