

# **Rugged Stainless Panel PC User's Manual**

**NO. G03-PCNC7ARSF-F**

**Manual Revision: 3.0**

**Release Date: April 25, 2022**

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# TABLE OF CONTENT

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Safety Precautions.....	ii
User's Notice.....	iii
Package Contents.....	iii
Environmental Protection Announcement .....	iii
Chapter 1 Introduction.....	1
1-1 General Descriptions.....	1
1-2 Specifications.....	2
1-3 I/O Outlets.....	3
1-4 Connector Pin Definition.....	4
Chapter 2 Hardware and Installation.....	7
2-1 Dimensions and Outlines.....	7
2-2 To Open the Chassis.....	8
2-3 Jumper Settings.....	9
2-4 Hardware Installation.....	12
2-4-1 To install HDD.....	12
2-4-2 To install M2 SATA Card.....	13
Chapter 3 Introducing BIOS.....	15
3-1 Entering Setup.....	15
3-2 BIOS Menu Screen.....	16
3-3 Function Keys.....	16
3-4 Getting Help.....	16
3-5 Menu Bars.....	17
3-6 Main Menu.....	17
3-7 Advanced Menu.....	18
3-8 Chipset Menu.....	25
3-9 Security Menu.....	27
3-10 Boot Menu.....	28
3-11 Save & Exit Menu.....	29
Chapter 4 Touch Panel.....	30
APPENDIX.....	31



## **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.

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## 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).

Products and corporate names appearing in this manual may or may not be registered trademarks or copyrights of their respective companies, and they are used only for identification or explanation and to the owner's benefit, without intent to infringe.

## Package Contents

 <p>AC-DC Adapter</p>	 <p>Power Cord</p>
X1	X1

## 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.



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# 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.

- 10-points Multi Capacitive Touch
- Cable-less,streamlined enclosure for highly efficient heat dissipation enclosed in robust aluminum casing
- Edge-to-edge narrow bezel design and fan-less cooling system
- Designed for easy wall mount, panel mount, and VESA mount installation
- A true flat, easy-to-clean front surface with edge-to-edge design
- USB 3.0 ports support lock device.
- IO ports designed for easy connection
- Whole machine is waterproof and IP67-rated, NEMA 4 rugged protection
- Waterproof and stainless structure
- Onboard Intel® Bay Trail series SoC processor, with low power consumption never denies high performance
- Onboard 4GB DDR3L 1333Mhz SO-DIMM
- Support 1 \* 2.5" SATA HDD Device, 1\* Mini PCIe, 1\* M.2 connector
- Support dual Gigabit LAN
- Support 2 \* RS232/422/485 port
- Support 2\* USB2.0 connector for 4 \* USB2.0 expansion port
- Support 9~28V wide voltage range DC power-in

***The system has the following features besides other basic functions:***

- **Giga LAN:** The system is integrated with Gigabit LAN network controller with ACPI management realizing efficient power management for the operating system.
- **USB2.0:** The system supports USB 2.0 function compatible for both USB 2.0 devices and USB 1.1 interface devices. Users can enjoy high speed data transmission rate up to 480Mb/s. Users can also connect USB 2.0 storage device to the system to create a data bank for storage of download movies.
- **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.

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## 1-2 Specifications

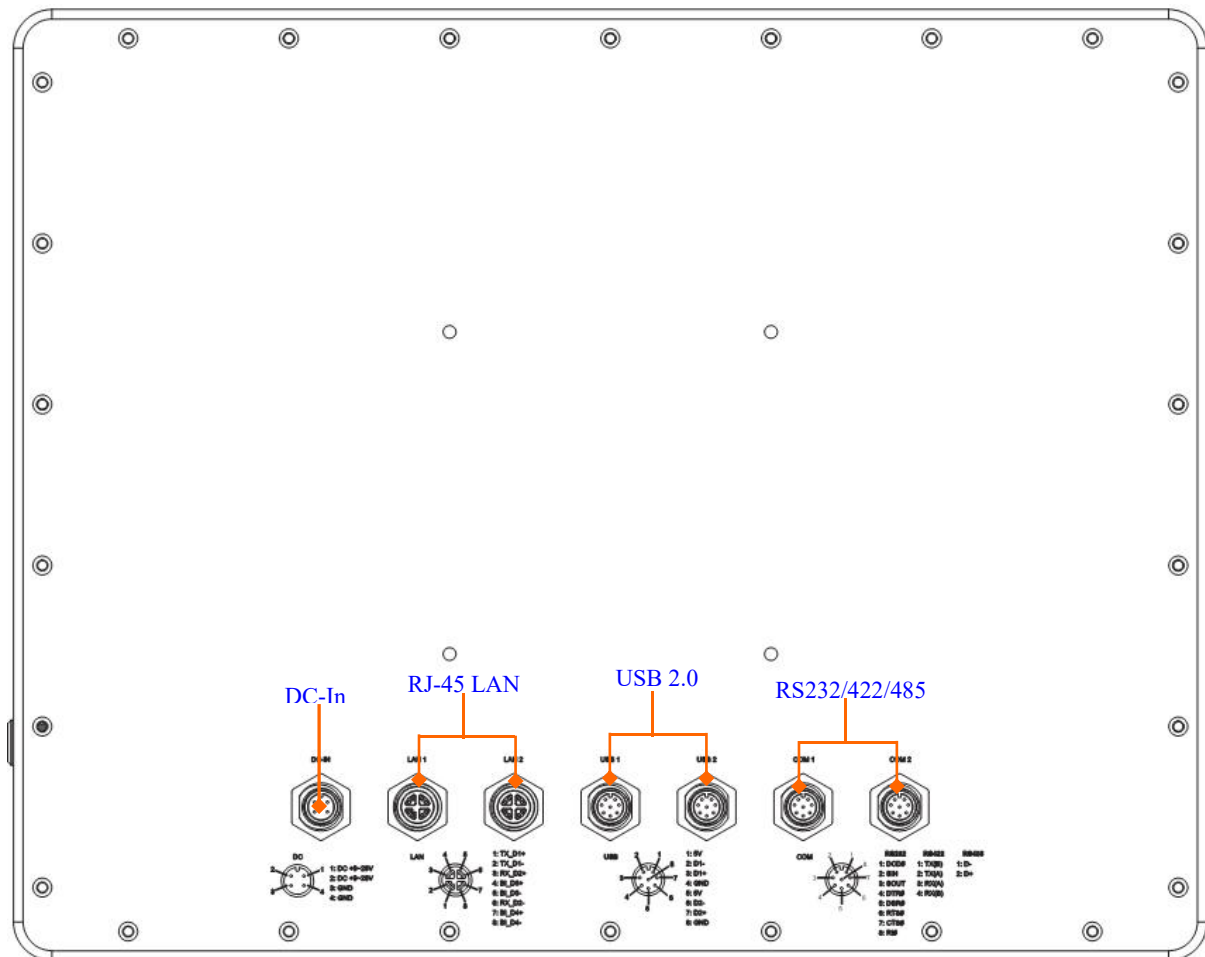
### Main CPU Board

- **CPU**
  - Intel® Bay Trail series SoC processor
  
- **System Memory**
  - Onboard 4GB DDR3L 1333MHz SO-DIMM
  
- **BIOS**
  - AMI 64Mb Flash ROM

### I/O System

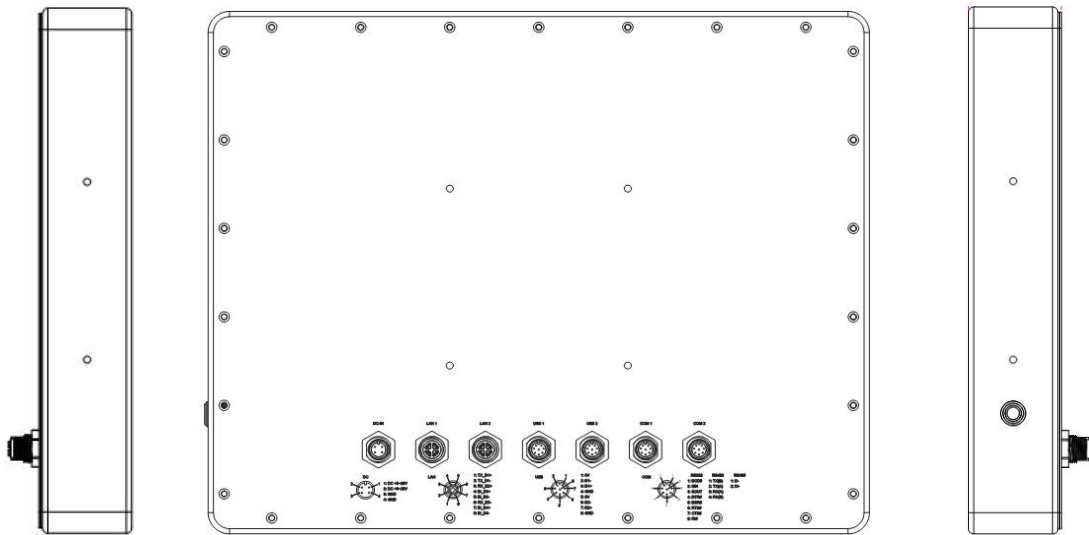
- **Standard I/O**
  - 1\* Power Button
  - 1\* Lockable 9~28V DC-in Power Jack
  - 2\* RJ-45 for Gigabit Ethernet (Intel i211AT)
  - 2\* USB 2.0 connector for 4 \* USB2.0 expansion port
  - 2\* RS-232/422/485

## 1-3 I/O Outlets








Back IO	Q'ty
DC-in	1
RJ-45	2
USB2.0	2
RS232/422/485	2

## 1-4 Connector Pin Definition



### (1) Connector Function

Icon	Name	Function
	<b>Power Button</b>	Press to turn on/off the system.
DC-IN 	<b>DC-in Power Connector</b>	For user to connect compatible power adapter to provide power supply for the system.
LAN1/LAN2 	<b>RJ-45 LAN Port Connector</b>	This connector is standard RJ-45 LAN jack for Network connection.
USB1/USB2 	<b>USB 2.0 Port Connector</b>	To connect USB keyboard, mouse or other devices compatible with USB 2.0 specification. <b>*Note:</b> 1* USB 2.0 connector for 2* USB 2.0 expansion port.
COM1/COM2 	<b>COM Port Connector</b>	Mainly for user to connect external MODEM or other devices that supports Serial Communications Interface.



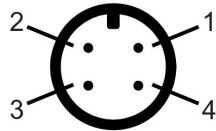
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## (2) I/O Connectors Pin Definition

### **DC-in Power Connector**

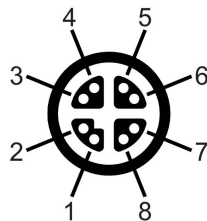
The pin assignment for DC-in power connector is listed as follows:



Pin NO.	Definition
1	DC +9~28V
2	DC +9~28V
3	GND
4	GND

### **RJ-45 Ethernet Connector**

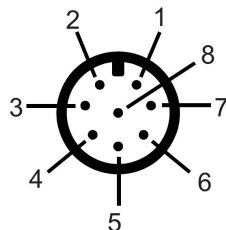
The pin assignment for RJ-45 Ethernet LAN connectors are listed as follows:



Pin NO.	Definition
1	TX_D1+
2	TX_D1-
3	RX_D2+
4	BI_D3+
5	BI_D3-
6	RX_D2-
7	BI_D4+
8	BI_D4-

### **USB 2.0 Port Connector**

The pin assignment for USB 2.0 port connectors are listed as follows:



Pin NO.	Definition
1	5V
2	D1-
3	D1+
4	GND
5	5V
6	D2-
7	D2+
8	GND

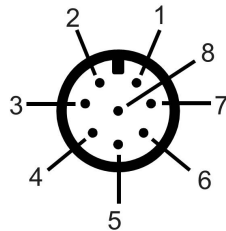
**\*Note:** 1\* USB 2.0 connector for 2\* USB 2.0 expansion port.

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### 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	DSR	NC	NC
6	RTS	NC	NC
7	CTS	NC	NC
8	RI	NC	NC

COM1 & COM2 ports can function as RS232/422/485 port. In normal settings COM5/COM6 functions as RS232 port. With compatible COM cable they can function as RS422 or RS 485 port. User also needs to go to BIOS to set '**Transmission Mode Select**' for COM1/COM2 (refer to Page 19) at first, before using specialized cable to connect different pins of this port.

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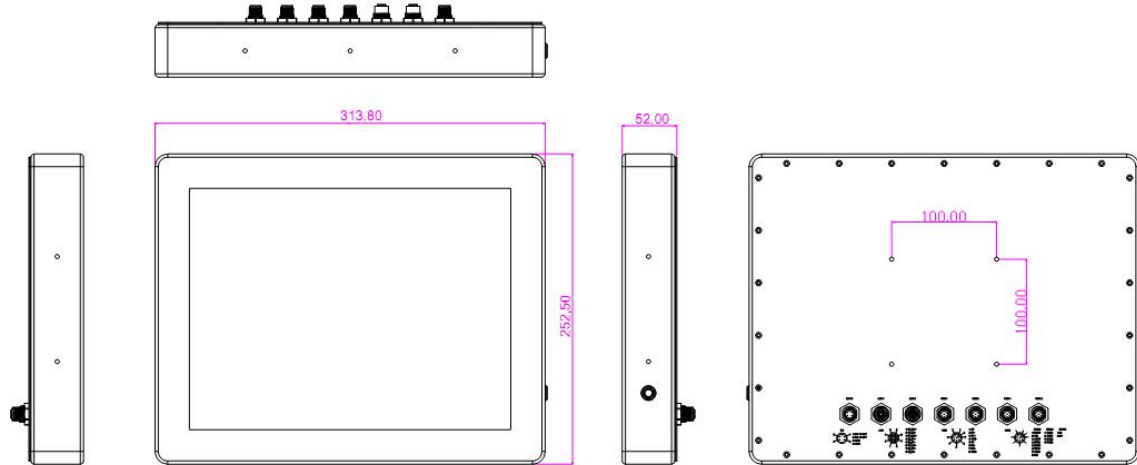
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# Chapter 2

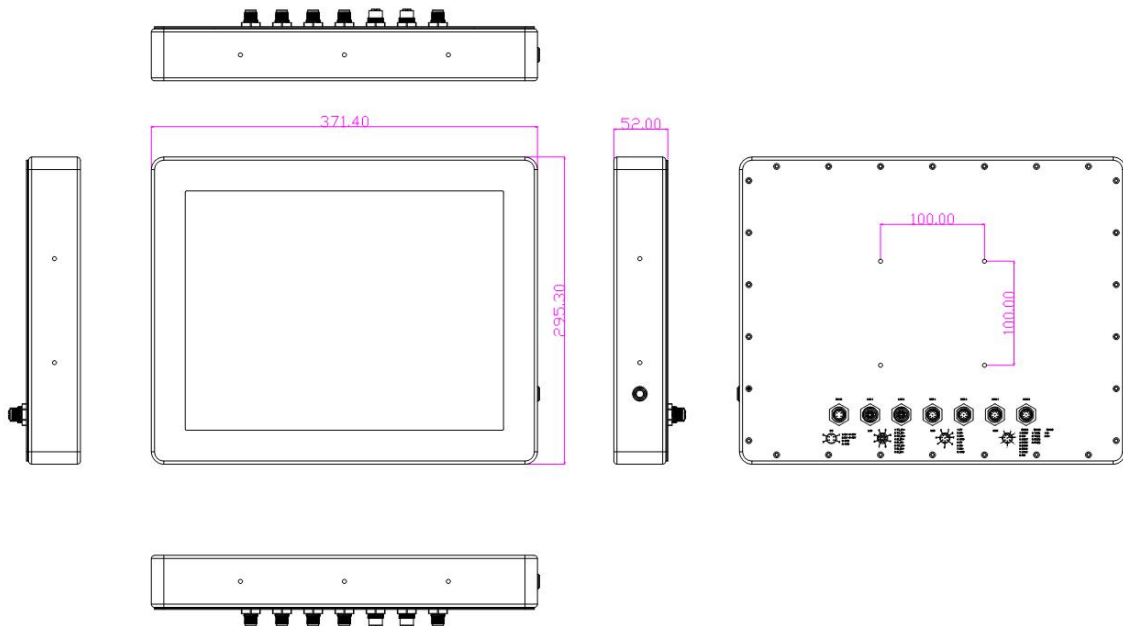
## Hardware and Installation

### 2-1 Dimension and Outlines

*Product Dimension for HPC121SR-SF1900B Series:*



*Product Dimension for HPC150SR-SF1900B Series:*

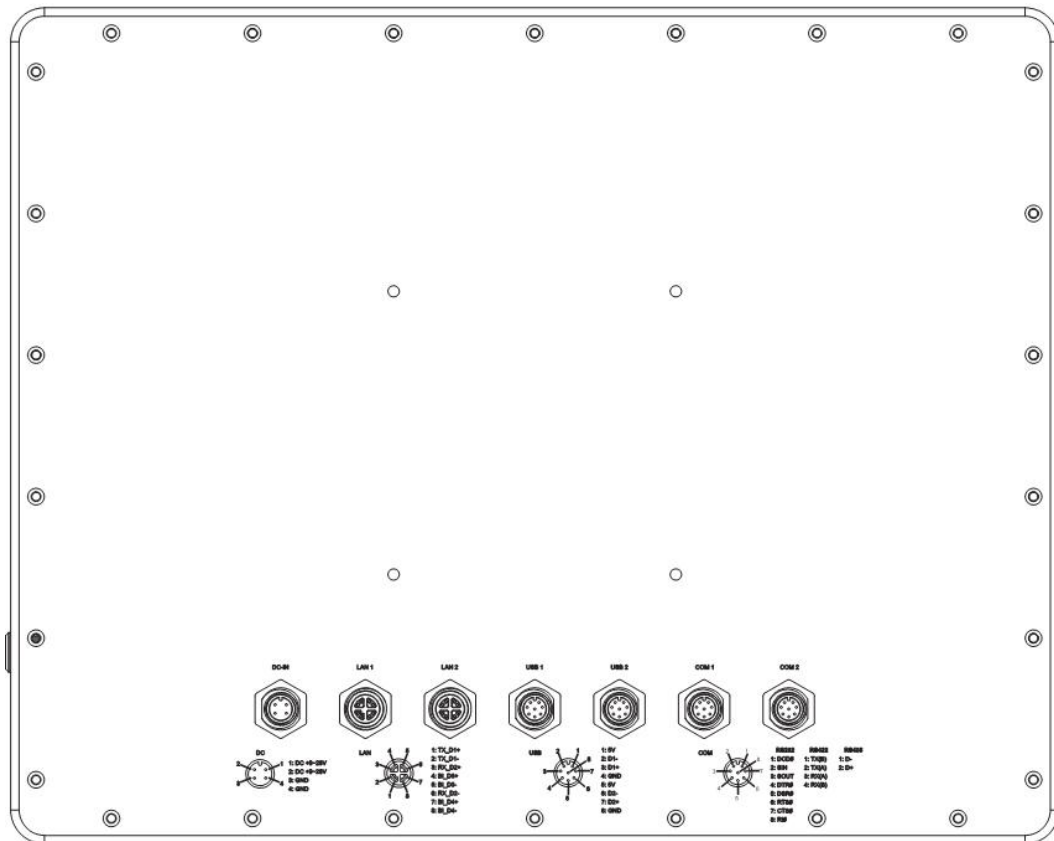


*\* Measure Unit: mm.*

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## 2-2 To Open the Chassis

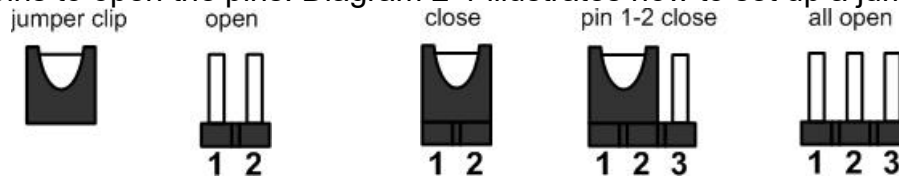


Use a screwdriver to unscrew the screws on the back cover that lock the chassis. Remove them and put the cover aside to open the chassis.

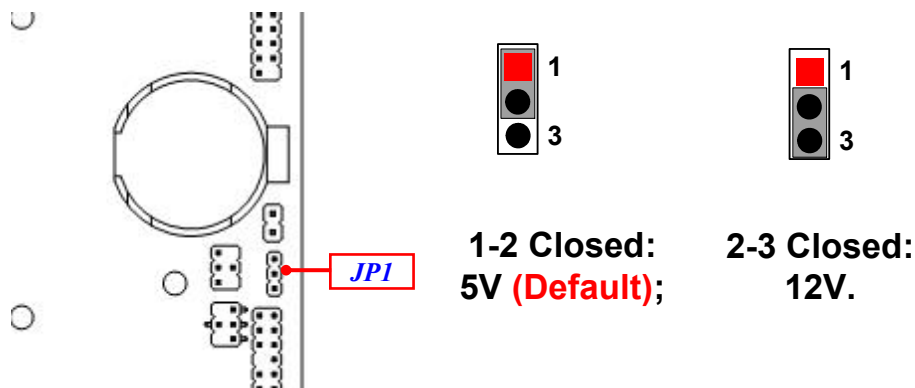
**Notice:** When lifting the cover up to open the chassis for further installation, see to it that the connecting cables are not unplugged. It is very important for the cables connected to their original places for normal functioning.

## 2-3 Jumper Settings

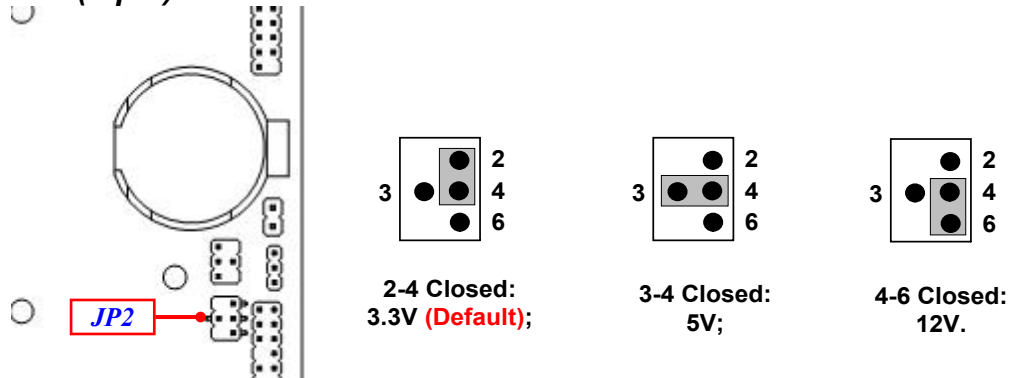
Jumper is a small component consisting of jumper clip and jumper pins. Install jumper clip on 2 jumper pins to close the pins. And remove jumper clip from 2 jumper pins to open the pins. Diagram 2-1 illustrates how to set up a jumper.



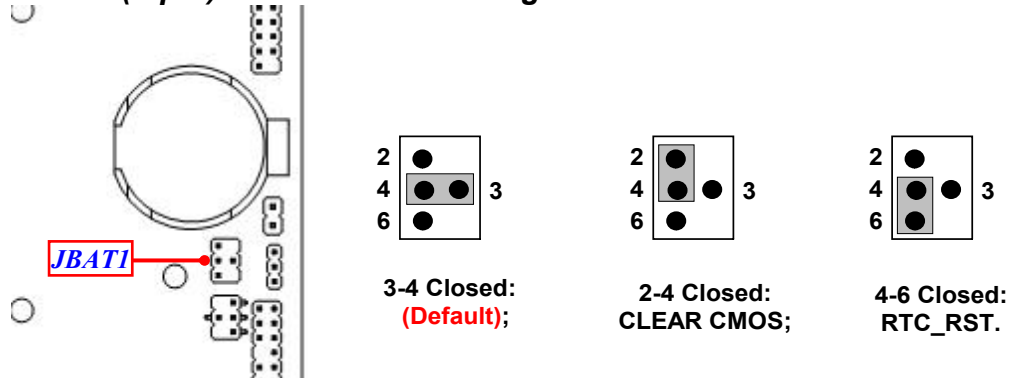
### (1) JP1 (3-pin): eDP Backlight VCC 5V /12V Select



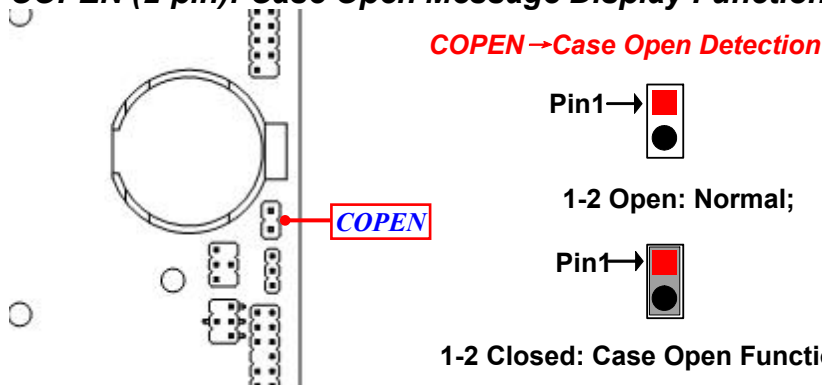
### (2) JP2 (4-pin): eDP LCD VCC 3.3V / 5V /12V Select



### (3) JBAT1 (4-pin): Clear CMOS Setting

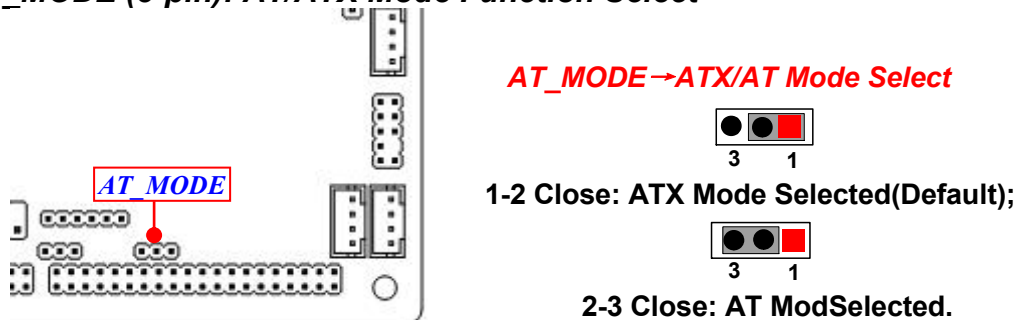


**(4) COPEN (2-pin): Case Open Message Display Function Select**



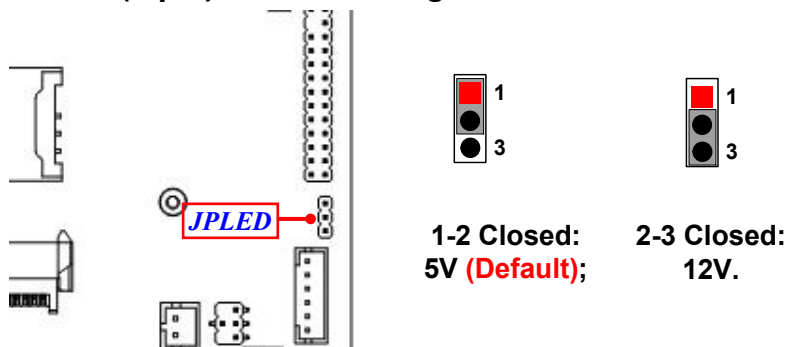
**Pin 1-2 Closed:** Case open display function enabled. Use needs to enter BIOS and enable 'Case Open Detect' function. In this case if you case is removed, next time when you restart your computer a message will be displayed onscreen to inform you of this.

**(5) AT\_MODE (3-pin): AT/ATX Mode Function Select**

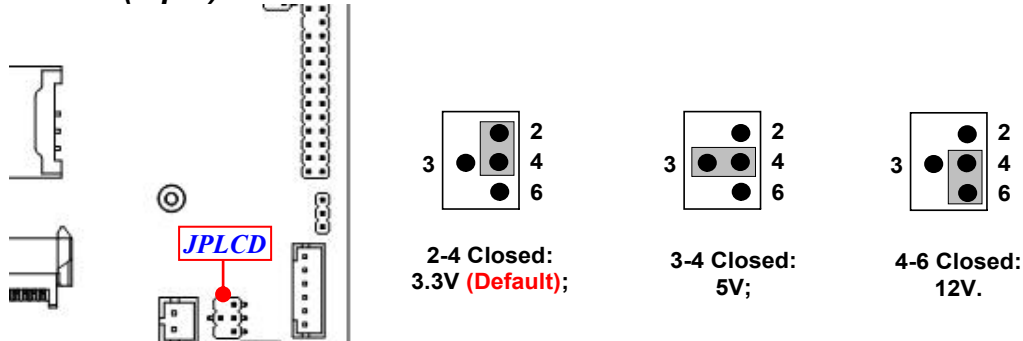


**\*ATX Mode Selected:** Press power button to power on after power input ready;  
**AT Mode Selected:** Directly power on as power input ready.

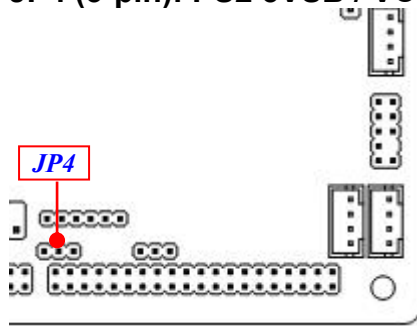
**(6) JPLED (3-pin): LVDS Backlight VCC 5V / 12V Select**



**(7) JPLCD (4-pin): LVDS LCD VCC 3.3V / 5V / 12V Select**



**(8) JP4 (3-pin): PS2 5VSB / VCC Select**



*JP4 → PS2 5VSB/VCC Select*

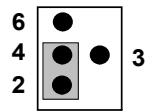
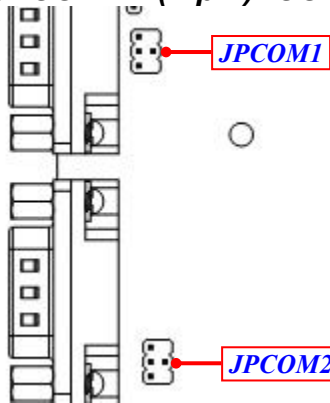


1-2 Close: 5VSB (Default);

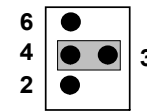


2-3 Close: VCC.

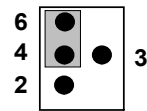
**(9) JPCOM1/2 (4-pin): COM1/COM2 5V /12V Select**



2-4 Closed:  
RING (Default);

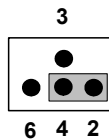
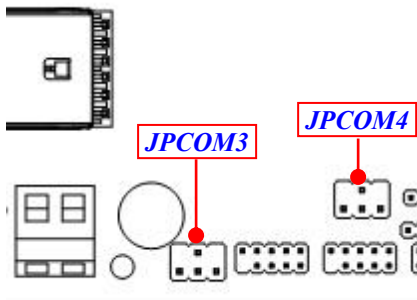


3-4 Closed:  
5V;

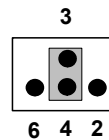


4-6 Closed:  
12V.

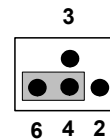
**(10) JPCOM3/4 (4-pin): COM3/COM4 5V/12V Select**



2-4 Closed:  
RING (Default);



3-4 Closed:  
5V;



4-6 Closed:  
12V.

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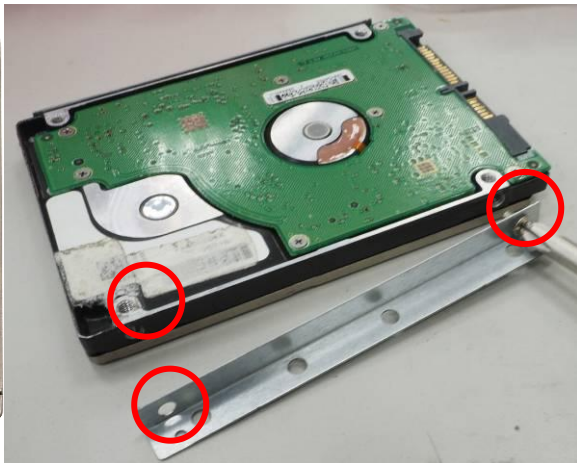
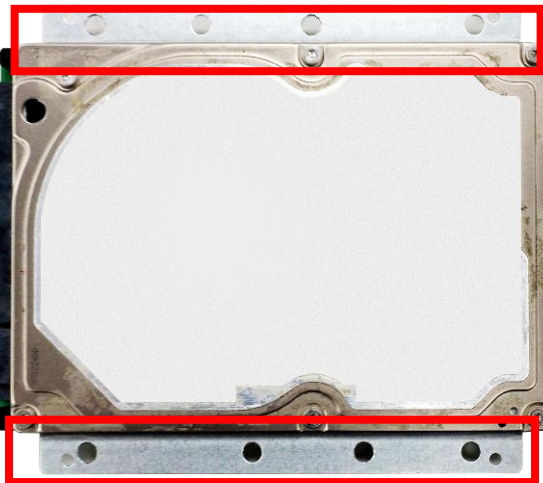
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## 2-4 Hardware Installation

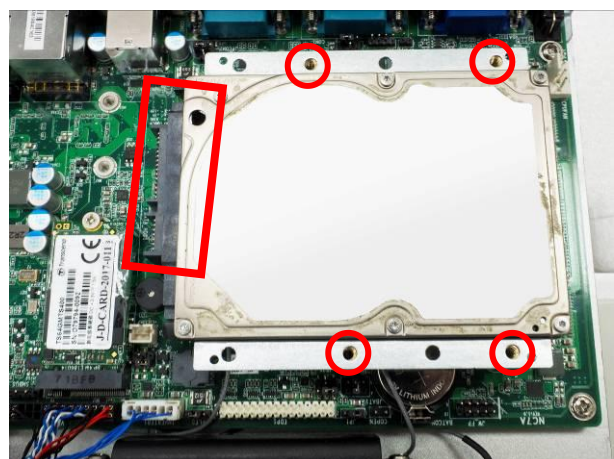
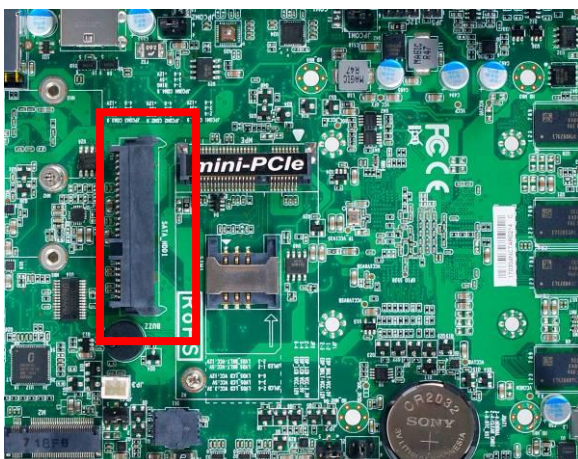
Remove the screws that lock the back cover to the system from the back side before hardware installation procedures (refer to 2-2).

### 2-4-1 To Install HDD

Please refer to the following instructions and illustration to install a 2.5" SATA HDD. Before installation, **please refer to 2-2** to open the back cover and disassemble the pre-installed HDD racks from the system.



1. 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.
2. Lock the HDD to the HDD racks by tightening screws into matched screw holes.



3. Find the 2.5" HDD connector on the motherboard.
4. Push the installed HDD into HDD connector on the board as showed. Lock the racked with HDD installed to the board by tightening the screws in the marked spots.



## 2-4-2 To Install M2 SATA Card

This M2 Socket 3 connector support compatible type 2242/2260/2280 SATA SSD module.

Nut Location	MH1	MH2	MH3
Card Length	4.2 cm	6 cm	8 cm
Module Type	Type 2242	Type 2260	Type 2280



1. Find M2 SATA Slot on the motherboard.
2. Prepare compatible M.2 SATA or M.2 SSD card. Different type of cards has different length. Find corresponding nut location for further installation.



3. Remove the screw post and nut fixed at location **MH2** by default (Skip step 2 & 3 and go straight to Step 4 if you are going to use the default nut).
4. Lock the screw post into the location corresponding to the length of the module you wish to install.



5. Align and insert corresponding M.2 module, as the photo shows.



6. Tighten up the screw to secure the module into the M.2 connector. Make sure not over-tighten the screw to avoid possible damage to the module.

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## 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 from 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

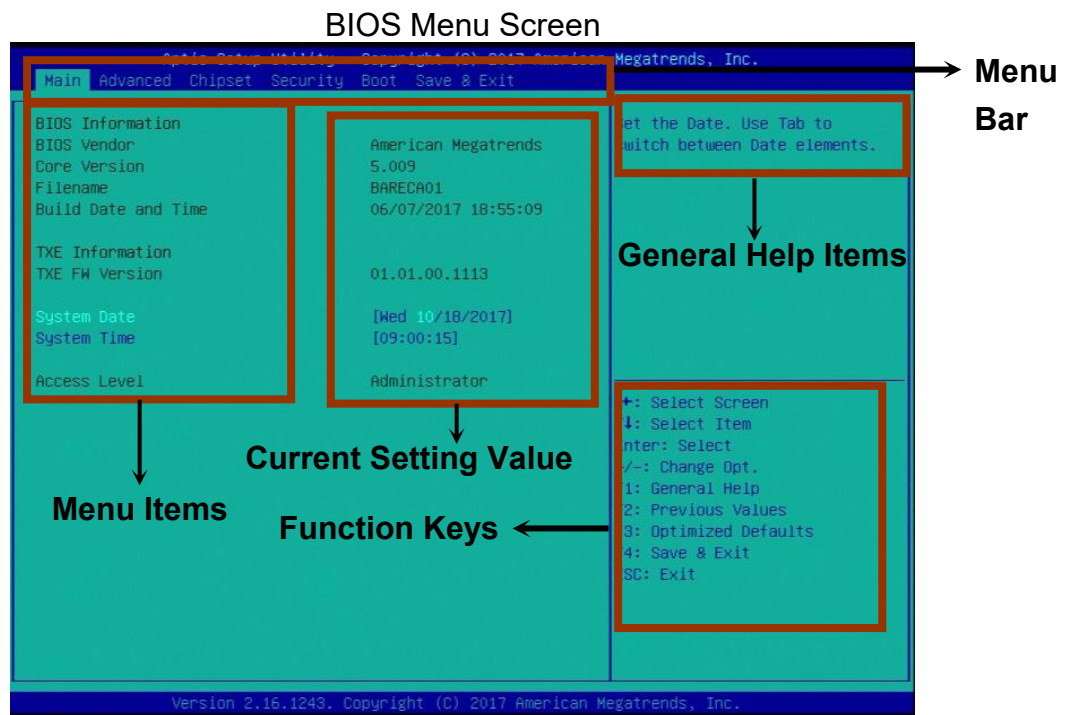
Press **<Del>** to enter Setup

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## 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 quit the 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

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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

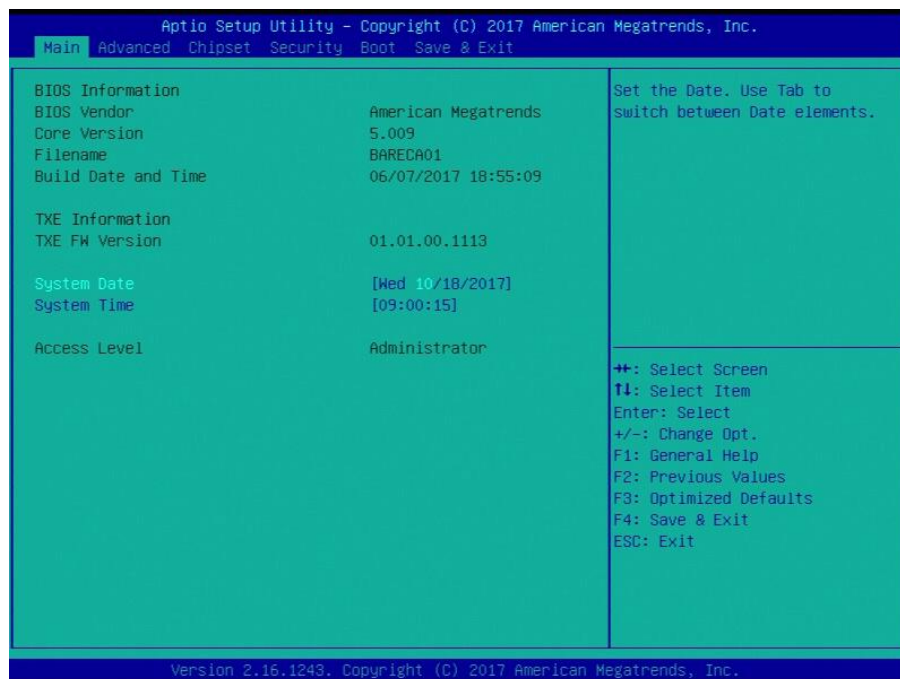
There are six menu bars on top of BIOS screen:

<b>Main</b>	To change system basic configuration
<b>Advanced</b>	To change system advanced configuration
<b>Chipset</b>	To change chipset configuration
<b>Security</b>	Password settings
<b>Boot</b>	To change boot settings
<b>Save &amp; Exit</b>	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 date elements.

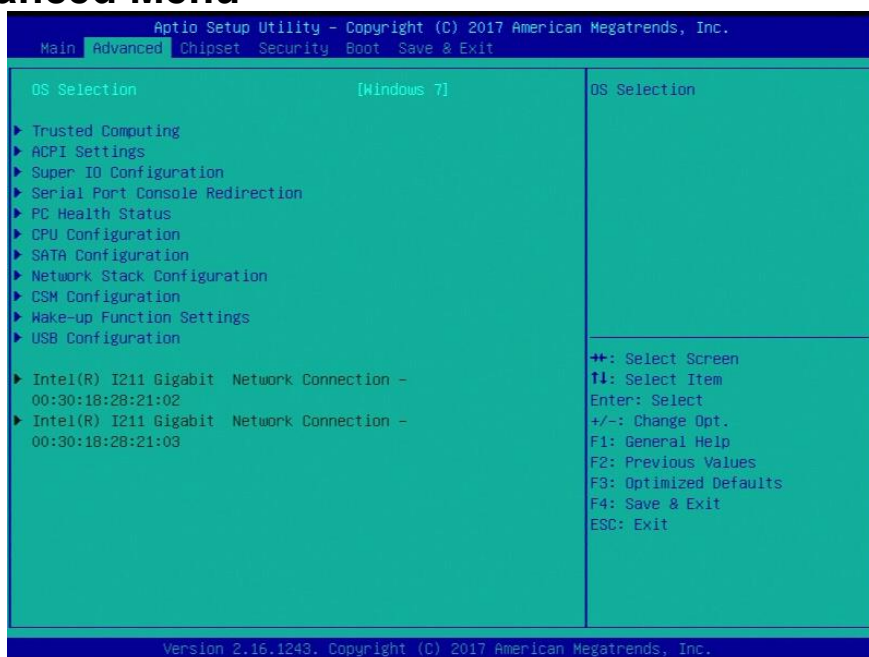
#### System Time

Set the time. Please use [Tab] to switch between time elements.

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## 3-7 Advanced Menu



### OS Selection

Use this item to select OS.

The optional settings are: [Windows 8.X]; [Linux/Android]; [Windows 7].

#### ▶ **Trusted Computing**

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

##### **Configuration**

##### **Security Device Support**

Use this item to enable or disable BIOS support for security device. OS will not show Security Device. TCG EFI protocol and INT1A interface will not be available. The optional settings: [Disabled]; [Enabled].

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

##### **TPM State**

Use this item to enable or disable Security Device. NOTE: computer will reboot during restart in order to change state of the Device.

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

#### ▶ **ACPI Settings**

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

##### **ACPI Sleep State**

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

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

#### ▶ **Super I/O Configuration**

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

##### **Super IO Configuration**

##### ▶ **Serial Port 1/2 Configuration**

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

##### **Serial Port**

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

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

### **Change Settings**

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

The optional settings are: [Auto]; [IO=3F8h; IRQ=4;]; [IO=2F8h; IRQ=3;]; [IO=3E8h; IRQ=4;]; [IO=2E8h; IRQ=3;].

### **Transmission Mode Select**

Use this item to select transmission mode.

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

### **Serial Port FIFO Mode**

Use this item to select an optimal setting for FIFO Mode.

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

## ▶ **Serial Port 3/4/5/6 Configuration**

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

### **Serial Port**

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

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

### **Change Settings**

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

The optional settings are: [Auto]; [IO=3F8h; IRQ=10;]; [IO=2F8h; IRQ=10;]; [IO=3E8h; IRQ=10;]; [IO=2E8h; IRQ=10;]; [IO=2F0h; IRQ=10;]; [IO=2E0h; IRQ=10;].

### **Serial Port FIFO Mode**

Use this item to select an optimal setting for FIFO Mode.

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

## **OS Select for Serial Port**

Serial port supports for Windows or Linux. The optional settings are: [Windows]; [LINUX].

## **ERP Support**

Use this item to disable or enable ERP to active all wake-up functions.

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

## **Case Open Detect**

Use this item to disable or enable case open functions and show message in POST.

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

## **PS2 KB/MS Connect**

Use this item to set PS2 Connect Primary Devices.

The optional settings are: [Keyboard First]; [Mouse First].

## **WatchDog Reset Timer**

This item support WDT reset function.

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

Use this item to enable or disable WatchDog Timer Control. When set as [Enabled], the following sub-items shall appear:

### **WatchDog Reset Timer Value**

User can set a value in the range of [10] to [255] seconds or in the range of [1] to [255] minutes.

### **WatchDog Reset Timer Unit**

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The optional settings are: [Sec.]; [Min.].

### **WatchDog Wake-up Timer**

Support WDT Wake-up.

The optional settings: [Disabled]; [Enabled]. When set as [Enabled], the following sub-items shall appear:

### **WatchDog Wake-up Timer Value**

User can set a value in the range of [10] to [4095] seconds when ' **WatchDog Wake-up Timer Unit** ' set as [Sec.], or in the range of [1] to [4095] minutes when ' **WatchDog Wake-up Timer Unit** ' set as [Min.].

### **WatchDog Wake-up 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 14**, AT\_MODE jumper for ATX Mode / AT Mode Select).

## ▶ **Serial Port Console Redirection**

### **COM1**

### **Console Redirection**

The optional settings: [Disabled]; [Enabled]. When set as [Enabled], the following sub-items shall appear:

#### ▶ **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 items:

#### **Terminal Type**

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

Emulation: VT100: ASCII char set; VT100+: Extends VT100 to support color, function keys, etc.; VT-UTF8: Uses UTF8 encoding to map Unicode chars onto 1 or more bytes; ANSI: Extended ASCII char set.

#### **Bits per second**

Use this item to select serial port transmission speed. The speed must be matched on the other side. Long or noisy lines may require lower speeds.

The optional settings: [9600]; [19200]; [38400]; [57600]; [115200].

#### **Data Bits**

The optional settings: [7]; [8].

#### **Parity**

A parity bit can be sent with the data bits to detect some transmission errors.

The optional settings: [None]; [Even]; [Odd]; [Mark]; [Space].

Even: parity bit is 0 if the num of 1's in the data bits is odd; Mark: parity bit is always 1; Space: Parity bit is always 0; Mark and Space Parity do not allow for error detection.

#### **Stop Bits**

Stop bits indicate the end of a serial data packet. (A start bit indicates the beginning). The standard settings is 1 stop bit. Communication with slow devices may require more than 1 stop bit.

The optional settings: [1]; [2].



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### **Flow Control**

Flow control can prevent data loss from buffer overflow. When sending data, if the receiving buffers are full, a “stop” signal can be sent to stop the data flow. Once the buffers are empty, a “start” signal can be sent to re-start the flow. Hardware flow control uses two wires to send start/stop signals.

The optional settings: [None]; [Hardware RTS/CTS].

### **VT-UTF8 Combo Key Support**

Use this item to enable VT-UTF8 Combination Key Support for ANSI/VT100 terminals.

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

### **Recorder Mode**

With this mode enable only text will be sent. This is to capture Terminal data.

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

### **Resolution 100x31**

Use this item to enable or disable extended terminal resolution.

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

### **Legacy OS Redirection Resolution**

On Legacy OS, the Number of Rows and Columns supported redirection.

The optional settings: [80x24]; [80x25].

### **Putty KeyPad**

Use this item to select FunctionKey and KeyPad on Putty.

The optional settings: [VT100]; [LINUX]; [XTERMR6]; [SCO]; [ESCN]; [VT400].

### **Redirection After BIOS POST**

The settings specify if BootLoader is selected then Legacy console redirection is disabled before booting to Legacy OS. Default value is Always Enable which means Legacy Console Redirection is enabled for Legacy OS.

The optional settings: [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], the following sub-items shall appear:

#### **▶ 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 items:

#### **Out-of-Band Mgmt Port**

The default setting is are: [COM1].

#### **Terminal Type**

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

Emulation: VT100: ASCII char set; VT100+: Extends VT100 to support color, function keys, etc.; VT-UTF8: Uses UTF8 encoding to map Unicode chars onto 1 or more bytes; ANSI: Extended ASCII char set.

VT-UTF8 is the preferred terminal type for out-of-band management. The next best choice is VT100+ and then VT100.

#### **Bits per second**

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Use this item to select serial port transmission speed. The speed must be matched on the other side. Long or noisy lines may require lower speeds.

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

#### **Flow Control**

Flow control can prevent data loss from buffer overflow. When sending data, if the receiving buffers are full, a “stop” signal can be sent to stop the data flow. Once the buffers are empty, a “start” signal can be sent to re-start the flow. Hardware flow control uses two wires to send start/stop signals.

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

#### ▶ **PC Health Status**

Press [Enter] to view current hardware health status, set shutdown temperature, or make further settings in ‘**SmartFan Configuration**’.

##### **SmartFAN Configuration**

Press [Enter] to make settings for SmartFAN Configuration:

#### **CPUFAN Type**

The optional settings are: [4-Pin]; [3-Pin].

#### **CPUFAN Smart Mode**

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

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

##### **CPUFAN Full-Speed Temperature**

Use this item to set CPUFAN full speed temperature. Fan will run at full speed when above the pre-set temperature.

##### **CPUFAN Full-Speed Duty**

Use this item to set CPUFAN full speed duty. Fan will run at full speed when above the pre-set duty.

##### **CPUFAN Idle-Speed Temperature**

Use this item to set CPUFAN idle speed temperature. Fan will run at idle speed when below the pre-set temperature.

##### **CPUFAN Idle-Speed Duty**

Use this item to set CPUFAN idle speed duty. Fan will run at idle speed when below the 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].

#### ▶ **CPU Configuration**

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

##### **Limit CPUID Maximum**

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

This item should be set as [Disabled] for Windows XP.

##### **Execute Disable Bit**

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

##### **Hardware Prefetcher**

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

Use this item to enable the Mid Level Cache (L2) streamer prefetcher.

##### **Adjacent Cache Line Prefetch**

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

Use this item to enable Mid Level Cache (L2) prefetching of adjacent cache lines.

#### **EIST**

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

Use this item to enable or diable Intel Speed Step function.

#### **CPU C State Report**

Use this item to enable or disable CPU C state report to OS.

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

When set as [Enabled], user can see **Enhanced C state**:

##### **Enhanced C state**

Use this item to enable or disable CPU Cstate.

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

#### **Max CPU C-State**

This item controls Max C-state that the processor will support.

The optional settings: [C7]; [C6]; [C1].

#### **S0ix**

Use this item to enable or disable CPU S0ix state.

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

### ▶ **SATA Configuration**

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

#### **SATA Controller**

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

When user set it as [Enabled], the following items will show up for user to make further settings:

##### **SATA Speed Support**

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

##### **SATA Mode**

The optional settings are: [IDE Mode]; [AHCI Mode].

##### **SATA Port**

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

##### **M.2**

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

### ▶ **Network Stack Configuration**

Press [Enter] to go to '**Network Stack**' screen to enable or disable UEFI Network Stack.

#### **Network Stack**

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

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 optional 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.

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▶ **CSM Configuration**

**Compatibility Support Module Configuration**

**Boot Option Filter**

This option controls Legacy/UEFI ROMs priority.

The optional settings are: [UEFI and Legacy]; [Legacy only]; [UEFI only].

**Network**

This item controls the execution of UEFI and Legacy PXE OpROM.

The optional settings are: [Do Not Launch]; [UEFI only]; [Legacy only].

**Storage**

This option controls the execution of UEFI and Legacy Storage OpROM.

The optional settings are: [Do Not Launch]; [UEFI only]; [Legacy only].

**Other PCI Devices**

This item determines OpROM execution policy for devices other than Network, storage or video.

The optional settings are: [UEFI First]; [Legacy Only].

▶ **Wakeup 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-up by RTC on alarm event.

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

When set as [Enabled], system will wake on the Hour/Minute/Second specified.

**Wake-up System with Dynamic Time**

Use this item to enable or disable system wake-up by RTC on alarm.

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

When set as [Enabled], system will wake on the (current time) + (Increase minute(s)). The range is from [1] to [60] minute(s). .

**PS2 KB/MS Wake-Up from S3-S5**

PS2 KB/MS Wake-up is affected by ERP function in S4-S5. Please disable ERP before activating this function in S4-S5.

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

**USB1 Wake-up from S3**

Use this item to enable or disable USB wake-up. It is affected by ERP function in S4. Please disable ERP before activating this function in S4.

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

▶ **USB Configuration**

**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].

**EHCI Hand-off**

This is a workaround for Oses without EHCI hand-off support. The EHCI ownership change should be claimed by EHCI driver.

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

### **USB Mass Storage Driver Support**

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

### **USB Hardware Delays and Time-outs:**

#### **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.

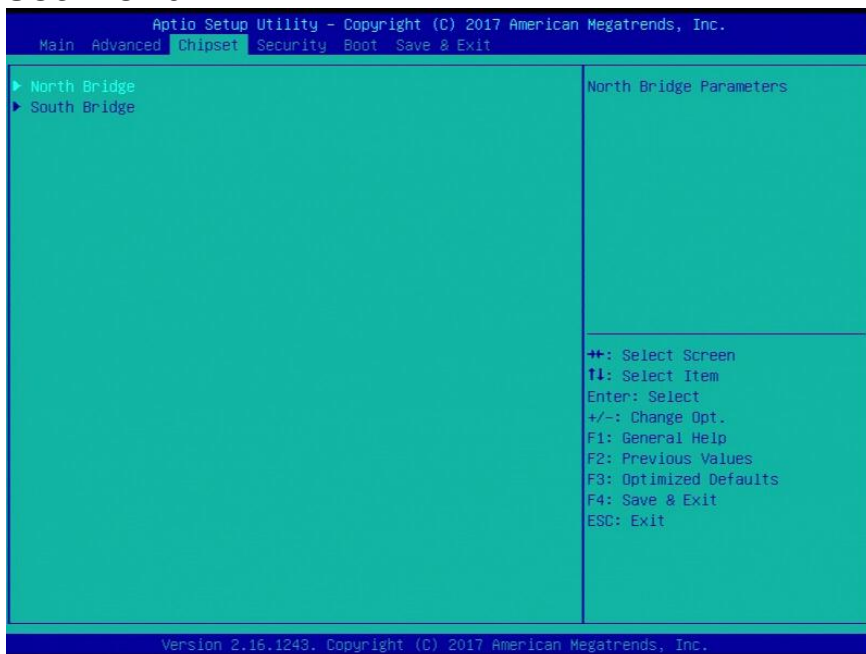
The optional settings: [Auto]; [Manual].

Select [Manual] you can set value for the following sub-item: '**Device Power-up Delay in Seconds**'.

#### **Device Power-up Delay in Seconds**

The delay range is from [1] to [40] seconds, in one second increments.

## **3-8 Chipset Menu**



### ▶ **North Bridge**

Press [Enter] to view current using memory information and make settings for the following sub-items:

#### **PAVC**

Use this item to enable or disable Protected Audio Video Control.

The optional settings are: [Disabled]; [LITE Mode]; [SERPENT Mode].

#### **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: [64M]; [96M]; [128M]; [160M]; [192M]; [224M]; [256M];

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[288M]; [320M]; [352M]; [384M]; [416M]; [448M]; [480M]; [512M].

**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].

**Aperture Size**

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

**GTT Size**

The optional settings are: [1M]; [2M].

**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]; [CRT]; [LFP].

**Active LFP**

The optional settings are: [Disable]; [LVDS]; [eDP].

When set as [LVDS], user can make settings in 'LCD Panel Type'.

The optional settings are: [800x600 24-bit 1ch]; [800x600 18-bit 1ch]; [1024x600 18-bit 1ch]; [1024x768 24-bit 1ch]; [1024x768 18-bit 1ch]; [800x480 18-bit 1ch]; [1366x768 18-bit 1ch]; [1440x900 18-bit 2ch]; [1366x768 24-bit 1ch]; [1440x900 24-bit 2ch]; [1280x1024 24-bit 2ch]; [1280x800 18-bit 1ch]; [1280x800 24-bit 1ch]; [1680x1050 24-bit 2ch]; [1280x768 24-bit 1ch]; [1920x1080 24-bit 2ch].

**Note: Please go back to 'Primary IGFX Boot Display' for further setting:**

The optional settings are: [VBIOS Default]; [CRT]; [LFP].

When set as [eDP], user can make settings in 'Backlight Control'.

The optional settings are: [PWM Inverted]; [PWM Normal].

**Note: Please go back to 'Primary IGFX Boot Display' for further setting:**

The optional settings are: [VBIOS Default]; [CRT]; [LFP].

▶ **South Bridge**

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

**Mini PCIE**

Use this item to enable or disable Mini-PCIE.

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

**Speed**

Use this item to select PCIe Port Speed.

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

**Onboard PCIE LAN1/LAN2**

Use this item to control the Onboard PCIE LAN1/LAN2 device.

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

**Audio Controller**

Use this item to control the detection of the Azalia HD Audio device.

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

[Disabled]: Azalia will be unconditionally disabled;

[Enabled]: Azalia will be unconditionally enabled;

▶ **USB Configuration**

**USB 3.0 Support**

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

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\* **Note:** When set as [Auto] or [Disabled], USB 2.0 Support is applicable, for user to make further settings.

### USB 2.0 Support

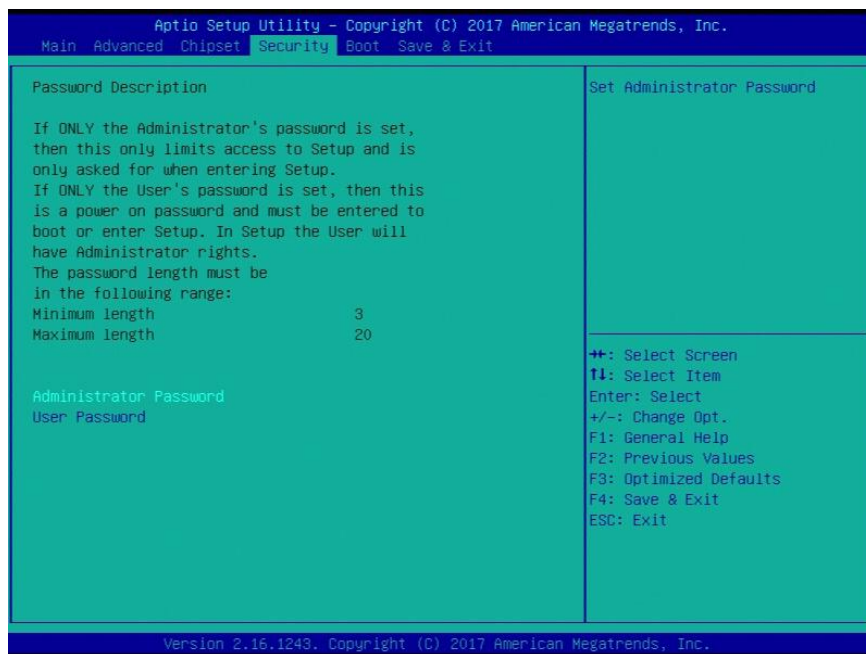
The optional settings are: [Enabled]; [Disabled].

### System State after Power Failure

Use this item to select the system state when AC power is re-applied after a power loss. The options- <Always On> and <former State> are affected by ERP function. Please disable ERP to support <Always On> and <Former State>.

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

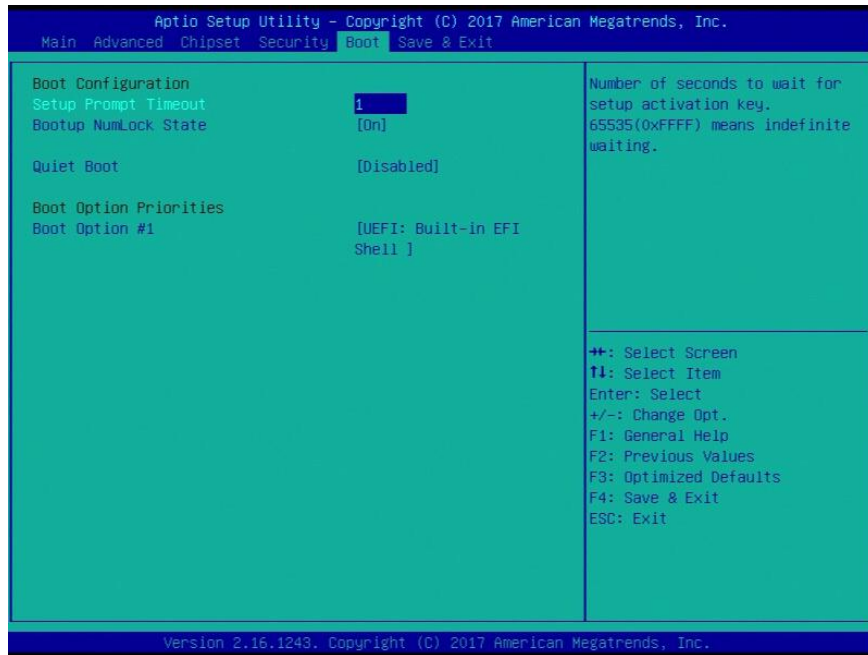
### User Password

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

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## 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**

Use this item to set system boot order.

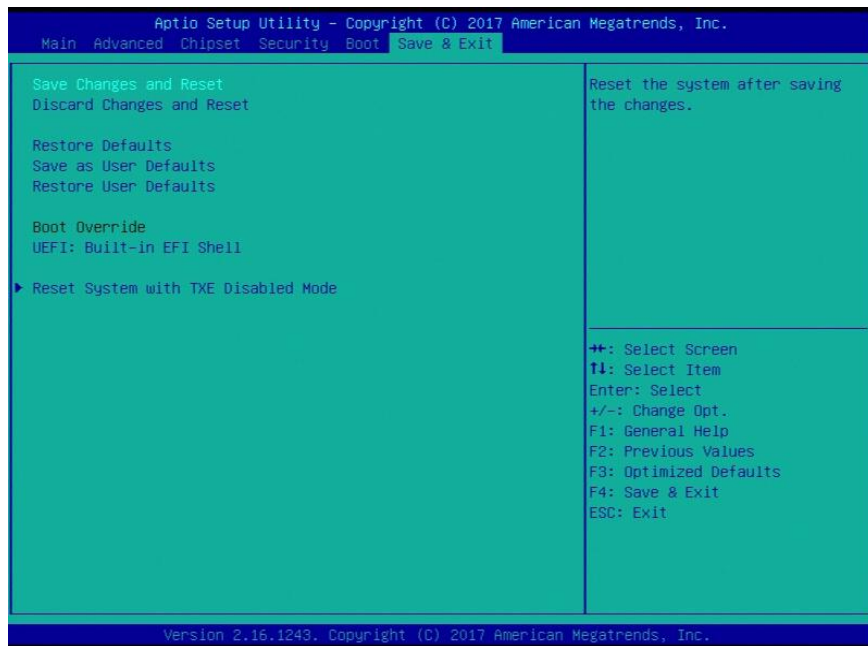
The optional settings are: [UEFI: Built-in EFI Shell]; [Disabled].



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## 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: Built-in EFI Shell**

Launch Internal EFI shell application (shell.efi).

#### ▶ **Reset System with TXE Disabled Mode**

Press [Enter] for TXE to run into the temporary disable mode. Ignore if TXE Ignition FM.

## Chapter 4

### Touch Panel

HPC121SR-SF1900B 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	IP67, NEMA 4 rugged protection, Overall
Display Type	12.1" With LED Backlight
Brightness	500 nits
Display Color	262K
Resolution	1024 x 768 @ 60Hz
Viewing Angle (H/V)	160°/140°
Pixel Pitch	0.24 x 0.24 mm
Aspect Ratio	4:3
Contrast Ratio	700:1
Response Time	25 ms
Touch Screen	
Type	5 wires analog resistive type
Active Range	246.80 x 185.50mm ±0.2mm
Transparency	80±3%
Surface Hardness	≥3H(ASTM D3363,pressure 750g/45°)
Operating Force	≤80g
Knock Test	10,000,000 times keystrokes

HPC150SR-SF1900B 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	IP67, NEMA 4 rugged protection, Overall
Display Type	15.0" with LED backlight
Brightness	450 nits
Display Color	262K
Resolution	1024 x 768 @ 60Hz
Viewing Angle (H/V)	160°/150°
Pixel Pitch	0.297 x 0.297 mm
Aspect Ratio	4:3
Contrast Ratio	800:1
Response Time	5.7 ms
Touch Screen	
Type	5 wires analog resistive type
Active Range	304.10 x 228.10 mm ±0.2mm
Transparency	80±3%
Surface Hardness	≥3H(ASTM D3363,pressure 750g/45°)
Operating Force	≤80g
Knock Test	10,000,000 times keystrokes

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# 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.

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## 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 device 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.

