MA20 Series
User's Manual

No. G03-MA20-F

Rev: 6.0

Release date: August 26, 2024

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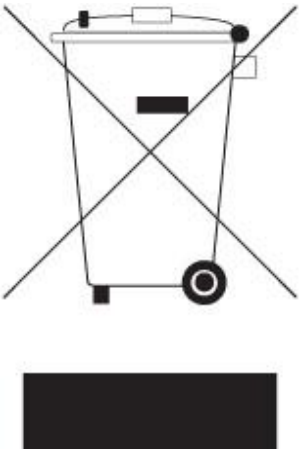
Environmental Safety Instruction

- 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

Manual Revision Information

Reversion	Revision History	Date
6.0	Sixth Edition	August 26, 2024

Item Checklist

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

Chapter 1
Introduction of the Motherboard

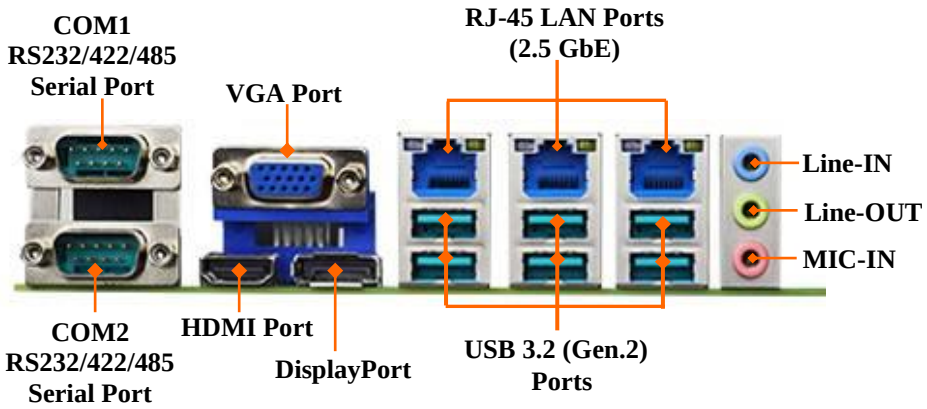
1-1 Specification

Spec	Description
Design	● ATX form factor; PCB size: 30.5 x24.4 cm
Chipset	● **Intel Q670E Chipset:** MA20-Q6700 MA20-Q6702 (onboard TPM2.0) MA20-Q6700-A1 (Intel® i226) MA20-Q6702-A1 (Intel® i226, TPM2.0) ● **Intel R680E Chipset:** MA20-R6800 MA20-R6802 (onboard TPM2.0) MA20-R6800-A1 (Intel® i226) MA20-R6802-A1 (Intel® i226, TPM2.0)
CPU Socket	● Intel LGA 1700 Socket supports 12th /13th/14th Gen. Core processors (Max.**125W** TDPs under **240A**) **Note:* *for detailed CPU support information please visit our website*
Memory Slots	● 4* Long UDIMM DDR5 slot for 4* DDR5 4800/4000MHz DRAM Module ● Support dual channel function *Maximum capacity: up to 192GB* **Note:* ***MA20-R6800/R6802*** *series support* ***ECC***
Expansion Slots	● 2* PCI-Express Gen.4 x16 (***PCIE1** & **PCIE4***; **total support 1* PCIe Gen.4 x16 or 2* PCIe Gen.4 x8**) **Note:* ***PCIE1*** *slot share x16 lane band width with* ***PCIE4*** *slot*; **Signal detect automatically**. ● 2*PCI-Express Gen.3 x1 slot **(PCIE2 & PCIE3)** ● 2*PCI-Express Gen.4x4 slot **(PCIE5 & PCIE6)** ● 1*PCI Slot ● 1*M.2 E-key slot, type-2230 PCIe Gen.3 x1/USB2.0 interface supports CNVi **(M2E1)** ● 1*M.2 B-Key slot,type-3042/3052,PCIe Gen.3 x1/USB3.2 Gen.2/USB2.0 interface) supports 4G/5G Module **(M2B1)** ● 1*Nano-SIM card slot **(SIMCARD)**
Storage	● 4*SATAIII 6Gb/s port support RAID 0/1/5/10 *(**SATA1_2/ SATA3_4**)* ● 1* M.2 M-key slot, type-2242/2280 PCIe x4 interface supports NVMe (***M2M1***) ● 1* M.2 M-Key (type-2242/2280, PCIe Gen.4 x4/SATA interface) support NVMe(***M2M2***)
LAN Chips	● **MA20-Q6700 / MA20-Q6702 / MA20-R6800 / MA20-R6802:** 1* Intel i225-LM 2.5GbE **(*for UL1 LAN port; supports iAMT)** 2* Intel i225-V 2.5GbE (**for UL2/UL3 LAN port**) ● **MA20-Q6700-A1 / MA20-Q6702-A1 / MA20-R6800-A1 / MA20-R6802-A1:**

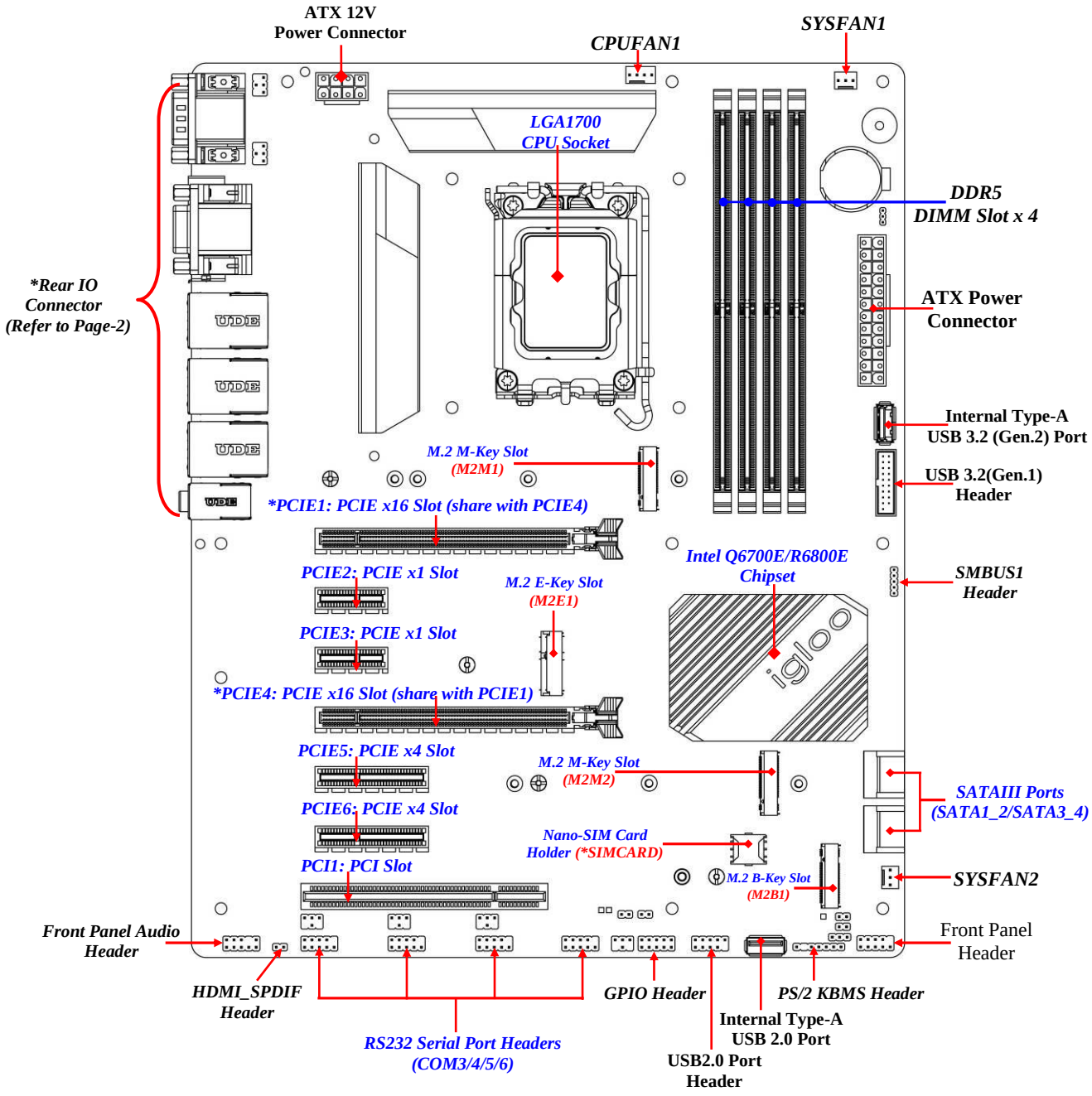
	1* Intel i226-LM 2.5GbE **(*for UL1 LAN port; supports iAMT)** 2* Intel i226-V 2.5GbE (**for UL2/UL3 LAN port**) ***Note: 2500Mbps** high-speed transmission rate is **only** supported over CAT 5e UTP cable.*
Audio Chip	● Realtek HD Audio Codec integrated with Audio driver and utility included
BIOS	● AMI 256M Bit Flash ROM
Multi I/O	***Rear Panel I/O:*** ● 2* RS232/422/485 COM port ● 1* VGA port & 1* Displayport & 1* HDMI port **(*Support Triple Displays*)** ● 3* 2.5GbE RJ-45 LAN port ***(*UL1 LAN supports Intel iAMT)*** ● 6* USB 3.2 (Gen.2) port ● 1* 3-phone audio Jack(Line-in, Line-out, MIC) ***Internal I/O Connectors & Headers:*** ● 1* 24-pin main power connector ● 1* 8-pin 12V power connector ● 1* CPUFAN connector & 2* SYSFAN connector ● 1* Internal type-A USB 3.2 (Gen.2) port connector (**USB3**) ● 1* Internal type-A USB 2.0 port connector (**REFLASH_USB**) ● 1* Front panel header ● 1* Front panel audio header ● 1* HDMI_SPDIF header ● 4* RS232 COM port header *(**COM3/4/5/6**)* ● 1* 9-Pin USB 2.0 header for 2* 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
TPM 2.0 Function	● Optional for **MA20-R6702** & **MA20-R6802** Series
OS Support	● *for detailed OS support information please visit our website for latest update*

1-2 Layout Diagram

Rear IO Diagram



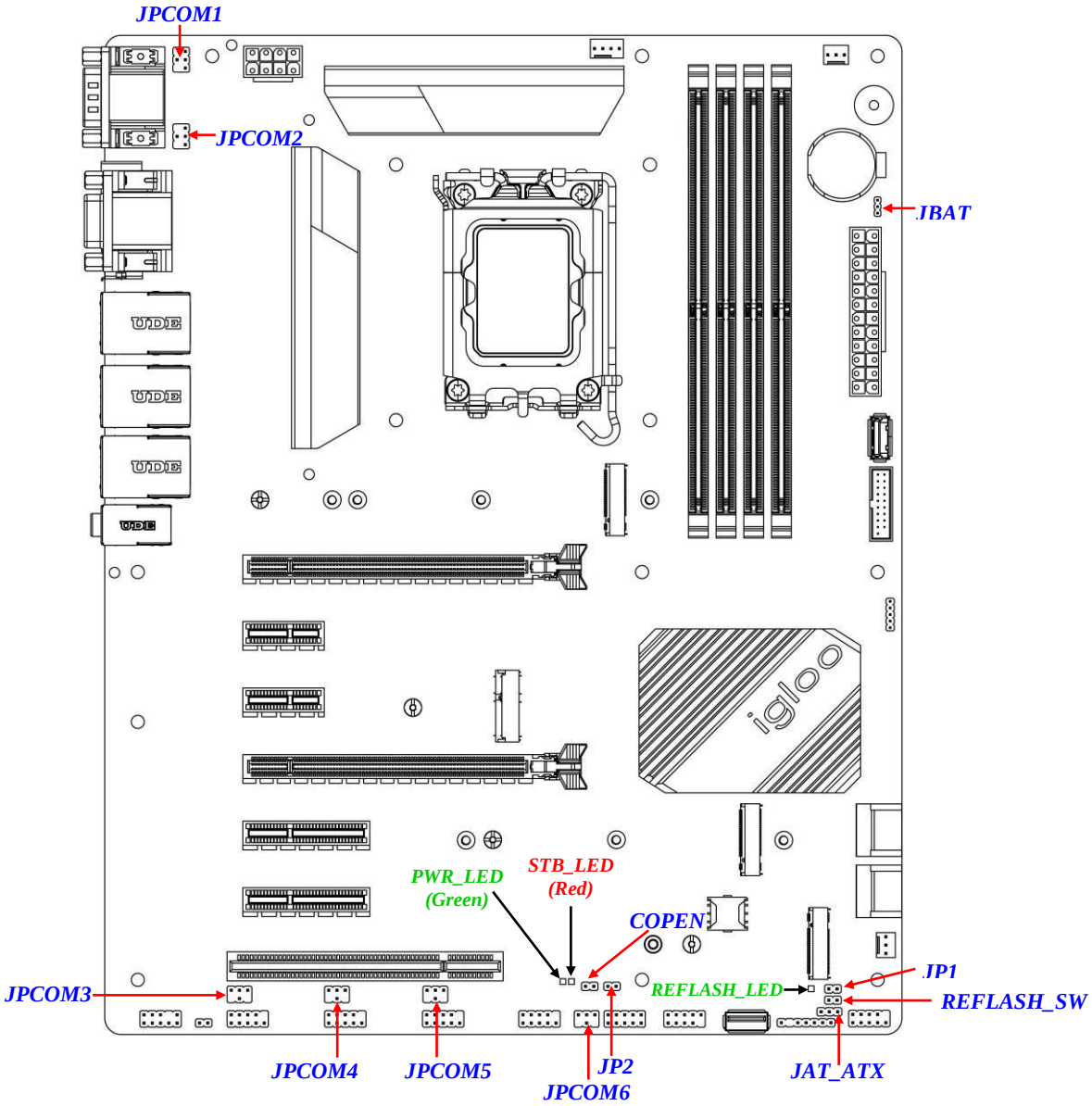
Motherboard Internal Diagram



Note:** **PCIE1: X16 or X8 (You can select x16 or x8, x8 from the BIOS); PCIE4: X8 (The BIOS must be x8 or x8). PCIE4 is functional.

***Note**: **SIM card slot** only functions **when** compatible Nano-SIM card installed in **SIMCARD** slot **&** compatible 3G/4G/5G card installed in **M2B1** slot.*

Motherboard Jumper Position:



Jumper

Jumper	Name	Description	Pitch
JPCOM1	COM1 Port Pin9 Function Select	4-pin Block	2.54mm
JPCOM2	COM2 Port Pin9 Function Select	4-pin Block	2.54mm
JPCOM3	COM3 Header Pin9 Function Select	4-pin Block	2.54mm
JPCOM4	COM4 Header Pin9 Function Select	4-pin Block	2.54mm
JPCOM5	COM5 Header Pin9 Function Select	4-pin Block	2.54mm
JPCOM6	COM6 Header Pin9 Function Select	4-pin Block	2.54mm
JBAT1	Clear CMOS RAM Settings	3-pin Block	2.0mm
COPEN	Case Open Message Display Detect	2-pin Block	2.54mm
JAT_ATX	ATX/AT Mode Select	3-pin Block	2.54mm
JP1	ME Features Select	2-pin Block	2.54mm
JP2	GPIO1 Header Function Select	2-pin Block	2.54mm
***REFLASH_SW**	For BIOS Reflash	2-pin Block	2.54mm

Connectors

Connector	Name
COM1_2	RS232/422/485 Serial Port X2
VGA	VGA Port
HDMI	HDMI Port
DP	DisplayPort
UL1 ***(*LAN1 supports Intel iAMT)***	**Top:** 2.5GbE RJ-45 LAN Port **Middle & Bottom**: USB 3.2 (Gen.2) Port
UL2/UL3	**Top:** 2.5GbE RJ-45 LAN Port X2 **Middle & Bottom**: USB 3.2 (Gen.2) Port X4
AUDIO	**Top:** Line-in Connector **Middle:** Line-out Connector **Bottom:** MIC Connector
ATXPWR1	ATX Type Main Power Connector
ATX12V1	ATX 12V Power Connector
SATA1_2/ SATA3_4	SATAIII Connector X4
CPUFAN1	CPU FAN Connector
SYSFAN1/2	System FAN Connector X2
USB3	**Internal** Type-A USB3.2 (Gen.2) Port Connector
***REFLASH_USB**	***Internal** Type-A USB 2.0 Port Connector*

** **Note:** **REFLASH_USB** functions as normal USB 2.0 port and is the designated USB port for re-flashing BIOS when BIOS update needed.*

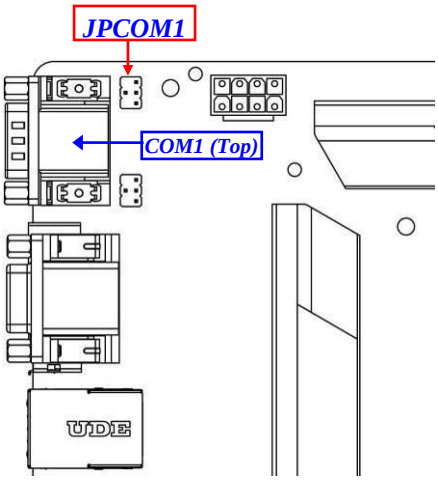
Headers

Header	Name	Description	Pitch
FP (Front Panel Header)	PWR LED/ HD LED/ Power Button /Reset	9-pin Block	2.54mm
FP_AUDIO	Front Panel Audio Header	9-pin Block	2.54mm
HDMI_SPDIF	HDMI_SPDIF Header	2-pin Block	2.54mm
COM3/4/5/6	RS232 Serial Port Header X4	9-pin Block	2.54mm
FP_USB2	USB 2.0 Port Header	9-pin Block	2.54mm
FP_USB3	USB 3.2 (Gen.1) Port Header	19-pin Block	2.0mm
GPIO1	GPIO Header	10-pin Block	2.54mm
PS2KBMS	PS/2 Keyboards & Mouse Header	6-pin Block	2.54mm
SMBUS1	SMBUS Header	5-pin Block	2.54mm

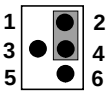
Chapter 2
Hardware Installation

2-1 Jumper Setting

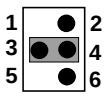
JPCOM1 (4-pin): COM1 Port Pin9 Function Select



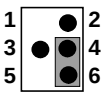
JPCOM1→COM1 Port Pin-9



2-4 Closed:
RI=RS232;

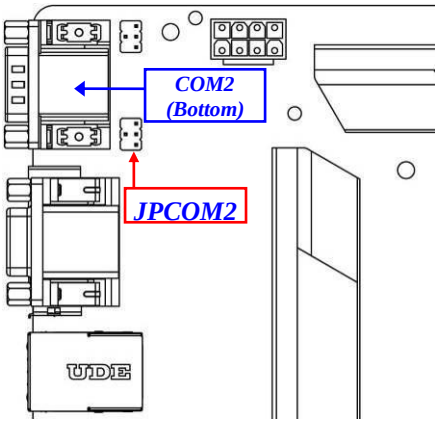


3-4 Closed:
RI= 5V;

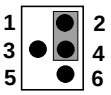


4-6 Closed:
RI= 12V;

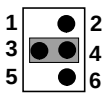
JPCOM2 (4-pin): COM2 Port Pin9 Function Select



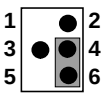
JPCOM2→COM2 Port Pin-9



2-4 Closed:
RI=RS232;

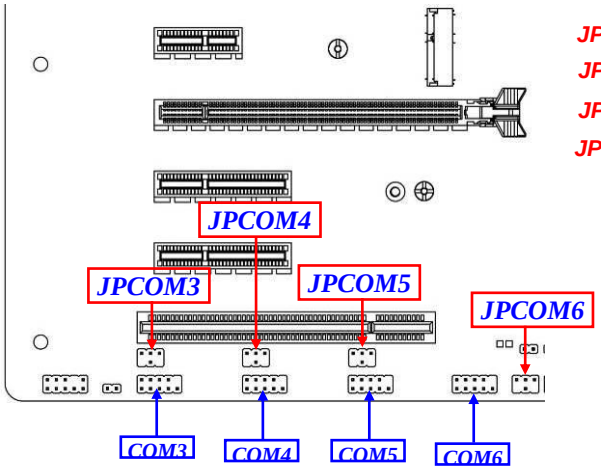


3-4 Closed:
RI= 5V;

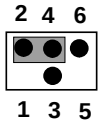


4-6 Closed:
RI= 12V;

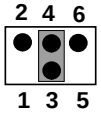
JPCOM3/ JPCOM4/ JPCOM5 /JPCOM6 (4-pin): COM3/ COM4/ COM5/ COM6 Header Pin-9 Function Select



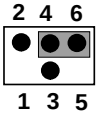
JPCOM3→COM3 Header Pin-9
JPCOM4→COM4 Header Pin-9
JPCOM5→COM5 Header Pin-9
JPCOM6→COM6 Header Pin-9



2-4 Closed:
PIN9=RS232;

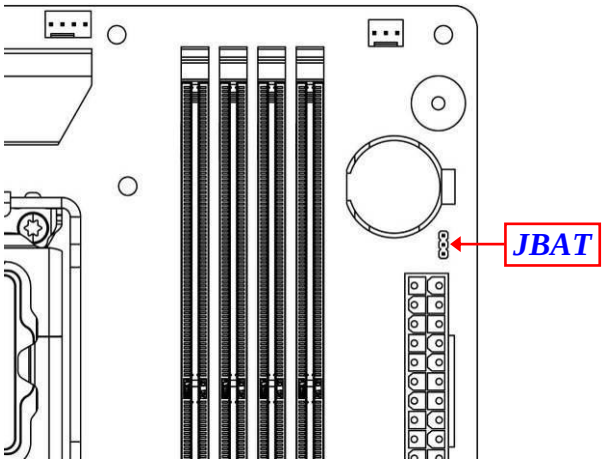


3-4 Closed:
PIN9=+5V;

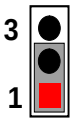


4-6 Closed:
PIN9=+12V

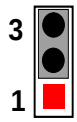
JBAT1 (3-pin): Clear CMOS RAM Settings



JBAT→Clear CMOS Settings

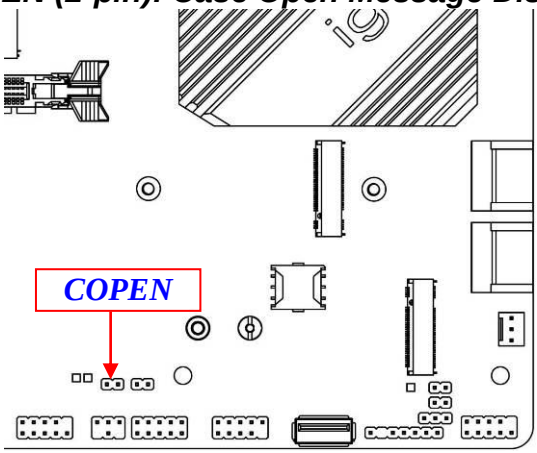


1-2 Closed: Normal;

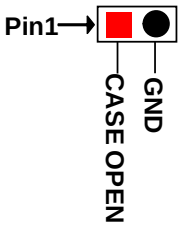


2-3 Closed: Clear CMOS.

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

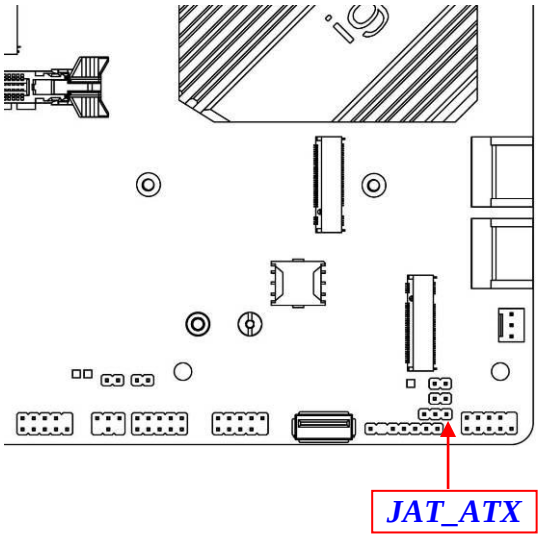


COPEN→ Case Open Detection

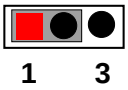


Pin 1-2 Short: *When Case open function pin short to GND, the Case open function was detected. When Used, needs to enter BIOS and enable 'Case Open Detect' function. In this case if your case is removed, next time when you restart your computer, a message will be displayed on screen to inform you of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

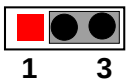
JAT_ATX (3-pin): AT Mode /ATX Mode Select



JAT_ATX→ATX/AT Mode Select



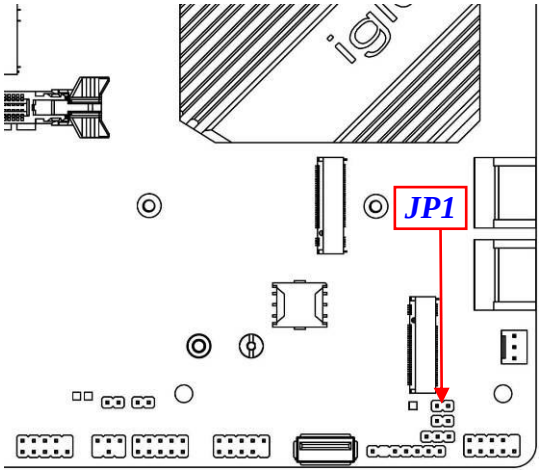
1-2 Closed: ATX Mode Selected;



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.*

JP1(2-pin): ME Features Select



JP1→ ME Features Select

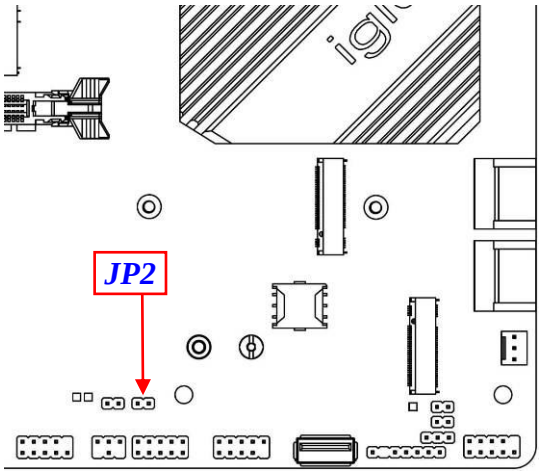
Pin1→ 

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

Pin1→ 

1-2 Closed: Disable ME Features.

JP2(2-pin): GPIO1 Header Function Select



JP2→GPIO1 Function Select

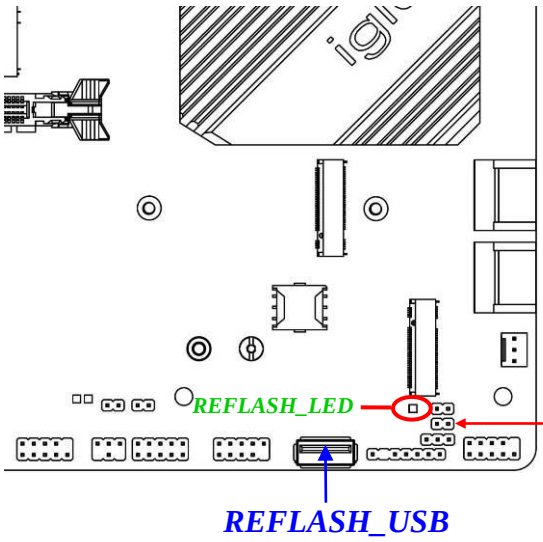
Pin1→ 

1-2 Open: Function as Debug Port;

Pin1→ 

1-2 Closed: Function as GPIO Port.

**REFLASH_SW(2-pin): For BIOS Reflash (via USB Disk)*



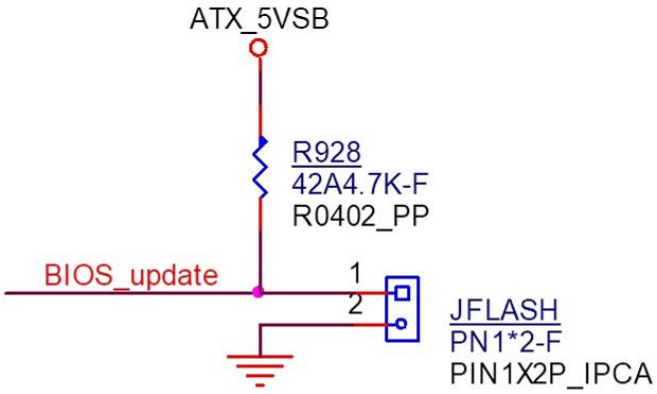
REFLASH_SW→ for BIOS Update

Pin1→ 

1-2 Open: Normal;

Pin1→ 

1-2 Short: about 0.5 Sec. for BIOS Update from REFLASH_USB.



Note:** **Please refer to the following steps for BIOS update:

Step-1:*Find a USB flash drive and format it into FAT32 format;*

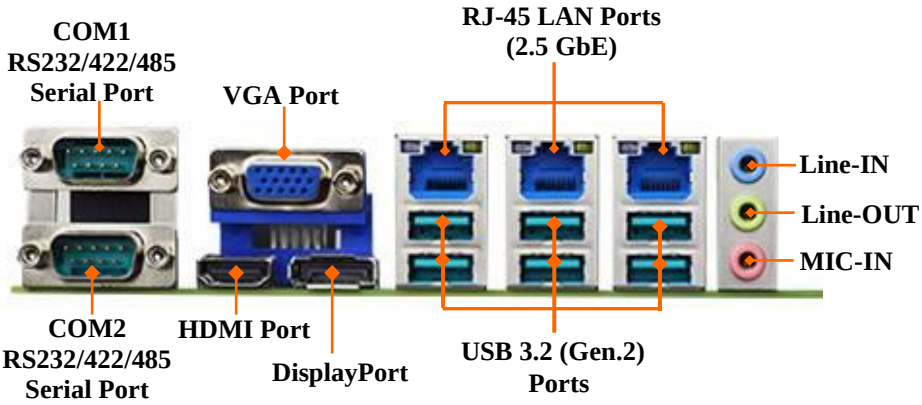
Step-2: *Download the latest BIOS file and storage it into the USB flash drive* ***(FAT32 format)****;Make sure that the file name of the BIOS file name changed into MB_BIOS.BIN format.*

Step-3: *Plug the above-mentioned USB flash drive into the internal type-A USB port connector (**REFLASH_USB**);*

Step-4: *Power on the system and then short Pin1&2 of **REFLASH_SW** for about 0.5 sec.; the **REFLASH_LED** will light up and then turn off, followed by flashing status indicating motherboard updating BIOS; the whole process will take about six and a half minutes. Make sure not to perform any other operations on motherboard during the process.When BIOS updating completed, the system will restart automatically, which means BIOS update is complete.*

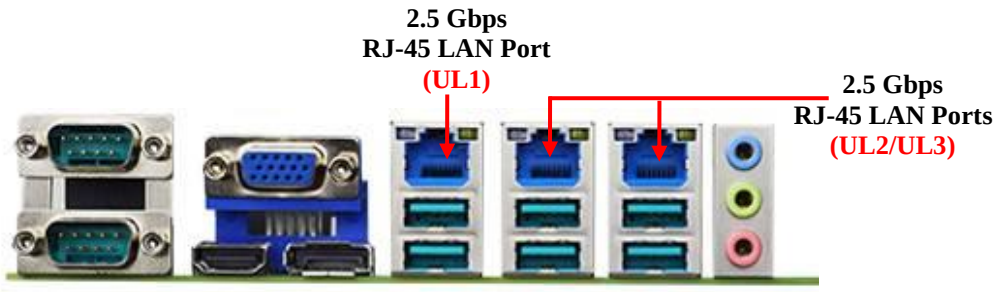
2-2 Connectors and Headers

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



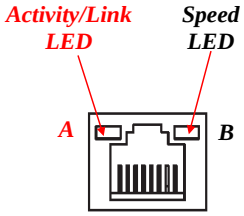
Icon	*Name*	*Function*
	**RS232/422/485 Serial Port**	Mainly for user to connect external MODEM or other devices that supports Serial Communications Interface.
	**VGA Port**	To connect display device that support VGA specification.
	**HDMI Port**	To connect display device that support HDMI specification.
	**Display Port**	To the system to corresponding display device with compatible DP cable.
	**2.5Gbps RJ-45 LAN Port (from UL1)**	This connector is standard RJ-45 LAN jack for Network connection which supports10/100/1000/2500 Mbps Ethernet data transfer rate. ***LAN1*** *from UL1 supports Intel iAMT*. ***(*Note:2.5Gbps** is **only** supported with **CAT 5e UTP cable).***
	**2.5Gbps RJ-45 LAN Port (from UL1 &UL3)**	This connector is standard RJ-45 LAN jack for Network connection which supports10/100/1000/2500 Mbps Ethernet data transfer rate ***(*Note:2.5Gbps** is **only** supported with **CAT 5e UTP cable).***
	**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.
	**Audio Connectors**	**BLUE:** Line-in Connector **GREEN:** Line-out Connector **PINK :** MIC Connector

(1) RJ-45 Ethernet Connector



UL1 (I225-LM / i226-LM) & UL2/UL3 (I225-V / i226-V) 2.5Gbps RJ-45 LAN port LED Signals:

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



A: Activity/Link LED

Status	Description
Off	No Link
Blinking	Data Activity
On	Link

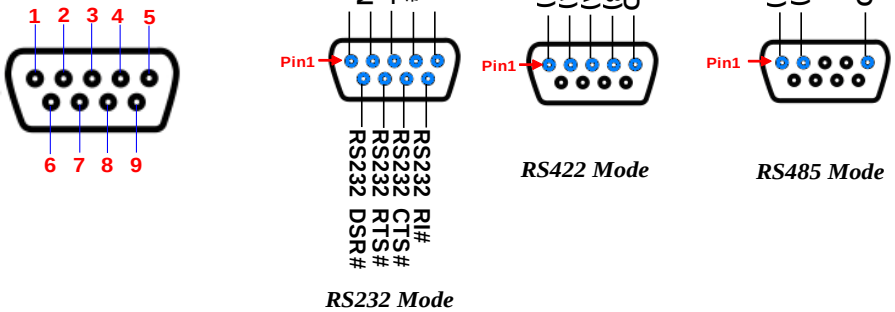
B: Speed LED

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

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

(2) COM1_2 (9-pin Block): RS232/422/485 Serial Port

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



RS232 Mode *RS422 Mode* *RS485 Mode*

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

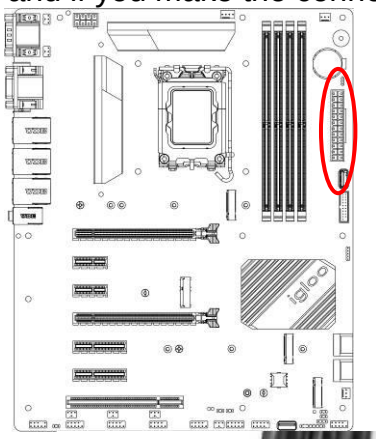
(1) ATXPWR1 (24-pin block): Main Power Connector

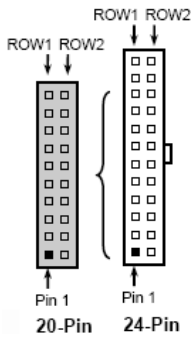
ATX Power Supply connector: This is a new defined 24-pins connector that usually comes with ATX case. The ATX Power Supply allows using soft power on momentary switch that connect from the front panel switch to 2-pins Power On jumper pole on the motherboard. When the power switch on the back of the ATX 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.





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

24-pin Main Power Connector

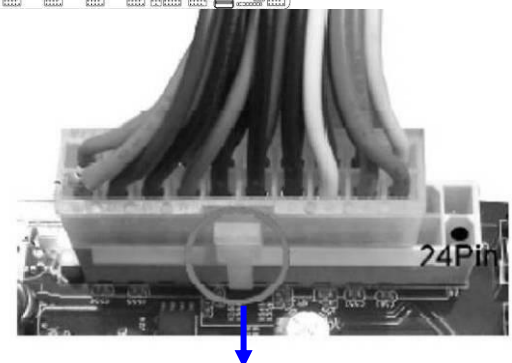


Figure1：20-pin power plug

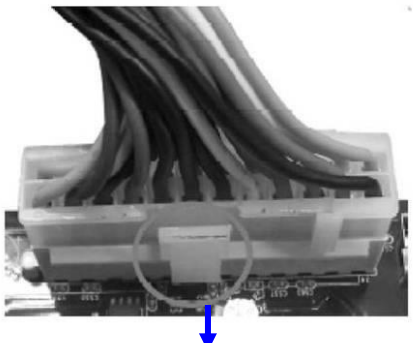
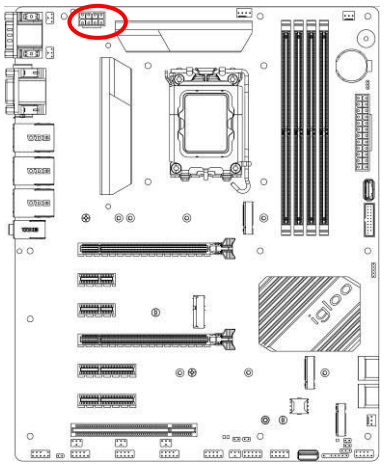
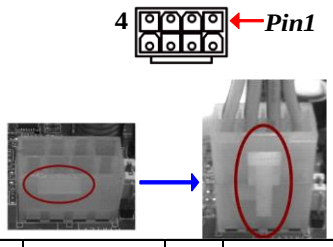


Figure 2：24-pin power plug

(2) ATX12V1 (8-pin block): 12V Power Connector

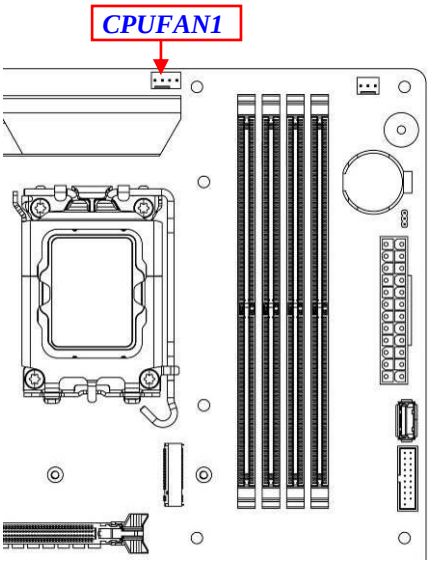
This is a new defined 8-pin connector that usually comes with ATX Power Supply that supports extra 12V voltage to maintain system power consumption. Without this connector might cause system unstable because the power supply can not provide sufficient current for system.

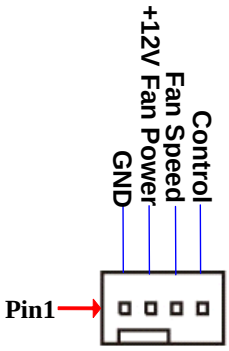




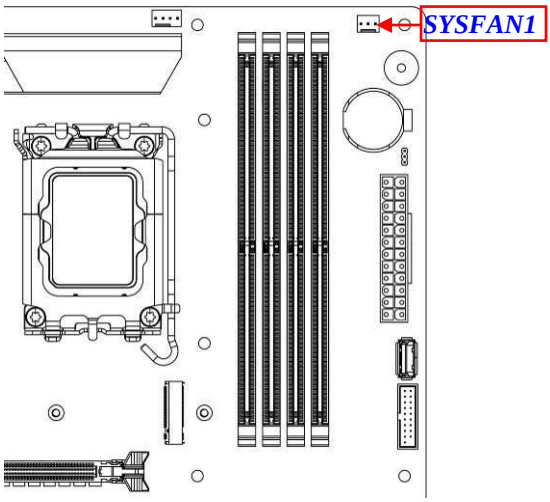
Pin	Definition	No.	Definition
1	GND	5	+12V
2	GND	6	+12V
3	GND	7	+12V
4	GND	8	+12V

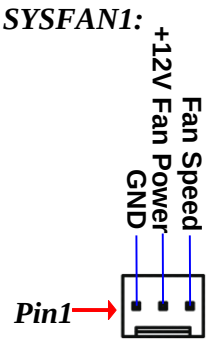
(3) CPUFAN1(4-pin): CPU Fan Connector



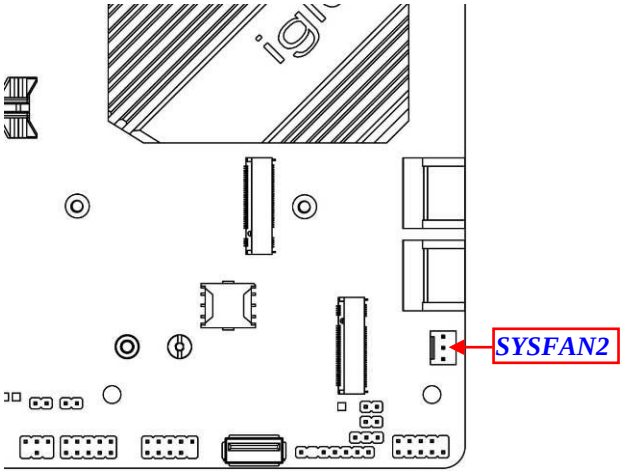


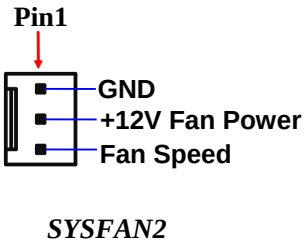
(4) SYSFAN1 (3-pin): System Fan1 Connector





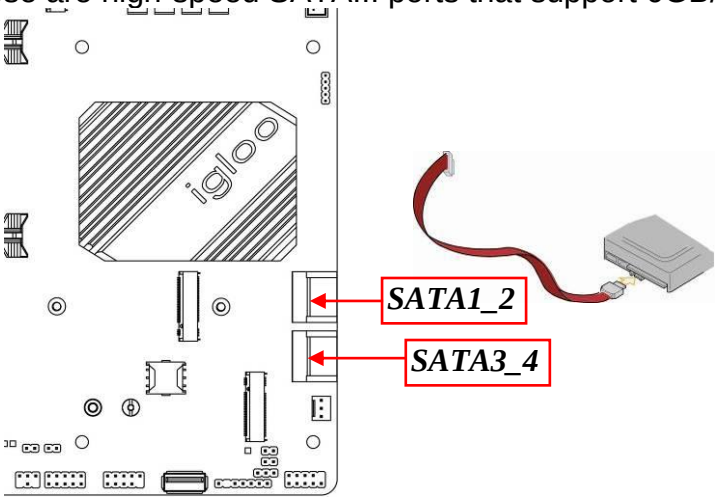
(5) SYSFAN2 (3-pin): System Fan2 Connector





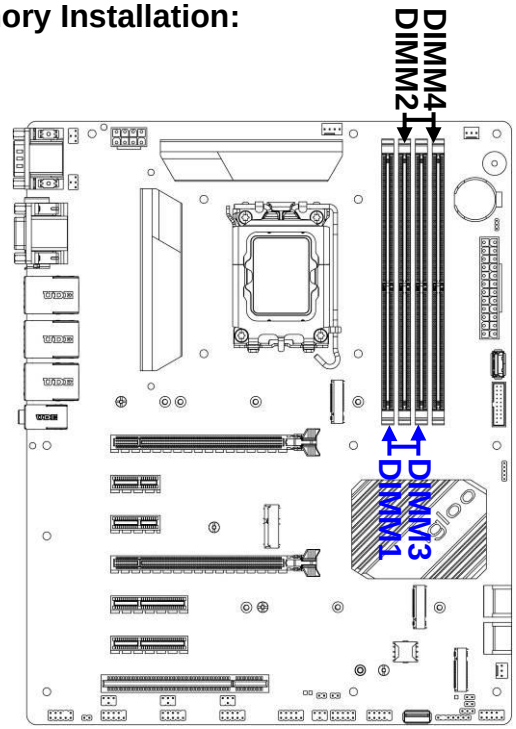
(6) SATA1_2 & SATA3_4(7-pin): SATAIII Port connector

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



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

(7) Dual Channel Memory Installation:



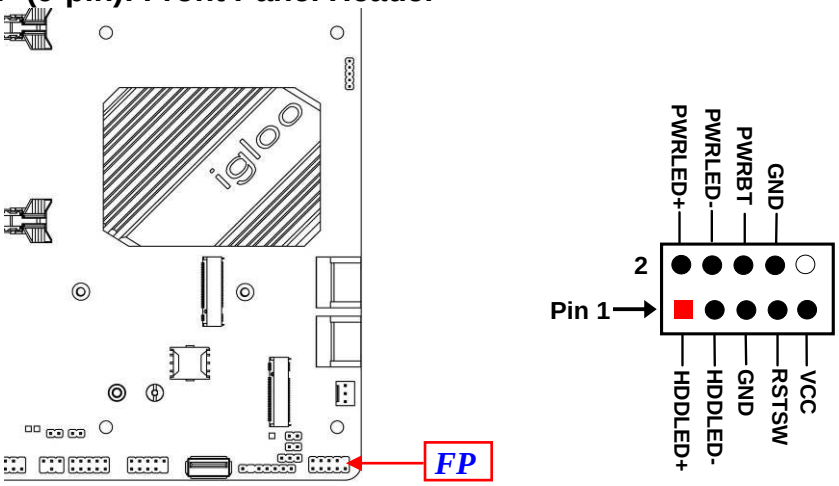
Configuration	*DIMM1*	*DIMM2*	*DIMM3*	*DIMM4*
1	install	--	install	--
2	--	install	--	install
3	install	install	install	install

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.

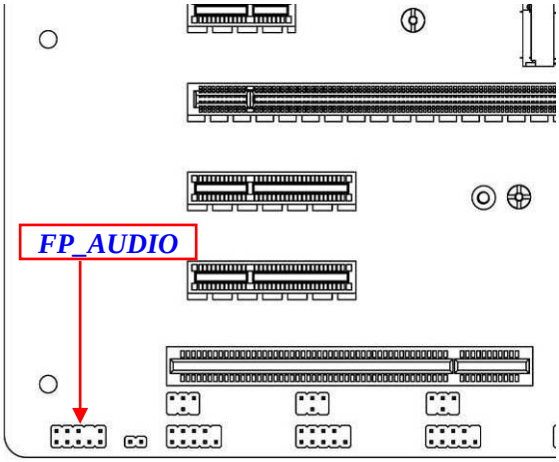
2-2-3 Header Pin Definition

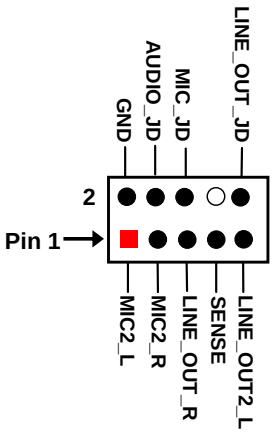
(1) FP (9-pin): Front Panel Header



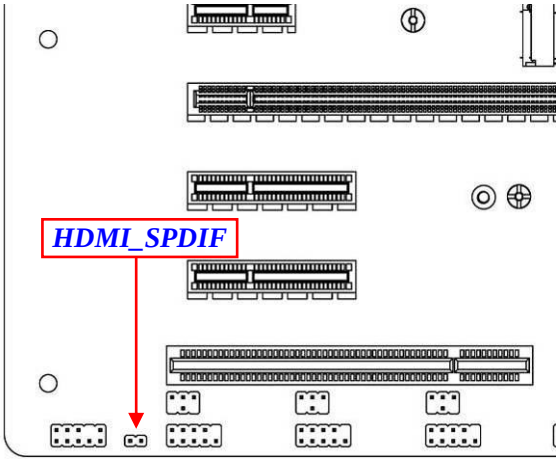
(2) FP_AUDIO (9-pin): Line-Out, MIC-In Header

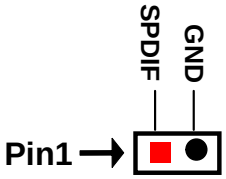
This header is connected to Front Panel Line-out, MIC connector with cable.



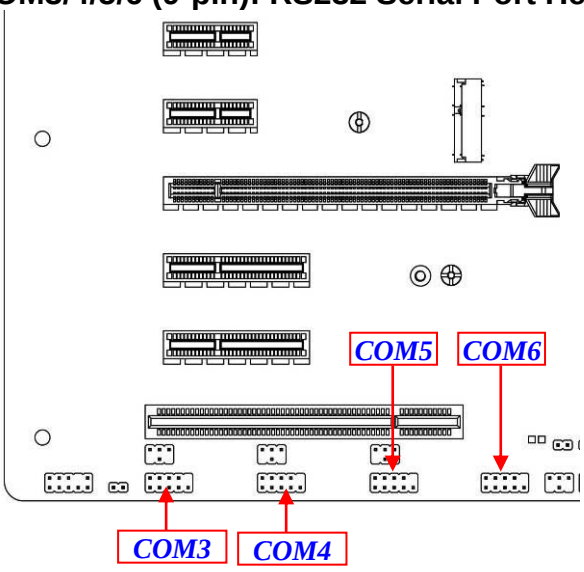


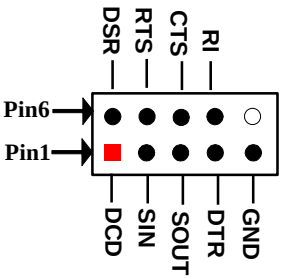
(3) HDMI_SPDIF (2-pin): HDMI-SPDIF Out header



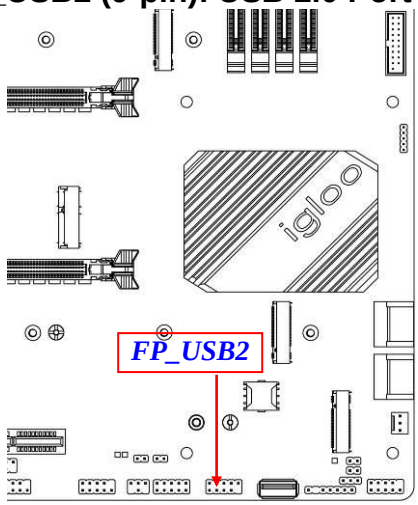


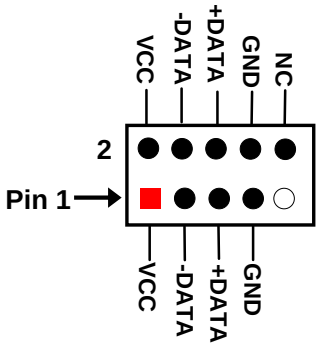
(4) COM3/4/5/6 (9-pin): RS232 Serial Port Header





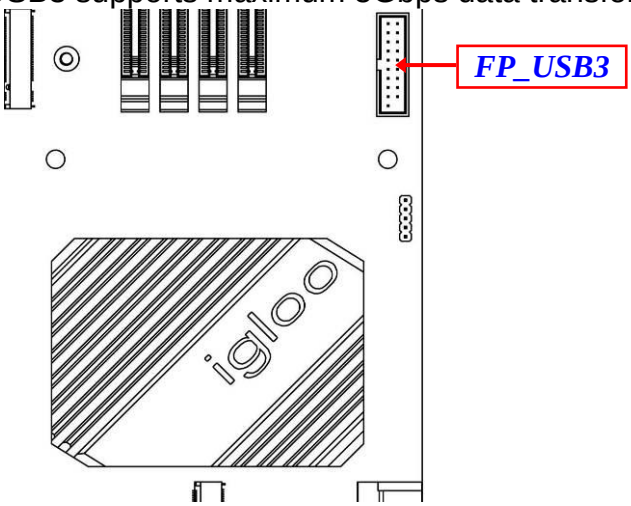
(5) FP_USB2 (9-pin): USB 2.0 Port Header

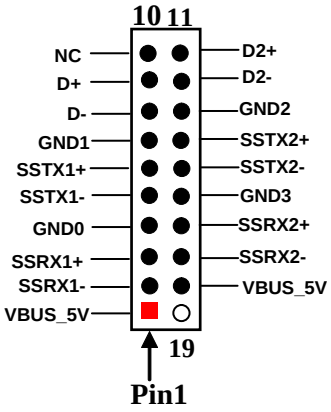




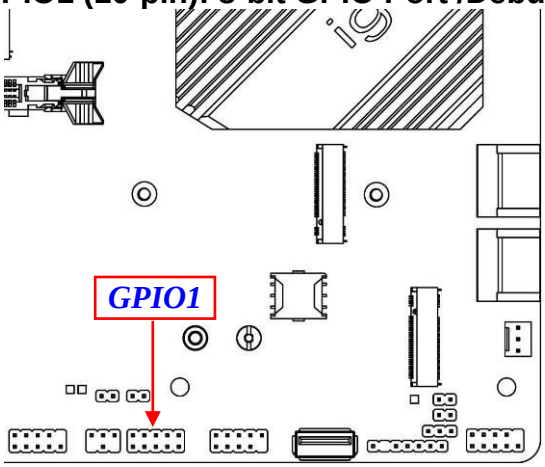
(6) FP_USB3(19-pin):USB 3.2(Gen.1) Port Header

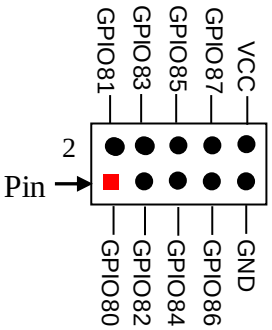
FP_USB3 supports maximum 5Gbps data transfer rate due to hardware restrictions.





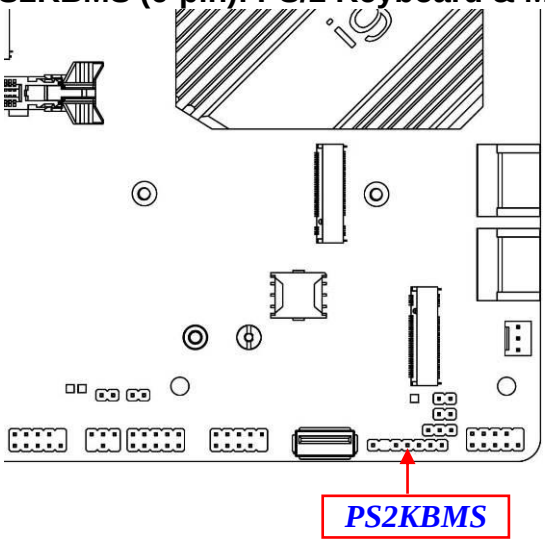
(7) GPIO1 (10-pin): 8-bit GPIO Port /Debug Port Header

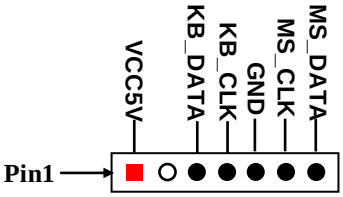




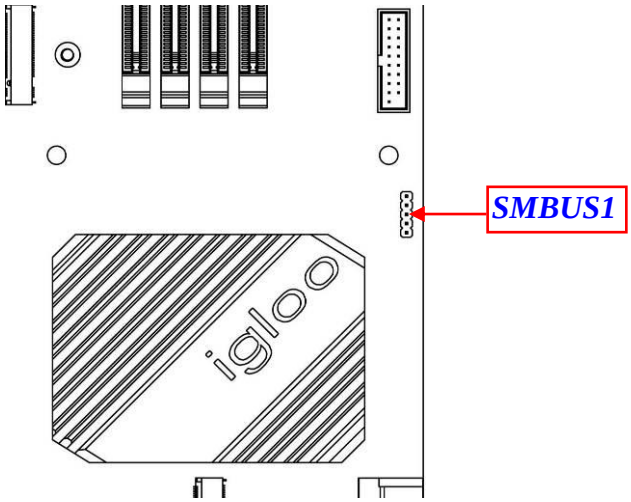
Note*: GPIO1** *can function as Debug display port or GPIO port via* ***JP2 *jumper setting (refer to* ***Page-8*** *for JP2 description).*

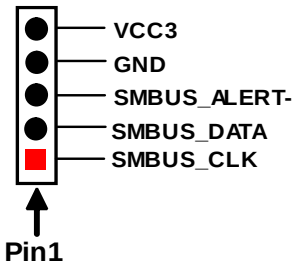
(8) PS2KBMS (6-pin): PS/2 Keyboard & Mouse Header





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





2-3 Maximum Voltage & Current Limit

Below is a list of maximum voltage & Current Limit specification for motherboard interface (including but not limited to slots, connectors and headers) for setup reference:

Parts		Working Voltage	Current Support
USB Ports from	***UL1***	5V	2A
	UL2	5V	2A
	UL3	5V	2A
	USB3	5V	2A
	REFLASH_USB	5V	2A
	FP_USB2	5V	2A
	FP_USB3	5V	2A
FP		5V	1A
COM1_2/3/4/5/6		5V/12V (via jumper setting)	0.5A
GPIO1		5V	1A
PS2KBMS		5V	0.5A
SMBUS1		3.3V	0.5A
SYSFAN1/2/CPUFAN1		12V	1.5A
M2M1		3.3V	2A
M2M2		3.3V	2A
M2E1		3.3V	2A
M2B1		3.3V	2A

Chapter 3
Introducing BIOS

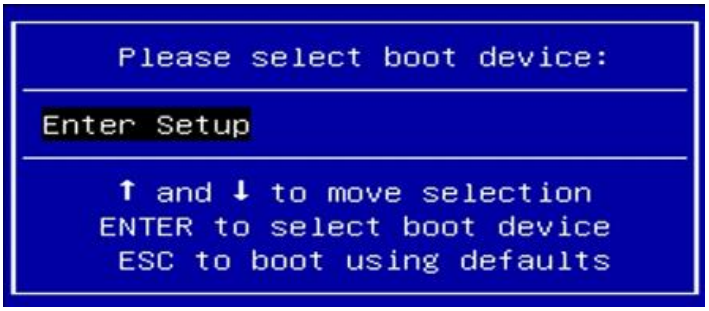
Notice!	The BIOS options in this manual are for reference only. Different configurations may lead to difference in BIOS screen and BIOS screens in manuals are usually the first BIOS version when the board is released and may be different from your purchased motherboard. Users are welcome to download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

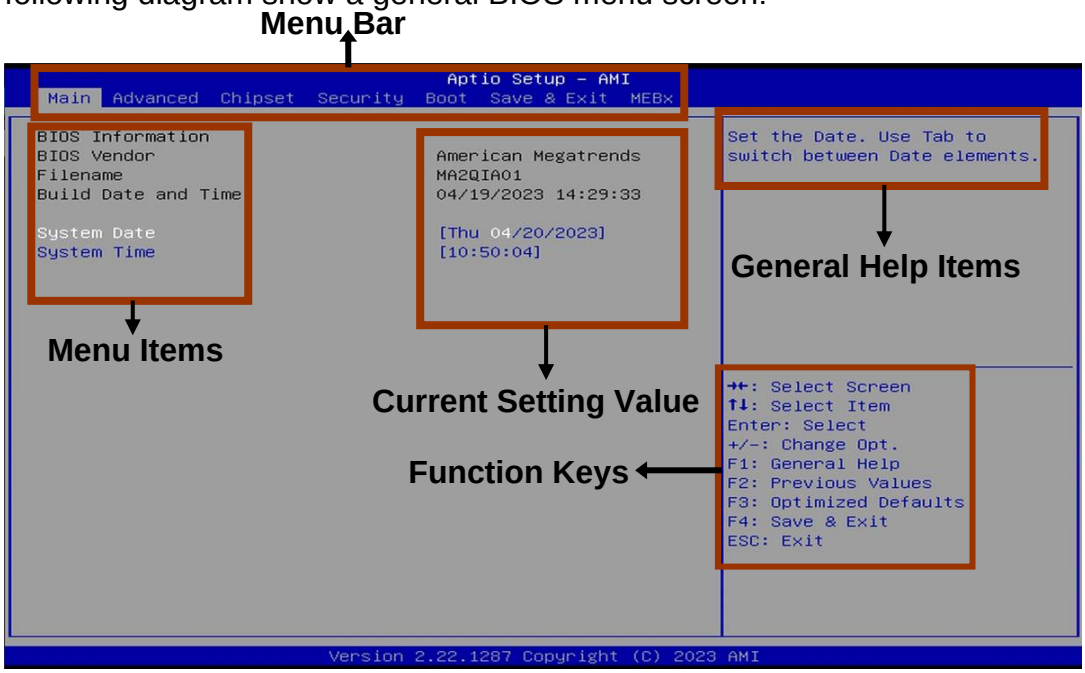
Power on the computer and by pressing <Del> immediately allows you to enter Setup. If the message disappears before your respond and you still wish to enter Setup, restart the system to try again by turning it OFF then ON or pressing the “RESET” button on the system case. You may also restart by simultaneously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



3-2 BIOS Menu Screen

The following diagram show a general BIOS menu screen:



3-3 Function Keys

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

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

3-4 Getting Help

Main Menu

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

Status Page Setup Menu/Option Page Setup Menu

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

3-5 Menu Bars

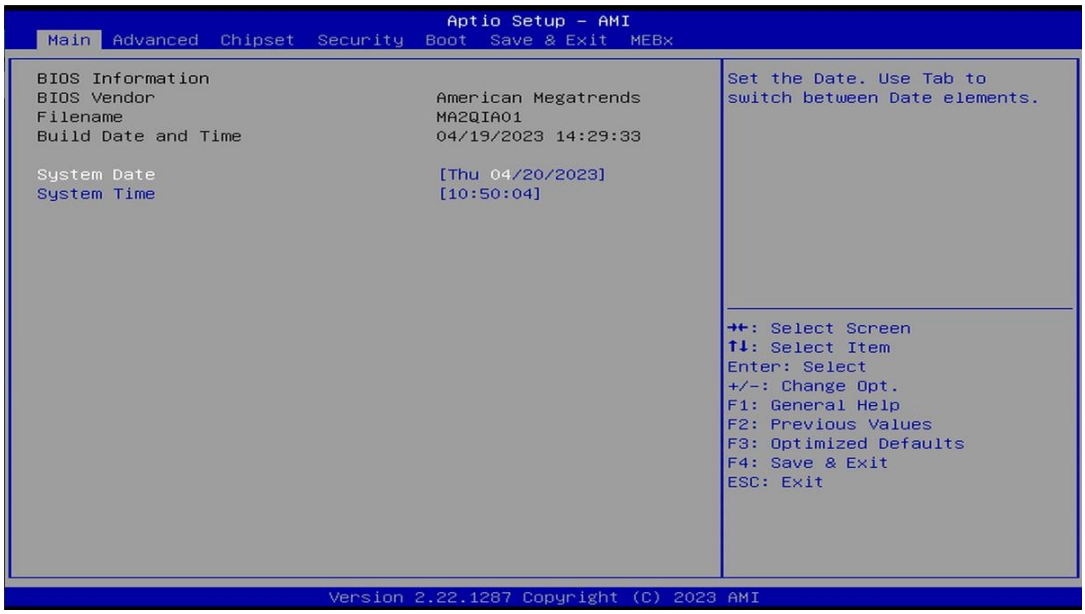
There are six menu bars on top of BIOS screen:

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.



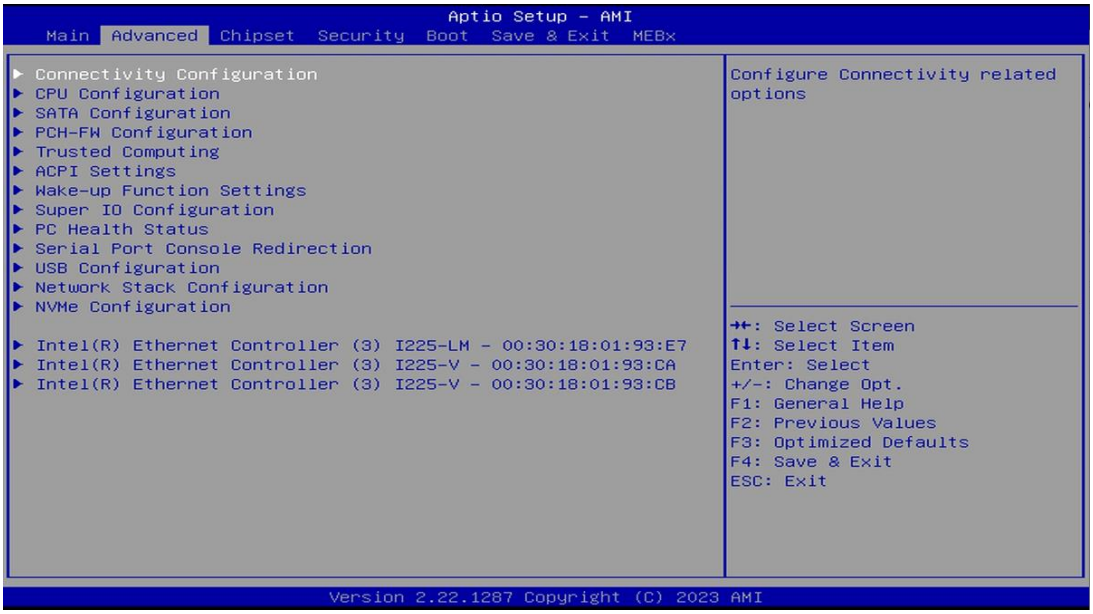
System Date

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**
  Press [Enter] to make settings for the following sub-item:
  CNVi Mode
  This option configures connectivity.
  [Auto Detection] means that if Discrete solution is discovered it will be enabled by default. Otherwise integrated solution (CNVi) will be enabled；
  [Disable Integrated] disables Integrated solution
  The optional settings are: [Disable Integrated]; [Auto Detection]
- **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
  When enabled, a VHM can utilize the additional hardware capabilities provided by Vanderpool Technology.
  The optional settings: [Disabled]; [Enabled].
  Intel (R) SpeedStep ™
  Use this item to allows more than two frequency ranges to be supported.
  The optional settings: [Disabled]; [Enabled].
  C states
  Use this item to enable/disable CPU Power management. 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/disable processor turbo mode (requires EMTTM enabled too). AUTO means enabled.
  The optional settings: [Disabled]; [Enabled].
- **SATA Configuration**

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

SATA Controller(s)

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

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

M.2

Port

Use this item to enable or disable SATA Port

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

SATA1/2/3/4

Port

Use this item to enable or disable SATA Port

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

Hot Plug

Use this item to designates this port as Hot Pluggable.

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

- **PCH-FW Configuration**

  Use this item to configure Management engine technology parameters

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

  TPM Device Selection

  Use this item to selects TPM device: PTT or dTPM. PTT- Enables PTT in SkuMgr dTPM 1.2 – Disables PTT in SkuMgr Warning! PTT/dTPM will be disabled and all data saved on it will be lost

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

- **Firmware Update Configuration**

  Use this item to configure management engine technology parameters.

  Me FW Image Re-Flash

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

  The optional settings: [Disabled]; [Enabled]

- **Trusted Computing**

  Press [Enter] to view ME information and make settings in the following sub-items:

  Security Device Support

  Use this item to enables or disables 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 settings in the following items that appear:

  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

  TPM Device Selection

  Use this item to selects TPM device: PTT or dTPM. PTT-Enables PTT in SkuMgr Dtpm 1.2 – Disables PTT in SkuMgr Warning! PTT/dTPM will be disabled and all data saved on it will be lost

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

- **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**

  Wake-up System With Fixed Time

  Use this item to enable or disable system wake on alarm event. When enabled, system will wake on the hr: min: sec specified

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

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

This item will only show when* *'Wake-up System With Fixed Time'*** *is set as [Disabled].*

Use this item to enable or disable system wake on alarm event. When enabled, system will wake on the current time + Increase minute(s)

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

Wake-up Minute Increase

Use this item to select 1-60

PS2 KB/MS Wake-up

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

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

PCIE Wake-up from S3-S5

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

USB S3/S4 Wake-up

Use this item to enable or disable USB S3/S4 Wake-up Support only disable ERP function

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

USB S5 Power

Use this item to USB Power after system shutdown support only isable ERP function

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

- **Super IO Configuration**

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

Super IO Configuration

ERP Support

Use this item to energy-related products function. Disable ERP to active all wake-up function.

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

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

  Change Settings

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

  The optional settings are: [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

  Use this item to RS232/RS422/RS485 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: [Disabled]; [Enabled].

  Change Settings

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

  The optional settings are: [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

  Use this item to RS232/RS422/RS485 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: [Disabled]; [Enabled].

  Change Settings

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

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

Change Settings
Use this item to select an optimal setting for super IO device.
The optional settings are: [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];

- **Serial Port 5 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: [Disabled]; [Enabled].
  Change Settings
  Use this item to select an optimal setting for super IO device.
  The optional settings are: [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];
- **Serial Port 6 Configuration**
  Press [Enter] to make settings for the following items:
  Serial Port
  Use this item to enable or disable serial port (COM).
  The optional settings: [Disabled]; [Enabled].
  Change Settings
  Use this item to select an optimal setting for super IO device.
  The optional settings are: [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];

WatchDog Reset Timer
Use this item to support WDT reset function.
The optional settings: [Disabled]; [Enabled].
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.]
When ERP Support is set to [Auto], users can set in the following items that appear:

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 Pin 1&2 of for 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 ***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 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 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.

▸ **Serial Port Console Redirection**

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

COM1

Console Redirection

Use this item to Console Redirection enable or disable.

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

When set as **[Enabled**], user can make further settings in the '**Console Redirection Settings**' screen:

▸ **Console Redirection Settings**

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

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

Terminal Type

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

[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].

Legacy OS Redirection Resolution

On Legacy OS, the Number of Rows and Columns supported redirection.
The optional settings: [80x24]; [80x25].

Putty KeyPad

Use this item to select Function Key and KeyPad on Putty.
The optional settings: [VT100]; [LINUX]; [XTERMR6]; [SCO]; [ESCN]; [VT400].

- **Legacy Console Redirection Settings**

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

Redirection COM Port

Use this item to select a COM port to display redirection of Legacy OS and Legacy OPROM Messages
The optional settings: [COM1]

Resolution

Use this item to on legacy OS, the number of rows and columns supported redirection
The optional settings: [80x24]; [80x25]

Redirect After POST

When bootloader is selected, then legacy console redirection is disabled

before booting to legacy OS. When always enable is selected, the legacy console redirection is enabled for legacy OS. Default setting for this option is set to always enable.
The optional settings: [Always Enable]; [BootLoader]

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

Console Redirection EMS
The optional settings: [Disabled]; [Enabled].
When set as **[Enabled]**, user can make further settings in '**Console Redirection Settings**' screen:

- **Console Redirection Settings**

The settings specify how the host computer and the remote computer (which the user is using) will exchange data. Both computers should have the same or compatible settings.
Press [Enter] to make settings for the following sub-items.

Terminal Type
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
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 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

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 delay and time-out

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 PXE boot option will not be created.
  The optional settings: [Disabled]; [Enabled].
  Ipv6 PXE Support
  Use this item to enable IPv6 PXE Boot Support. When set as [Disabled], IPv6 PXE boot option will not be created.
  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.
  Media detect count

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

- **NVMe Configuration**

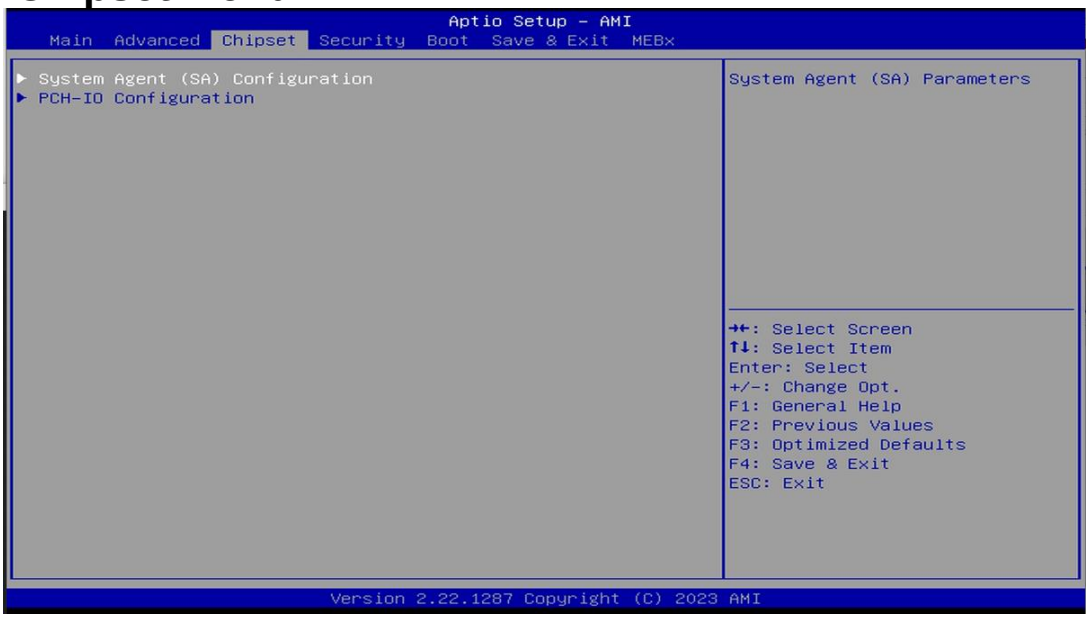
  Use this item to NVMe Device options settings

- **Intel(R) Ethernet Controller(3) I225-LM - XX:XX:XX:XX:XX:XX**
  This item shows current network brief information.

- **Intel(R) Ethernet Controller(3) I225-V - XX:XX:XX:XX:XX:XX**
  This item shows current network brief information.

- **Intel(R) Ethernet Controller(3) I225-V - XX:XX:XX:XX:XX:XX**
  This item shows current network brief information.

3-8 Chipset Menu



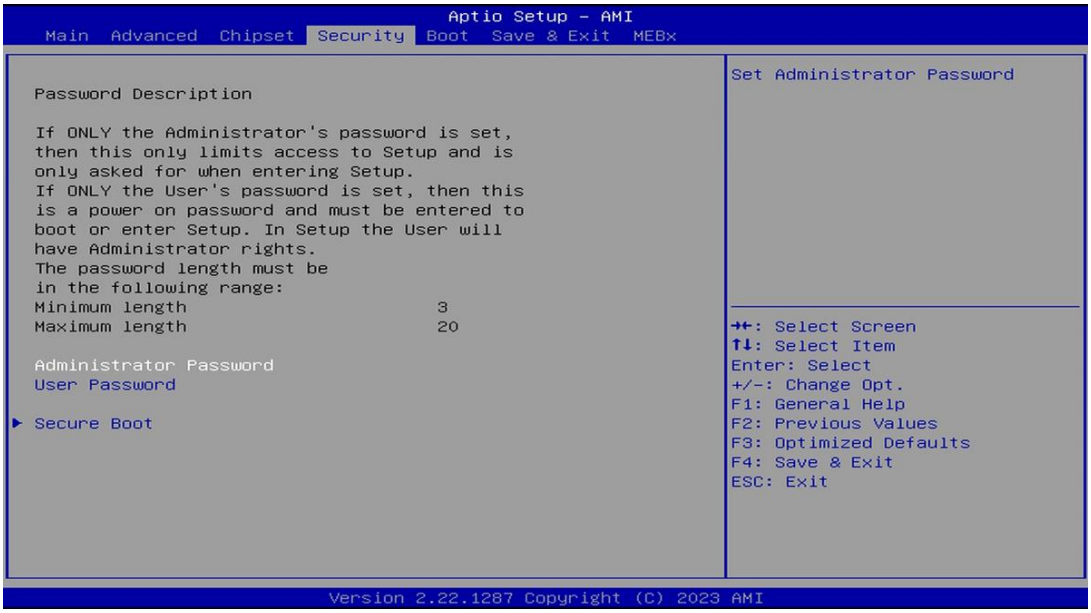
- **Memory Configuration**
  Maximum Memory Frequency
  Use this item to maximum memory frequency selections in Mhz
  The optional settings are: [Auto]; [4000]; [4400] ; [4800] ; [5000] ; [5200] ; [5400] ; [5600]

- **Graphics Configuration**
  Press [Enter] to make settings for the following sub-items:
  PCIE1 Slot
  Use this item to control the PCI Express root port
  The optional settings: [Disabled]; [Enabled].
  PCIE1 Slot Lane Select
  The optional settings: [X16]; [X8/X8].
  Primary Display
  Use this item to select which graphics device should be primary display
  The optional settings: [Auto]; [IGFX]; [PEG Slot]; [PCH PCIE]
  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]
  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]; [128M]
  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: [128M]; [256M]; [Max]

- **VMD setup menu**
  Press [Enter] to make settings for the following sub-items:
  Enable VMD controller
  Use this item to enable/disable to VMD controller
  The optional settings: [Disabled]; [Enabled].
  When set as [Enabled], the following sub-items shall appear:
  Enable VMD Global Mapping
  Use this item to enable/disable to VMD global mapping
  The optional settings: [Disabled]; [Enabled].
  When set as [Disabled], the following sub-items shall appear:
  Map this Root Port under VMD
  Use this item to Map/UnMap this root port to VMD
  The optional settings: [Disabled]; [Enabled].
  Root Port BDF details
- **PCH-IO Configuration**
  Press [Enter] to make settings for the following sub-items:
  HD Audio
  Use this item to control detection of the HD-Audio device.
  Disabled= HAD will be unconditionally disabled
  Enabled= HAD will be unconditionally enabled
  The optional settings: [Disabled]; [Enabled].
  Onboard Lan1 Controller
  Use this item to enable or disable onboard NIC.
  The optional settings: [Enabled]; [Disabled].
  Onboard Lan2 Controller
  Use this item to enable or disable Device or Controller.
  The optional settings: [Disabled]; [Enabled].
  Onboard Lan3 Controller
  Use this item to enable or disable Device or Controller.
  The optional settings: [Disabled]; [Enabled].
  System State after Power Failure
  Use this item to specify what state to go to when power re-applied after a power failure (G3 state).
  The optional settings: [Always Off]; [Always On]; [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 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**

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

- **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**

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**
- **Restore DB defaults**

Use this item to restore DB variable to factory defaults.

Secure Boot variable/Size/Keys/Key Source

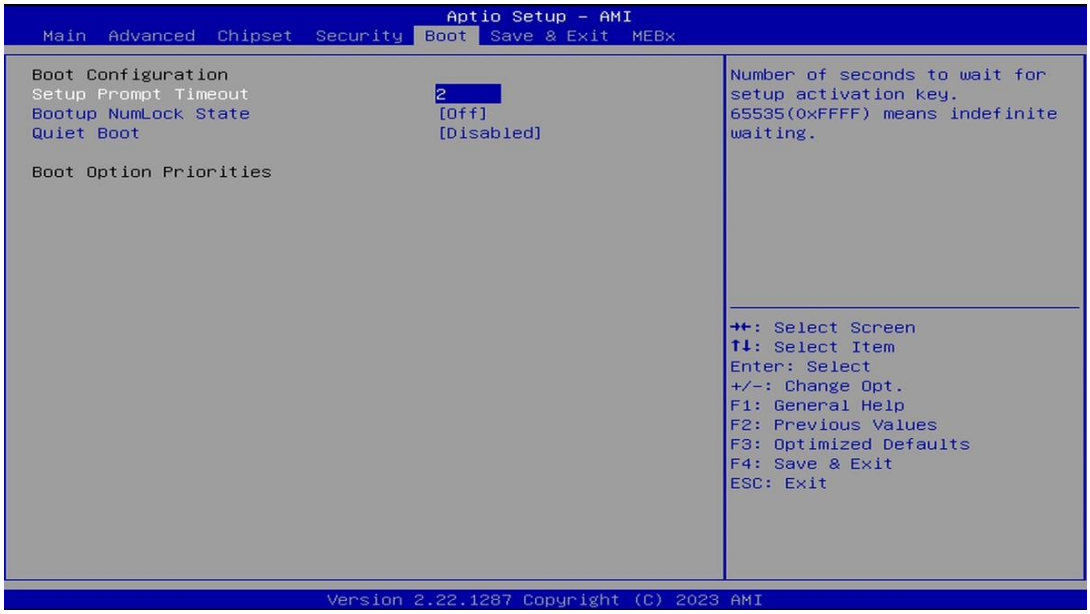
- **Platform Key(PK)/Key Exchange Keys/Authorized Signatures/Forbidden Signatures/ Authorized TimeStamps/OsRecovery Signatures**

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

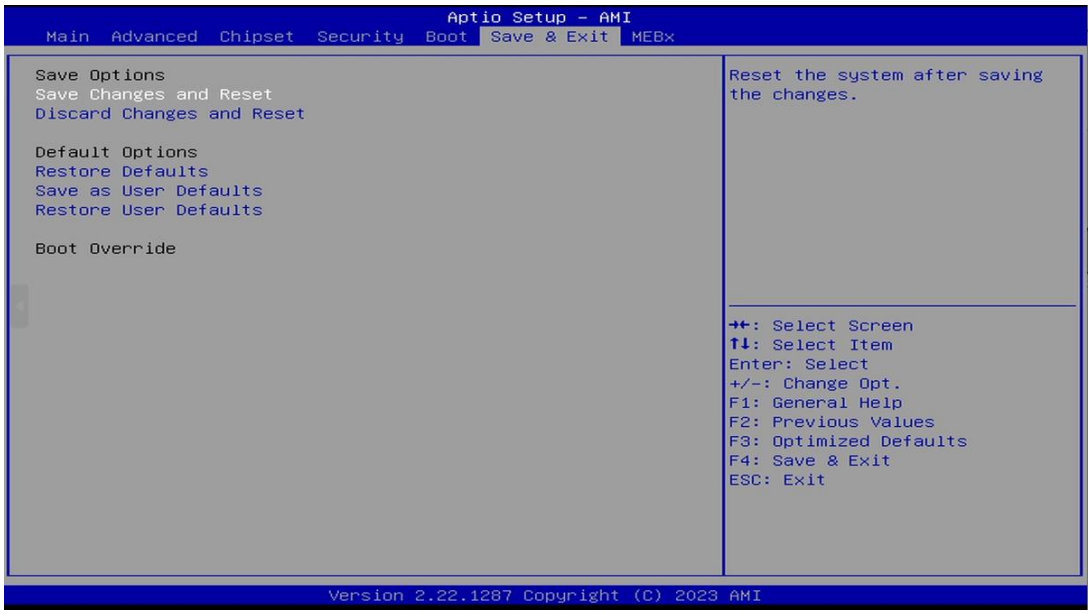


Boot Configuration

- **Setup Prompt Timeout**
  Use this item to set number of seconds to wait for setup activation key.
- **Bootup Numlock State**
  Use this item to select keyboard numlock state.
  The optional settings are: [On]; [Off].
- **Quiet Boot**
  The optional settings are: [Disabled]; [Enabled].
  When set as [Enabled], user can make settings in the following items that appear:

Boot Option Priorities

3-11 Save & Exit Menu



- **Save Changes and Reset**
  This item allows user to reset the system after saving the changes.
- **Discard Changes and Reset**
  This item allows user to reset the system without saving any changes.
- **Restore Defaults**
  Use this item to restore /load default values for all the setup options.
- **Save as User Defaults**
  Use this item to save the changes done so far as user defaults.
- **Restore User Defaults**
  Use this item to restore defaults to all the setup options.

  Boot Override

3-12 MEBx

- **Intel(R) ME Password**
  Use this item to MEBx Login.