RX610H

12th/13th Gen Intel® Core™ Processors Micro ATX Motherboard with Intel® H610E Chipset

User's Manual

1st Ed –29 January 2024

Part No. E2047RX6H00R

FCC Statement

THIS DEVICE COMPLIES WITH PART 15 FCC RULES. OPERATION IS SUBJECT TO THE FOLLOWING TWO CONDITIONS:

(1) THIS DEVICE MAY NOT CAUSE HARMFUL INTERFERENCE.

(2) THIS DEVICE MUST ACCEPT ANY INTERFERENCE RECEIVED INCLUDING INTERFERENCE THAT MAY CAUSE UNDESIRED OPERATION.

THIS EQUIPMENT HAS BEEN TESTED AND FOUND TO COMPLY WITH THE LIMITS FOR A CLASS "A" DIGITAL DEVICE, PURSUANT TO PART 15 OF THE FCC RULES.

THESE LIMITS ARE DESIGNED TO PROVIDE REASONABLE PROTECTION AGAINST HARMFUL INTERFERENCE WHEN THE EQUIPMENT IS OPERATED IN A COMMERCIAL ENVIRONMENT. THIS EQUIPMENT GENERATES, USES, AND CAN RADIATE RADIO FREQUENCY ENERGY AND, IF NOT INSTALLED AND USED IN ACCORDANCE WITH THE INSTRUCTION MANUAL, MAY CAUSE HARMFUL INTERFERENCE TO RADIO COMMUNICATIONS.

OPERATION OF THIS EQUIPMENT IN A RESIDENTIAL AREA IS LIKELY TO CAUSE HARMFUL INTERFERENCE IN WHICH CASE THE USER WILL BE REQUIRED TO CORRECT THE INTERFERENCE AT HIS OWN EXPENSE.

Notice

This guide is designed for experienced users to setup the system within the shortest time. For detailed information, please always refer to the electronic user's manual.

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1. Life support devices or systems are devices or systems which, (a) are intended for surgical implant into body, or (b) support or sustain life and whose failure to perform, when properly used in accordance with instructions for use provided in the labeling, can be reasonably expected to result in significant injury to the user.
2. A critical component is any component of a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or system, or to affect its safety or effectiveness.

A Message to the Customer

Avalue Customer Services

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We want you to get the maximum performance from your products. So if you run into technical difficulties, we are here to help. For the most frequently asked questions, you can easily find answers in your product documentation. These answers are normally a lot more detailed than the ones we can give over the phone. So please consult the user's manual first.

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Product Warranty

Avalue warrants to you, the original purchaser, that each of its products will be free from defects in materials and workmanship for two years from the date of purchase.

This warranty does not apply to any products which have been repaired or altered by persons other than repair personnel authorized by Avalue, or which have been subject to misuse, abuse, accident or improper installation. Avalue assumes no liability under the terms of this warranty as a consequence of such events. Because of Avalue's high quality-control standards and rigorous testing, most of our customers never need to use our repair service. If any of Avalue's products is defective, it will be repaired or replaced at no charge during the warranty period. For out-of-warranty repairs, you will be billed according to the cost of replacement materials, service time, and freight. Please consult your dealer for more details. If you think you have a defective product, follow these steps:

1. Collect all the information about the problem encountered. (For example, CPU type and speed, Avalue's products model name, hardware & BIOS revision number, other hardware and software used, etc.) Note anything abnormal and list any on-screen messages you get when the problem occurs.
2. Call your dealer and describe the problem. Please have your manual, product, and any helpful information available.
3. If your product is diagnosed as defective, obtain an RMA (return material authorization) number from your dealer. This allows us to process your good return more quickly.
4. Carefully pack the defective product, a complete Repair and Replacement Order Card and a photocopy proof of purchase date (such as your sales receipt) in a shippable container. A product returned without proof of the purchase date is not eligible for warranty service.
5. Write the RMA number visibly on the outside of the package and ship it prepaid to your dealer.

Content

1. Getting Started

1.1 Safety Precautions

Warning!

Always completely disconnect the power cord from your chassis whenever you work with the hardware. Do not make connections while the power is on. Sensitive electronic components can be damaged by sudden power surges. Only experienced electronics personnel should open the PC chassis.

Caution!

Always ground yourself to remove any static charge before touching the CPU card. Modern electronic devices are very sensitive to static electric charges. As a safety precaution, use a grounding wrist strap at all times. Place all electronic components in a static-dissipative surface or static-shielded bag when they are not in the chassis.

1.2 Packing List

Before you begin installing your single board, please make sure that the following materials have been shipped:

- 1 x RX610H Motherboard
- 1 x I/O Shield

If any of the above items is damaged or missing, contact your retailer.

1.3 Document Amendment History

Revision	Date	By	Comment
1st	January 2024	Avalue	Initial Release

1.4 Manual Objectives

This manual describes in details Avalue Technology RX610H Single Board.

We have tried to include as much information as possible but we have not duplicated information that is provided in the standard IBM Technical References, unless it proved to be necessary to aid in the understanding of this board.

We strongly recommend that you study this manual carefully before attempting to set up RX610H or change the standard configurations. Whilst all the necessary information is available in this manual we would recommend that unless you are confident, you contact your supplier for guidance.

Please be aware that it is possible to create configurations within the CMOS RAM that make booting impossible. If this should happen, clear the CMOS settings, (see the description of the Jumper Settings for details).

If you have any suggestions or find any errors regarding this manual and want to inform us of these, please contact our Customer Service department with the relevant details.

1.5 System Specifications

System	
CPU	12th/13th Gen. Intel® Core™ i9/i7/i5/i3, Pentium, Celeron Processors, LGA 1700 Socket with Intel® H610E
BIOS	AMI uEFI BIOS, 256Mbit SPI Flash ROM
System Chipset	Intel® H610E chipsets
I/O Chip	Nuvoton NCT6126D (eSPI super IO)
System Memory	2 x DIMM slots support Dual Channel DDR5 memory speed up to 4800MHz with UDIMM, up to 64GB
Watchdog Timer	H/W Reset, 5~255 seconds/5~255 minutes
H/W Status Monitor	CPU temperature monitoring Voltages monitoring CPU fan speed control
TPM	Onboard Infineon® TPM 2.0
Expansion Slot	
M.2	1 x M.2 M-Key 2242/2280/22110 NVMe (PCIe x4 + SATA III) 1 x M.2 E-Key 2230 with CNVi Support (PCIe x 1 share with slot4 + USB 2.0)
PCIe	1 x Gen 5 PCIe x16 (x16 Physical Black) (Slot 1) 1 x Gen 3 PCIe x1 (x4 Physical Open Ended) (Slot 2) 2 x Gen 3 PCIe x1 (x16 Physical Yellow) (Slot 3 & 4)
Storage	
M.2	1 x M.2 M-Key 2242/2280/22110 NVMe (PCIe x4 + SATA III)
SATA	3 x SATA III (Red) 1 x SATA III (Black) shared with M.2
Edge I/O	
LAN	1 x Intel® I219-V Gigabit Ethernet Controller 1 x Intel® I225-LM 2.5 Gigabit Ethernet Controller
USB	4 x USB 3.2 Gen1x1 Type-A Connectors +5VSB/0.9A 2 x USB 2.0 Type-A Connectors +5VSB/0.5A
DP	2 x DP++ 1.4a
HDMI	1 x HDMI 2.0b
Audio	1 x Mic-In 1 x Line-Out
GPIO	1 x 8 bits GPIO Header with Shroud +5V, GND
Onboard I/O	
COM	COM1/2/4/5/6 support RS232 (COM1~2/4~6) 5 x RS-232 Headers with Voltage Selection (2.0mm Pitch)

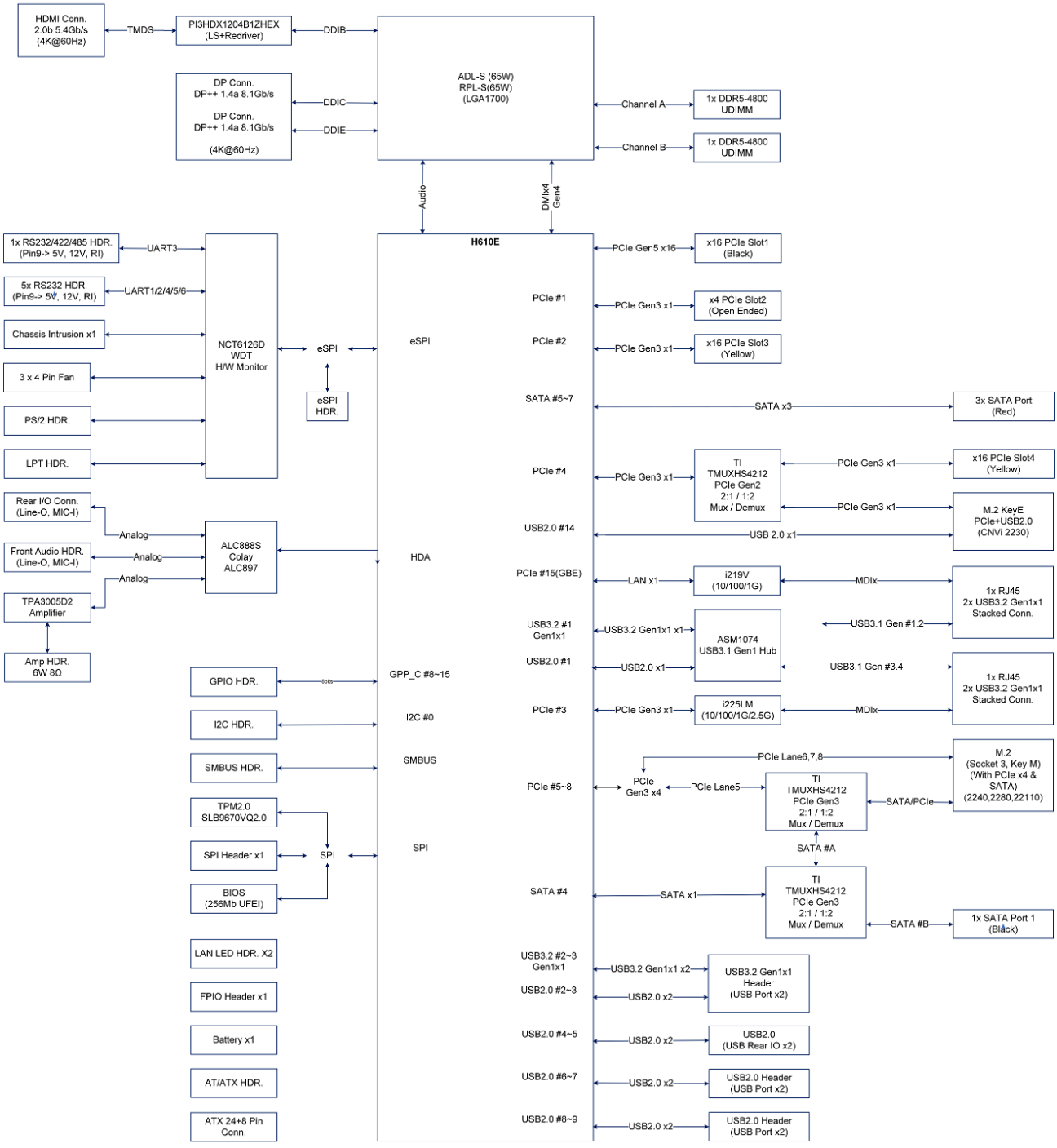
	5 x 2 x 5 pin, pitch 2.00mm connector for COM1~2 and COM4~COM6 to support RS232 5 x 2 x 3 pin, pitch 2.00mm connector for COM1~2 and COM4~COM6 pin9 RI/5V/12V jumper select. Max. 0.9A output COM3: support RS232/422/485 (COM3) 1 x RS-232/422/485 Headers with Voltage Selection (2.0mm Pitch) 1 x 2 x 5 pin, pitch 2.00mm connector for COM3 to support RS232/RS422/RS485 by BIOS Selection 1 x 2 x 3 pin, pitch 2.0mm connector for COM3 pin9 RI/5V/12V jumper select. Max. 0.9A output
USB	1 x 2 x 10 pin, pitch 2.00mm connector for 2 x USB 3.2 Gen 1×1 , +5V, 0.5A (USB78) 2 x 2 x 5 pin, pitch 2.54mm connector for 4 x USB 2.0, +5V, 0.5A (USB910, USB1112)
GPIO	1 x 8 bits GPIO Header with Shroud : 8 bits & +5VS Level (JDIO1)
CPU/System FAN	1 x 1 x 4 pin, pitch 2.54mm CPU fan connector with smart fan function supported (CPU_FAN1) 2 x 1 x 4 pin, pitch 2.54mm System fan connector with smart fan function support (CHA_FAN1, CHA_FAN2) 280mA (3.36 W max.) at 4800rpm or a total of 1A~2.22A (26.64W max.) at +12V
Buzzer	Onboard Buzzer
Front Panel	1 x 2 x 5 pin, pitch 2.54mm connector for front panel (FPANEL1)
RTC Battery	1 x 2-Pin Wafer (1.25mm) Battery 3V/220mAh 20mm CR2032 Lithium Coin Cell
AT/ATX Selector	1 x 3 pin, pitch 2.00mm connector for AT/ATX jumper, Default is ATX (JPSON1) ATX1: 2 x 12 pin ATX power connector ATX12V1: 2 x 4 pin ATX 12V power connector
Clear CMOS	1 x 1 x 3pin, pitch 2.00mm connector for CMOS Clear (CLCMOS1)
BIOS SPI	1 x 2 x 5 pin, pitch 2.00mm connector (ESPI1)
eSPI	1 x 2 x 4 pin, pitch 2.54mm connector for (SPI1)
Audio	1 x 2 x 5 pin, pitch 2.54mm connector for front Audio (FP_AUDIO1) (For Line in, Line out, Mic in)
Amp Connector	1 x 1 x 4 pin, pitch 2.00mm connector for Amplifier (JAMP1)
Other	1 x 1 x 5 pin, pitch 2.00mm connector for SMBus (SMB1) 1 x 1 x 4 pin, pitch 2.00mm connector for I2C (I2C) 1 x 1 x 2 pin, pitch 2.54mm connector for Chassis Intrusion Switch (JCASE1) 1 x 1 x 6 pin, pitch 2.54mm connector for PS/2 KB&MS (KBMS1)

	1 x 2 x 5 pin, pitch 2.54mm connector for LAN LED status connector (LANLED1) 1 x 2 x 13pin, pitch 2.00mm connector for LPT(LPT)
Display	
Graphic Chipset	Intel® 12/13th Gen CPU integrated.
Spec. & Resolution	2 x DP (DP1.4a): Max: 7680 x 4320@60 Hz ; (2 x DP++:4096x2160@60 Hz) 1 x HDMI 2.0b: Max resolution 4K x 2K@60 (with HDR)
Multiple Display	Triple Display
Audio	
Audio Codec	Realtek ALC888S HD Audio Decoding Controller
Amplifier	TI TPA3005D2 Stereo Class-D 6W x 8Ω
Ethernet	
LAN Chipset	1 x Intel® I219-V Gigabit Ethernet Controller 1 x Intel® I225-LM 2.5 Gigabit Ethernet Controller
LAN Spec.	Intel® i219V 10/100/1000 Base-Tx GbE compatible Intel® i225-LM: 10/100/1000/2500 Base-Tx GbE compatible

Note: Specifications are subject to change without notice.

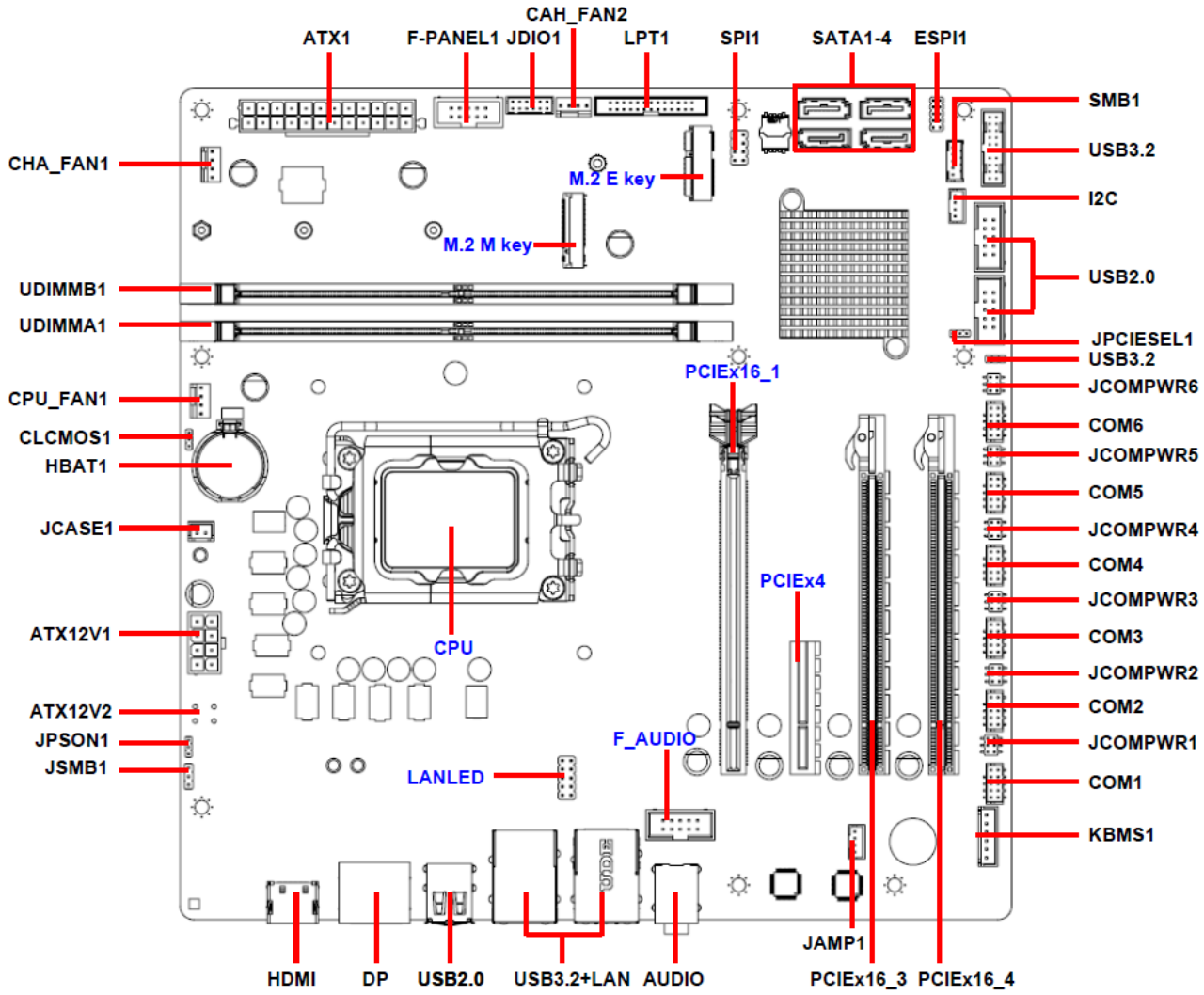
1.6 Architecture Overview—Block Diagram

The following block diagram shows the architecture and main components of RX610H.



2. Hardware Configuration

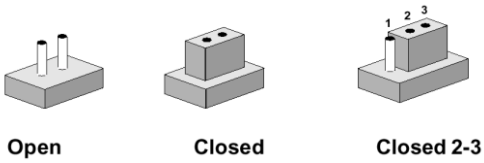
2.1 Product Overview



2.2 Jumper and Connector List

You can configure your board to match the needs of your application by setting jumpers. A jumper is the simplest kind of electric switch.

It consists of two metal pins and a small metal clip (often protected by a plastic cover) that slides over the pins to connect them. To "close" a jumper you connect the pins with the clip. To "open" a jumper you remove the clip. Sometimes a jumper will have three pins, labeled 1, 2, and 3. In this case, you would connect either two pins.



The jumper settings are schematically depicted in this manual as follows:

A pair of needle-nose pliers may be helpful when working with jumpers.

Connectors on the board are linked to external devices such as hard disk drives, a keyboard, or floppy drives. In addition, the board has a number of jumpers that allow you to configure your system to suit your application.

If you have any doubts about the best hardware configuration for your application, contact your local distributor or sales representative before you make any changes.

The following tables list the function of each of the board's jumpers and connectors.

Jumpers

Label	Function	Note
PCISEL1	PCIe Selection	3 x 1 header, pitch 2.0 mm
JPSON1	AT/ATX Mode Select	3 x 1 header, pitch 2.0mm
CLCMOS1	Clear CMOS	3 x 1 header, pitch 2.00mm
JCOMPWR1~6	COM POWER SETTING 1~6	3 x 2 header, pitch 2.0mm

Connectors

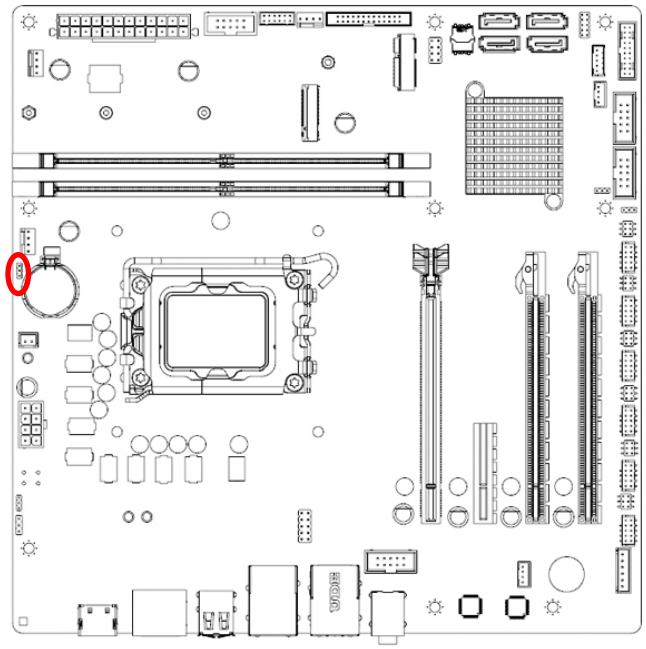
Label	Function	Note
CPU_FAN1	CPU FAN Connector	4 x 1 wafer, pitch 2.54mm
CHA_FAN1	Chassis Fan Connector	4 x 1 wafer, pitch 2.54mm
CHA_FAN2	Chassis Fan Connector	4 x 1 wafer, pitch 2.54mm
JCASE1	Chassis Intrusion Header	2 x 1 wafer, pitch 2.50mm

F_PANEL1	Front Panel Connector	5 x 2 header, pitch 2.54mm
ATX1	ATX Power Connector	12 x 2 wafer, pitch 4.20mm
ATX12V1	12V ATX Power Connector	4 x 2 wafer, pitch 4.20mm
COM1~COM6	Serial Port Connectors	5 x 2 wafer, pitch 2.54mm
SATA1~4	SATA Connectors	Male Connectors (RED)
USB910/USB1112	Front USB 2.0 Headers	5 x 2 header, pitch 2.54mm
USB78	Front USB 3.2 Header	10 x 2 header, pitch 2.00mm
FP_AUDIO1	Front Audio Connector	5 x 2 header, pitch 2.54mm
JAMP1	Amplifier Connector	4 x 1 wafer, pitch 2.00mm
LANLED1	LAN LED Header	5 x 2 header, pitch 2.54mm
SMB1	SM bus connector	5 x 1 wafer, pitch 2.00mm
LPT1	Parallel Port Connector	13 x 2 wafer, pitch 2.00mm
PCIEX16_1	PCIe x16 Gen 5	
PCIEX4_2	PCIe x1 Gen 3	
PCIEX16_3	PCIe x1 Gen 3	
PCIEX16_4	PCIe x1 Gen 3	
KBMS1	KBMS1 connector	
I2C	I2C connector	
SPI1	SPI1 connector	
JDIO1	Digital I/O Connector	
ESPI1	ESPI1 Connector	
UDIMMA1/B1	DDR5 4800 U-DIMM 1/2	
M2E1	M.2 Key E	
M2M1	M.2 Key M	
HDMI1	HDMI port x1	
DP2	Display port x2	
USB56	USB 2.0 connector	
LAN1+ USB12	RJ45 Ethernet Connectors x 1 USB 3.2 Type A Connectors x 2	Gigabit Ethernet
LAN2+ USB34	RJ45 Ethernet Connectors x 1 USB 3.2 Type A Connectors x 2	2.5 Gigabit Ethernet
AUDIO1	Audio Phone Jack	Lin-out, Mic-in

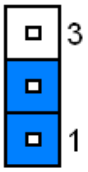
CPU	LGA1700 CPU socket

2.3 Setting Jumpers & Connectors

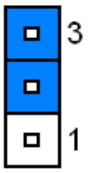
2.3.1 Clear CMOS (CLCMOS1)



Normal*

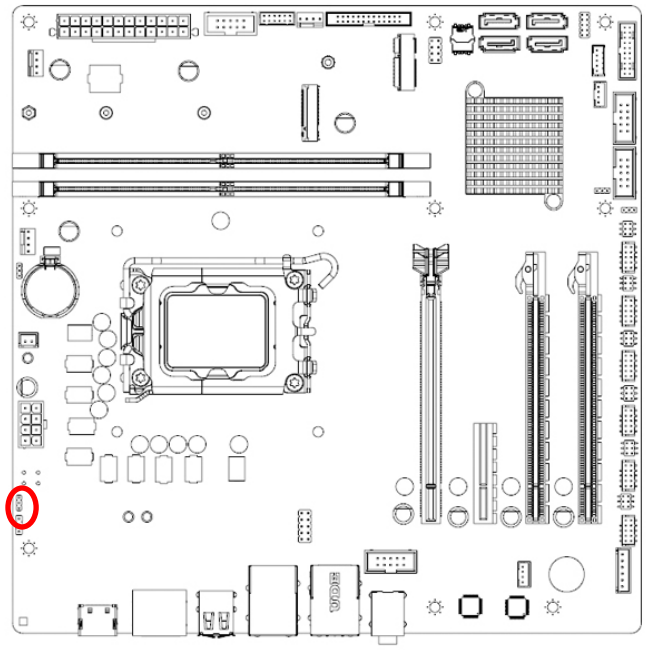


Clear CMOS

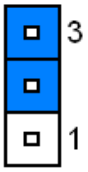


*** Default**

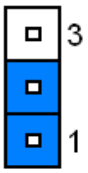
2.3.2 AT/ATX Power Mode Select (JPSON1)



ATX*

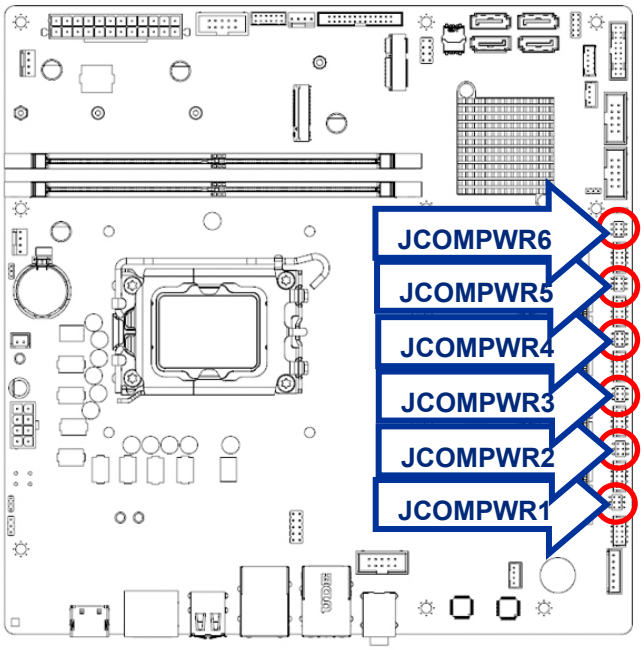


AT

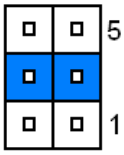


*** Default**

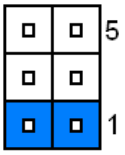
2.3.3 COM POWER SETTING (JCOMPWR1~6)



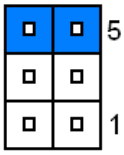
Ring*



+12V



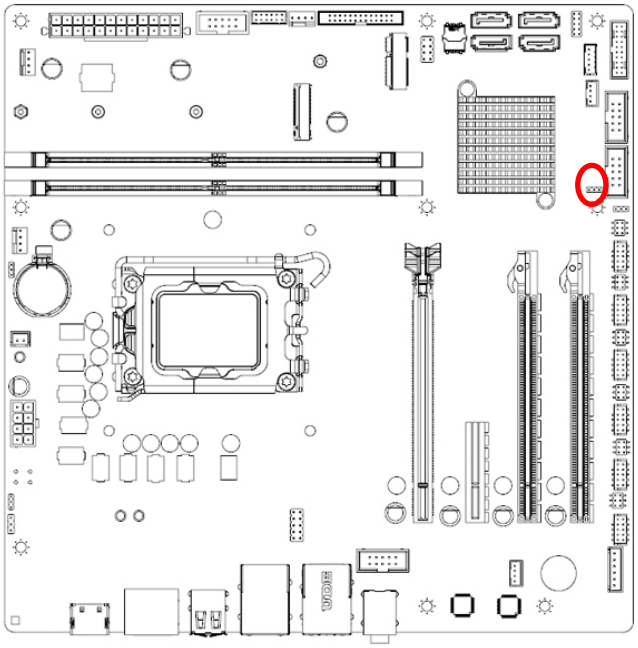
+5V



*** Default**

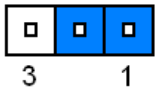
2.3.4 PCIe Selection (PCISEL1)

This jumper allows you to switch PCIe bus between M.2 and PCIe slot.



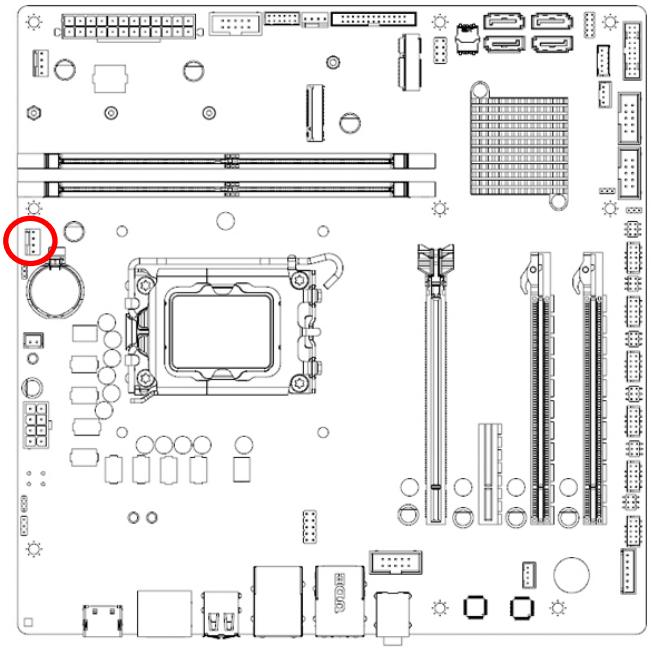
For PCIE slot*

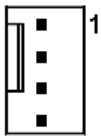
For E key M.2



*** Default**

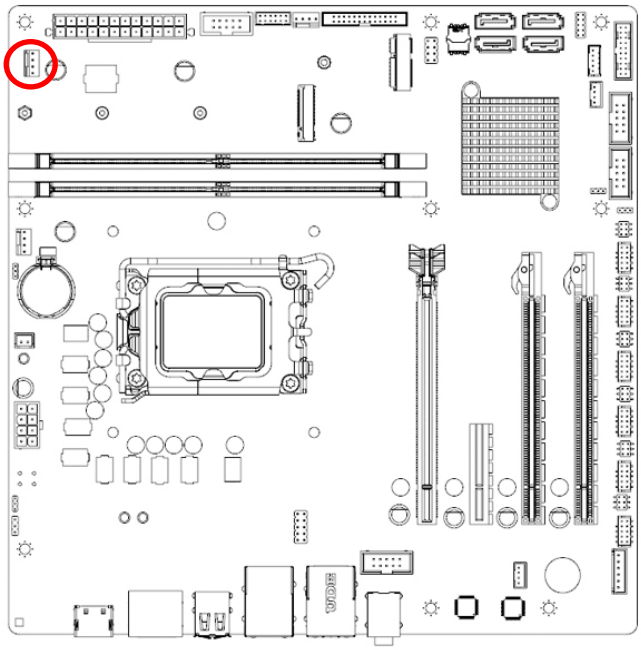
2.3.5 CPU fan connector (CPUFAN1)

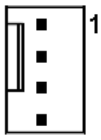




Signal	PIN
GND	1
+12V	2
FAN_SPEED2	3
FAN_PWM1	4

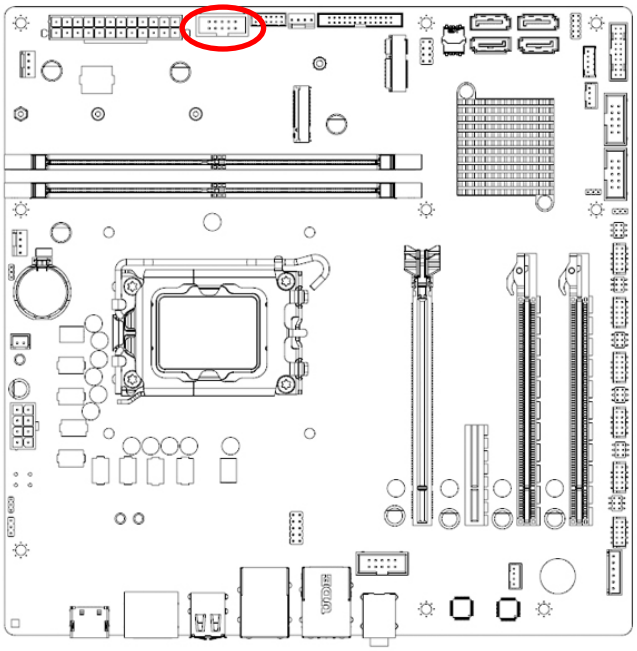
2.3.6 System fan connector (CHA_FAN1)

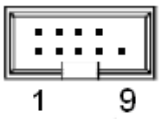




Signal	PIN
GND	1
+12V	2
FAN_SPEED2	3
FAN_PWM2	4

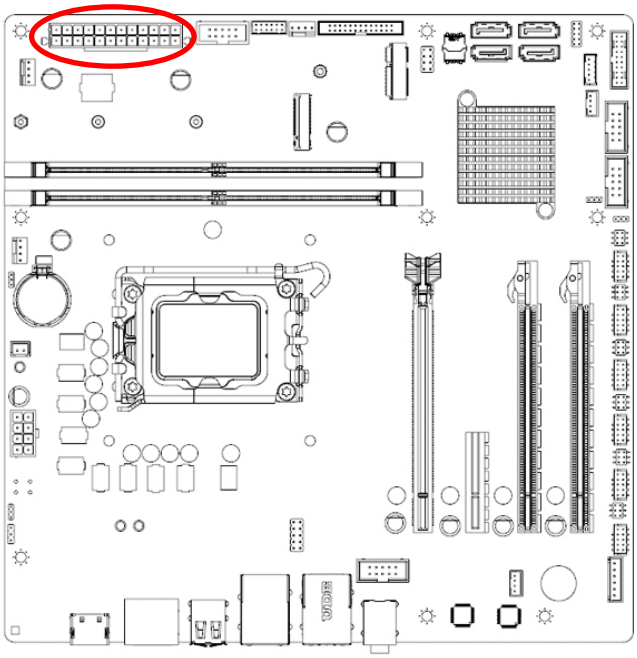
2.3.7 System Panel (F_PANEL1)

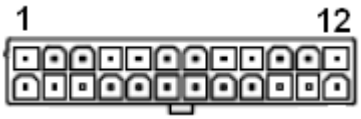




Signal	PIN	PIN	Signal
HHD LED+	1	2	+5V
HHD LED#	3	4	PWR LED#
GND	5	6	PANSWIN#
RST	7	8	GND
NC	9		

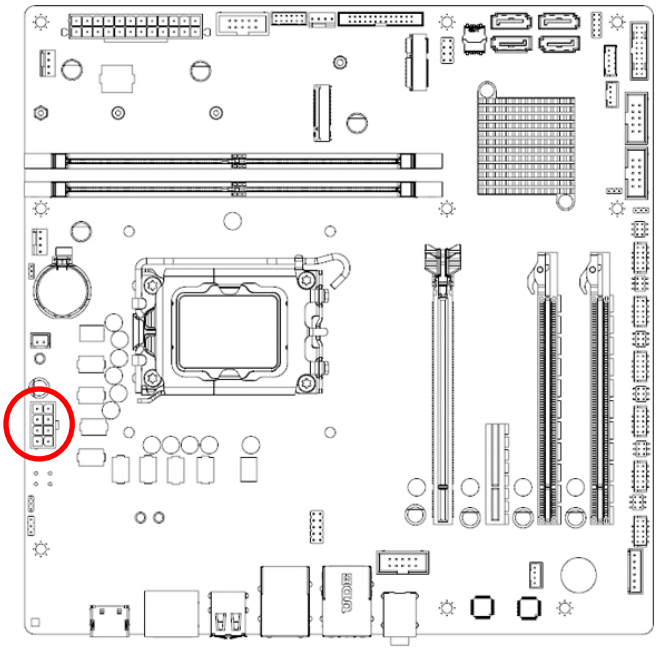
2.3.8 ATX Power connector (ATX1)

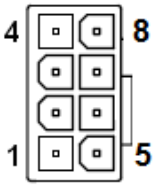




Signal	PIN	PIN	Signal
+3V	1	13	+3V
+3V	2	14	-12V
GND	3	15	GND
+5V	4	16	PS_ON
GND	5	17	GND
+5V	6	18	GND
GND	7	19	GND
PWRER OK	8	20	+5V
+5VSB	9	21	+5V
+12V	10	22	+5V
+12V	11	23	+5V
+3V	12	24	GND

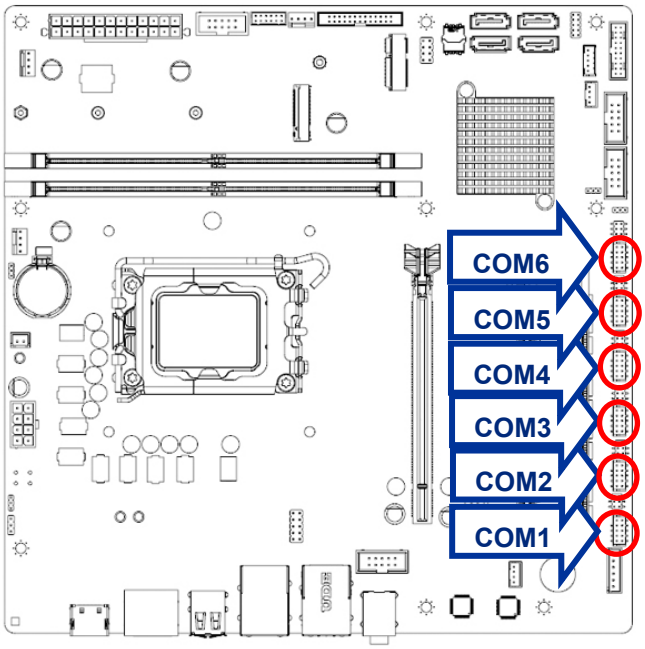
2.3.9 ATX Power connector (ATX12V1)

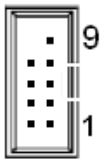




Signal	PIN	PIN	Signal
GND	4	8	+12V
GND	3	7	+12V
GND	2	6	+12V
GND	1	5	+12V

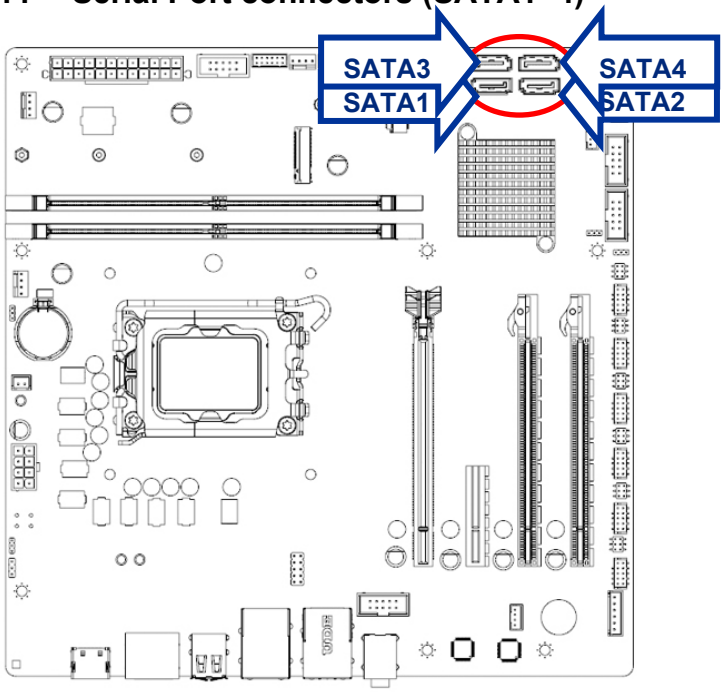
2.3.10 Serial Port connectors (COM1~6)

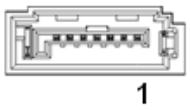




Signal	PIN	PIN	Signal
		9	RI3xPOWERxJMP
CTS#	8	7	RTS#
DSR#	6	5	GND
DTR#	4	3	TX
RX	2	1	DCD#

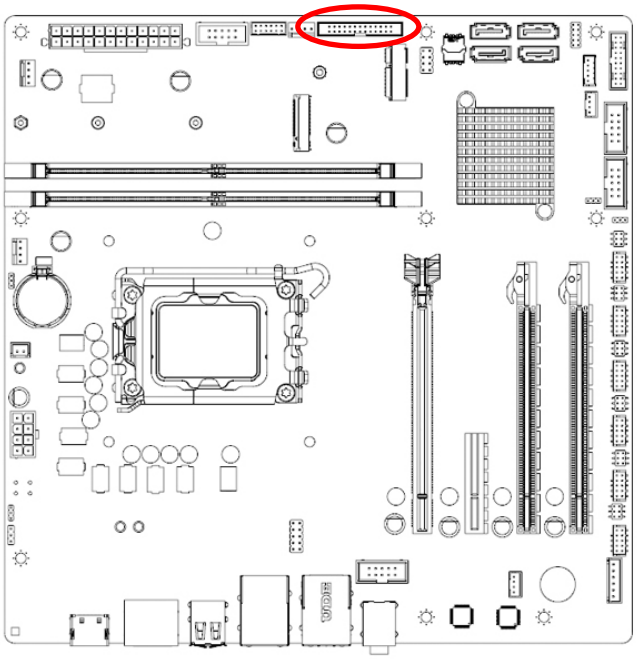
2.3.11 Serial Port connectors (SATA1~4)

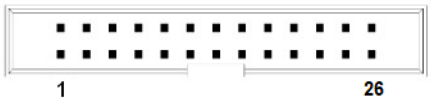




PIN	Signal
1	GND
2	TX+
3	TX-
4	GND
5	RX-
6	RX+
7	GND

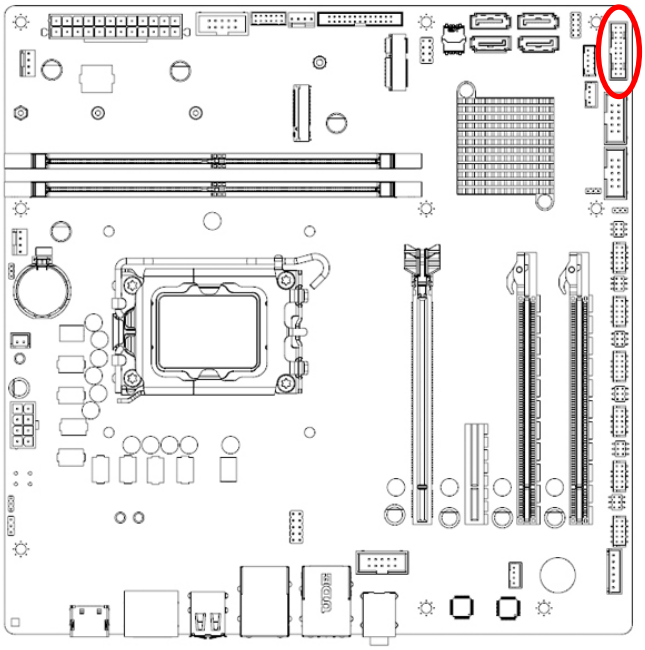
2.3.12 LPT Port Connector (LPT1)

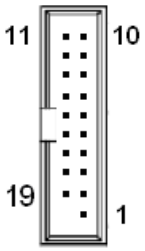




Signal	PIN	PIN	Signal
LPT_STB#	1	2	LPT_AFD#
LPT_PD0	3	4	LPT_ERR#
LPT_PD1	5	6	LPT_INIT#
LPT_PD2	7	8	LPT_SLIN#
LPT_PD3	9	10	GND
LPT_PD4	11	12	GND
LPT_PD5	13	14	GND
LPT_PD6	15	16	GND
LPT_PD7	17	18	GND
LPT_ACK#	19	20	GND
LPT_ACK#	21	22	GND
LPT_PE	23	24	GND
LPT_SLCT	25	26	NC

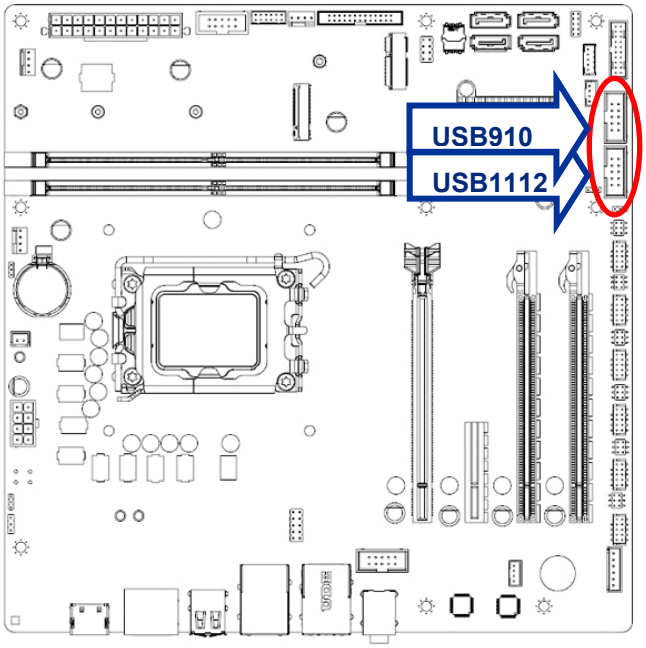
2.3.13 USB3.2 connector (USB78)

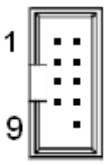




Signal	PIN	PIN	Signal
USB+	11	10	NC
USB-	12	9	USB+
GND	13	8	USB-
USB3_TX+	14	7	GND
USB3_TX-	15	6	USB3_TX+
GND	16	5	USB3_TX-
USB3_RX+	17	4	GND
USB3_RX-	18	3	USB3_RX+
+5V	19	2	USB3_RX-
		1	+5V

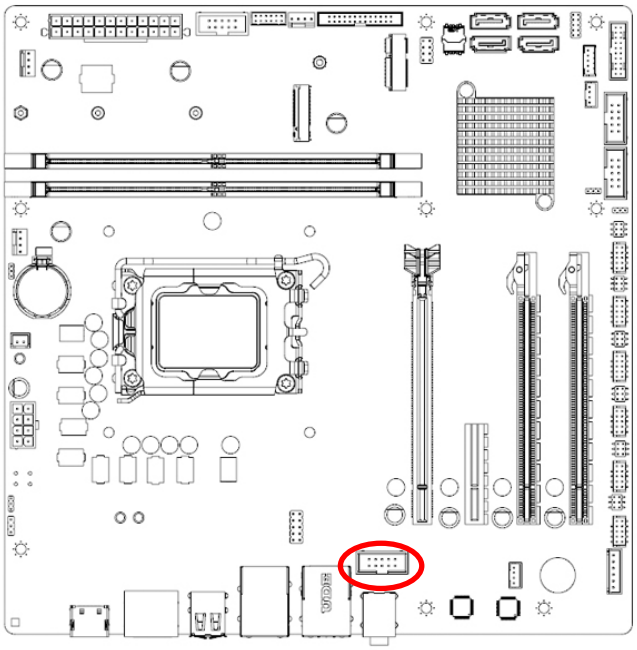
2.3.14 USB connectors (USB910/USB1112)

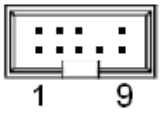




Signal	PIN	PIN	Signal
USB+5V	1	2	USB+5V
USB-	3	4	USB-
USB+	5	6	USB+
GND	7	8	GND
		9	NC

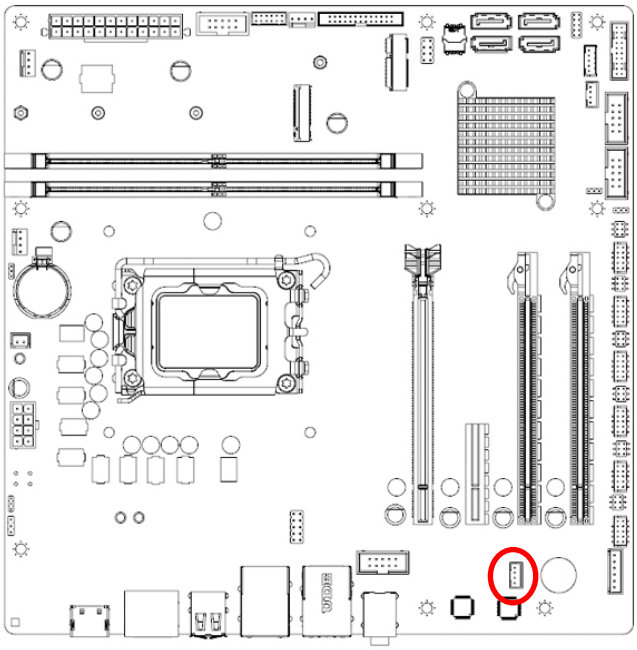
2.3.15 Front Audio connector (FP_AUDIO1)





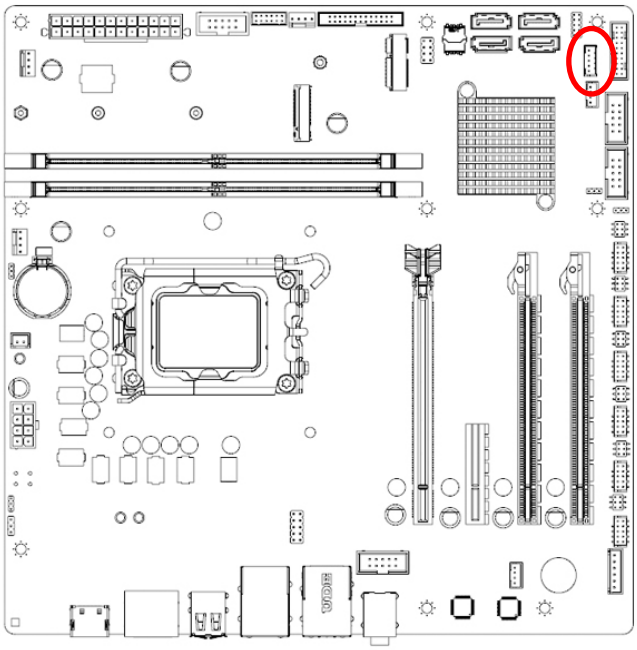
Signal	PIN	PIN	Signal
MIC2L	1	2	GND
MIC2R	3	4	+3.3V
LINE2R	5	6	MIC2_JD
SENSEB	7		
LINE2_L	9	10	LINE2_JD

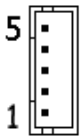
2.3.16 Amplifier connector (JAMP1)



PIN	Signal
1	AMP_L-
2	AMP_L+
3	AMP_R-
4	AMP_R+

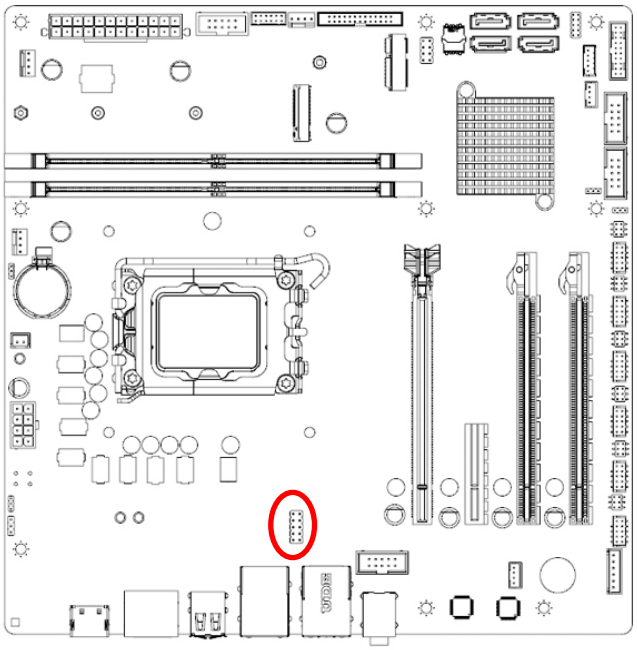
2.3.17 SM bus connector (SMB1)

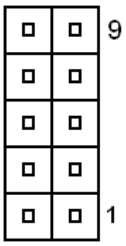




PIN	Signal
9	+3.3V
7	GND
5	SMB_ALT
3	SMB_DATA
1	SMB_CLK

2.3.18 LAN LED status connector (LANLED1)





Signal	PIN	PIN	Signal
+3V_Daul	10	9	+3V_Daul
GND	8	7	GND
+3V_Daul	6	5	+3V_Daul
GND	4	3	LEN1_LED
+3V_Daul	2	1	+3V_Daul

3.BIOS Setup

3.1 Introduction

The BIOS setup program allows users to modify the basic system configuration. In this following chapter will describe how to access the BIOS setup program and the configuration options that may be changed.

3.2 Starting Setup

The AMI BIOS™ is immediately activated when you first power on the computer. The BIOS reads the system information contained in the NVRAM and begins the process of checking out the system and configuring it. When it finishes, the BIOS will seek an operating system on one of the disks and then launch and turn control over to the operating system.

While the BIOS is in control, the Setup program can be activated in one of two ways:
By pressing <Del> or <F2> immediately after switching the system on, or
By pressing the <Del> or <F2> key when the following message appears briefly at the left-top of the screen during the POST (Power On Self Test).

Press <Del> or <F2> to enter SETUP

If the message disappears before you 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 F1 to Continue, DEL to enter SETUP

3.3 Using Setup

In general, you use the arrow keys to highlight items, press <Enter> to select, use the PageUp and PageDown keys to change entries, press <F1> for help and press <Esc> to quit. The following table provides more detail about how to navigate in the Setup program using the keyboard.

Button	Description
↑	Move to previous item
↓	Move to next item
←	Move to the item in the left hand
→	Move to the item in the right hand
Esc key	Main Menu -- Quit and not save changes into NVRAM Status Page Setup Menu and Option Page Setup Menu -- Exit current page and return to Main Menu
+ key	Increase the numeric value or make changes
- key	Decrease the numeric value or make changes
F1 key	General help, only for Status Page Setup Menu and Option Page Setup Menu
F2 key	Previous Values.
F3 key	Optimized defaults
F4 key	Save & Exit Setup

- **Navigating Through The Menu Bar**
  Use the left and right arrow keys to choose the menu you want to be in.

Note: Some of the navigation keys differ from one screen to another.

- **To Display a Sub Menu**
  Use the arrow keys to move the cursor to the sub menu you want. Then press <Enter>. A "➢" pointer marks all sub menus.

3.4 Getting Help

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> or the F1 key again.

3.5 In Case of Problems

If, after making and saving system changes with Setup, you discover that your computer no longer is able to boot, the AMI BIOS supports an override to the NVRAM settings which resets your system to its defaults.

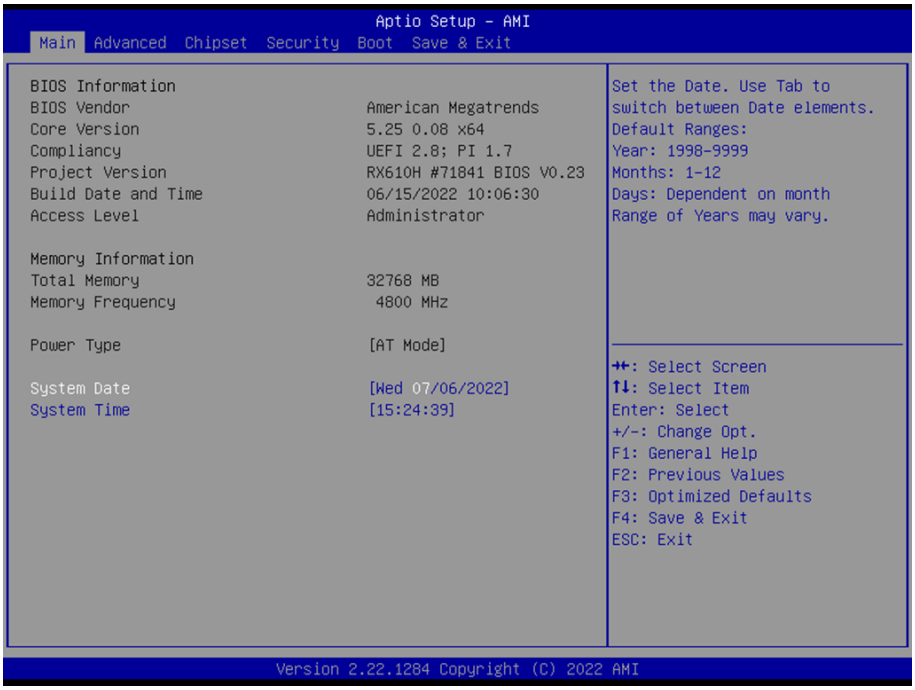
The best advice is to only alter settings which you thoroughly understand. To this end, we strongly recommend that you avoid making any changes to the chipset defaults. These defaults have been carefully chosen by both BIOS Vendor and your systems manufacturer to provide the absolute maximum performance and reliability. Even a seemingly small change to the chipset setup has the potential for causing you to use the override.

3.6 BIOS setup

Once you enter the Aptio Setup Utility, the Main Menu will appear on the screen. The Main Menu allows you to select from several setup functions and exit choices. Use the arrow keys to select among the items and press <Enter> to accept and enter the sub-menu.

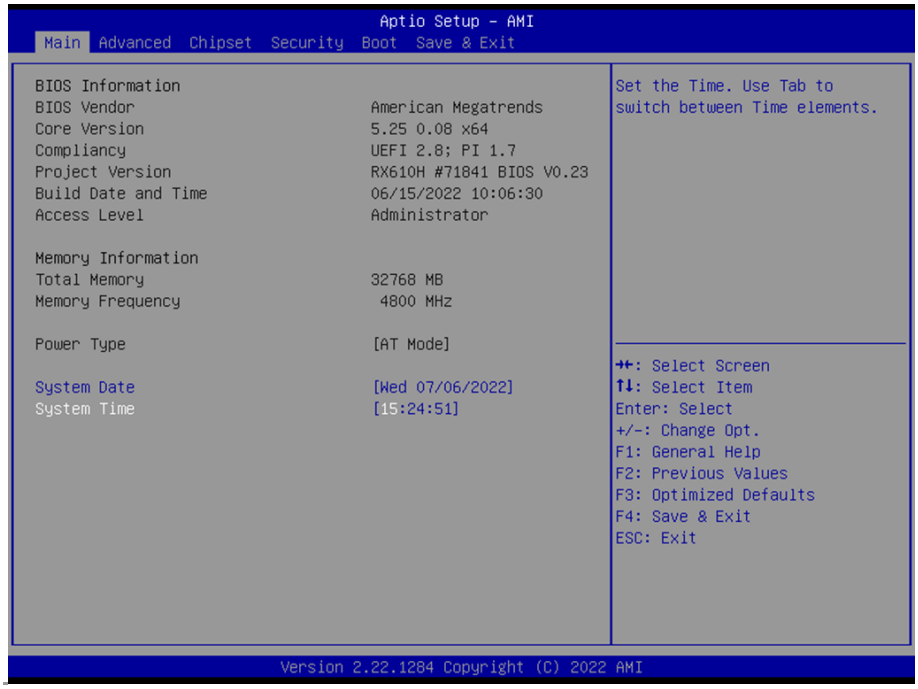
3.6.1 BIOS Menu Screen

When you enter the BIOS, the following screen appears. The BIOS menu screen displays the items that allow you to make changes to the system configuration. To access the menu items, press the up/down/right/left arrow key on the keyboard until the desired item is highlighted, then press [Enter] to open the specific menu.



3.6.2 Main Setup

This menu gives you an overview of the general system specifications. The BIOS automatically detects the items in this menu. Use this menu for basic system configurations, such as time, date etc.



BIOS Information

Displays the auto-detected BIOS information.

- **System Date**

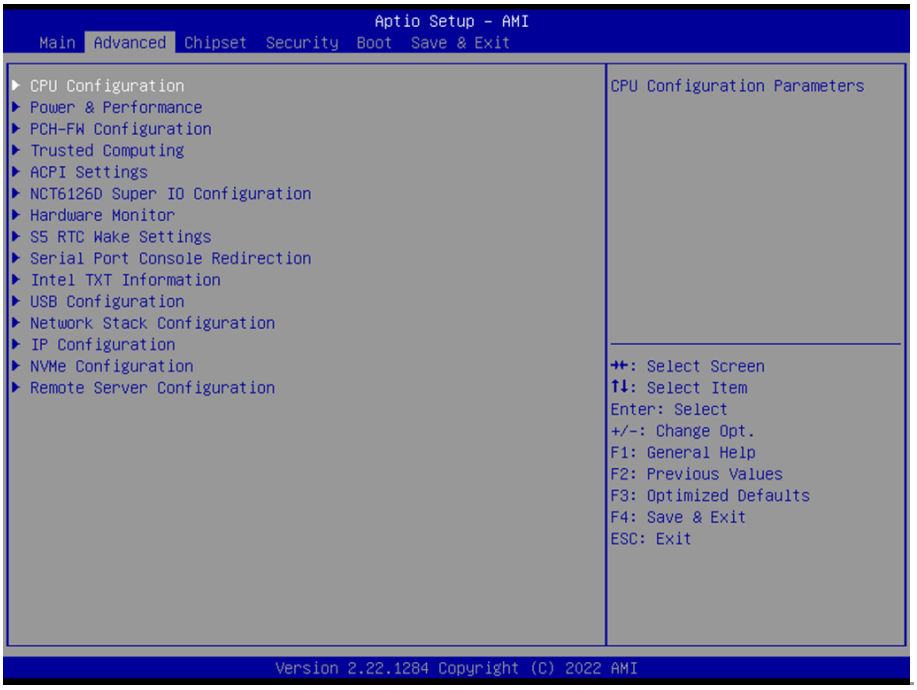
  The date format is <Date>,<Month>,<Day>,<Year>.

- **System Time**

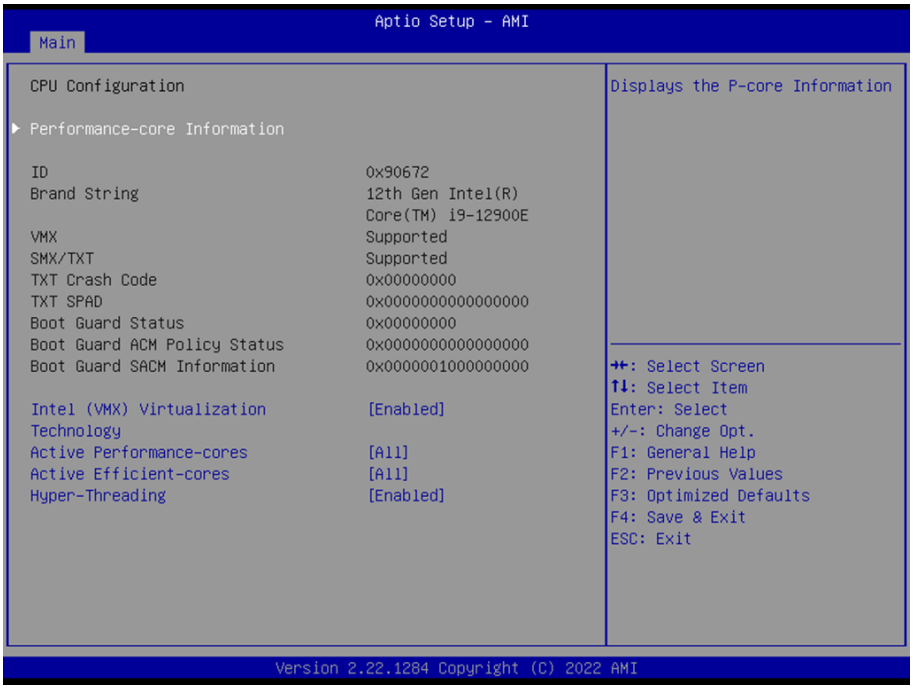
  The time format is <Hour>,<Minute>,<Second>.

3.6.3 Advanced Menu

This section allows you to configure your CPU and other system devices for basic operation through the following sub-menus.



3.6.3.1 CPU Configuration



- **Intel (VMX) Virtualization [Enabled]**

  When enabled, a VMX can utilize the additional hardware compatibilities provided by Vanderpool Technology
  Configuration options: [Enable] [Disable]

- **Active Performance –Cores**

  Number of P-core to enable in each processor package

- **Active Efficient-cores**

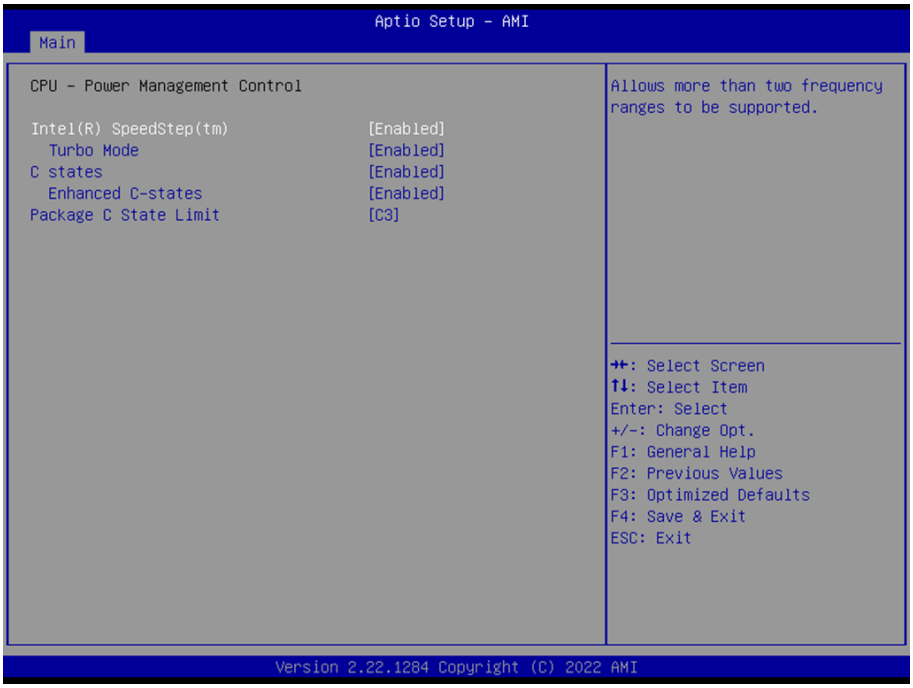
  Number of E-core to enable in each processor package

- **Hyper-Threading**

  Enable or disable Hyper-Threading technology
  Configuration options: [Enable] [Disable]

3.6.3.2 Power & Performance

Power management control for CPU



- **Intel® Speedstep™ [Enabled]**

  Allow more than two frequency range to be supported
  Configuration options: [Enable] [Disable]

- **Turbo Mode**

  Enable or Disable processor Turbo mode
  Configuration options: [Enable] [Disable]

- **C states**

  Enable/Disable CPU power management. Allows CPU to go to C states when it's not 100% utilized
  Configuration options: [Enable] [Disable]

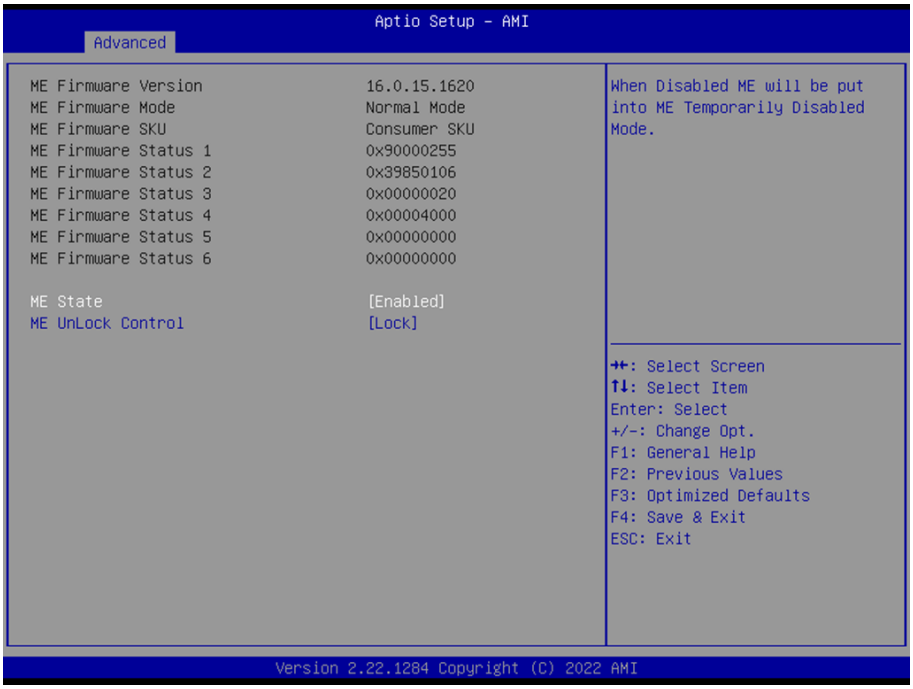
- **Enhance C states**

  When enabled, CPU will switch to minimum speed when all cores enter C state
  Configuration options: [Enable] [Disable]

- **Package C state limit**

  Maximum package C state limit setting. CPU default: Leaves to factory default value
  Configuration options: [C0/C1] [C2] [C3]

3.6.3.3 PCH-FW Configuration



- **ME State [Enabled]**

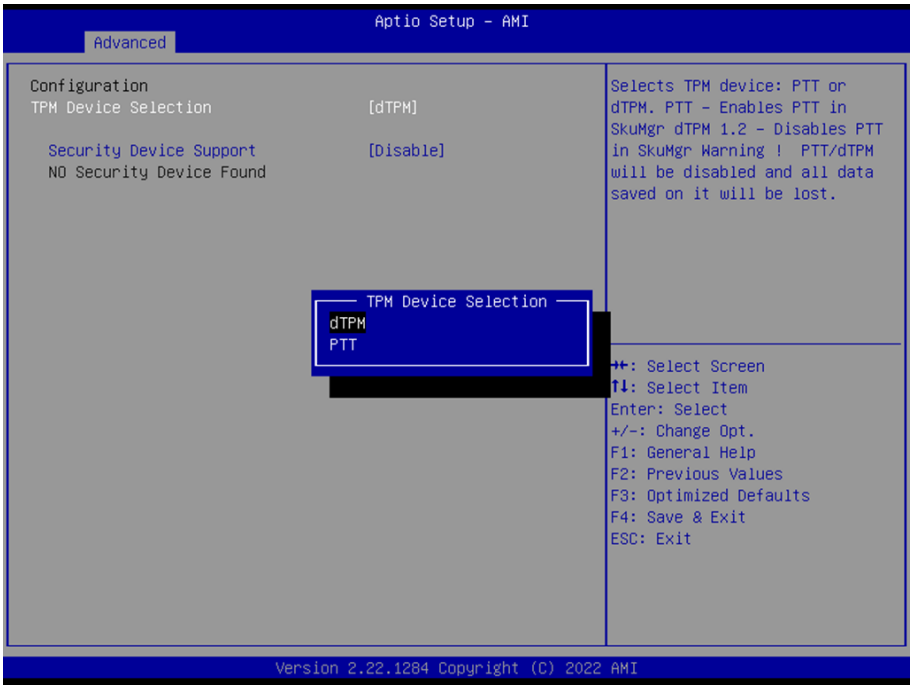
  When disabled ME will be put into ME temporarily disabled mode
  Configuration options: [Enable] [Disable]

- **ME unlock control [Lock]**

  When it is Set to unlock, system will shut down for active function
  Configuration options: [Lock] [Unlock]

3.6.3.4 Trusted Computing

Security device settings



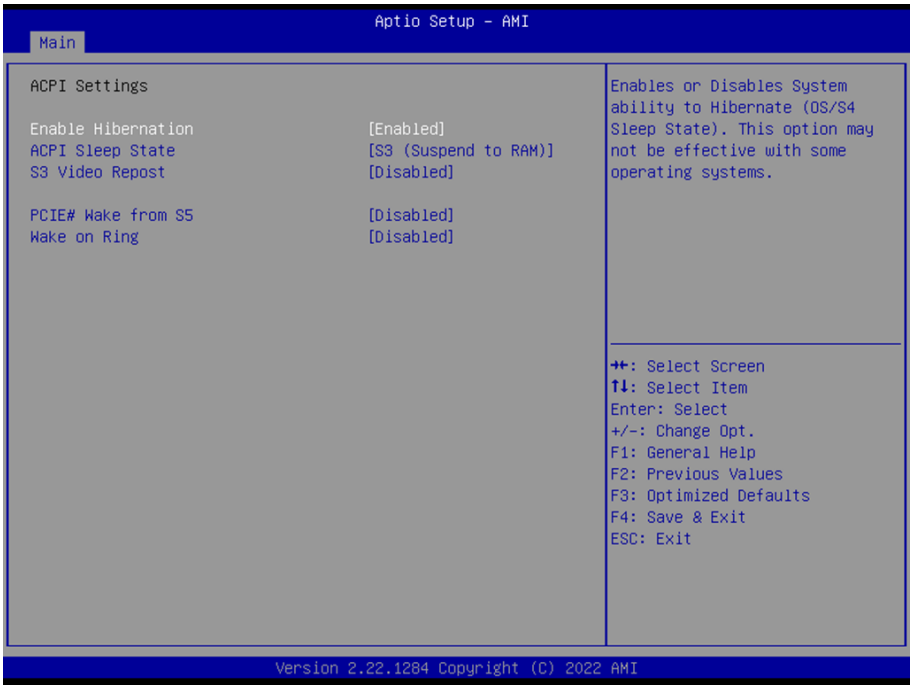
- **TPM Device Selection [dTPM]**

  Select TPM device
  Configuration options: [dTPM] [PTT]

- **Security Device support [Disabled]**

  Enable or Disable BIOS support security device
  Configuration options: [Enable] [Disable]

3.6.3.5 ACPI Settings



- **Enable Hibernation [Enable]**

  Enable or Disable system ability to Hibernation.
  Configuration options: [Enable] [Disable]

- **ACPI Sleep State [S3 only (Suspend to RAM)]**

  Select the highest ACPI sleep state the system will enter the SUSPEND button is press. Configuration options: [Suspend Disable] [S3 (suspend to RAM)]

- **S3 Video Repost [Disabled]**

  Enable or disable S3 video repost Configuration options: [Disabled] [Enabled]

- **PCIE# wake from S5 [Disabled]**

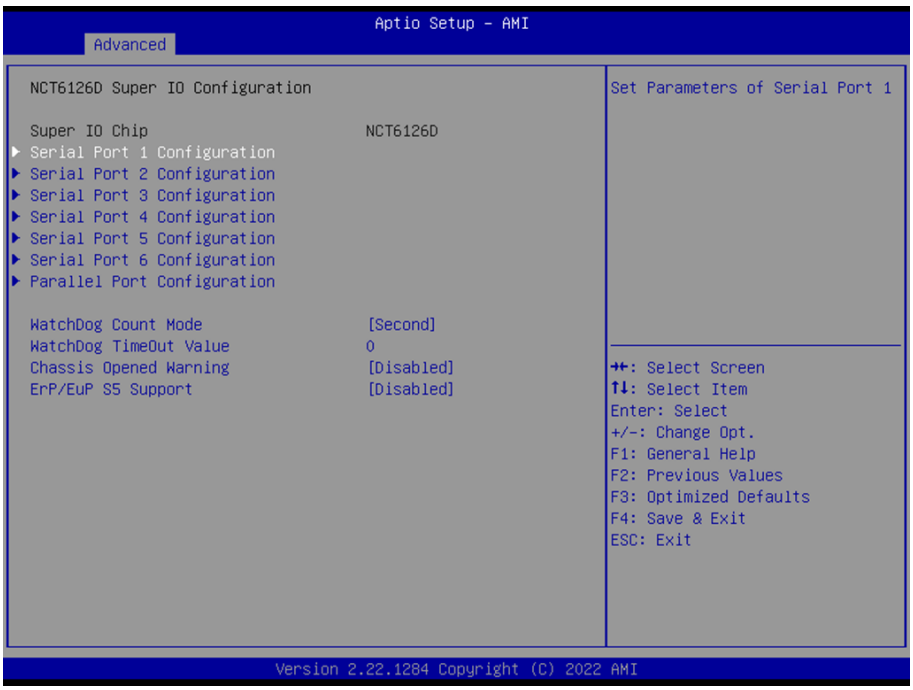
  Enable or disable PCIE wake the system from S5. Configuration options: [Disabled] [Enabled]

- **Wake on Ring [Disabled]**

  Enable or disable wake on ring function under ACPI S3/S4/S5. Configuration options: [Disabled] [Enabled]

3.6.3.6 NCT6126D Super IO configuration

You can use this item to set up or change the Super IO configuration for serial ports. Please refer to 3.6.2.5.1~ 3.6.2.5.7 for more information.



- **WatchDog count mode [Second]**

  WatchDog count mode Selection Configuration options: [Second] [Minute]

- **WatchDog Timeout value**

  Fill watchdog timeout value, 0 means disables

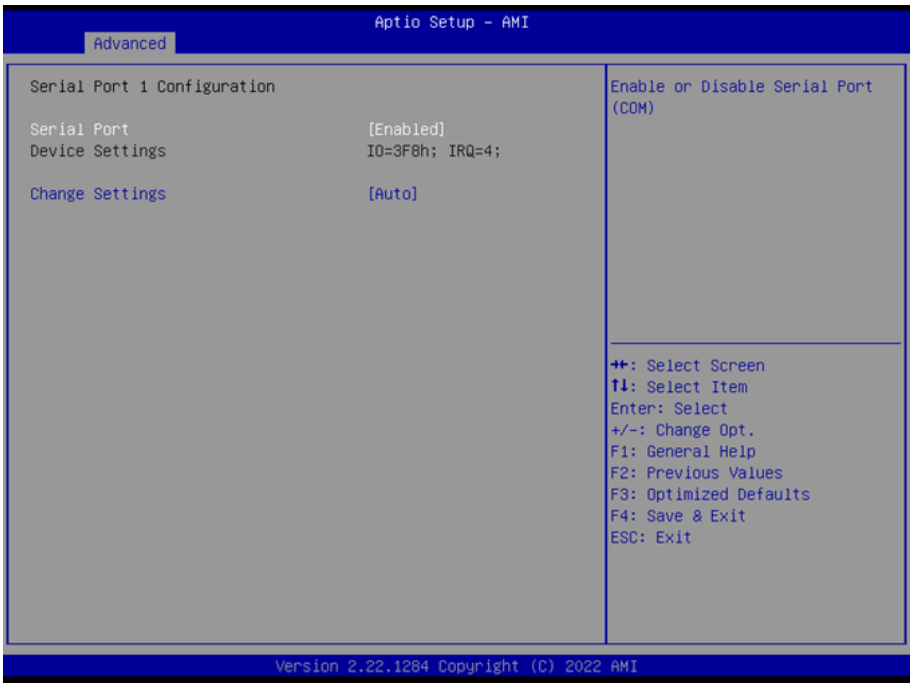
- **Chassis opened warning [Disabled]**

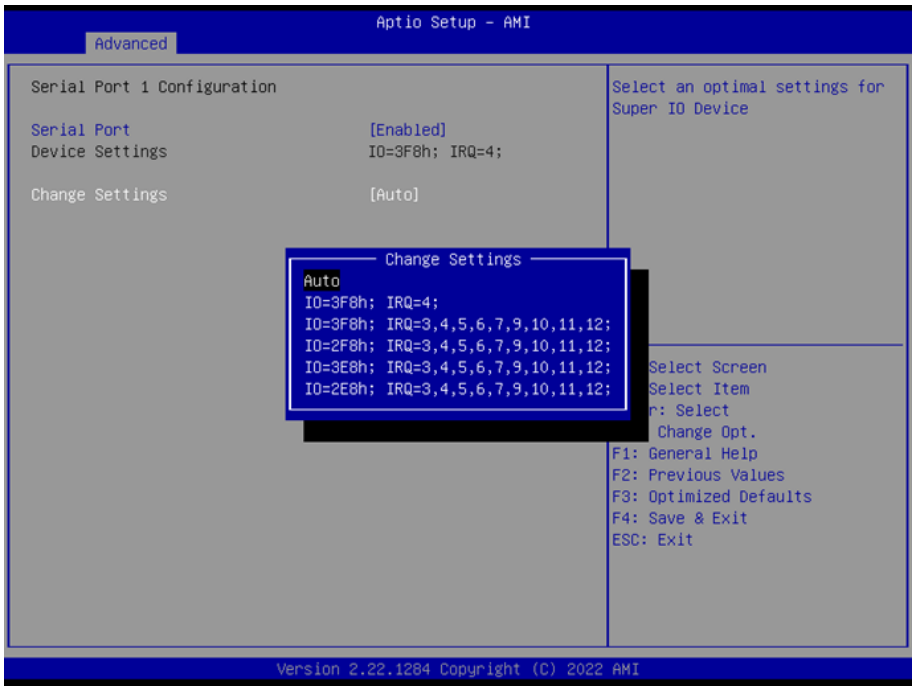
  Select chassis intrusion enabled to Disabled
  Configuration options: [Disabled] [Enabled]

- **ErP/EuP S5 Support [Disabled]**

  Configuration options: [Disabled] [Enabled]

3.6.3.6.1 Serial Port 1 Configuration





- **Serial Port [Enabled]**

  Enable or Disable serial Port (COM)

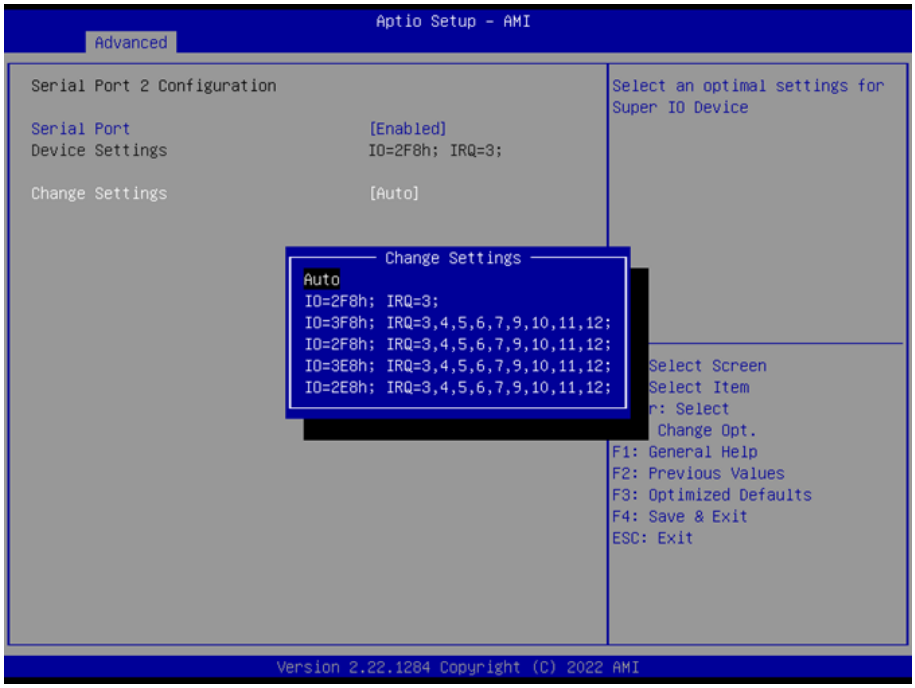
  Configuration options: [Disabled] [Enabled]

- **Change Setting [Auto]**

  Select an optimal settings for super IO device

  Configuration options: as below

3.6.3.6.2 Serial Port 2 Configuration



- **Serial Port [Enabled]**

  Enable or Disable serial Port (COM)

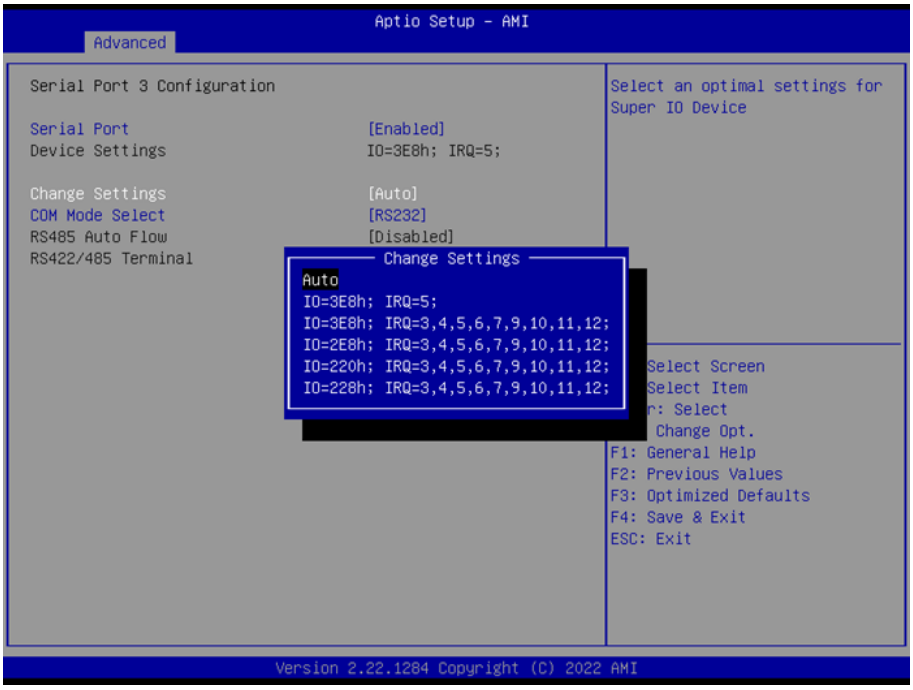
  Configuration options: [Disabled] [Enabled]

- **Change Setting [Auto]**

  Select an optimal settings for super IO device

  Configuration options: as below

3.6.3.6.3 Serial Port 3 Configuration



- **Serial Port [Enabled]**

  Enable or Disable serial Port (COM)

  Configuration options: [Disabled] [Enabled]

- **Change Setting [Auto]**

  Select an optimal settings for super IO device

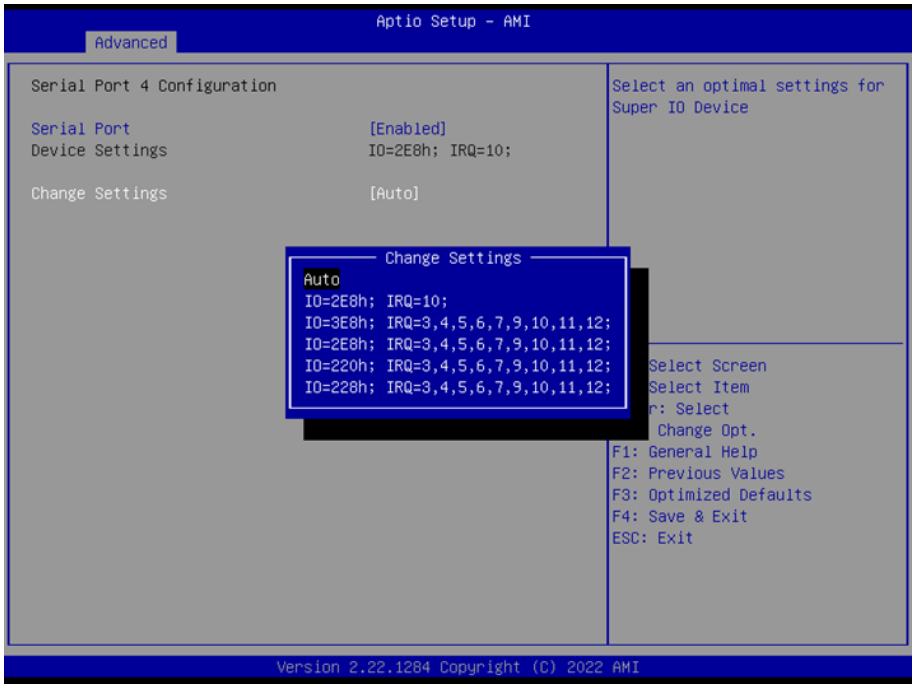
  Configuration options: as below

- **COM Mode Select [RS232]**

  Configure the COM port Mode

  Configuration options: [RS232][RS485 Half Duplex][RS422 Full Duplex]

3.6.3.6.4 Serial Port 4 Configuration



- **Serial Port [Enabled]**

  Enable or Disable serial Port (COM)

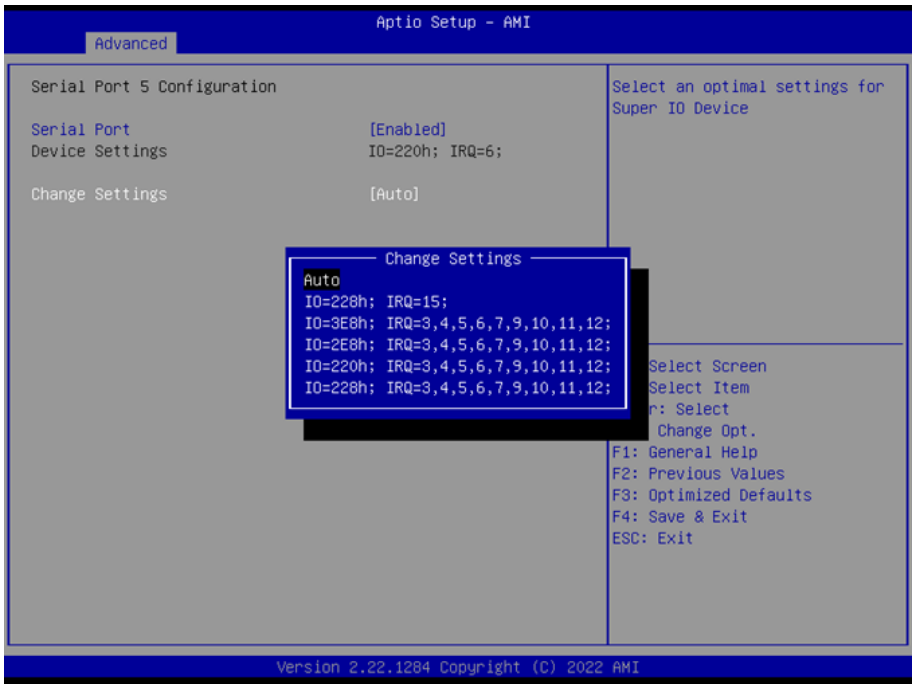
  Configuration options: [Disabled] [Enabled]

- **Change Settings [Auto]**

  Select an optimal settings for super IO device

  Configuration options: as below

3.6.3.6.5 Serial Port 5 Configuration



- **Serial Port [Enabled]**

  Enable or Disable serial Port (COM)

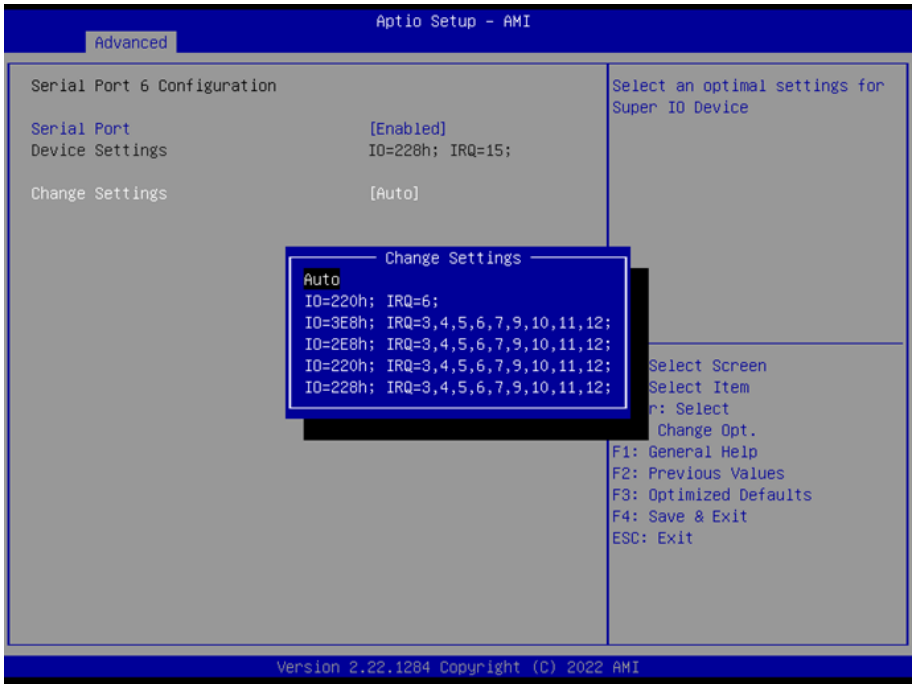
  Configuration options: [Disabled] [Enabled]

- **Change Settings [Auto]**

  Select an optimal settings for super IO device

  Configuration options: as below

3.6.3.6.6 Serial Port 6 Configuration



- **Serial Port [Enabled]**

  Enable or Disable serial Port (COM)

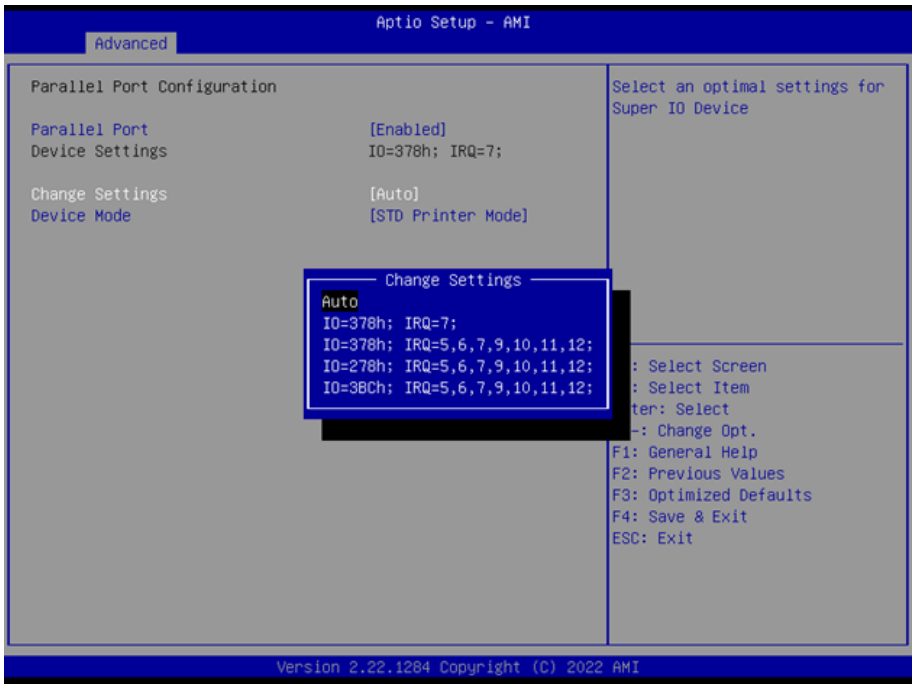
  Configuration options: [Disabled] [Enabled]

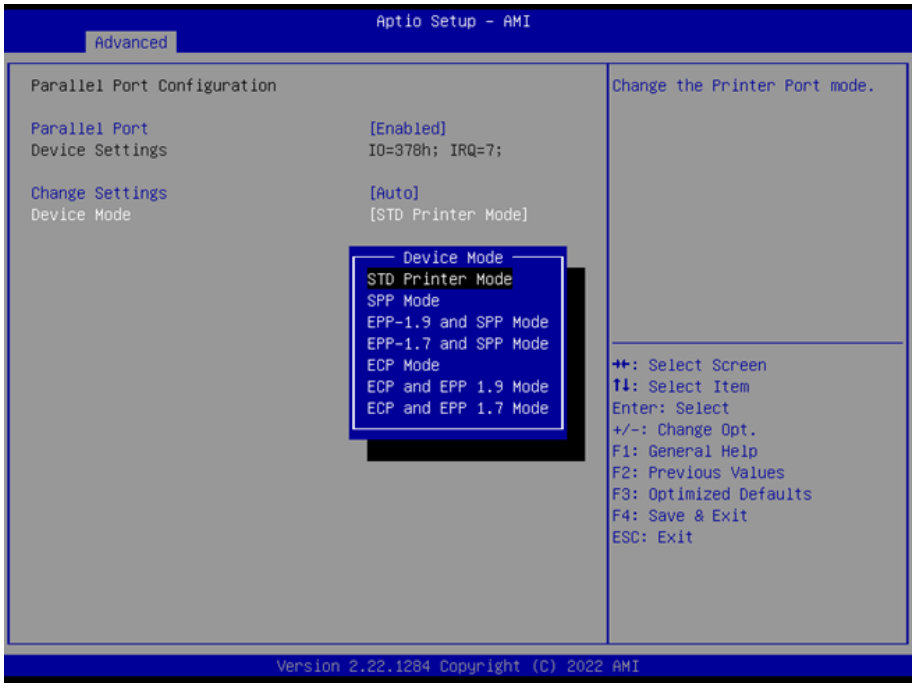
- **Change Settings [Auto]**

  Select an optimal settings for super IO device

  Configuration options: as below

3.6.3.6.7 Parallel Port Configuration





- **Parallel Port [Enabled]**

  Enable or Disable parallel Port (LPT)

  Configuration options: [Disabled] [Enabled]

- **Change Settings [Auto]**

  Select an optimal settings for super IO device

  Configuration options: as below

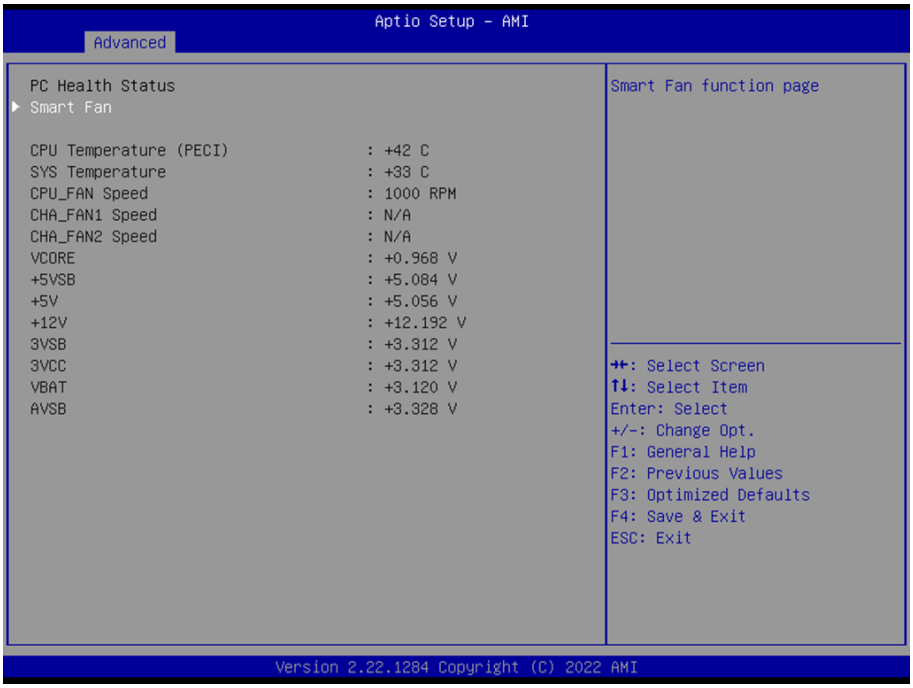
- **Device mode [STD Printer Mode]**

  Change the printer port mode

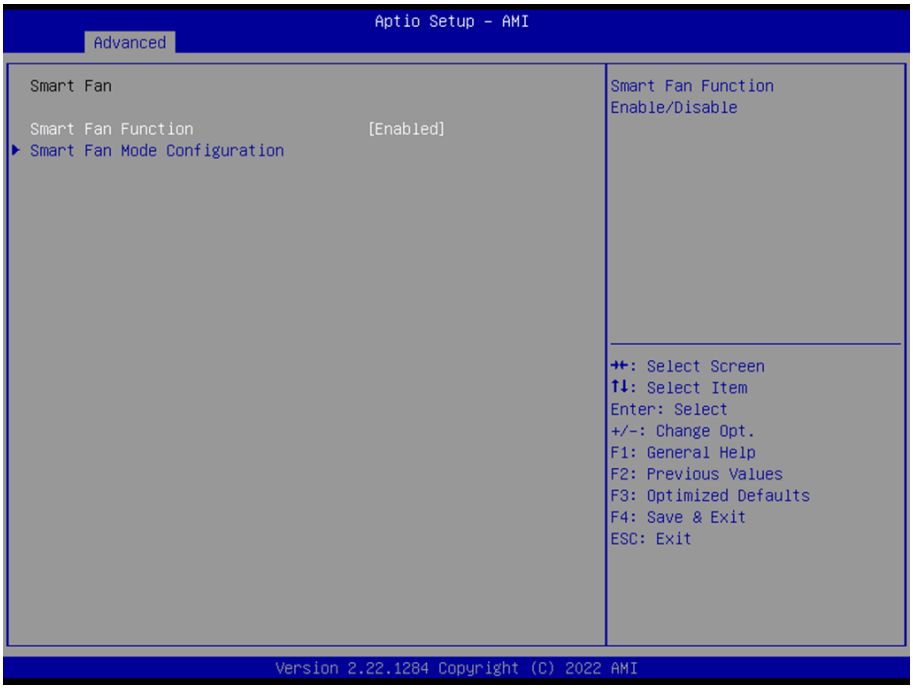
  Configuration options: as below

3.6.3.7 Hardware Monitor

Display Hardware monitor information



3.6.3.7.1 Smart Fan Function



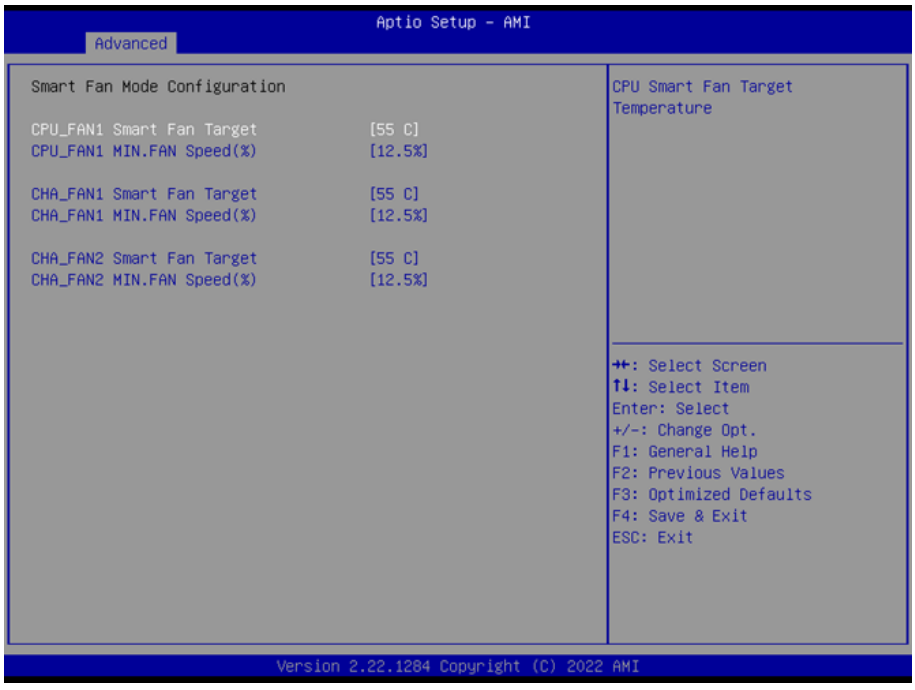
- **Smart FAN Function [Enabled]**

  Smart fan function Enable/Disabled

  Configuration options: [Enabled] [Disabled] [Manual]

3.6.3.7.1.1 Smart FAN mode Configuration

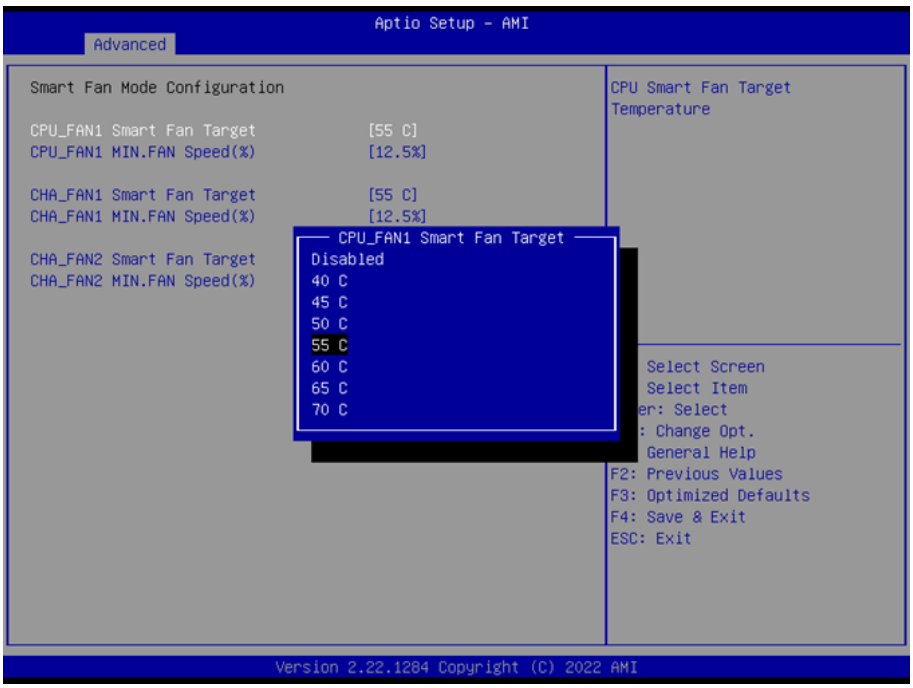
Setting different FAN on this motherboard



- **SYS_FAN1/CPU_FAN1/CHA_FAN1 FAN Target**

  Smart FAN target temperature

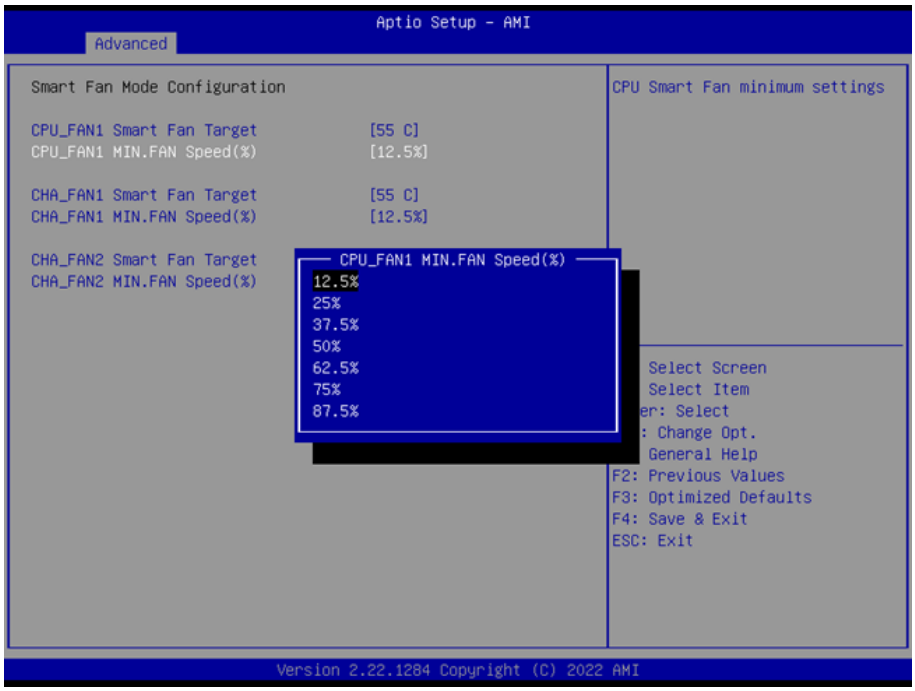
  Configuration options: Please see below picture



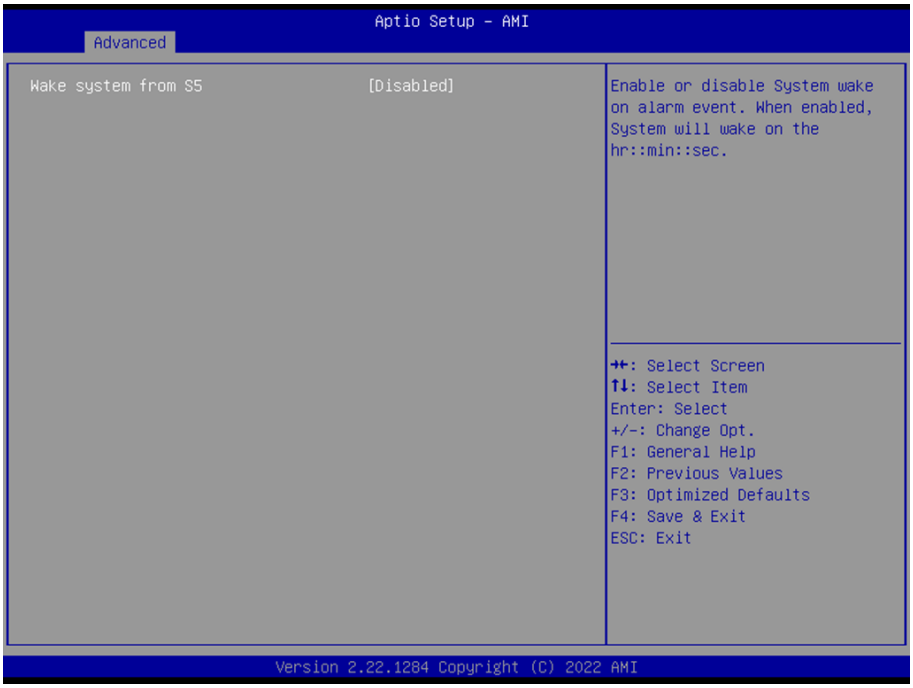
- **CPU_FAN1/CHA_FAN1/CHA_FAN2 MIN.FAN Speed (%)**

  CPU or Chassis Smart FAN minimum settings

  Configuration options: Please see below picture



3.6.3.8 S5 RTC wake settings



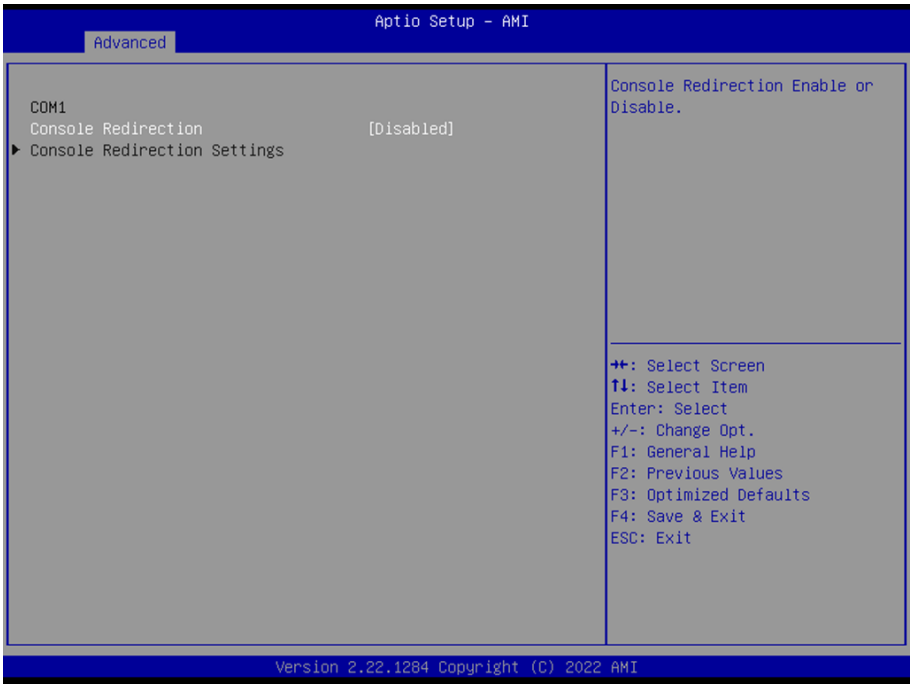
- **Wake system from S5 [Disabled]**

  Enabled or Disabled system wake on alarm event

  Configuration options: [Enabled] [Disabled]

3.6.3.9 Serial Port Console Redirection

Display CPU configuration

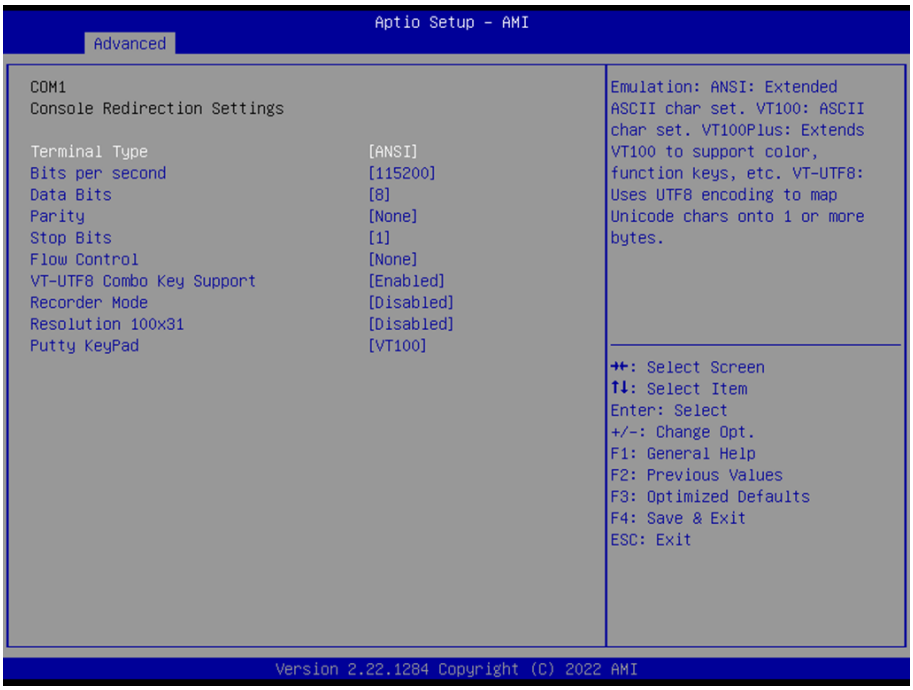


- **Console Redirection [Disabled]**

  Enabled or Disabled COM1 Console redirection

  Configuration options: [Disabled][Enabled]

3.6.3.9.1 Console Redirection settings



- **Terminal Type[ANSI]**

  Select terminal type

  Configuration options: [VT100] [VT100Plus] [VT-UTF8] [ANSI]

- **Bits per second[115200]**

  Select serial port transmission speed

  Configuration options: [9600] [19200] [38400] [57600] [115200]

- **Bits per second[115200]**

  Select data bits Configuration options: [7] [8]

- **Parity[None]**

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

  Configuration options: [None] [Even] [Odd] [Mark] [Space]

- **Stop Bits[1]**

  Stop bits indicate the end of a serial data package
  Configuration options: [1] [2]

- **Flow Control[None]**

  Flow control can prevent data loss from buffer overflow.
  Configuration options: [None] [Hardware RTS/CTS]

- **VT-UTF8 Combo key Support[Enabled]**

  Enable VT-UTF8 combination key support for ANSI/VT100 terminals
  Configuration options: [Enabled] [Disabled]

- **Recorder Mode[Disabled]**

  With this mode enabled only text will be sent.
  Configuration options: [Enabled] [Disabled]

- **Resolution 100x31[Disabled]**

  Enables or disables extended terminal resolution
  Configuration options: [Enabled] [Disabled]

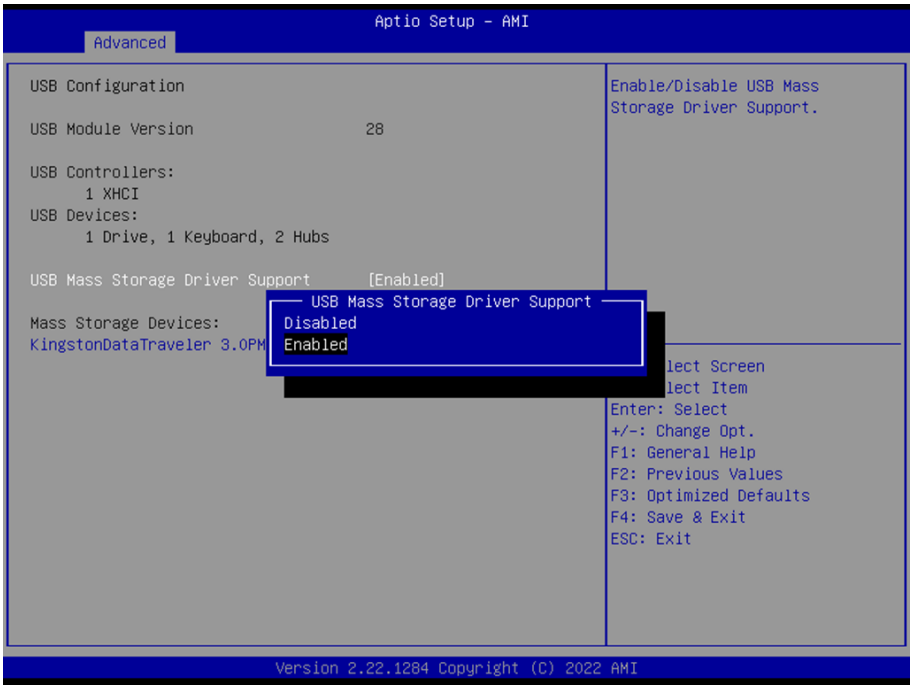
- **Putty Keypad[VT100]**

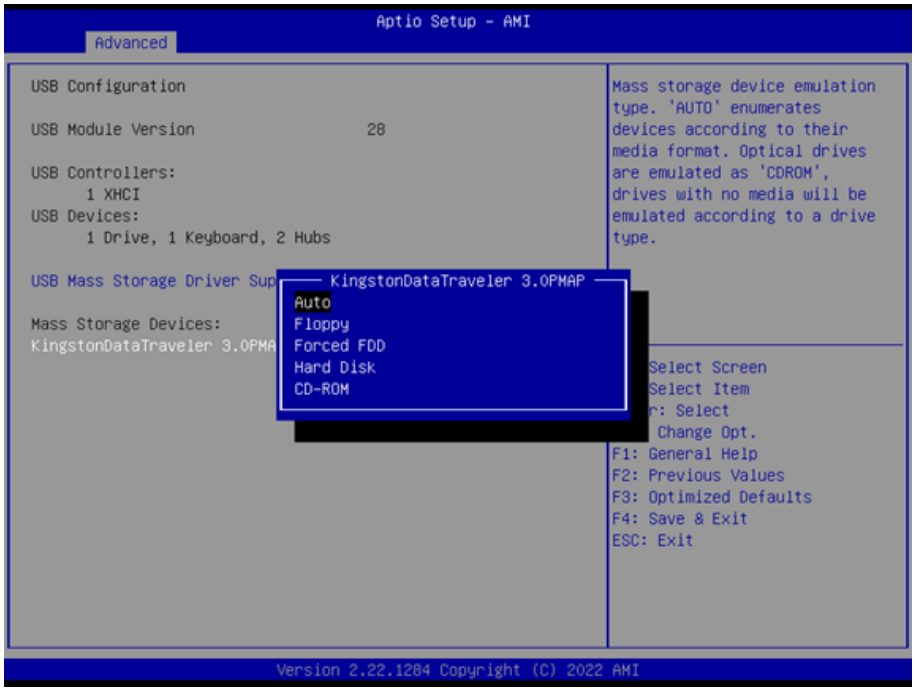
  Selects function key and keypad on putty
  Configuration options: [VT1000] [LINUX] [XTERMR6] [SCO] [ESCN] [VT400]

3.6.3.10 intel TXT information

Display Intel TXT information. This depends on CPU sku.

3.6.3.11 USB configuration



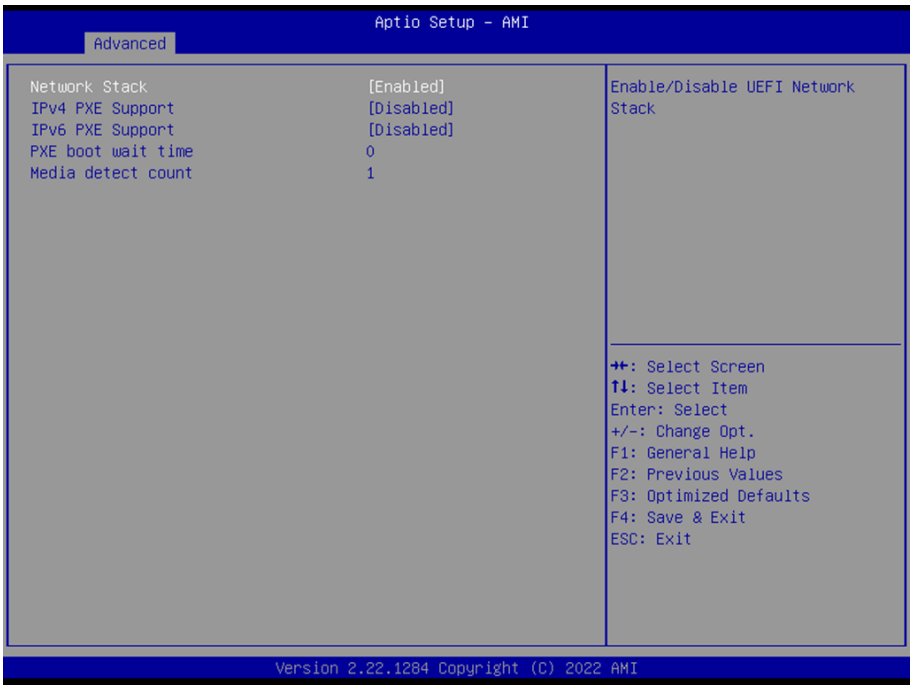


- **USB Mass Storage Driver Support[Enabled]**
  Enable or Disable USB Mass Storage Driver Support
  Configuration options: [Enabled] [Disabled]

- **Mass Storage Devices[Auto]**
  Mass Storage device emulation Type. "Auto" enumerates device according to its media format.

3.6.3.12 Network Stack Configuration

Network Stack setting



- Network Stack [Disabled]
  Enabled/Disabled UEFI Network Stack
  Configuration options: [Enabled][Disabled]

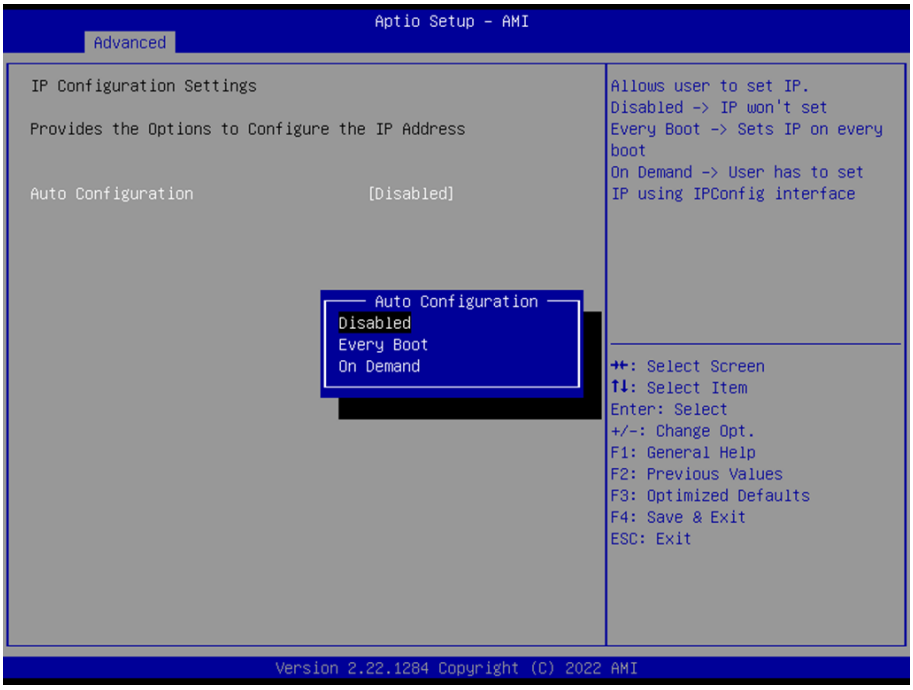
- **IPv4 PXE Support [Disabled]**
  Enabled or disabled IPv4 PXE boot Support
  Configuration options: [Enabled][Disabled]

- **IPv6 PXE Support [Disabled]**
  Enabled or disabled IPv6 PXE boot Support
  Configuration options: [Enabled][Disabled]

- **PXE boot wait time**
  Wait time in seconds to press ESC key to abort the PXE boot.

- **Media detect count**
  Number of time the presence of media will be checked

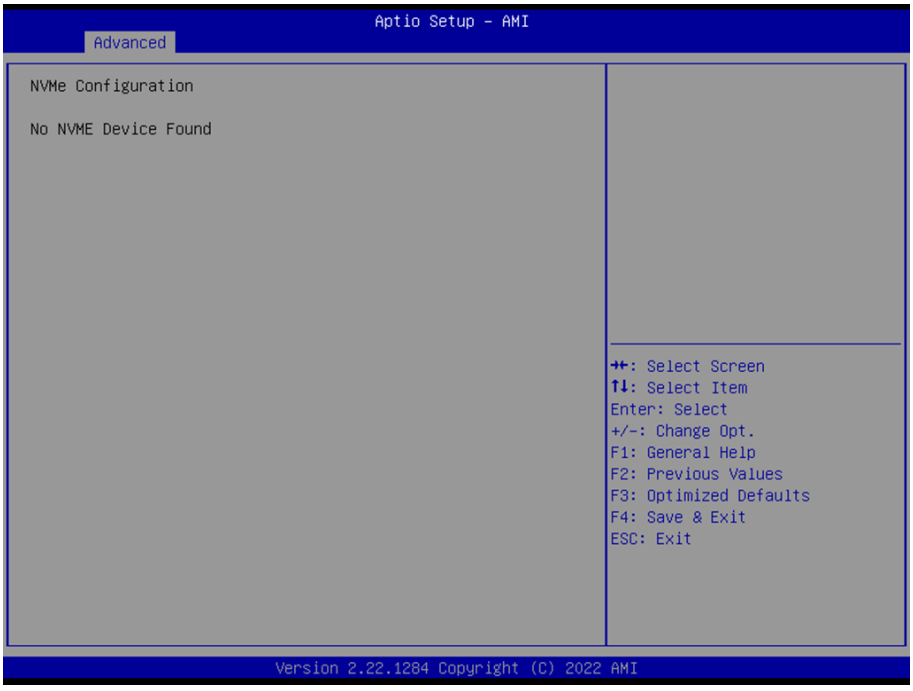
3.6.3.13 IP configuration



- **Auto Configuration[Disabled]**
  Allow user to set IP. Disabled➔IP won' t set
  Every Boot➔Sets IP on every boot
  On demand➔User has to set IP using IPConfig interface.

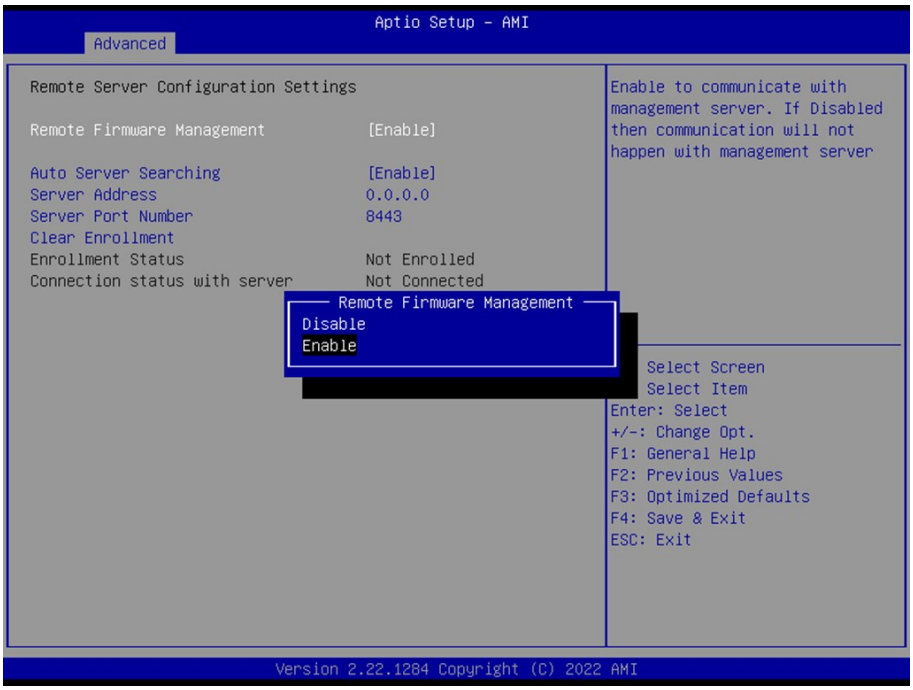
3.6.3.14 NVMe Configuration

Display NVMe controller or Drive information



3.6.3.15 Remote Server Configuration

Display NVMe controller or Drive information

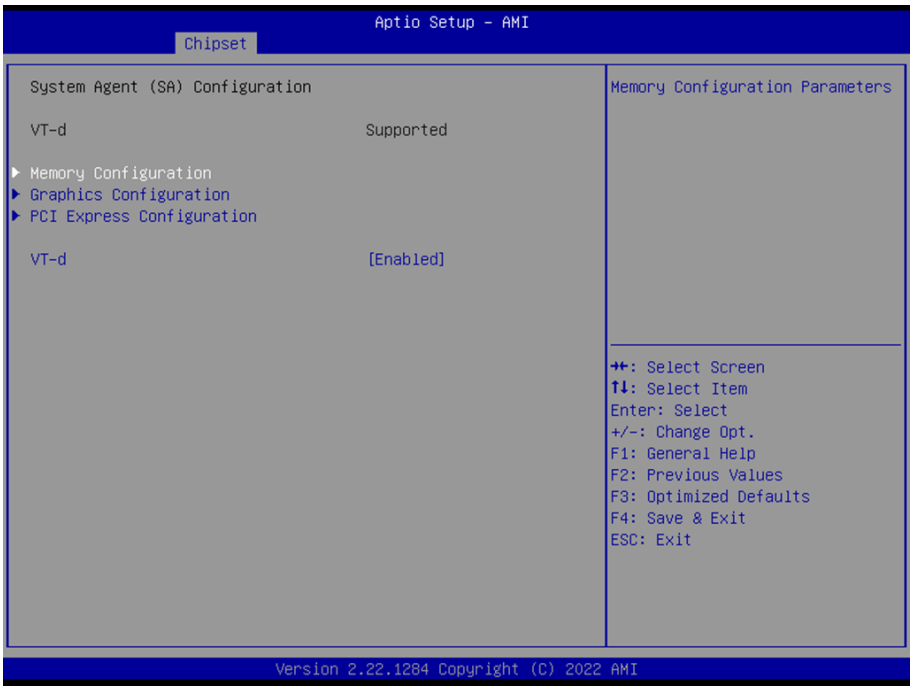


- **Remote Firmware Management [Enabled]**
  Enable to communicate with management server.
  Configuration options: [Disabled] [Enabled]

- **Auto Server searching [Enabled]**
  Enabled to obtain DHCP server IP automatically. Disabled to provide Server IP manually. Need to do clear Enrollment, if server is changed to DHCP.
  Configuration options: [Enabled] [Disabled]

3.6.4 Chipset

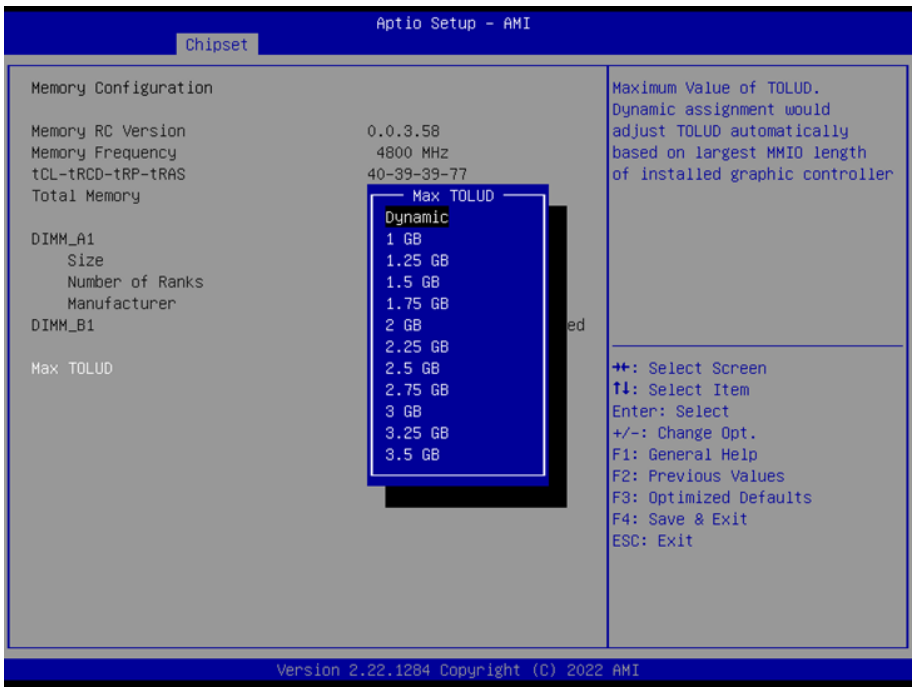
3.6.4.1 System Agent (SA) Configuration



- **VT-d [Enabled]**
  VT-d capability
  Configuration options: [Disabled] [Enabled]

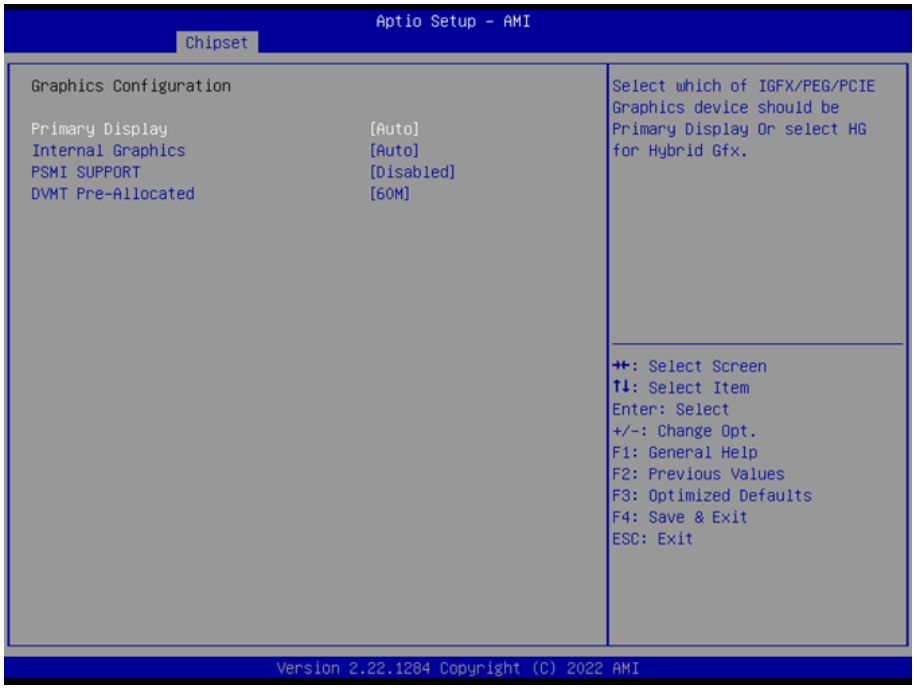
3.6.4.1.1 Memory Configuration

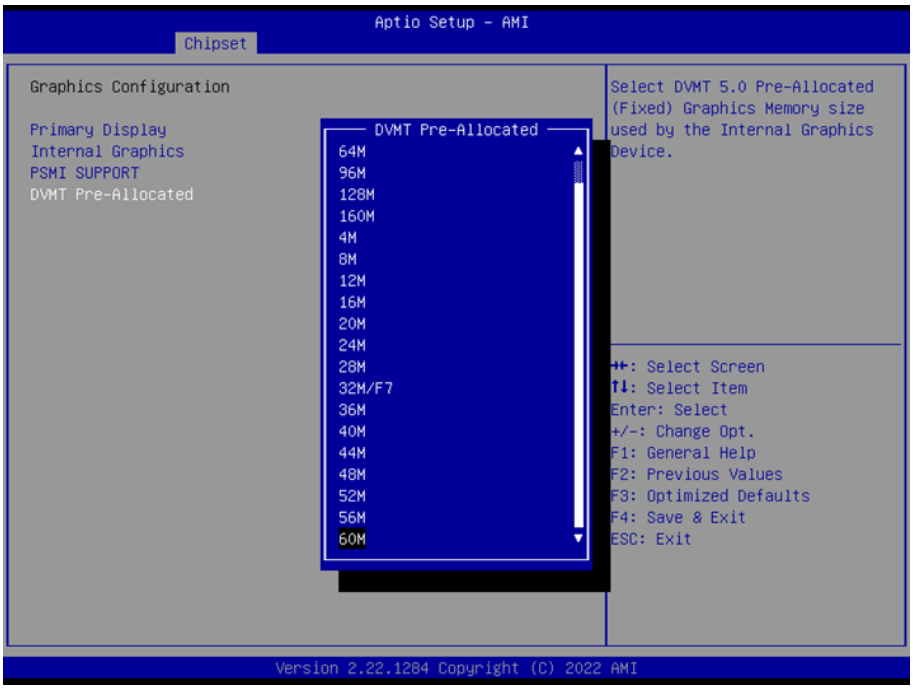
Maximum Value of TOLUD. Dynamic assignment would adjust TOLUD automatically based on largest MMIO length of installed graphic controller.



3.6.4.1.2 Graphics Configuration

Graphic configuration settings





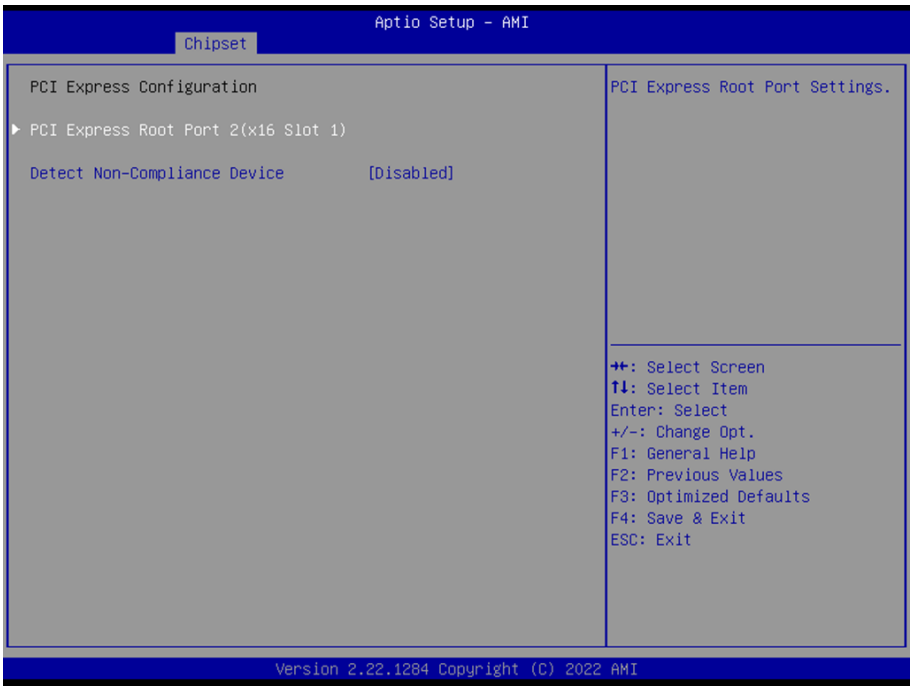
- **Primary Display[Auto]**
  Select which of IGFX/PEG/PCIE graphic device should be primary display or select HG for Hybrid Gfx.
  Configuration options: [Auto] [IGFX][PEG slot] [PCIE]

- **Internal Graphics [Auto]**
  Keep IGFX enabled based on the setup options
  Configuration options: [Auto] [disabled] [enabled]

- **PSMI Support [Disabled]**
  PSMI eabled/Disabled
  Configuration options: [Disabled] [Enabled]

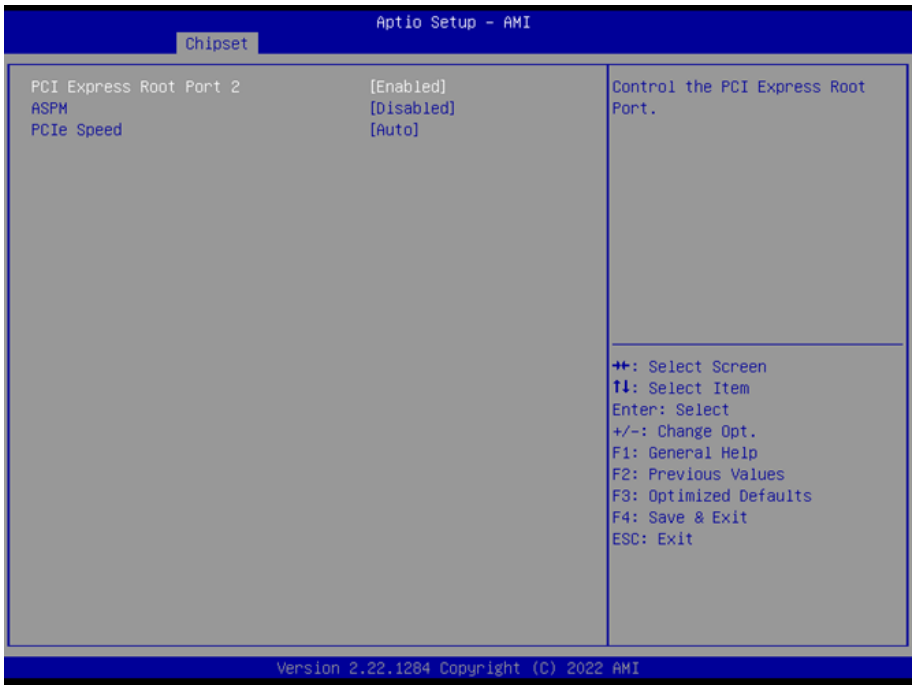
- **DVMT Pre-allocated [60M]**
  Select DVMT 5.0 Pre-allocated (Fixed) Graphics memory size used by the internal graphics device.
  Configuration options: As below picture

3.6.4.1.3 PCI Express Configuration



- **Detect Non-compliance Device[Disabled]**
  Detect Non-compliance Device in PEG
  Configuration options: [Disabled] [Enabled]

3.6.4.1.3.1 PCI Express Root Port 2 (x16 slot1)

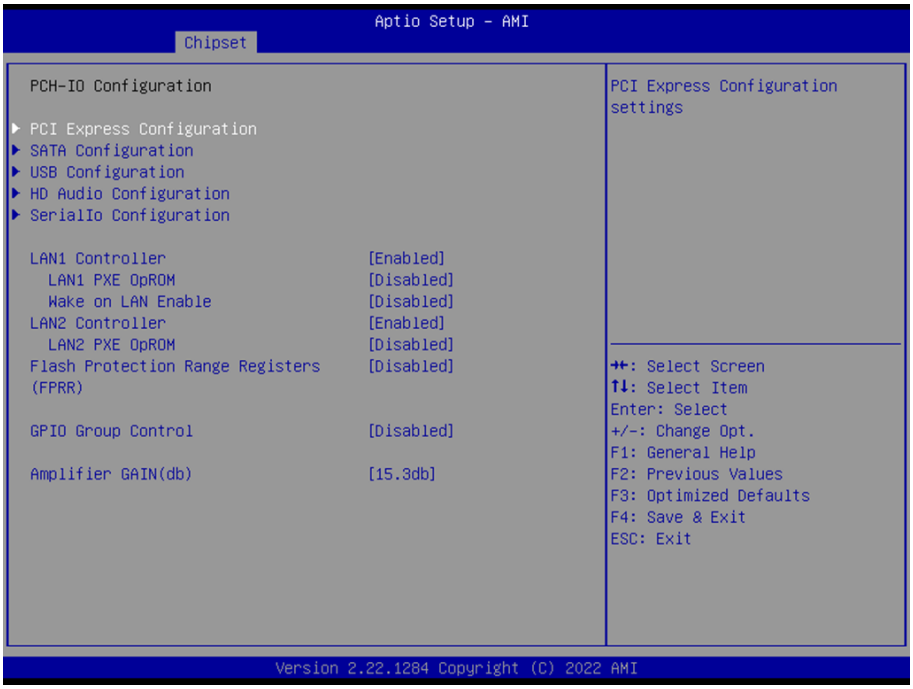


- **PCI Express Root Port 2[Enabled]**
  Control the PCI express Root Port
  Configuration options: [Enabled] [Disabled]

- **ASPM [Disabled]**
  Set the ASPM level
  Configuration options: [Disaled] [L0S][L1] [L0sL1]

- **PCIe Speed [Auto]**
  Configure PCIe Speed
  Configuration options: [Auto] [Gen1] [Gen2] [Gen3] [Gen4] [Gen5]

3.6.4.2 PCH-IO Configuration



- **Lan1 Controller [Enabled]**
  Enable or Disable onboard LAN1
  Configuration options: [Disabled] [Enabled]

- **Lan1 PXE OpROM [Disabled]**
  Enabled or Disabled boot option for LAN1 controller
  Configuration options: [Disabled] [Enabled]

- **Wake on LAN Enabled[Disabled]**
  Enable or Disable integrated LAN to wake the system
  Configuration options: [Disabled] [Enabled]

- **Lan2 Controller[Enabled]**
  Enable or Disable onboard LAN2
  Configuration options: [Disabled] [Enabled]

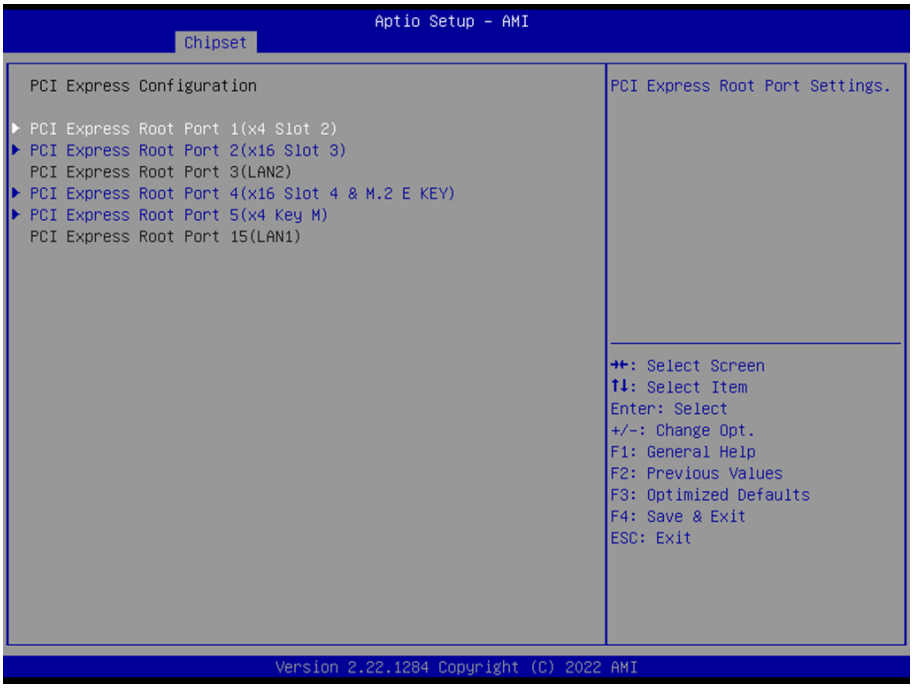
- **Lan2 PXE OpROM[Disabled]**
  Enabled or Disabled boot option for LAN2 controller
  Configuration options: [Disabled] [Enabled]

- **Flash Protection Range Registers(FPRR)[Disabled]**
  Enabled Flash Protection Range Registers
  Configuration options: [Disabled] [Enabled]

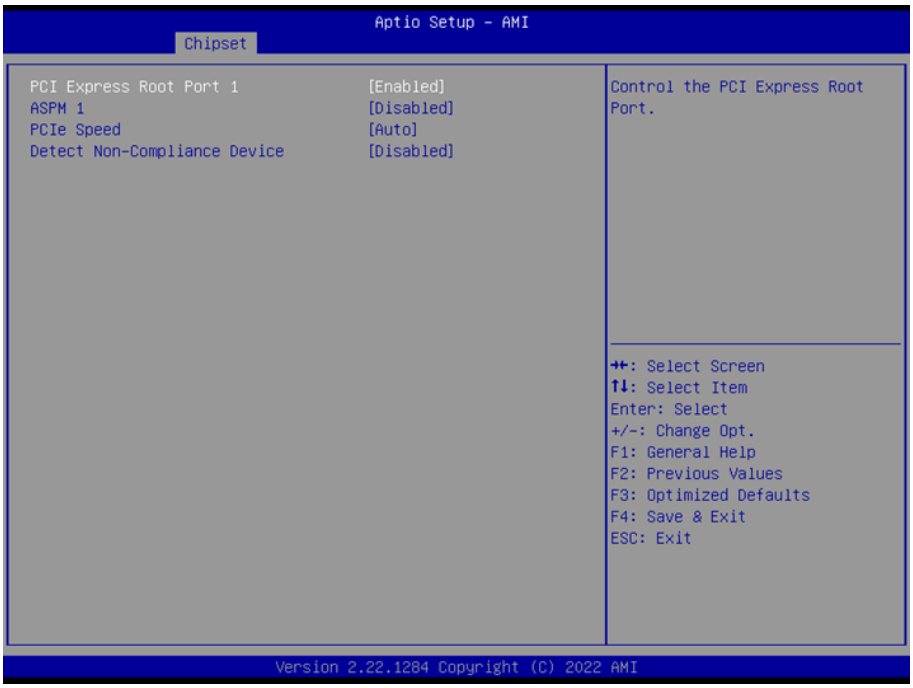
- **GPIO Group Control[Disabled]**
  Configure the digital GPIO pins
  Configuration options: [Disabled] [Enabled]

- **Amplifier GAIN(db)[15.3db]**
  Select Amplifier GAIN value
  Configuration options: [15.3db] [21.2db] [27.2db] [31.8db]

3.6.4.2.1 PCI Express Configuration



3.6.4.2.1.1 PCI Express Root Port 1(x4 slot2)



- **PCI Express Root Port 1[Enabled]**
  Control the PCI Express Port
  Configuration options: [Disabled] [Enabled]

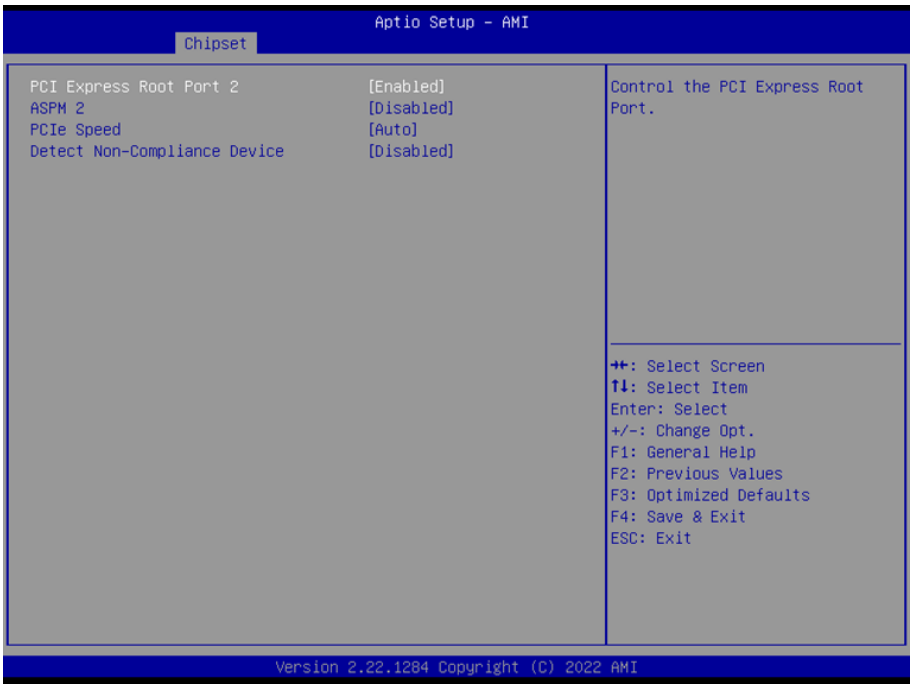
- **ASPM Support[Disabled]**
  Set the ASPM level: Force L0s- Force all links to L0s State; Auto- BIOS auto configure; Disabled- Disables ASPM

Configuration options: [Disabled] [L1][Auto]

- **PCIe Speed[Auto]**
  Select PCI Express Port speed
  Configuration options: [Auto][Gen1] [Gen2] [Gen3] [Gen4]

- **Detect Non-compliance device[Disabled]**
  Detect non-compliance PCI express Device, If enabled, it will take more time at Post time.
  Configuration options: [Disabled] [Enabled]

3.6.4.2.1.2 PCI Express Root Port 2(x16 Slot 3)



- **PCI Express Root Port 2[Enabled]**
  Control the PCI Express Port
  Configuration options: [Disabled] [Enabled]

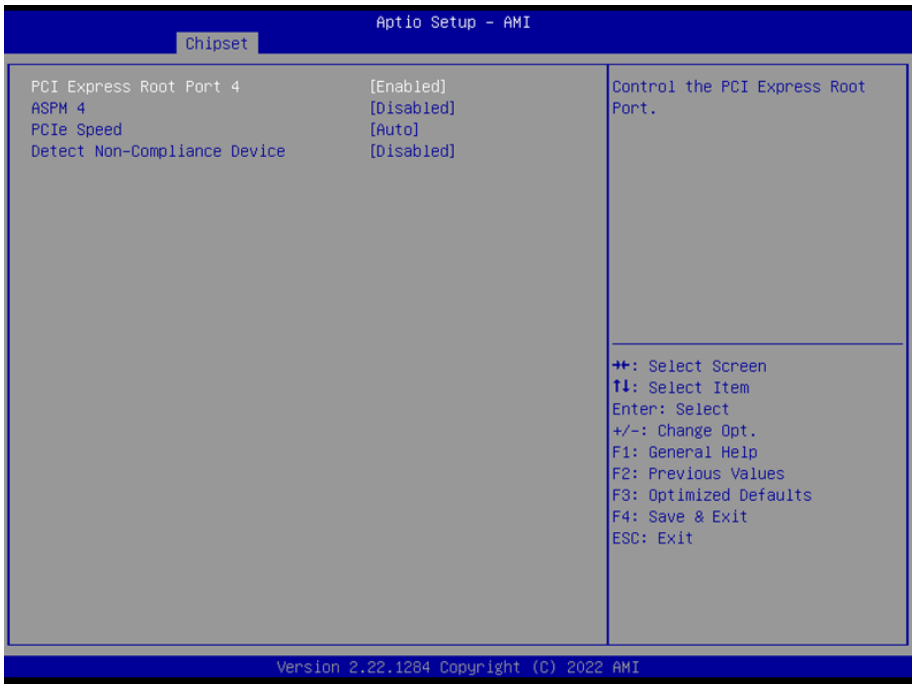
- **ASPM 2[Disabled]**
  Set the ASPM level: Force L0s- Force all links to L0s State; Auto- BIOS auto configure; Disabled- Disables ASPM

Configuration options: [Disabled] [L1] [Auto]

- **PCIe Speed[Auto]**
  Select PCI Express Port speed
  Configuration options: [Auto] [Gen1] [Gen2] [Gen3] [Gen4]

- **Detect Non-compliance device[Disabled]**
  Detect non-compliance PCI express Device, If enabled, it will take more time at Post time.
  Configuration options: [Disabled] [Enabled]

3.6.4.2.1.3 PCI Express Root Port 4(X16 Slot 4 & M.2 E key)



- **PCI Express Root Port 4[Enabled]**
  Control the PCI Express Port
  Configuration options: [Disabled] [Enabled]

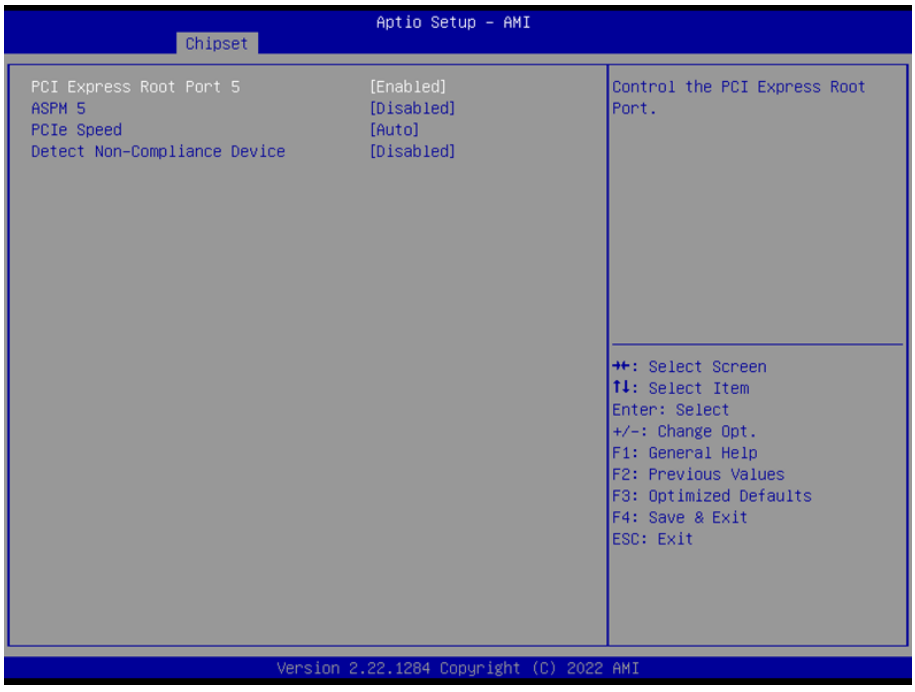
- **ASPM 4[Disabled]**
  Set the ASPM level: Force L0s- Force all links to L0s State; Auto- BIOS auto configure; Disabled- Disables ASPM

Configuration options: [Disabled] [L1] [Auto]

- **PCIe Speed[Auto]**
  Select PCI Express Port speed
  Configuration options: [Auto] [Gen1] [Gen2] [Gen3] [Gen4]

- **Detect Non-compliance device[Disabled]**
  Detect non-compliance PCI express Device, If enabled, it will take more time at Post time.
  Configuration options: [Disabled] [Enabled]

3.6.4.2.1.4 PCI Express Root Port 5(x4 Key M)



- **PCI Express Root Port 5[Enabled]**
  Control the PCI Express Port
  Configuration options: [Disabled] [Enabled]

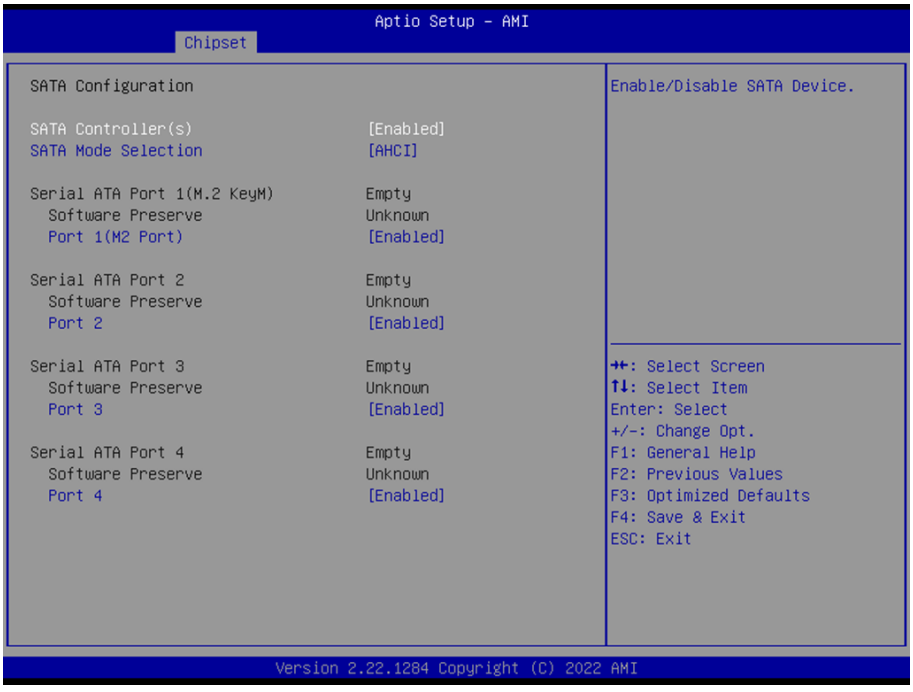
- **ASPM 5[Disabled]**
  Set the ASPM level: Force L0s- Force all links to L0s State; Auto- BIOS auto configure; Disabled- Disables ASPM

Configuration options: [Disabled] [L1] [Auto]

- **PCIe Speed[Auto]**
  Select PCI Express Port speed
  Configuration options: [Auto] [Gen1] [Gen2] [Gen3] [Gen4]

- **Detect Non-compliance device[Disabled]**
  Detect non-compliance PCI express Device, If enabled, it will take more time at Post time.
  Configuration options: [Disabled] [Enabled]

3.6.4.2.2 SATA Configuration



- **SATA Controller(s)[Enabled]**
  Enable or Disable SATA device
  Configuration options: [Enabled] [Disabled]

- **SATA Mode Selection[AHCI]**
  Determines how SATA controller operate
  Configuration options: [AHCI]

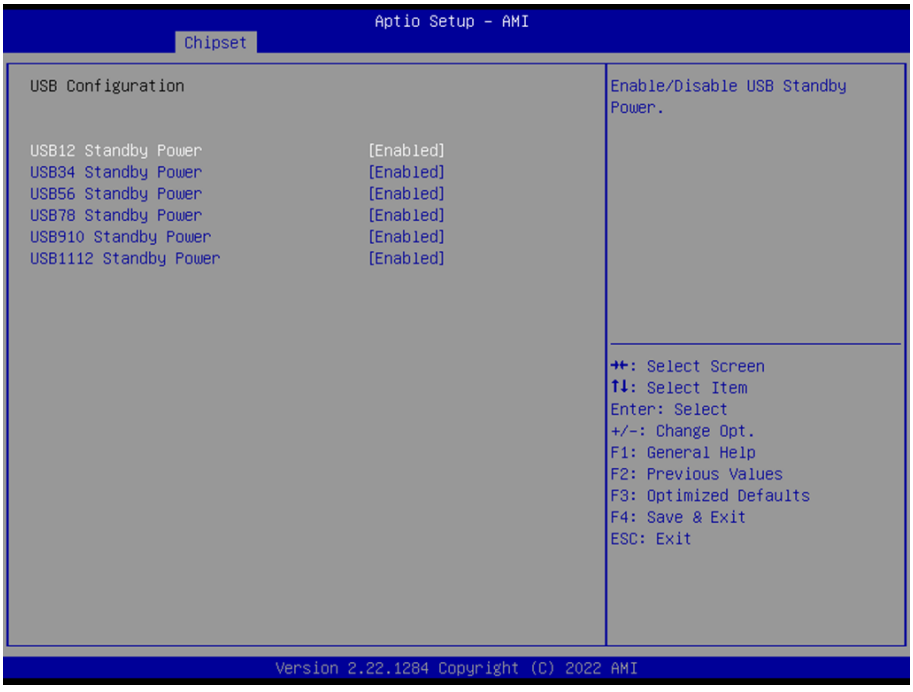
- **Port 1(M2 Port)[Enabled]**
  Enable or Disable SATA port 1
  Configuration options: [Enabled] [Disabled]

- **Port 2[Enabled]**
  Enable or Disable SATA port 2
  Configuration options: [Enable] [Disabled]

- **Port 3[Enabled]**
  Enable or Disable SATA port 3
  Configuration options: [Enabled] [Disabled]

- **Port 4[Enabled]**
  Enable or Disable SATA port 4
  Configuration options: [Enabled] [Disabled]

3.6.4.2.3 USB Configuration



- **USB12 Standby Power[Enabled]**
  Enable or Disable USB standby power
  Configuration options: [Disabled] [Enabled]

- **USB34 Standby Power[Enabled]**
  Enable or Disable USB standby power
  Configuration options: [Disabled] [Enabled]

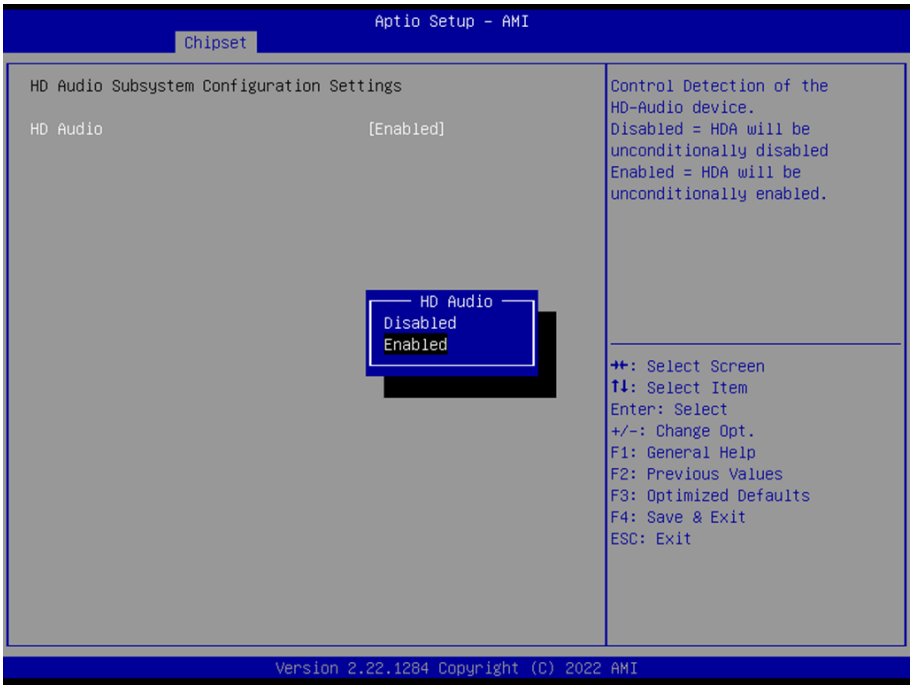
- **USB56 Standby Power[Enabled]**
  Enable or Disable USB standby power
  Configuration options: [Disabled] [Enabled]

- **USB78 Standby Power[Enabled]**
  Enable or Disable USB standby power
  Configuration options: [Disabled] [Enabled]

- **USB910 Standby Power[Enabled]**
  Enable or Disable USB standby power
  Configuration options: [Disabled] [Enabled]

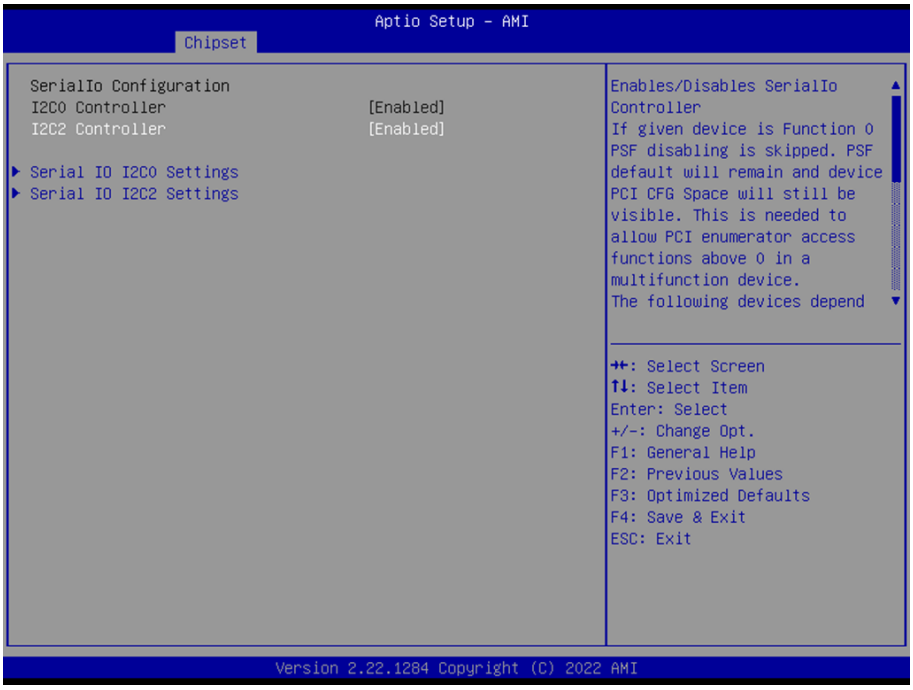
- **USB1112 Standby Power[Enabled]**
  Enable or Disable USB standby power
  Configuration options: [Disabled] [Enabled]

3.6.4.2.4 HD Audio Configuration



- **HD audio[Enabled]**
  Control Detection of the HD-Audio device.
  Configuration options: [Disabled] [Enabled]

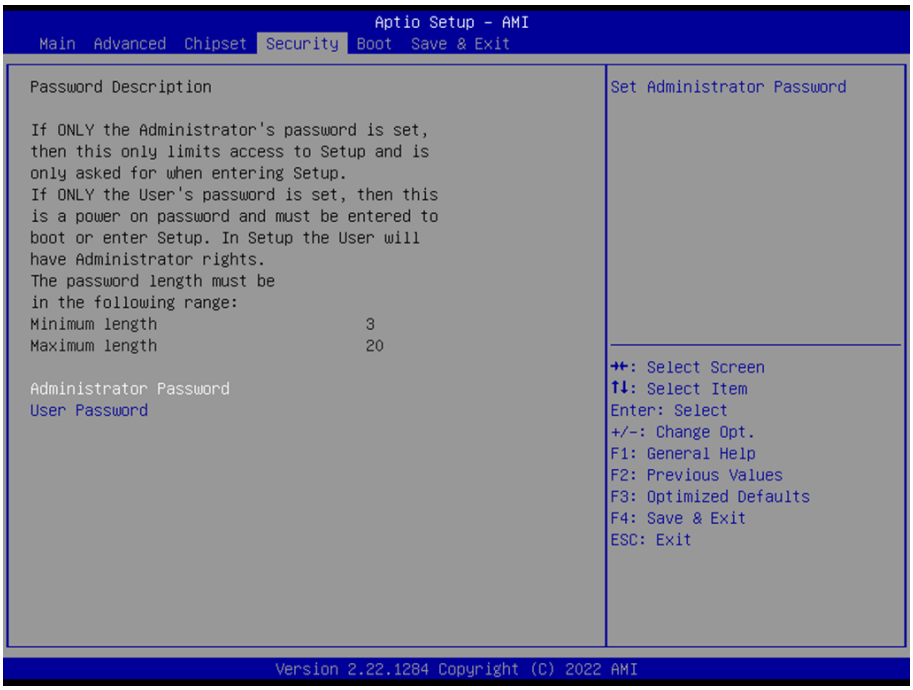
3.6.4.2.5 Serial IO Configuration



- **I2C0 Controller[Enabled]**
  Enabled/Disabled Serial IO Controller
  Configuration options: [Disabled] [Enabled]

- **I2C2 Controller[Enabled]**
  Enabled/Disabled Serial IO Controller
  Configuration options: [Disabled] [Enabled]

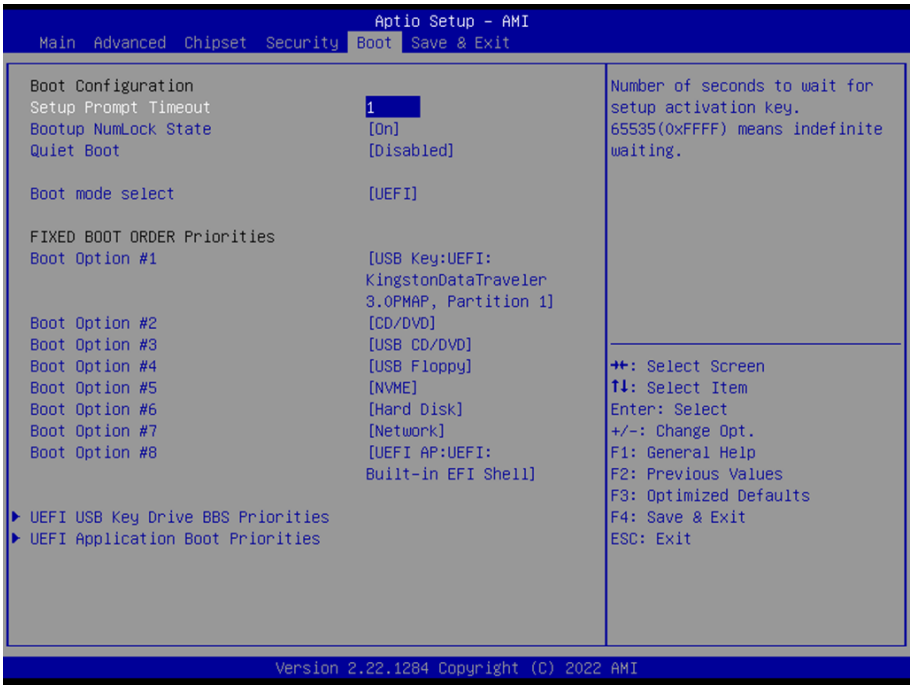
3.6.5 Security



- **Administrator Password**
  Set Administrator Password

- **User Password**
  Set User Password

3.6.6 Boot



- **Setup Prompt Timeout[1]**
  Number of seconds to wait for setup activation key. 65535(0xFFFF) means indefinite waiting.

- **Bootup NumLock State[On]**
  Select the keyboard NumLock state Configuration options: [On] [Off]

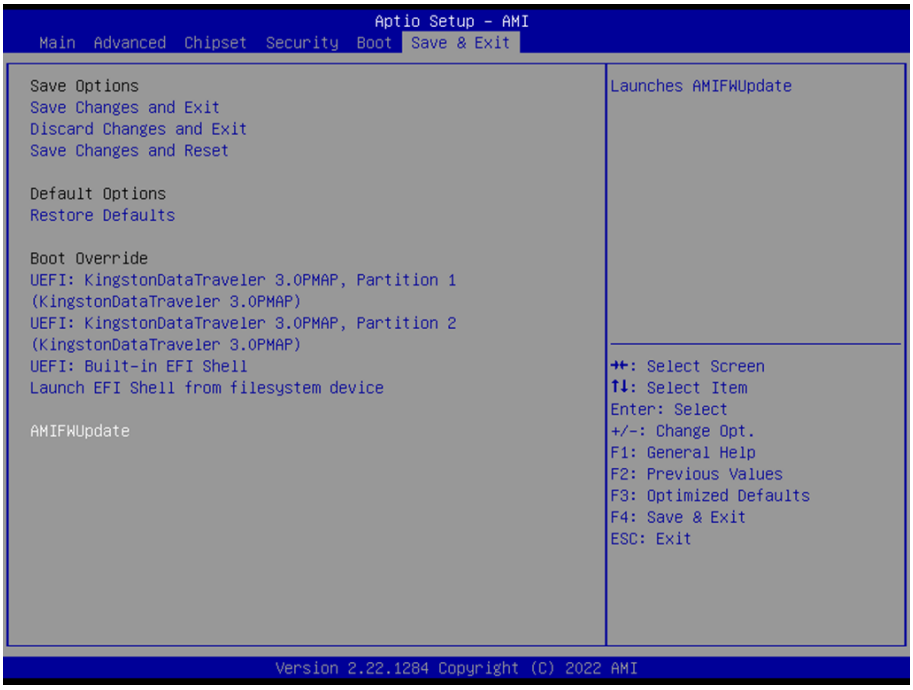
- **Quick Boot[Disable]**
  Enable or disable Quick Boot option Configuration options: [Disabled] [Enabled]

- **Boot mode select[UEFI]**
  Select boot mode LEGACY/UEFI Configuration options: [LEGACY] [UEFI]

- **UEFI USB Key Drive BBS Priorities**
  Specifies the boot device priority sequence from available UEFI USB key Drives.

- **UEFI Application Boot Priorities**
  Specifies the boot device priority sequence from available UEFI Application.

3.6.7 Save & Exit



- **Save changes and Exit**
  Exit system setup after saving the changes.

- **Discard changes and Exit**
  Exit system setup without saving the changes.

- **Save changes and Reset**
  Reset the system after saving the changes.

- **Restore Defaults**
  Restore/Load default values for all the setup option.

- **Launch EFI Shell from filesystem device**
  Attempts to launch EFI shell application from one of the available filesystem devices.

- AMIFWUpdate
  Launches AMIFWUpdate

3.6.8 MEBx


Aptio Setup – AMI
Main Advanced Chipset Security Boot Save & Exit MEBx
Configuration locked after
EndOfPost
→←: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F2: Previous Values
F3: Optimized Defaults
F4: Save & Exit
ESC: Exit
Version 2.22.1289 Copyright (C) 2023 AMI

4. Drivers Installation

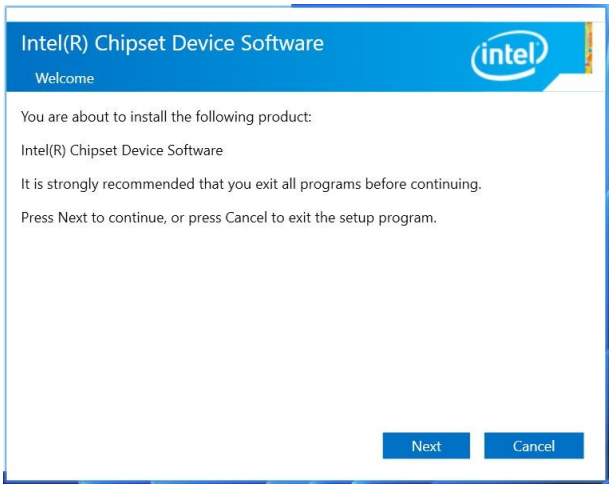
Note: Installation procedures and screen shots in this section are for your reference and may not be exactly the same as shown on your screen.

4.1 Install Chipset Driver

All drivers can be found on the Avalue Official Website:

www.avalue.com

Note: The installation procedures and screen shots in this section are based on Windows 11 operation system. If the warning message appears while the installation process, click Continue to go on.



Step1. Click **Next**.

Step 2. Click **Accept**.

Step 3. Click **Install**.

Step 4. Complete setup

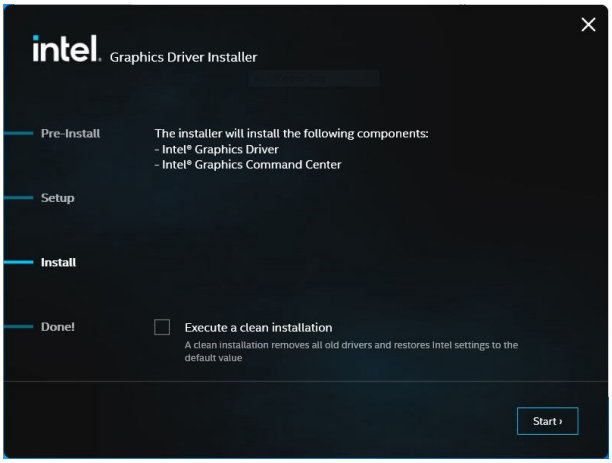
4.2 Install VGA Driver

All drivers can be found on the Avalue Official Website:

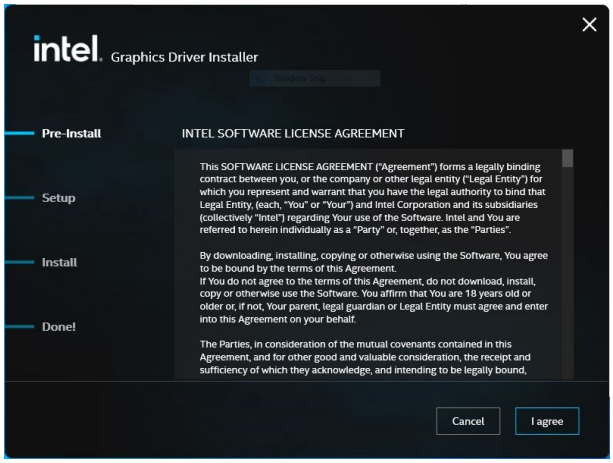
www.avalue.com

Note: The installation procedures and screen shots in this section are based on Windows 11 operation system. If the warning message appears while the installation process, click Continue to go on.

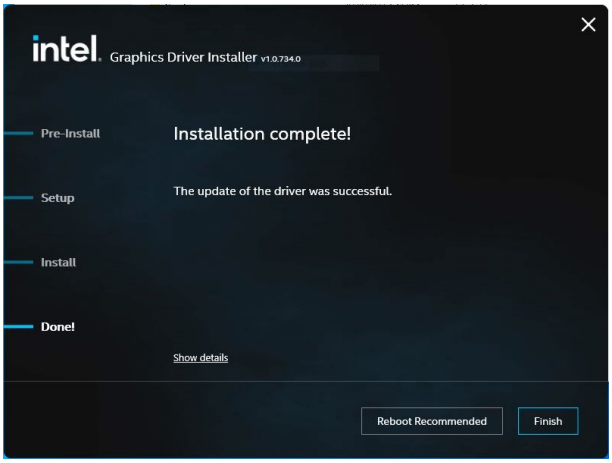
Step 1. Click **Begin installation**.



Step 3. Click **Start.**



Step 2. Click **Next** to accept license agreement.



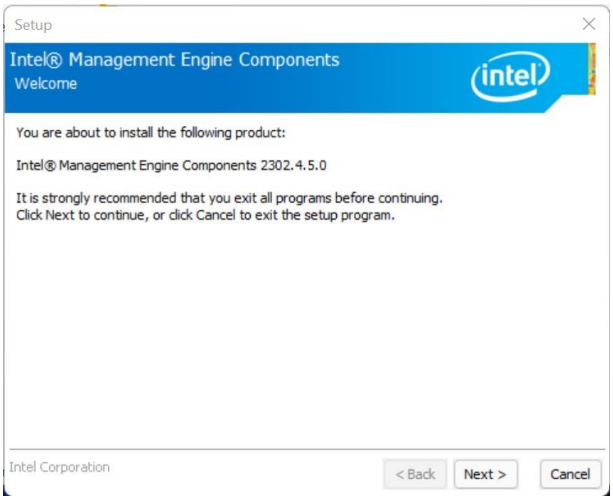
Step 4. Click **Finish.**

4.3 Install ME Driver

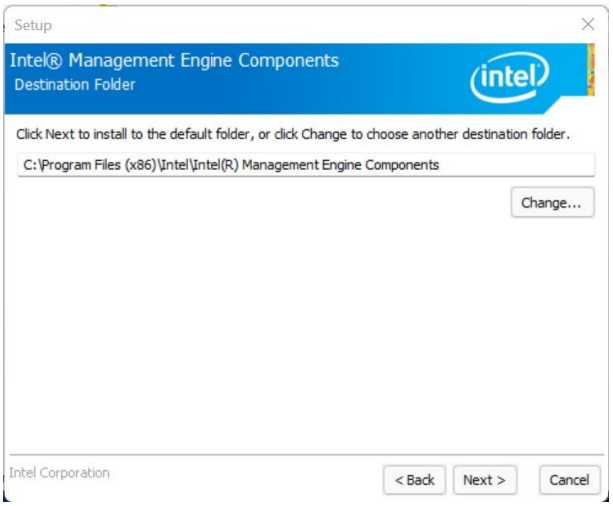
All drivers can be found on the Avalue Official Website:

www.avalue.com

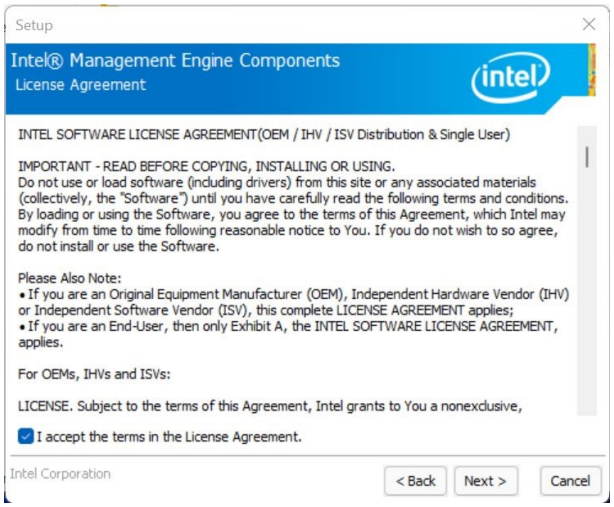
Note: The installation procedures and screen shots in this section are based on Windows 11 operation system. If the warning message appears while the installation process, click Continue to go on.



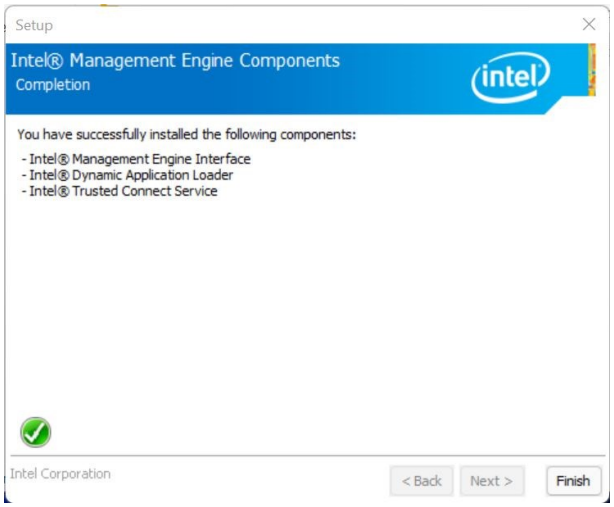
Step 1. Click **Next** to continue setup.



Step 3. Click **Next**.



Step 2. Click **Next**.



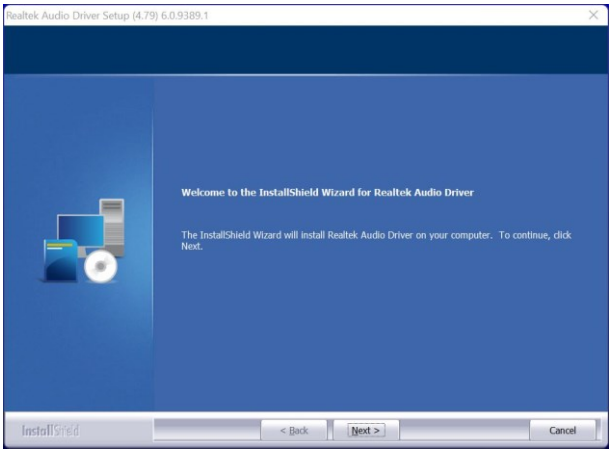
Step 4. Click **Finish** to complete setup.

4.4 Install Audio Driver (For Realtek ALC897 and ALC888S HD Audio)

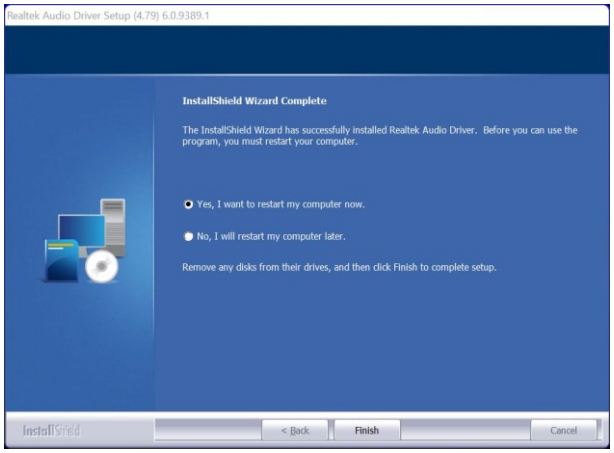
All drivers can be found on the Avalue Official Website:

www.avalue.com

Note: The installation procedures and screen shots in this section are based on Windows 11 operation system. If the warning message appears while the installation process, click Continue to go on.



Step1. Click **Next** to Install.



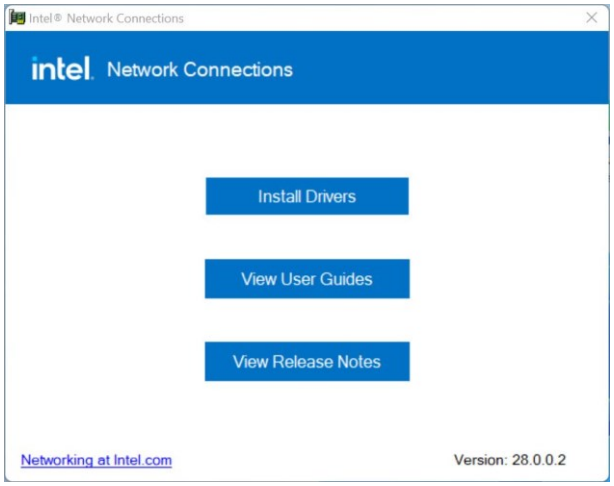
Step 2. Click **Finish** to complete setup.

4.5 Install LAN Driver

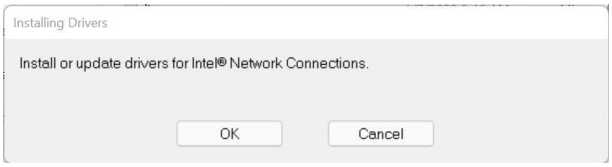
All drivers can be found on the Avalue Official Website:

www.avalue.com

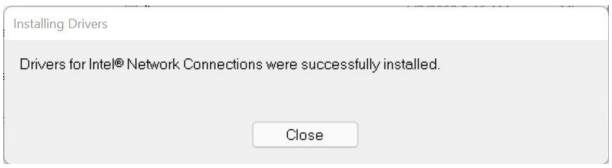
Note: The installation procedures and screen shots in this section are based on Windows 11 operation system. If the warning message appears while the installation process, click Continue to go on.



Step 1. Click **Next** to continue installation.



Step 2. Click **OK**.



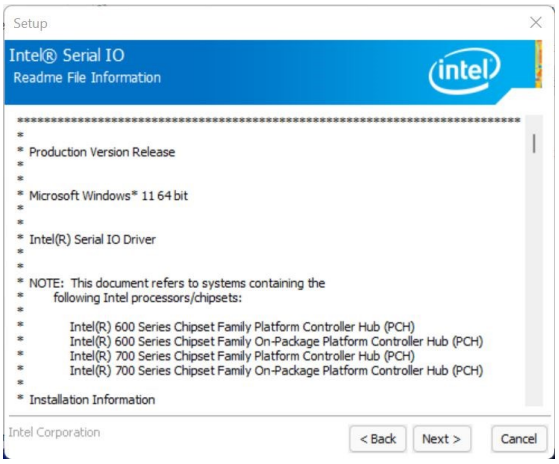
Step 3. Click **Close**.

4.6 Install Serial IO Driver

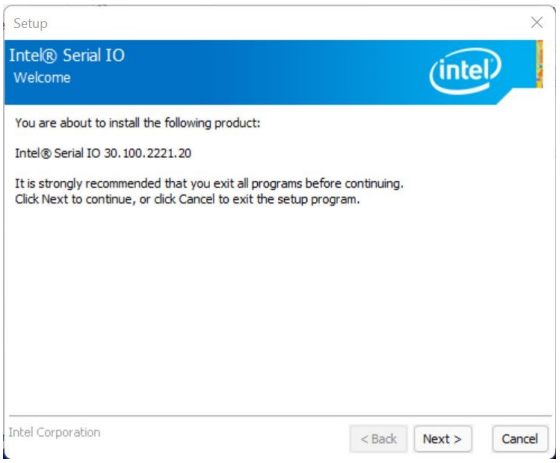
All drivers can be found on the Avalue Official Website:

www.avalue.com

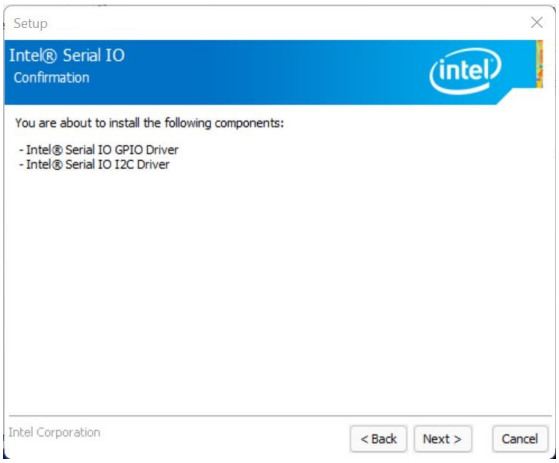
Note: The installation procedures and screen shots in this section are based on Windows 11 operation system. If the warning message appears while the installation process, click Continue to go on.



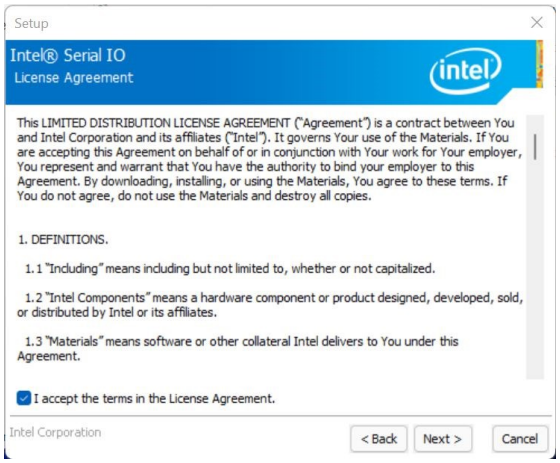
Step 3. Click **Next**.



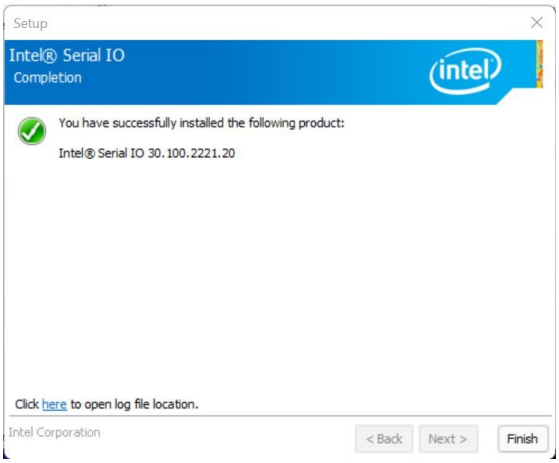
Step 1. Click **Next** to continue setup.



Step 4. Click **Next**.



Step 2. Click **Next**.



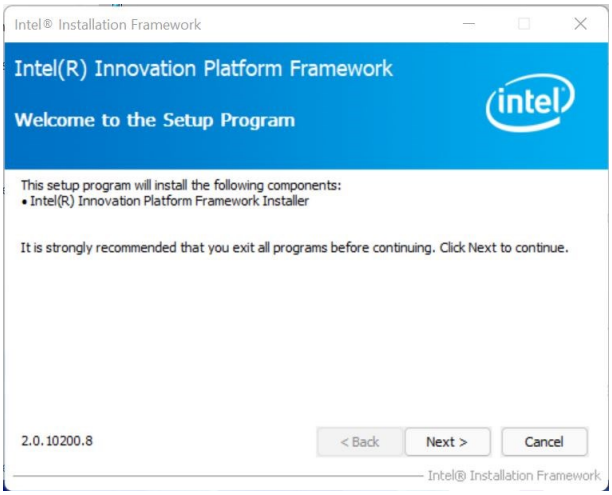
Step 5. Click **Finish** to complete setup.

4.7 Install Intel_DTT

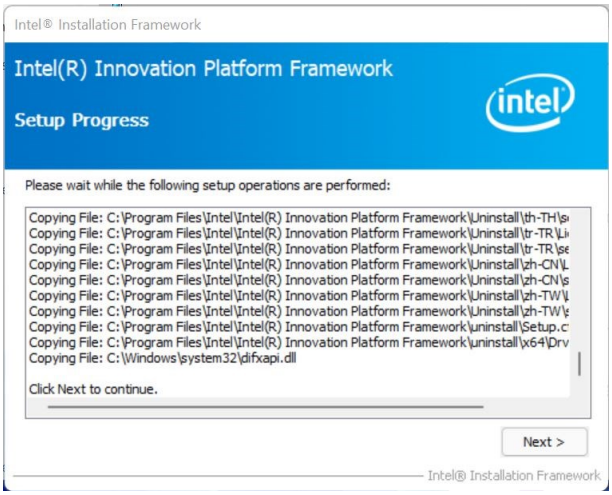
All drivers can be found on the Avalue Official Website:

www.avalue.com

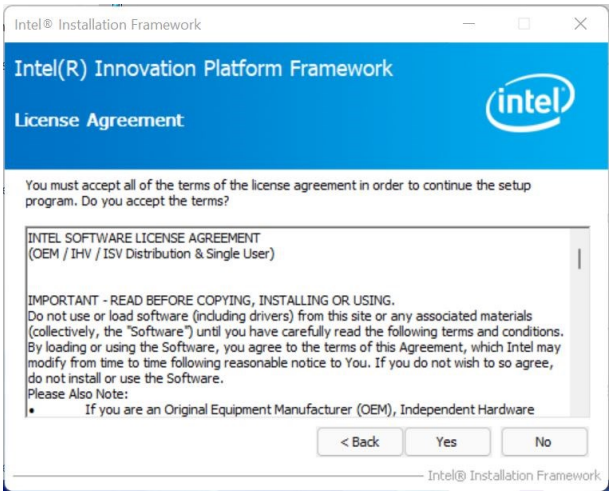
Note: The installation procedures and screen shots in this section are based on Windows 11 operation system. If the warning message appears while the installation process, click Continue to go on.



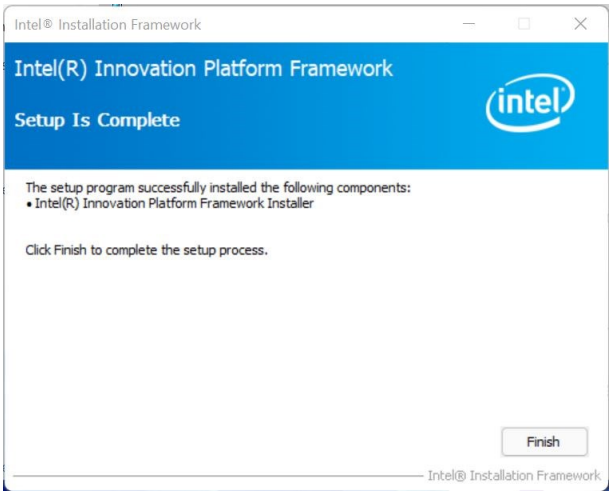
Step 1. Click **Next** to continue setup.



Step 3. Click **Next**.

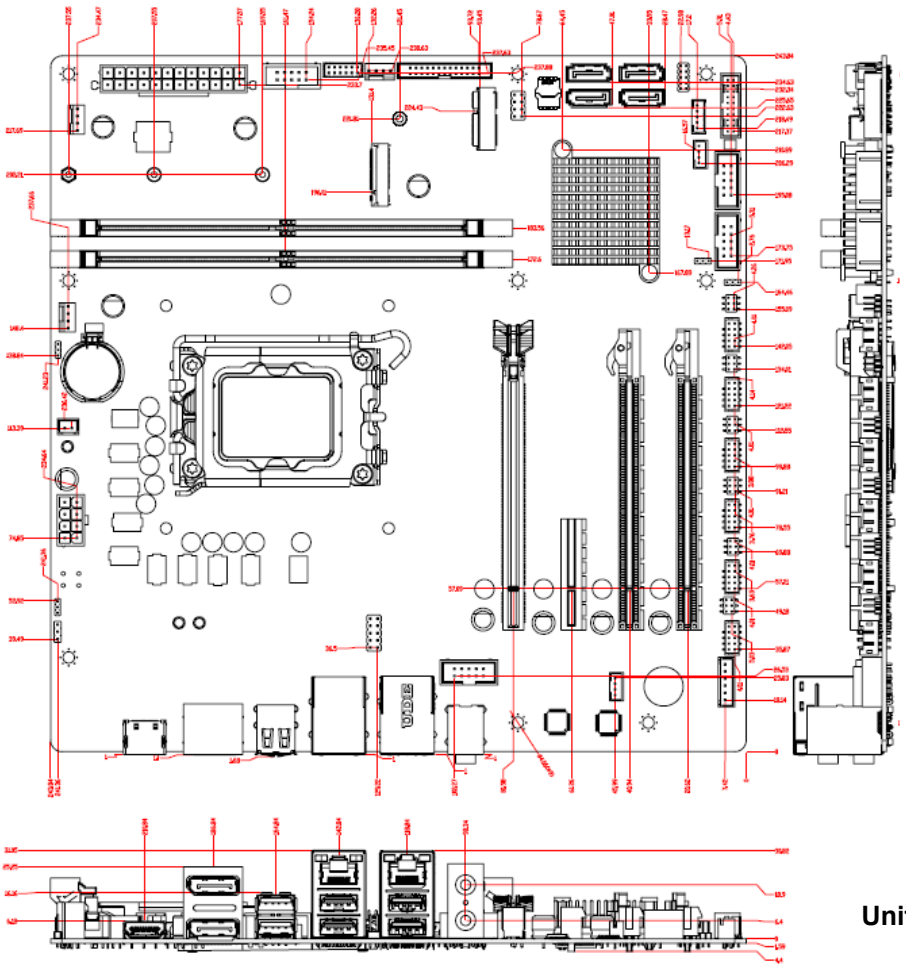


Step 2. Click **Yes**.

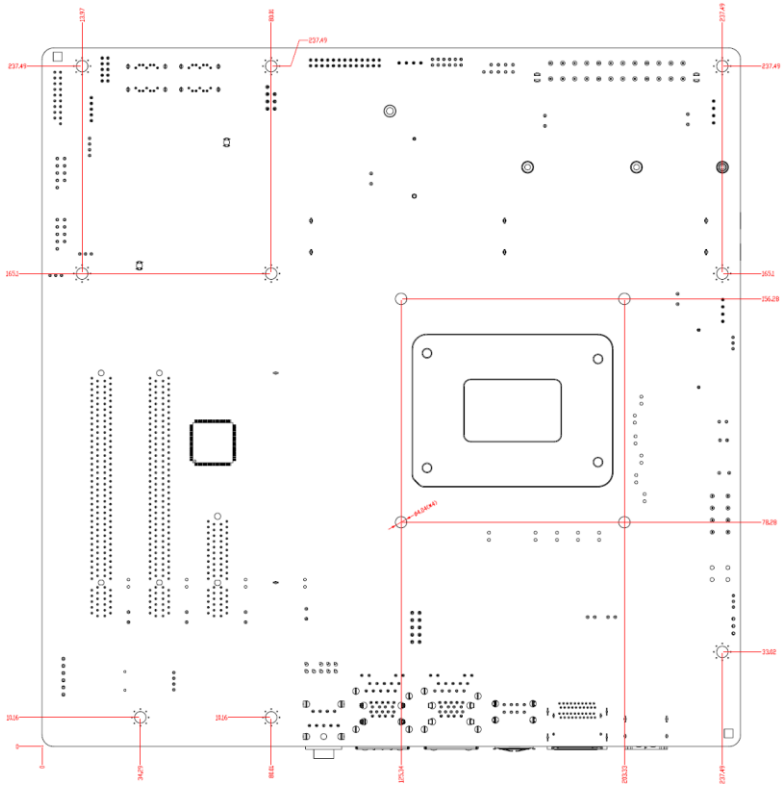


Step 4. Click **Finish** to complete setup.

5. Mechanical Drawing



Unit: mm



Unit: mm