Panel PC

User’s Manual

NO. G03-PCNF594RIT-F

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CAUTION Safety Precautions

- Operate the product according to the correct installation steps and with great care to make sure safety and comfort using experience. Please refer to the following safety instruction guide to avoid danger of electric shock or fire. Abide by the previous safety instruction guide to use and maintain the product and the hard disk to make sure of safe operating environment.
- Please follow the instruction manual for operation guide.
- The appropriate operating temperature ranges from 0 °C–50 °C.
- The operation humidity for this product is 5% to 80% RH.
- To avoid high temperature, please DO NOT overload the maximum power of the external power supply while the system is consuming high voltage. Be aware of the maximum temperature allowance of the power supply.
- See to it that the product is not working near the water.
- Always unplug power cable and other hardware cables from the system before cleaning.
- Apply only dry cloth for cleansing the product.
- Make sure that there is no heat source nearby when the product is working.
- Make sure that the thermal louver of the product is not blocked.
- Make sure to remove the power plug from the product when there is a thunder storm.
- Please remove the power plug from the product when you are not going to use the product for a long time.
- Make sure to set up or use the product on a stable surface.
- Make sure not to drop the product or strike it by any means.
- Make sure not to move the product when the power is on.
- Make sure not to step on the power cables and other cables or rest anything in them..
- Be sure to ground yourself to prevent static charge when installing any internal components. Use a grounding wrist strap and place all electronic components in any static-shielded devices. Most electronic components are sensitive to static electrical charge.
- Disconnect the power cord from the Panel PC unit prior to any installation. Be sure both the system and all external devices are turned off. Sudden surge of power could ruin sensitive components. Make sure the Panel PC unit is properly grounded. unit
- Do not open the system's back cover. If opening the cover for maintenance is a must, only a trained technician is allowed to do so. Integrated circuits on computer boards are sensitive to static electricity. To avoid damaging chips from electrostatic discharge, observe the following precautions:

    - Before handling a board or integrated circuit, touch an unpainted portion of the system unit chassis for a few seconds. This will help to discharge any static electricity on human body.
    - When handling boards and components, wear a grounding wrist strap available from most electronic component stores.

- Please contact qualified technician for maintenance or repair.
- Use only accessories and parts that are made by the qualified manufacturer.

User's Notice

Copyright of this manual belongs to the manufacturer. No part of this manual, including the products and software described in it may be reproduced, transmitted or translated into any language in any form or by any means without written permission of the manufacturer.

This manual contains all information required for the utilization of this product to meet the user's requirements. But it will change, correct at any time without notice. Manufacturer provides this manual "as is" without warranty of any kind, and will not be liable for any indirect, special, incidental or consequential damages (including damages for loss of profit, loss of business, loss of use of data, interruption of business and the like).

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Package Contents

AC-DC Adapter	Power Cord	WI-FI antenna	Fixed Parts
			
X1	**X1**	**X2**	**Optional**

Environmental Protection Announcement

Do not dispose this electronic device into the trash while discarding. To minimize pollution and ensure environment protection of mother earth, please recycle.



Chapter 1
Introduction

1-1 General Descriptions

Thank you for purchasing the system, a new product developed, designed and manufactured under leading technical power and consistent dedication to fine workmanship.

- A true flat, easy-to-clean front surface with esge-to-edge design
- Streamlined enclosure for highly efficient heat dissipation enclosed in robust aluminum casing
- Strong solid aluminum frame design system
- Support open frameless design
- Designed for mounting clips and VESA mount installation
- IO ports designed for easy connection
- IP65-rated front bezel against water and dust
- Support Smart FAN function
- Supports ACPI S3 Function
- Compliance with ErP Standard
- Support Watchdog Timer Technology
- Support 802.11 b/g/n WiFi communication

The system has the following features besides other basic functions:

- ***WiFi:*** the Mini PCI-E onboard socket in the board support a WiFi card(802.11 b/g/n) that can act as a mini wireless modem when external antennas are connected. Different computers in the house can build wireless connections through the Mini TOP system and take necessary data from it, thus reducing the complexity in network establishment.
- ***Giga LAN***: The system is integrated with Gigabit LAN network controller with ACPI management realizing efficient power management for the operating system.
- ***USB3.0***: Experience Fastest data transfers at 5Gb/s with USB3.0 the new latest connectivity standard. Built connect easily with next-generation components and peripherals, USB3.0 transfers data 10x faster and backward compatible with previous USB2.0 components.
- ***CPU Usage:*** The CPU Usage diagram shows a beautiful data curve that indicates a pretty low CPU usage percentage for video playback of different formats. GPU performances are excellent as well.
- ***dB Value:*** The design of the system takes into consideration the needed quiet operating environment in the living room and the average dB value is below 26 under normal operation to ensure the tranquility when you are absorbed in film watching.

1-2 Specifications

Main CPU Board

- **Chipset**
  - Intel® Q170 express chipset
- **CPU Support**
  - Support Intel® LGA 1151 Socket Core™ i7 processors, Intel® Core™ i5 processors, Intel® Core™ i3 processors, Intel® Pentium™ processors, Intel® Celeron™ processors (** for detailed CPU support information please visit our website*)
- **Memory Slot**
  - 2*DDR4 SO-DIMM slot
    Support DDR4 2133 MHz SO-DIMM up to 32GB
    Support dual channel function
- **BIOS**
  - 128MB AMI Flash ROM

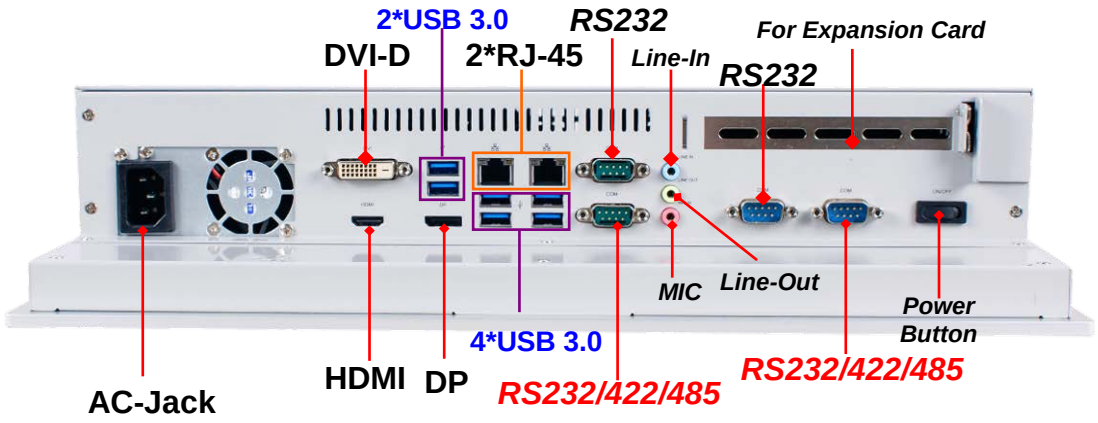
I/O System

- **Standard I/O**
  - 1* AC Power Jack
  - 1* HDMI Port & 1* DVI-D Port & 1* Display Port
  - 6* USB 3.0 Port
  - 2* RJ-45 for Gigabit Ethernet
  - 2* RS-232/422/485 + 2* RS-232
  - 1* Line-In & 1* Line-Out & 1* MIC
  - 1* Power Button
  - 1* Expansion Card Slot
- **System Power Input**
  - AC version: 100~240V AC
- **Temperature Limits**
  - Operating: -10°C ~ 60°C (with W.T. DRAM/HDD in airflow condition)
  - Storage: -20°C ~ 65°C

***Note:** All specifications and illustrations are subject to change without notice. The performance of the system might be adversely affected at an operatiing temperature above 40°C.*

1-3 I/O Outlets

For HPC170SR-ITQ170 Series:



Rear IO	Q'ty
AC Power Jack	1
HDMI	1
DVI-D	1
DP	1
USB3.0	6
RJ-45	2
RS232/422/485	2
RS232	2
Line-In	1
Line-Out	1
MIC	1
Power Button	1

1-4 Connector Pin Definition

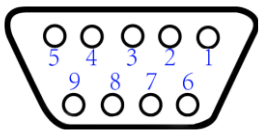
(1) Connector Function

Icon	*Name*	*Function*
	**AC Power Jack**	For user to connect compatible AC Power cable to provide power supply for the system.
	**Power Button**	Press to turn on/off the system.
	**DVI-D Port**	To connect display device that support DVI-D specification
	**HDMI Port**	To connect display device that support HDMI specification.
	**Display Port**	To the system to corresponding display device with compatible DP cable.
	**USB 3.0 Port**	To connect USB keyboard, mouse or other devices compatible with USB specification. USB 3.0 ports supports up to 5Gbps data transfer rate.
	**RJ-45 LAN Port**	This connector is standard RJ-45 LAN jack for Network connection.
	**Serial Port**	Mainly for user to connect external MODEM or other devices that supports Serial Communications Interface.
	**Audio Connectors**	**BLUE:** Line-in Connector **GREEN:**Line-out Connector **PINK :** MIC Connector

(2) I/O Connectors Pin Definition

COM Port Connector

The pin assignment for RS-232/ 422/ 485 is listed as follows:



Pin NO.	RS232	*RS422 (optional)	*RS485 (optional)
1	DCD	TX-	DATA-
2	RXD	TX+	DATA+
3	TXD	RX+	NC
4	DTR	RX-	NC
5	GND	GND	GND
6	DSR	NC	NC
7	RTS	NC	NC
8	CTS	NC	NC
9	RI	NC	NC

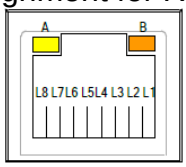
For RS232/422/485 COM port in normal settings can functions as RS232 port. With compatible COM cable they can function as RS422 or RS 485 port as well. User also needs to go to BIOS to set **'*Transmission Mode Select*'** for COM1/COM2 (refer to Page 25) at first, before using specialized cable to connect different pins of this port.

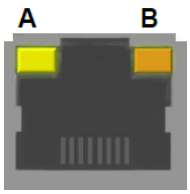
Note: in the case that the COM port marked as RS232 port, it can not support RS422/485 function.

RJ-45 Ethernet Connector

Ethernet connection can be established by plugging one end of the Ethernet cable into this RJ-45 connector and the other end (phone jack) to a 1000/100/10-Base-T hub.

The pin assignment for RJ-45 Ethernet LAN connectors are listed as follows:



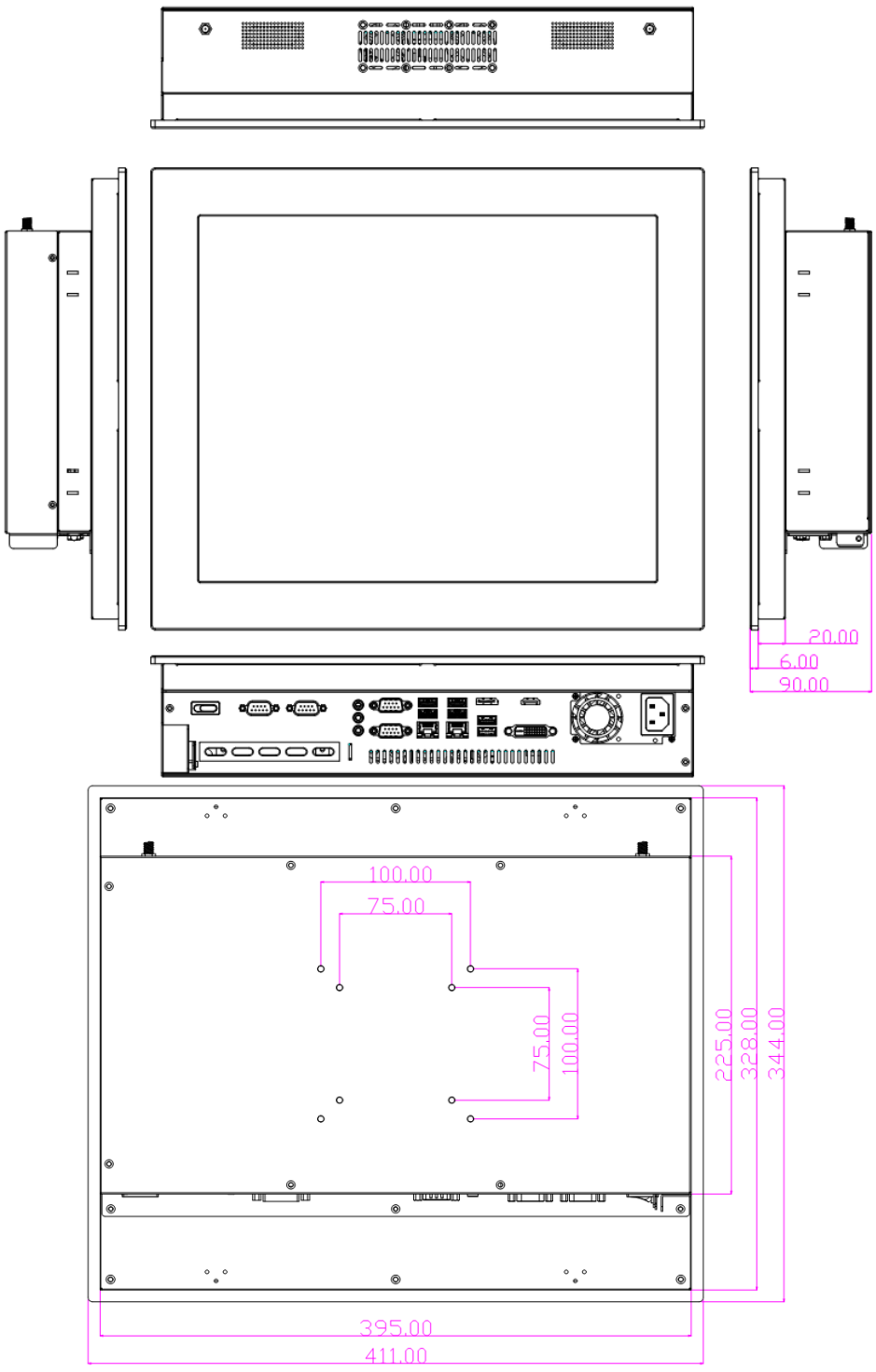


Pin	Definition	Pin	Definition
L1	MDI0+	L5	MDI2+
L2	MDI0-	L6	MDI2-
L3	MDI1+	L7	MDI3+
L4	MDI1-	L8	MDI3-
A	Active LED (Yellow)		
B	100 LAN LED (Green) / 1000 LAN LED (Orange)		

Chapter 2
Hardware and Installation

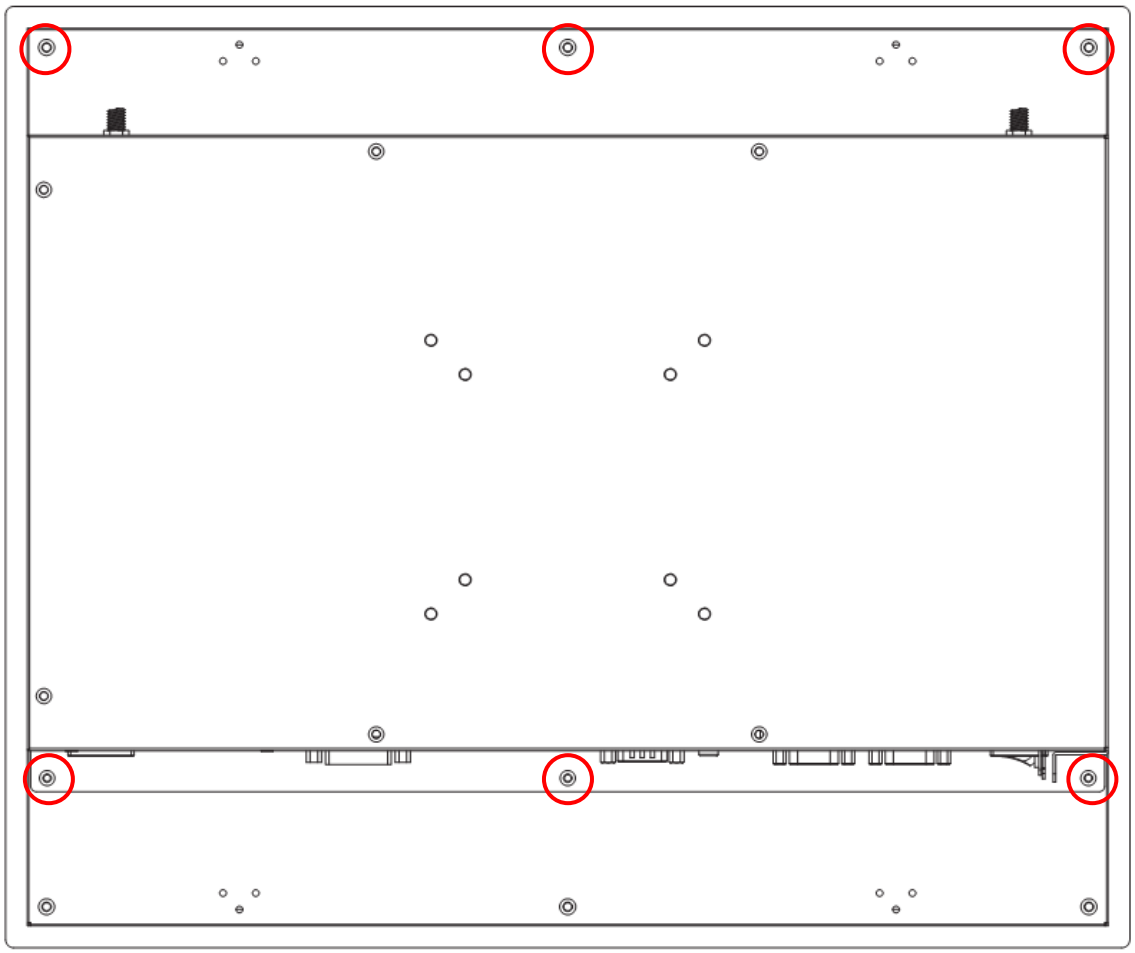
2-1 Dimension and Outlines

Product Dimension for HPC170SR-ITQ170 Series:



**** Measure Unit: mm.***

2-2 To Open the Chassis

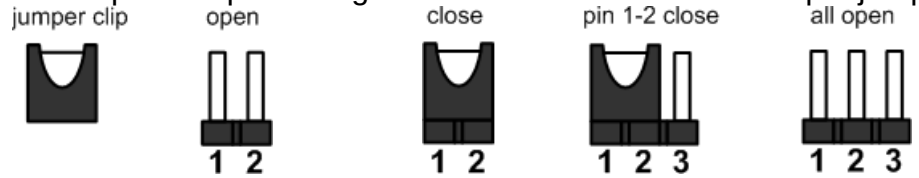


Use a screwdriver to unscrew the screws marked above that lock the back cover (see red circles). Remove them to open the chassis.

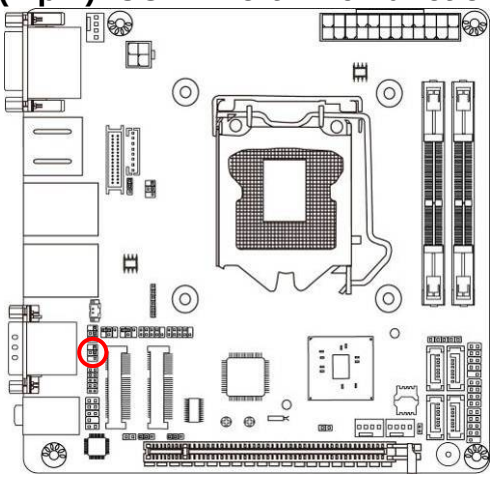
Notice: *When lifting the cover up to open the chassis for further installation, see to it that the connecting cables are not unplugged. It is very important for the cables connected to their original places for normal functioning.*

2-3 Jumper Settings

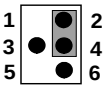
Jumper is a small component consisting of jumper clip and jumper pins. Install jumper clip on 2 jumper pins to close the pins. And remove jumper clip from 2 jumper pins to open the pins. Diagram 2-1 illustrates how to set up a jumper.



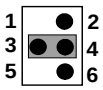
JP6 (4-pin): COM1 Port Pin9 Function Select



JP6→COM1 Port Pin-9



2-4 Closed:
Pin9=RING;

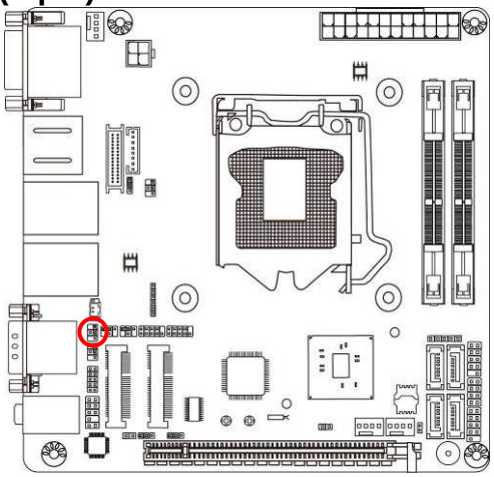


3-4 Closed:
Pin9=5V;

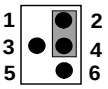


4-6 Closed:
Pin9=12V.

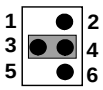
JP5 (4-pin): COM2 Port Pin9 Function Select



JP5→COM2 Port Pin-9



2-4 Closed:
Pin9=RING;

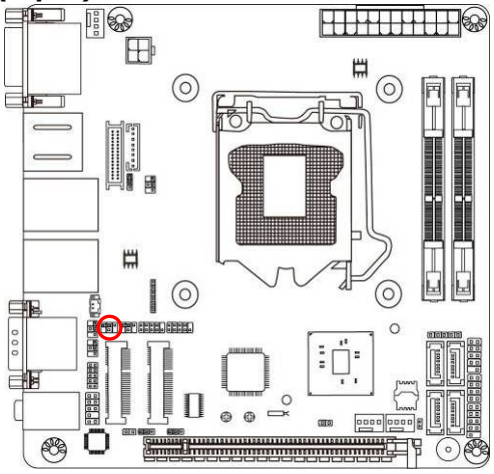


3-4 Closed:
Pin9=5V;

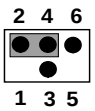


4-6 Closed:
Pin9=12V.

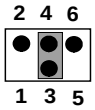
JP3 (4-pin): COM3 Header Pin9 Function Select



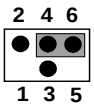
JP3→COM3 Header Pin-9



2-4 Closed:
Pin9=RING;

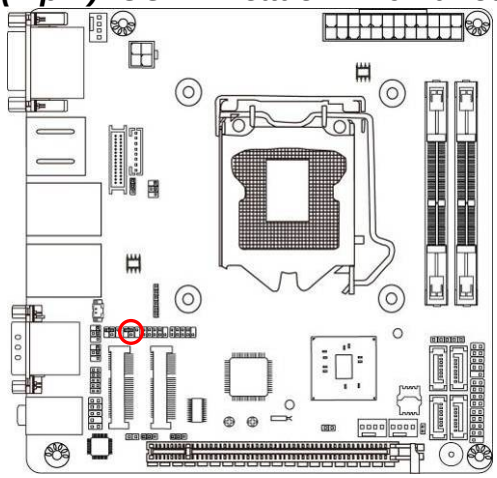


3-4 Closed:
Pin9= 5V;

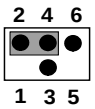


4-6 Closed:
Pin9= 12V.

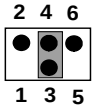
JP4 (4-pin): COM4 Header Pin9 Function Select



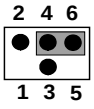
JP4→COM4 Header Pin-9



2-4 Closed: Pin9=RING;

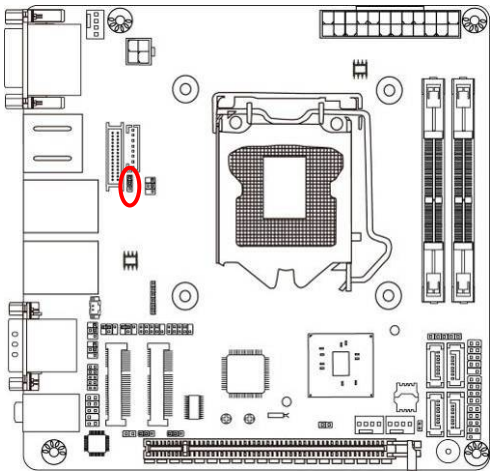


3-4 Closed: Pin9= 5V;

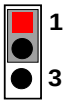


4-6 Closed: Pin9= 12V.

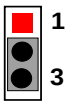
JP1 (3-pin): INVERTER Backlight VCC 5V/12V Select



JP1→INVERTER Backlight VCC

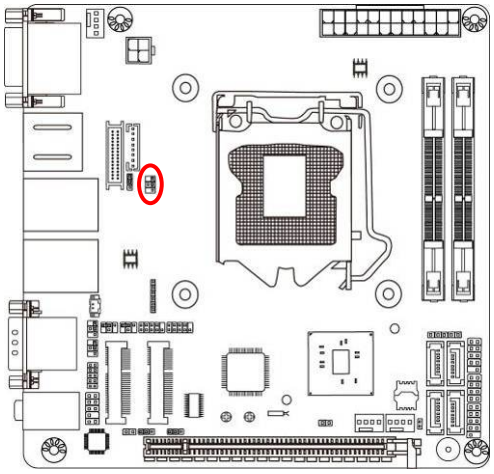


1-2 Closed: Inverter backlight VCC= 5V;

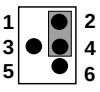


2-3 Closed: Inverter backlight VCC=12V.

JP2 (4-pin): LCD Panel VCC 3.3V/5V/12V Select



JP2→LCD Panel VCC



2-4 Closed: LCD VCC= 3.3V;

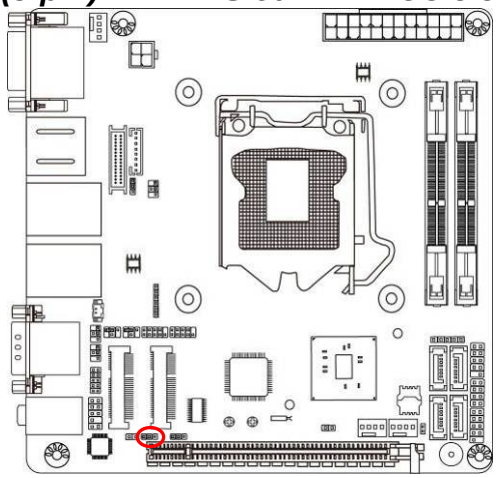


3-4 Closed: LCD VCC= 5V;

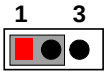


4-6 Closed: LCD VCC= 12V.

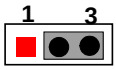
JP9 (3-pin): MMPE Slot PWR VCC 3.3V/3.3 VSB Select



JP9→MMPE Slot PWR VCC

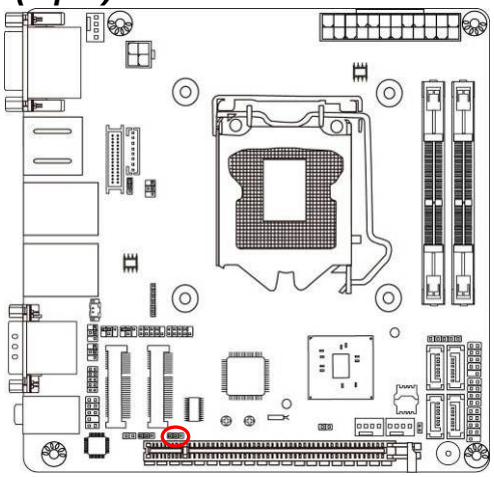


1-2 Closed：MMPE Slot PWR VCC= 3.3V(Default);

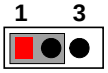


2-3 Closed：MMPE Slot PWR VCC= 3.3VSB.

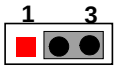
JP10 (3-pin): MPE Slot PWR VCC 3.3V/3.3 VSB Select



JP10→MPE Slot PWR VCC

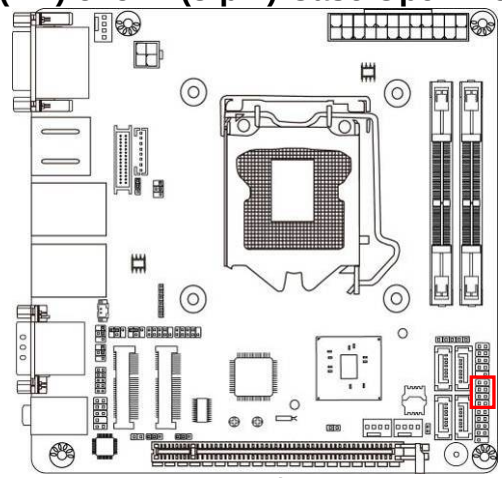


1-2 Closed：MPE Slot PWR VCC= 3.3V(Default);

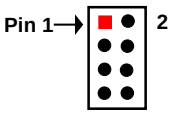


2-3 Closed：MPE Slot PWR VCC= 3.3VSB.

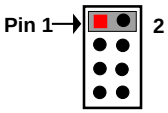
Pin (1-2) of JP7 (8-pin):Case Open Message Display Function Select



Pin(1-2) of JP7→Case Open Detection



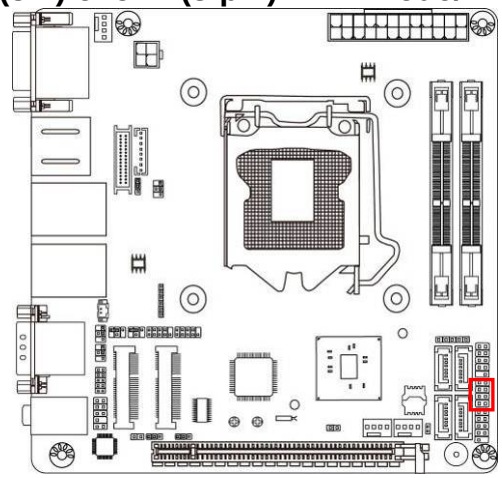
1-2 Open: Normal (Default);



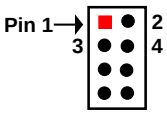
1-2 Close: Case Open Function Selected (One Touch).

Pin (1-2) Close: *When Case open function pin short to GND, the Case open function was detected. When Used, needs to enter BIOS and enable 'Case Open Detect' function. In this case if your case is removed, next time when you restart your computer, a message will be displayed on screen to inform you of this.*

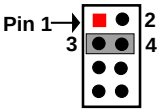
Pin (3-4) of JP7 (8-pin): ATX Mode/ AT Mode Select



Pin(3-4) of JP7→ATX/AT Mode Select



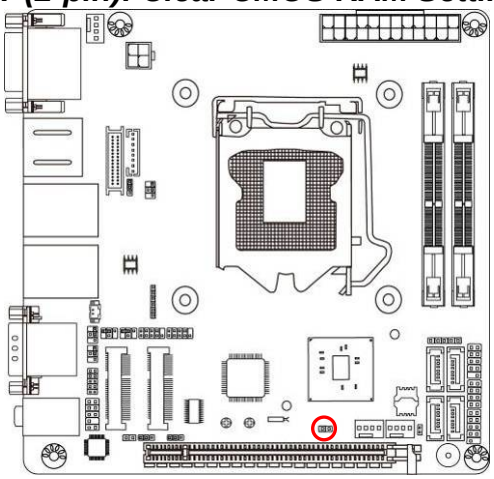
3-4 Open: ATX Mode Selected (Default);



3-4 Close : AT Mode Selected.

***ATX Mode Selected**: Press power button to power on after power input ready;*
***AT Mode Selected:** Directly power on as power input ready.*

JBAT (2-pin): Clear CMOS RAM Settings



JBAT→Clear CMOS

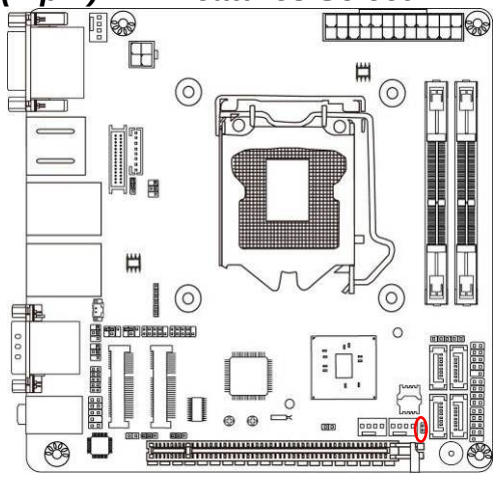


1-2 Open: Normal (Default);

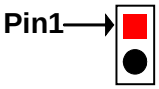


1-2 Closed:Clear CMOS Settings.

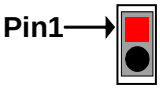
JP8 (2-pin): ME Features Select



JP8→ME Features



1-2 Open: Enable ME Features;



1-2 Closed: Disable ME Features.

2-4 Hardware Installation

Remove the screws that lock the back cover to the system from the back side before hardware installation procedures (refer to 2-2).

2-4-1 To Dissemble CPU Fan



Before installing CPU, make sure to remove the pre-installed CPU fan by using compatible screwdriver to remove the screws in the marked spots.

2-4-2 To Install CPU

Please refer to the following instructions and illustration to install a compatible LAG 1151 CPU.

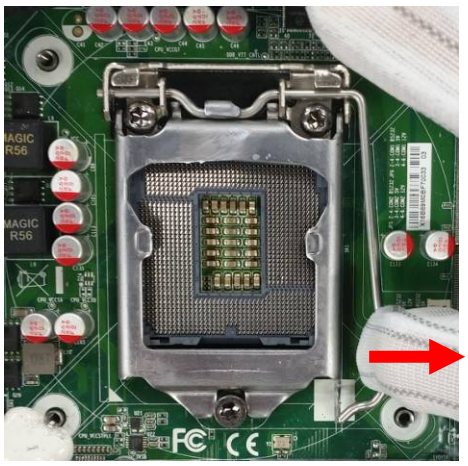
Before installation, **please refer to 2-4-1** to dissemble the pre-installed CPU FAN.



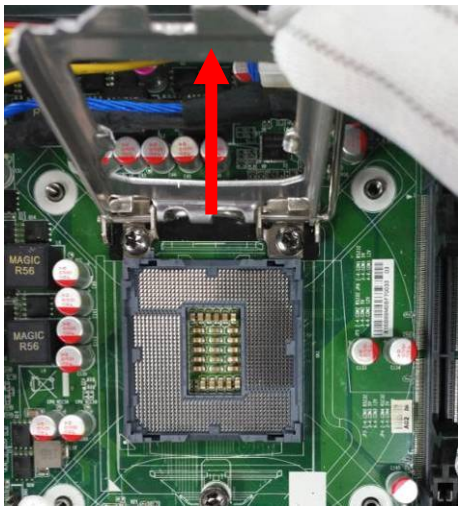
1. Find CPU socket on the board. Please make sure that CPU socket is facing towards you and the level is on you right hand side.



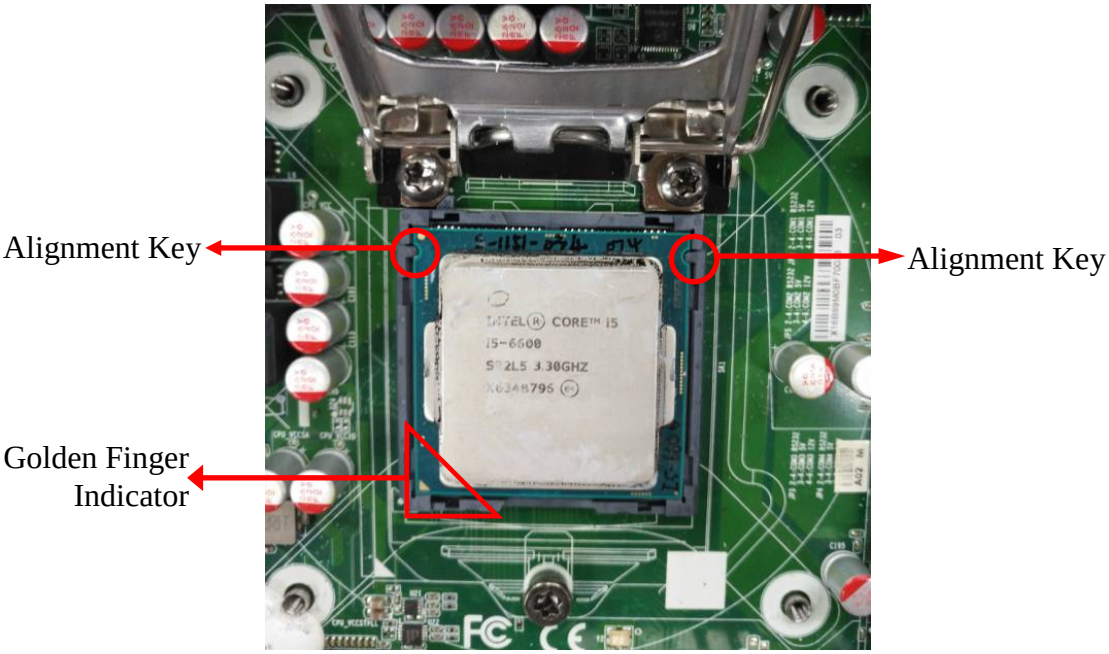
2. Remove the plastic protective plastic cover from the socket. (Put it to the original place if CPU is not installed. Do not touch the metal contact point of the CPU socket).



3. Press down the level and move it towards the right side to free it from the hook.



4. Open the level upwards about 135 degree and the metal protection plate will be pulled up at the same time.



5. Make sure that Pin-1 Golden Finger Indicator in the right place as shown in the above photo and match the two alignment keys on the CPU with two points of the socket. CPU can only be correctly installed with this direction. Incorrect installation might cause damage to CPU.



6. Put down the load plate in the direction shown above.

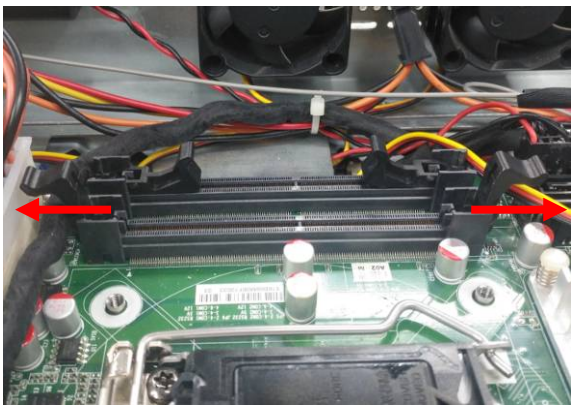


7. Press down the load level and move it leftwards to make sure it is locked under the notch.

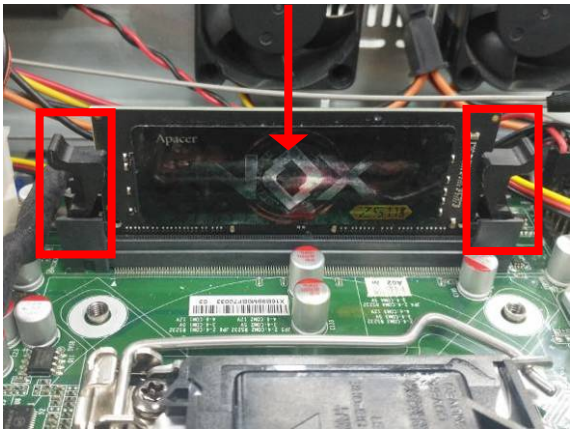
Notice：Please install the CPU Fan after the CPU installation steps finish. In the case that the cables unplugged during this process they should be plugged to their original places after installation.

2-4-3 To Install SO-DIMM

Please refer to the following instructions and illustration to install a compatibleDDR4 SO-DIMM.



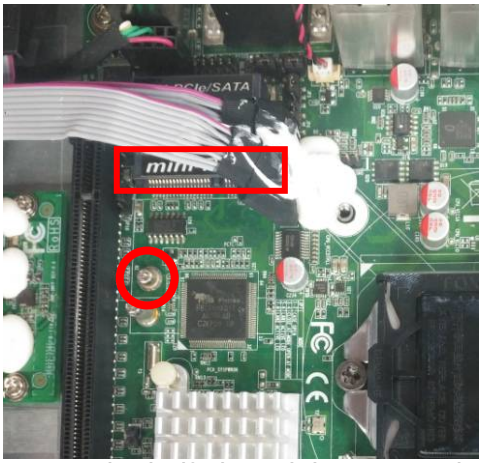
1. Find the SO-DIMM slot on the board and open the two eject tabs for further installation.



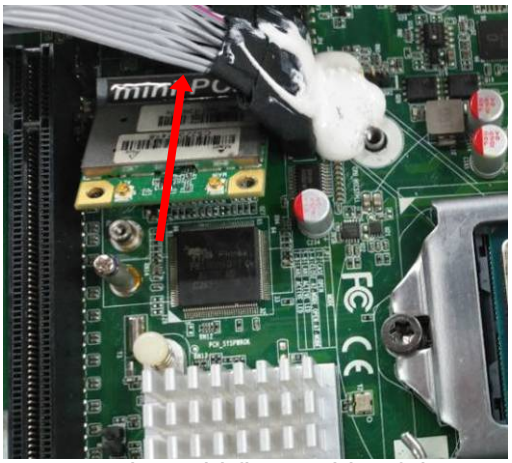
2. Insert the gold-figure side of the compatible SO-DIMM into the slot. The eject tabs will lock automatically if installed correctly.

2-4-4 To Install Wireless LAN Card

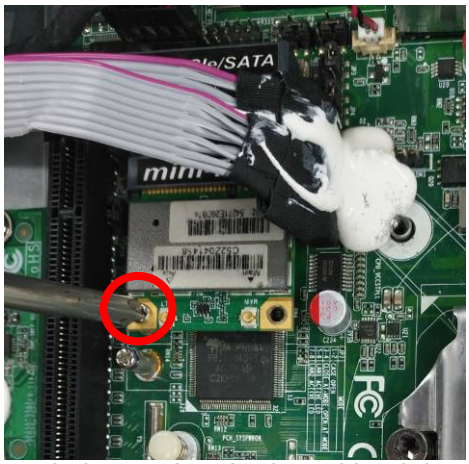
Please refer to the following instructions and illustration for the installation of the wireless LAN card.



1. Locate the half-size Mini-PCIE card slot on the board. Remove the marked screw and use it to lock WIFI card to the slot in later installation.



2. Insert the gold-figure side of the compatible WI-FI card into the slot and press down.



3. Lock the card to the board by tightening up the screw to the marked spot.



4. Press the metal hat on the end of the antenna string to the antenna slot on the card as showed.

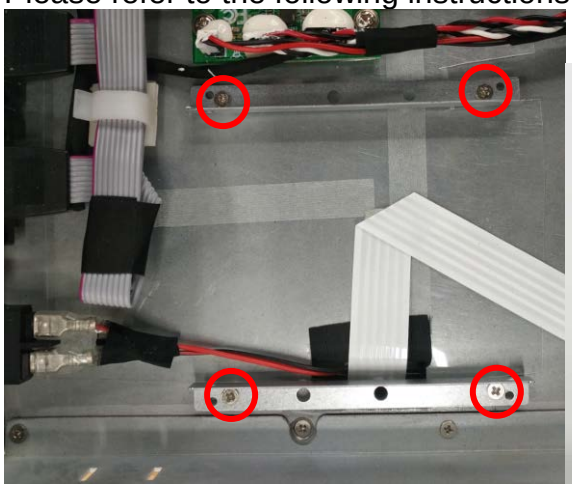


5. After the above steps finished, please connect the external Wi-Fi receiver antenna to the antenna connector on the rear panel.

NOTE: 1. The metal hats on the end of the antenna string are sealed by acetate tape to avoid possible damage to the system. Tear off the tape to find metal hats of WiFi antenna string. 2. User can also choose to install compatible full-size WiFi card/MSATA card into full-size mini-PCIe/SATA share slot, the installation steps are basically the same (refer to step1~3).

2-4-5 To Install HDD

Please refer to the following instructions and illustration to install a 2.5” SATA HDD.



1. Dissemble the pre-installed HDD racks from the system.



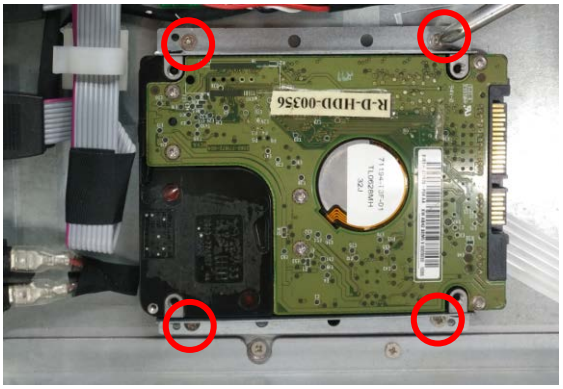
2. Align the racks to both sides of the SATA HDD as showed above. Match the screw holes of the racks to corresponding screw holes of the HDD.



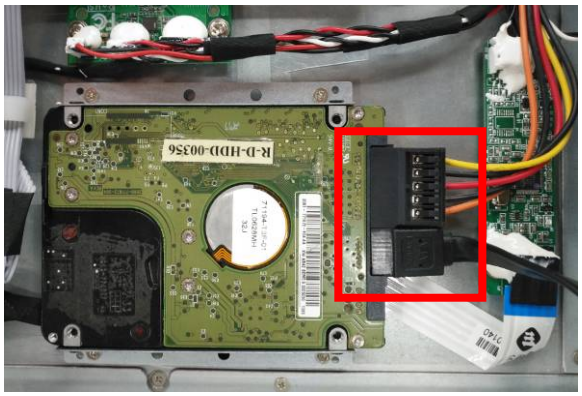
3. Lock the HDD to the HDD rack by tightening screws into matched screw holes.



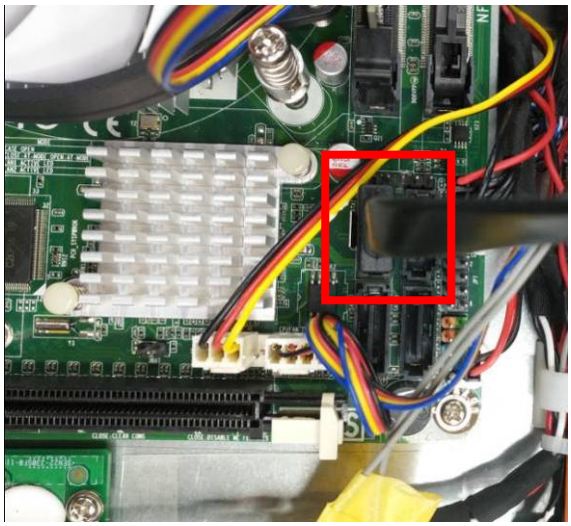
4. Lock the other rack to the other side of the HDD in the same way as showed.



5. Lock the HDD with HDD rack installed to the system by tightening up the screws marked above.



6. Connect HDD power and one end of SATA HDD cable into corresponding HDD interface.



7. Connect the other side of SATA HDD cable into SATA port onboard.

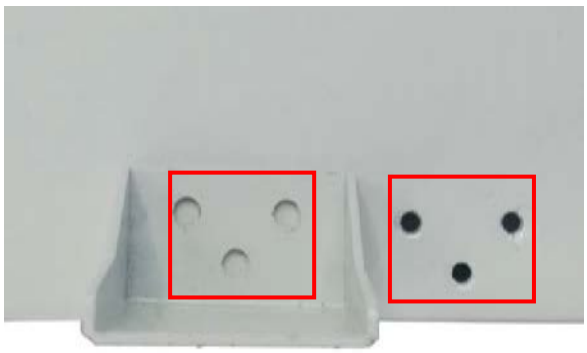
2-4-6 To Install Optional Fixed Parts

Solution-1:





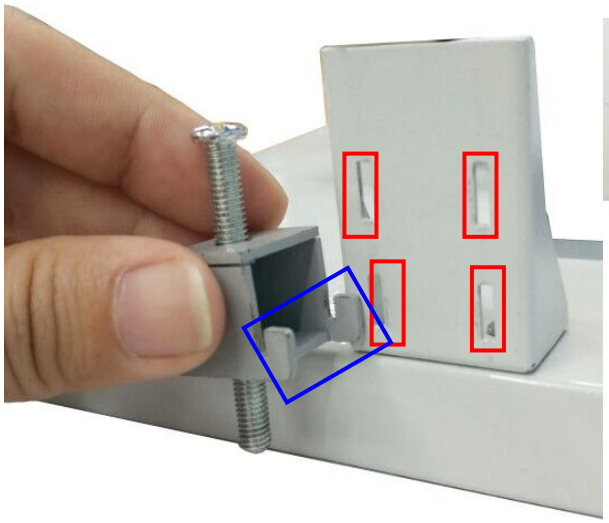
1. Please find the optional fixed part with metal support attached in the accessories package.
2. The marked spots with 3 reserved screw holes are for installing the optional fixed parts.



3. Align the screw holes on the metal support to corresponding screw holes of the spot you wish to install the fixed parts on the back panel of the system.



4. Lock the metal support to the back panel of the system.



5. Insert corresponding edges of the fixed part into the slots of metal support until them matched. Make sure the fix part is installed in the way the photo shows, with protruding tips upwards. User can choose the height of installing spot.



6. Tightening up the screw so that the fixed part can be fitted into the slots of the metal support tightly. Install other fixed parts to the system in the same way.

Solution-2:



1. Insert corresponding edges of the fixed part into the slots until them matched. Make sure the fix part is installed in the way the photo shows, with protruding tips upwards.

2. The models that support this fixing mode have pairs of slots reserved on both sides of the system. User can choose the height or position of installing spot.



3. Insert corresponding edges of the fixed part into the slots until them matched. Tightening up the screw so that the fixed part can be fitted into the slots tightly. Install other fixed parts to the system in the same way.

***Note:**Fixed parts & metal supports are only optional for specific models. Please refers to the actual prodcut for speficication.*

Chapter 3
Introducing BIOS

Notice!	The BIOS options in this manual are for reference only. Different configurations may lead to difference in BIOS screen and BIOS screens in manuals are usually the first BIOS version when the board is released and may be different from your purchased motherboard. Users are welcome to download the latest BIOS version form our official website.

The BIOS is a program located on a Flash Memory on the motherboard. This program is a bridge between motherboard and operating system. When you start the computer, the BIOS program will gain control. The BIOS first operates an auto-diagnostic test called POST (power on self test) for all the necessary hardware, it detects the entire hardware device and configures the parameters of the hardware synchronization. Only when these tasks are completed done it gives up control of the computer to operating system (OS). Since the BIOS is the only channel for hardware and software to communicate, it is the key factor for system stability, and in ensuring that your system performance as its best.

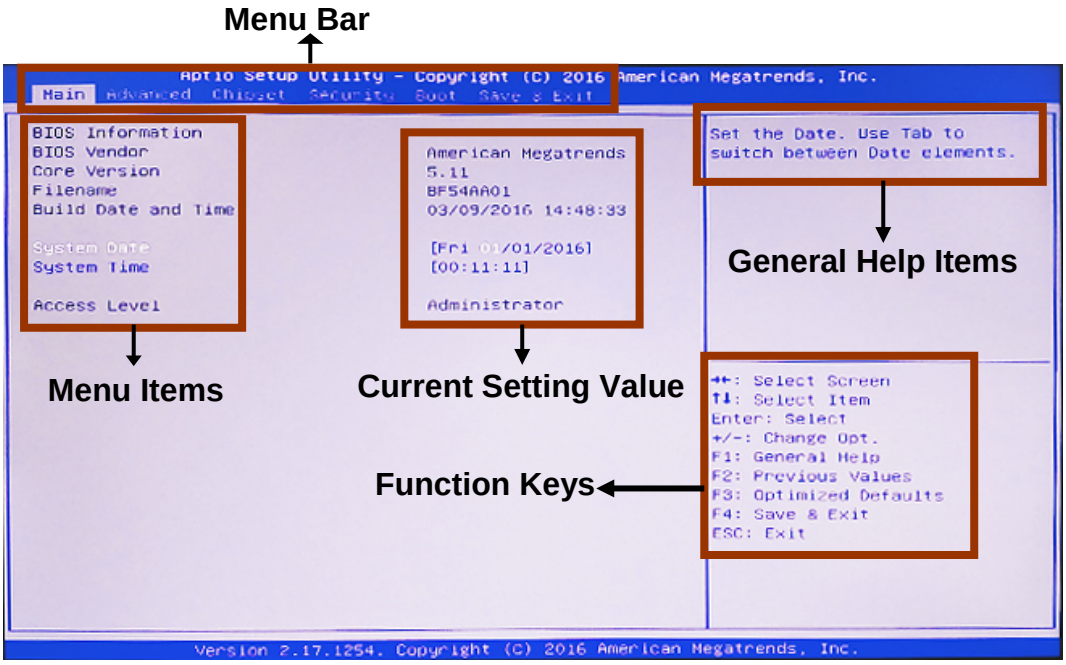
3-1 Entering Setup

Power on the computer and by pressing <Del> immediately allows you to enter Setup. If the message disappears before your respond and you still wish to enter Setup, restart the system to try again by turning it OFF then ON or pressing the “RESET” button on the system case. You may also restart by simultaneously pressing <Ctrl>, <Alt> and <Delete> keys. If you do not press the keys at the correct time and the system does not boot, an error message will be displayed and you will again be asked to

Press **<Del>** to enter Setup

3-2 BIOS Menu Screen

The following diagram show a general BIOS menu screen:



3-3 Function Keys

In the above BIOS Setup main menu of, you can see several options. We will explain these options step by step in the following pages of this chapter, but let us first see a short description of the function keys you may use here:

- Press←→ (left, right) to select screen;
- Press ↑↓ (up, down) to choose, in the main menu, the option you want to confirm or to modify.
- Press <Enter> to select.
- Press <+>/<–> keys when you want to modify the BIOS parameters for the active option.
- [F1]: General help.
- [F2]: Previous values.
- [F3]: Optimized defaults.
- [F4]: Save & Exit.
- Press <Esc> to exit from BIOS Setup.

3-4 Getting Help

Main Menu

The on-line description of the highlighted setup function is displayed at the top right corner the screen.

Status Page Setup Menu/Option Page Setup Menu

Press【F1】to pop up a small help window that describes the appropriate keys to use and the possible selections for the highlighted item. To exit the Help Window, press <**Esc**>.

3-5 Menu Bars

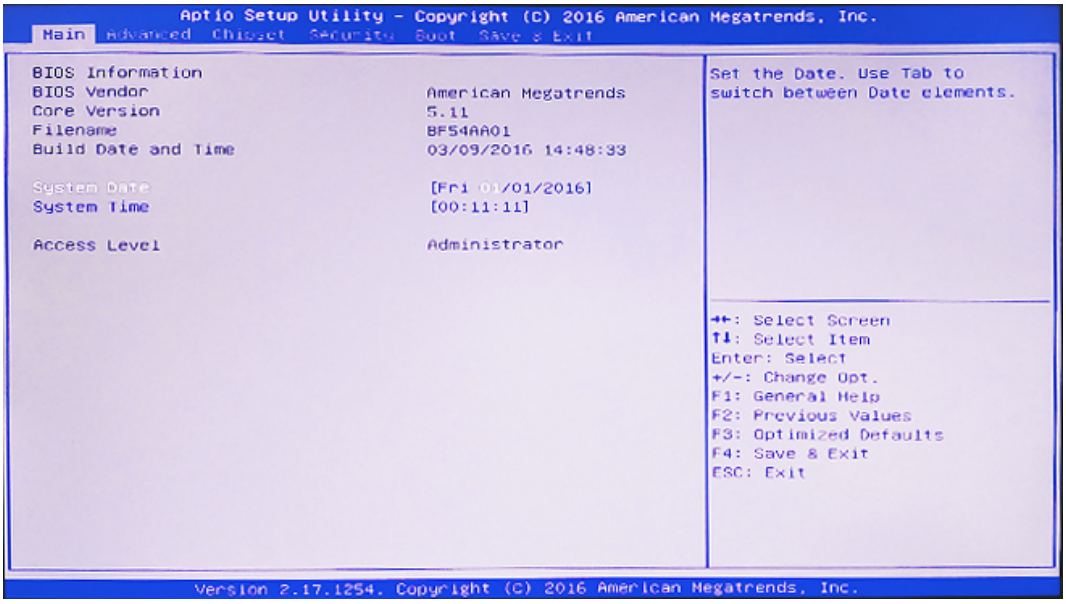
There are six menu bars on top of BIOS screen:

Main	To change system basic configuration
Advanced	To change system advanced configuration
Chipset	To change chipset configuration
Security	Password settings
Boot	To change boot settings
Save & Exit	Save setting, loading and exit options.

User can press the right or left arrow key on the keyboard to switch from menu bar. The selected one is highlighted.

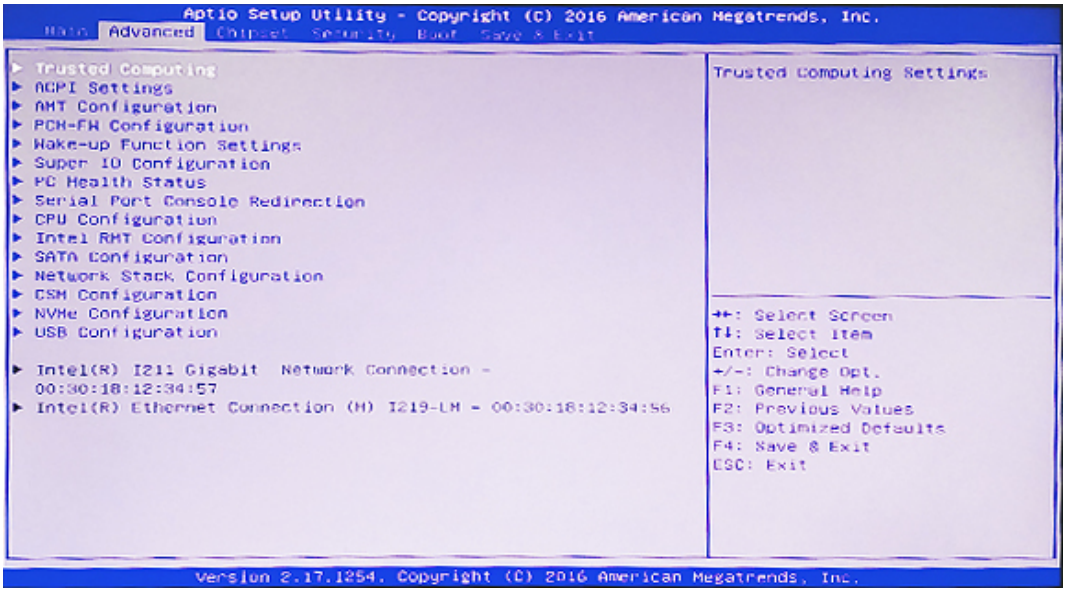
3-6 Main Menu

Main menu screen includes some basic system information. Highlight the item and then use the <+> or <-> and numerical keyboard keys to select the value you want in each item.



System Date
Set the date. Please use [Tab] to switch between data elements.
System Time
Set the time. Please use [Tab] to switch between time elements.

3-7 Advanced Menu



► **Trusted Computing**

Press [Enter] to enable or disable '**Security Device Support**'.

Security Device Support

Use this item to enable or disable BIOS support for security device. O.S. will not show security device. TGG EFI protocol and INT1A interface will not be available.

The optional settings: [Disabled]; [Enabled].

When set as **[Enabled], user can make further settings in the following items:*

TPM State

Use this item to enable or disable security device. Your computer will reboot during restart to change state of device.

The optional settings: [Disabled]; [Enabled].

Pending Operation

Use this item to schedule an operation for the security device. Your computer will reboot during restart to change state of device.

The optional settings: [None]; [TPM Clear].

► **ACPI Settings**

Press [Enter] to make settings for the following sub-items:

ACPI Settings

ACPI Sleep State

Use this item to select the highest ACPI sleep state the system will enter when the suspend button is pressed.

The optional settings are: [Suspend Disabled]; [S3 (Suspend to RAM)].

► **AMT Configuration**

Use this item to configure Active Management Technology parameters.

Press [Enter] to make settings for the following sub-items:

Intel AMT

Use this item to enable or disable Intel Active Management Technology BIOS extension.

Hide Un-Configure ME Confirmation Prompt

Use this function to enable or disable Hide Un-Configure ME without password Configuration Prompt function.

MEBx Debug Message Output

Use this function to enable or disable MEBx Debug Message Output function.

Un-Configure ME

Use this function to enable or disable Un-Configure ME without password function.

Amt Wait Timer

Use this item to set time to wait before sending ASF_GET_BOOT_OPTIONS.

ASF

Use this item to enable or disable Alert Specification Format.

Activate Remote Assistance Process

Use this item to enable or disable Trigger CIRA boot function.

USB Configure

Use this item to enable or disable USB configure function.

PET Progress

Use this item to enable or disable PET events progress to receive PET events or not.

WatchDog

Use this item to enable or disable WatchDog Timer.

**When set as [Enabled], the following sub-items shall appear:*

OS Timer

Use this item to set OS watch dog timer.

BIOS Timer

Use this item to set BIOS watch dog timer.

► **PCH-FW Configuration**

Press [Enter] to view ME information and make settings in the following sub-items:

► **Firmware Update Configuration**

Press [Enter] to make settings for '**ME FW Image RE-Flash**'.

ME FW Image Re-Flash

Use this item to enable or disable ME FW Image Re-Flash function.

The optional settings: [Disabled]; [Enabled].

** In the case that user needs to update ME firmware, user should set **'ME FW Image Re-Flash**' as [**Enabled**], save the settings and exit. The system will turn off and reboot after 4 seconds. If the user goes to BIOS screen again will find this item is set again as [**Disabled**], but user can still re-flash to update firmware next time.*

► **Wake-up Function Settings**

Press [Enter] to make settings for the following sub-items:

Wake-up System with Fixed Time

Use this item to enable or disable system wake on alarm event.

The optional settings: [Disabled]; [Enabled].

When set as [Enabled], system will wake on the hour/min/sec specified.

Wake-up System with Dynamic Time

Use this item to enable or disable system wake on alarm event.

System will wake on the current time + Increase minutes.

The optional settings: [Disabled]; [Enabled].

When set as [Enabled], system will wake on the current time + increased

minute(s).

PS2 KB/MS Wake-up
The optional settings: [Enabled]; [Disabled].
Use this item to enable or disable PS2 KB/MS wake-up from S3/S4/S5 state.
**This function is supported when 'ERP Support' is set as [Disabled].*

USB S3/S4 Wake-up
The optional settings: [Enabled]; [Disabled].
Use this item to enable or disable USB wake-up from S3/S4 state.
**This function is supported when 'ERP Support' is set as [Disabled].*

USB S5 Power
Use this item to enable or disable USB power after power shutdown.
**This function is supported when 'ERP Support' is set as [Disabled].*

Ring Wake-up
The optional settings: [Enabled]; [Disabled].
Use this item to enable or disable ring wake-up.

► **Super IO Configuration**
Press [Enter] to make settings for the following sub-items:
Super IO Configuration

ERP Support
The optional settings: [Disabled]; [Auto].
This item should be set as [**Disabled**] if you wish to have all active wake-up functions.

► **Serial Port 1 Configuration/ Serial Port 3 Configuration**
Press [Enter] to make settings for the following items:

Serial Port
Use this item to enable or disable serial port (COM).

Change Settings
Use this item to select an optimal setting for super IO device.

Transmission Mode Select
The optional settings are: [RS422]; [RS232]; [RS485].

Mode Speed Select
The optional settings are: [RS232/RS422/RS485=250kbps]; [RS232=1Mbps, RS422/RS485=10Mbps].

Serial Port FIFO Mode
The optional settings are: [16-Byte FIFO]; [32-Byte FIFO]; [64-Byte FIFO]; [128-Byte FIFO].

► **Serial Port 2 Configuration/ Serial Port 4 Configuration**
Press [Enter] to make settings for the following sub-items:

Serial Port
Use this item to enable or disable serial port (COM).

Change Settings
Use this item to select an optimal setting for super IO device.

Serial Port FIFO Mode
The optional settings are: [16-Byte FIFO]; [32-Byte FIFO]; [64-Byte FIFO]; [128-Byte FIFO].

WatchDog Reset Timer

Use this item to enable or disable WDT reset function. When set as [Enabled], the following sub-items shall appear:

WatchDog Reset Timer Value
User can set a value in the range of [4] to [255].
WatchDog Reset Timer Unit
The optional settings are: [Sec.]; [Min.].

WatchDog Wake-up Timer in ERP
This item support WDT wake-up while '**ERP Support**' is set as [Auto].
The optional settings: [Disabled]; [Enabled].
When set as [Enabled], the following sub-items shall appear:

WatchDog Reset Timer Value in ERP
User can select a value in the range of [10] to [4095] seconds when '**WatchDog Reset Timer Unit**' set as [Sec]; or in the range of [1] to [4095] minutes when '**WatchDog Reset Timer Unit**' set as [Min].
WatchDog Reset Timer Unit
The optional settings are: [Sec.]; [Min.].

ATX Power Emulate AT Power
This item support Emulate AT power function, MB power On/Off control by power supply. Use needs to select 'AT or ATX Mode' on MB jumper at first (refer to ***Page 12***, Pin (3-4) of JP7 block for ATX Mode & AT Mode Select).

Case Open Detect
Use this item to detect case has already open or not, show message in POST.
PS2 KB/MS Connect
Use this item to select PS2 connect primary device.
The optional settings are: [Keyboard First]; [Mouse First].

► **PC Health Status**
Press [Enter] to view current hardware health status, make further settings in '**SmartFAN Configuration**' and set value in '**Shutdown Temperature**'.

► **SmartFAN Configuration**
Press [Enter] to make settings for SmartFan Configuration:
SmartFAN Configuration

CPUFAN / SYSFAN1/ SYSFAN2 Smart Mode
The optional settings are: [Disabled]; [Enabled].
When set as [Enabled], the following sub-items shall appear:
CPUFAN / SYSFAN1/ SYSFAN2 Full-Speed Temperature
Use this item to set CPUFAN (/SYSFAN1/SYSFAN2) full speed temperature. Fan will run at full speed when above this pre-set temperature.
CPUFAN / SYSFAN1/ SYSFAN2 Full-Speed Duty
Use this item to set CPUFAN (/SYSFAN1/SYSFAN2) full-speed duty. Fan will run at full speed when above this pre-set duty.
CPUFAN / SYSFAN1/ SYSFAN2 Idle-Speed Temperature
Use this item to set CPUFAN (/SYSFAN1/SYSFAN2) idle speed temperature. Fan will run at idle speed when below this pre-set temperature.
CPUFAN / SYSFAN1/ SYSFAN2 Idle-Speed Duty
Use this item to set CPUFAN (/SYSFAN1/SYSFAN2) idle speed duty. Fan will run at idle speed when below this pre-set duty.

Shutdown Temperature
Use this item to select system shutdown temperature.
The optional settings are: [Disabled]; [70°C/156°F]; [75°C/164°F]; [80°C/172°F]; [85°C/180°F]; [90°C/188°F].

► **Serial Port Console Redirection**
Press [Enter] to make settings for the following sub-items:
COM1

Console Redirection
Use this item to enable or disable COM1 Console Redirection.
The optional settings are: [Disabled]; [Enabled].
*When set as [Enabled], user can make further settings in the '**Console Redirection Settings**' screen:*

▸ **Console Redirection Settings**
The settings specify how the host computer and the remote computer (which the user is using) will exchange data. Both computers should have the same or compatible settings.
Press [Enter] to make settings for the following sub-items.

Terminal Type
The optional settings are: [VT100]; [VT100+]; [VT-UTF8]; [ANSI].
Bits per second
The optional settings are: [9600]; [19200]; [38400]; [57600]; [115200].
Data Bits
The optional settings are: [7]; [8].
Parity
The optional settings are: [None]; [Even]; [Odd];[Mark]; [Space].
Stop Bits
The optional settings are: [1]; [2].
Flow Control
The optional settings are: [None]; [Hardware RTS/CTS].
VT-UTF8 Combo Key Support
The optional settings are: [Disabled]; [Enabled].
Recorder Mode
The optional settings are: [Disabled]; [Enabled].
Resolution 100x31
The optional settings are:[Disabled]; [Enabled].
Legacy OS Redirection Resolution
The optional settings are: [80x24]; [80x25].
Putty Keypad
The optional settings are: [VT100]; [LINUX]; [XTERMR6]; [SCO]; [ESCN]; [VT400].
Redirection After BIOS POST
The optional settings are: [Always Enable]; [BootLoader].

Serial Port for Out-of-Band Management/ Windows Emergency Management Services (EMS)

Console Redirection
The optional settings: [Disabled]; [Enabled].
*When set as [Enabled], user can make further settings in '**Console***

***Redirection Settings**' screen:*

- **Console Redirection Settings**

The settings specify how the host computer and the remote computer (which the user is using) will exchange data. Both computers should have the same or compatible settings.

Press [Enter] to make settings for the following sub-items.

Out-of-Band Mgmt Port

The optional settings are: [COM1]; [COM1(Pci Bus0, Dev0, Func0) (Disabled)].

Terminal Type

The optional settings are: [VT100]; [VT100+]; [VT-UTF8]; [ANSI].

Bits per second

The optional settings are: [9600]; [19200]; [57600]; [115200].

Flow Control

The optional settings are: [None]; [Hardware RTS/CTS]; [Software Xon/Xoff].

Data Bits

The default setting is: [8].

**This item may or may not show up, depending on different configuration.*

Parity

The default setting is: [None].

**This item may or may not show up, depending on different configuration.*

Stop Bits

The default setting is: [1].

**This item may or may not show up, depending on different configuration.*

- **CPU Configuration**

Press [Enter] to view current CPU configuration and make settings for the following sub-items:

Hyper-Threading

The optional settings: [Disabled]; [Enabled].

[**Enabled**]: for Windows XP and Linux (OS optimized for Hyper-Threading Technology).

[**Disabled**]: for other OS (OS optimized not for Hyper-Threading Technology).

**This item might not be available depending different CPU configuration.*

Intel Virtualization Technology

The optional settings: [Enabled]; [Disabled].

When set as [Enabled], a VMM can utilize the additional hardware capabilities provided by Vanderpool Technology.

Hardware Prefetcher

Use this item to turn on/off the MLC streamer prefecher.

The optional settings: [Disabled]; [Enabled].

Adjacent Cache Line Prefetch

Use this item to turn on/off prefeching of adjacent cache lines.

The optional settings: [Disabled]; [Enabled].

Intel(R) SpeedStep(tm)

This item allows more than two frequency ranges to be supported.

The optional settings: [Disabled]; [Enabled].

CPU C Status

Use this item to enable or disable CPU C status.

The optional settings: [Disabled]; [Enabled].

Package C State Limit
The optional settings are: [C0/C1]; [C2]; [C3]; [C6]; [C7]; [C7s]; [C8]; [AUTO].

► **Intel RMT Configuration**
Press [Enter] to go to next screen to enable or disable '**Intel Ready Mode Technology'.**
Intel Ready Mode Technology
The optional settings: [Disabled]; [Enabled].

When set as [Enabled**], user can also make further settings in the following items that appear:*

Intel RMT State
Use this item to enable or disable Intel RMT enabling status in BIOS.

► **SATA Configuration**
Press [Enter] to make settings for the following sub-items:
SATA Controller(s)
Use this item to enable or disable SATA device.
The optional settings: [Disabled]; [Enabled].
SATA Mode Selection
The optional settings are: [AHCI]; [RAID].
SATA1/2/3/4
Port
The optional settings: [Disabled]; [Enabled].
Use this item to enable or disable each SATA port respectively.
Hot Plug
The optional settings: [Disabled]; [Enabled].
mSATA
Port
The optional settings: [Disabled]; [Enabled].
Use this item to enable or disable mSATA device.

► **Network Stack Configuration**
Press [Enter] to go to '**Network Stack**' screen to make further settings.
Network Stack
Use this item to enable or disable UEFI Network Stack.
The optional settings: [Disabled]; [Enabled].
When set as [Enabled], the following sub-items shall appear:
Ipv4 PXE Support
The optional settings are: [Disabled]; [Enabled].
Use this item to enable Ipv4 PXE Boot Support. When set as [Disabled], Ipv4 boot option will not be created.
Ipv6 PXE Support
The optional settings are: [Disabled]; [Enabled].
Use this item to enable Ipv6 PXE Boot Support. When set as [Disabled], Ipv6 boot optional will not be created.
PXE boot wait time
Use this item to set wait time to press [ESC] key to abort the PXE boot.
Media Detect Count
Use this item to set number of times presence of media will be checked.

► **CSM Configuration**

Press [Enter] to make settings for the following sub-items:

Option ROM execution

Network

This option controls the execution of UEFI and Legacy PXE OpROM.
The optional settings are: [Do not launch]; [UEFI]; [Legacy].

Storage

This option controls the execution of UEFI and Legacy Storage OpROM.
The optional settings are: [Do not launch]; [UEFI]; [Legacy].

Other PCI devices

This item is for PCI devices other than Network, Mass storage or video defines which OpROM to launch.
The optional settings are: [Do not launch]; [UEFI]; [Legacy].

► **NVMe Configuration**

Press [Enter] to check NVMe controller and driver information.

► **USB Configuration**

Press [Enter] to make settings for the following sub-items:

USB Configuration

Legacy USB Support

The optional settings are: [Enabled]; [Disabled]; [Auto].
[**Enabled**]: To enable legacy USB support.
[**Disabled]**: to keep USB devices available only for EFI specification,
[**Auto**]: To disable legacy support if no USB devices are connected.

XHCI Hand-off

This is a workaround for OSes without XHCI hand-off support. The XHCI ownership change should be claimed by XHCI driver.
The optional settings are: [Enabled]; [Disabled].

USB Mass Storage Driver Support

The optional settings are: [Disabled]; [Enabled].

USB hardware delay and time-out

USB Transfer time-out

Use this item to set the time-out value for control, bulk, and interrupt transfers.
The optional settings are: [1 sec]; [5 sec]; [10 sec]; [20 sec].

Device reset time-out

Use this item to set USB mass storage device start unit command time-out.
The optional settings are: [10 sec]; [20 sec]; [30 sec]; [40 sec].

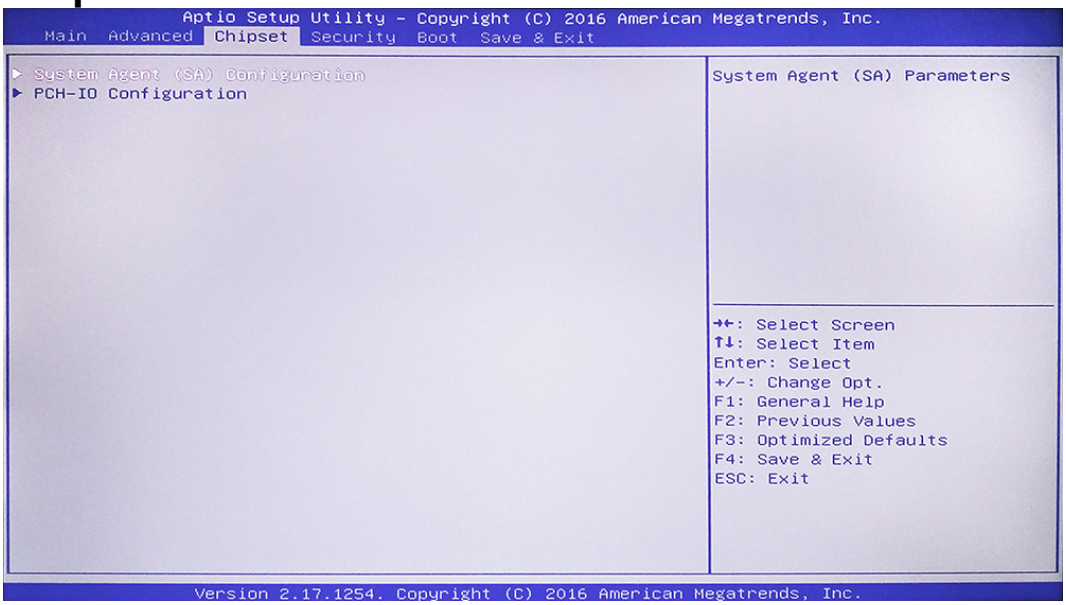
Device power-up delay

Use this item to set maximum time the device will take before it properly reports itself to the host controller. 'Auto' uses default value: for a root port it is 100 ms, for a hub port the delay is taken from hub descriptor. The optional settings: [Auto]; [Manual].Select [Manual] you can set value for the following sub-item: '**Device Power-up delay in seconds',** the delay range in from 1 to 40 seconds, in one second increments.

► **Intel(R) I211 Gigabit Network Connection- XX:XX:XX:XX:XX:XX / Intel(R) Ethernet Connection (H) I219-LM- XX:XX:XX:XX:XX:XX**

This item shows current network brief information.

3-8 Chipset Menu



► **System Agent (SA) Configuration**

Press [Enter] to make settings for the following sub-items:

VT-d

The optional settings are: [Enabled]; [Disabled].

► **Graphics Configuration**

Press [Enter] to make further settings for Graphics Configuration.

Graphics Configuration

Primary Display

Use this item to select which of graphics device should be primary display.

The optional settings are: [Auto]; [IGFX]; [PEG].

Internal Graphics

The optional settings are: [Auto]; [Disabled]; [Enabled].

GTT Size

The optional settings are: [2MB]; [4MB]; [8MB].

Aperture Size

The optional settings are: [128MB]; [256MB]; [512MB]; [1024MB].

DVMT Pre-Allocated

Use this item to select DVMT 5.0 pre-allocated (fixed) graphics memory size used by the internal graphics device.

The optional settings are: [32M]; [64M]; [96M]; [128M]; [160M]; [192M]; [224M]; [256M]; [288M]; [320M]; [352M]; [384M]; [416M]; [448M]; [480M]; [512M]; [1024M] ; [1536M] ; [2048M] ; [4M] ; [8M] ; [12M] ; [16M] ; [20M]; [24M] ; [28M] ; [32M/F7] ; [36M]; [40M]; [44M]; [48M]; [52M]; [56M]; [60M].

DVMT Total Gfx Mem

Use this item to select DVMT 5.0 total graphics memory size used by the internal graphics device.

The optional settings are: [128M]; [256M]; [MAX].

Primary IGFX Boot Display

Use this item to select the video device which will be activated during POST. This has no effect if external graphics present. Secondary boot display selection will

appear based on your selection. VGA modes will be supported only on primary display.
The optional settings are: [VBIOS Default]; [HDMI]; [DP]; [DVI]; [LVDS].

Secondary IGFX Boot Display

Use this item to select secondary IGFX boot display.
The optional settings are: [Disabled]; [HDMI]; [DP]; [DVI].

Active LFP

The optional settings are: [Disabled]; [Enabled].
**** Note**: When set as 'Enabled', user can make further settings in '**Panel Type**'.*

Panel Type

Use this item to manually select LCD panel type.
The optional setting are: [800x 480 18bit Single]; [800x 600 18bit Single]; [800x 600 24bit Single]; [1024 x 600 18bit Single]; [1024 x 768 18bit Single]; [1024 x 768 24bit Single]; [1280 x 768 24bit Single]; [1280 x 800 18bit Single]; [1280 x 800 24bit Single]; [1366 x 768 18bit Single]; [1366 x 768 24bit Single]; [1440 x 900 18bit Dual]; [1440 x 900 24bit Dual]; [1280 x 1024 24bit Dual]; [1680 x 1050 24bit Dual]; [1920 x 1080 24-bit Dual].

► **PEG Port Configuration**

Press [Enter] to make further settings for PEG port Configuration.

PEG Port Configuration

PEG (PCIE1 Slot)

This will show the current PCIE1 slot connected, if any available.

Max Link Speed

Use this item to configure maximum speed for available working card connected to PCIE1 slot.
The optional settings are: [Auto]; [Gen1]; [Gen1]; [Gen3].

► **Memory Configuration**

Press [Enter] to view brief information for the working memory module.

► **PCH-IO Configuration**

Press [Enter] to make settings for the following sub-items:

USB Controller

The optional settings are: [Disabled]; [Enabled].

HD Audio

The optional settings are: [Disabled]; [Enabled]; [Auto].

Onboard Lan1 Controller

Use this item to enable or disable onboard NIC

Wake on LAN

Use this item to enable or disable integrated LAN to wake the system.The Wake on LAN can not be disabled if ME is on at Sx state.

Onboard Lan2 Controller

Use this item to enable or disable onboard device or controller.

MPE Slot

Use this item to enable or disable the PCI Express root port.
The optional settings are: [Disabled]; [Enabled].

Speed

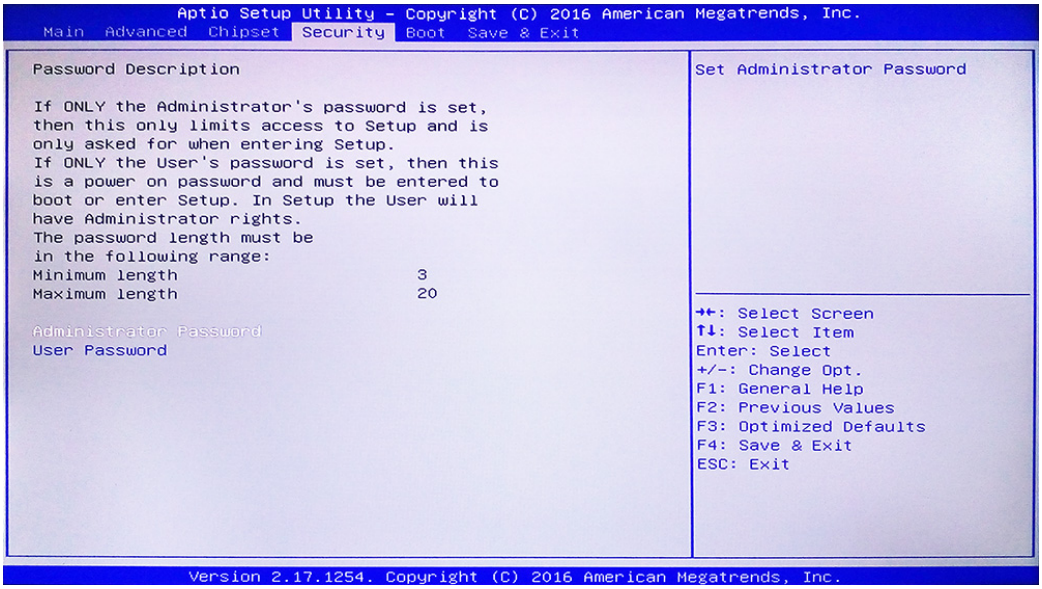
The optional settings are: [Auto]; [Gen1]; [Gen2]; [Gen3].

System State after Power Failure

Use this item to specify what state to go to when power re-applied after a power failure (G3 state).

The optional settings are: [Always On]; [Always Off]; [Former State].

3-9 Security Menu



Security menu allow users to change administrator password and user password settings.

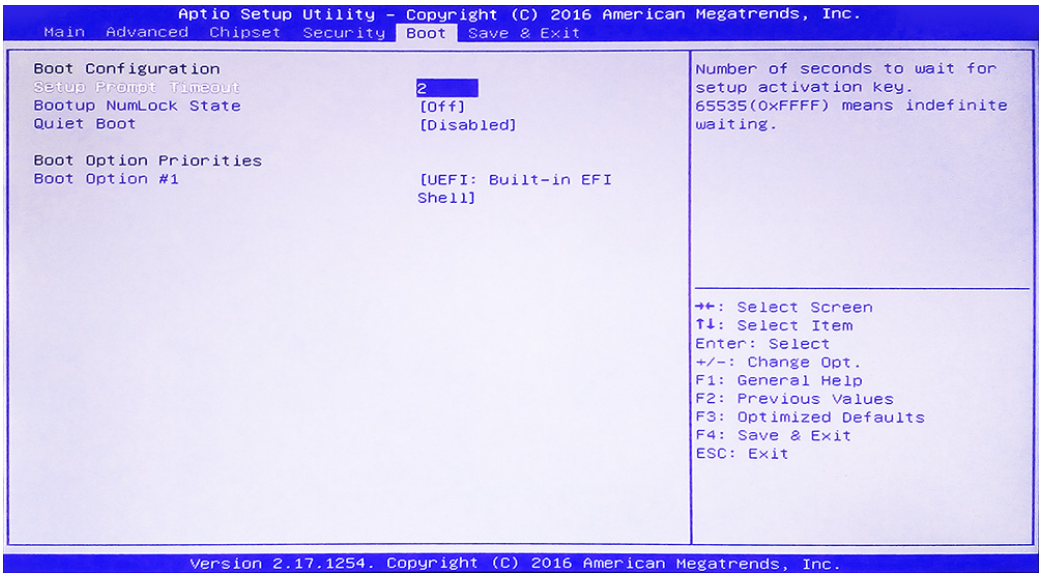
Administrator Password

Press [Enter] to create new administrator password. Press again to confirm the new administrator password.

User Password

Press [Enter] to create new user password. Press again to confirm the new user password.

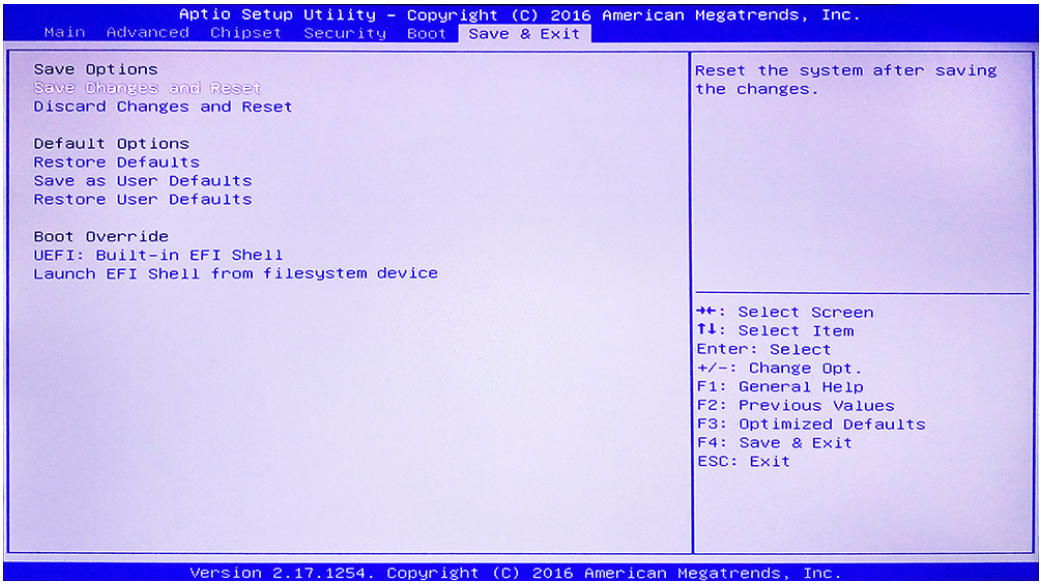
3-10 Boot Menu



Boot Configuration

Setup Prompt Timeout
Use this item to set number of seconds to wait for setup activation key.
Bootup Numlock State
Use this item to select keyboard numlock state.
The optional settings are: [On]; [Off].
Quiet Boot
The optional settings are: [Disabled]; [Enabled].
Boot Option Priorities
Boot Option #1/ Boot Option #2…
Use this item to decide system boot order from available options.

3-11 Save & Exit Menu



Save Changes and Reset
This item allows user to reset the system after saving the changes.
Discard Changes and Reset
This item allows user to reset the system without saving any changes.
Restore Defaults
Use this item to restore /load default values for all the setup options.
Save as User Defaults
Use this item to save the changes done so far as user defaults.
Restore User Defaults
Use this item to restore defaults to all the setup options.
Boot Override
UEFI:xx/…
Press this item to select the device as boot disk after save configuration and reset
Launch EFI Shell from filesystem device
Press this item to launch EFI Shell application (Shell.efi) from one of the available file system device.

Chapter 4

Touch Panel

HPC170SR-IT170 is designed based on the technology of 5-wire analog resistive type multi-touch screen of which specifications are listed below:

Specification

Display	
Front Bazel	IP65, NEMA 4 rugged protection, metal front bazel
Display Type	17.0'' with LED backlight
Brightness	350 nits
Display Color	262k
Resolution	1280 x 1024 @ 60Hz
Viewing Angle (H/V)	$170^{o}/160^{o}$
Pixel Pitch	0.264 x 0.264 mm
Aspect Ratio	4:3
Contrast Ratio	1000:1
Response Time	3.5 ms
Touch Screen	
Type	5 wires analog resistive type
Active Range	337.00 x269.50mm± 0.2mm
Transparency	80±3%
Surface Hardness	≥3H(ASTM D3363,pressure 750g/45^{o})
Operating Force	≤80g
Knock Test	10,000,000 times keystrokes

Appendix

General Notices

European Union CE Marking and Compliance Notices

Products intended for sale within the European Union are marked with the Conformity European (CE) Making, which indicates compliance with the applicable Directive and European standards and amendments identified.

Shielded Cables Notice

All connections to other computing devices must be made using shielded cables to maintain compliance with FCC regulations.

Peripheral Devices Notice

Only peripherals (input/out devices, terminals, printers, etc) certified to comply with Class B limits may be attached to this equipment. Operation with non-certified peripherals is likely to result in interference to radio and TV reception.

Wireless Related Information

Wireless Interoperability

Wireless LAN PCI Express Mini Card is designed to be interoperable with any wireless LAN product that is based on Direct Sequence Spread Spectrum (DSSS), Complementary Code Keying (CKK), and/or Orthogonal Frequency Division Multiplexing (OFDM) radio technology, and is compliant to:

The IEEE802.11a/b/g/n Standard on Wireless LANs was defined and approved by the Institute of Electrical and Electronics Engineers.

The Wireless Fidelity (WiFi) certification as defined by the Wi-Fi Alliance.

Usage Environment and Your Health

Wireless LAN PCI Express Mini Card emits radio frequency electromagnetic energy like other radio devices. However, the level of energy emitted is far much less than the electromagnetic energy emitted by wireless devices like for example mobile phones.

Due to the fact that Wireless LAN PCI Express Mini Card operates within the guidelines found in radio frequency safety standards and recommendations, we believe the integrated wireless cards are safe for use by consumers. These standards and recommendations reflect the consensus of the scientific community and result from deliberations of panels and committees of scientists who continually review and interpret the extensive research literature.

In some situation or environment, the use of Wireless LAN PCI Express

Mini Card may be restricted by the proprietor of the building or responsible representatives of the organization. These situations may for example include:

Using the integrated wireless cards on board of airplanes, or in hospitals

In any other environment that the risk of interference to other devices and service are perceived or identified to be harmful.

If you are uncertain of the policy that applies on the use of wireless devices in a specific organization (e.g., airport or hospital), you are encouraged to ask for authorization to use Wireless LAN PCI Express Mini Card prior to turning on the computer.

Electronic Emissions Notices

European Union Compliance Statement Class B Compliance

European Union – Compliance to the Electromagnetic Compatibility Directive

This product is in conformity with the protection requirements of EU Council Directive 2004/108/EC on the approximation of the laws of the Member States relating to electromagnetic compatibility. We cannot accept responsibility for any failure to satisfy the protection requirements resulting from a non-recommended modification of the product, including the installation of option cards from other manufacturers.

This product has been tested and found to comply with the limits Class B Information Technology Equipment according to European Standard EN55022. The limits for Class B equipment were derived for typical residential environments to provide reasonable protection against interference with licensed communication devices.

Properly shielded and grounded cables and connectors must be used in order to reduce the potential for causing interference to radio and TV communications and to other electrical or electronic equipment.

FCC Rules and Regulations-Part 15

This devices uses, generates and radiates radio frequency energy. The radio frequency energy produced by this device is well below the maximum exposure allowed by the Federal Communications Commission (FCC)

- This device complies with the limits for the Class B digital device pursuant to Part 15 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.

The FCC limits are designed to provide reasonable protection against harmful interference when the equipment is installed and used in accordance with the instruction manual and operated in a commercial environment. However, there is no guarantee that interference will not occur in a particular commercial installation, or if operated in a residential area.

If harmful interference with radio or television reception occurs when the device is turned on, the user must correct the situation at the user's own expense. The user is encouraged to try one or more of the following corrective measures:

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

CAUTION: The Part 15 radio device operates on a non-interference basis with other devices operating at this frequency. Any changes or modification to said product not expressly approved by Intel could void the user's authority to operate this device.