MI02 Series
User's Manual

No. G03-MI02-F

Rev: 7.0

Release date: May 17, 2023

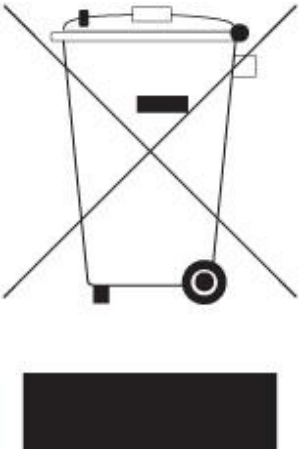
TABLE OF CONTENT

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

Manual Revision Information

Reversion	Revision History	Date
7.0	Seventh Edition	May 17, 2023

Item Checklist

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

Chapter 1
Introduction of the Motherboard

1-1 General Specifications

Spec	Description
Design	● Slim Mini-ITX form factor; PCB size: 17 x17cm
Chipset	● **MI02-10/12 Series**: Intel Q470E Chipset ● **MI02-20/22 Series**: Intel W480E Chipset ● **MI02-30/32 Series**: Intel H470 Chipset ● **MI02-40/42 Series**: Intel H420E Chipset
CPU Socket	● Intel LGA 1200 Socket supports 10th/11th Core i9/i7/i5/i3/Pentium/Celeron processors (Max. **65W** TDP) **Note: for detailed CPU support information please visit our website*
Memory Slots	● 2*DDR4 SO-DIMM slot support 2* DDR4 SDRAM ● Maximum frequency:2933/2666/2400MHz*(depends on CPU support)* ● Maximum capacity: up to 64GB ● Support dual channel function **Note: **MI02-20/22** series supports DDR4 **ECC** SDRAM*
Expansion Slots	● ***PCIE1:*** 1 * PCI-Express x16 slot*(Suggest the PCIe card less than 25W Power consumption)* ● ***M2E:*** 1* M.2 E-key type-2230 (PCIex1/USB2.0) slot ***M2B:*** 1* M.2 B-key type-3042/3052 (USB3.0/ PCIex1) slot co-function with SIM card slot ● ***SIMCARD1:*** 1* Nano SIM card slot (**Backside,**co-function with **M2B**) **Note: For **M2E/M2B** slot maximum current limit is 2A while using 3.3V.*
Storage	● **SATA1:**1*SATAIII 6Gb/s port ***(*Optional)*** ● **M2M:**1* M.2 M-key slot, type-2280 (SATA/*PCIex4) slot supports NVMe **Note:**M2M** slot maximum current limit is 2A while using 3.3V;PCIex4 support depends on chipset models(H420E not support)*
LAN Chips	● **MI02-10/12 & MI02-20/22 Series:** 1* Intel i219LM GbE & 1* Intel i225LM 2.5GbE ● **MI02-30/32 & MI02-40/42 Series:** 1* Intel i219V GbE & 1* Intel i225LM 2.5GbE
Audio Chip	● Realtek HD Audio Codec integrated ● Audio driver and utility included
BIOS	● AMI 256M Bit AMI Flash ROM
Multi I/O	***Rear Panel I/O:*** ● **MI02-10/12 & MI02-20/22& MI02-30/32:** 4* USB 3.2 (Gen.2) 10Gbps port ● **MI02-40/42:** 4* USB 3.2 (Gen.1) 5Gbps port ● 1* 1GbE RJ-45 LAN port ● 1* 2.5GbE RJ-45 LAN port ● 1* Display port ● 2* HDMI 1.4 port ● 1* Line-Out port ● 1* MIC port ● 1* 12V~28V wide voltage DC-IN power jack**(DCIN2)** ***Internal I/O Connectors & Headers:*** ● 1 *4-pin ATX-Type 12V~28V wide voltage power connector **(DCIN1)**

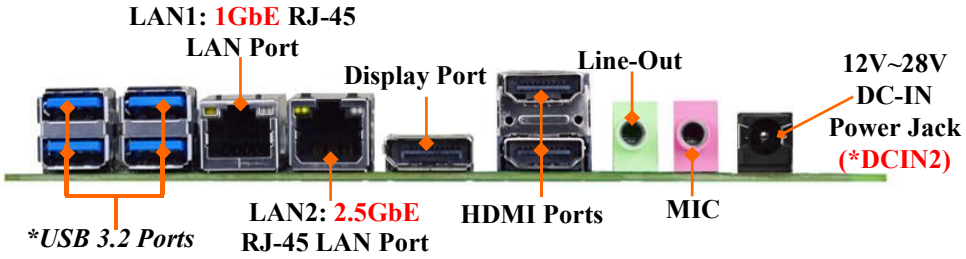
	● 1* CPUFAN connector & 1* SYSFAN connector ● 1* SATA power-out connector ***(*Optional)*** ● 1* EDP connector (Backside) ● 1* Front panel header ● **MI02-10/12 & MI02-20/22& MI02-30/32:**1* 19-Pin USB 3.2 (Gen.1) header for 2* USB 3.2 (Gen.1) 5Gbps port ● **MI02-10/12 & MI02-20/22& MI02-30/32:** 2* 9-Pin USB 2.0 header for 4* USB 2.0 expansion ports ● **MI02-40/42:** 1* 9-Pin USB 2.0 header for 2* USB 2.0 expansion ports ● 4* COM port header ***(*COM1/COM2:RS232/422/485)*** ● 1* 8-bit GPIO header ● 1* Front panel audio header ● 1* SMBUS header ● 1* LVDS header ● 1* LVDS inverter ● **JP4:** Inverter brightness adjustment wafer**(*Optional; upgraded to R14 version and above)** ● **JP5:** External power board control wafer**(*Optional; upgraded to R14 version and above)**
TPM 2.0 Function	● Optional for **MI02-12/22/32/42** Series

Model specification main differences：

Differences	MI02-10/12	MI02-20/22	MI02-30/32	MI02-40/42
Chipset	Q470E	W480E	H470	H420E
LAN Chip	I219LM +I225LM	I219LM +I225LM	I219V +I225LM	I219V +I225LM
Rear IO USB 3.2	4*USB3.2(Gen2)	4*USB3.2(Gen2)	4*USB3.2(Gen2)	4*USB3.2**(Gen1)**
Intenal USB 3.1 (Gen1) Header	Yes	Yes	Yes	N/A
Intenal USB 2.0 Header	2*9-pin USB2.0	2*9-pin USB2.0	2*9-pin USB2.0	1*9-pin USB2.0
SATAIII+SATA Power out	Yes	Yes	Yes	N/A
Multi-Display Support	Triple Displays	Triple Displays	Triple Displays	Dual Displays
M2E Slot	Support CNVi	Support CNVi	Support CNVi	*CNVi not supported*
M2M Slot	SATA/PCIex4	SATA/PCIex4	SATA/PCIex4	*SATA*

1-2 Layout Diagrams

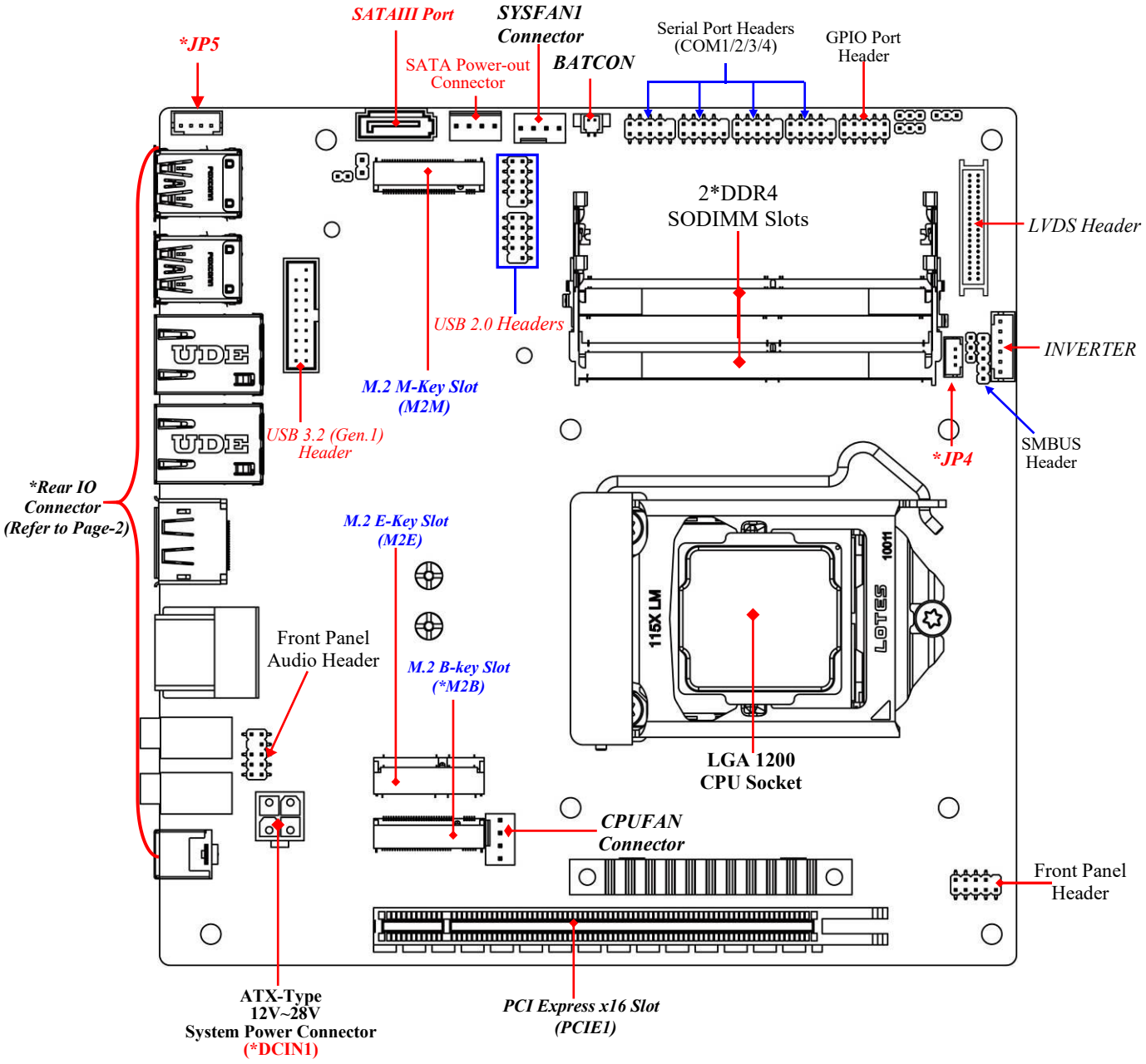
Rear IO Diagram



***Note:** **MI02-10/12 & MI02-20/22 & MI02-30/32** supports 4*USB 3.2(Gen.2) ports while **MI02-40/42** supports 4*USB 3.2(Gen.1) ports.*

Motherboard Internal Diagram-Front

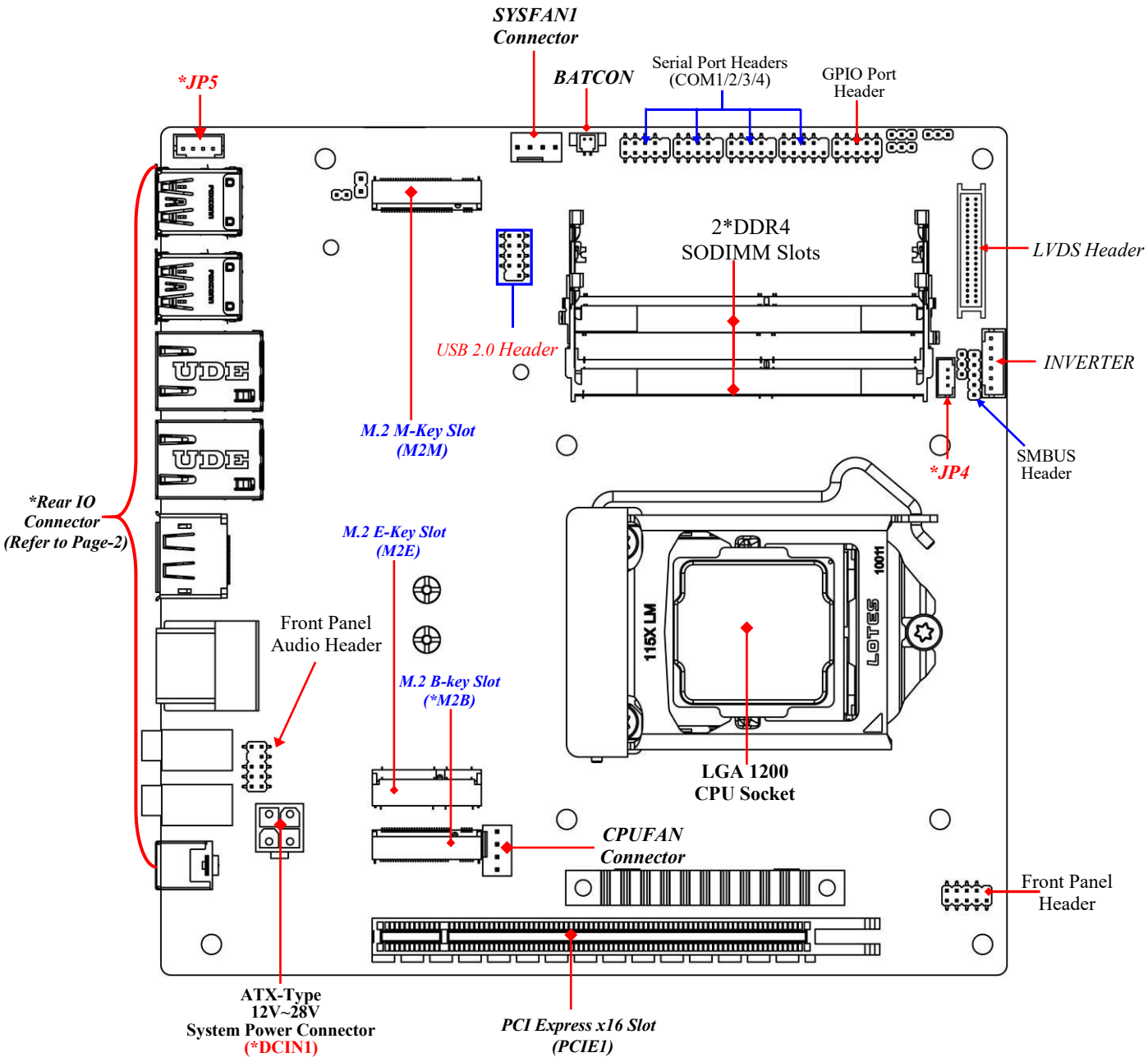
For MI02-10/12 & MI02-20/22 & MI02-30/32:



Note:* ***JP4 & JP5* *are optional to PCB version ≥ R14 version.*

****Warning!!*** *The board comes with an internal 12~28V power connector* ***(DCIN1)*** *and a 12V~28V DC-in power connector* ***(DCIN2)*** *on rear I/O panel. User can* ***ONLY*** *connect one type of compatible power supply to* ***one of them*** *to power the system.*

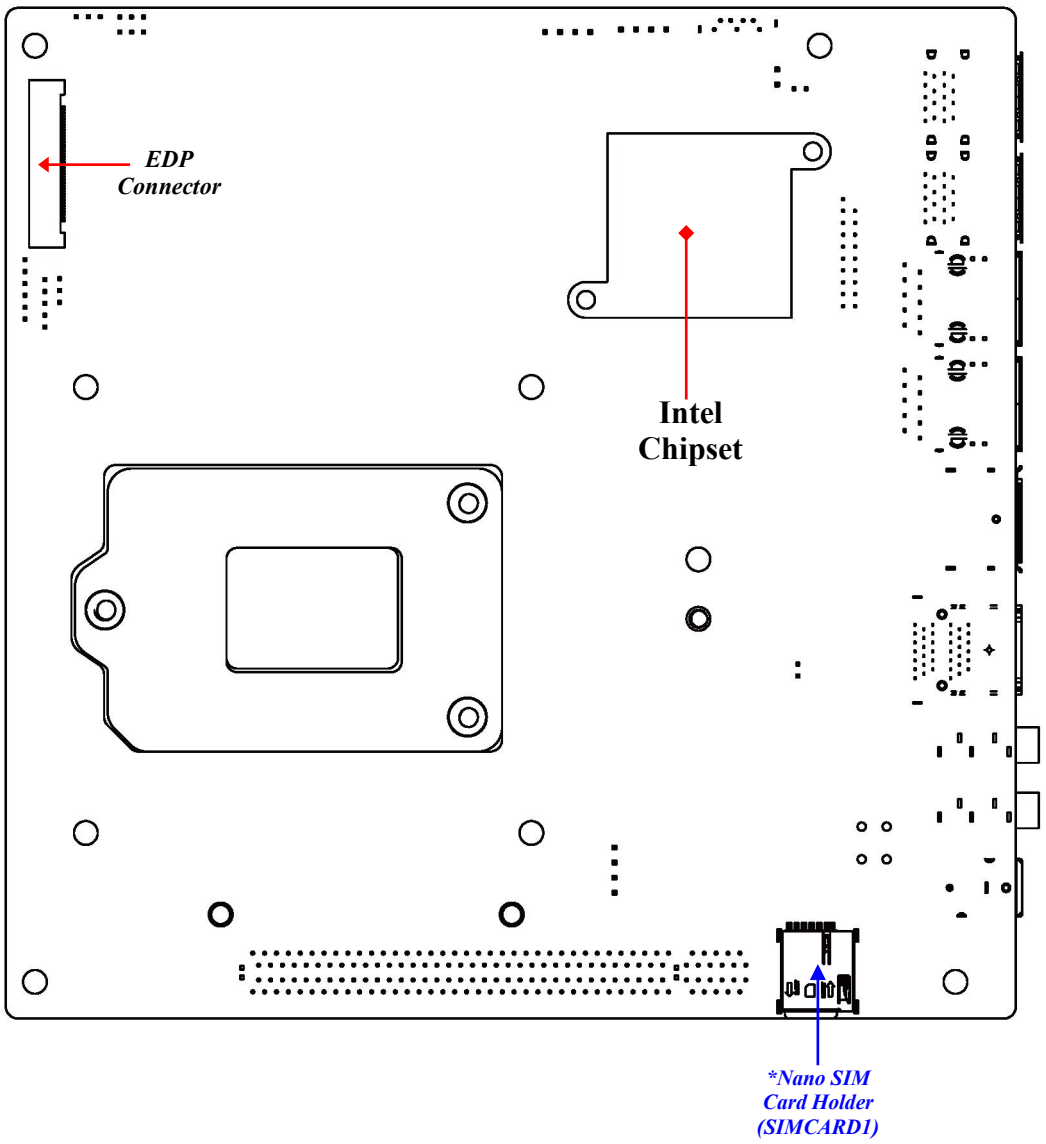
For MI02-40/42:



***Note:** **JP4 & JP5** are optional to PCB version ≥ R14 version.*

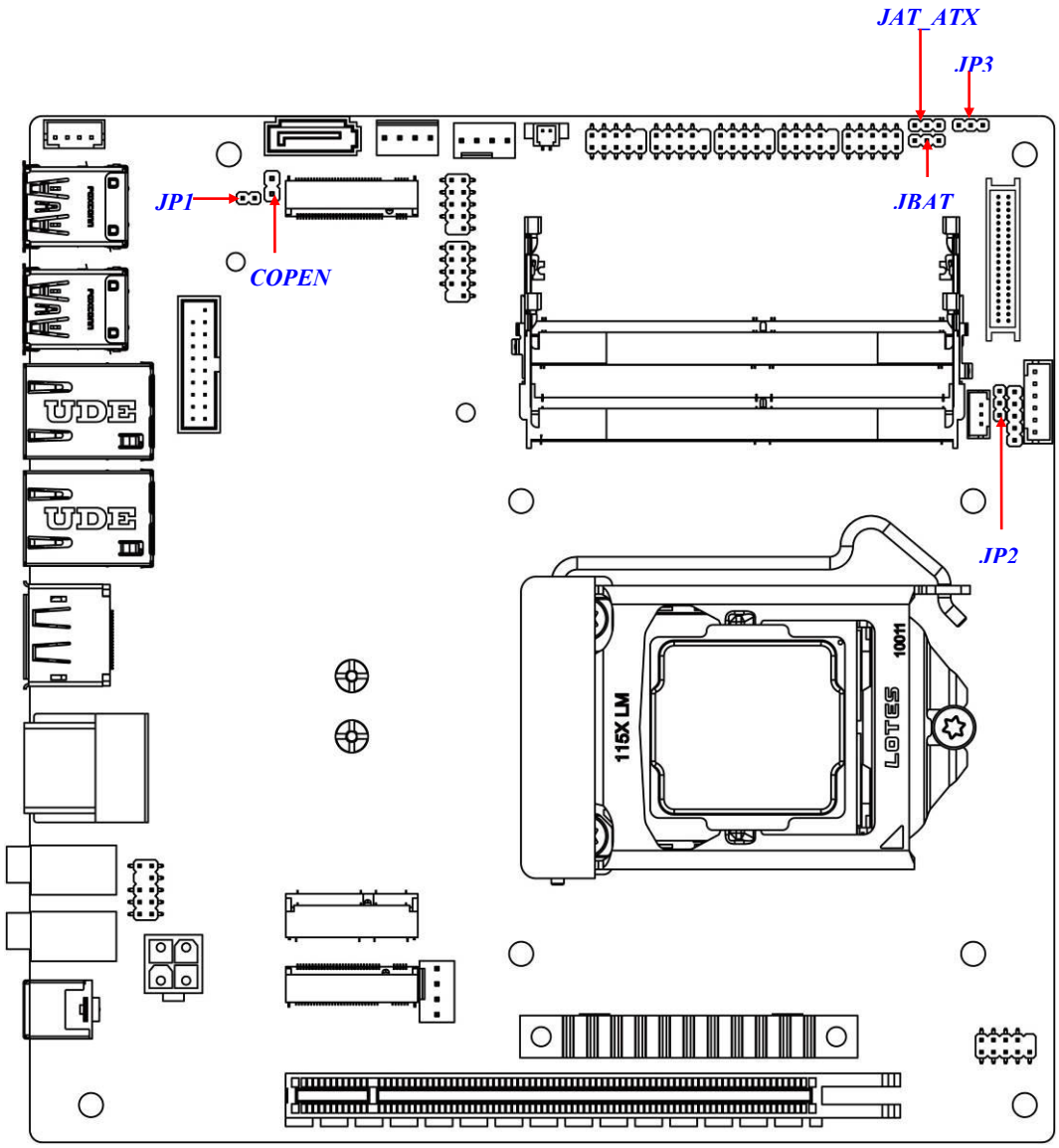
> ***Warning!!** The board comes with an internal 12~28V power connector **(DCIN1)** and a 12V~28V DC-in power connector **(DCIN2)** on rear I/O panel. User can **ONLY** connect one type of compatible power supply to **one of them** to power the system.*

Motherboard Internal Diagram-Back



***Note*: SIM card slot** *only functions* **when** *compatible Nano SIM card installed & compatible 3G/4G/5G card installed in* **M2B** *slot.*

Motherboard Jumper Position:



Note: The diagrams in the manual are mostly taken from **MI02-10 series unless otherwise stated.*

Jumper

Jumper	Name	Description	Pitch
JAT_ATX	ATX/AT Mode Select	3-pin Block	2.0mm
JBAT	Clear CMOS RAM Settings	3-pin Block	2.0mm
JP2	LVDS INVERTER Backlight VCC Select	3-pin Block	2.0mm
JP3	LVDS PANEL VCC Select	3-pin Block	2.0mm
COPEN	Case Open Message Display Detect	2-pin Block	2.0mm
JP1	ME Features Select	2-pin Block	2.0mm

Connectors

P/N	Name
***USB1/USB2**	**MI02-10/20/30 & MI02-12/22/32:** USB 3.2 (Gen.2) Port X4 **MI02-40 & MI02-42:**USB 3.2 (Gen.1) Port X4
LAN1	1GbE RJ-45 LAN Port
LAN2	2.5GbE RJ-45 LAN Port
DP3	Display Port
HDMIX2	HDMI 1.4 Port X2
HOUT1	Audio Line Out Port
HMIC1	Audio MIC Port
DCIN2	12V~28V DC-IN System Power Jack
DCIN1	Internal ATX-Type 12V~28V System Power Connector
***SATA1**	*SATAIII Port Connector*
***PWROUT**	*SATA Power Out Connector*
SYSFAN1	System FAN Connector
CPUFAN	CPU FAN Connector
EDP1	EDP Connector

Note：* ***SATA1 & PWROUT* *are optional for* ***MI02-10/20/30*** *&* ***MI02-12/22/32*** *series only.*

Headers & Wafers

P/N	Name	Description	Pitch
JW_FP (Front Panel Header)	PWR LED/ HD LED/ Power Button /Reset	9-pin Block	2.54mm
***FP_USB1**	USB 3.2 (Gen.1) Port Header	19-pin Block	2.0mm
FP_USB2	USB 2.0 Port Header	9-pin Block	2.0mm
***FP_USB3**	USB 2.0 Port Header	9-pin Block	2.0mm
COM1/2	RS232/422/485 Serial Port Header	9-pin Block	2.0mm
COM3/4	RS232 Serial Port Header	9-pin Block	2.0mm
GPIO	GPIO Header	10-pin Block	2.0mm
SMBUS1	SMBUS Header	5-pin Block	2.0mm
FP_AUDIO	Front Panel Audio Header	9-pin Block	2.0mm
INVERTER1	LVDS Inverter	6-pin Block	2.0mm
***JP4(optional)**	Inverter Brightness Adjustment Wafer	3-pin Block	2.0mm
***JP5(optional)**	External Power Board Control Wafer	4-pin Block	2.0mm
LVDS1	LVDS Header	30-pin Block	1.25mm

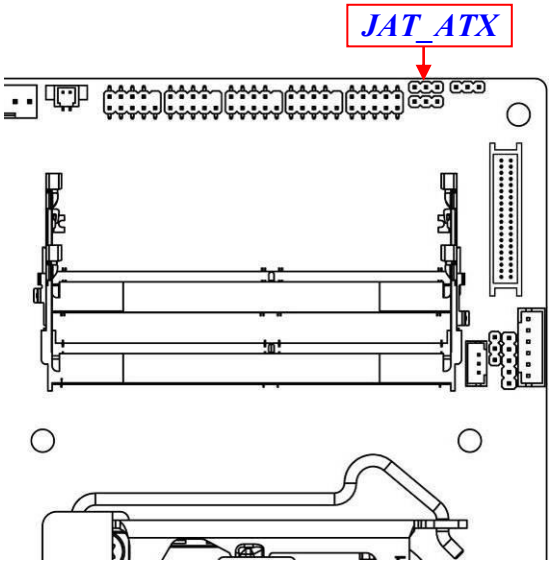
Note:1.* ***FP_USB1 & FP_USB3* *are only optional to* ***MI02-10/20/30 & MI02-12/22/32 series;***

2. ***JP4 & JP5*** *are optional to* ***PCB version ≥ R14 version.***

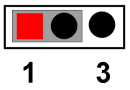
Chapter 2
Hardware Installation

2-1 Jumper Setting

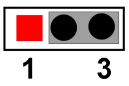
JAT_ATX (3-pin): AT Mode /ATX Mode Select



JAT_ATX→ATX/AT Mode Select



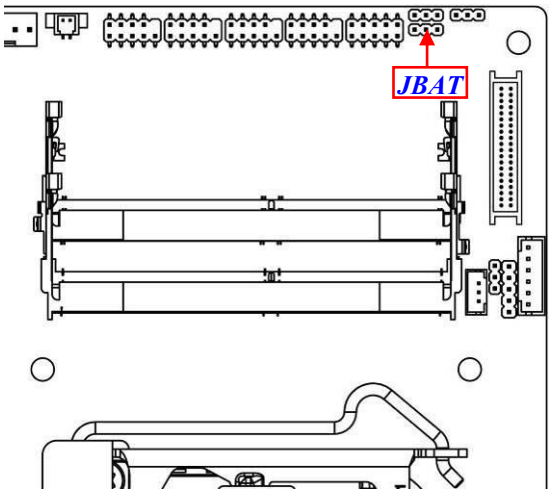
1-2 Closed: ATX Mode Selected;



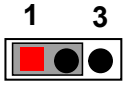
2-3 Closed: AT Mode Selected.

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

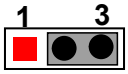
JBAT (3-pin): Clear CMOS RAM Settings



JBAT→Clear CMOS Settings

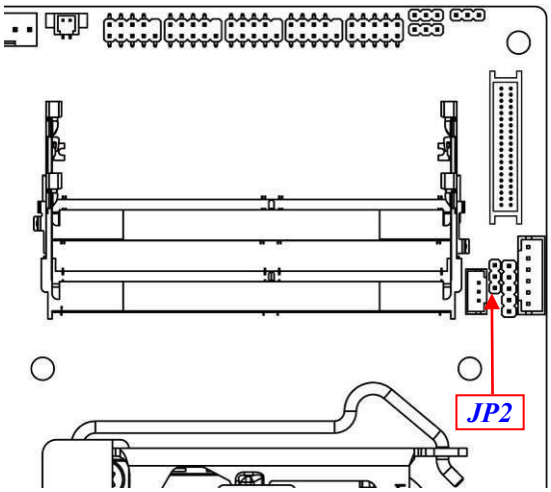


1-2 Open: Normal;

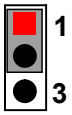


2-3 Closed: Clear CMOS.

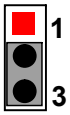
JP2 (3-pin): LVDS Inverter Backlight VCC Select



JP2→ LVDS Inverter VCC Select

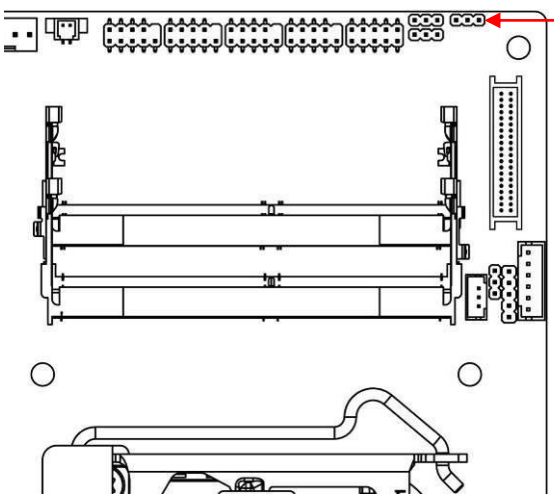


1-2 Closed: VCC=+5V (Default);

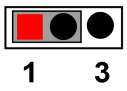


2-3 Closed: VCC=+12V.

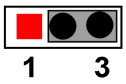
JP3 (3-pin): LVDS Panel Power VCC Select



JP3→LVDS Panel Power VCCSelect

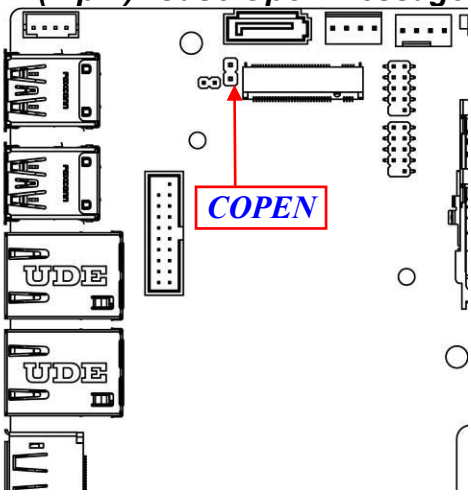


1-2 Closed: VCC=+3V;

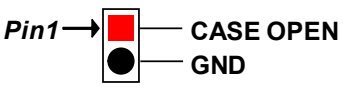


2-3 Closed: VCC=+5V.

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

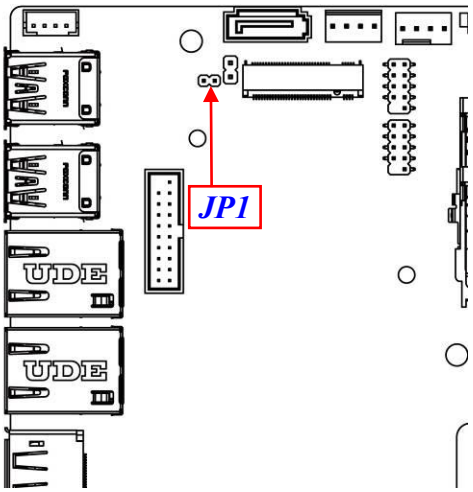


COPEN→ Case Open Detection



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.*

JP1(2-pin): ME Features Select



JP1→ ME Features Select

Pin1→ 

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

Pin1→ 

1-2 Closed: Disable ME Features.

2-2 Connectors, Headers and Wafers

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

****Refer to Page-2 Rear IO Diagram***

Icon	*Name*	*Function*
	**USB 3.2 Port**	To connect USB keyboard, mouse or other devices compatible with USB 3.2 specification.
	**RJ-45 LAN Port**	This connector is standard RJ-45 LAN jack for Network connection. *(LAN1 Intel® i219-LM/ i219-V PHY LAN port supports up to 1.0 Gbps transfer rate; LAN2 from Intel® i225-LM supports up to 2.5Gbps transfer rate;)*.
	**Display Port**	For user to the system to corresponding display device with compatible DP cable.
	**HDMI 1.4 Port**	To connect display device that support HDMI specification.
	**Line-out**	For user to connect external speaker, earphones, etc to transfer system audio output.
	**MIC**	User can connect microphone device to this port.

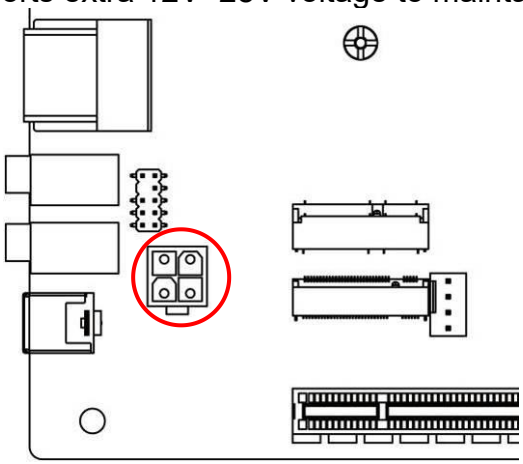
	**12V~28V DC-in Power Jack**	For user to connect compatible power adapter to provide power supply for the system.

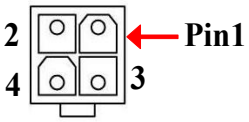
***Note:** Maximum current limit for rear panel **USB1/USB2** port is **1.5A** while using **5V** working voltage.*

2-2-2 Motherboard Internal Connectors

(1) DCIN1 (4-pin block): ATX-Type 12V~28V Wide-Voltage System Power Connector

This is a new defined 4-pin connector usually comes with ATX Power Supply that supports extra 12V~28V voltage to maintain system power consumption.





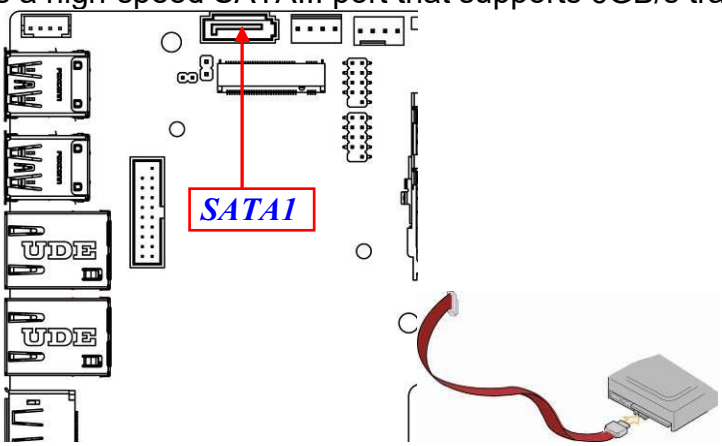
Pin No.	Definition
1	GND
2	GND
3	+12V~28V
4	+12V~28V

***Warning!!** The board comes with an internal 12~28V power connector **(DCIN1)** and a 12V~28V DC-in power connector **(DCIN2)** on rear I/O panel. User can **ONLY** connect one type of compatible power supply to **one of them** to power the system.*

*(2) *SATA1(7-pin): SATAIII Port connector*

***SATA1** is only optional for **MI02-10/20/30** & **MI02-12/22/32** series.*

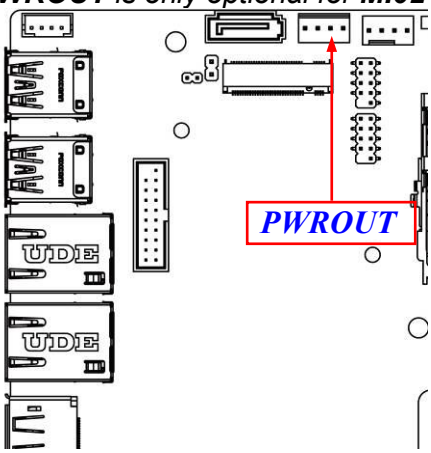
This is a high-speed SATAIII port that supports 6GB/s transfer rate.

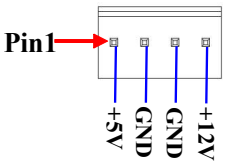


Pin No.	Definition
1	GND
2	TXP
3	TXN
4	GND
5	RXN
6	RXP
7	GND

(3) *PWROUT (4-pin): SATA HDD Power-Out Connector

***PWROUT** is only optional for **MI02-10/20/30** & **MI02-12/22/32** sereis.*

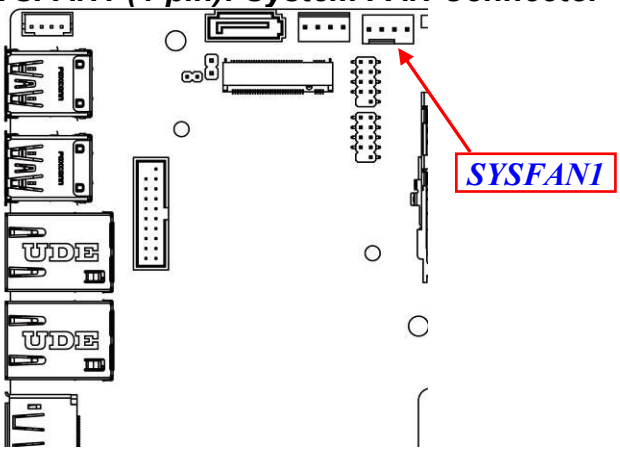


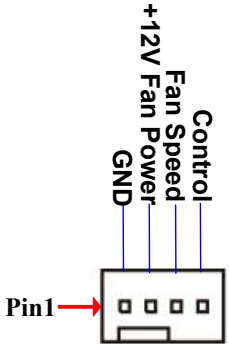


***Note:** Maximum current limit for USB ports from **POWOUT** is **2A** while using **5V or 12V** working voltage.*

***Warning:** Make sure that Pin-1 of compatible SATA Power out connector is inserted into corresponding Pin-1 of **PWROUT** connector to avoid possible damage to the board and hard disk driver!*

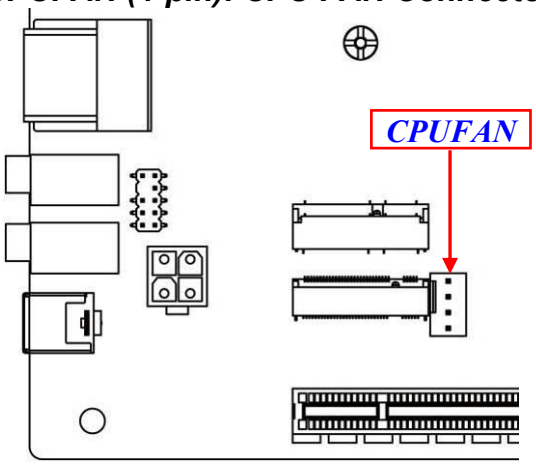
(4) SYSFAN1 (4-pin): System FAN Connector

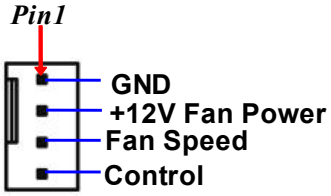




***Note:** Maximum current limit is **1.5A** while using 12V working voltage.*

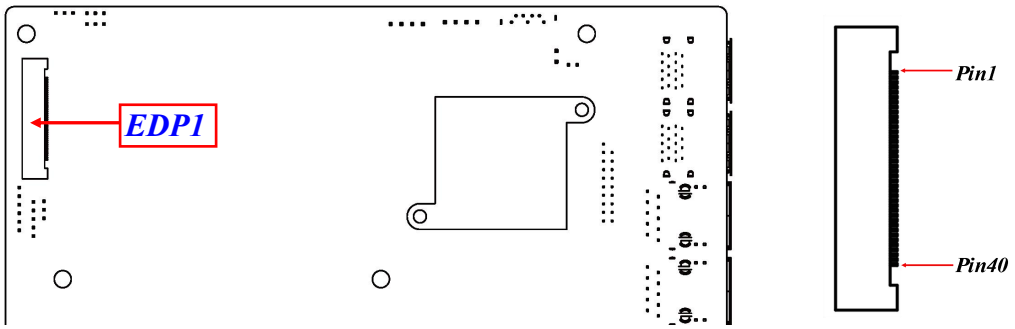
(5) CPUFAN (4-pin): CPU FAN Connector





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

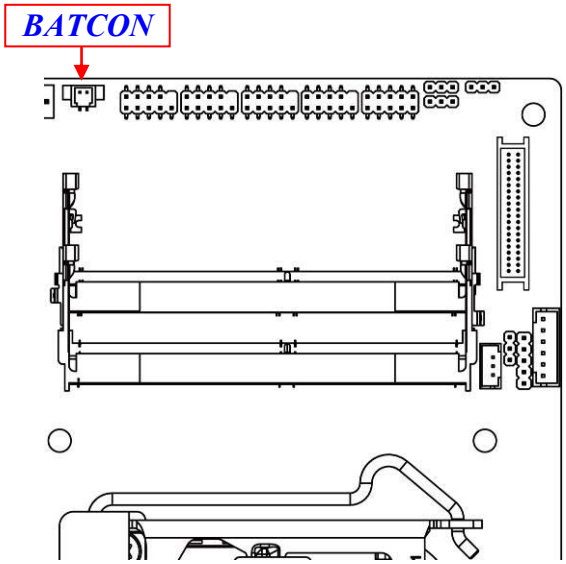
(6) EDP1(40-pin): EDP Connector

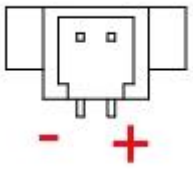


Pin No.	Pin Define	Pin No.	Pin Define
Pin 1	NC	**Pin 21**	LCD_VCC
Pin 2	GND	**Pin 22**	NC
Pin 3	EDP_LANE3N	**Pin 23**	GND
Pin 4	EDP_ LANE3P	**Pin 24**	GND
Pin 5	GND	**Pin 25**	GND
Pin 6	EDP_LANE2N	**Pin 26**	GND
Pin 7	EDP_ LANE2P	**Pin 27**	EDP_HPD
Pin 8	GND	**Pin 28**	GND
Pin 9	EDP_LANE1N	**Pin 29**	GND
Pin 10	EDP_LANE1P	**Pin 30**	GND
Pin 11	GND	**Pin 31**	GND
Pin 12	EDP_LANE0N	**Pin 32**	EDP_BKLT_EN
Pin 13	EDP_LANE0P	**Pin 33**	EDP _BKLT_CTL
Pin 14	GND	**Pin 34**	NC
Pin 15	EDP_AUXP	**Pin 35**	NC
Pin 16	EDP_AUXN	**Pin 36**	LCD_BKLT_PWR VCC
Pin 17	GND	**Pin 37**	LCD_BKLT_PWR VCC
Pin 18	LCD_VCC	**Pin 38**	LCD_BKLT_PWR VCC
Pin 19	LCD_VCC	**Pin 39**	LCD_BKLT_PWR VCC
Pin 20	LCD_VCC	**Pin 40**	NC

***Note**: The board co-lays **LVDS header** and **EDP** connector; i.e. only one can function at a time. User can go to BIOS settings to select one of them as the display output port.*

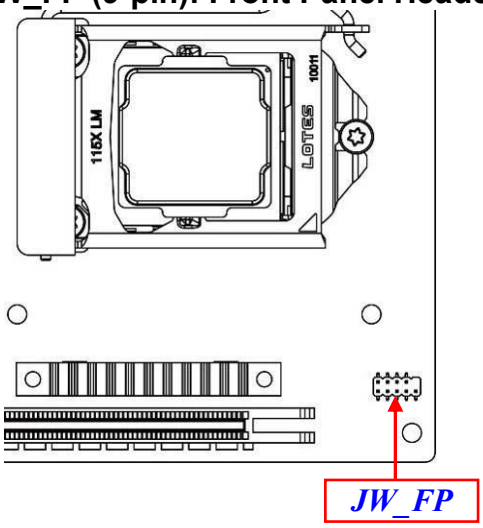
(7) BATCON (2-pin): CMOS Battery Connector

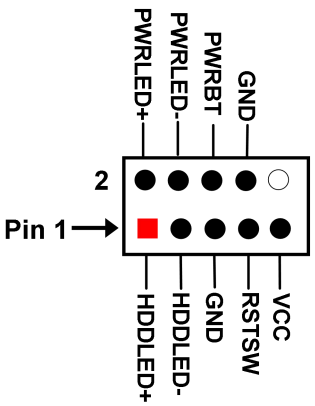




2-2-3 Pin Definition for Headers & Wafers

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

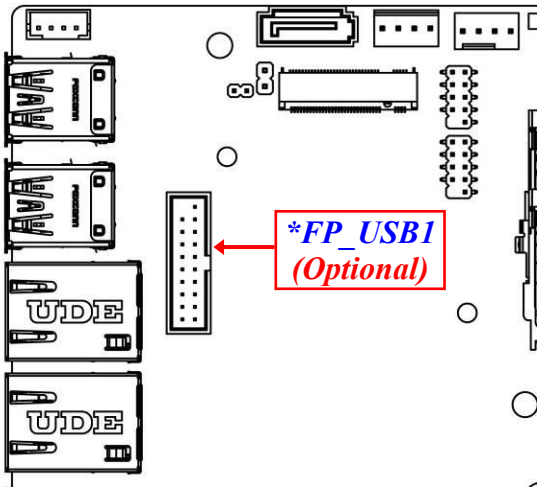


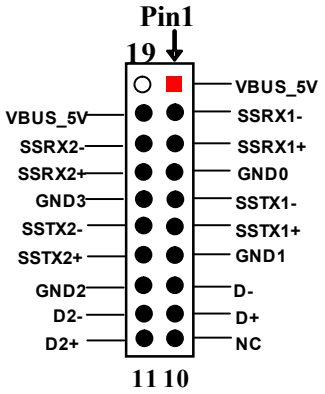


***Note:** Maximum current limit is **1A** while using 5V working voltage.*

*(2) *FP_USB1(19-pin): USB 3.1(Gen.1) Port Header*

*FP_USB1 is only optional for **MI02-10/20/30** & **MI02-12/22/32** sereis.*

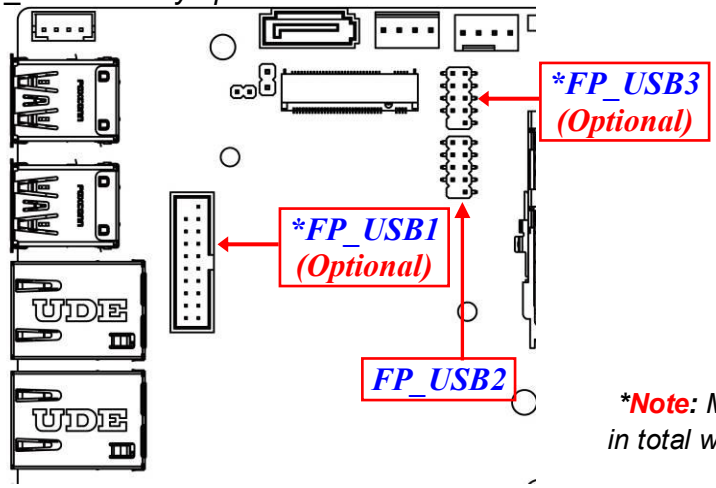


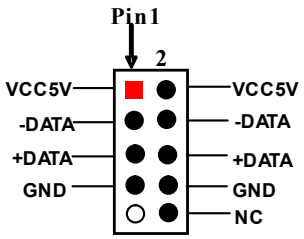


***Note:** Maximum current limit is **1.5A** in total while using 5V working voltage.*

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

*FP_USB3 is only optional for **MI02-10/20/30** & **MI02-12/22/32** series.*



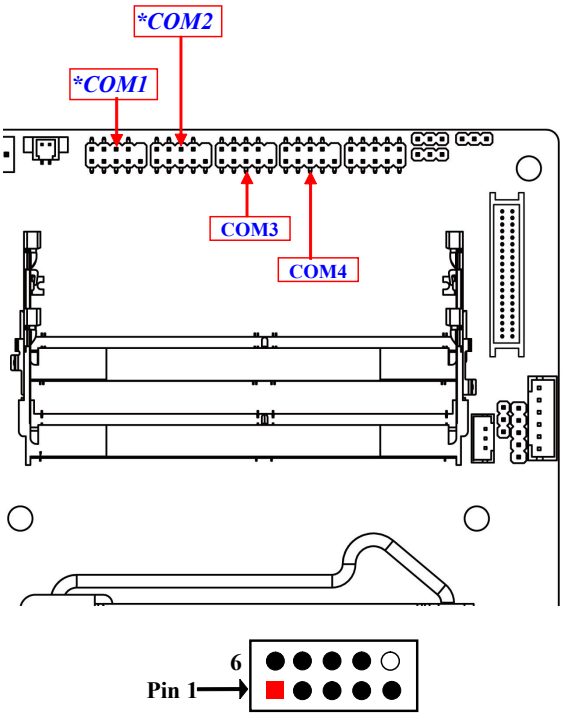


***Note:** Maximum current limit is **1.5A** in total while using 5V working voltage.*

(4) COM1/2/3/4 (9-pin): Serial Port Header

COM1 &COM2：RS232/422/485 Serial Port;

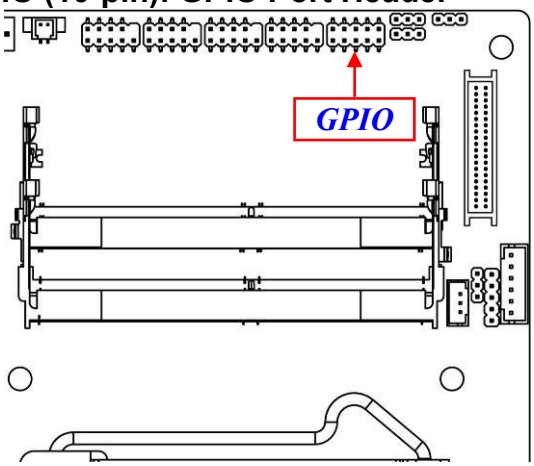
COM3&COM4：RS232 Serial Port Header.

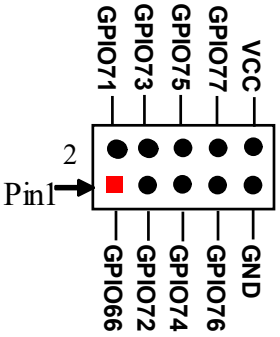


Pin NO.	RS232	*RS422 (optional)	*RS485 (optional)
Pin 1	DCD	TX-	DATA-
Pin 2	RXD	TX+	DATA+
Pin 3	TXD	RX+	NC
Pin 4	DTR	RX-	NC
Pin 5	GND	GND	GND
Pin 6	DSR	NC	NC
Pin 7	RTS	NC	NC
Pin 8	CTS	NC	NC
Pin 9	RI	NC	NC

***Notice: COM1/2 header can function as RS232/422/485 port header.** In normal settings COM1/2 functions as RS232 header. With compatible COM cable COM1/2 can function as RS422 or RS 485 header. User also needs to go to BIOS to set '**Transmission Mode Select**' for COM1 or COM2 at first, before using specialized cable to connect different pins of this port.*

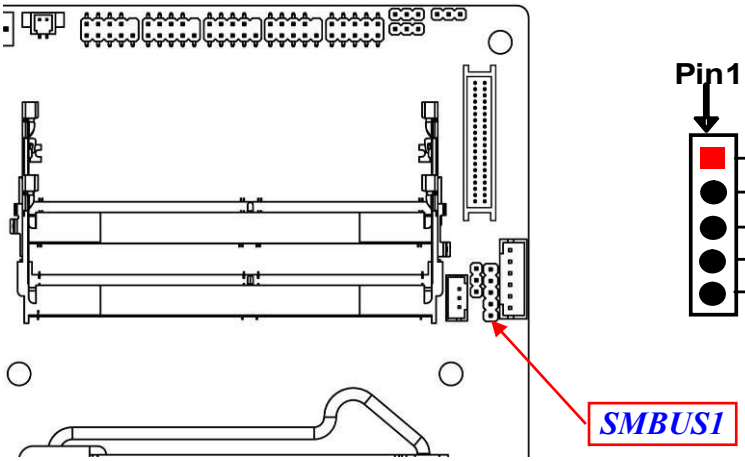
(5) GPIO (10-pin): GPIO Port Header

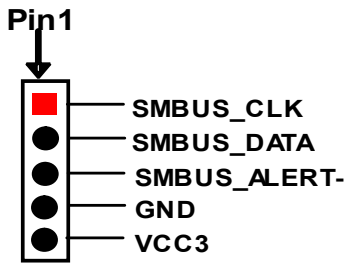




***Note:** Maximum current limit is **1A** while using 5V working voltage.*

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

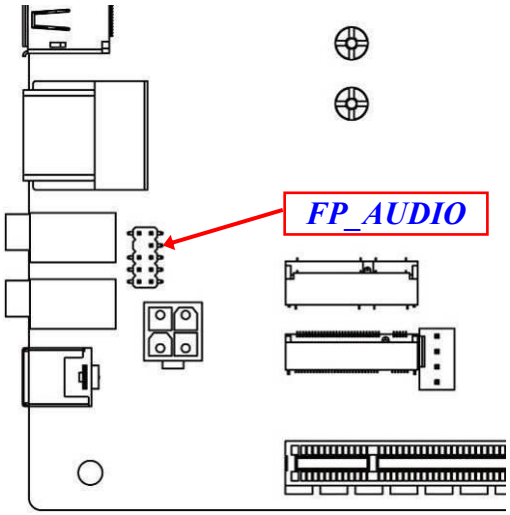


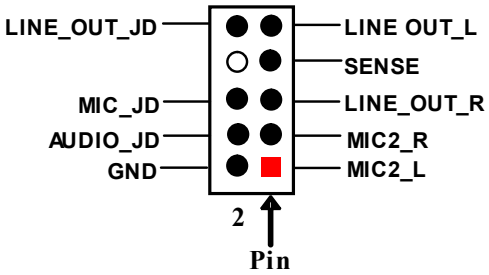


Note:* *Maximum current limit is **500mA while using 3.3V working voltage.*

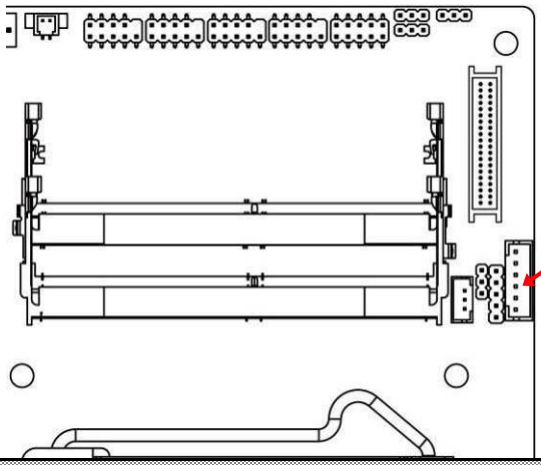
(7) FP_AUDIO (9-pin): Line-Out, MIC-In Header

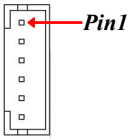
This header connects to Front Panel Line-out, MIC-In connector with cable.





(8) INVERTER1(6-pin): LVDS Inverter



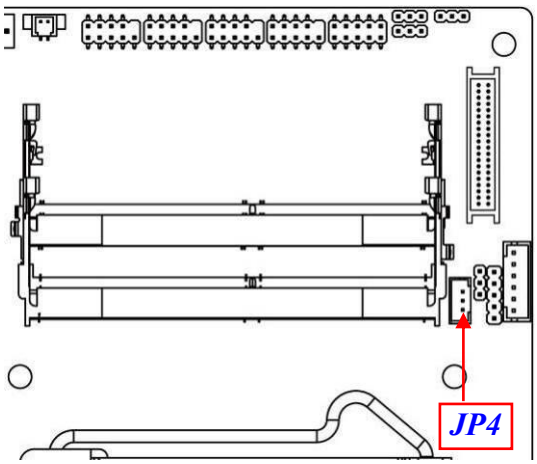


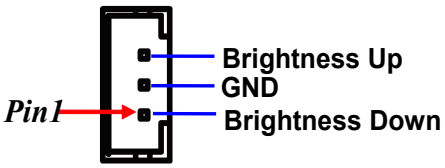
Pin No.	Definition
1	BKLT_PWR1
2	BKLT_PWR2
3	BKLT_EN
4	BKLT_PWM
5	BKLT_GND1
6	BKLT_GND2

Note:* *Maximum current limit is **2A in total while using **12V** working voltage.*

Warning! *Find **Pin-1** location of the inverter and make sure that the installation direction is correct! Otherwise serious harm will occur to the board/display panel!!*

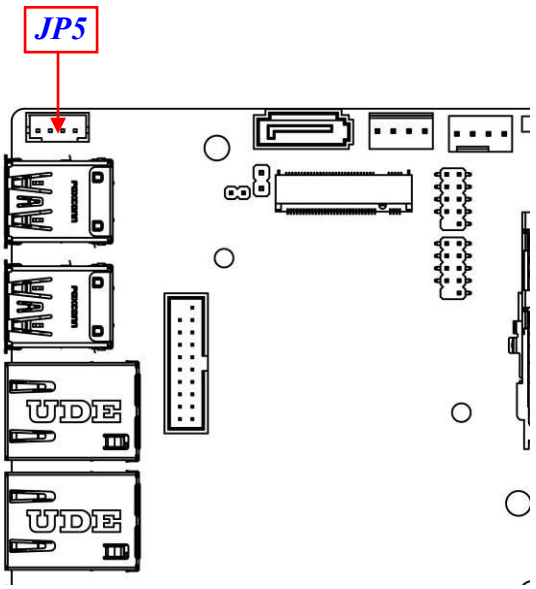
(9) *JP4(3-pin): Inverter Brightness Adjustment Wafer

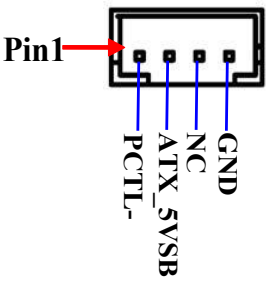




Note:* ***JP4 f**or inverter brightness adjustment function is updated to* ***latest PCB version*** *(≥* ***R14*** *version). Please refer to the specific product you purchased for actual specifications.*

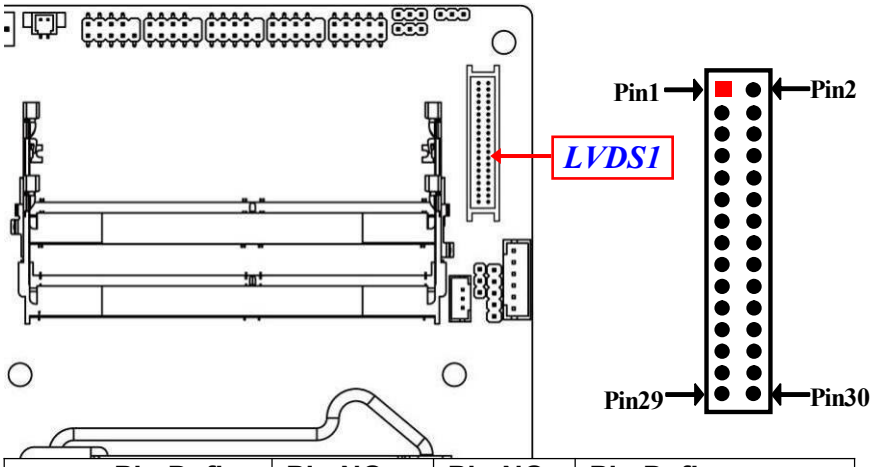
(10) *JP5(4-pin):External Power Board Control Wafer





Note:* ***JP5 (External Power Board Control Wafer)* *is updated to* ***latest PCB version*** *(≥* ***R14*** *version). Please refer to the specific product you purchased for actual specifications.* ***It is also suggested that user consult the manufacturer before connecting wires to this wafer.***

(11) LVDS1 (30-pin): 24-bit Dual Channel LVDS Header



Pin Define	Pin NO.	Pin NO.	Pin Define
LVDSB_DATAN3	Pin 1	Pin 2	LVDSB_DATAP3
LVDSB_CLKN	Pin 3	Pin 4	LVDSB_CLKP
LVDSB_DATAN2	Pin 5	Pin 6	LVDSB_DATAP2
LVDSB_DATAN1	Pin 7	Pin 8	LVDSB_DATAP1
LVDSB_DATAN0	Pin 9	Pin 10	LVDSB_DATAP0
LVDS_DDC_SDA	Pin 11	Pin 12	LVDS_DDC_SCL
GND	Pin 13	Pin 14	GND
GND	Pin 15	Pin 16	GND
LVDSA_DATAP3	Pin 17	Pin 18	LVDSA_DATAN3
LVDSA_CLKP	Pin 19	Pin 20	LVDSA_CLKN
LVDSA_DATAP2	Pin 21	Pin 22	LVDSA_DATAN2
LVDSA_DATAP1	Pin 23	Pin 24	LVDSA_DATAN1
LVDSA_DATAP0	Pin 25	Pin 26	LVDSA_DATAN0
LCD_VCC	Pin 27	Pin 28	LCD_VCC
LCD_VCC	Pin 29	Pin 30	LCD_VCC

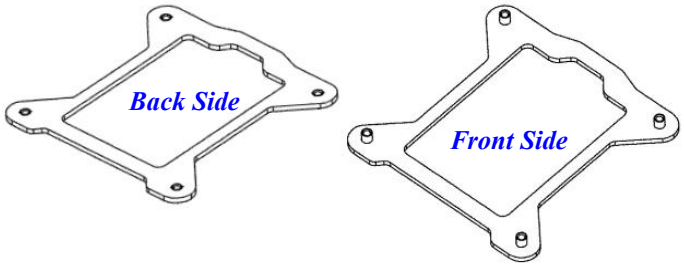
Note: The board co-lays **LVDS header and **EDP** connector; i.e. only one can function at a time. User can go to BIOS settings to select one of them as the display output port.*

2-3 CPU Cooler Installation

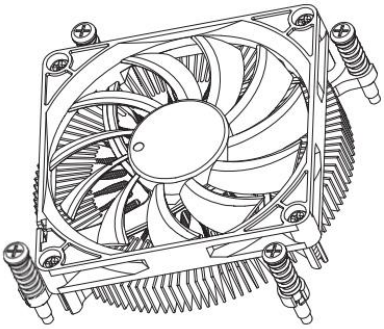
2-3-1 To Install CPU Fan with One-piece-type Base

Applicable type: ***LGA1511*** *CPU Fan,* ***LGA1700*** *CPU Fan*

Accessory Overview: One base + CPU Fan

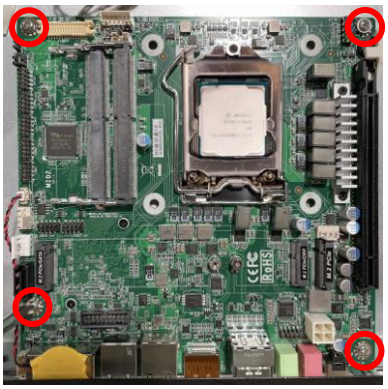


One-piece-type base

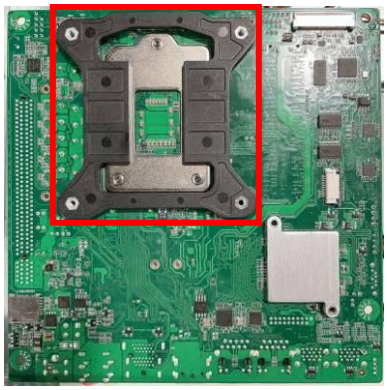


CPU Fan

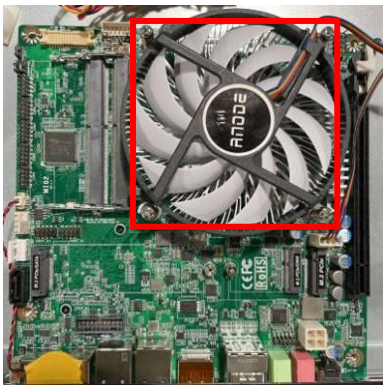
Installation Steps:



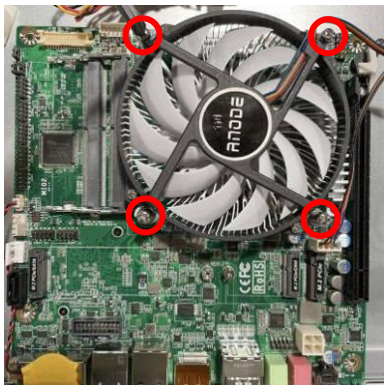
1. Unscrewing the screws showed above and remove the motherboard from the chassis.



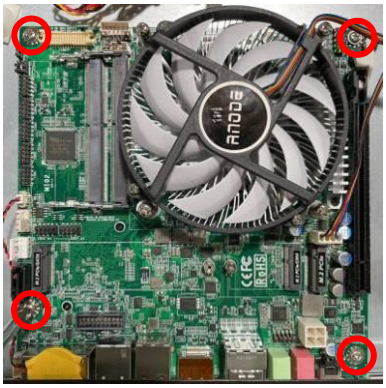
2. Remove the adhesive protective film and fix the base as showed above.



3. Put CPU fan inside the chassis and adjust it to the reserved space for fan installation.



4. Tighten up the screws in the marked spots to lock the fan to the system.



5. Adjust the motherboard in the chassis, and screw the spots as showed above.

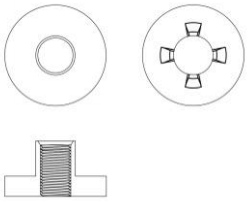
**** Note:***

1. *If you choose the plastic one-piece-type base as showed above, please make sure your case has enough space for installation or it will cause the motherboard curved and damaged.*
2. *If you choose the metal one-piece-type base, please make sure it will not contact any of the components on the motherboard or it will cause the damage of CPU.*

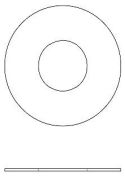
2-3-2 To Install CPU Fan with Quart-spots-type Base

Applicable type: ***LGA1511*** *CPU Fan,* ***LGA1700*** *CPU Fan*

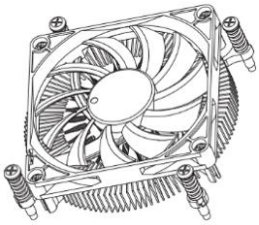
Accessory Overview: Four brackets as one set base + CPU Fan



Quart-spots-type base – bracket part



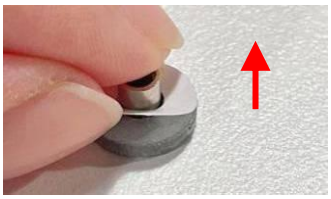
Quart-spots-type base – adhesive part



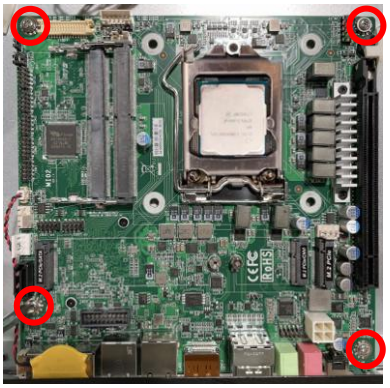
CPU Fan

Installation Steps:

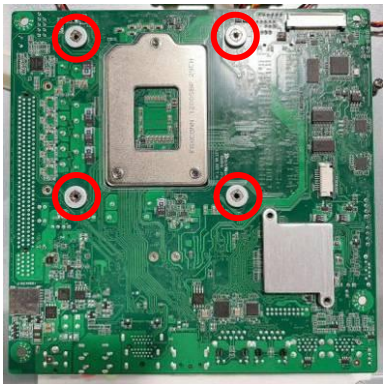
1. Prepare four brackets for following installation.



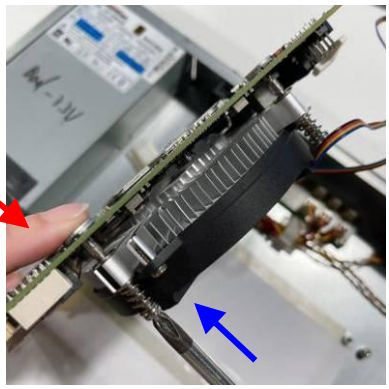
1-a. Put the adhesive part on the screw part, and remove the adhesive protective film, repeat the step four times and prepared four brackets as one set for the following installation.



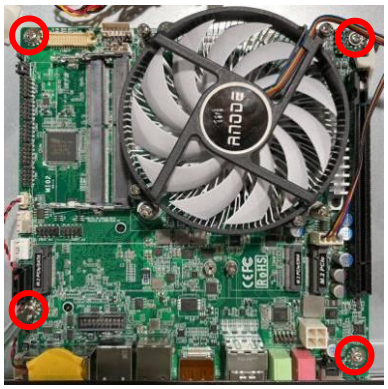
2. Unscrewing the screws showed above and remove the motherboard from the chassis.



3. Turn the board back side, and fix the four brackets under the board.



4. Put the CPU Fan on the top of CPU and screw the spots showed above.



5. Adjust the motherboard in the chassis, and screw the spots as showed above.

**** Note:***

1. The Quart-spots-type base is made by metal material, please make sure it will not contact any of the components on the motherboard or it will cause the damage of CPU.

2. Plastic one-piece-type base & Quart-spots-type base are included in accessory package; User also needs to conslut the dealer to purchase qualified CPU fan by themselves for further installation.

Chapter 3
Introducing BIOS

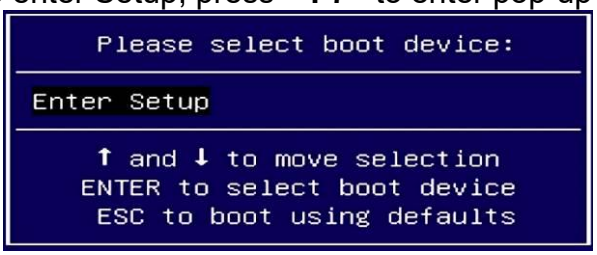
Notice!	The BIOS options in this manual are for reference only. Different configurations may lead to difference in BIOS screen and BIOS screens in manuals are usually the first BIOS version when the board is released and may be different from your purchased motherboard. Users are welcome to download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

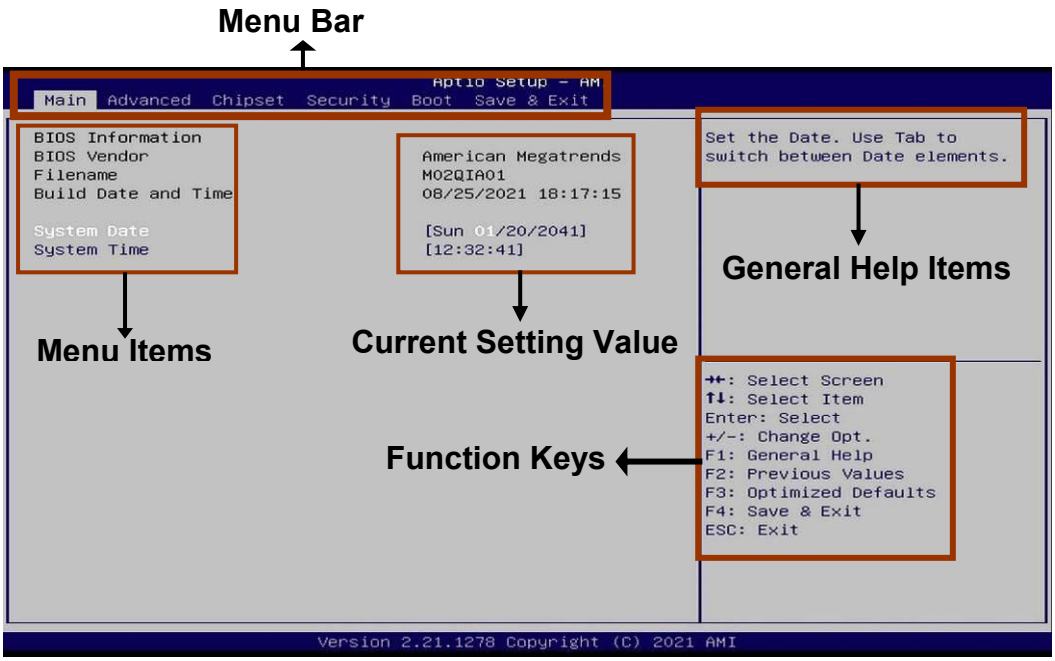
Power on the computer and by pressing <Del> immediately allows you to enter Setup. If the message disappears before your respond and you still wish to enter Setup, restart the system to try again by turning it OFF then ON or pressing the “RESET” button on the system case. You may also restart by simultaneously 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.



3-2 BIOS Menu Screen

The following diagram show a general BIOS menu screen:



(Screen items & configuration may differ depending on specific mode)

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→← (right, left) 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

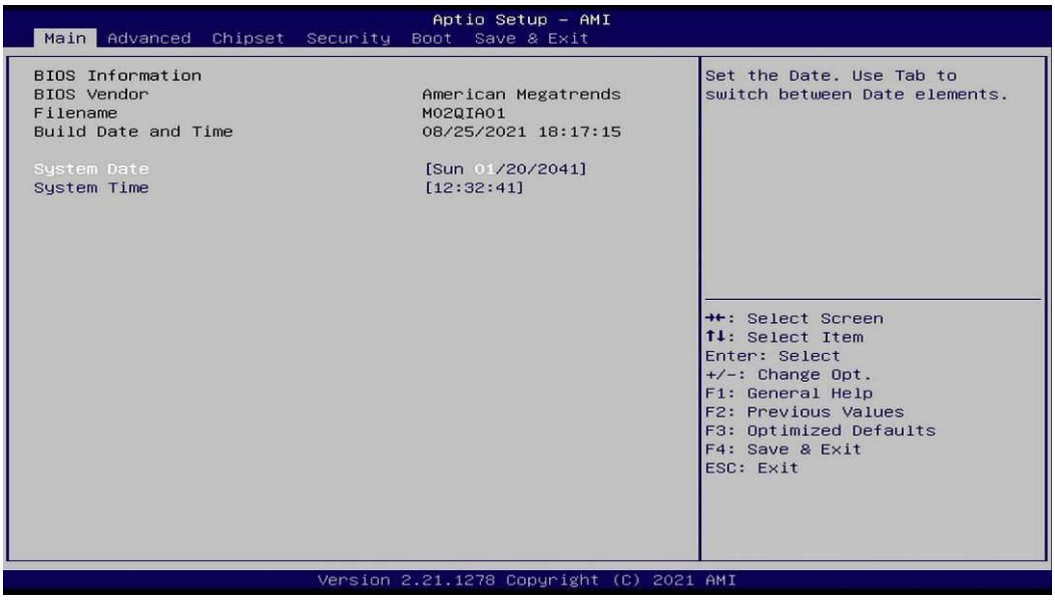
There are six menu bars on top of BIOS screen:

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

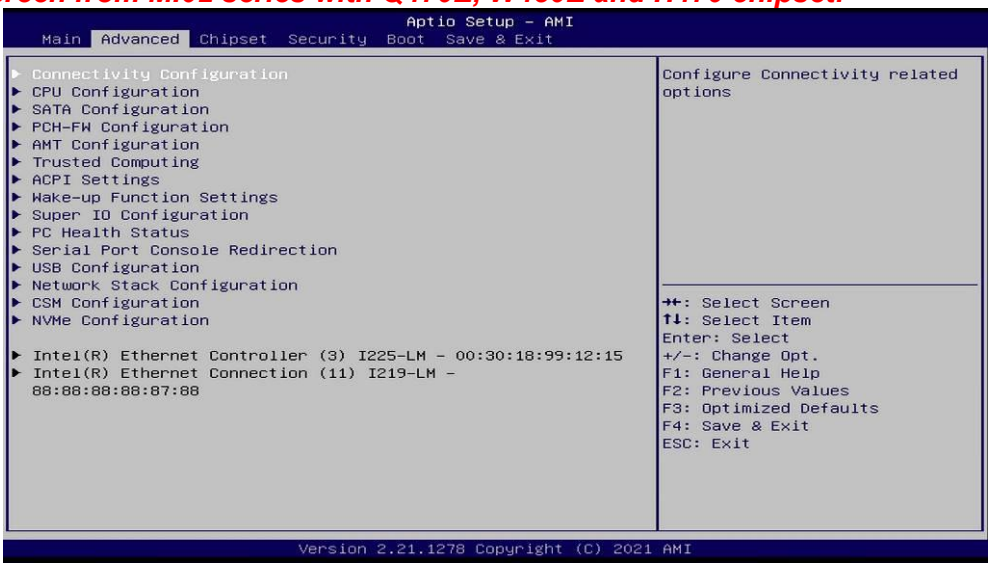
Set the date. Please use [Tab] to switch between date elements.

System Time

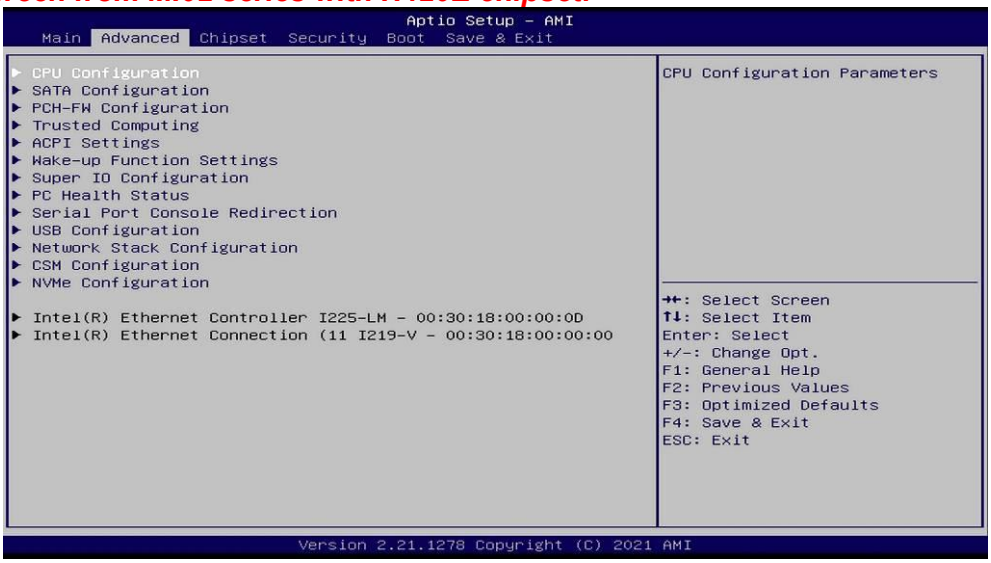
Set the time. Please use [Tab] to switch between time elements.

3-7 Advanced Menu

BIOS screen from MI02 series with Q470E, W480E and H470 chipset:



BIOS screen from MI02 series with H420E chipset:



****Note:** as shown above, the BIOS settings items for MI02 series are basically the same, except a few items are only optional for **MI02** series with **Q470E, W480E** and **H470** chipset. For **Advanced Menu**, these main items include:*

Differences	Q470E	W480E	H470	H420E
Connectivity Configuration	yes	yes	yes	N/A
AMT Configuration	yes	yes	yes	N/A
LAN Chip	I219LM +I225LM	I219LM +I225LM	I219V +I225LM	I219V +I225LM

There are also some minor differences in sub-items and setting parameters, we will mark out these differences depending on specific chipsets. Please refer to the BIOS setting options for actual specifications.

- ***Connectivity Configuration**

  ***Note:** '**Connectivity Configuration**' is optional for **MI02** series with **Q470E,W480E,H470** chipset).*

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

  CNVi Mode

  This item configures connectivity.

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

  [Disable Integrated]: it disables Integrated Solution.

  [Auto Detection]: if discrete solution is discovered it will be enabled by default. Otherwise integrated solution (CNVi) will be enabled.

- **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

  Use this item to enable or disable Intel (VMX) Virtualization Technology. When set as [Enabled], a VMM can utilize the additional hardware capabilities provided by Vanderpool Technology.

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

  Intel® 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 Turbo Mode (requites Intel speed step or Intel speed shift to be available and enabled).

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

- **SATA Configuration**

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

  SATA Configuration

  SATA Controller(s)

  Use this item to enable of disable SATA device.

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

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

  SATA Mode Selection

  ***Note:** '**SATA Mode Selection**' is optional for **MI02** series with **Q470E,W480E,H470** chipset).*

  This item controls how SATA controller(s) operate.

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

M.2

Port

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

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

****SATA***

Port

****Note:*** *'**SATA**' & '**Hot Plug** ' items are optional for **MI02** series with **Q470E,W480E,H470** chipset).*

Use this item to enable or disable SATA port.

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

****Hot Plug***

****Note:*** *'**SATA**' & '**Hot Plug**' items are optional for **MI02** series with **Q470E,W480E,H470** chipset).*

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:

TPM Device Selection

Use this item to select TPM device. When set as [PTT], it will enable PTT in SkuMgr. When set as [dTPM], it will disable PTT in SkuMgr.

The optional settings: [dTPM]: [PTT].

Warning! *PTT/dTPM will be disabled and all data saved on it will be lost.*

- **Firmware Update Configuration**

Use this item to configure management engine Technology Parameter, 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].

- ****AMT Configuration***

****Note:*** *'**AMT Configuration**' is optional for **MI02** series with **Q470E,W480E,H470** chipset)*

Use this item to configure 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 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 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 OEM 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.
***Note:** Your computer will reboot during restart in order to change state of Security device.*
The optional settings are: [None]; [TPM Clear].

- **ACPI Settings**

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

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

- **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], the following items shall appear:
Wake-up Hour
Use this item to select in the range of 0 to 23. For example enter 3 for 3am and 15 for 3pm.
Wake-up Minute
Use this item to select in the range of 0 to 59.
Wake-up Second
Use this item to select in the range of 0 to 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 + Increased minutes.
The optional settings are: [Disabled]; [Enabled].
When set as [Enabled], system will wake on the current time + increased

minute(s).

USB S3/S4 Wake-up

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].*

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

The optional settings are: [Enabled]; [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

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.

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 are: [RS422]; [RS232]; [RS485].

Mode Speed Select

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

► 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.

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 are: [RS422]; [RS232]; [RS485].

Mode Speed Select

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

► **Serial Port 3 Configuration**
Press [Enter] to make settings for the following items:
Serial Port
Use this item to enable or disable serial port (COM).
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.
For MI02 series with Q470, W480E and H420E chipset: the optional settings: [IO=3F8h; 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].
For MI02 series with H420 chipset: 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].
► **Serial Port 4 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.
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].

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 JAT_ATX jumper setting for Pin1&2 of ATX Mode & Pin 2&3 of 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 ***CASE OPEN*** 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

  CPUFAN / SYSFAN1 Smart Mode

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

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

  CPUFAN / SYSFAN1 Full-Speed Temperature

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

  CPUFAN / SYSFAN1 Full-Speed Duty

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

  CPUFAN / SYSFAN1 Idle-Speed Temperature

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

  CPUFAN / SYSFAN1 Idle-Speed Duty

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

- **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. They can be used as an additional data bit.

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].

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

Console Redirection EMS

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

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

▸ **Console Redirection Settings**

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

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

Terminal Type

[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.

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

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

- **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

Use this item to enable IPv4 PXE boot support.
When set as [Disabled], IPv4 boot support will not be available.
The optional settings are: [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 are: [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**

  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]; [UEFI]; [Legacy].

  Storage

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

  Other PCI devices

  This item is for 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® Ethernet Controller (3)I225-LM- XX:XX:XX:XX:XX:XX**

- **Intel® Ethernet Connection (11)I219-LM- XX:XX:XX:XX:XX:XX**

  ****Note:** 'I219-LM' is optional for **MI02** series with **Q470E** and **W480E** chipset.*

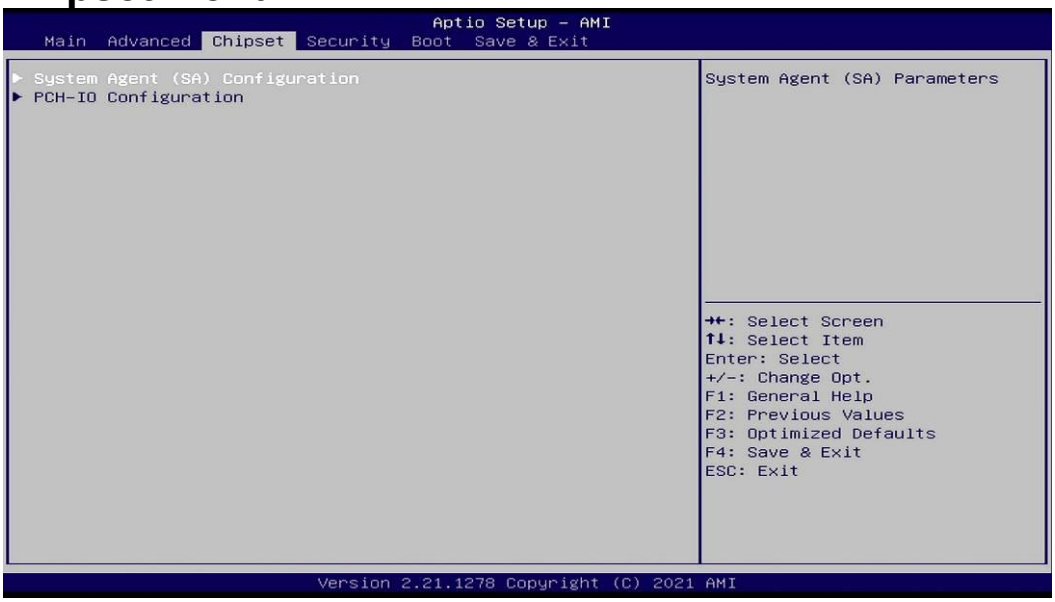
  This item shows current network brief information.

- **Intel® Ethernet Connection (11)I219-V- XX:XX:XX:XX:XX:XX**

  ****Note:** 'I219-V' is optional for **MI02** series with **H470** and **H420E** chipset.*

  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:

► 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 graphics device should be Primary Display.
The optional settings are: [Auto]; [IGFX]; [PEG].

Internal Graphics

Use this item to keep IGFX enabled based on the setup options.
The optional settings are: [Auto]; [Disable]; [Enable].

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].

Active LFP

Use this item to select the Active LFP Configuration.
The optional settings are: [eDP]; [LVDS].
No LVDS: VBIOS does not enable LVDS.

Int-LVDS: VBIOS enables LVDS driver by Integrated encoder.
SDVO LVDS: VBIOS enables LVDS driver by SDVO encoder.
eDP Port-A: LFP Driven by Int-DisplayPort encoder from Port-A.
eDP Port-D: LFP Driven by Int-DisplayPort encoder from Port-D (through PCH).
***Note:**: When set as [LVDS], user can make further settings in following 'LVDS Panel Type'

Panel Type

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

► **PEG Port Configuration**

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

PEG Port Configuration

PCIE1 Slot Lane Select

Use this item to select X16 or X8/X8.
The optional settings are: [X16]; [X8/X8].
When set as [X8/X8], users can make more settings in ***PCIE1 Slot (Bifurcation)***.

PCIE1 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 are: [Disabled]; [Enabled]; [Auto].

Max Link Speed

Use this item to configure PEG 0:1:0 Max Speed.
The optional settings are: [Auto]; [Gen1]; [Gen2]; [Gen3].

PCIE1 Slot (Bifurcation)

Max Link Speed

Use this item to configure PEG 0:1:1Max Speed.
The optional settings are: [Auto]; [Gen1]; [Gen2]; [Gen3].

Max Link Width

Use this item to force PEG link to retrain to X1/2/4/8.
The optional settings are: [Auto]; [Force X1]; [Force X2]; [Force X4]

Detect Non-Compliance Device

Use this item to detect Non-Compliance PCI Express Device in PEG.
The optional settings are: [Disabled]; [Enabled].

► **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 onboard NIC.

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

Onboard Lan2 Controller

Use this item to control the PCI Express Root Port.

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

Wake on LAN Enable

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

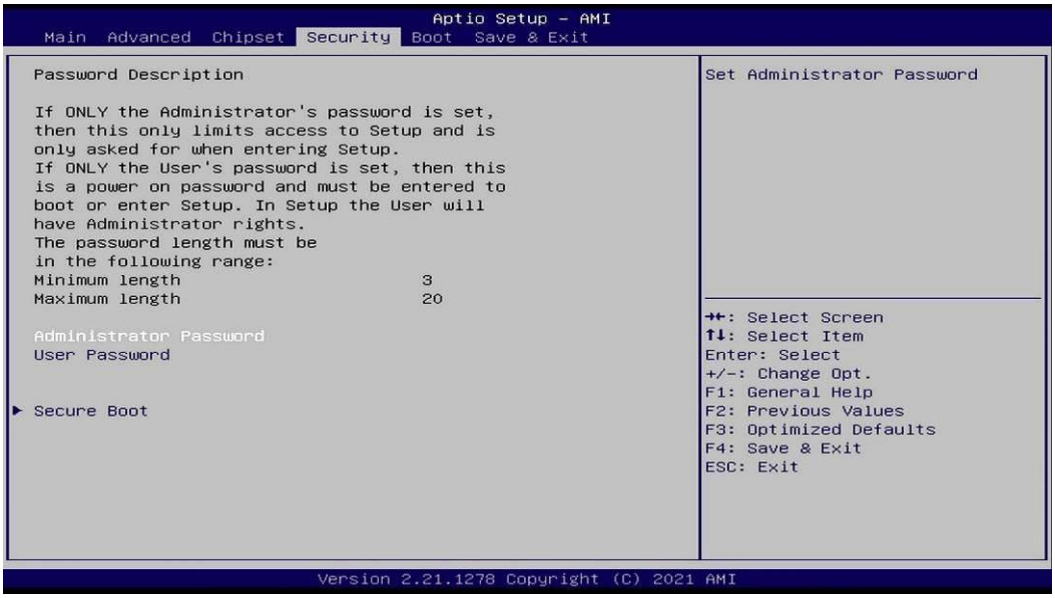
The optional settings are: [Disabled]; [Enabled].

System State After Power Failure

Use this item to select what state to go to when power is 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 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 administrator password.

- **Secure Boot**

  Press [Enter] to make customized secure settings:

  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 are: [Disabled]; [Enabled].

Secure Boot Mode
Set UEFI Secure Boot Mode to Standard mode or Custom mode.
In Custom mode, Secure Boot Policy variables can be configured by a physically present user without full authentication.
The optional settings are: [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**

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**

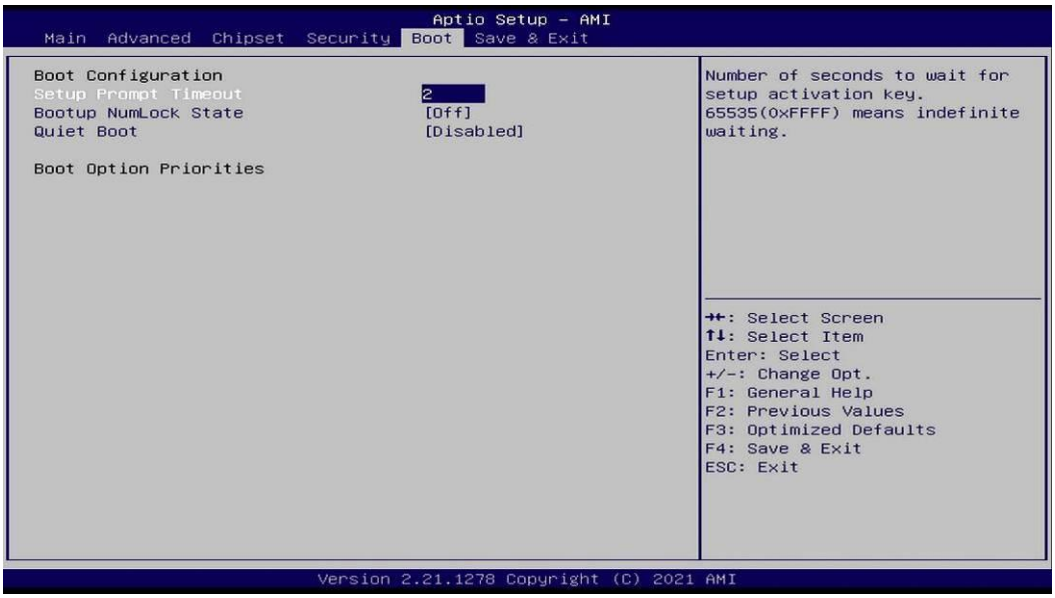
Use this item to restore DB variable to factory defaults.
Secure Boot Variable/Size/Keys/Key Source

- **Platform Key (PK)/Key Exchange Keys/Authorized Signature/Forbidden Signature/ Authorized TimeStamps/OsRecovery 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.

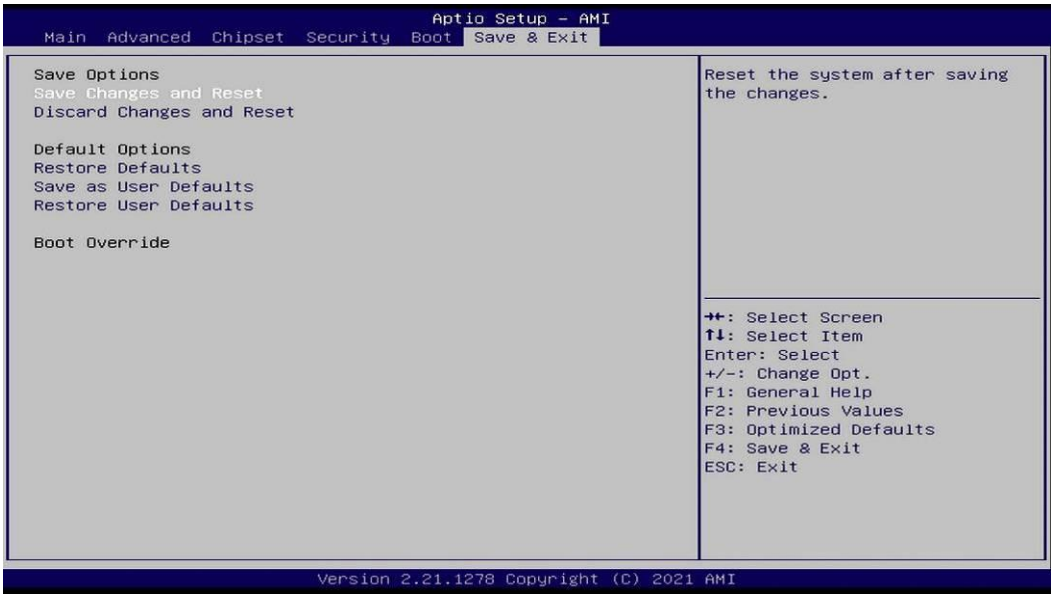
3-10 Boot Menu



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
Use this item to enable or disable quiet boot option.
The optional settings are: [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