

***Technical Manual***  
***Of***  
***Intel Bay Trail Series CPU***  
***Based IPC M/B***

***NO. G03-NF541-F***

***Revision: 1.0***

***Release date: June 24, 2015***

**Trademark:**

- \* Specifications and Information contained in this documentation are furnished for information use only, and are subject to change at any time without notice, and should not be construed as a commitment by manufacturer.

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## 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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## Environmental Safety Instruction

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- Avoid the dusty, humidity and temperature extremes. Do not place the product in any area where it may become wet.
- 0 to 60 centigrade is the suitable temperature. (The figure comes from the request of the main chipset)
- Generally speaking, dramatic changes in temperature may lead to contact malfunction and crackles due to constant thermal expansion and contraction from the welding spots' that connect components and PCB. Computer should go through an adaptive phase before it boots when it is moved from a cold environment to a warmer one to avoid condensation phenomenon. These water drops attached on PCB or the surface of the components can bring about phenomena as minor as computer instability resulted from corrosion and oxidation from components and PCB or as major as short circuit that can burn the components. Suggest starting the computer until the temperature goes up.
- The increasing temperature of the capacitor may decrease the life of computer. Using the close case may decrease the life of other device because the higher temperature in the inner of the case.
- Attention to the heat sink when you over-clocking. The higher temperature may decrease the life of the device and burned the capacitor.

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## Manual Revision Information

Reversion	Revision History	Date
1.0	First Edition	June 24, 2015

## Item Checklist

- Motherboard
- User's Manual
- CD for motherboard utilities
- Cable(s)

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# Chapter 1

## Introduction of the Motherboard

### 1-1 Feature of Motherboard

- Onboard Intel® Bay Trail Series Processor, with low power consumption never denies high performance
- Support 1\* DDR3L 1066/1333 MHz SO-DIMM, up to 8GB
- Support 2\* full-size Mini-PCIE connector
- Support 1\* full-size m-SATA (***share with Mini-PCIE***)
- Support 1 \* 2.5" SATAII hard disk driver device (3Gb/s)
- Support USB 3.0 data transport demand
- Support VGA & HDMI dual display output
- Support CPU Over-Temperature protection
- Support CPU Over-Current/Under Voltage protection
- Amplifier implement to support 3W Speaker
- Support CPU Smart FAN
- Compliance with ErP standard
- Support Watchdog function

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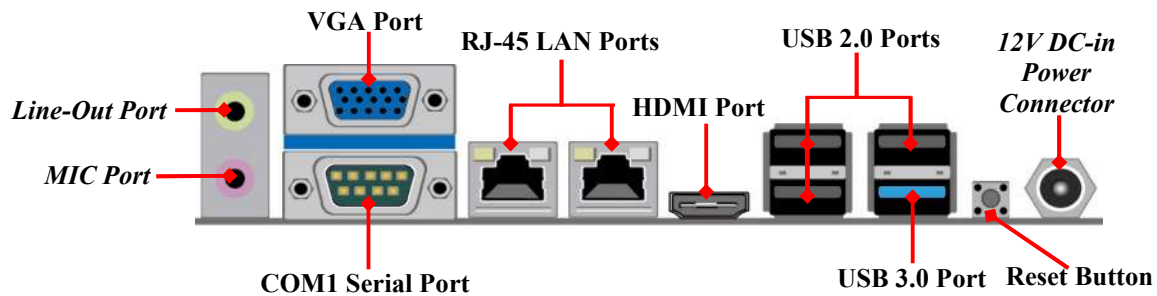
## 1-2 Specification

Spec	Description
Design	<ul style="list-style-type: none"><li>● 6 layers; PCB size: 10 x 16.7 cm</li></ul>
Embedded CPU	<ul style="list-style-type: none"><li>● Integrated with Intel® Bay Trail-D/M/I series CPU</li></ul>
Memory Slot	<ul style="list-style-type: none"><li>● 1 * DDR3L SODIMM Slot for un-buffered DDR3L 1066/1333 MHz SDRAM, expandable to 8GB in total</li></ul>
Expansion Slot	<ul style="list-style-type: none"><li>● 2* Full-size Mini-PCIE slot (<b>MPE1/ MMPE1</b>)</li><li>● 2* PCIE x1 slot by sideways(PCIE1/PCIE2)</li></ul>
LAN Chip	<ul style="list-style-type: none"><li>● Integrated with 2* Intel I211AT PCI-E Gigabit LAN chips</li><li>● Support Fast Ethernet LAN function of providing 10/100/1000Mbps Ethernet data transfer rate</li></ul>
Storage	<ul style="list-style-type: none"><li>● 1* 3+7 pin HDD Connector for 2.5" SATAHDD</li><li>● 1* Full-size MSATA slot (<b>MMPE1, share with Mini-PCIE slot</b>)</li></ul>
BIOS	<ul style="list-style-type: none"><li>● AMI 64MB Flash ROM</li></ul>
Rear I/O	<ul style="list-style-type: none"><li>● 1* 12V DC-in power Jack</li><li>● 1* System reset button</li><li>● 1* USB 3.0 port</li><li>● 3* USB 2.0 port</li><li>● 1* HDMI port</li><li>● 2* RJ-45 LAN port</li><li>● 1* COM1 serial port(COM1 supports RS422/485 function)</li><li>● 1* VGA port</li><li>● 1*Audio Line Out port</li><li>● 1*Audio MIC port</li></ul>
Internal I/O	<ul style="list-style-type: none"><li>● 1* 2-Pin internal 12V DC-in power connector</li><li>● 1* CPUFAN header</li><li>● 1* SYSFAN header</li><li>● 1* Front panel header</li></ul>

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- 
- |  |  |
|--|--|
|  | <ul style="list-style-type: none"><li>● 1* 4-pin USB 2.0 header (Expansable to 1* USB 2.0 port)</li><li>● 1* GPIO_CON header</li><li>● 1* SPEAK_CON header</li><li>● 1* J1 jumper &amp; header block</li></ul> |
|--|--|

## 1-3 Layout Diagram

### *Rear IO Panel Diagram:*

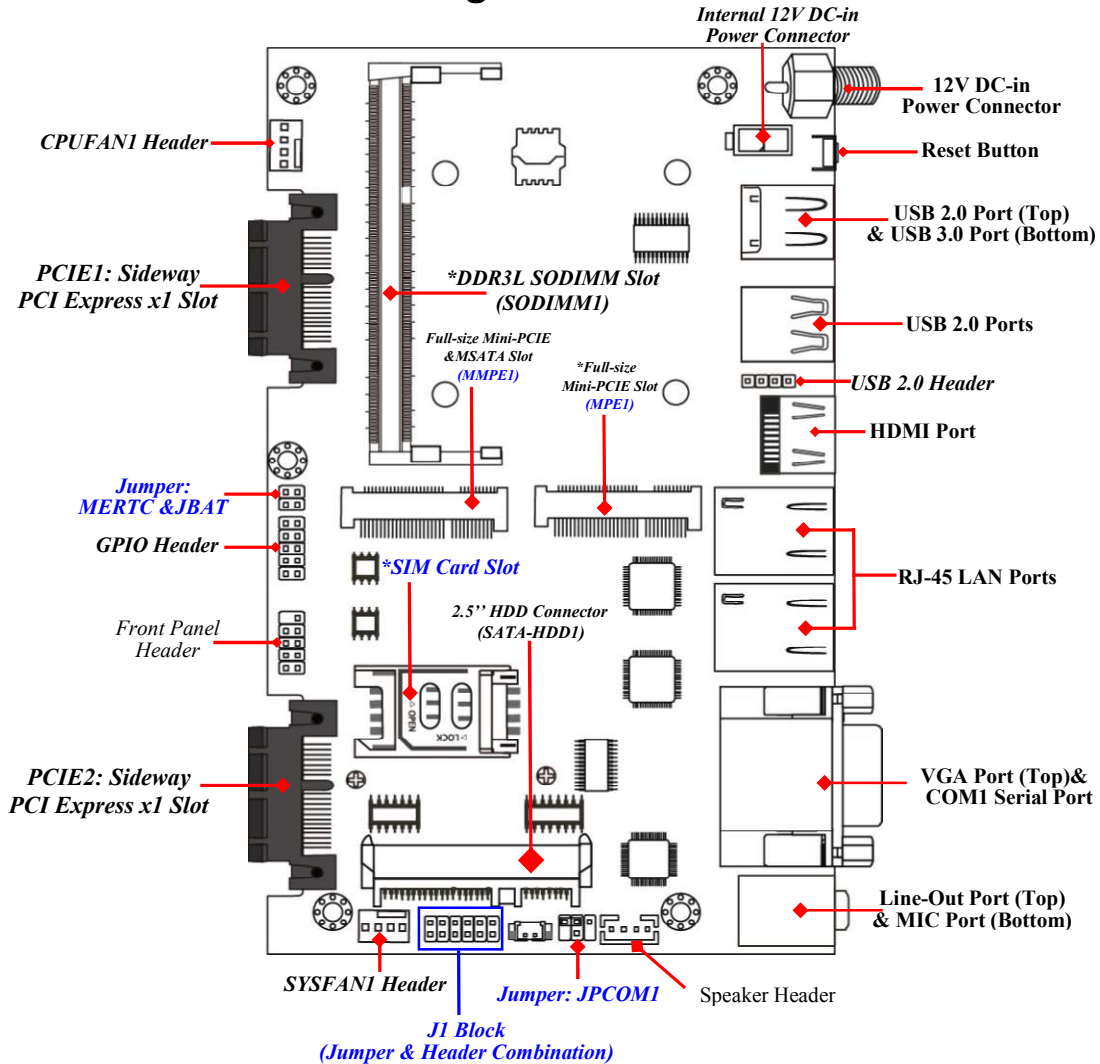


### **Warning!!**

The board has a 12V DC-in power connector (DCIN) in I/O back panel and an internal ATX12V (ATX2P) power connector. User can only connect one type of compatible power supply to one of them to power the system.



# Motherboard Internal Diagram-Front Side

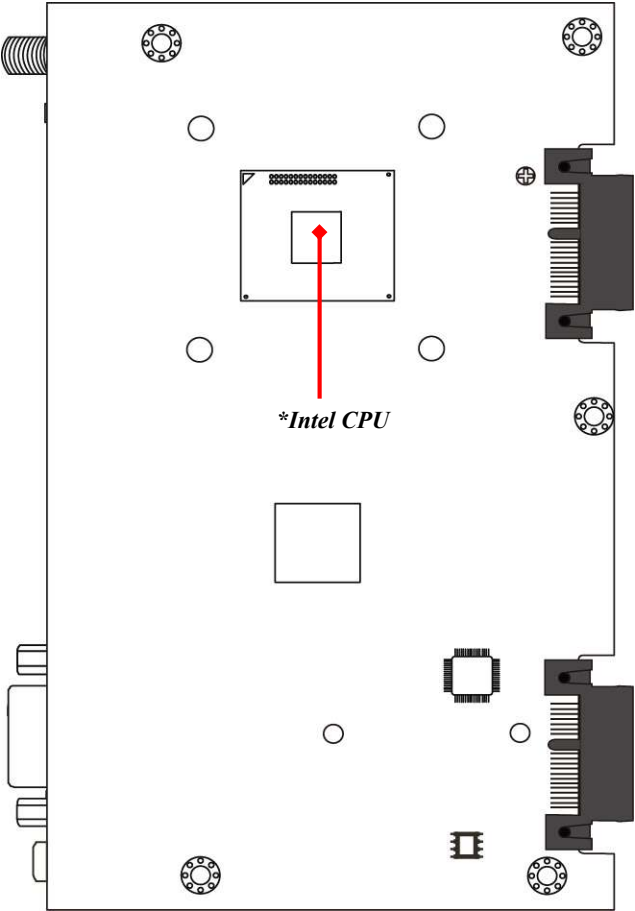


**Note:** 1. The memory module should be **DDR3L 1.35V SODIMM** and **not exceeding 8GB total capacity**. 2. **SIM card slot** only work **when compatible SIM card installed & 3G LAN card installed in MPE1 Mini-PCIE slot**.

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# Motherboard Internal Diagram-Back Side



**\*Note:** CPU is the most important part of the board and very fragile to any possible harm. Make sure that there is no damage to the CPU during any installation procedures!

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## Jumper

Jumper	Name	Description
JBAT_MERTC	<b>Pin (1&amp;3):</b> Clear ME Function Setting <b>Pin (2&amp;4):</b> Clear CMOS RAM Function Setting	4-Pin Block
J1	<b>Pin (1&amp;2):</b> ATX Mode / AT Mode Select <b>Pin(3&amp;4):</b> Case Open Message Display Function <b>Pin (9&amp;10):</b> ME Security Measure Function Select	12-Pin Block
JPCOM1	COM1 Port Pin9 Function Select	4-Pin Block

## Connectors

Connector	Name
DCIN	12V System DC-in Power Jack Connector
ATX2P	Internal 12V System DC-in Power Connector
USB1	<b>Top:</b> USB 2.0 Port Connector <b>Bottom:</b> USB 3.0 Port Connector
USB2	USB 2.0 Port Connector x 2
HDMI	HDMI Port Connector
LAN2/LAN1	RJ-45 LAN Port Connector x 2
VGA	Video Graphic Attach Connector
COM1	Serial Port Connector
AUDIO	<b>Top:</b> Audio Line Out Connector <b>Bottom:</b> Audio MIC Connector
SATA-HDD1	3+7 pin HDD Connector for 2.5" SATA HDD
CPUFAN1	CPUFAN Connector
SYSFAN1	SYSFAN1 Connector

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## Headers

Header	Name	Description
JW_FP	Front Panel Header(PWR LED/ HDD LED/Power Button /Reset)	9-pin Block
FP_USB1	USB 2.0 Header	4-pin Block
GPIO_CON1	GPIO Header	10-pin Block
SPEAK_CON1	Speaker Header	4-pin Block
J1	<b>Pin(5&amp;6):</b> LAN2 Activity LED Header <b>Pin(7&amp;8):</b> LAN1 Activity LED Header <b>Pin(11&amp;12):</b> SPDIF_Out Header	12-pin Block

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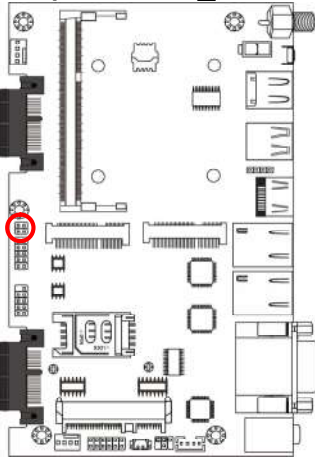
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# Chapter 2

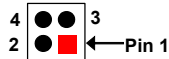
## Hardware Installation

### 2-1 Jumper Setting

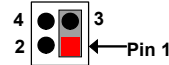
**Pin (1&3) of JBAT\_MERTC (4-pin): Clear ME Function Setting**



**Pin(1&3) of JBAT\_MERTC → Clear ME**

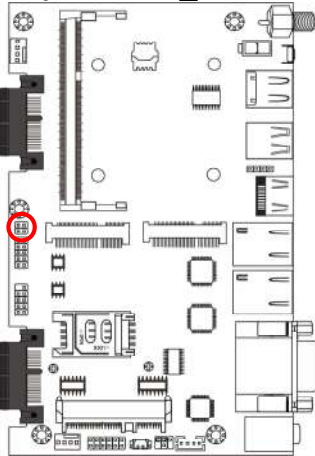


**1-3 Open: Normal(Default);**

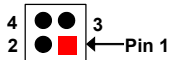


**1-3 Closed: Clear ME.**

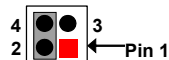
**Pin(2&4)of JBAT\_MERTC (4-pin): Clear CMOS Setting**



**Pin (2&4) of JBAT\_MERTC → Clear CMOS**



**2-4 Open: Normal(Default);**

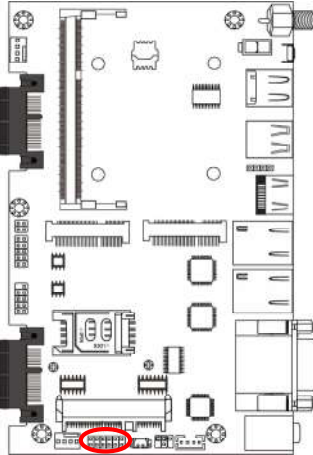


**2-4 Closed: Clear CMOS(One Touch).**

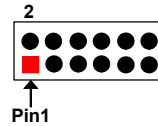
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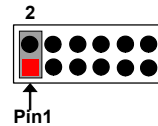
**Pin (1&2) of J1 (12-pin): ATX Mode/AT Mode Select**



**Pin (1&2) of J1 → ATX/AT Mode Select**



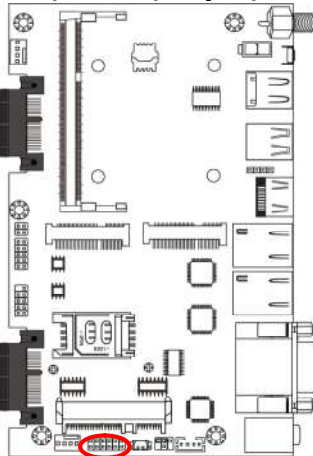
**1-2 Open: ATX Mode Selected(Default);**



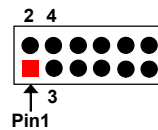
**1-2 Closed: AT Mode Selected.**

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

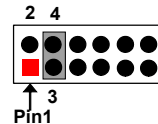
**Pin (3&4) of J1 (12-pin): Case Open Message Display Function Select**



**Pin (3&4) of J1 → Case Open**



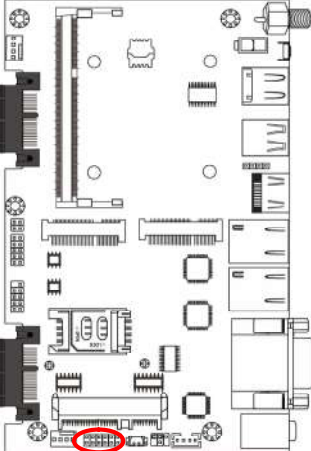
**3-4 Open: Normal(Default);**



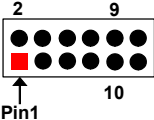
**3-4 Closed: Case Open Function.**

**Pin (3&4) Closed:** 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.

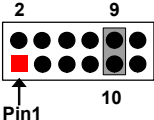
**Pin (9&10) of J1 (12-pin): ME Security Measure Function Select**



**Pin (9&10) of J1 → ME Security Function Select**

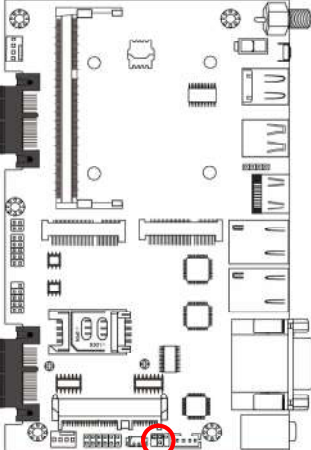


**9-10 Open:** Enable Security Measures in the Flash Descriptor(Default);



**9-10 Closed:** Disable Security Measures in the Flash Descriptor(Override).

**JPCOM1 (4-pin): COM1 Port Pin9 Function Select**



**JPCOM1 → COM1 Port Pin-9**



**2-4 Closed:**  
RI=RS232(Default);



**3-4 Closed:**  
RI= 5V;



**4-6 Closed:**  
RI= 12V.

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## 2-2 Connectors and Headers

### 2-2-1 Connectors

#### (1) Rear I/O Connectors

*\*Refer to Page-3: Rear IO Panel Diagram.*

<b>Icon</b>	<b>Name</b>	<b>Function</b>
	<b>12V DC-in Power Connector</b>	For user to connect compatible power adapter to provide power supply for the system.
	<b>USB 2.0 Port</b>	To connect USB keyboard, mouse or other devices compatible with USB specification.
	<b>USB 3.0 Port</b>	To connect USB keyboard, mouse or other devices compatible with USB specification. USB 3.0 ports supports up to 5Gbps data transfer rate.
	<b>HDMI Port</b>	To connect display device that support HDMI specification.
	<b>RJ-45 LAN Port</b>	This connector is standard RJ-45 LAN jack for Network connection.
	<b>VGA Port</b>	To connect display device that support VGA specification.
	<b>RS232/422/485 Serial Port</b>	Mainly for user to connect external MODEM or other devices that supports Serial Communications Interface.
	<b>Audio Connectors</b>	<b>GREEN:</b> Line-out Connector <b>PINK :</b> MIC Connector



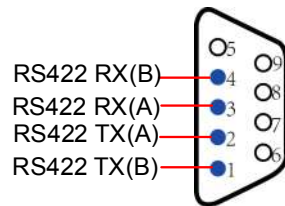
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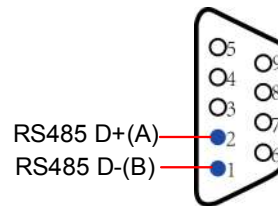
### (2) COM1 (9-pin Block): RS232/422/485 Serial Port

COM1 port can function as RS232/422/485 serial port. In normal settings COM1 functions as RS232 port. With compatible COM cable COM1 can function as RS422 or RS 485 port.

User also needs to go to BIOS to set '**Transmission Mode Select**' for COM1 (*refer to Page 22*) at first, before using specialized cable to connect different pins of this port.

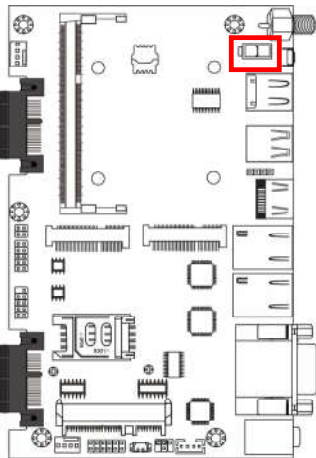


*For RS422 Mode*



*For RS485 Mode*

### (3) ATX2P (2-pin Block): Internal 12V DC-in Power Connector

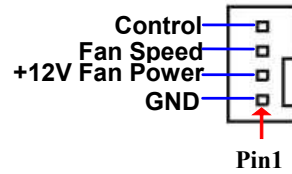
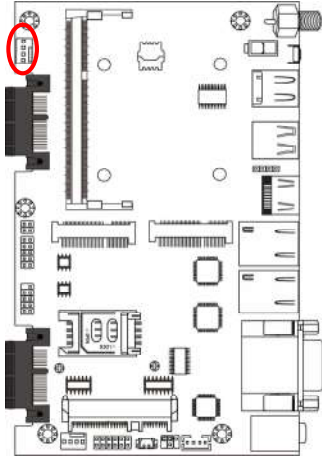


Pin.	Definition
1	GND
2	+12V DC_IN

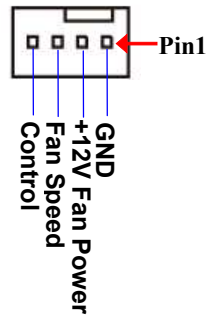
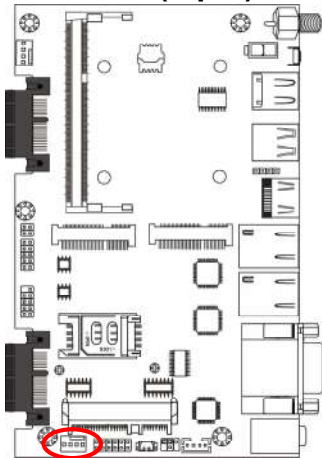
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**(4) CPUFAN1 (4-pin): CPUFAN Connector**



**(5) SYSFAN1 (4-pin): SYSFAN Connector**

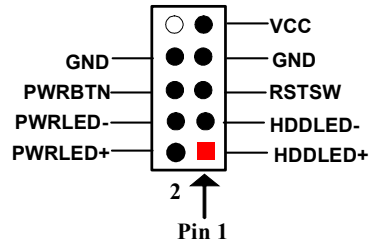
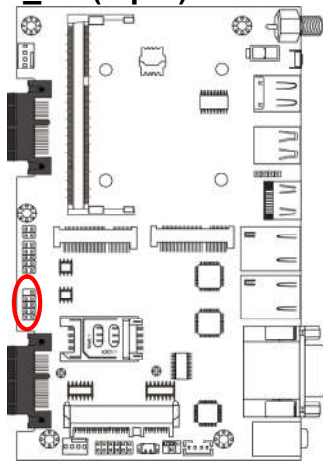


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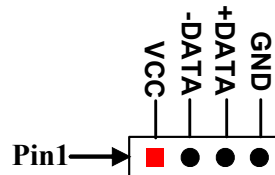
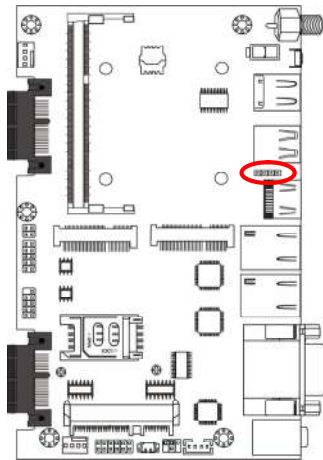
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## 2-2-2 Headers

### (1) JW\_FP (9-pin): Front Panel Header



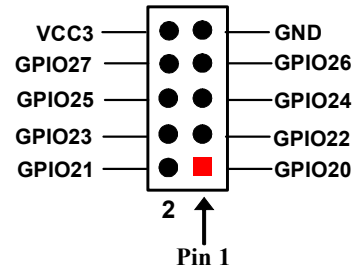
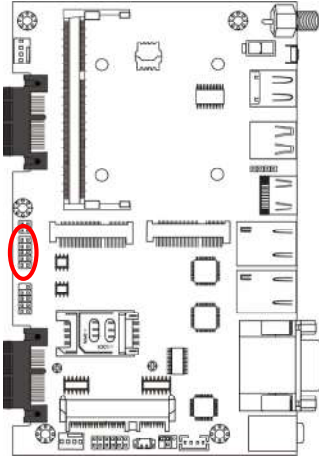
### (2) FP\_USB1 (4-pin): USB 2.0 Port Header



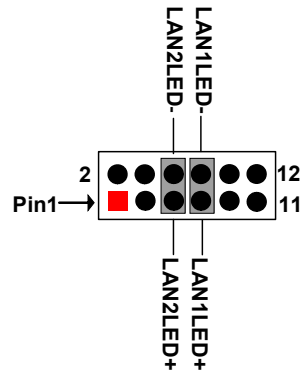
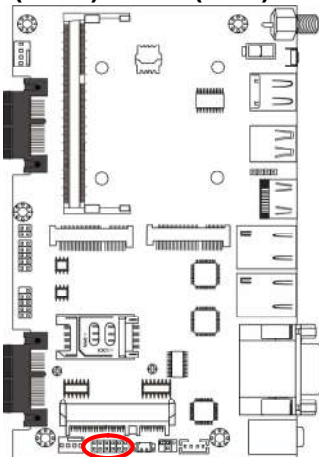
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**(3) GPIO\_CON1 (10-pin): GPIO Header**



**(4) Pin( 5&6) & Pin(7&8) of J1 (12-pin): LAN Activity LED Headers**

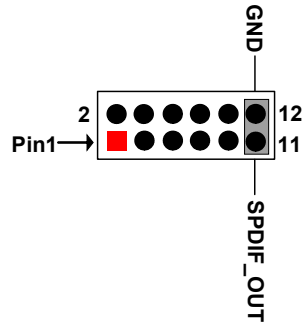
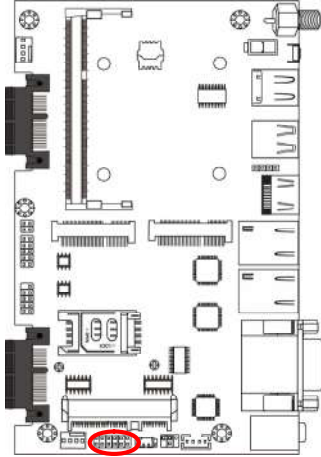


**J1: Pin (5&6) → LAN2 LED**  
**J1: Pin (7&8) → LAN1 LED**

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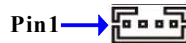
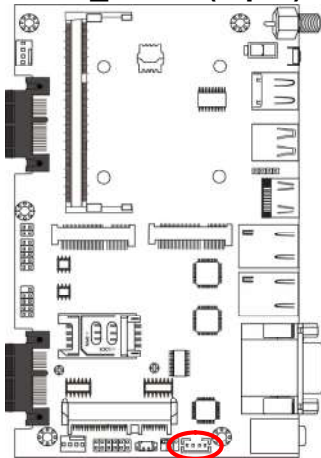
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**(5) Pin( 11&12) of J1 (12-pin): SPDIF Out Header**



**J1: Pin(11&12) → SPDIF\_OUT Header**

**(6) SPEAK\_CON1 (4-pin): Speaker Header**



Pin No.	Definition
1	L-
2	L+
3	R+
4	R-

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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 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

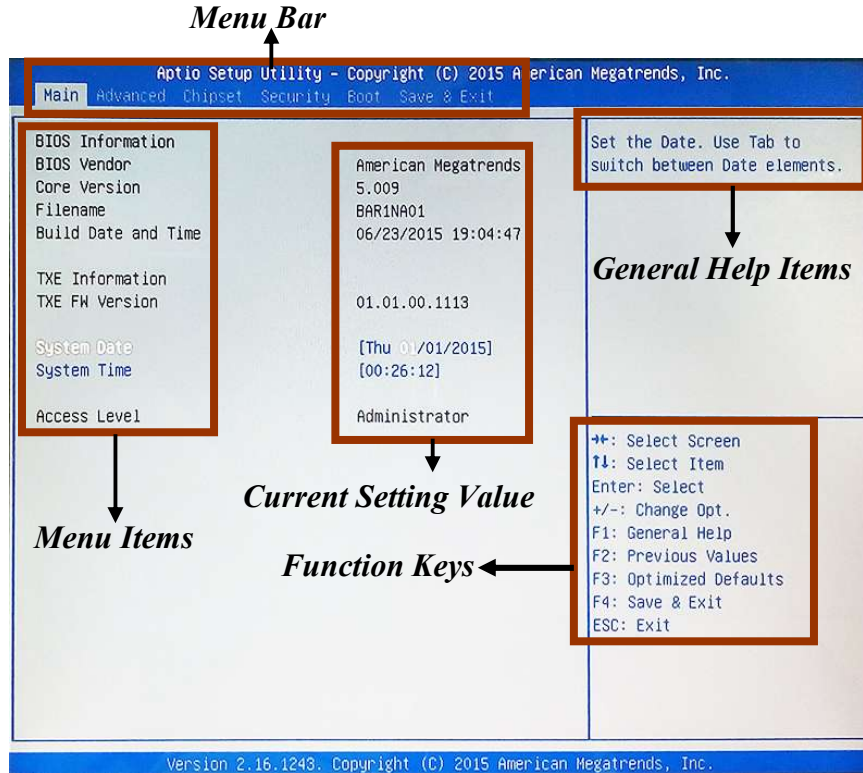
Press **<Del>** to enter Setup; press **< F7>** for Pop Menu.

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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 value.
  - [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

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.

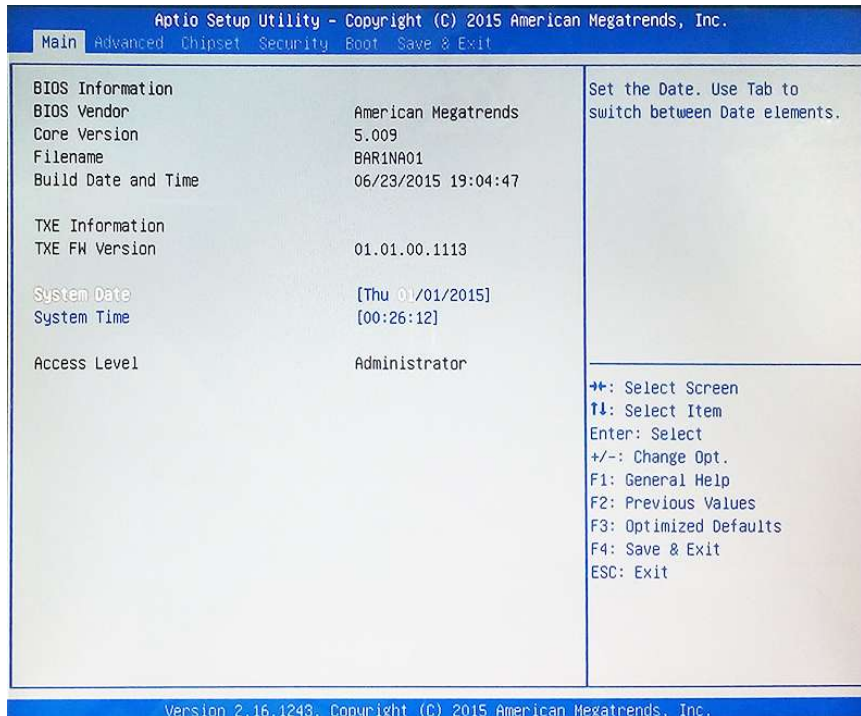


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## 3-6 Main Menu

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.

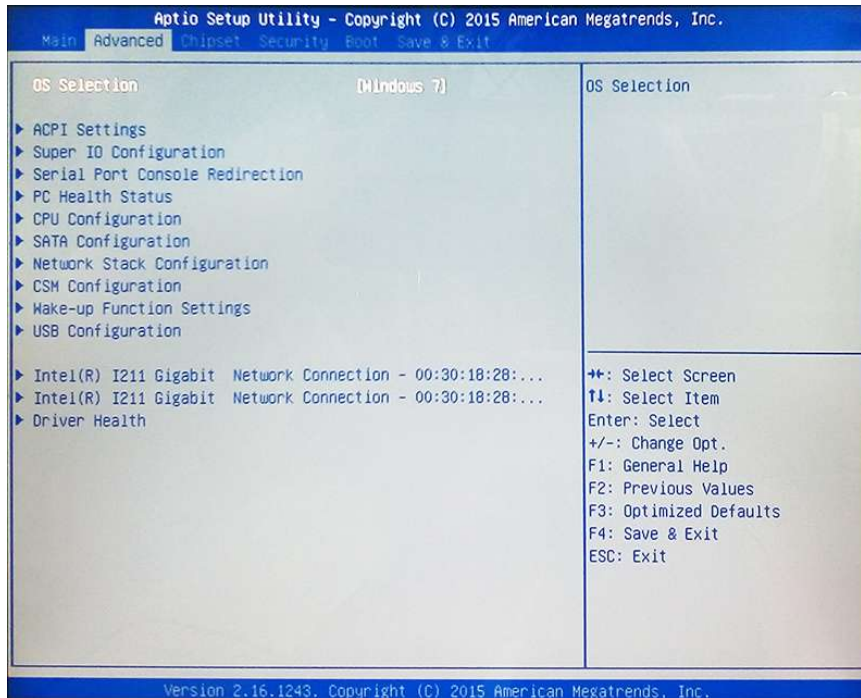
### System Time

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

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## 3-7 Advanced Menu



### OS Selection

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

**\*Note:** User needs to go to this item to select OS before installing OS.

If Windows Embedded standard 8, please select [Windows 8x] and set "USB 3.0 Support" as [Disabled], "USB 2.0 Support" as [Enabled] (**refer to Page 33**).

#### ▶ **ACPI Settings**

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

#### **ACPI Settings**

#### **ACPI Sleep State**

Use this item to select the highest ACPI sleep state the system will enter when the

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suspend button is pressed.

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

▶ **Super I/O Configuration**

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

**Super IO Configuration**

▶ **Serial Port 1 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].

**ERP Support**

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

This item should be set as [Disabled] if you wish to have all active wake-up functions.

**Case Open Detect**

This item controls detect case open function.

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

**WatchDog Timer**

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

**WatchDog Timer Value**

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User can set a value in the range of [10] to [255].

### **WatchDog Timer Unit**

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

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

This item support WDT wake-up while ERP function is set as [Enabled].

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

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

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

The setting range is [10] ~ [4095] seconds, or [1] ~ [4095] minutes.

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

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

### **ATX Power Emulate AT Power**

This item displays current Emulate AT Power Status, motherboard power On/Off control by power supply. User needs to select 'AT or ATX Mode' on MB jumper at first (refer to **Page 9, Pin (1&2) of J1 for ATX Mode & AT Mode Select**).

## ▶ **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**

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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’:

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▶ **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 default setting is: [COM1].

**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.*

▶ **PC Health Status**

Press [Enter] to view current hardware health status, set shutdown temperature, or make further settings in '**Smart Fan Configuration**'.

▶ **SmartFAN Configuration**

Press [Enter] to make settings for SmartFAN Configuration:

**CPUFAN / SYSFAN Smart Mode**

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

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

**CPUFAN / SYSFAN Full-Speed Temperature**

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Use this item to set CPUFAN/SYSFAN1/ SYSFAN2 full speed temperature. Fan will run at full speed when above the preset temperature.

**CPUFAN / SYSFAN Full-Speed Duty**

Use this item to set CPUFAN/SYSFAN1/ SYSFAN2 full speed duty. Fan will run at full speed when above the pre-set duty.

**CPUFAN / SYSFAN Idle-Speed Temperature**

Use this item to set CPUFAN/SYSFAN1/ SYSFAN2 idle speed temperature. Fan will run at idle speed when below the pre-set temperature.

**CPUFAN / SYSFAN Idle-Speed Duty**

Use this item to set CPUFAN/SYSFAN1/ SYSFAN2 idle speed duty.. Fan will run at idle speed when below the pre-set duty.

**Shutdown Temperature Configuration**

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 CUID 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 turn on/off the Mid Level Cache (L2) streamer prefetcher.

**Adjacent Cache Line Prefetch**

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

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

**Intel Virtualization Technology**

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

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

### **EIST**

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

Use this item to enable or disable Intel SpeedStep.

### **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], the following item shall appear:*

### **Max CPU C State**

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

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

## ▶ **SATA Configuration**

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

### **SATA Configuration**

#### **SATA Controller**

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

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

#### **SATA Speed Support**

The item is for user to set the maximum speed the SATA controller can support.

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

#### **SATA Mode**

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

#### **SATA Port1/ m-SATA**

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

## ▶ **Network Stack Configuration**

Press [Enter] to go to 'Network Stack' screen to make further settings.

### **Network Stack**

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

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



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### **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], Ipv4 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.

## ▶ **CSM Configuration**

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

### **Compatibility Support Module Configuration**

#### **Boot Option Filter**

This item 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 item 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 first].

## ▶ **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-up by RTC alarm.

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

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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-up by RTC alarm.

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

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

### **USB1 Wake-up from S3-S4**

Use this item to enable or disable USB Wake-up from S3-S4.

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

*\*This item is only supported when 'ERP Support' is set as [Disabled]. Please disable ERP before activating this function in S4 .*

## ▶ **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].

#### **EHCI Hand-off**

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

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**

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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.

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

'Auto' uses default value: for a root port it is 100 ms, for a hub port the delay is taken from hub descriptor.

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.

▶ **Intel(R) I211 Gigabit Network Connection- XX:XX:XX:XX:XX:XX**

Press [Enter] to view current network information and make further settings in '**NIC Configuration**'

▶ **NIC Configuration**

Press [Enter] to configure the network device port.

**Link Speed**

Use this item to specify the port speed used for the selected boot protocol.

The optional settings are: [Auto Negotiated]; [10 Mbps Half]; [10 Mbps Full]; [100 Mbps Half]; [100 Mbps Full].

**Wake On LAN**

Use this item to enable the server to be powered on using an in-hand magic packet.

**Blink LEDs**

Use this item to identify the physical network port by blinking the associated LED.

▶ **Intel(R) I211 Gigabit Network Connection- XX:XX:XX:XX:XX:XX**

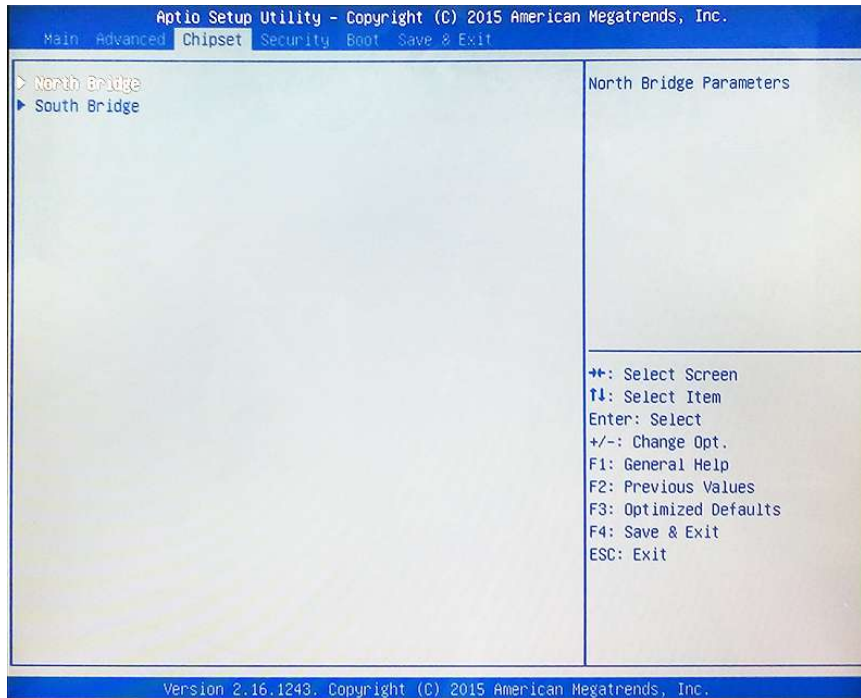
Press [Enter] to view health status for the drivers/controllers.

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## 3-8 Chipset Menu



### ▶ North Bridge

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

#### **DVMT Total Gfx Mem**

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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: [128MB]; [256MB]; [512MB].

**GTT Size**

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

**Primary IGFX Boot Display**

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

▶ **South Bridge**

Press [Enter] to further setting USB device configuration.

**PCIE Slot1**

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

**PCIE1 Slot Speed**

The optional settings are: [Auto]; [Gen 2]; [Gen 1].

**PCIE Slot2**

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

**PCIE2 Slot Speed**

The optional settings are: [Auto]; [Gen 2]; [Gen 1].

**Mini PCIE**

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

**Onboard PCIE LAN1**

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

**Onboard PCIE LAN2**

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

**Audio Controller**

Use this item to control detection of the Azalia device.

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

[Disabled]: Azalia will be unconditionally disabled;

[Enabled]: Azalia will be unconditionally enabled.

**Azalia Internal HDMI Codec**

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Use this item to enable or disable internal HDMI codec for Azalia.  
The optional settings are: [Disabled]; [Enabled].

▶ **USB Configuration**

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

**USB Configuration**

**USB 3.0 Support**

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

**USB 2.0 Support**

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

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

**System State after Power Failure**

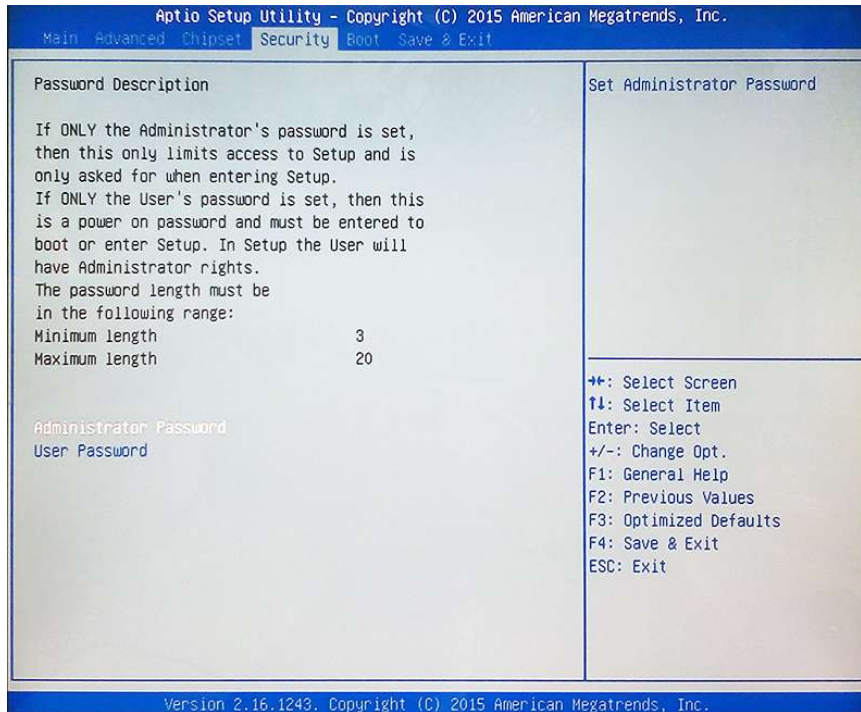
Use this item to select AC power state when power is re-applied after a power failure.

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

*\* The option [Always On] and [Former State] are affected by ERP function. Please disable ERP to support [Always On] and [Former State] function.*

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## 3-9 Security Menu

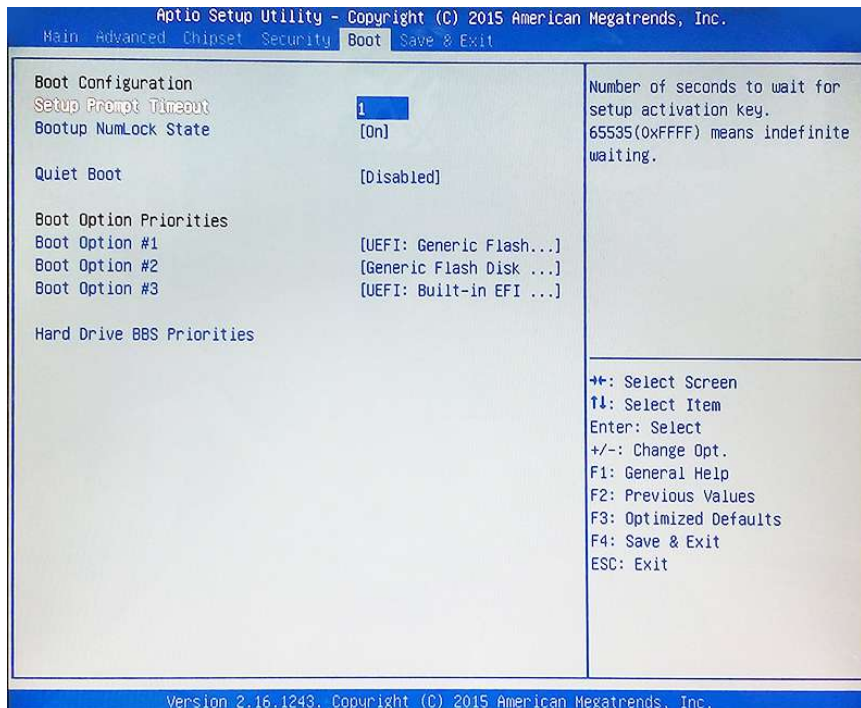


Security menu allow users to change administrator password and user password settings.

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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/ Boot Option #2...**

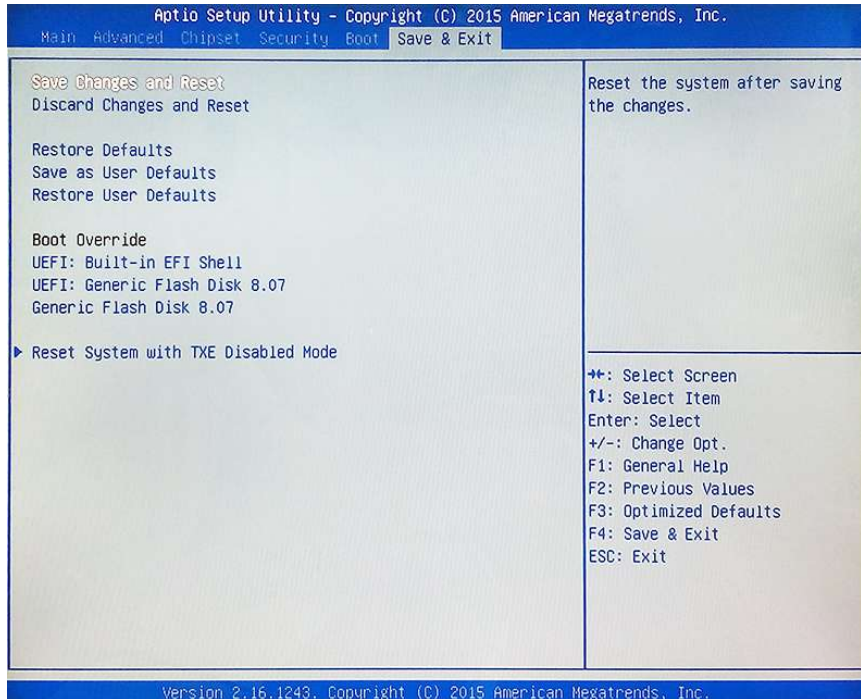


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Use this item to decide system boot order from available options.

## 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**

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Use this item to restore the user defaults to all the setup options.

**Boot Override**

**Boot Override**

**UEFI:xx/...**

Press this item to select the device as boot disk after save configuration and reset.

**Reset System with TXE disable Mode**

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