

MM02 Series

User's Manual

No. G03-MM02-F

Rev: 3.0

Release date: March 17, 2023

Trademark:

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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

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Manual Revision Information

Reversion	Revision History	Date
3.0	Third Edition	March 17, 2023

Item Checklist

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

Chapter 1

Introduction of the Motherboard

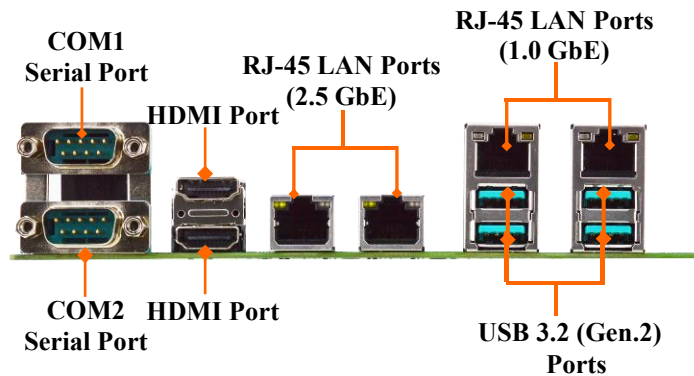
1-1 Specification

Spec	Description
Design	<ul style="list-style-type: none"> ● Micro ATX form factor; PCB size: 24.4 x24.4 cm
Chipset	<ul style="list-style-type: none"> ● MM02-10/12 Series: Intel Q470E Chipset ● MM02-20/22 Series: Intel W480E Chipset
CPU Socket	<ul style="list-style-type: none"> ● Intel LGA 1200 Socket supports 10th Gen. Core processors (Max. 95W TDP) <p><i>* Note: for detailed CPU support information please visit our website</i></p>
Memory Slots	<ul style="list-style-type: none"> ● 4* Long DIMM DDR4 slot for 4* DDR4 2933/2666/2400 MHz RAM Module ● Support dual channel function <p><i>Maximum capacity: up to 128GB</i> <i>Maximum frequency: 2933 MHz (depends on CPU support)</i></p> <p><i>*Note: MM02-20/22 series supports DDR4 ECC SDRAM</i></p>
Expansion Slots	<ul style="list-style-type: none"> ● 1 * PCI-Express x1 slot (PCIE1) ● 1 * PCI-Express x16 slot (*PCIE2) ● 1 * PCI-Express x4 slot (PCIE3) ● 1 * PCI-Express x8 slot (*PCIE4) <p><i>*Note: PCIE2 slot share x16 lane band width with PCIE4 slot.</i></p> <ul style="list-style-type: none"> ● 1* M.2 E-key slot, type-2230 PCIe1/USB2.0 interface support CNVi (M2E1)
Storage	<ul style="list-style-type: none"> ● MM02-10/12 Series: 6*SATAIII 6Gb/s port support RAID 0/1/5/10 (SATA_RA1/2/3) ● MM02-20/22 Series: 8*SATAIII 6Gb/s port support RAID 0/1/5/10 (SATA_RA1/2/3;SATA7/8) ● 1* M.2 M-key slot, type-2242/2260/2280/22110 PCIe4 interface supports NVMe (M2M1) ● 1* M.2 M-key slot, type-2260/2280 PCIe2 interface (M2M2)
LAN Chips	<ul style="list-style-type: none"> ● 1* Intel i219LM GbE & 1* Intel i210AT GbE ● 2* Intel i225LM 2.5GbE <p><i>*Note: 2500Mbps high-speed transmission rate is only supported over CAT 5e UTP cable.</i></p>
BIOS	<ul style="list-style-type: none"> ● AMI 128M Bit AMI Flash ROM
Multi I/O	<p>Rear Panel I/O:</p> <ul style="list-style-type: none"> ● 2* COM port ● 2* HDMI 1.4 port ● 2* 2.5GbE RJ-45 LAN port ● 2* 1.0GbE RJ-45 LAN port ● 4* USB 3.2 (Gen.2) port <p>Internal I/O Connectors & Headers:</p> <ul style="list-style-type: none"> ● 1*24-pin main power connector ● 1 *8-pin 12V power connector ● 1* CPUFAN connector & 6* SYSFAN connector

	<ul style="list-style-type: none"> ● 1* Front panel header ● 2* 9-Pin USB 2.0 header for 4* USB 2.0 expansion ports ● 1*19-Pin USB 3.2 (Gen.1) header for 2* USB 3.2 (Gen.1) ports ● 1* 8-bit GPIO header ● 1*PS/2 Keyboard & Mouse header ● 1* SMBUS header ● 4* COM port header (<i>Optional for MM02-10/12 series only</i>)
TPM 2.0 Function	<ul style="list-style-type: none"> ● Optional for MM02-12 & MM02-22 Series

1-2 Layout Diagram

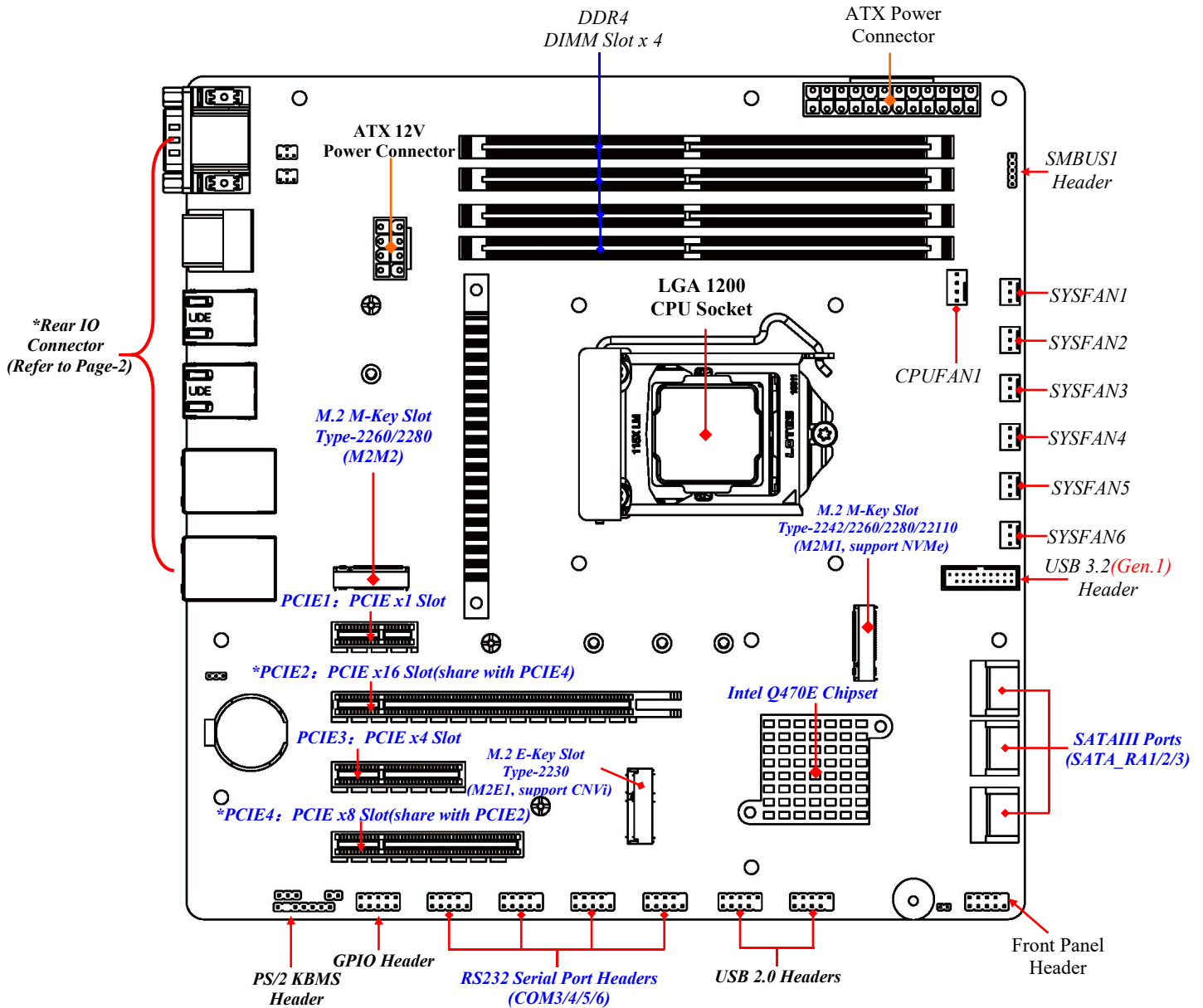
Rear IO Diagram



***Note:** COM1-2 for MM02-10/12 Series support RS232/422/485 function; COM1-2 for MM02-20/22 Series support RS232 function only.

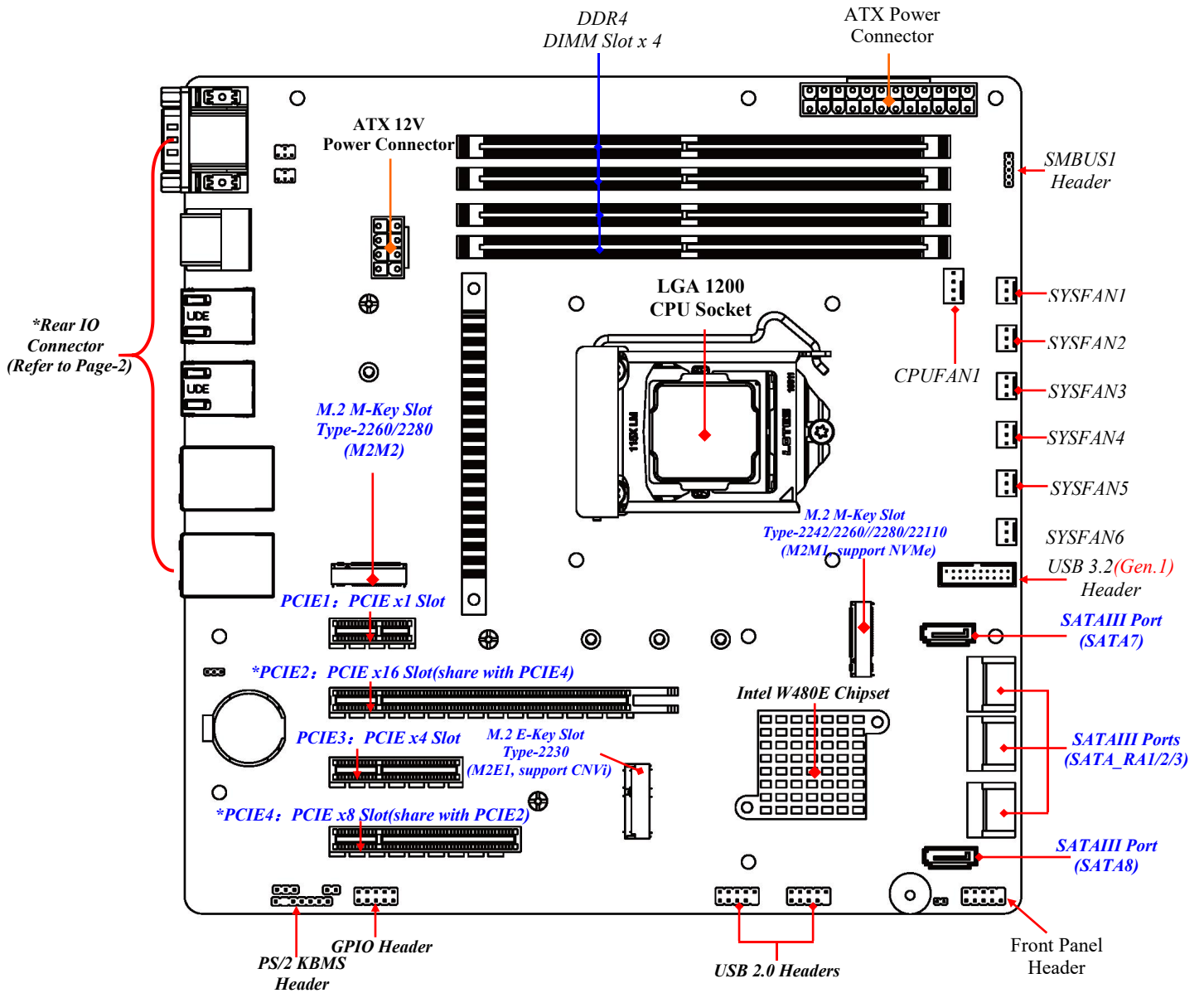
Motherboard Internal Diagram

MM02-10/12 Series:



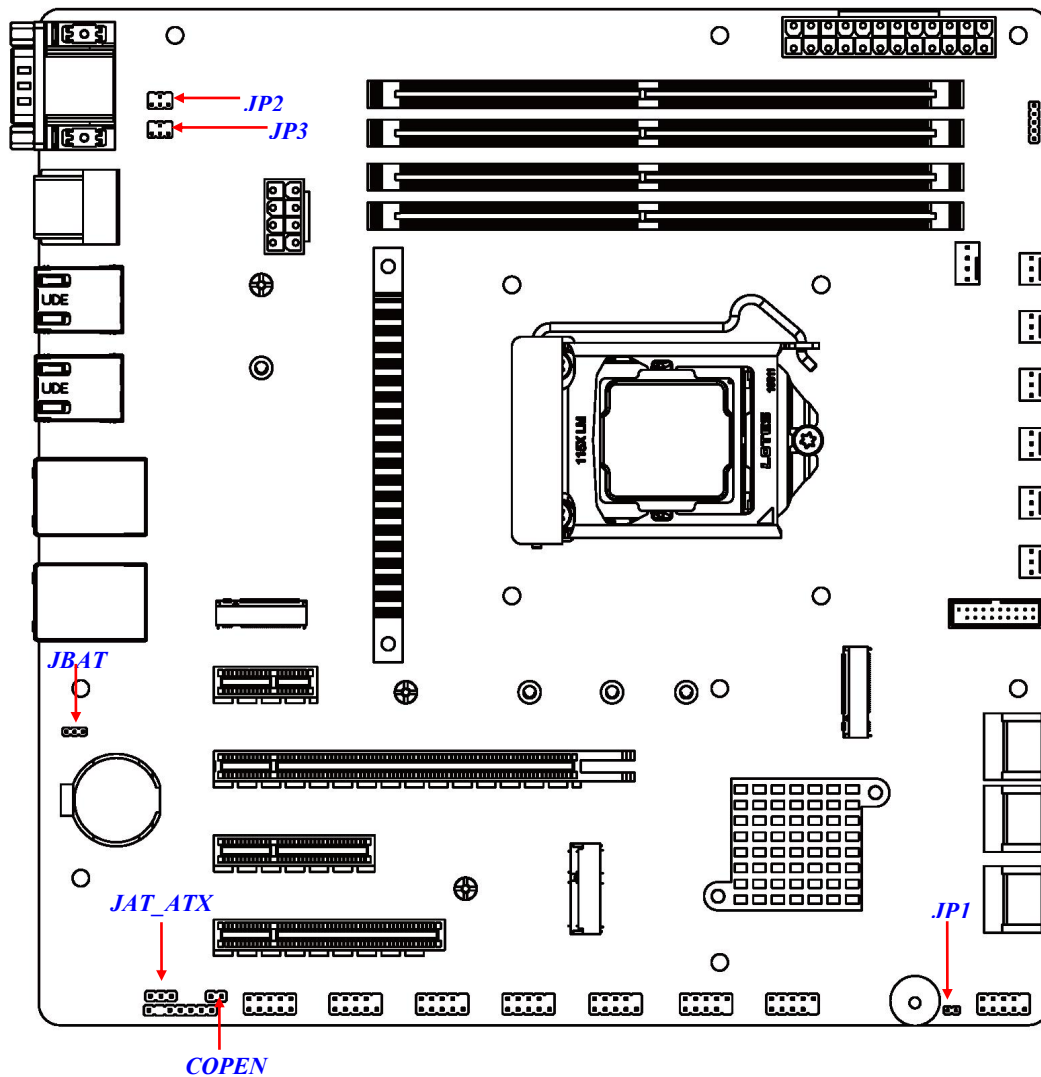
***Note:** PCIE4 slot share x16 lane band width with PCIE2 slot. **Configuration solutions:** 1*PCIE x16 card, please plug in PCIE2 slot to run at x16 (Max.) lane band width; in the case that 2*PCIE cards plugged in PCIE2 & PCIE4 slots, since the 2* PCIE slots share x16 lane band width, each card will run at x8 (Max.) lane band width.

MM02-20/22 Series:



***Note:** 1.PCIE4 slot share x16 lane band width with PCIE2 slot. **Configuration solutions:** 1*PCIE x16 card, please plug in PCIE2 slot to run at x16 (Max.) lane band width; in the case that 2*PCIE cards plugged in PCIE2 & PCIE4 slots, since the 2* PCIE slots share x16 lane band width, each card will run at x8 (Max.) lane band width.

Motherboard Jumper Position:



*Note: The diagrams in the manual are mostly taken from MM02-10/12 series unless otherwise stated.

Jumper

Jumper	Name	Description	Pitch
JBAT	Clear CMOS RAM Settings	3-pin Block	2.0mm
JAT_ATX	ATX/AT Mode Select	3-pin Block	2.54mm
COPEN	Case Open Message Display Detect	2-pin Block	2.54mm
JP1	ME Features Select	2-pin Block	2.0mm
JP2	COM1 Port Pin9 Function Select	4-pin Block	2.0mm
JP3	COM2 Port Pin9 Function Select	4-pin Block	2.0mm

Connectors

Connector	Name
COM1-2	Serial Port X2
HDMI1-2	HDMI 1.4 Port X2 (Max Resolution: 4096x2160@30Hz)
LAN3/LAN4	2.5GbE RJ-45 LAN Port X2
UL1/UL2	Top: 1GbE RJ-45 LAN Port X2 Middle & Bottom: USB 3.2 (Gen.2) Port X4
ATXPWR1	ATX Type Main Power Connector
ATX12V1	ATX 12V Power Connector
CPUFAN1	CPU FAN Connector
SYSFAN1/2/3/4/5/6	System FAN Connector X6
SATA_RA1/2/3	SATAIII Connector X6
MM02-20/22 Series: *SATA7/SATA8	SATAIII Connector X2

***Note:** SATA7 & SATA8 ports are only optional for MM02-20/22 series.

Headers

Header	Name	Description	Pitch
FP (Front Panel Header)	PWR LED/ HD LED/ Power Button /Reset	9-pin Block	2.54mm
FP_USB2/FP_USB3	USB 2.0 Port Header X2	9-pin Block	2.54mm
FP_USB1	USB 3.2 (Gen.1) Port Header	19-pin Block	2.0mm
MM02-10/12 Series: COM3/4/5/6	RS232 Serial Port Header X4	9-pin Block	2.54mm
GPIO	GPIO Header	10-pin Block	2.54mm
PS2KBMS	PS/2 Keyboards & Mouse Header	6-pin Block	2.54mm
SMBUS1	SMBUS Header	5-pin Block	2.0mm

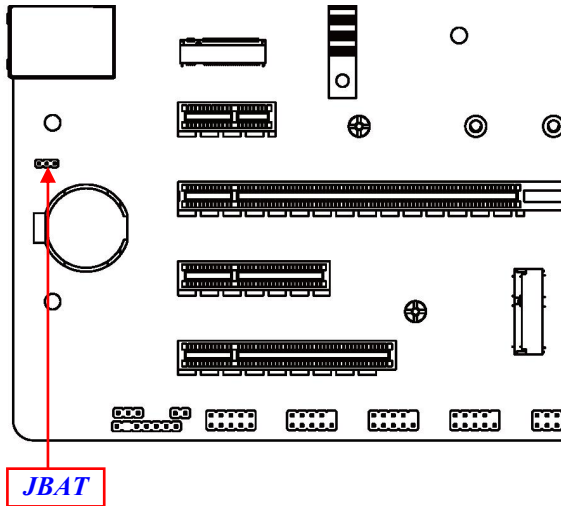
***Note:** COM3/4/5/6 ports are only optional for MM02-10/12 series.

Chapter 2

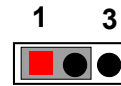
Hardware Installation

2-1 Jumper Setting

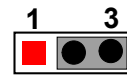
JBAT (3-pin): Clear CMOS RAM Settings



JBAT → Clear CMOS Settings

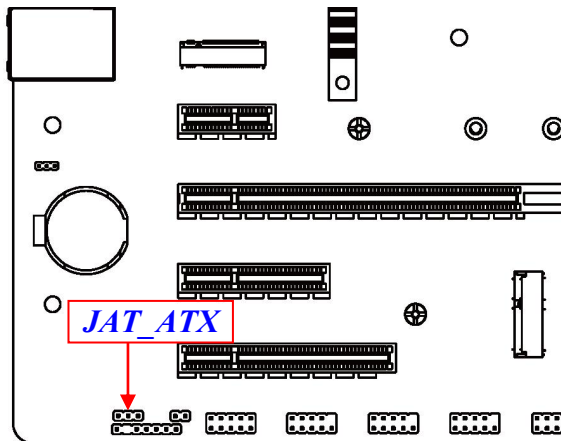


1-2 Open: Normal;

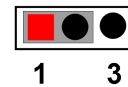


1-2 Closed: Clear CMOS.

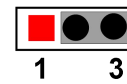
JAT_ATX (3-pin): AT Mode /ATX Mode Select



JAT_ATX → ATX/AT Mode Select



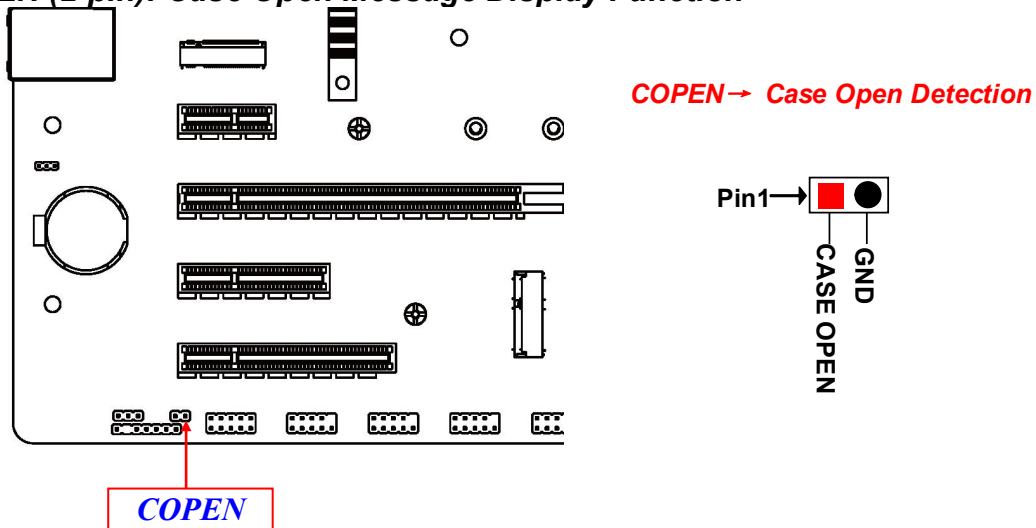
1-2 Closed: ATX Mode Selected;



2-3 Closed: AT Mode Selected.

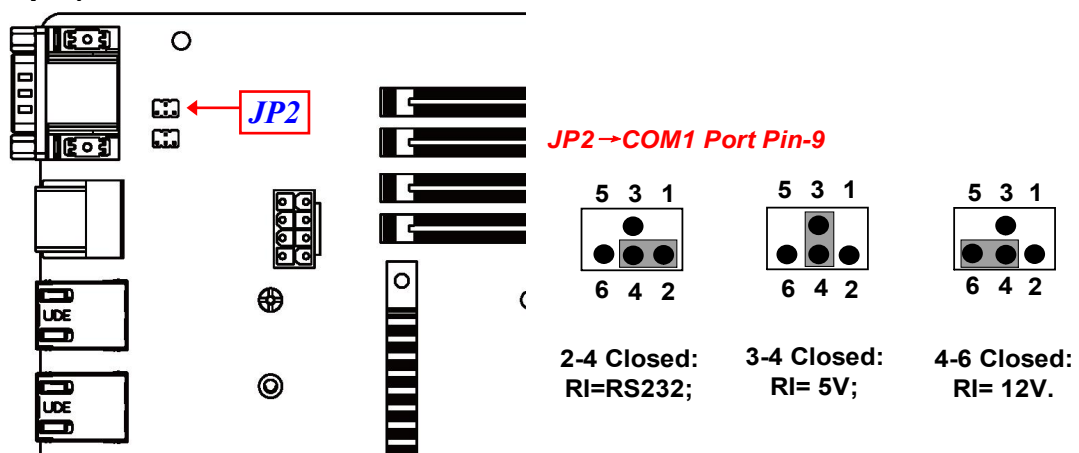
***ATX Mode Selected:** Press power button to power on after power input ready;
AT Mode Selected: Directly power on as power input ready.

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



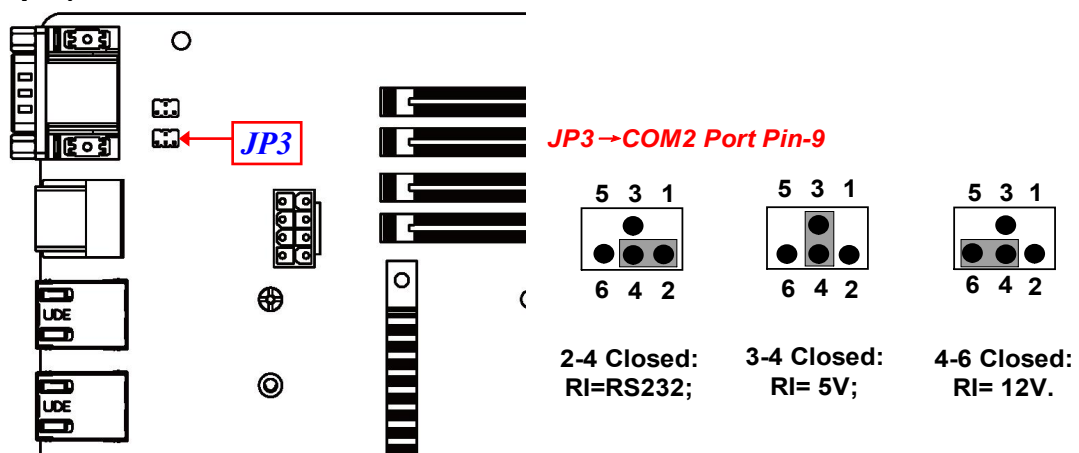
Pin 1-2 Short: When Case open function pin short to GND, the Case open function was detected. When Used, needs to enter BIOS and enable 'Case Open Detect' function. In this case if your case is removed, next time when you restart your computer, a message will be displayed on screen to inform you of this.

JP2 (4-pin): COM1 Port Pin9 Function Select



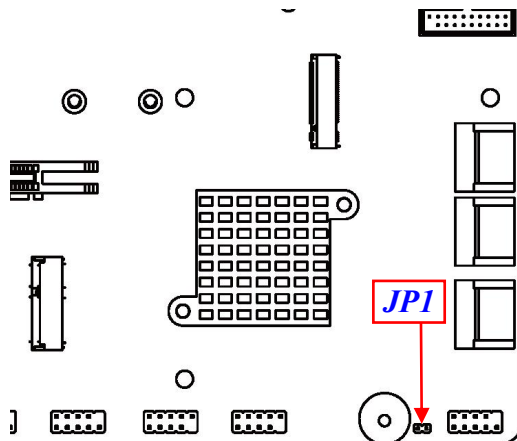
*Note: Maximum current limit is 500mA while using 5V or 12V.

JP3(4-pin): COM2 Port Pin9 Function Select

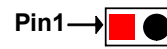


*Note: Maximum current limit is 500mA while using 5V or 12V.

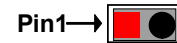
JP1(2-pin): ME Features Select



JP1 → ME Features Select



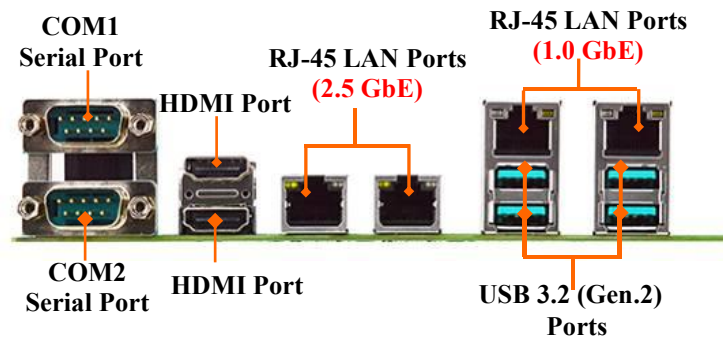
1-2 Open: Enable ME Features(Default);



1-2 Closed: Disable ME Features.

2-2 Connectors and Headers

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



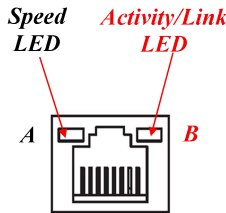
Icon	Name	Function
	Serial Port	Mainly for user to connect external MODEM or other devices that supports Serial Communications Interface.
	HDMI 1.4 Port	To connect display device that support HDMI specification.
	RJ-45 LAN Port (LAN3 & LAN4)	This connector is standard RJ-45 LAN jack for Network connection. LAN3 & LAN4 port support 2.5GbE transfer rate (*Note: 2.5Gbps is only supported with CAT 5e UTP cable).
	RJ-45 LAN Port (from UL1 & UL2)	This connector is standard RJ-45 LAN jack for Network connection. These two RJ-45 LAN port from UL1 and UL2 support 1GbE transfer rate.
	USB 3.2 (Gen.2) Port	To connect USB keyboard, mouse or other devices compatible with USB 3.2 (Gen.2) specification. Ports support up to 10Gbps data transfer rate.

***Note:** Maximum current limit for USB ports from UL1/UL2 is 1.5A while using 5V working voltage.

(1) RJ-45 Ethernet Connector

** There are two LED next to the LAN port. Please refer to the table below for the LAN port LED indications.

For 1.0Gbps RJ-45 LAN port:



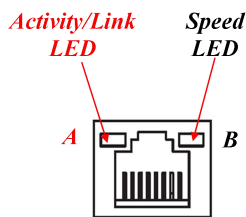
A: Speed LED

Status	Description
Off	10Mbps connection
Green	100Mbps connection
Orange	1Gbps connection

B: Activity/Link LED

Status	Description
Off	No Link
Blinking	Data Activity
On	Link

For 2.5Gbps RJ-45 LAN port:



A: Activity/Link LED

Status	Description
Off	No Link
Blinking	Data Activity
On	Link

B: Speed LED

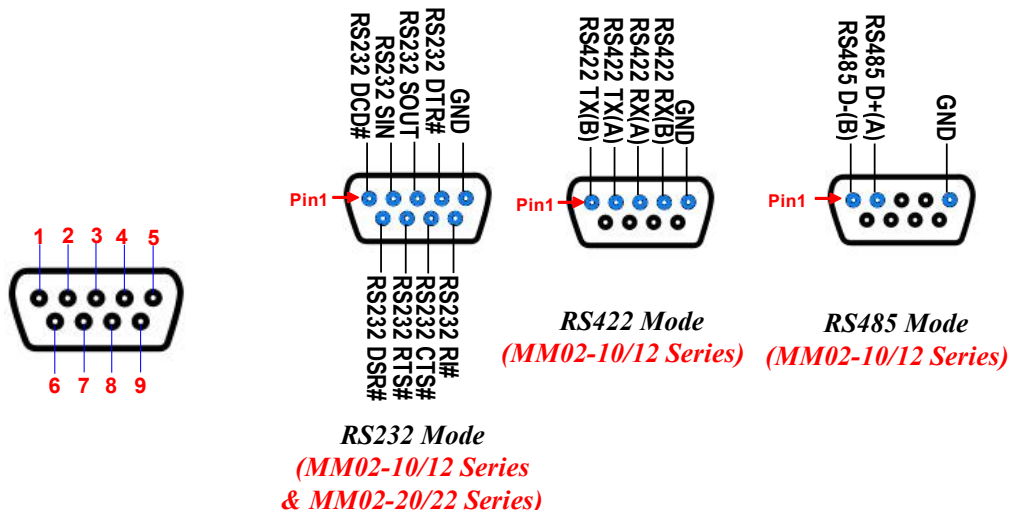
Status	Description
Off	10/100Mbps connection
Green	1Gbps connection
Orange	2.5Gbps connection

* **Note:** 2.5Gbps high-speed transmission rate is **only** supported over **CAT 5e UTP cable**.

(2) COM1-2 (9-pin Block): Serial Port

***Note:** COM1-2 for MM02-10/12 Series support RS232/422/485 function; COM1-2 for MM02-20/22 Series support RS232 function only.

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



For MM02-10/12 series, COM1 & COM2 port can function as RS232/422/485 port. In default settings COM1/2 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 COM1/2 at first, before using specialized cable to connect different pins of this port.

2-2-2 Motherboard Internal Connectors

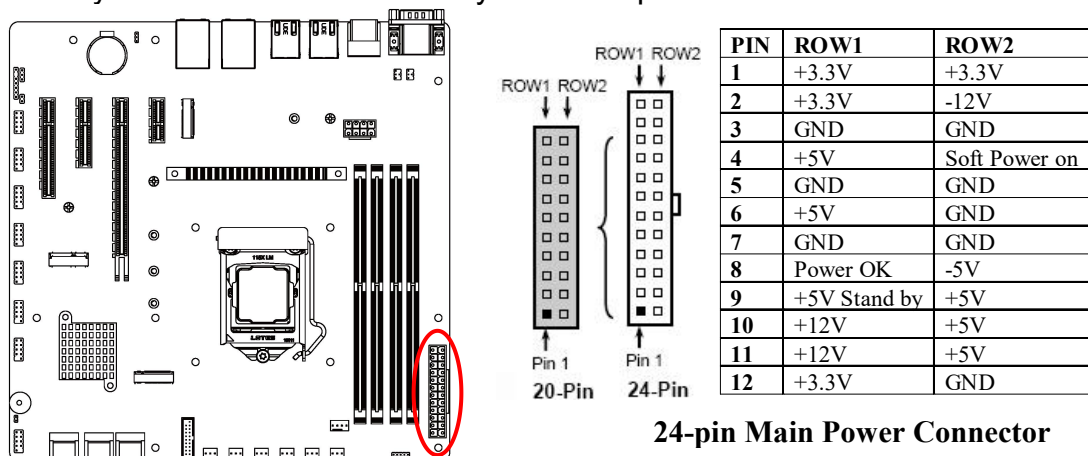
(1) ATXPWR1 (24-pin block): Main Power Connector

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.



24-pin Main Power Connector

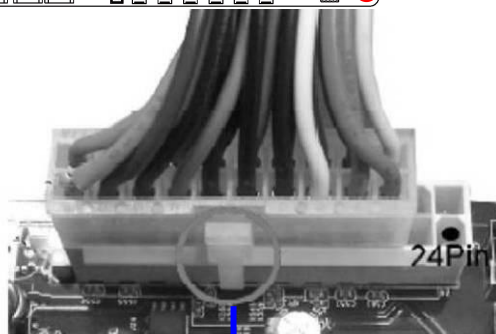


Figure1: 20-pin power plug

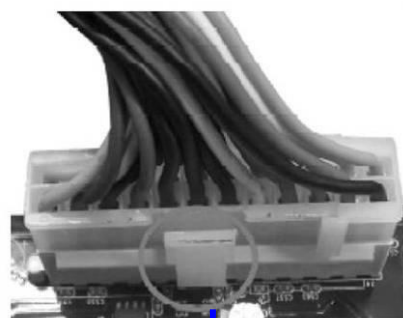
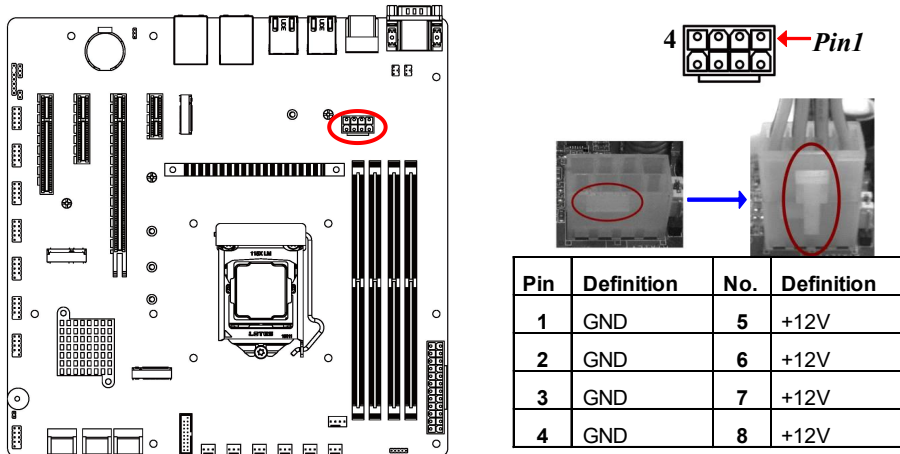


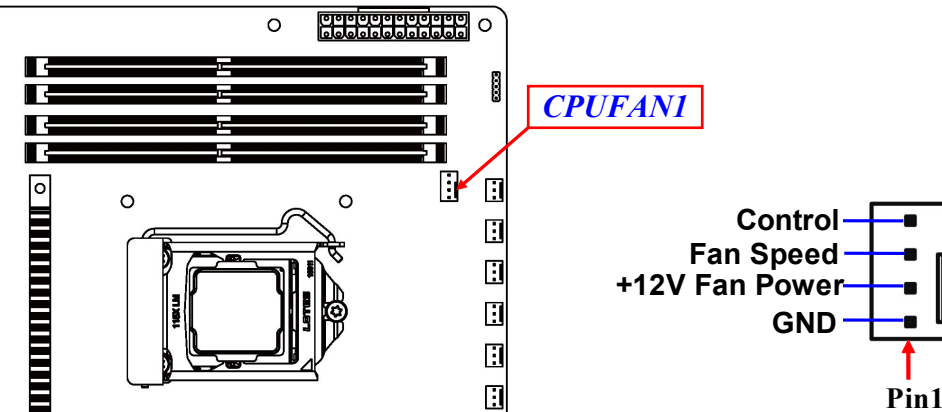
Figure 2: 24-pin power plug

(2) ATX12V1 (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.

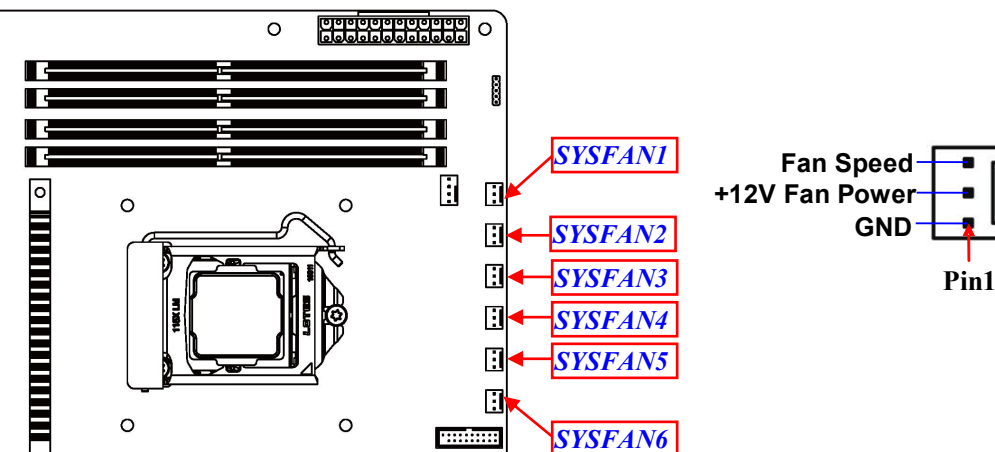


(3) CPUFAN1(4-pin): CPU Fan Connector



***Note:** Maximum current limit is 1.5A while using 12V working voltage.

(4) SYSFAN1/2/3/4/5/6 (3-pin): System Fan Connectors

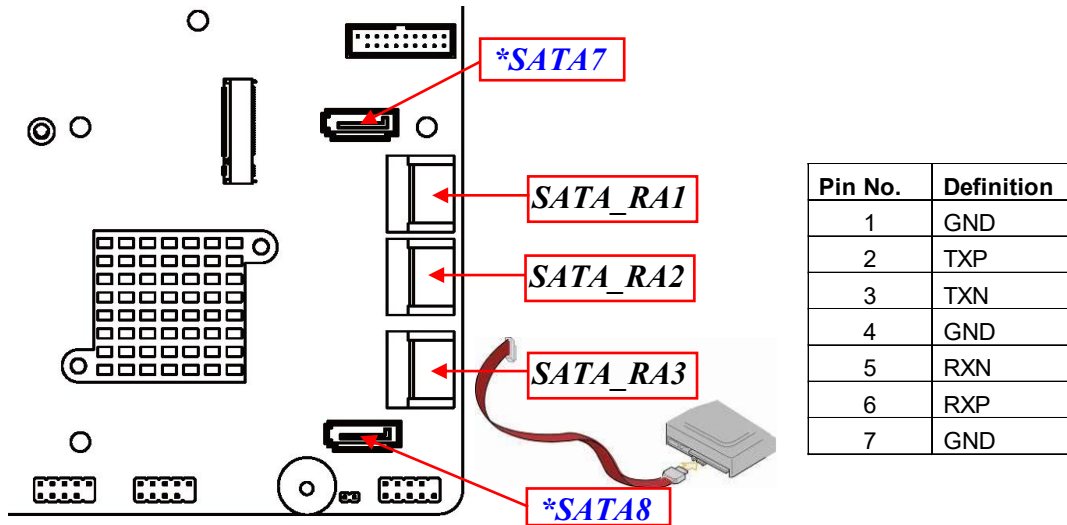


***Note:** Maximum current limit is 1.5A while using 12V working voltage.

(5) SATA_RA1/2/3 & SATA7/8*(7-pin): SATAIII Port connector

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

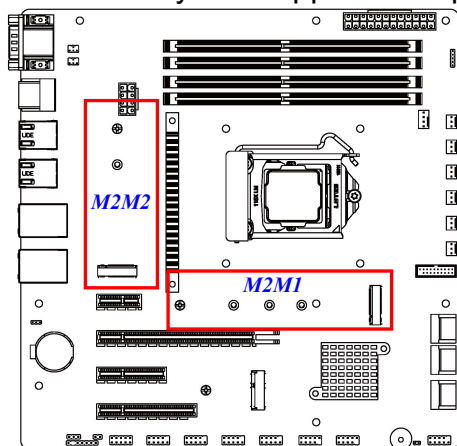
*SATA7 & SATA8 are only optional for MM02-20/22 series.



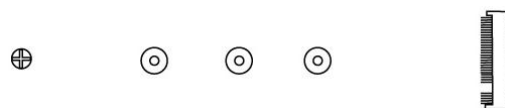
(6) M2M1 & M2M2 Slot: M.2 M-Key Slot

M2M1: M.2 M-Key slot supports compatible type-2242/2260/2280/22110 PCIE x4 SSD module.

M2M2: M.2 M-Key slot supports compatible type-2260/2280 PCIE x2 SSD module.



M2M1 Slot:



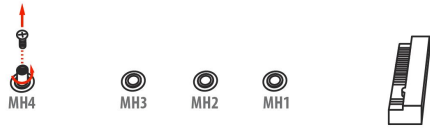
***Note:** the manual takes M2M1 as an example for installation illustration; M2M2 follows basically the same installation steps.

M2M1 Slot Installation Guide:



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

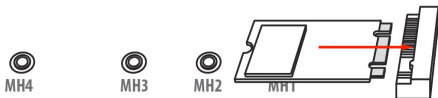
Nut Location	MH1	MH2	MH3	MH4
Card Length	4.2 cm	6cm	8 cm	11 cm
Module Type	Type- 2242	Type-2260	Type- 2280	Type- 22110



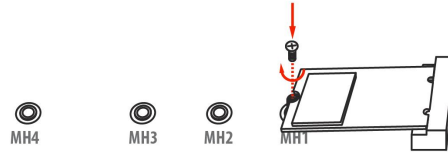
2. Remove the screw post and nut fixed at location **MH4** by default (Skip step 2 & 3 and go straight to Step 4 if you are going to use the default nut).



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

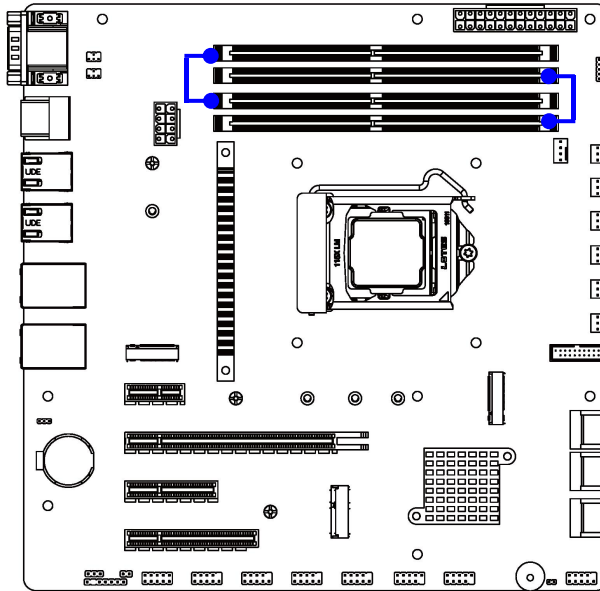


4. Align and insert corresponding M.2 module, as the photo shows.



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

(7) Dual Channel Memory Installation:



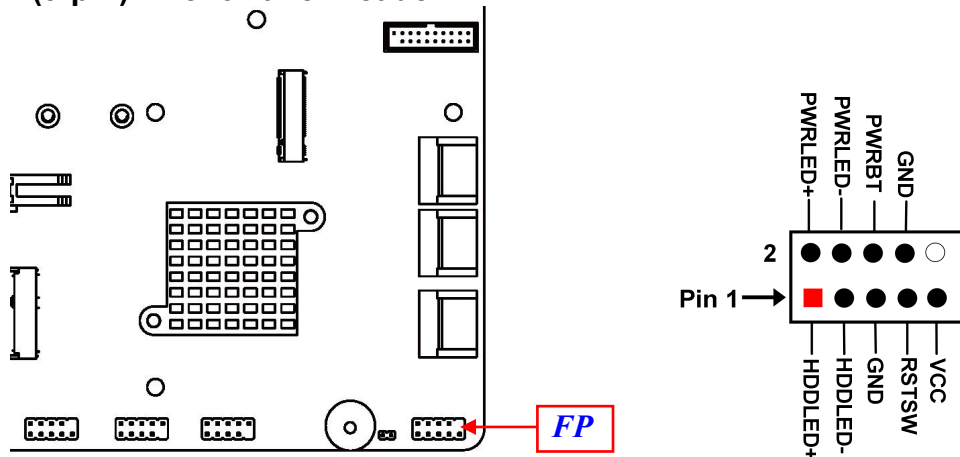
Configuration	DIMM1	DIMM2	DIMM3	DIMM4
1	install	--	install	--
2	--	install	--	install
3	install	install	install	install

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.

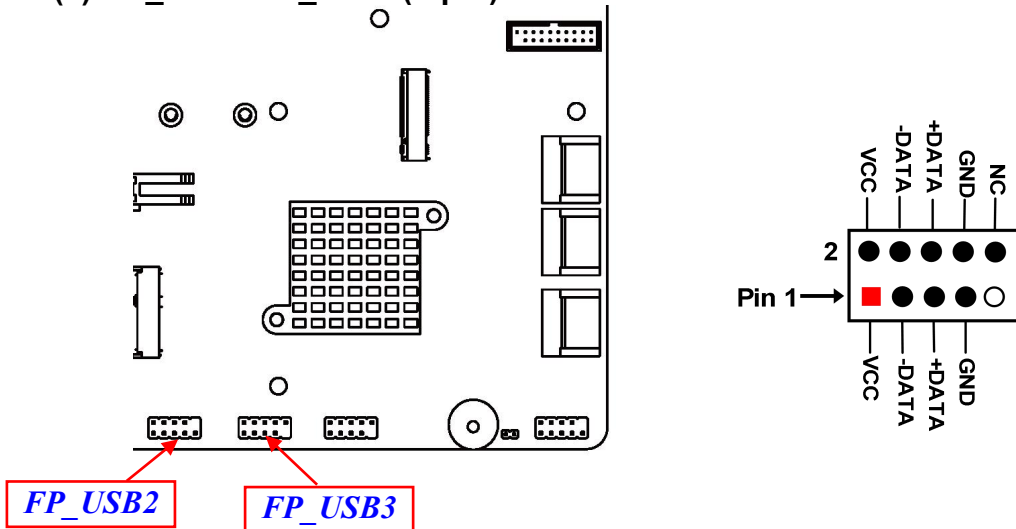
2-2-3 Header Pin Definition

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



***Note:** Maximum current limit is 1A while using 5V working voltage.

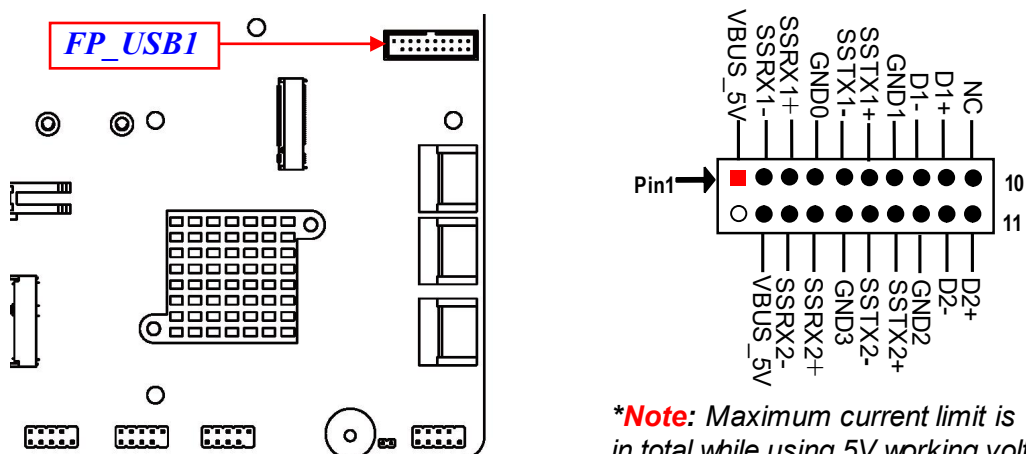
(2) FP_USB2/FP_USB3(9-pin): USB 2.0 Port Headers



***Note:** Maximum current limit is 1.5A in total while using 5V working voltage.

(3) FP_USB1(19-pin): USB 3.2(Gen.1) Port Header

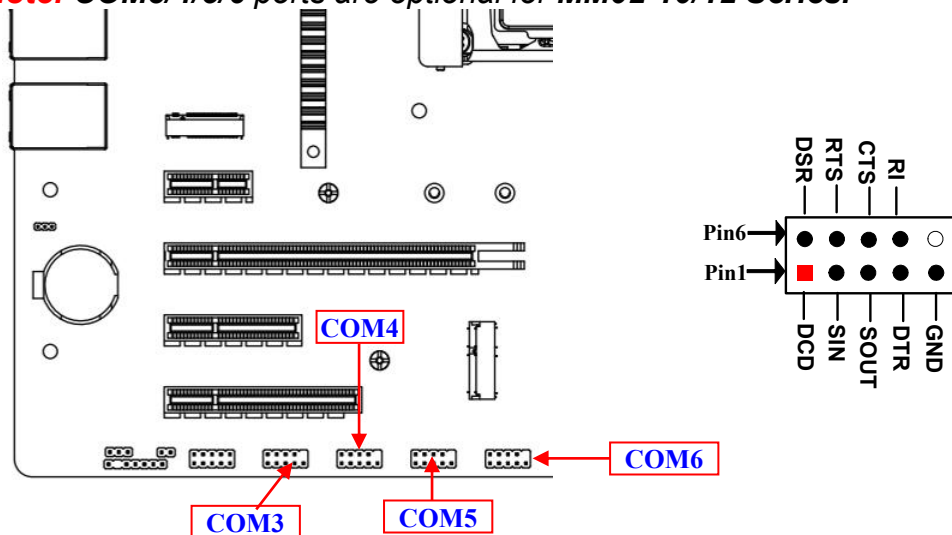
FP_USB1 supports maximum 5Gbps data transfer rate due to hardware restrictions.



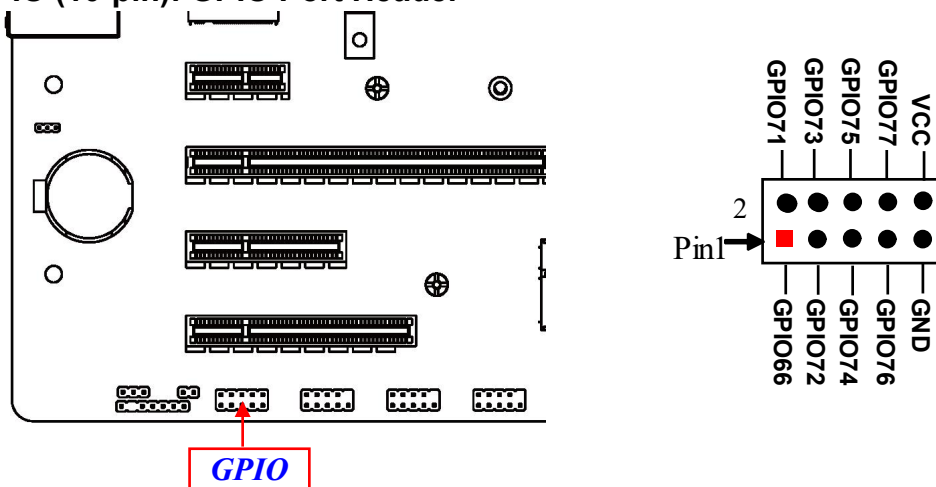
***Note:** Maximum current limit is 1.5A in total while using 5V working voltage.

(4) COM3/4/5/6 (9-pin): RS232 Serial Port Header

***Note:** COM3/4/5/6 ports are optional for MM02-10/12 Series.

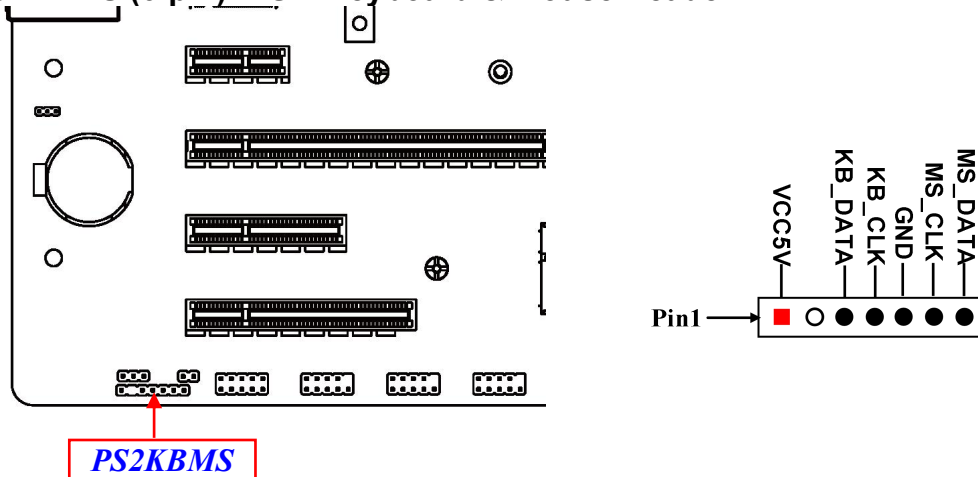


(5) GPIO (10-pin): GPIO Port Header



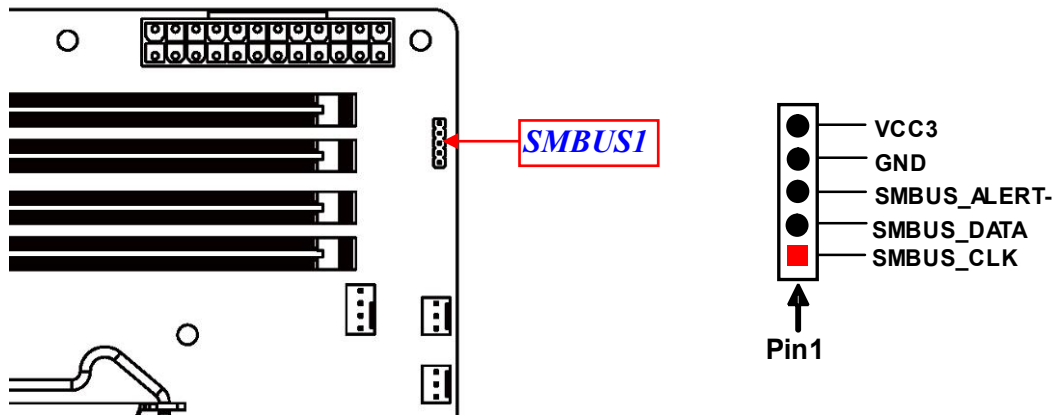
***Note:** Maximum current limit is 1A while using 5V working voltage.

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



***Note:** Maximum current limit is 500mA while using 5V working voltage.

(7) SMBUS1(5-Pin): SMBUS Header



Chapter 3

Introducing BIOS

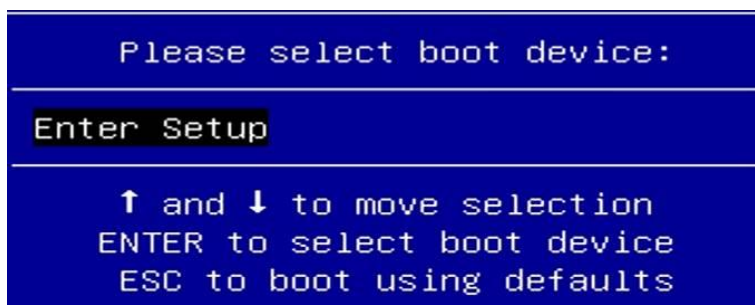
Notice! The BIOS options in this manual are for reference only. Different configurations may lead to difference in BIOS screen and BIOS screens in manuals are usually the first BIOS version when the board is released and may be different from your purchased motherboard. Users are welcome to download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

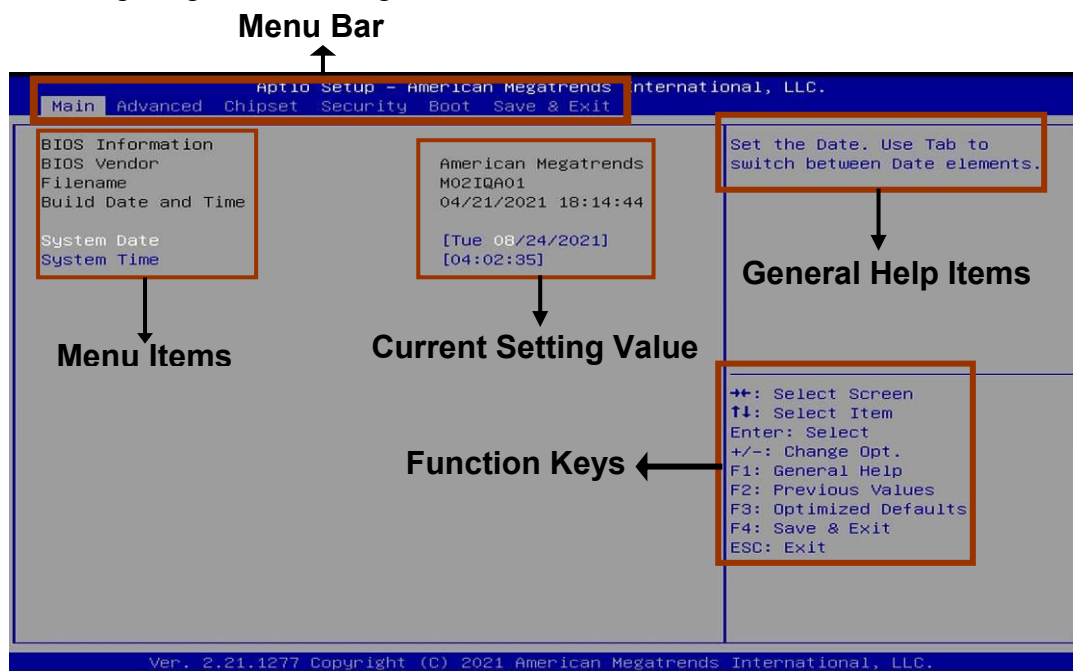
Press to enter Setup; press < F7> to enter pop-up Boot menu.



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

3-2 BIOS Menu Screen

The following diagram show a general BIOS menu screen:



3-3 Function Keys

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

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

3-4 Getting Help

Main Menu

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

Status Page Setup Menu/Option Page Setup Menu

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

3-5 Menu Bars

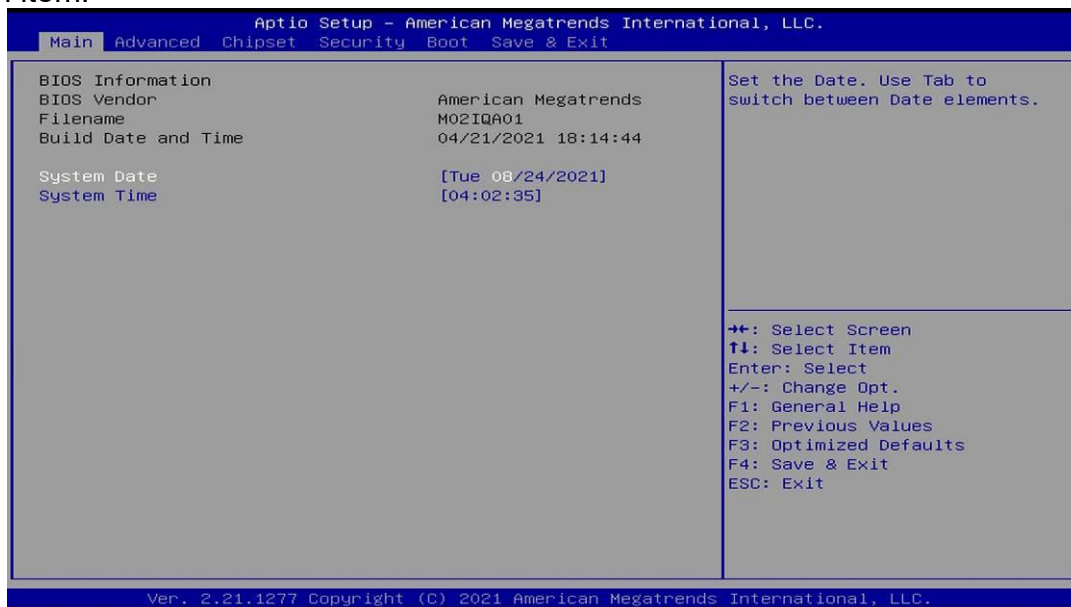
There are six menu bars on top of BIOS screen:

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

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

3-6 Main Menu

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



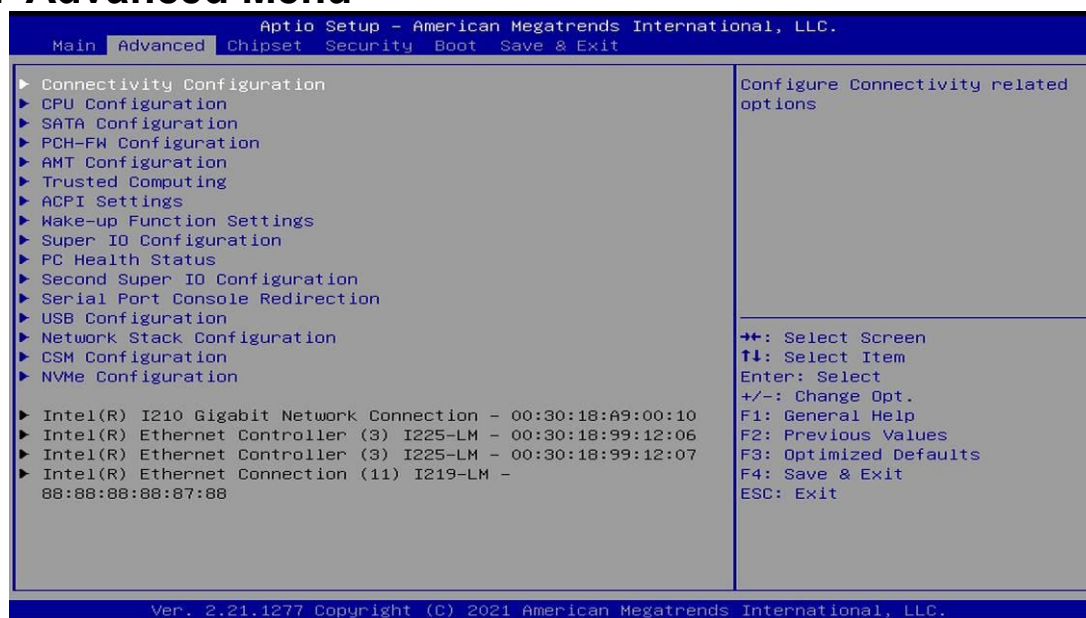
System Date

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

System Time

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

3-7 Advanced Menu



▶ **Connectivity Configuration**

Use this item to configure Connectivity related options. Press [Enter] to make settings for the following sub-items:

CNVi present

CNVi Configuration

CNVi Mode

This option configures Connectivity.

The optional settings: [Disabled Integrated]; [Auto Detection].

[Auto Detection] means that if Discrete solution is discovered it will be enabled by default. Otherwise Integrated solution (CNVi) will be enabled;

[Disabled Integrated] disables Integrated Solution.

▶ **CPU Configuration**

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

Hyper-Threading

Use this item to enable or disable Hyper-Threading Technology.

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

Intel (VMX) Virtualization Technology

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

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

Intel(R) SpeedStep(tm)

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

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

C states

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.

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

Turbo Mode

Use this item to enable or disable processor Turbo Mode (requires Intel Speed

Step or Intel Speed Shift to be available and enabled.)

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

***Note:** *'Turbo Mode' item may or may not show up, depending on different CPU.*

▶ **SATA Configuration**

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

SATA Configuration

SATA Controller(s)

Use this item to enable or disable SATA Device.

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

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

SATA Mode Selection

This item determines how SATA controller(s) operate.

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

SATA1/SATA2/SATA3/SATA4/SATA5/SATA6/SATA7/SATA8

Port

Use this item to enable or disable SATA Port.

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

***Note:** *Q470E chipset supports SATA1 to SATA6, W480E supports SATA1 to SATA8.*

Hot Plug

Use this item to designate this port as Hot Pluggable.

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

▶ **PCH-FW Configuration**

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

ME Firmware Version

ME Firmware Mode

▶ **Firmware Update Configuration**

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

Me FW Image Re-Flash

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

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

*** Note:** *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 Intel(R) Active Management Technology Parameters.

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

USB Provisioning of AMT

Use this item to enable or disable AMT USB Provisioning.

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

WatchDog

Use this item to enable or disable WatchDog Timer.

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

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

OS Timer

Use this item to set OS watchdog timer.

BIOS Timer

Use this item to set BIOS watchdog timer.

ASF Sensors Table

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

The optional settings: [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: [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: [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 confirmation prompt when attempting ME unconfiguration.

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

MEBx OEM Debug Menu Enable

Use this function to enable or disable OEM debug menu in MEBx.

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

Unconfigure ME

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

The optional settings: [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: [Auto]; [80x25]; [100x31].

UI Mode Resolution

Use this item to set resolution for UI text mode.

The optional settings: [Auto]; [80x25]; [100x31].

Graphics Mode Resolution

Use this item to set resolution for graphics mode.

The optional settings: [Auto]; [640x480]; [800x600]; [1024x768].

▶ Trusted Computing

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

TPM 2.0 Device Found

***Note:** TPM function is optional, **MM02-12 & MM02-22** model support TPM2.0.

Security Device Support

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

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

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

Pending operation

Use this item to schedule an Operation for the Security Device.

***Note:** Your Computer will reboot during restart in order to change State of Security Device.

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

TPM 2.0 UEFI Spec Version

Use this item to select the TCG2 Spec Version Support.

The optional settings: [TCG_1_2]; [TCG_2].

[TCG_1_2]: The Compatible mode for Win8/Win10.

[TCG_2]: Support new TCG2 protocol and event format for Win10 or later.

▶ 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: [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: [Disabled]; [Enabled].

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

Wake-up Hour

Use this item to select 0-23. For example enter 3 for 3am and 15 for 3pm.

Wake-up Minute

Use this item to select 0-59.

Wake-up Second

Use this item to select 0-59.

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 minute(s).

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

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

PS2 KB/MS Wake-up

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

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

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

USB S5 Power

Use this item to enable or disable USB Power after System Shutdown.

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

***Note:** 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

Use this item to select Energy-Related Products function. This item should be set as [Disabled] if you wish to have all active wake-up functions.

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

▶ Serial Port 1 Configuration

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

Serial Port 1 Configuration

Serial Port

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

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

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

Device Settings

Change Settings

Use this item to select an optimal setting for Super IO Device.

The optional settings: [IO=3F8h; IRQ=4;]; [IO=3F8h; IRQ=3,4,5,7,10,11;]; [IO=2F8h; IRQ=3,4,5,7,10,11;]; [IO=3E8h; IRQ=3,4,5,7,10,11;]; [IO=2E8h;

IRQ=3,4,5,7,10,11;].

Transmission Mode Select

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

**Note: Q470E chipset supports RS232/RS422/RS485, W480E supports RS232 only.*

Mode Speed Select

Use this item to select RS232/RS422/RS485 Speed.

The optional settings: [RS232/RS422/RS485=250Kbps]; [RS232=1Mbps, RS422/RS485=10Mbps].

► Serial Port 2 Configuration

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

Serial Port 2 Configuration

Serial Port

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

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

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

Device Settings

Change Settings

Use this item to select an optimal setting for Super IO Device.

The optional settings: [IO=2F8h; IRQ=3;]; [IO=3F8h; IRQ=3,4,5,7,10,11;]; [IO=2F8h; IRQ=3,4,5,7,10,11;]; [IO=3E8h; IRQ=3,4,5,7,10,11;]; [IO=2E8h; IRQ=3,4,5,7,10,11;].

Transmission Mode Select

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

**Note: Q470E chipset supports RS232/RS422/RS485, W480E supports RS232 only.*

Mode Speed Select

Use this item to select RS232/RS422/RS485 Speed.

The optional settings: [RS232/RS422/RS485=250Kbps]; [RS232=1Mbps, RS422/RS485=10Mbps].

► Serial Port 3 Configuration

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

Serial Port 3 Configuration

Serial Port

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

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

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

Device Settings

Change Settings

Use this item to select an optimal setting for Super IO Device.

The optional settings: [IO=3E8h; IRQ=10;]; [IO=3F8h; IRQ=3,4,5,7,10,11;]; [IO=2F8h; IRQ=3,4,5,7,10,11;]; [IO=3E8h; IRQ=3,4,5,7,10,11;]; [IO=2E8h; IRQ=3,4,5,7,10,11;]; [IO=3E0h; IRQ=3,4,5,7,10,11;]; [IO=2E0h; IRQ=3,4,5,7,10,11;].

***Note:** ‘Serial Port 3’ item may or may not show up, depending on different chipset. *Q470E chipset supports this item.*

► **Serial Port 4 Configuration**

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

Serial Port 4 Configuration

Serial Port

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

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

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

Device Settings

Change Settings

Use this item to select an optimal setting for Super IO Device.

The optional settings: [IO=2E8h; IRQ=10;]; [IO=3F8h; IRQ=3,4,5,7,10,11;]; [IO=2F8h; IRQ=3,4,5,7,10,11;]; [IO=3E8h; IRQ=3,4,5,7,10,11;]; [IO=2E8h; IRQ=3,4,5,7,10,11;]; [IO=3E0h; IRQ=3,4,5,7,10,11;]; [IO=2E0h; IRQ=3,4,5,7,10,11;].

***Note:** ‘Serial Port 4’ item may or may not show up, depending on different chipset. *Q470E chipset supports this item.*

► **Serial Port 5 Configuration**

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

Serial Port 5 Configuration

Serial Port

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

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

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

Device Settings

Change Settings

Use this item to select an optimal setting for Super IO Device.

The optional settings: [IO=3E0h; IRQ=11;]; [IO=3F8h; IRQ=3,4,5,7,10,11;]; [IO=2F8h; IRQ=3,4,5,7,10,11;]; [IO=3E8h; IRQ=3,4,5,7,10,11;]; [IO=2E8h; IRQ=3,4,5,7,10,11;]; [IO=3E0h; IRQ=3,4,5,7,10,11;]; [IO=2E0h; IRQ=3,4,5,7,10,11;].

***Note:** ‘Serial Port 5’ item may or may not show up, depending on different chipset. *Q470E chipset supports this item.*

► **Serial Port 6 Configuration**

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

Serial Port 6 Configuration

Serial Port

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

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

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

Device Settings

Change Settings

Use this item to select an optimal setting for Super IO Device.

The optional settings: [IO=2E0h; IRQ=11;]; [IO=3F8h; IRQ=3,4,5,7,10,11;];
[IO=2F8h; IRQ=3,4,5,7,10,11;]; [IO=3E8h; IRQ=3,4,5,7,10,11;]; [IO=2E8h;
IRQ=3,4,5,7,10,11;]; [IO=3E0h; IRQ=3,4,5,7,10,11;]; [IO=2E0h;
IRQ=3,4,5,7,10,11;].

***Note:** 'Serial Port 6' item may or may not show up, depending on different chipset. *Q470E chipset supports this item.*

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 select a value in the range of [4] to [255] seconds when 'WatchDog Reset Timer Unit' set as [Sec]; or in the range of [4] to [255] minutes when 'WatchDog Reset Timer Unit' set as [Min].

WatchDog Reset Timer Unit

The optional settings: [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 JAT_ATX jumper setting 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: [Disabled]; [Enabled].

When set as [Enabled], system will detect if COPEN has been short or not (*refer to COPEN jumper setting for Case Open Detection*); if Pin 1&2 of **COPEN** are 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

CPUFAN1 / SYSFAN1 / SYSFAN2 Smart Mode

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

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

CPUFAN1 / SYSFAN1 / SYSFAN2 Full-Speed Temperature

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

CPUFAN1 / SYSFAN1 / SYSFAN2 Full-Speed Duty

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

CPUFAN1 / SYSFAN1 / SYSFAN2 Idle-Speed Temperature

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

CPUFAN1 / SYSFAN1 / SYSFAN2 Idle-Speed Duty

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

▶ **Second Super IO Configuration**

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

SYSFAN3/4/5/6 Smart Mode

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

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

SYSFAN3/4/5/6 Full-Speed Temperature

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

SYSFAN3/4/5/6 Full-Speed Duty

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

SYSFAN3/4/5/6 Idle-Speed Temperature

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

SYSFAN3/4/5/6 Idle-Speed Duty

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

▶ **Serial Port Console Redirection**

COM1

Console Redirection

Use this item to enable or disable COM1 Console Redirection.

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

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

▶ **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.

COM1

Console Redirection Settings

Terminal Type

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

Data Bits

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

Parity

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

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

[Even]: parity bit is 0 if the num of 1's in the data bits is 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: [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: [None]; [Hardware RTS/CTS].

VT-UTF8 Combo Key Support

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

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

Recorder Mode

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

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

Resolution 100x31

Use this item to enable or disable extended terminal resolution.

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

Putty KeyPad

Use this item to select FunctionKey and KeyPad on Putty.

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

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

Console Redirection EMS

Use this item to enable or disable 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

Terminal Type EMS

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 then [VT100]. See above, in Console Redirection Settings page, for more help with Terminal Type/Emulation.

Bits per second EMS

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 EMS

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 EMS

The default setting is: [8].

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

Parity EMS

The default setting is: [None].

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

Stop Bits EMS

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: [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.

***Note:** ‘Legacy USB Support’ item may or may not show up, depending on different chipset. *Q470E chipset supports this item.*

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: [Enabled]; [Disabled].

USB Mass Storage Driver Support

Use this item to enable or disable USB mass storage driver support.

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

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

IPv4 PXE Support

Use this item to enable IPv4 PXE boot support. When set as [Disabled], IPv4 boot support will not be available.

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

IPv6 PXE Support

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

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

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**

***Note:** '**CSM Configuration**' item may or may not show up, depending on different chipset. **Q470E chipset supports this item.**

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: [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: [Do not launch]; [UEFI]; [Legacy].

Storage

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

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

▶ NVMe Configuration

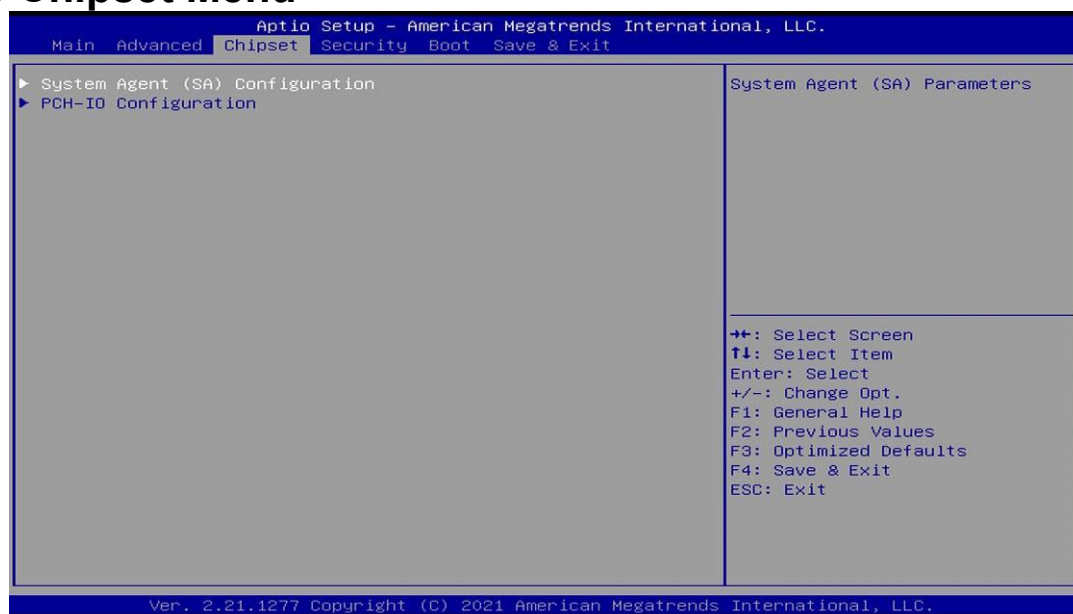
Press [Enter] to view current NVMe Configuration.

***Note:** options only when NVME device is available.

***Note:** When 'CSM Support' set as [Disabled] and 'SATA Mode Selection' set as [RAID], the following sub-items shall appear:

- ▶ **Intel(R) I210 Gigabit Network Connection - XX:XX:XX:XX:XX:XX**
This item shows current network brief information.
- ▶ **Intel(R) Ethernet Connection (3) I225-LM - XX:XX:XX:XX:XX:XX**
This item shows current network brief information.
- ▶ **Intel(R) Ethernet Connection (3) I225-LM - XX:XX:XX:XX:XX:XX**
This item shows current network brief information.
- ▶ **Intel(R) Ethernet Connection (11) 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:

System Agent (SA) Configuration

VT-d

▶ 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 of IGFX/PEG Graphics device should be Primary Display Or select SG for Switchable Gfx.

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

***Note:** *'Primary Display' item may or may not show up, depending on different CPU.*

Primary IGFX Boot Display

Use this item to select the Video Device which will be activated during POST. This has no effect if external graphics present.

Secondary boot display selection will appear based on your selection.

VGA modes will be supported only on primary display.

The optional setting: [VBIOS Default]; [HDMI1]; [HDMI2].

***Note:** *'CSM Support' item may or may not show up, depending on different chipset. Q470E chipset supports this item.*

***Note:** *Only when 'CSM Support' is select as [Enabled], user can make further settings in the following sub-items.*

***Note:** *In the case that the 'Primary IGFX Boot Display' is select as [HDMI1] or [HDMI2], 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: [Disabled]; [HDMI1]; [HDMI2].

Internal Graphics

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

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

Aperture Size

Use this item to select the Aperture Size.

***Note:** *Above 4GB MMIO BIOS assignment is automatically enabled when selecting 2048MB aperture. To use this feature, please disable CSM Support.*

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

DVMT Total Gfx Mem

Use this item to select DVMT5.0 Total Graphic Memory size used by the Internal Graphics Device.

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

► **PEG Port Configuration**

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

PEG Port Configuration

PCIE2 Slot

Enable Root Port

Use this item to enable or disable the Root Port. Root Port will Always Enable if set x8 Bifurcation.

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

Max Link Speed

Use this item to configure PEG 0:1:0 Max Speed.

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

Max Link Width

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

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

PCIE4 Slot (Bifurcation)

Max Link Speed

Use this item to configure PEG 0:1:1 Max Speed.

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

Max Link Width

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

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

Detect Non-Compliance Device

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

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

► PCH-IO Configuration

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

PCH-IO Configuration

HD Audio

Use this item to control Detection of the HD-Audio device.

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

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: [Enabled]; [Disabled].

Onboard Lan2 / Lan3 / Lan4 Controller

Use this item to control the PCI Express Root Port.

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

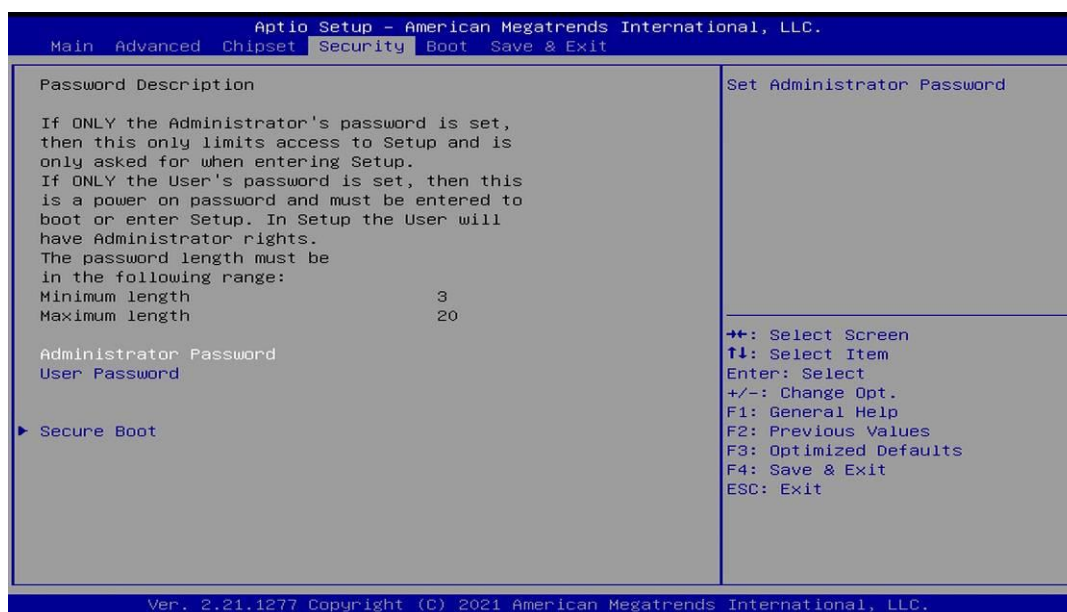
System State After Power Failure

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

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

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

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 user 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 user password.

▶ Secure Boot

Press [Enter] to make customized secure settings:

System Mode

Secure Boot

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.

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

Secure Boot Mode

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.

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

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**

▶ **Key Management**

This item enables expert users to modify Secure Boot Policy variables without full authentication, which includes the following items:

Vendor Keys

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: [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**

▶ **Export Secure Boot variables**

▶ **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**

▶ **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 Signatures/Forbidden Signatures/ Authorized TimeStamps/OsRecovery Signatures**

Use this item to enroll Factory Defaults or load certificates from a file:

1. Public Key Certificate:

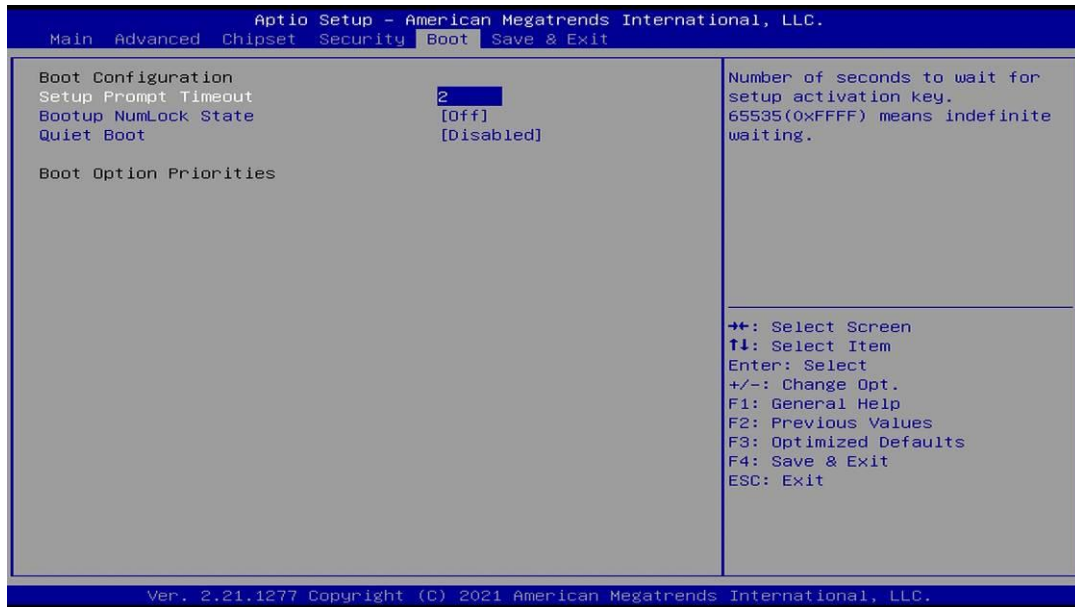
- a) EFI_SIGNATURE_LIST
- b) EFI_CERT_X509 (DER)
- c) EFI_CERT_RSA2048 (bin)
- d) EFI_CERT_SHAXXX

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. 65535 (0xFFFF) means indefinite waiting.

Bootup NumLock State

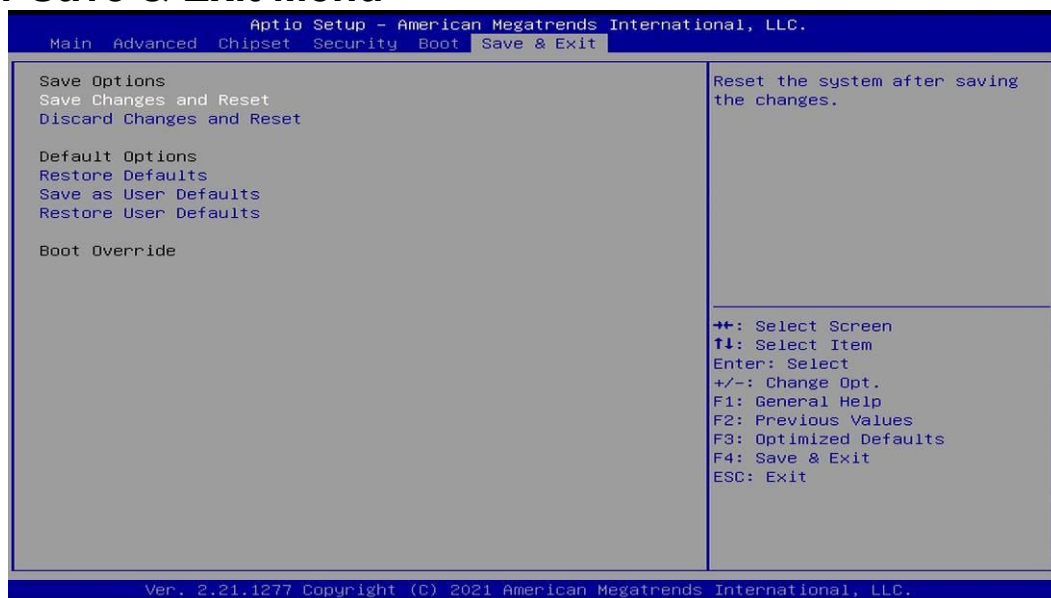
Use this item to select keyboard NumLock state.
The optional settings are: [On]; [Off].

Quiet Boot

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

Boot Option Priorities

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