

# ***NAF791 Series User's Manual***

***No. G03-NAF791-F***

***Rev: 7.0***

***Release date: December 14, 2020***

**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.**

---

---

# TABLE OF CONTENT

---

---

ENVIRONMENTAL SAFETY INSTRUCTION.....	iii
ENVIRONMENTAL PROTECTION ANNOUCEMENT.....	iii
USER'S NOTICE.....	iv
MANUAL REVISION INFORMATION.....	iv
ITEM CHECKLIST.....	iv
<b>CHAPTER 1 INTRODUCTION OF THE MOTHERBOARD</b>	
1-1 SPECIFICATION.....	1
1-2 LAYOUT DIAGRAM.....	2
<b>CHAPTER 2 HARDWARE INSTALLATION</b>	
2-1 JUMPER SETTING.....	6
2-2 CONNECTORS AND HEADERS.....	11
2-2-1 REAR I/O BACK PANEL CONNECTORS.....	11
2-2-2 MOTHERBOARD INTERNAL CONNECTORS.....	12
2-2-3 HEADER PIN DEFINITION.....	16
<b>CHAPTER 3 INTRODUCING BIOS</b>	
3-1 ENTERNING SETUP.....	20
3-2 BIOS MENU SCREEN.....	21
3-3 FUNCTION KEYS.....	21
3-4 GETTING HELP.....	22
3-5 MENU BARS.....	22
3-6 MAIN MENU.....	22
3-7 ADVANCED MENU.....	23
3-8 CHIPSET MENU.....	33
3-9 SECURITY MENU.....	35
3-10 BOOT MENU.....	37
3-11 SAVE & EXIT MENU.....	38



## Environmental Safety Instruction

---

- Avoid the dusty, humidity and temperature extremes. Do not place the product in any area where it may become wet.
- 0 to 40 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.

### **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.



---

---

## 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 TO USE THIS MOTHER-BOARD SERIES AND WE DO ASSURE THIS MANUAL MEETS USER'S REQUIREMENT BUT WILL CHANGE, CORRECT 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.

## Manual Revision Information

Reversion	Revision History	Date
7.0	Seventh Edition	December 14, 2020

## Item Checklist

- Motherboard
- Cable(s)
- I/O Back panel shield

# Chapter 1

## Introduction of the Motherboard

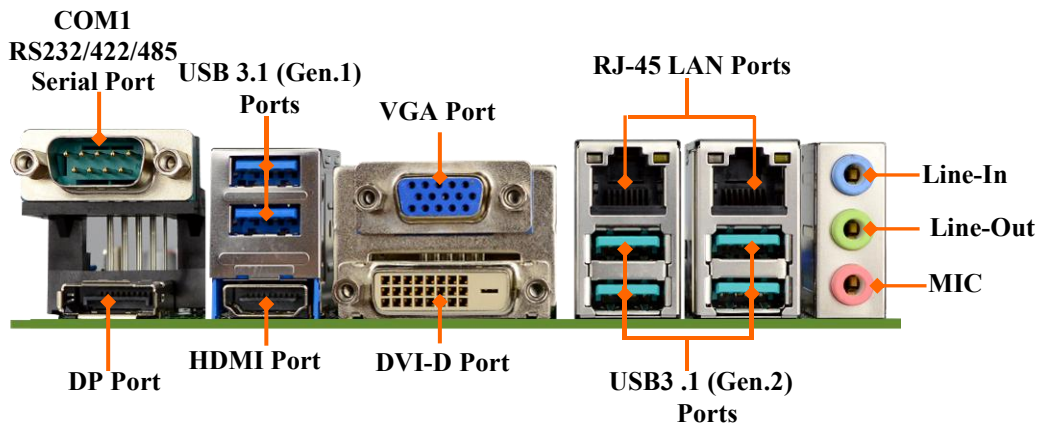
### 1-1 Specification

Spec	Description
<b>Design</b>	<ul style="list-style-type: none"> <li>● ATX form factor; PCB size: 30.5 x24.5 cm</li> </ul>
<b>Chipset</b>	<ul style="list-style-type: none"> <li>● Intel Q370/C246 Express Chipset</li> </ul>
<b>CPU Socket</b>	<ul style="list-style-type: none"> <li>● Intel® LGA 1151 Socket for Intel® 8<sup>th</sup> Generation Coffee Lake series processors(TDP 95W)  <i>CPU SKU for Q370 series: Core i7/i5/i3, Pentium, Celeron series</i>  <i>CPU SKU for C246 series: Xeon E, Core i7/i5/i3, Pentium, Celeron series</i>  <i>* <b>Note:</b> for detailed CPU support information please visit our website.</i></li> </ul>
<b>Memory Slots</b>	<ul style="list-style-type: none"> <li>● 4*DDR4 U-DIMM slot for 4* DDR4 RAM Module</li> <li>● Support dual channel function  <i>Maximum capacity: up to 128GB</i>  <i>Maximum frequency: up to 2666MHz(depends on CPU support)</i>  <i>*<b>Note:</b> C246 series supports DDR4 W/ECC SDRAM</i></li> </ul>
<b>Expansion Slots</b>	<ul style="list-style-type: none"> <li>● 2 * PCI-Express x16 slot (<i>*PCIE1/PCIE2</i>)  <i>*<b>Note:</b> PCIE1 slot share x16 lane band width with PCIE2 slot.</i></li> <li>● 1 * PCI-Express x1 slot (<i>PCIE3</i>)</li> <li>● 1 * PCI-Express x4 slot (<i>PCIE4</i>)</li> <li>● 2* PCI slot (<i>PCI1/2</i>)</li> <li>● 1 * M.2 E-key slot, type-2230 (<i>M2E</i>)</li> </ul>
<b>Storage</b>	<ul style="list-style-type: none"> <li>● 5 * SATAIII 6Gb/s port (<i>SATA_RA1/ SATA_RA2/SATA5</i>)</li> <li>● Support RAID 0, 1, 5, 10 function</li> <li>● 1* M.2 M-key slot support NVMe, type-2242/2260/2280/22110, PCIe x4 with SATA interface (<i>M2M</i>)</li> </ul>
<b>LAN Chip</b>	<ul style="list-style-type: none"> <li>● Integrated with 2* Intel Gigabit PCI-E LAN chips</li> <li>● Support Fast Ethernet LAN function of providing 10/100/1000Mbps Ethernet data transfer rate</li> </ul>
<b>Audio Chip</b>	<ul style="list-style-type: none"> <li>● Realtek ALC662 6-channel Audio Codec integrated</li> <li>● Audio driver and utility included</li> </ul>
<b>BIOS</b>	<ul style="list-style-type: none"> <li>● 128M Bit AMI Flash ROM</li> </ul>
<b>Multi I/O</b>	<p><i>Rear Panel I/O:</i></p> <ul style="list-style-type: none"> <li>● 1* RS232/422/485 COM port (<i>COM1</i>)</li> <li>● 1* DP port</li> <li>● 1* HDMI port</li> <li>● 1* VGA port</li> <li>● 1*DVI-D port</li> <li>● 2* USB 3.1 (Gen.1) port</li> <li>● 4* USB 3.1 (Gen.2) port</li> </ul>

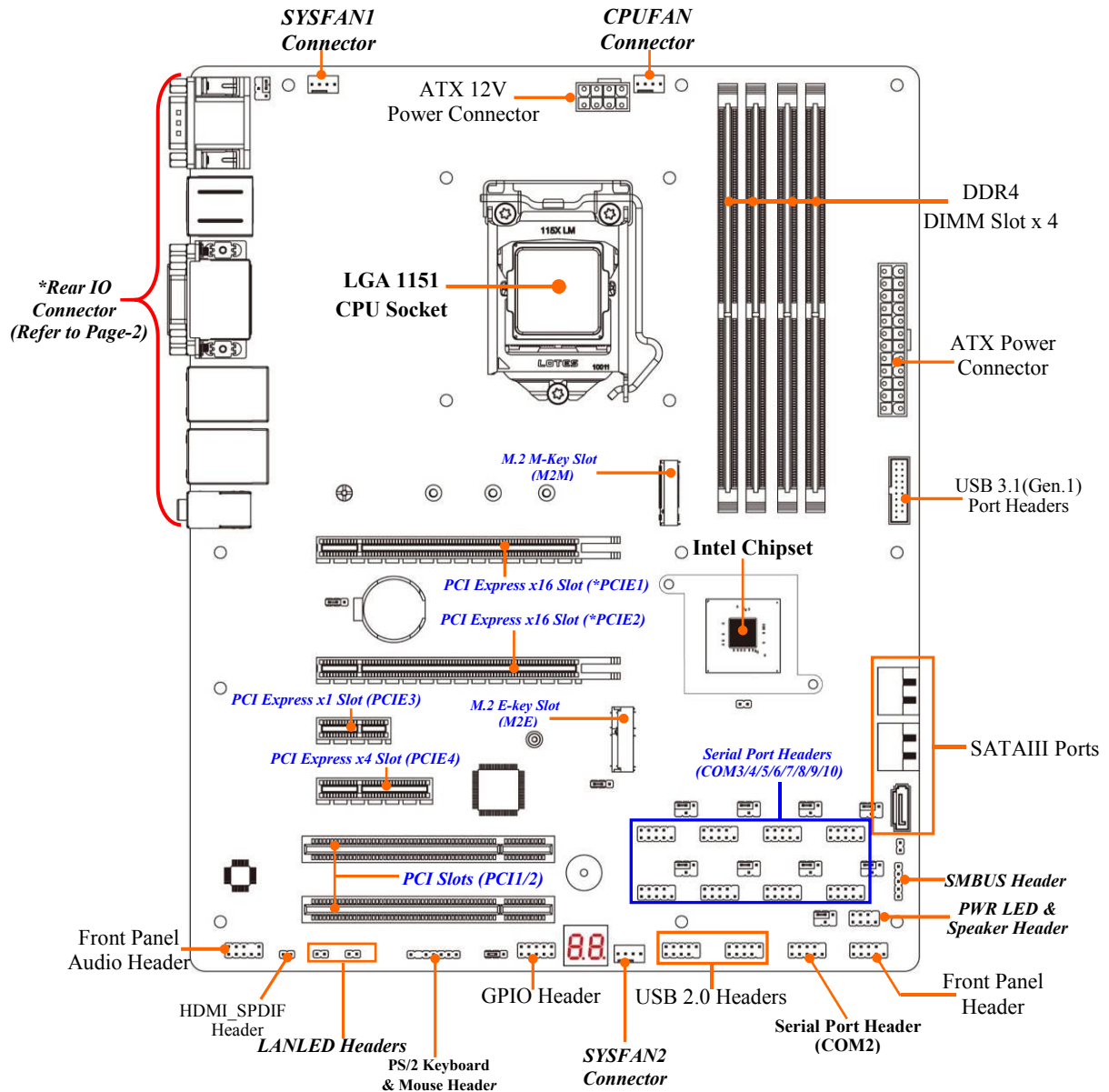
	<ul style="list-style-type: none"> <li>● 2* RJ-45 LAN port</li> <li>● 1*3-phone audio jack (<b>Line-in, Line-out, MIC</b>)</li> </ul> <p><b>Internal I/O Connectors &amp; Headers:</b></p> <ul style="list-style-type: none"> <li>● 1 *24-pin main power connector</li> <li>● 1 *8-pin 12V power connector</li> <li>● 1* CPUFAN connector &amp; 2* SYSFAN connector</li> <li>● 1* Front panel header</li> <li>● 1* Speaker &amp; Power LED header</li> <li>● 1* Front panel audio header</li> <li>● 1* HDMI_SPDIF header</li> <li>● 2* LAN Status indicator header</li> <li>● 1* PS/2 keyboard &amp; mouse header</li> <li>● 1* GPIO header</li> <li>● 1* SMBUS header</li> <li>● 2* 9-Pin USB 2.0 header (support 4* expansion USB 2.0 ports)</li> <li>● 1* 19-Pin USB 3.1 (Gen.1) header for 2* USB 3.1 (Gen.1) ports</li> <li>● 9* COM port header (<b>COM2/3/4/5/6/7/8/9/10, COM2 supports RS422/RS485 function</b>)</li> </ul>
--	---

## 1-2 Layout Diagram

### Rear IO Diagram

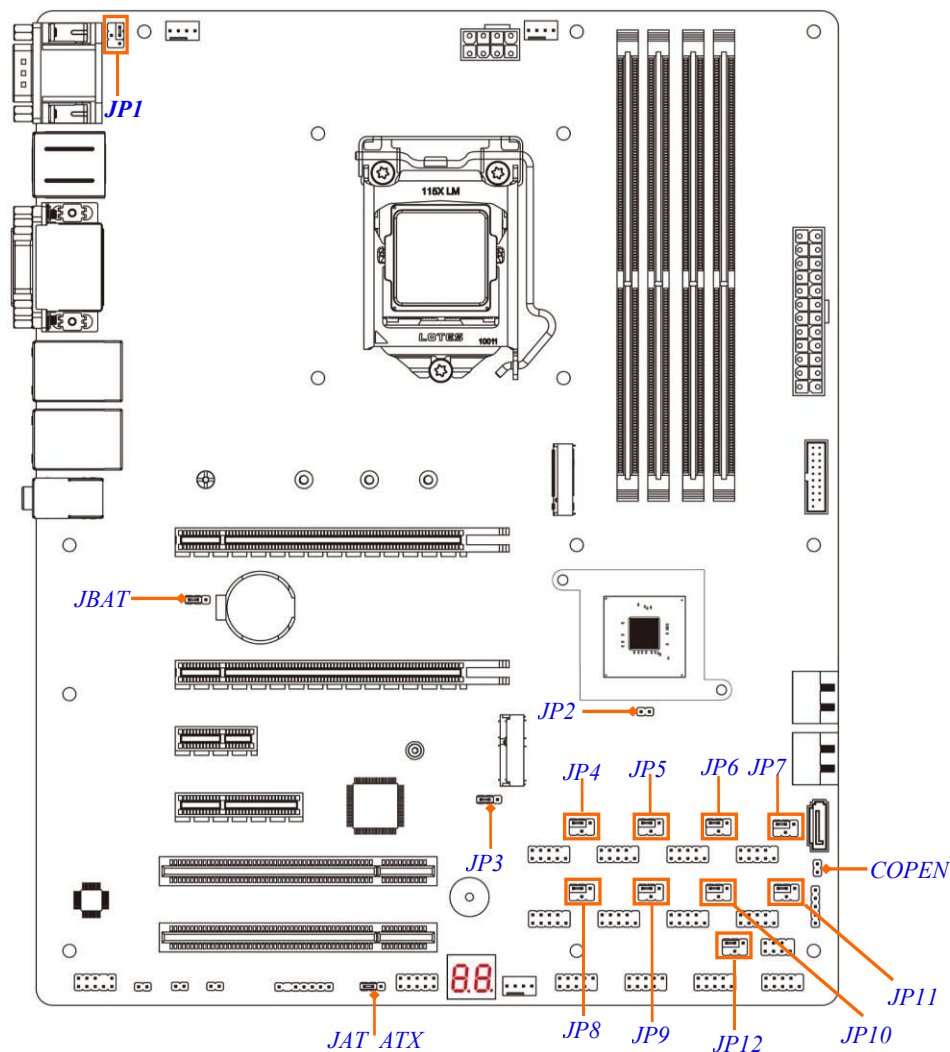


# Motherboard Internal Diagram



**\*Note:** PCIE1 slot share x16 lane band width with PCIE2 slot. **Configuration solutions:** 1\*PCIE x16 card, please plug in PCIE1 slot to run at x16 (Max.) lane band width; in the case that 2\*PCIE cards plugged in PCIE1 & PCIE2 slots, since the 2\* PCIE slots share x16 lane band width, each card will run at x8 (Max.) lane band width.

## Motherboard Jumper Position



### Jumper

Jumper	Name	Description
JP1	COM1 Port Pin9 Function Select	4-pin Block
JP12	COM2 Header Pin9 Function Select	4-pin Block
JP8	COM3 Header Pin9 Function Select	4-pin Block
JP9	COM4 Header Pin9 Function Select	4-pin Block
JP10	COM5 Header Pin9 Function Select	4-pin Block
JP11	COM6 Header Pin9 Function Select	4-pin Block
JP4	COM7 Header Pin9 Function Select	4-pin Block
JP5	COM8 Header Pin9 Function Select	4-pin Block
JP6	COM9 Header Pin9 Function Select	4-pin Block
JP7	COM10 Header Pin9 Function Select	4-pin Block
JBAT	Clear CMOS RAM Settings	3-pin Block
JP3	M2E (M.2 PCIE) Slot VCC3.3V/3.3VSB Select	3-pin Block
JAT_ATX	ATX/AT Mode Select	3-pin Block
COPEN	Case Open Message Display Detect	2-pin Block
JP2	ME_Features Select	2-pin Block



---



---

## Connectors

Connector	Name
COM1	RS232/422/485 Serial Port Connector
DP	Display Port Connector
HDMI	High-Definition Multimedia Interface Connector
USB3	USB 3.1 (Gen.1) Port Connector X2
CRT	VGA Port Connector
DVI1	DVI-D Port Connector
UL1/UL2	<b>Top:</b> RJ-45 LAN Connector X2 <b>Middle &amp; Bottom:</b> USB 3.1 (Gen.2) Port Connector X4
AUDIO	<b>Top:</b> Line-in Connector <b>Middle:</b> Line-out Connector <b>Bottom:</b> MIC Connector
ATXPWR	ATX Type Main Power Connector
ATX12V	ATX 12V Power Connector
CPUFAN	CPU FAN Connector
SYSFAN1/2	System FAN Connector
SATA_RA1 /SATA_RA2/SATA5	SATAIII Connector X5

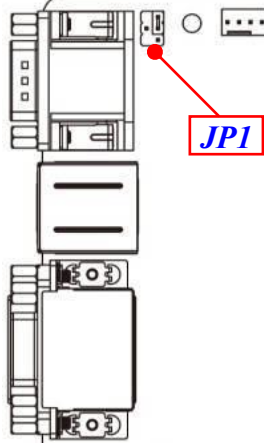
## Headers

Header	Name	Description
FP (Front Panel Header)	PWR LED/ HD LED/ Power Button /Reset	9-pin Block
SPK_LED	Power LED & Speaker Header	7-pin Block
FP_AUDIO	Front Panel Audio Header	9-pin Block
HDMI_SPDIF	HDMI_SPDIF Out Header	2-pin Block
LAN1_LED / LAN2_LED	LANLED Activity Header	2-pin Block
PS2KBMS	PS2 Keyboard & Mouse Header	6-pin Block
GPIO	GPIO Header	10-pin Block
SMBUS	SMBUS Header	5-pin Block
USB1/USB2	USB 2.0 Port Header	9-pin Block
FP_USB	USB 3.1 (Gen.1) Port Header	19-pin Block
COM 2	RS232/422/485 Serial Port Header	9-pin Block
COM3/4/5/6/7/8/9/10	RS232 Serial Port Header	9-pin Block

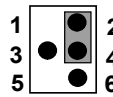
# Chapter 2 Hardware Installation

## 2-1 Jumper Setting

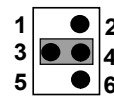
### JP1 (4-pin): COM1 Port Pin9 Function Select



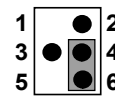
**JP1 → COM1 Port**



2-4 Closed:  
RI=RS232;

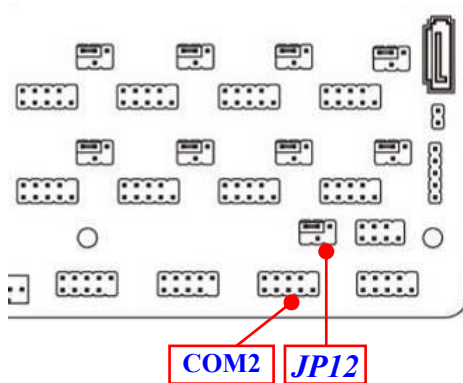


3-4 Closed:  
RI= 5V;

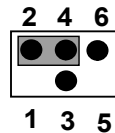


4-6 Closed:  
RI= 12V.

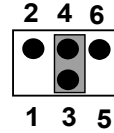
### JP12 (4-pin): COM2 Header Pin9 Function Select



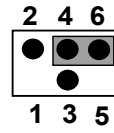
**JP12 → COM2 Header**



2-4 Closed:  
RI=RS232;

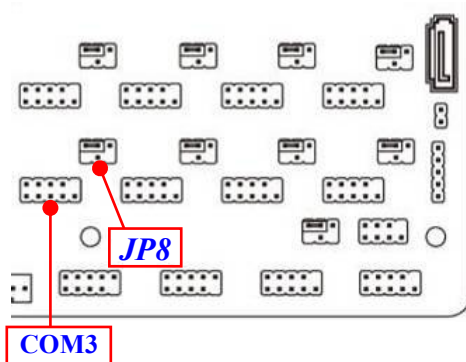


3-4 Closed:  
RI= 5V;

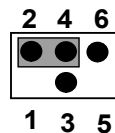


4-6 Closed:  
RI= 12V.

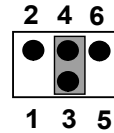
### JP8 (4-pin): COM3 Header Pin9 Function Select



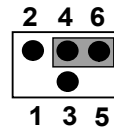
**JP8 → COM3 Header**



2-4 Closed:  
RI=RS232;

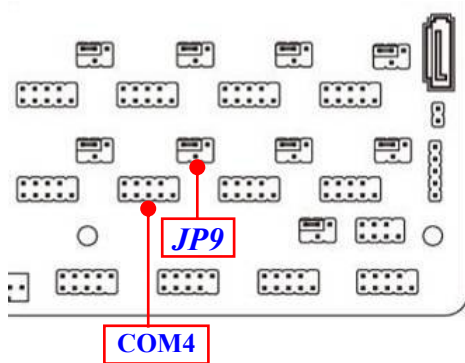


3-4 Closed:  
RI= 5V;

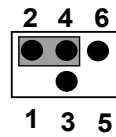


4-6 Closed:  
RI= 12V.

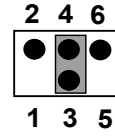
**JP9 (4-pin): COM4 Header Pin9 Function Select**



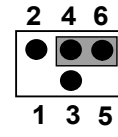
**JP9 → COM4 Header**



2-4 Closed:  
RI=RS232;

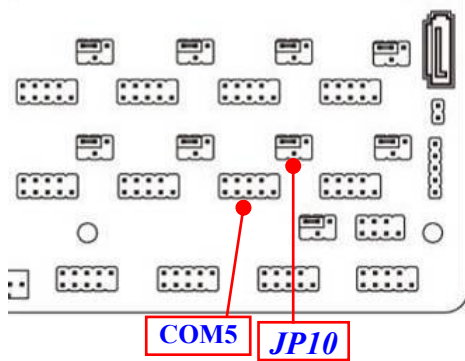


3-4 Closed:  
RI= 5V;

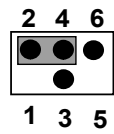


4-6 Closed:  
RI= 12V.

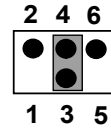
**JP10 (4-pin): COM5 Header Pin9 Function Select**



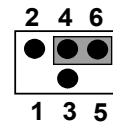
**JP10 → COM5 Header**



2-4 Closed:  
RI=RS232;

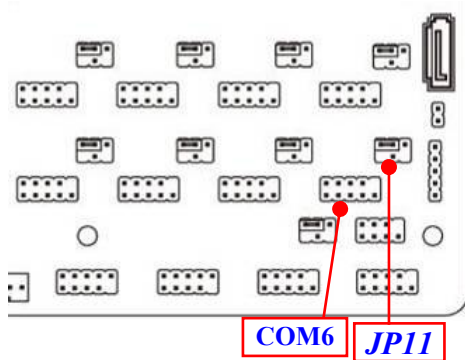


3-4 Closed:  
RI= 5V;

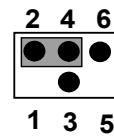


4-6 Closed:  
RI= 12V.

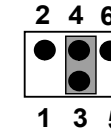
**JP11 (4-pin): COM6 Header Pin9 Function Select**



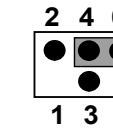
**JP11 → COM6 Header**



2-4 Closed:  
RI=RS232;

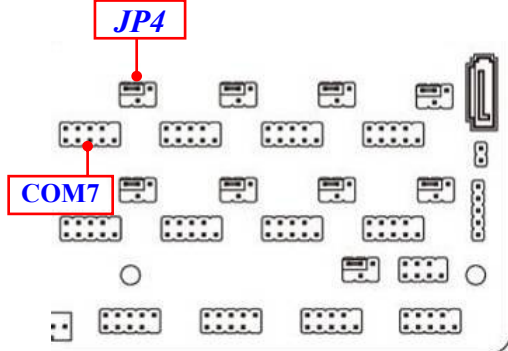


3-4 Closed:  
RI= 5V;

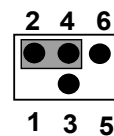


4-6 Closed:  
RI= 12V.

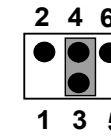
**JP4 (4-pin): COM7 Header Pin9 Function Select**



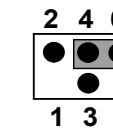
**JP4 → COM7 Header**



2-4 Closed:  
RI=RS232;

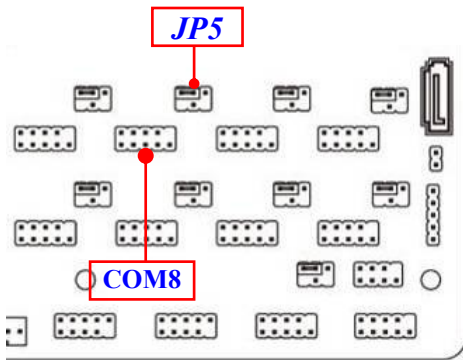


3-4 Closed:  
RI= 5V;

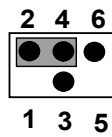


4-6 Closed:  
RI= 12V.

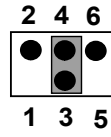
**JP5 (4-pin): COM8 Header Pin9 Function Select**



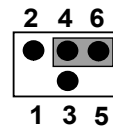
**JP5 → COM8 Header**



2-4 Closed:  
RI=RS232;

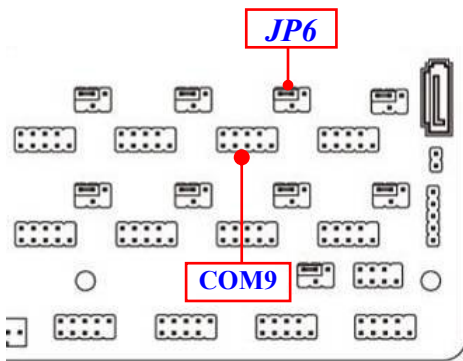


3-4 Closed:  
RI= 5V;

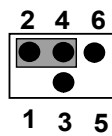


4-6 Closed:  
RI= 12V.

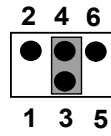
**JP6 (4-pin): COM9 Header Pin9 Function Select**



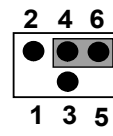
**JP6 → COM9 Header**



2-4 Closed:  
RI=RS232;

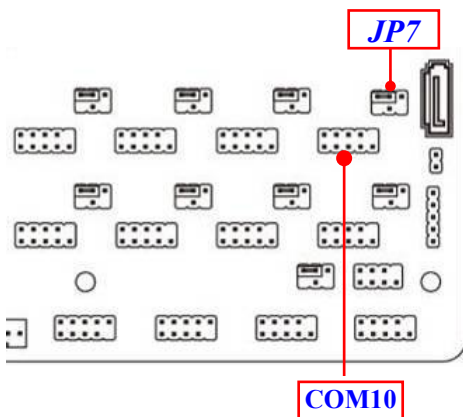


3-4 Closed:  
RI= 5V;

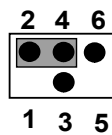


4-6 Closed:  
RI= 12V.

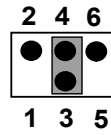
**JP7 (4-pin): COM10 Port Pin9 Function Select**



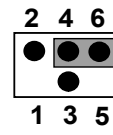
**JP7 → COM10 Header**



2-4 Closed:  
RI=RS232;

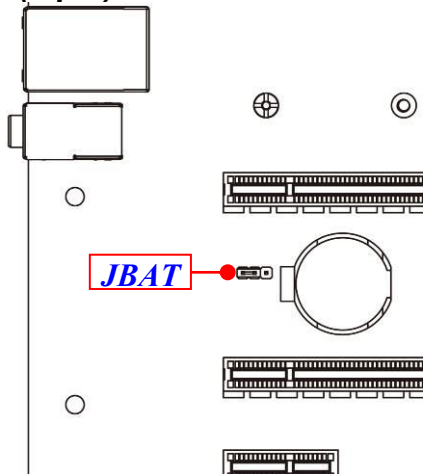


3-4 Closed:  
RI= 5V;

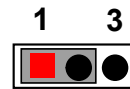


4-6 Closed:  
RI= 12V.

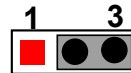
**JBAT (3-pin): Clear CMOS RAM Settings**



**JBAT → Clear CMOS**

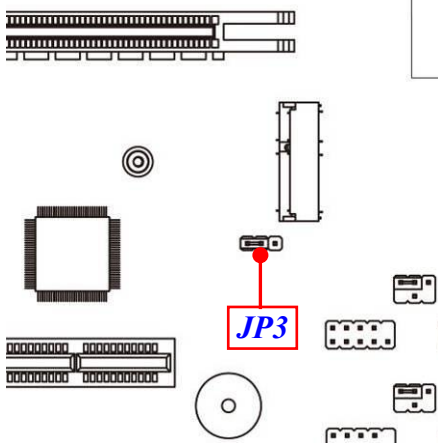


**1-2 Closed: Normal;**

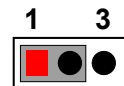


**2-3 Closed: Clear CMOS.**

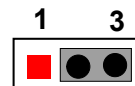
**JP3 (3-pin): M2E (M.2 PCIe) Slot Power VCC Select**



**JP3 → M2E Slot VCC**

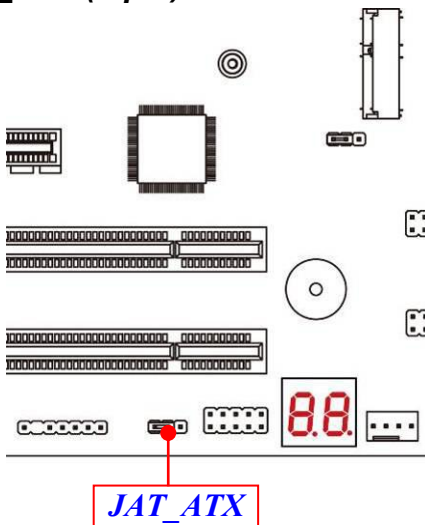


**1-2 Closed: M2E Slot VCC = 3.3V;**

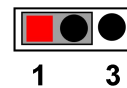


**2-3 Closed: M2E Slot VCC = 3.3VSB.**

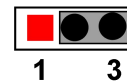
**JAT\_ATX (3-pin): AT Mode /ATX Mode Select**



**JAT\_ATX → ATX/AT Mode Select**



**1-2 Closed: ATX Mode Selected;**



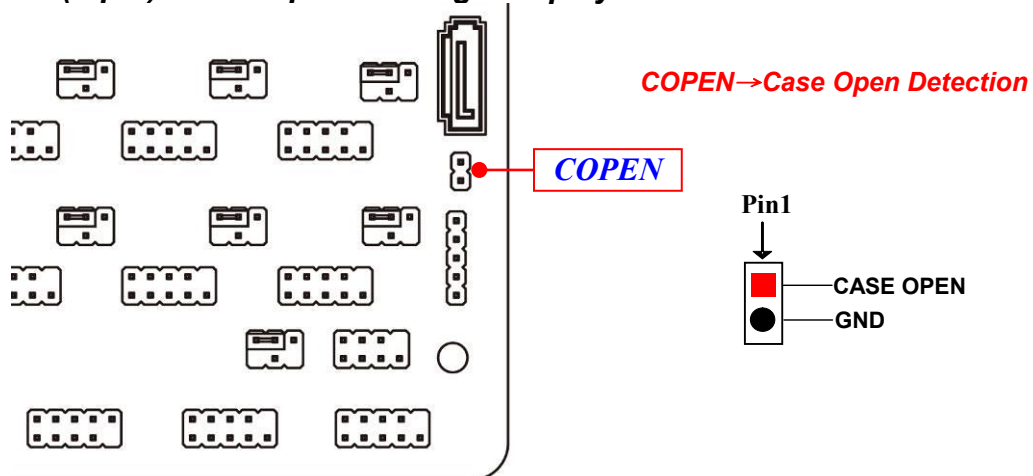
**2-3 Closed: AT Mode Selected.**

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

---

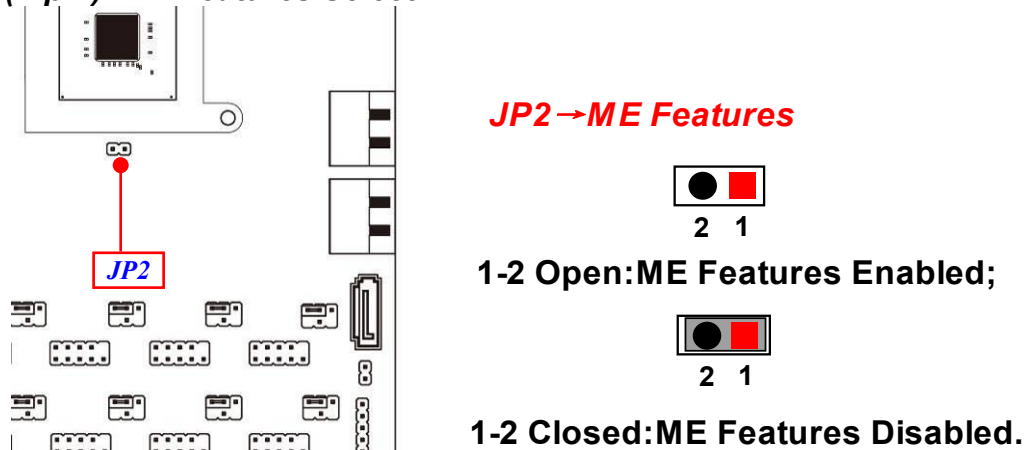
---

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



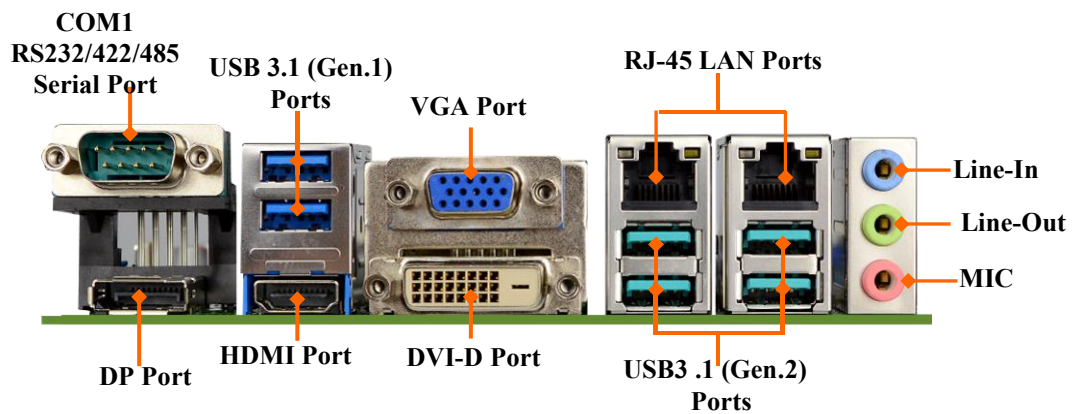
**Pin 1-2 Short:** When Case open function pin short to GND, the Case open function was detected. When Used, needs to enter BIOS and enable 'Case Open Detect' function. In this case if your case is removed, next time when you restart your computer, a message will be displayed on screen to inform you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










### **JP2 (2-pin): ME Features Select**



## 2-2 Connectors and Headers

### 2-2-1 Rear I/O Back Panel Connectors

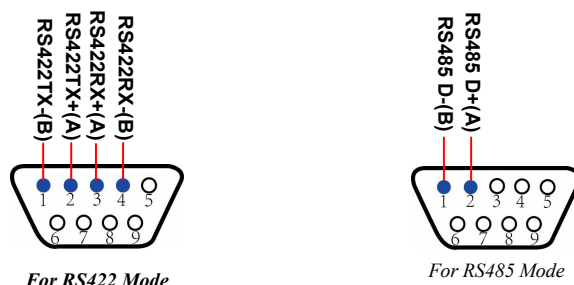


<i>Icon</i>	<i>Name</i>	<i>Function</i>
	<b>RS232/422/485 Serial Port</b>	Mainly for user to connect external MODEM or other devices that supports Serial Communications Interface.
	<b>Display Port</b>	To the system to corresponding display device with compatible DP cable.
	<b>HDMI Port</b>	To connect display device that support HDMI specification.
	<b>DVI-D Port</b>	To connect display device that support DVI specification
	<b>VGA Port</b>	To connect display device that support VGA specification.
	<b>RJ-45 LAN Port</b>	This connector is standard RJ-45 LAN jack for Network connection.
	<b>USB 3.1 (Gen.1) Port</b>	To connect USB keyboard, mouse or other devices compatible with USB 3.1 (Gen.1) specification. Ports support up to 5Gbps data transfer rate.
	<b>USB 3.1 (Gen.2) Port</b>	To connect USB keyboard, mouse or other devices compatible with USB 3.1 (Gen.2) specification. Ports support up to 10Gbps data transfer rate.
	<b>Audio Connectors</b>	<b>BLUE:</b> Line-in Connector <b>GREEN:</b> Line-out Connector <b>PINK :</b> MIC Connector

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

COM1 port can function as RS232/422/485 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-27*) at first, before using specialized cable to connect different pins of this port.



## 2-2-2 Motherboard Internal Connectors

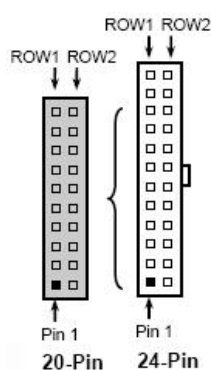
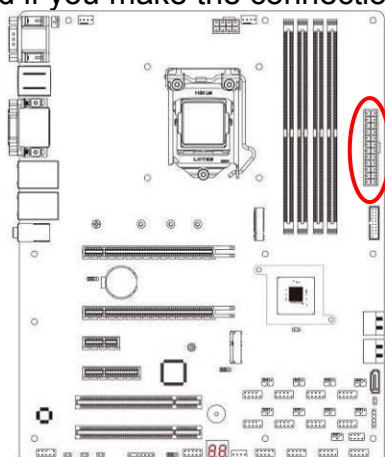
### (1) ATXPWR (24-pin block): Main Power Connector

ATX Power Supply connector: This is a new defined 24-pins connector that usually comes with ATX case. The ATX Power Supply allows using soft power on momentary switch that connect from the front panel switch to 2-pins Power On jumper pole on the motherboard. When the power switch on the back of the ATX power supply turned on, the full power will not come into the system board until the front panel switch is momentarily pressed. Press this switch again will turn off the power to the system board.

\*\* We recommend that you use an ATX 12V Specification 2.0-compliant power supply unit (PSU) with a minimum of 350W power rating. This type has 24-pin and 4-pin power plugs.

\*\* If you intend to use a PSU with 20-pin and 4-pin power plugs, make sure that the 20-pin power plug can provide at least 15A on +12V and the power supply unit has a minimum power rating of 350W. The system may become unstable or may not boot up if the power is inadequate.

\*\* If you are using a 20-pin power plug, please refer to Figure1 for power supply connection. Power plug form power supply and power connectors from motherboard both adopt key design to avoid mistake installation. You can insert the power plug into the connector with ease only in the right direction. If the direction is wrong it is hard to fit in and if you make the connection by force if is possible.



PIN	ROW1	ROW2
1	+3.3V	+3.3V
2	+3.3V	-12V
3	GND	GND
4	+5V	Soft Power on
5	GND	GND
6	+5V	GND
7	GND	GND
8	Power OK	-5V
9	+5V Stand by	+5V
10	+12V	+5V
11	+12V	+5V
12	+3.3V	GND

24-pin Main Power Connector



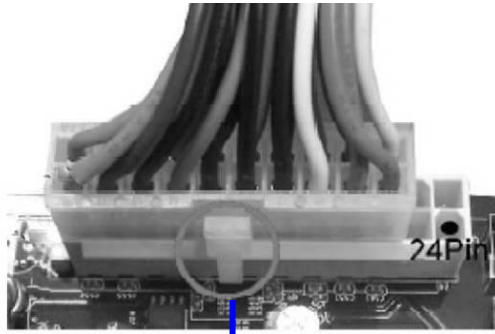


Figure1: 20-pin power plug

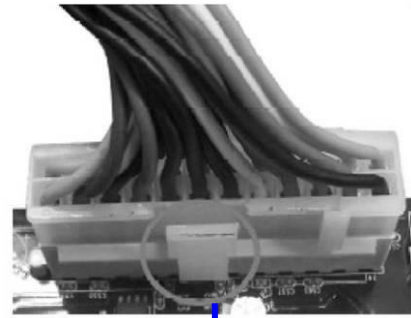
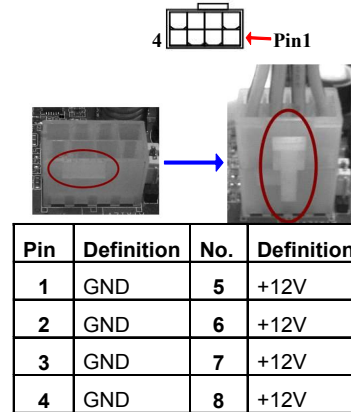
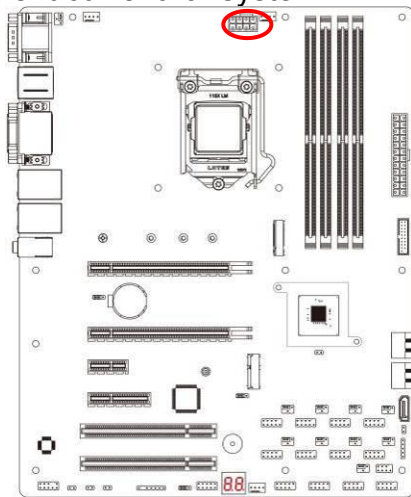


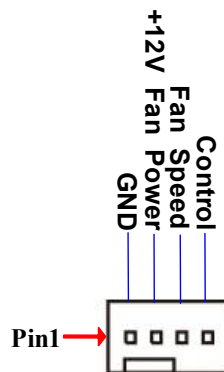
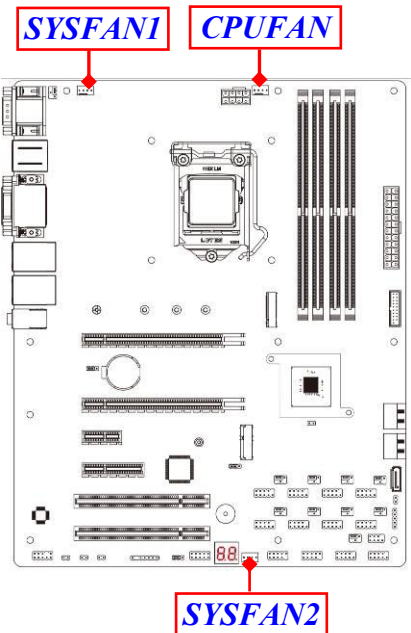
Figure 2: 24-pin power plug

**(2) ATX12V (8-pin block): 12V Power Connector**

This is a new defined 8-pin connector that usually comes with ATX Power Supply that supports extra 12V voltage to maintain system power consumption. Without this connector might cause system unstable because the power supply can not provide sufficient current for system.

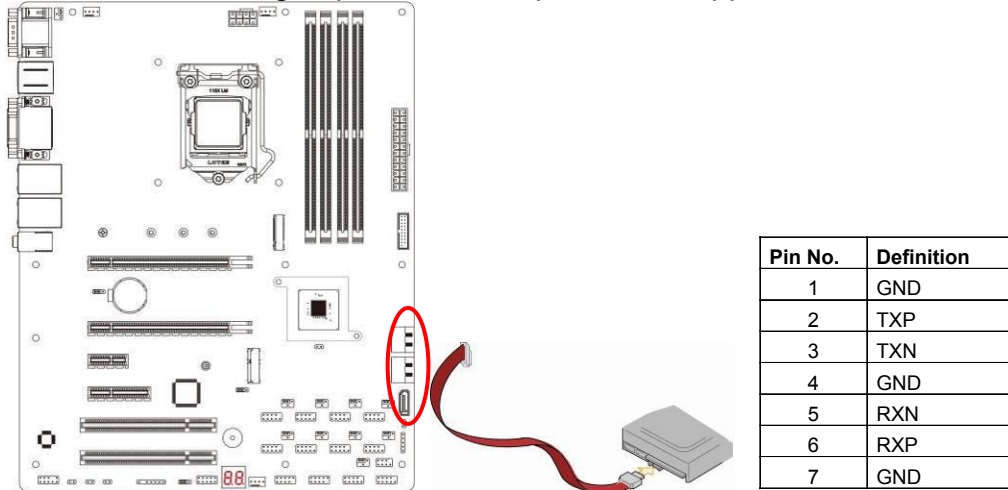


**(3) CPUFAN/SYSFAN1/SYSFAN2 (4-pin): Fan Connectors**



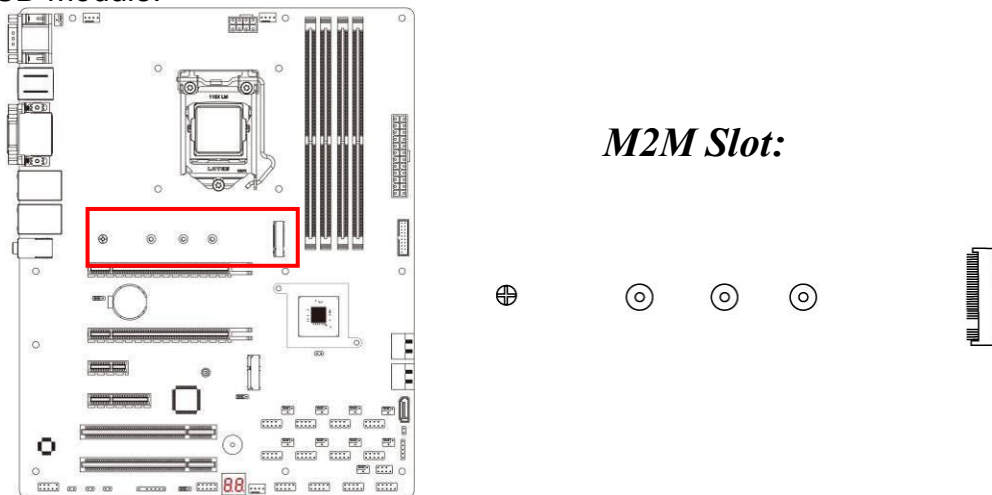
**(4) SATA\_RA1/DATA\_RA2/5: SATAIII Port Connector**

These connectors are high-speed SATAIII ports that support 6 GB/s transfer rate.

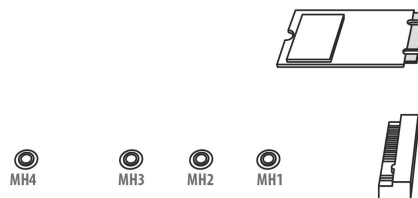


**(5) M2M: M.2 M-Key Slot**

M2M M.2 M-Key slot supports compatible type 2242/2260/2280/22110 SATA or PCIE x4 SSD module.

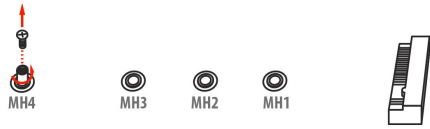


**M2M Slot Installation Guide:**



1. Prepare compatible M.2 SATA or M.2 SSD card. Deferent type of cards has different length. Find corresponding nut location for further installation.

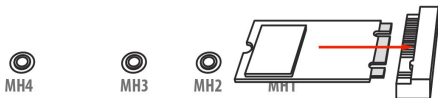
Nut Location	MH1	MH2	MH3	MH4
Card Length	4.2 cm	6 cm	8 cm	11 cm
Module Type	Type- 2242	Type- 2260	Type- 2280	Type- 22110



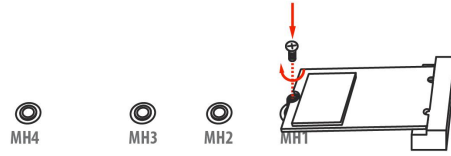
2. Remove the screw post and nut fixed at location **MH4** by default (Skip step 2 & 3 and go straight to Step 4 if you are going to use the default nut).



3. Lock the screw post into the location corresponding to the length of the module.

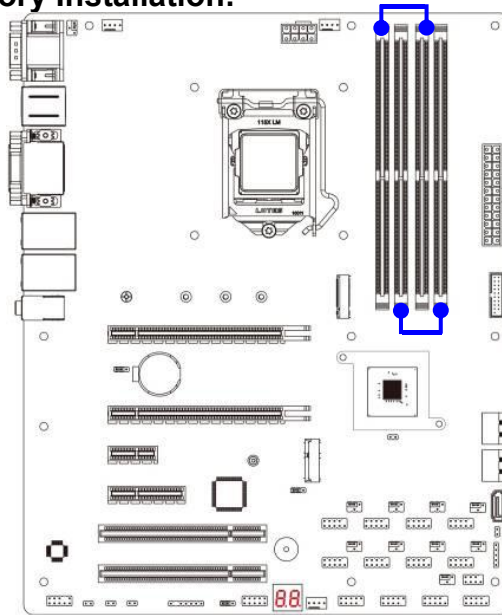


4. Align and insert corresponding M.2 module, as the photo shows.



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

### (6) Dual Channel Memory Installation:



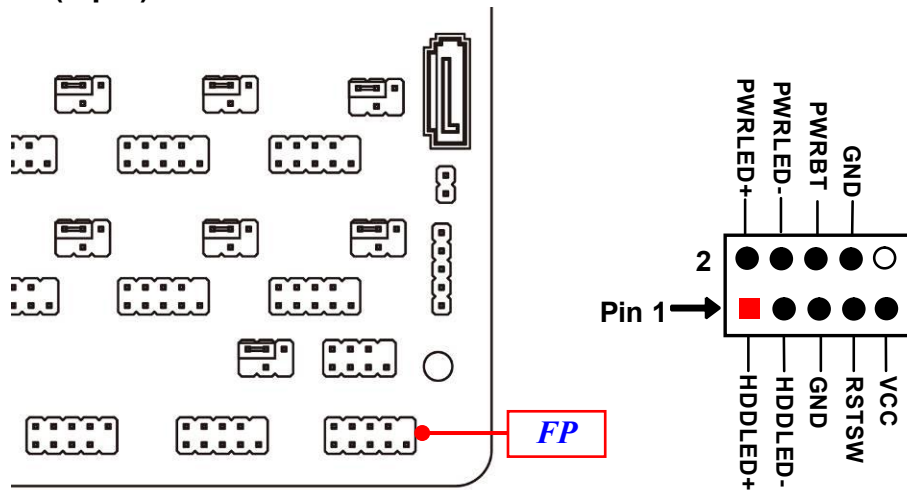
<b>Configuration</b>	<b>DIMM1</b>	<b>DIMM2</b>	<b>DIMM3</b>	<b>DIMM4</b>
<b>1</b>	install	--	install	--
<b>2</b>	--	install	--	install
<b>3</b>	install	install	install	install

### Notice!

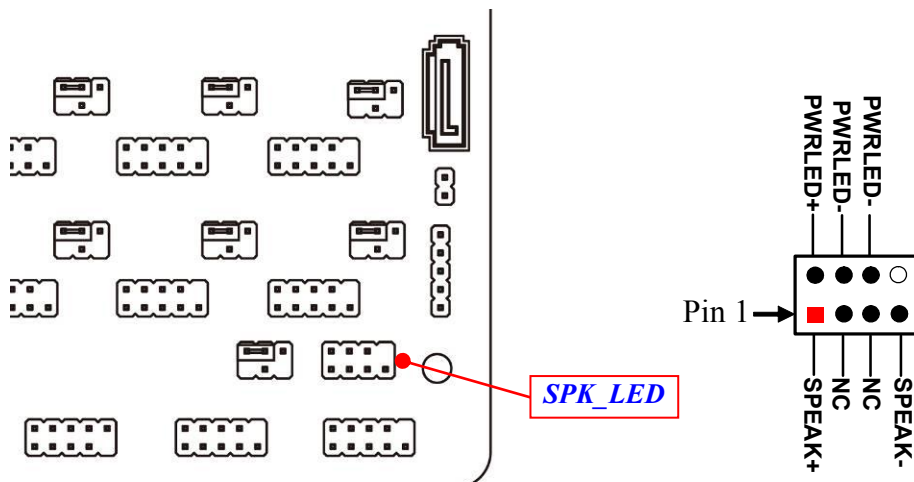
- For dual channel installation, you need to install the same brand, speed, size and type memory module.
- It is unable to activate dual channel feature if you install one or three memory modules, or you install DIMM1 & DIMM4 / DIMM2 & DIMM3. Slot order can be from left-to-right or right-to-left, and it must be installed in pairs.
- If you install memory modules in wrong direction, it will damage the motherboard and memory module.

## 2-2-3 Header Pin Definition

### (1) FP (9-pin): Front Panel Header

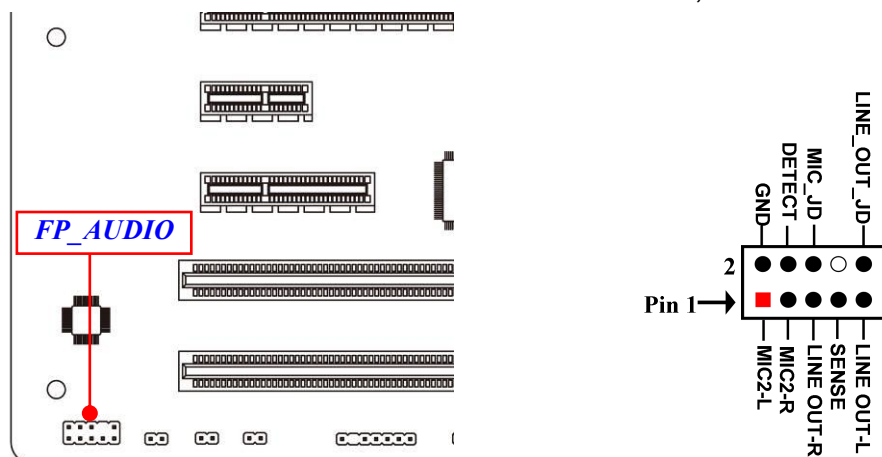


### (2) SPK\_LED(7-pin): PWR LED Header & Speaker Header

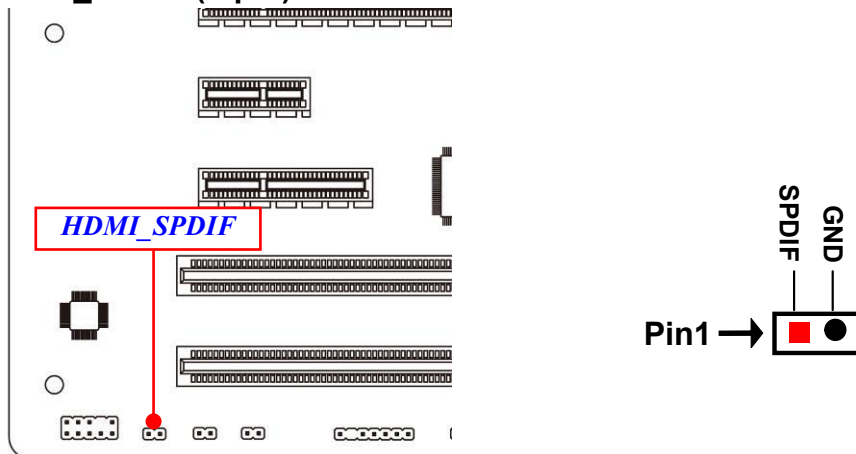


### (3) FP\_AUDIO (9-pin): Line-Out, MIC-In Header

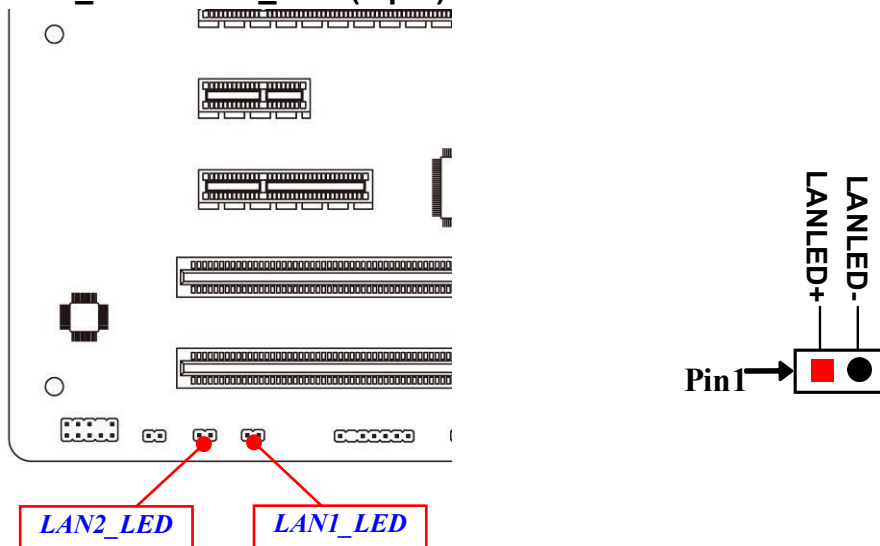
This header is connected to Front Panel Line-out, MIC connector with cable.



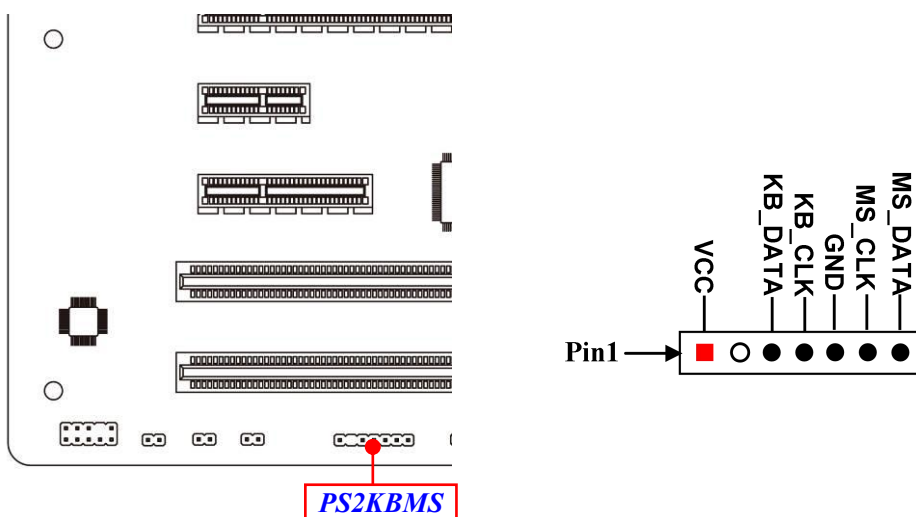
(4) HDMI\_SPDIF (2-pin): HDMI-SPDIF Out header



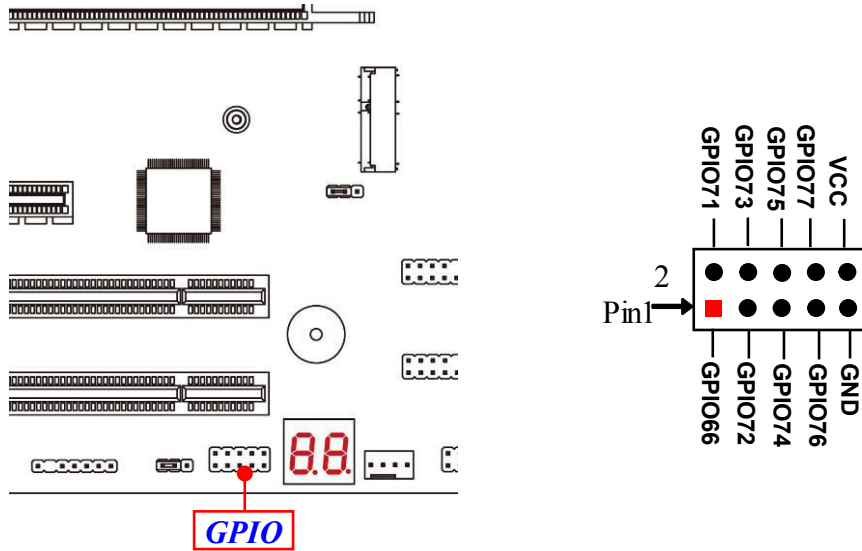
(5) LAN1\_LED/ LAN2\_LED (2-pin): LAN Status LED Header



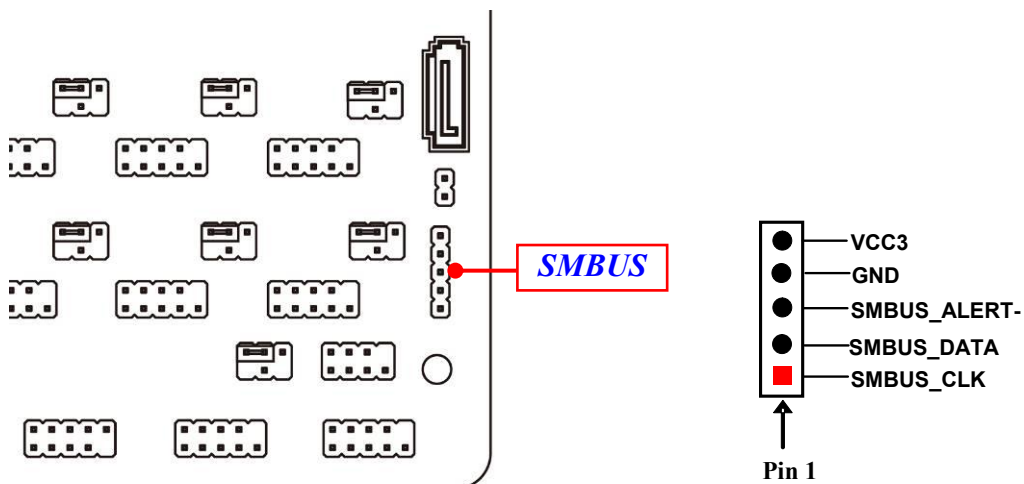
(6) PS2KBMS (6-pin): PS/2 Keyboard & Mouse Header



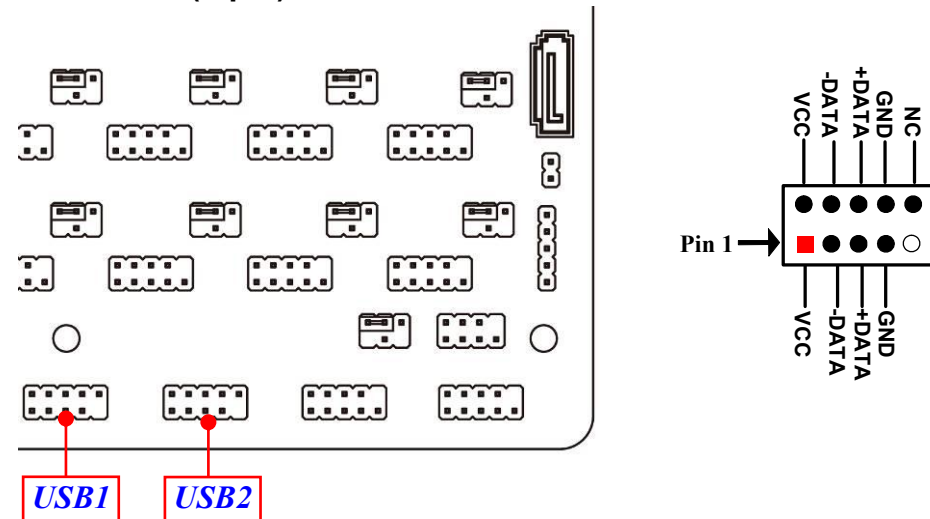
**(7) GPIO (10-pin): GPIO Header**



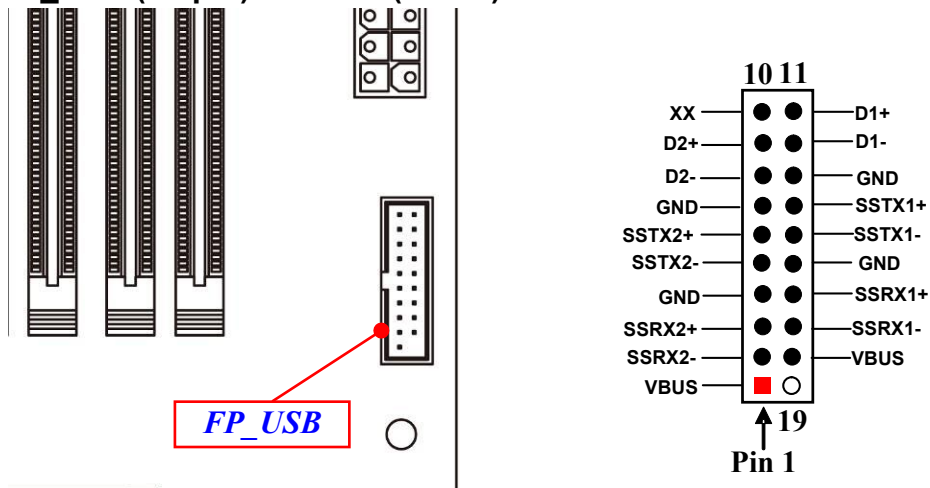
**(8) SMBUS (5-pin): SM BUS Header**



**(9) USB1/USB2(9-pin): USB 2.0 Port Headers**

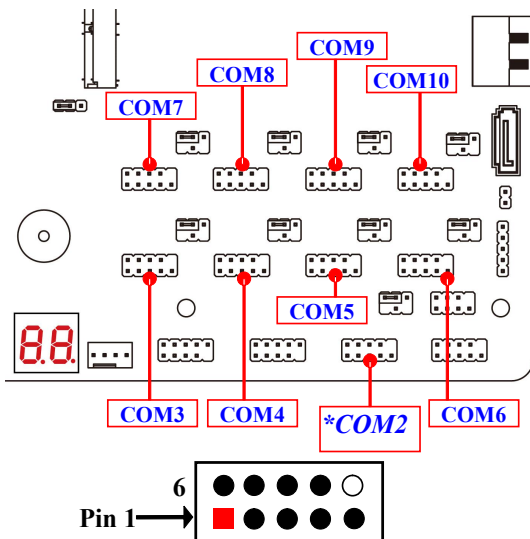


**(10) FP\_USB (19-pin): USB 3.1(Gen.1) Port Header**



**(11) COM2/3/4/5/6/7/8/9/10 (9-pin): Serial Port Header**

**COM2: RS232/422/485 Serial Port;**  
**COM3/4/5/6/7/8/9: RS232 Serial Port Header.**



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

**\*Notice: COM2 header can function as RS232/422/485 port header. In normal settings COM2 functions as RS232 header. With compatible COM cable COM2 can function as RS422 or RS 485 header. User also needs to go to BIOS to set 'Transmission Mode Select' for COM2 (refer to Page-27) at first, before using specialized cable to connect different pins of this port.**

---

---

## 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> to enter pop-up Boot menu.



BIOS Boot Menu Screen (boot device options please refer to actual configuration)

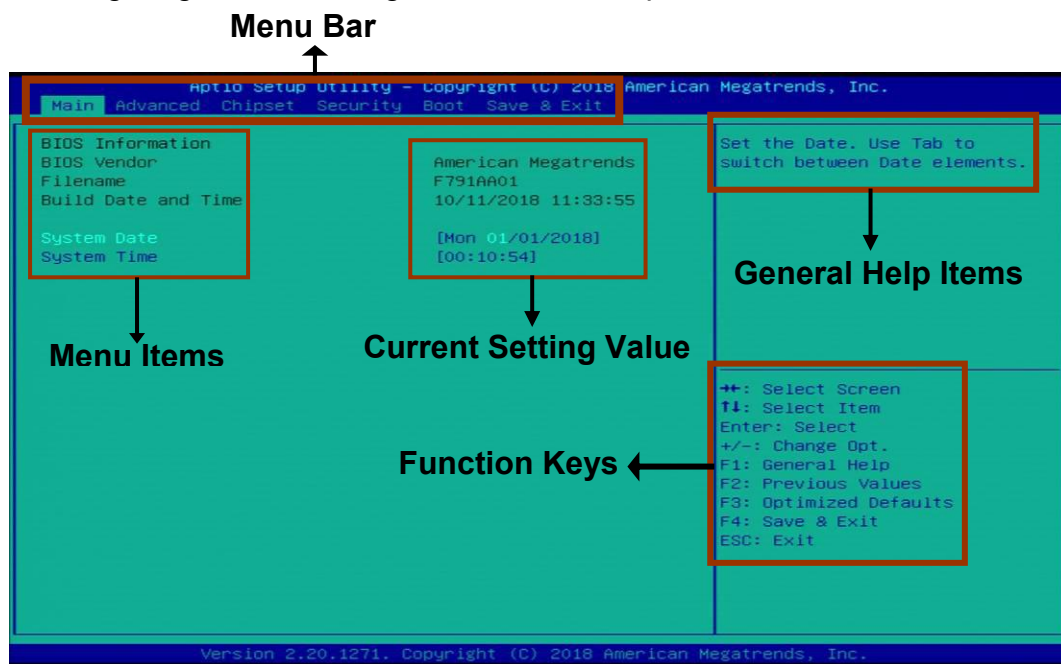


---

---

## 3-2 BIOS Menu Screen

The following diagram shows a general BIOS setup menu screen:



BIOS Setup 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.
- Press [Esc] to exit from BIOS Setup.
- [F1]: General help.
- [F2]: Previous values.
- [F3]: Optimize defaults.
- [F4]: Save & Exit.
- Press <K> to scroll help area upwards.
- Press <M> to scroll help area downwards.

---

---

## 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.

## 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

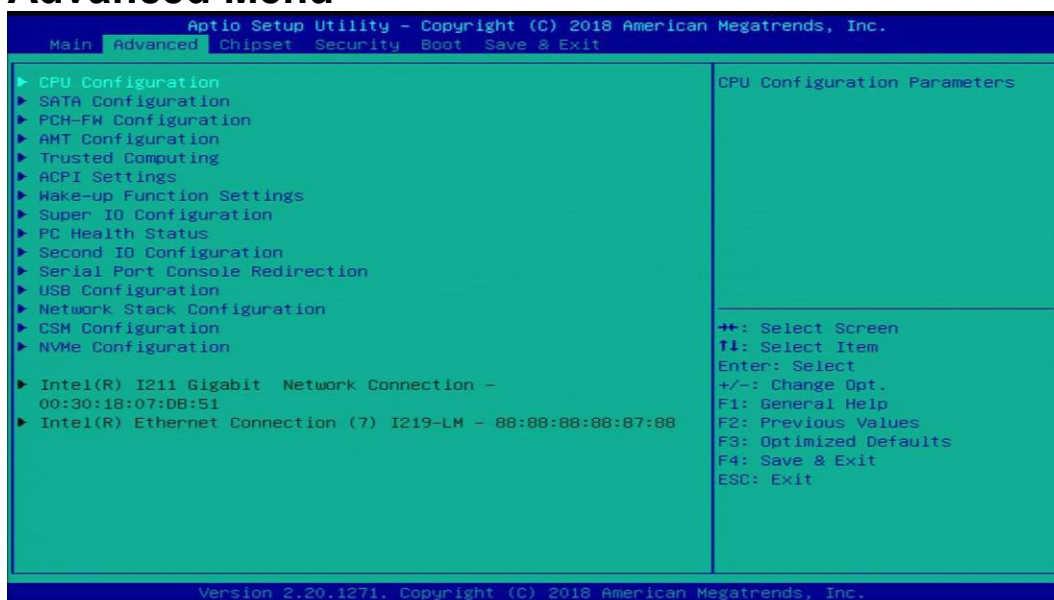
Set the time. Please use **[Tab]** to switch between time elements.

---

---

---

## 3-7 Advanced Menu



### ▶ CPU Configuration

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

#### **Hyper-Threading**

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

When set as [Disabled] only one thread per enabled core is enabled.

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

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

**\*Note:** *'Hyper-Threading' item may or may not show up, depending on different CPU.*

#### **Intel (VMX) Virtualization Technology**

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

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

#### **Turbo Mode**

Use this item to enable or disable Turbo Mode.

*\*This item might not be available depending on configuration.*

#### **Intel(R) SpeedStep(tm)**

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

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

#### **C states**

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

Use this item to enable or disable CPU Power Management.

When set as [Enabled], it allows CPU to go to C states when it's not 100% utilized.

### ▶ SATA Configuration

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

#### **SATA Controller(s)**

Use this item to enable or disable SATA device.

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

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

---

---

### **SATA Mode Selection**

This item controls how SATA controller(s) operate.

The optional settings are: [AHCI]; [RAID].

#### **SATA1/SATA2/SATA3/SATA4/SATA5**

##### **Port**

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

Use this item to enable or disable SATA port.

##### **Hot Plug**

Use this item to designate this port as Hot Pluggable.

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

#### **M.2**

##### **Port**

Use this item to enable or disable device connected to M.2 SATA port.

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

### ▶ **PCH-FW Configuration**

Press [Enter] to view Management Engine technology parameters and make settings in the following sub-item:

#### ▶ **Firmware Update Configuration**

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

##### **ME FW Image Re-Flash**

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

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

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

### ▶ **AMT Configuration**

Use this item to configure Active Management Technology parameters.

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

##### **AMT Support**

Use this item to enable or disable AMT support.

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

##### **ASF Support**

Use this item to enable or disable Alert Specification Format support.

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

*\*When set as [Enabled], user can make further settings in 'ASF Configuration' & 'Secure Erase Configuration'.*

##### **USB Provisioning of AMT**

Use this item to enable or disable AMT USB provisioning.

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

#### ▶ **CIRA Configuration**

This item is for user to configure Remote Assistance Process parameters.

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

##### **Activate Remote Assistance Process**

Use this item to trigger CIRA boot.

*\*Note: Network Access must be activated first from MEBx Setup.*

---

---

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

*\*When set as [Enabled], user can make further settings in 'CIRA Timeout'.*

#### **CIRA Timeout**

OEM defined timeout for MPS connection to be established.

The setting range is from [0] to [255].

[0]: use the default timeout value of 60 seconds;

[255]: MEBx waits until the connection succeeds.

##### ▶ **ASF Configuration**

This item is for user to configure Alert Standard Format parameters.

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

#### **PET Progress**

Use this item to enable or disable PET Events Progress to receive PET Events.

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

#### **WatchDog**

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

##### **OS Timer**

Use this item to set OS watch dog timer.

##### **BIOS Timer**

Use this item to set BIOS watch dog timer.

#### **ASF Sensors Table**

Use this item to add ASF Sensor Table into ASF ! ACPI Table.

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

##### ▶ **Secure Erase Configuration**

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

#### **Secure Erase Mode**

Use this item to change Secure Erase module behavior:

The optional settings are: [Simulated]; [Real].

[Simulated]: Performs SE flow without erasing SSD;

[Real]: Erase SSD.

#### **Force Secure Erase**

This item is for user to force Secure Erase on next boot.

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

##### ▶ **OEM Flags Settings**

Use this item to configure OEM flags.

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

#### **Hide Unconfigure ME Confirmation Prompt**

Use this function to enable or disable Hide Unconfigure ME Configuration Prompt when attempting ME unconfiguration.

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

#### **MEBx OEM Debug Menu Enable**

Use this function to enable or disable MEBx Debug menu in MEBx.

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

#### **Unconfigure ME**

Use this function to enable or disable Unconfigure ME with resetting MEBx password to default.

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

##### ▶ **MEBx Resolution Settings**

---

---

Use this item to configure resolution settings for MEBx display modes.  
Press [Enter] to make settings for in the following sub-items:

**Non-UI Mode Resolution**

Use this item to set resolution for non-UI text mode.  
The optional settings are: [Auto]; [80x25]; [100x31].

**UI Mode Resolution**

Use this item to set resolution for UI text mode.  
The optional settings are: [Auto]; [80x25]; [100x31].

**Graphics Mode Resolution**

Use this item to set resolution for graphics mode.  
The optional settings are: [Auto]; [640x480]; [800x600]; [1024x768].

▶ **Trusted Computing**

Press [Enter] to view current status information, or make further settings in the following sub-items:

**Security Device Support**

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

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

**Pending Operation**

Use this item to schedule an operation for the security device. Your computer will reboot during restart to change state of device.  
The optional settings are: [None]; [TPM Clear].

**TPM2.0 UEFI Spec Version**

Use this item to select the TCG2 Spec Version Support.  
The optional settings are: [TCG\_1\_2]; [TCG\_2].

▶ **ACPI Settings**

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

**ACPI Settings**

**ACPI Sleep State**

Use this item to select the highest ACPI sleep state the system will enter when the suspend button is pressed.  
The optional settings are: [Suspend Disabled]; [S3 (Suspend to RAM)].

▶ **Wake-up Function Settings**

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

**Wake-up System With Fixed Time**

Use this item to enable or disable system wake on alarm event.  
The optional settings are: [Disabled]; [Enabled].

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

**Wake-up System With Dynamic Time**

Use this item to enable or disable system wake on alarm event.  
System will wake on the current time + Increase minutes.  
The optional settings are: [Disabled]; [Enabled].

When set as [Enabled], system will wake on the current time + increased minute(s).

**PS2 KB/MS Wake-up**

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

---

---

Use this item to enable or disable PS2 KB/MS wake-up from S3/S4/S5.

*\*This function is supported when 'ERP Support' is set as [Disabled].*

#### **USB S3/S4 Wake-up**

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

Use this item to enable or disable USB wake-up from S3/S4 state.

*\*This function is supported when 'ERP Support' is set as [Disabled].*

#### **USB S5 Power**

Use this item to enable or disable USB power after power shutdown.

*\*This function is supported when 'ERP Support' is set as [Disabled].*

### ▶ **Super IO Configuration**

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

#### **Super IO Configuration**

##### **ERP Support**

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

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

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

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

#### **Change Settings**

Use this item to select an optimal setting for super IO device. Changing setting may conflict with system resources.

#### **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 3 Configuration/ Serial Port 4 Configuration/ Serial Port 5 Configuration/ Serial Port 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].

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

#### **Change Settings**

Use this item to select an optimal setting for super IO device. Changing setting may conflict with system resources.

#### **WatchDog Reset Timer**

Use this item to enable or disable WDT reset function.

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

#### **WatchDog Reset Timer Value**

User can set a value in the range of [4] to [255].

#### **WatchDog Reset Timer Unit**

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

---

---

### **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- 9**, **JAT\_ATX** jumper for ATX Mode & AT Mode Select).

### **Case Open Detect**

Use this item to detect case has already open or not, show message in POST.

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

When set as [Enabled], system will detect if COPEN has been short or not (refer to **Page-10**, **COPEN** jumper for Case Open Detection); if Pin 1&2 of **COPEN** is short, system will show Case Open Message during POST.

### ▶ **PC Health Status**

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

#### ▶ **SmartFAN Configuration**

Press [Enter] to make settings for 'SmartFan Configuration':

#### **SmartFAN Configuration**

#### **CPUFAN / SYSFAN1/ SYSFAN2 Smart Mode**

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

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

#### **CPUFAN / SYSFAN1/ SYSFAN2 Full-Speed Temperature**

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

#### **CPUFAN / SYSFAN1/ SYSFAN2 Full-Speed Duty**

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

#### **CPUFAN / SYSFAN1/ SYSFAN2 Idle-Speed Temperature**

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

#### **CPUFAN / SYSFAN1/ SYSFAN2 Idle-Speed Duty**

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

#### **Shutdown Temperature**

Use this item to select system shutdown temperature.

The optional settings are: [Disabled]; [70°C/158°F]; [75°C/167°F]; [80°C/176°F]; [85°C/185°F]; [90°C/194°F].

### ▶ **Second Super IO Configuration**

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

#### ▶ **Serial Port 7 Configuration/Serial Port 8 Configuration/Serial Port 9 Configuration/Serial Port 10 Configuration**

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

#### **Serial Port**

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

#### **Change Settings**

Use this item to select an optimal setting for super IO device. Changing setting may conflict with system resources.



---

---

▶ **Serial Port Console Redirection**

**COM1**

**Console Redirection**

The optional settings are: [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:

**COM1**

**Console Redirection Settings**

**Terminal Type**

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

Emulation: [ANSI]: Extended ASCII char set; [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.

**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 are: [9600]; [19200]; [38400]; [57600]; [115200].

**Data Bits**

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

**Parity**

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

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

[Even]: parity bit is 0 if the num of 1's in the data bits is even; [Odd]: parity bit is 0 if 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 setting is 1 stop bit. Communication with slow devices may require more than 1 stop bit.

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

**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 are: [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 are: [Disabled]; [Enabled].

**Recorder Mode**

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

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

---

---

### **Resolution 100x31**

Use this item to enable or disable extended terminal resolution.

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

### **Putty KeyPad**

Use this item to select FunctionKey and KeyPad on Putty.

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

### **Legacy Console Redirection**

#### **▶ Legacy Console Redirection Settings**

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

#### **Legacy Console Redirection Settings**

#### **Legacy Serial Redirection Port**

For user to select a COM port to display redirection of legacy OS and Legacy OPRM messages.

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

#### **Resolution**

This item is for user to select the number of Rows and Columns supported redirection.

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

#### **Redirect After POST**

The optional settings are: [Always Enable]; [Bootloader].

When [**Bootloader**] is selected, then Legacy Console Redirection is disabled before booting to legacy OS. When [**Always Enabled**] is selected, then Legacy Console Redirection is enabled for legacy OS. Default setting for this option is set to [**Always Enabled**].

#### **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**

Microsoft Windows Emergency Management Services (EMS) allows for remote management of a Windows Server OS through a serial port.

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

#### **Terminal Type**

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

[VT-UTF8] is the preferred terminal type for out-of-band management. The next best choice is [VT100+] and them [VT100]. See above, in Console Redirection Settings page, for more help with Terminal Type/Emulation.

#### **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]; [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].

### **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.*

## ▶ **USB Configuration**

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

### **USB Configuration**

#### **Legacy USB Support**

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

**[Enabled]**: To enable legacy USB support.

**[Disabled]**: to keep USB devices available only for EFI specification,

**[Auto]**: To disable legacy support if no USB devices are connected.

#### **XHCI Hand-off**

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

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

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

Use this item to enable or disable 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**’, the delay range in from 1 to 40 seconds, in one second increments.

## ▶ **Network Stack Configuration**

Press [Enter] to go to ‘**Network Stack**’ screen to make further settings.

### **Network Stack**

---

---

Use this item to enable or disable UEFI Network Stack.

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

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

**Ipv4 PXE Support**

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

Use this item to enable IPv4 PXE boot support.

When set as [Disabled], IPv4 boot support will not be available.

**Ipv6 PXE Support**

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

Use this item to enable IPv6 PXE boot support. When set as [Disabled], IPv6 boot support will not be available.

**PXE boot wait time**

Use this item to set wait time to press [ESC] key to abort the PXE boot.

Use either [+] / [-] or numeric keys to set the value.

**Media Detect Count**

Use this item to set number of times presence of media will be checked.

Use either [+] / [-] or numeric keys to set the value.

▶ **CSM Configuration**

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

**Compatibility Support Module Configuration**

**CSM Support**

Use this item enable or disable CSM support.

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

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

**Option ROM execution**

**Network**

This option controls the execution of network OpROM.

The optional settings are: [Do not launch]; [Legacy].

**Storage**

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

The optional settings are: [Do not launch]; [UEFI]; [Legacy].

**Other PCI devices**

This item is for system to determine OpROM execution policy for devices other than Network, Storage or Video.

The optional settings are: [Do not launch]; [UEFI]; [Legacy].

▶ **NVMe Configuration**

Press [Enter] to view current NVMe Configuration.

*\*Note: options only when NVMe device is available.*

▶ **Intel(R) I211/I210 Gigabit Network Connection- XX:XX:XX:XX:XX:XX / Intel(R) Ethernet Connection (7) I219-LM- XX:XX:XX:XX:XX:XX**

This item shows current network brief information.

---

---

## 3-8 Chipset Menu



### ▶ System Agent (SA) Configuration

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

#### **VT-d**

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

#### ▶ Memory Configuration

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

#### ▶ Graphics Configuration

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

#### **Graphics Configuration**

##### **Primary Display**

Use this item to select which graphics device should be Primary Display.

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

##### **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.

The optional settings are: [VBIOs Default]; [DP]; [HDMI]; [DVI]; [VGA].

**\*Note:** In the case that the 'Primary IGFX Boot Display' is select as [DP], [HDMI], [DVI] or [VGA], user can make further settings in 'Secondary IGFX Boot Display':

##### **Secondary IGFX Boot Display**

Use this item to select the secondary Display device.

The optional settings are: [Disabled]; [DP]; [HDMI]; [DVI].

##### **External Gfx Card Primary Display**

Use this item to select which of the graphics device should be Primary PEG.

The optional settings are: [Auto]; [PEG2 Slot].

##### **Internal Graphics**

Use this item to keep IGFX enabled based on the setup options.

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

##### **Aperture Size**

Use this item to select the Aperture Size. Above 4GB MMIO BIOS assignment is

---

---

automatically enabled when selecting 2048MB aperture. To use this feature, please disable CSM Support.

The optional settings are: [128MB]; [256MB]; [512MB]; [1024MB]; [2048MB].

#### **DVMT Pre-allocated**

Use this item to select DVMT 5.0 Pre-Allocated (Fixed) Graphics Memory size used by the Internal Graphics Device.

The optional settings are: [32M]; [64M].

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

Use this item to select DVMT 5.0 Total Graphic Memory size used by the Internal Graphics Device.

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

#### ► **PEG Port Configuration**

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

#### **PEG Port Configuration**

##### **PCIE1 Slot/ PCIE2 Slot**

#### **Enable Root Port**

Use this item to enable or disable the root port.

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

#### **Max Link Speed**

Use this item to select slot max speed.

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

#### **Max Link Width**

This item is for user to force PEG link to restrain to X1/2/4/8.

The optional settings are: [Auto]; [Force X1]; [Force X2]; [Force X4]; [Force X 8].

#### **Detect Non-Compliance Device**

This item is for user to detect Non-Compliance PCI Express Device in PEG.

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

#### ► **PCH-IO Configuration**

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

#### **PCH-IO Configuration**

##### **HD Audio**

This item controls detection of the HD-Audio device.

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

[Disabled]: HDA will be unconditionally disabled.

[Enabled]: HAD will be unconditionally enabled.

##### **Onboard Lan1 Controller**

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

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

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

##### **Wake on LAN Enable**

Use this item to enable or disable integrated LAN to wake the system.

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

##### **Onboard Lan2 Controller**

Use this item to enable or disable Lan2 onboard NIC device or controller.

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

---

---

### PCIE3 Slot/PCIE4 Slot

Use this item to control respective PCI Express Root Port.  
The optional settings are: [Disabled]; [Enabled].

#### Speed

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

### PCI Slot

Use this item to control PCI slot.  
The optional settings are: [Disabled]; [Enabled].

### M2M Slot

Use this item to enable or disable M2E slot function.  
The optional settings are: [Disabled]; [Enabled].

### M2E Slot

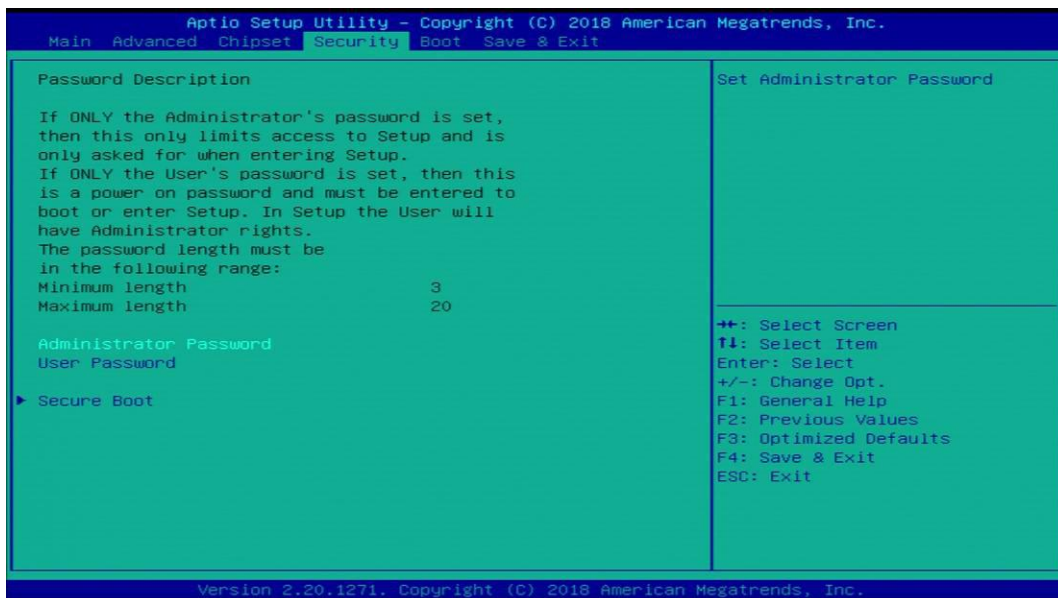
Use this item to enable or disable M2E slot function.  
The optional settings are: [Disabled]; [Enabled].

### System after G3

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

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

## 3-9 Security Menu



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

### Administrator Password

If there is no password present on system, please press [Enter] to create new administrator password. If password is present on system, please press [Enter] to verify old password then to clear/change password. Press again to confirm the new administrator password.

### User Password

If there is no password present on system, please press [Enter] to create new administrator password. If password is present on system, please press [Enter] to verify old password then to clear/change password. Press again to confirm the new administrator password.

---

---

▶ **Secure Boot**

Press [Enter] to make customized secure settings:

**Secure Boot**

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

Secure Boot feature is active if Secure Boot is enabled, Platform Key (PK) is enrolled and the system is in User mode. The mode change requires platform reset.

**Secure Boot Mode**

The optional settings are: [Standard]; [Custom].

Set UEFI Secure Boot Mode to Standard mode or Custom mode. This change is effective after save. After reset, this mode will return to Standard mode.

In Custom mode, Secure Boot Policy variables can be configured by a physically present user without full authentication.

*\*When set as [Custom], user can make further settings in the following items that show up:*

▶ **Restore Factory Keys**

Use this item to force system to User Mode, to install factory default Secure Boot key databases.

▶ **Reset To Setup Mode**

Use this item to delete all Secure Boot Key databases from NVRAM.

▶ **Key Management**

This item enables experienced users to modify Secure Boot variables, which includes the following items:

**Factory Key Provision**

This item is for user to install factory default secure boot keys after the platform reset and while the system is in Setup mode.

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

▶ **Restore Factory Keys**

Use this item to force system into User Mode. Install factory default Secure Boot Key databases.

▶ **Reset to Setup Mode**

Use this item to delete all Secure Boot key databases from NVRAM.

▶ **Export Secure Boot variables**

Use this item to copy NVRAM content of Secure Boot variables to files in a root folder on a file system device.

▶ **Enroll Efi Image**

This item allows the image to run in Secure Boot Mode.

Enroll SHA256 Hash certificate of a PE image into Authorized Signature Database (db).

**Device Guard Ready**

▶ **Remove 'UEFI CA' from DB**

Device Guard ready system must not list 'Microsoft EFI CA' Certificate in Authorized Signature database (db).

▶ **Restore DB defaults**

Use this item to restore DB variable to factory defaults.



---

---

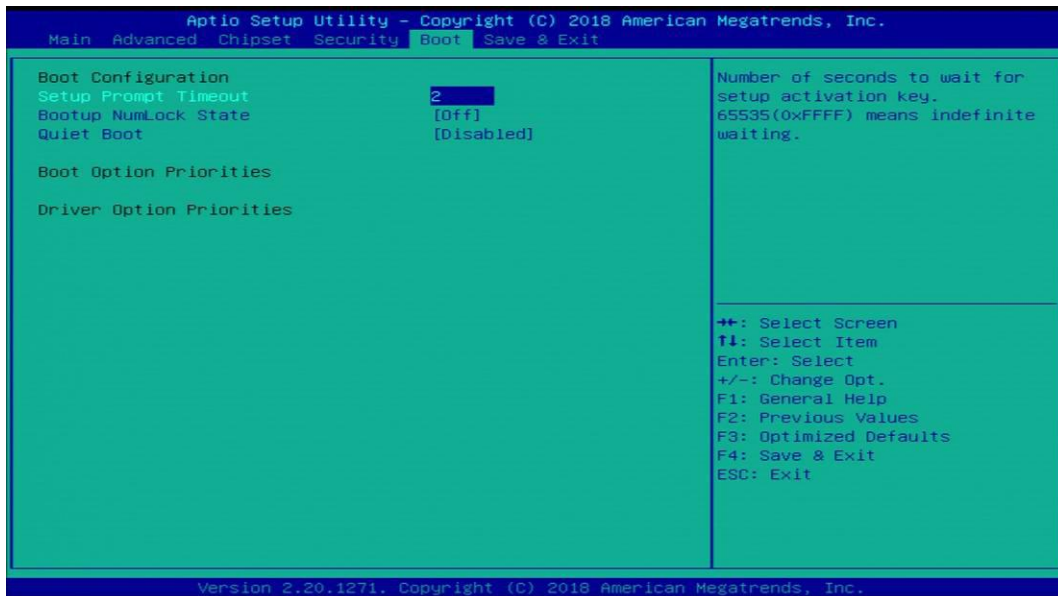
### Secure Boot Variable/Size/Keys/Key Source

#### ▶ Platform Key (PK)/Key Exchange Keys/Authorized Signature/Forbidden Signature/ Authorized TimeStamps/OS Recovery Signatures

Use this item to enroll Factory Defaults or load the keys from a file with:

1. Public Key Certificate in:
    - a) EFI\_SIGNATURE\_LIST
    - b) EFI\_CERT\_X509 (DER encoded)
    - c) EFI\_CERT\_RSA2048 (bin)
    - d) EFI\_CERT\_SHAXXX (bin)
  2. Authenticated UEFI Variable
  3. EFI PE/COFF Image (SHA256)
- Key Source: Factory, External, Mixed.

## 3-10 Boot Menu



### Boot Configuration

#### **Setup Prompt Timeout**

Use this item to set number of seconds to wait for setup activation key.

#### **Bootup Numlock State**

Use this item to select keyboard numlock state.

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

#### **Quiet Boot**

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

### Boot Option Priorities

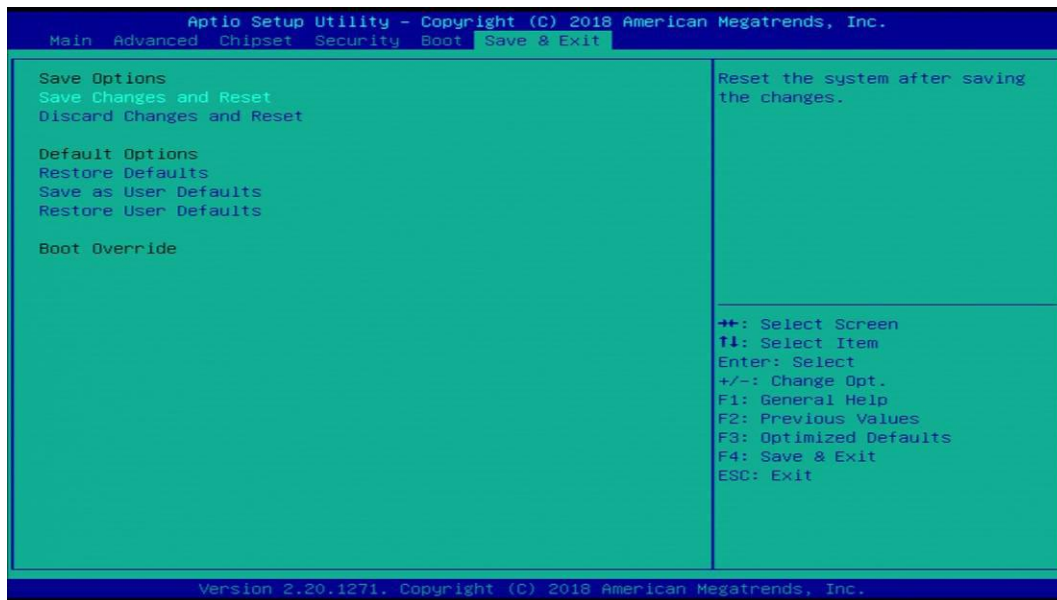
#### **Boot Option #1/ Boot Option #2...**

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

---

---

## 3-11 Save & Exit Menu



### **Save Options**

#### **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.

### **Default Options**

#### **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 the user defaults to all the setup options.

### **Boot Override**

#### **UEFI: Built-in EFI Shell**

Press this item and a dialogue box shall appear to ask if user wish to save configuration and reset.