USER'S MANUAL

eBOX630B Series

Embedded System

User's Manual

AXIOMTEK

www.axiomtek.com

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Safety Precautions

Before getting started, please read the following important safety precautions.

1. The eBOX630B does not come with an operating system which must be loaded first before installation of any software into the computer.
2. Be sure to ground yourself to prevent static charge when installing any internal components. Use a wrist grounding strap and place all electronic components in any static-shielded devices. Most electronic components are sensitive to static electrical charge.
3. Disconnect the power cord from the eBOX630B prior to making any installation. Be sure both the system and all external devices are turned OFF. Sudden surge of power could ruin sensitive components. Make sure the eBOX630B is properly grounded.
4. Make sure the voltage of the power source is correct before connecting it to any power outlet.
5. Turn Off system power before cleaning. Clean the system using a cloth only. Do not spray any liquid cleaner directly onto the screen.
6. Do not leave equipment in an uncontrolled environment where the storage temperature is below -40℃ or above 80℃ as it may damage the equipment.
7. Do not open the system's back cover. If opening the cover for maintenance is a must, only a trained technician is allowed to do so. Integrated circuits on computer boards are sensitive to static electricity. To avoid damaging chips from electrostatic discharge, observe the following precautions:
   - Before handling a board or integrated circuit, touch an unpainted portion of the system unit chassis for a few seconds. This will help discharge any static electricity on the human body.
   - When handling boards and components, wear a wrist grounding strap available from most electronic component stores.
8. Caution:

   Risk of explosion if battery is replaced by an incorrect type. Dispose of used batteries according to the instructions.

   IL Y A RISQUE D'EXPLOSION SI LA BATTERIE EST

   REMPLACEE

   PER UNE BATTERIE DE TYPE INCORRECT.

   METTRE AU REBUT LES BATTERIES USAGEES

   CONFORMEMENT AUX INSTRUCTIONS
9. Waring:

   Hot Surface. Do Not Touch.

   Restricted access locations: The equipment should only be installed in a Restricted Access Area.

Classifications

1. Degree of production against electric shock: not classified
2. Degree of protection against ingress of water: IP40
3. Equipment not suitable for use in the presence of a flammable anesthetic mixture with air, oxygen or nitrous oxide.
4. Mode of operation: Continuous

General Cleaning Tips

Please keep the following precautions in mind while understanding the details fully before and during any cleaning of the computer and any components within.

A piece of dry cloth is ideal to clean the device.

1. Be cautious of any tiny removable components when using a vacuum cleaner to absorb dirt on the floor.
2. Turn the system off before cleaning up the computer or any components within.
3. Avoid dropping any components inside the computer or getting circuit board damp or wet.
4. For cleaning, be cautious of all kinds of cleaning solvents or chemicals which may cause allergy to certain individuals.
5. Keep foods, drinks or cigarettes away from the computer.

Cleaning Tools:

Although many companies have created products to help improve the process of cleaning computer and peripherals, users can also use house hold items accordingly for cleaning. Listed below are items available for cleaning computer or computer peripherals.

Pay special attention to components requiring designated products for cleaning as mentioned below.

- Cloth: A piece of cloth is the best tool to use when rubbing up a component. Although paper towels or tissues can be used on most hardware as well, it is recommended to use a piece of cloth.
- Water or rubbing alcohol: A piece of cloth may be somewhat moistened with water or rubbing alcohol before being rubbed on the computer. Unknown solvents may be harmful to plastic parts.
- Absorb dust, dirt, hair, cigarette and other particles outside of a computer can be one of the best methods of cleaning a computer. Over time these items may restrict the airflow in a computer and cause circuitry to corrode.
- Cotton swabs: Cotton swabs moistened with rubbing alcohol or water are applicable to reach areas in a keyboard, mouse and other areas.
- Foam swabs: If possible, it is better to use lint free swabs such as foam swabs.

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【Note】: ***It is strongly recommended that customer should shut down the system before starting to clean any single components.***

Please follow the steps below:

1. Close all application programs;
2. Close operating software;
3. Turn off power switch;
4. Remove all devices;
5. Pull out power cable.

Scrap Computer Recycling

Please inform the nearest Axiomtek distributor as soon as possible for suitable solutions in case computers require maintenance or repair; or for recycling in case computers are out of order.

Trademarks Acknowledgments

Table of Contents

SECTION 1
INTRODUCTION

This section contains general information and detailed specifications of the eBOX630B. Section 1 consist of the following sub-sections:

- General Descriptions
- System Specifications
- Dimensions
- I/O Outlets
- Packing List
- Model List

1.1 General Descriptions

The eBOX630B Series features Intel® Core™ Ultra processor Series 1 (Meteor Lake-H), high performance yet low power consumption, fan-less slim type design, -40°C to +60°C extended operating temperature, and 9V to 60V wide range DC power input with industrial-grade reliability. Highly integrated and with rich IO configuration, the eBOX630B is perfectly suitable for Edge Computing, Machine Vision, Embedded Controller, Robotics applications.

Features

- Intel® Core™ Ultra processor Series 1 (Meteor Lake-H)
- Multiple compute engines : CPU , GPU (Intel® Arc GPU by H SKU) and NPU (Intel® AI Boost)
- Dual channel DDR5 5600 SO-DIMM, up to 96GB
- 6 USB and 2 USB Type-C with DisplayPort support
- Supports multiple display interfaces with 1 HDMI 1.4b and 3 x DisplayPort (2 ports via USB Type-C)
- Three 2.5GbE LAN with TSN and 1 GbE
- Two 2.5" front-access swappable HDD/SSD and 1 M.2 Key M 2280
- Wide operating temperature range from -40°C to +60°C
- Wide power input range from 9 to 60 VDC
- Supports the OpenVINO™ toolkit for AI computing

Reliable and Stable Design
The embedded system supports Intel® Core™ Ultra processor series 1 (Meteor Lake-H), along with the features of high performance, industrial-grade operation temperature/power input and multi-functional design that make it the best solution Edge Computing, Machine Vision, Embedded Controller, Robotics, and more.

Rich IO Connectivity
The eBOX630B comes with rich I/O interfaces including two RS-232/422/485 ports, two RS-232, four USB 3.2 ports, two USB 2.0 ports, two USB type C, three 2.5G high speed ethernet, one GbE ethernet, one HDMI 1.4b, one DisplayPort 1.4a,one 8-CH TTL DIO, and one front access SIM slot socket supported.

Embedded O.S. Supported
The eBOX630B platform supports Windows®11 IoT and Linux.

High data security Supported.
The eBOX630B is equipped with two swappable 2.5" SATA storage drive bays that can support RAID 0/1 for data backup.

1.2 System Specifications

1.2.1 CPU

- **CPU**
  - Intel® Core™ Ultra 7 processor 155H (16 cores, 28W TDP)
  - Intel® Core™ Ultra 5 processor 125H (14 cores, 28W TDP)

- **Chipset**
  - SoC

- **BIOS**
  - American Megatrends Inc. UEFI (Unified Extensible Firmware Interface BIOS.

- **System Memory**
  - 2 x 262 pin DDR5 5600MHz SO-DIMM, Non ECC up to total 96GB

1.2.2 I/O System

- **Display**
  - 1 x HDMI 1.4b (3840x2160@30Hz)(lockable)
  - 1 x DisplayPort 1.4a (4096x2160@60Hz)
  - 2 x DisplayPort 1.4a from Type C (4096x2160@60Hz)

- **Ethernet**
  - 3 x 2.5GbE (2 x Intel® I226-IT)
  - 1 x 10/100/1000 Mbps Ethernet (Intel® I210-IT)

- **USB Ports**
  - 2 x USB 3.2 Gen 1 (Type-A)
  - 2 x USB 3.2 Gen 2 (Type-A)
  - 2 x USB 2.0 (Type-A)
  - 2 x USB 3.2 Gen 2 (Type-C)

- **Serial Ports**
  - 2 x RS-232/422/485 (COM1/COM2)
  - 2 x RS-232 (COM3/COM4)

  Baud rate max. up to 115200

- **DIO Port**
  - 1 x 8-CH TTL DIO (DB9 female connector , 4 in & 4 out)

- **Mini PCIe Interface**
  - 1 x Full-size PCI Express Mini Card (USB 2.0 + PCIe signal)
  - 1 x M.2 Key E 2230 (USB 2.0 + PCIe signal) (for Wi-Fi)
  - 1 x M.2 Key M 2280 (for NVMe storage , PCIex4 signal only)

- **Storage**
  - 2 x 2.5" swappable SATA HDD/SSD drive bays, up to 9.5mm in height (RAID 0,1)

- **Indicator**
  - 1 x Green LED as indicator for PWR status
  - 1 x Amber LED as indicator for HDD/SSD active

- **Switch**
  - 1 x ATX PWR switch
  - 1 x Remote PWR switch
  - 1 x AT/ATX Quick switch
  - 1 x Reset connector

- **Antenna & SIM**
  - 4 x SMA type connector openings for antenna
  - 1 x front access SIM slot

- **TPM 2.0**
  - 1 x ST33HTPH2X32AHD8

1.2.3 System Specifications

- **Watchdog Timer**
  - 1-255 seconds or minutes; up to 255 levels.

- **Power Supply**
  - 9V-60V DC input with Ignition

- **Operation Temperature**
  - -40°C to +60°C (-40°F to +140°F) with 0.7 m/s air flow
    (with W.T. DRAM & SSD,CPU TDP 28W)

- **Storage Temperature**
  - -40℃ to +80℃ (-40 ºF to +176ºF)

- **Humidity**
  - 10% to 95% (non-condensation)

- **Shock (operation)**
  - IEC 60068-2-27 2008 Table A.1
    (with SSD: 50G, half sine, 11ms duration) MIL-STD-810H, Method 516.8, Procedure I (with SSD: 40G, TP sawtooth, 11ms duration)

- **Vibration Endurance (operation)**
  - IEC 60068-2-64 2019 Table A.3 Category No.1
    (with SSD: 1Grm STD, random, 5 to 500 Hz, 0.5 hr/axis) MIL-STD-810H, Method 514.8, Category 20, Figure 514.8C-2

- **Package Vibration (non-operation)**
  - IEC 60068-2-64 (with SSD: 2.25 Grms STD, random, 5 to 500 Hz, 1 hr/axis)

- **Package Drop**
  - IEC60068-2-31

- **Weight**
  - 2.4 kg (5.29 lb) without package
  - 3.2 kg (7.0 lb) with package

- **Dimension**
  - 250mm (9.84") (W) x 170mm (6.69") (D) x 60mm (2.36") (H)

1.2.4 Driver CD Contents

Please download the following eBOX630B drivers from the Axiomtek official website.

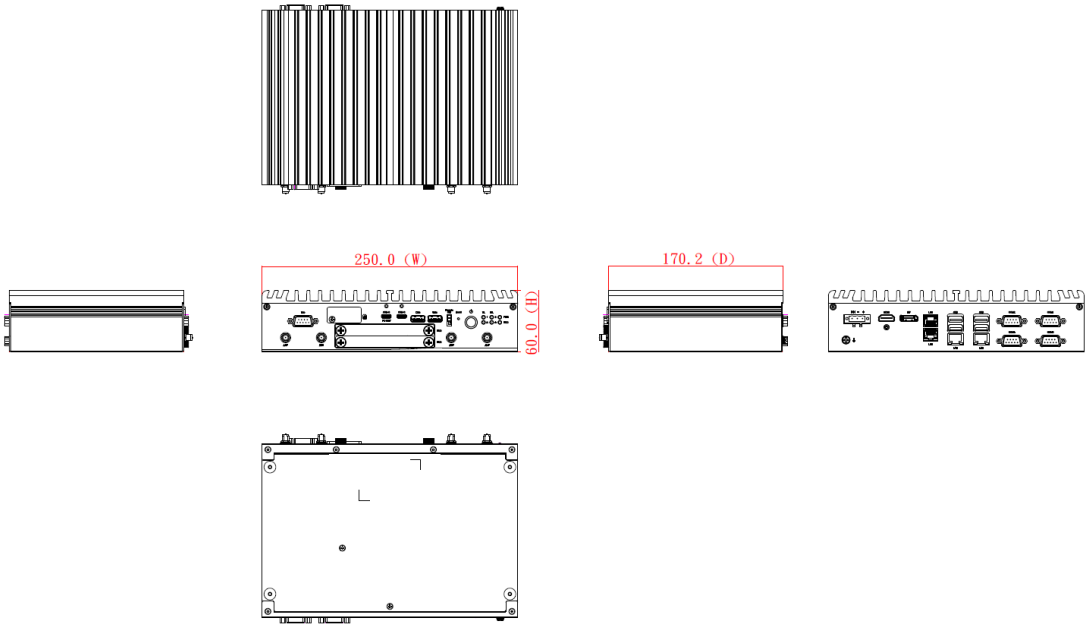
- **Ethernet**
- **Chipset**
- **Graphic**
- **Intel® ME**
- **Intel® Rapid Storage technology**
- **Intel® NPU**

【Note】: ***All specifications and images are subject to change without notice.***

1.3 Dimensions

The following diagrams show dimensions and outlines of the eBOX630B.

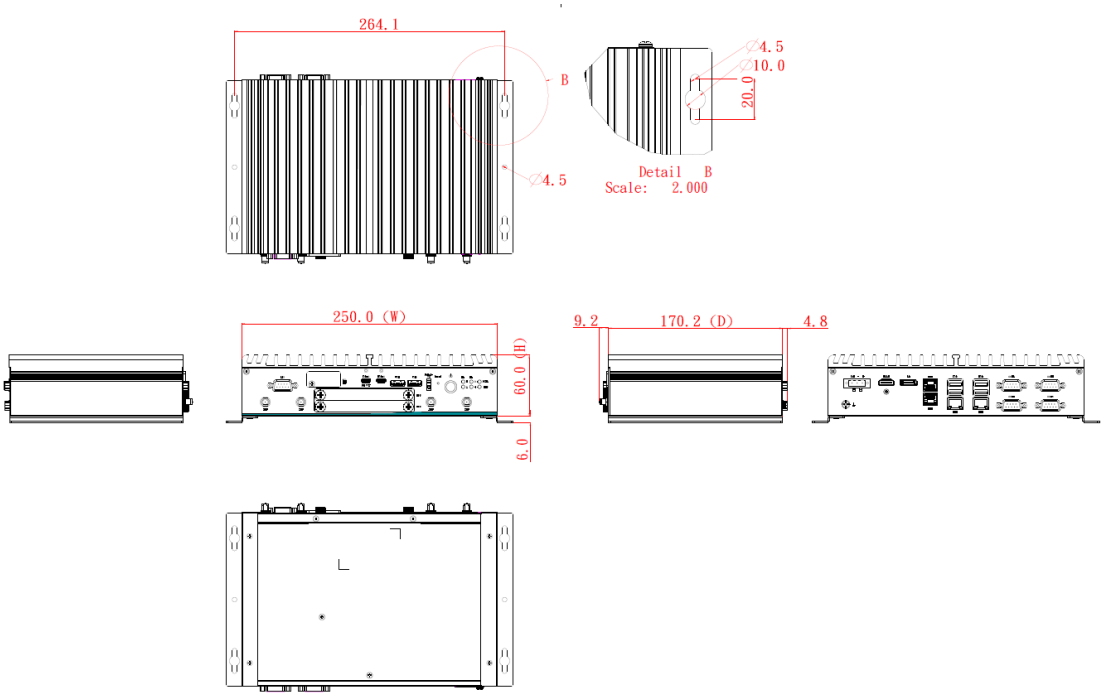
1.3.1 System Dimensions



1.3.2 Wall-mount Bracket Dimensions

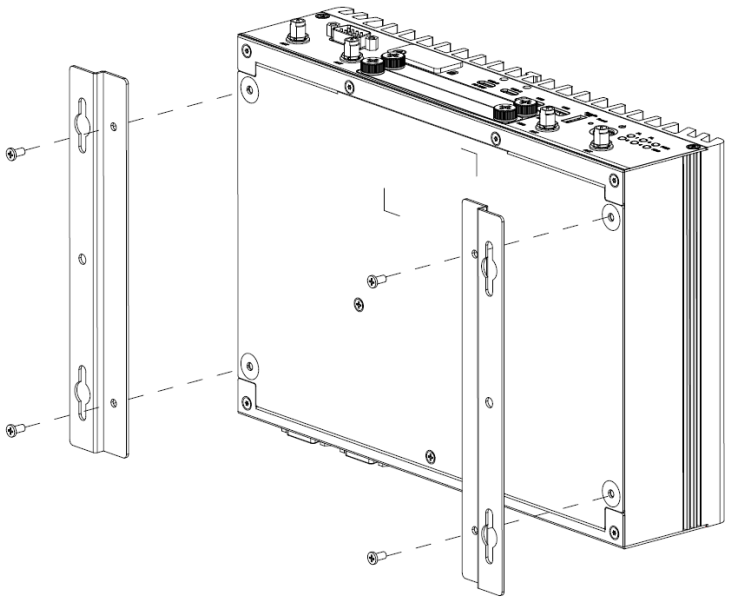
From the accessories box, users can get 4pcs of truss head M3*6L screws for fixing the wall mount kit.

Note: When users install the wall mount kit, please turn the LAN ports side outlet towards the floor.

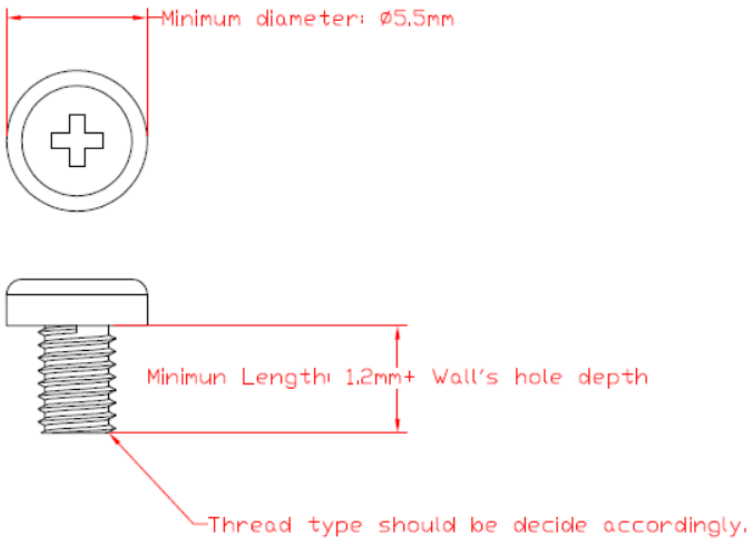


Wall-mount Bracket Assembly Drawing

From the accessories box, users can get 4pcs of truss head M3*6L screws for fixing the wall mount kit.

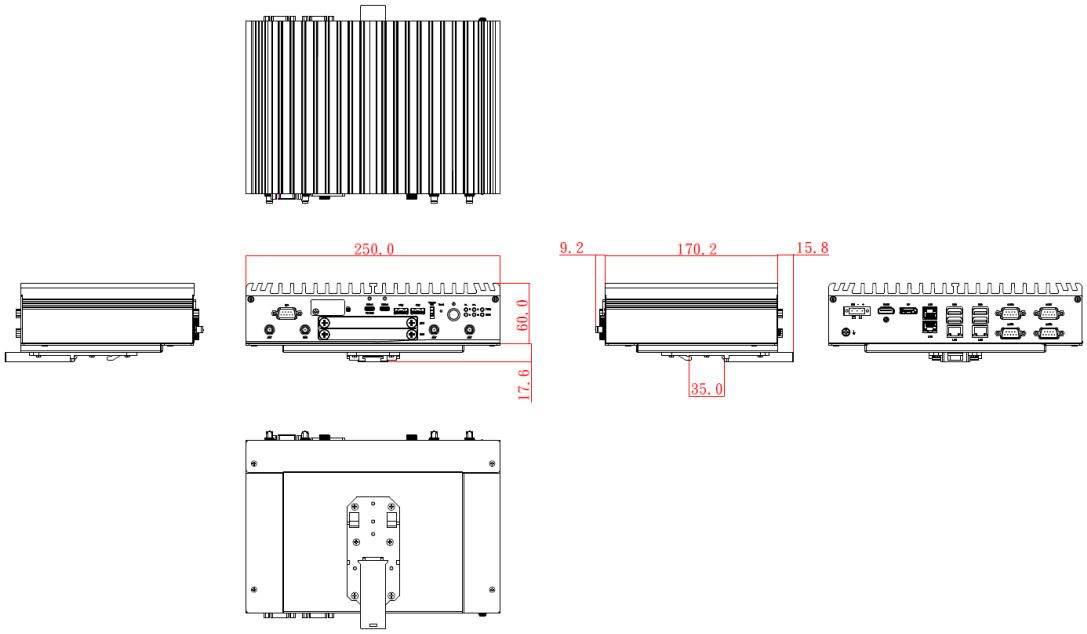


Note : If users install the screws in drywall, use the hollow wall anchors to ensure that the unit does not pull away from the wall due to prolonged strain between the cable and the power connector.



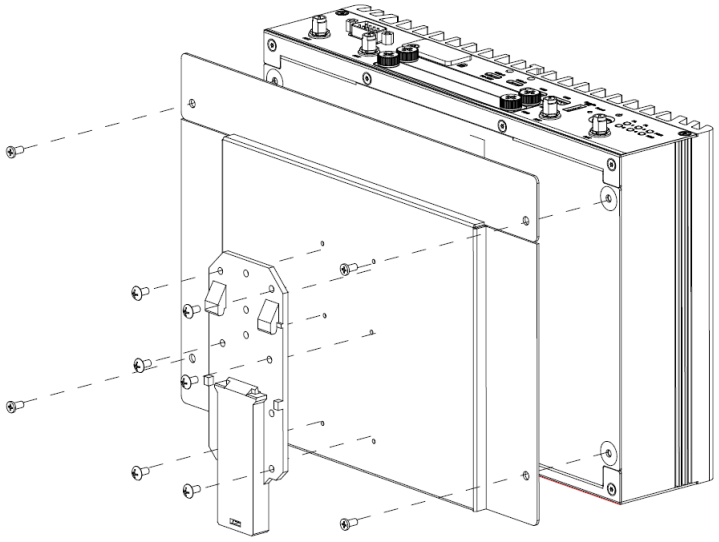
1.3.3 DIN-Rail Bracket Dimensions

From the accessories box, users can get 4pcs of truss head M3*6L and 6pcs of M3*4L countersunk flat head screws for fixing the DIN-rail mount kit.



DIN-Rail Bracket Assembly Drawing

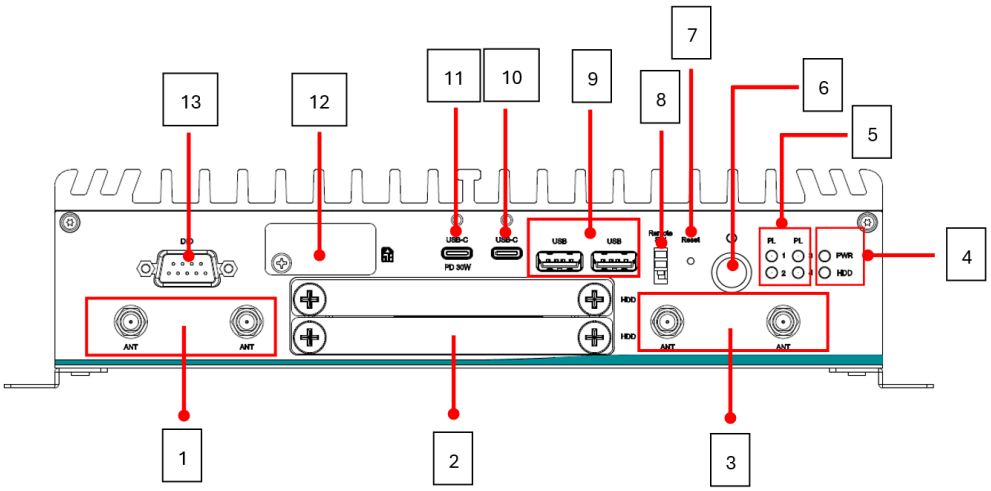
From the accessories box, users can get 4pcs of truss head M3*6L and 6pcs of M3*4L countersunk flat head screws for fixing the DIN-rail mount kit..



1.4 I/O Outlets

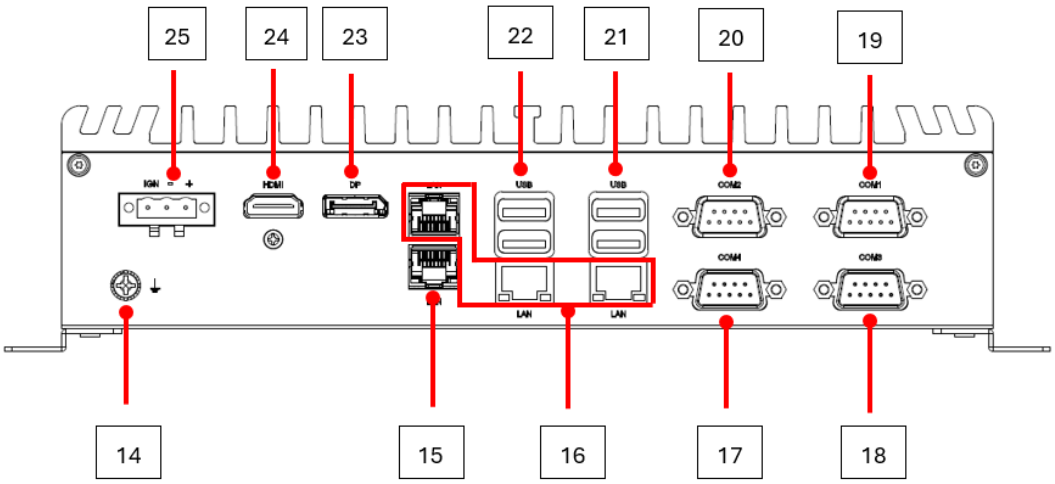
The following figures show I/O outlets on the eBOX630B.

Front View



1	**2 x Antenna opening**	**8**	**1 x Remote power switch**
2	**2 x Swappable HDD drive bay**	**9**	**2 x USB 2.0 (Type-A)**
3	**2 x Antenna opening**	**10**	**1 x USB 3.2 Gen 2 (Type-C)**
4	**LEDs (HDD, PWR)**	**11**	**1 x USB 3.2 Gen 2 (Type-C)**
5	**Programmer LEDs**	**12**	**1 x Front access SIM slot**
6	**1 x Power button**	**13**	**1 x 8-CH DIO (DB9 female,4IN & 4OUT)**
7	**1 x Reset switch**		

Rear View



14	**1 x Grounding screw**	**21**	**2 x USB 3.2 Gen 1**
15	**1 x GbE (I210-IT)**	**22**	**2 x USB 3.2 Gen 2**
16	**3 x 2.5 GbE (I226-IT**	**23**	**1 x HDMI 1.4b**
17	**1 x RS-232 (COM3)**	**24**	**1 x DisplayPort++**
18	**1 x RS-232 (COM4)**	**25**	**1 x Phoenix type power input**
19	**1 x RS-232/422/485 (COM1)**		
20	**1 x RS-232/422/485 (COM3)**		

1.5 Packing List

The eBOX630B comes with the following bundle package:

- **eBOX630B system unit x 1**
- **Remote power switch Cable x 1**
- **3-pin Terminal block connector x 1**
- **Foot Pad x 4**
- **DRAM thermal kit x 1 (included bracket & thermal pad)**
- **1 x M.2 thermal kit x 1 (included bracket & thermal pad)**
- **screw pack x 1**
- **Lockable cable tie x 3**

1.6 Model List

eBOX630B-U5-125H (P/N: E360630B00)	Fanless embedded AI system with Intel® 125H, HDMI/DisplayPort, 4 LAN, 4 COM, 6 USB, 2 USB Type-C, and 9 to 60VDC
eBOX630B-U7-155H (P/N: E360630B01)	Fanless embedded AI system with Intel® 155H, HDMI/DisplayPort, 4 LAN, 4 COM, 6 USB, 2 USB Type-C, and 9 to 60VDC

Please contact Axiomtek's distributors immediately in case any abovementioned items are missing.

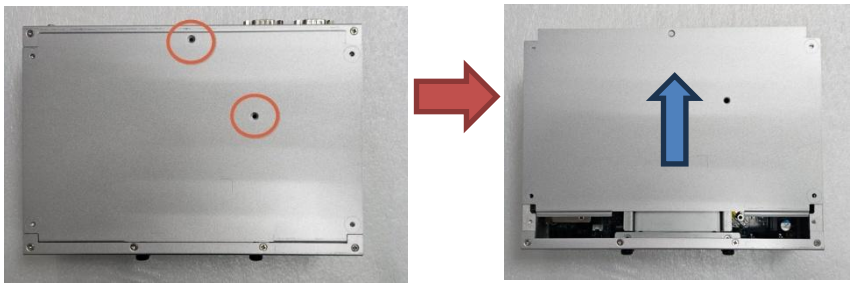
SECTION 2
HARDWARE INSTALLATION

The eBOX630B is convenient for various hardware configurations, such as CPU, DRAM, HDD (Hard Disk Drive), SSD (Solid State Drive), PCI Express Mini card modules and optional MXM graphic module. Section 2 contains guidelines for hardware installation.

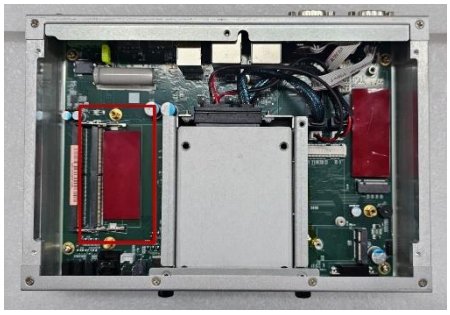
2.1 Installation of SO-DIMM

Step 1 Turn off the system and unplug the power cord.

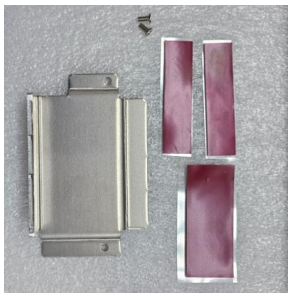
Step 2 Turn the system unit upside down and loosen two screws on the bottom cover of the chassis and pull up the bottom cover.



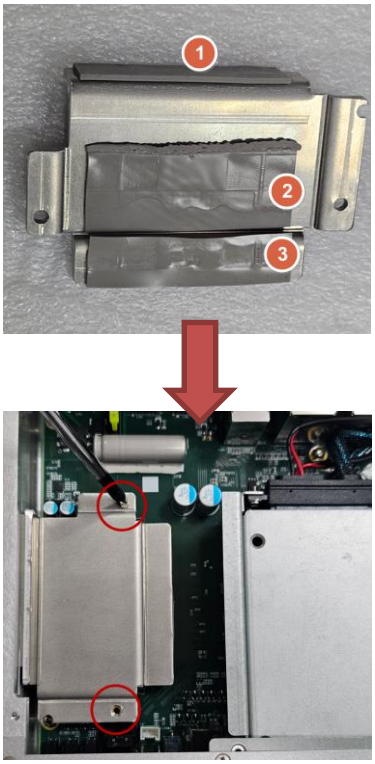
Step 3 Pull and open the bottom cover back, then located the dual DDR5 SO-DIMM sockets on main board as red marked.



Step 4 Prepare the DRAM thermal pad and bracket, peel off the transparent plastic film from the pad first, and align the memory modules into the socket and push the module down until it is locked in place by the two end latches.



Step 5 Attach the 3 thermal pads to the marked areas and secure the thermal bracket on top of the DRAM module with the 2 screws.

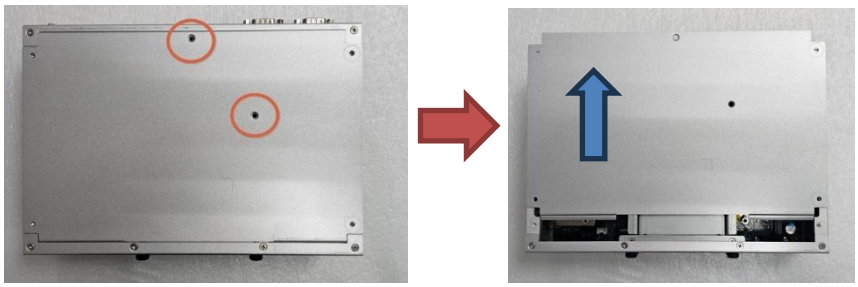


Step 6 Put the bottom cover back and fasten two screws back onto the system.

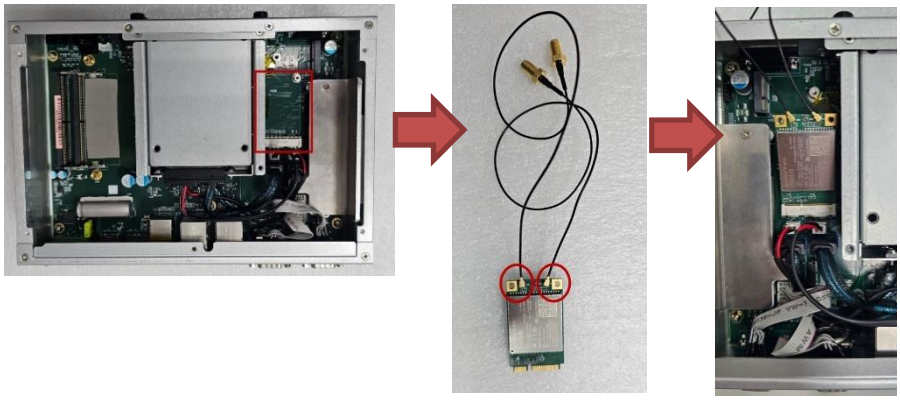
2.2 Installation of Mini PCIe Module (Full-Size)

Step 1 Turn off the system and unplug the power cord.

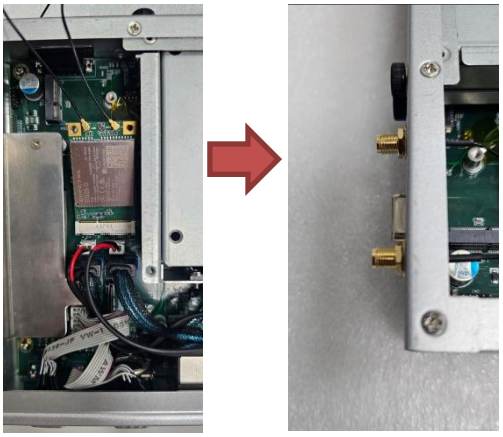
Step 2 Turn the system unit upside down and loosen two screws on the bottom cover of the chassis and pull up the bottom cover.



Step 3 Locate Mini PCIe card slot within the red line as marked. Attach the corresponding IPEX-to-SMA cable (2pcs) to the module as below red marked.



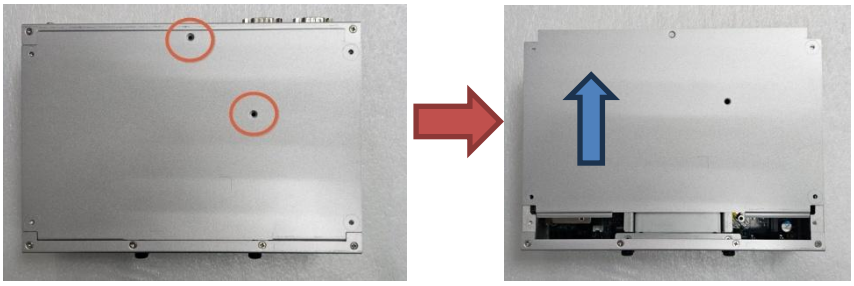
Step 4 Insert mPCIe LTE wireless module into the slot and tighten the card securely to the mainboard with M3x3 screw. Remove the antenna cover from the system, fix the SMA connector of the IPEX-to-SMA cable to the antenna apertures on the front panel.



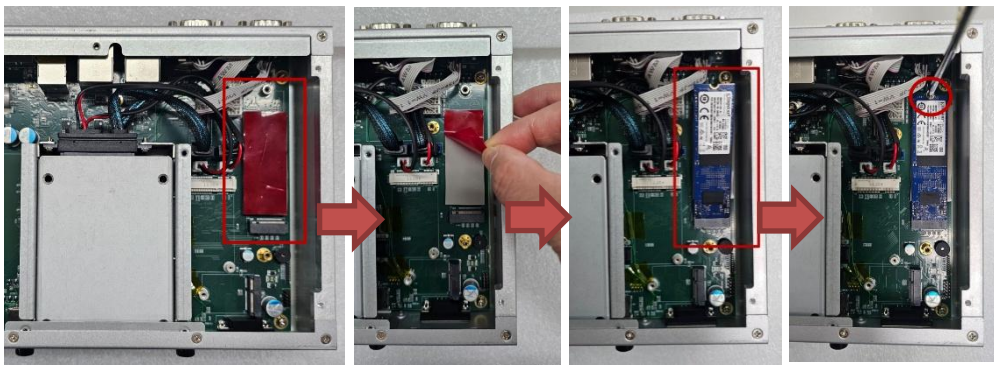
Step 5 Put the bottom cover and fasten all screws back onto the system.

2.3 Installation of NVMe storage (M.2 Key M)

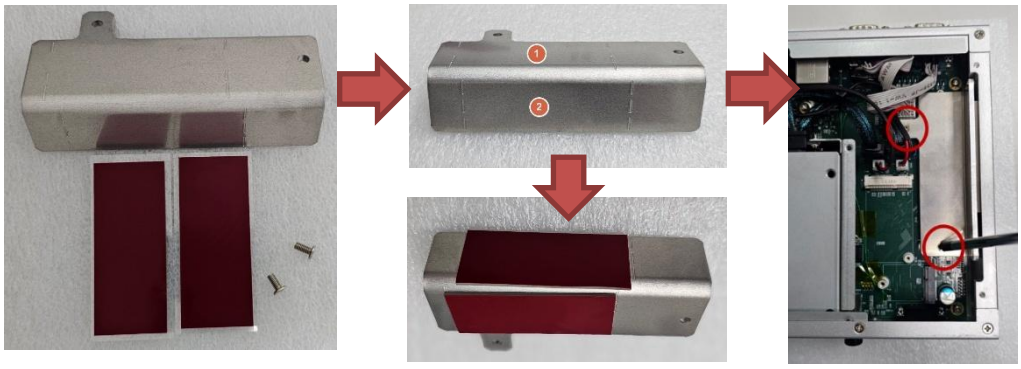
Step 1 **Turn off the system and unplug the power cord.**
Step 2 **Turn the system upside down to locate screws at the bottom and loosen two screws as red marked.**



Step 3 **Located the M.2 NVMe slot as red marked, peel off the transparent plastic film from the pad first, and insert the M.2 NVMe module into the slot and fasten the screw.**



Step 4 **Attach the 2 heat sink pads to the markings 1 and 2 below, align with the engraved lines, and then use 2 screws to fix the heat sink bracket on top of the M.2 key M module.**

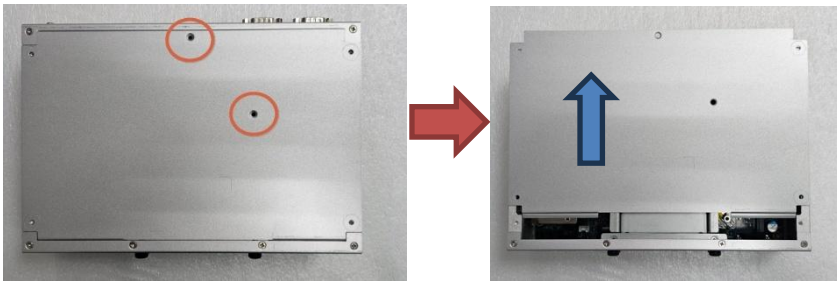


Step 5 **Put the bottom cover and fasten all screws back onto the system.**

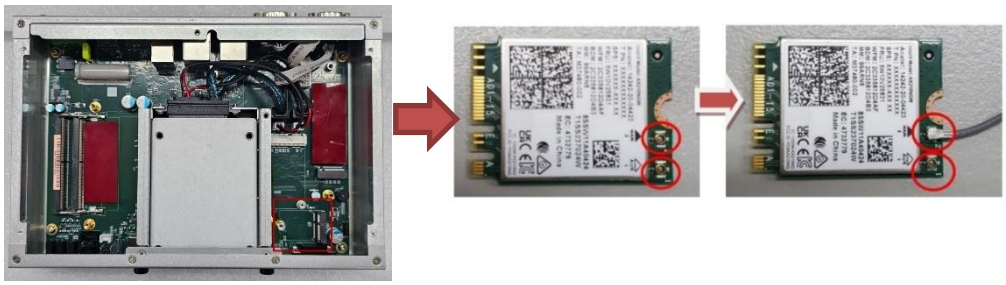
2.4 Installation of WiFi module (M.2 Key E)

Step 1 **Turn off the system and unplug the power cord.**

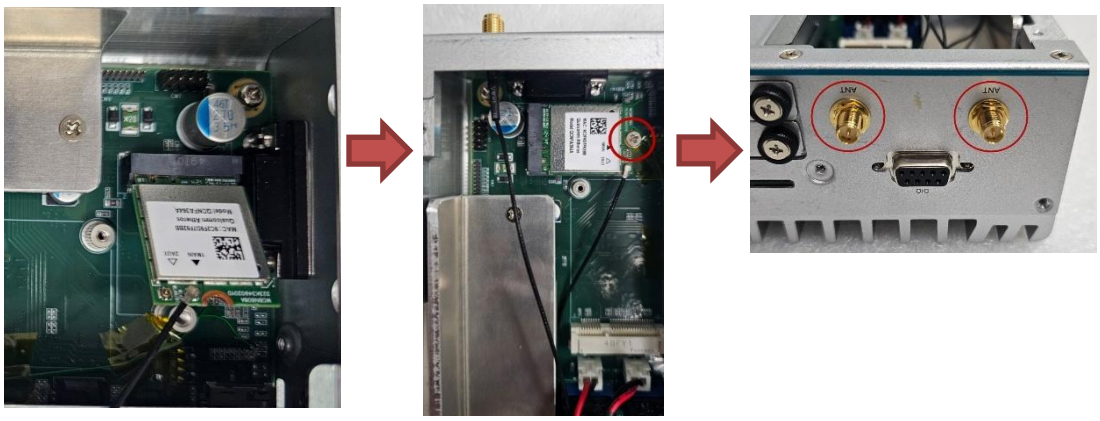
Step 2 **Turn the system upside down to locate screws at the bottom and loosen two screws as red marked.**



Step 3 **Locate the M.2 key E slot and attach the corresponding IPEX-to-SMA cable (2pcs) to the module as below red marked.**



Step 4 **Insert Wi-Fi wireless module into the slot and tighten the card securely to the mainboard with M3x3 screw.**
Remove the antenna cover from the system, fix the SMA connector of the IPEX-to-SMA cable to the antenna apertures on the front panel.

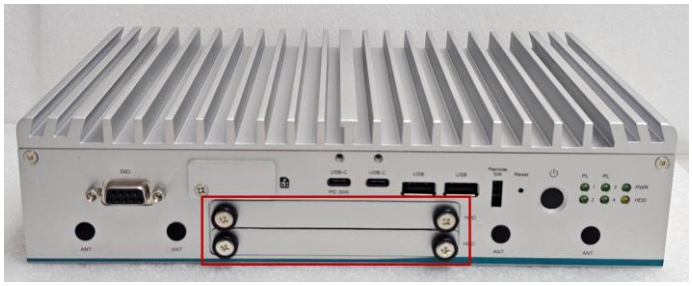


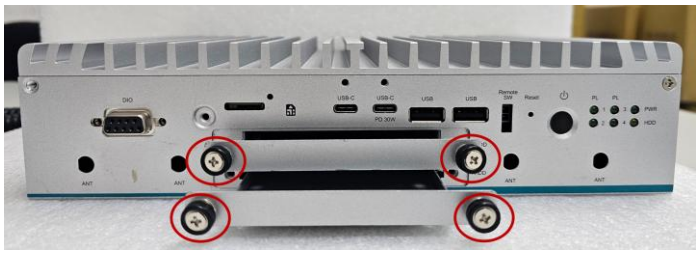
Step 5 **Put the bottom cover and fasten all screws back onto the system.**

2.5 Installation of 2.5" SATA Device

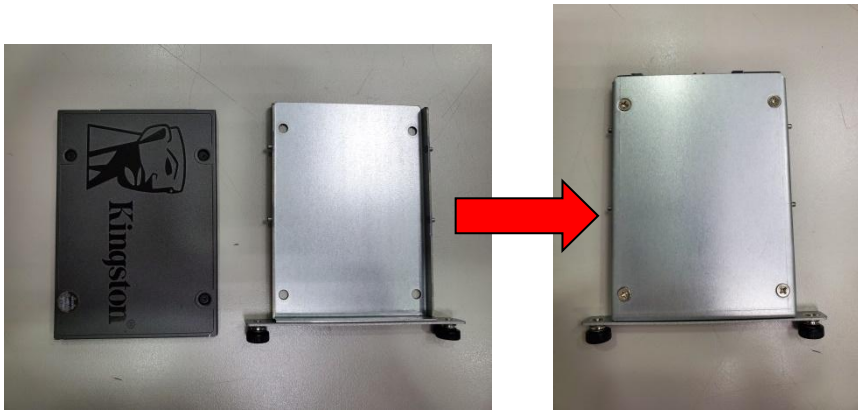
Step 1 **Turn off the system and unplug the power cord.**

Step 2 **Loosen two of the SATA drive tray's screws and pull out the SATA HDD drive tray. (the system supports two SATA drive bays)**





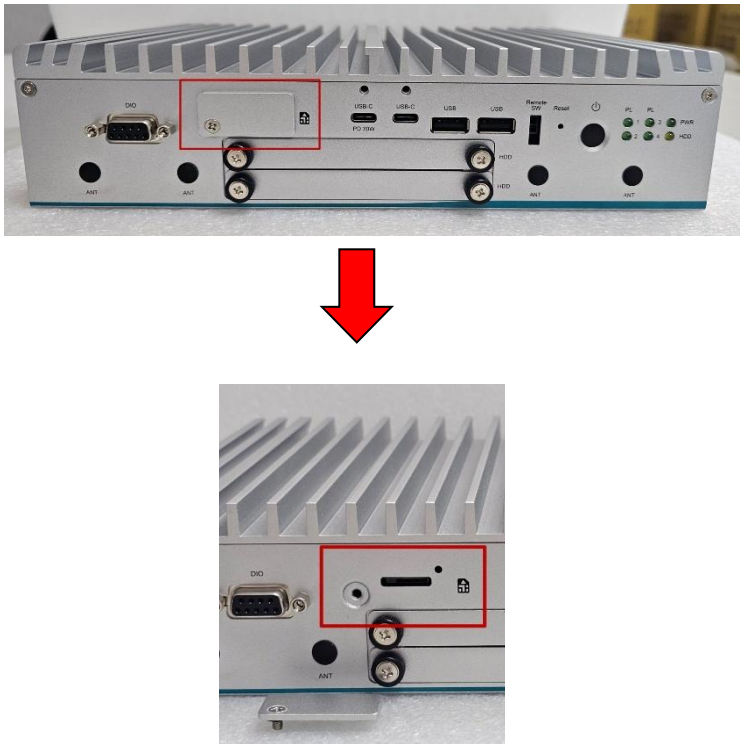
Step 3 **Turn the SATA drive tray upside down to install SSD/HDD and then fasten the four HDD screws to secure the SATA drive tray.**



Step 4 **Slide the SATA drive tray back into the system and fasten the screws firmly to complete the installation.**

2.6 Installation of SIM Card

Step 1 Turn off the system and unplug the power cord.
Step 2 Loosen the screw of the SIM slot cover on chassis.



Step 3 Make sure the SIM card direction is correct and insert the SIM card firmly.

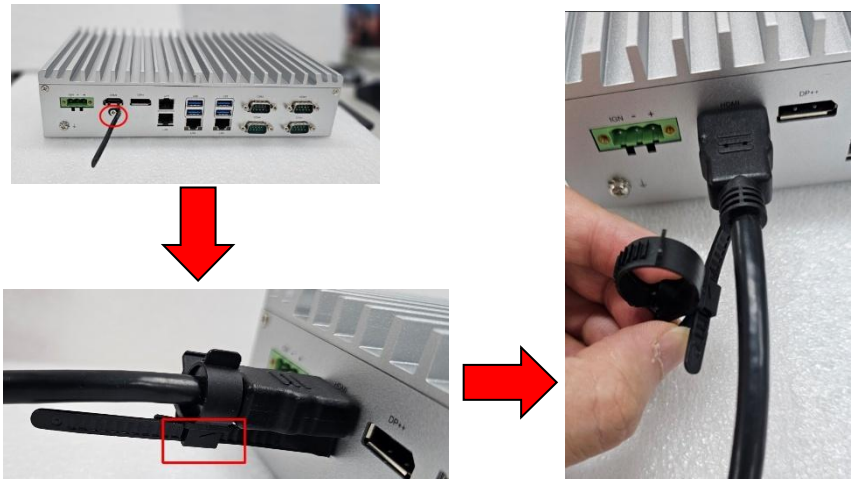
SIM card direction (contact side facing upward)

2.7 Installation of Lockable Cable Tie for HDMI Port

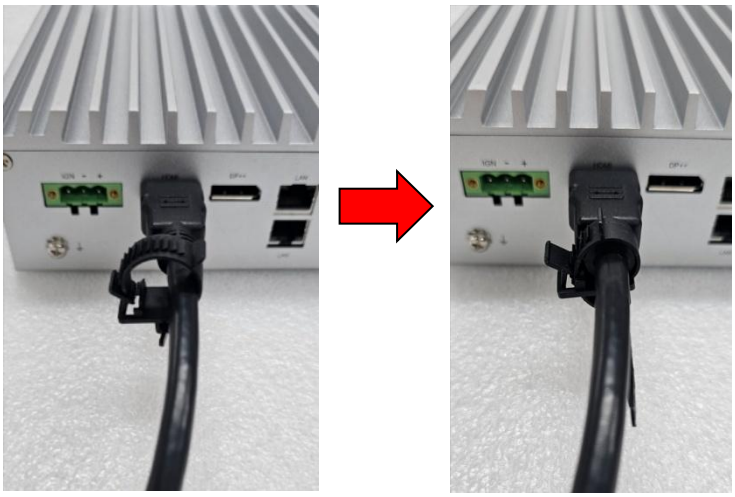
Step 1 Turn off the system and unplug the power cord.
Step 2 Loosen the screw of the HDMI port on chassis.

Step 3 Prepare the lockable cable tie & screw from the accessory box.

Step 4 Screw the cable tie as red marked. Insert the HDMI cable first. Then, align the locking ring with the arrow direction and slide it onto the cable tie.



Step 5 Adjust it to the proper position, then secure the cable tie.



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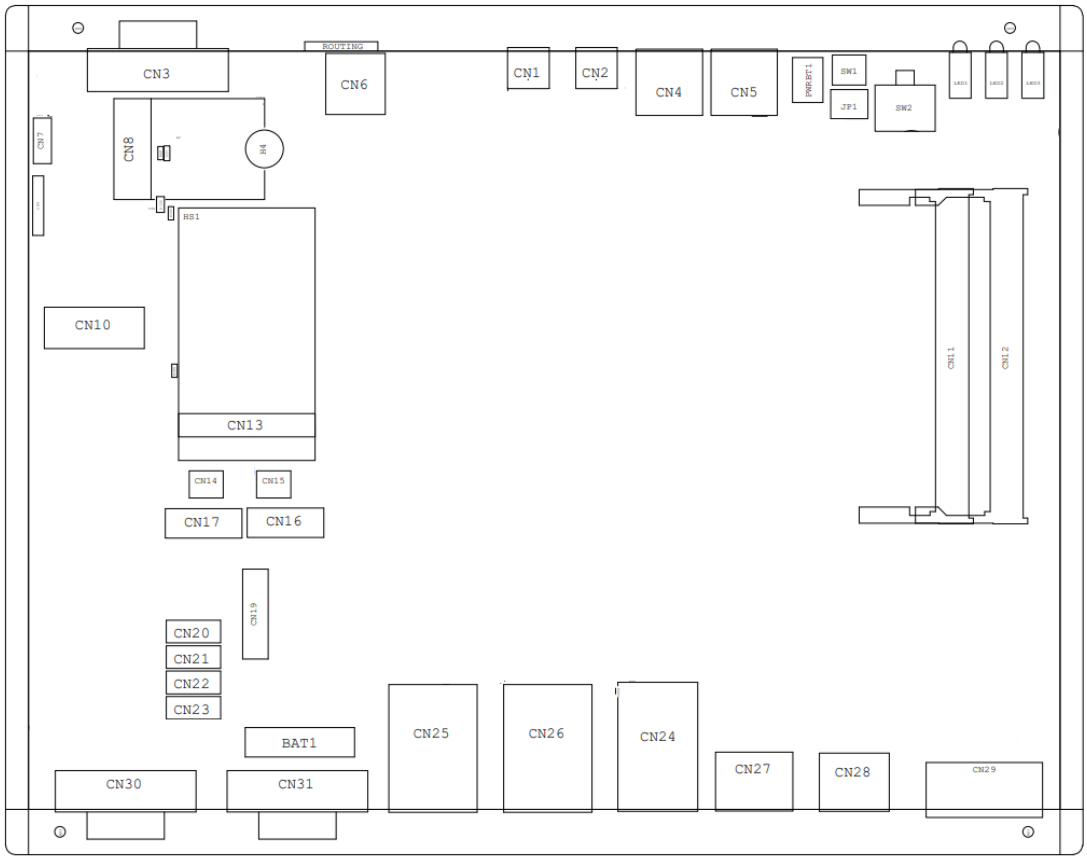
SECTION 3
JUMPER & CONNECTOR SETTINGS

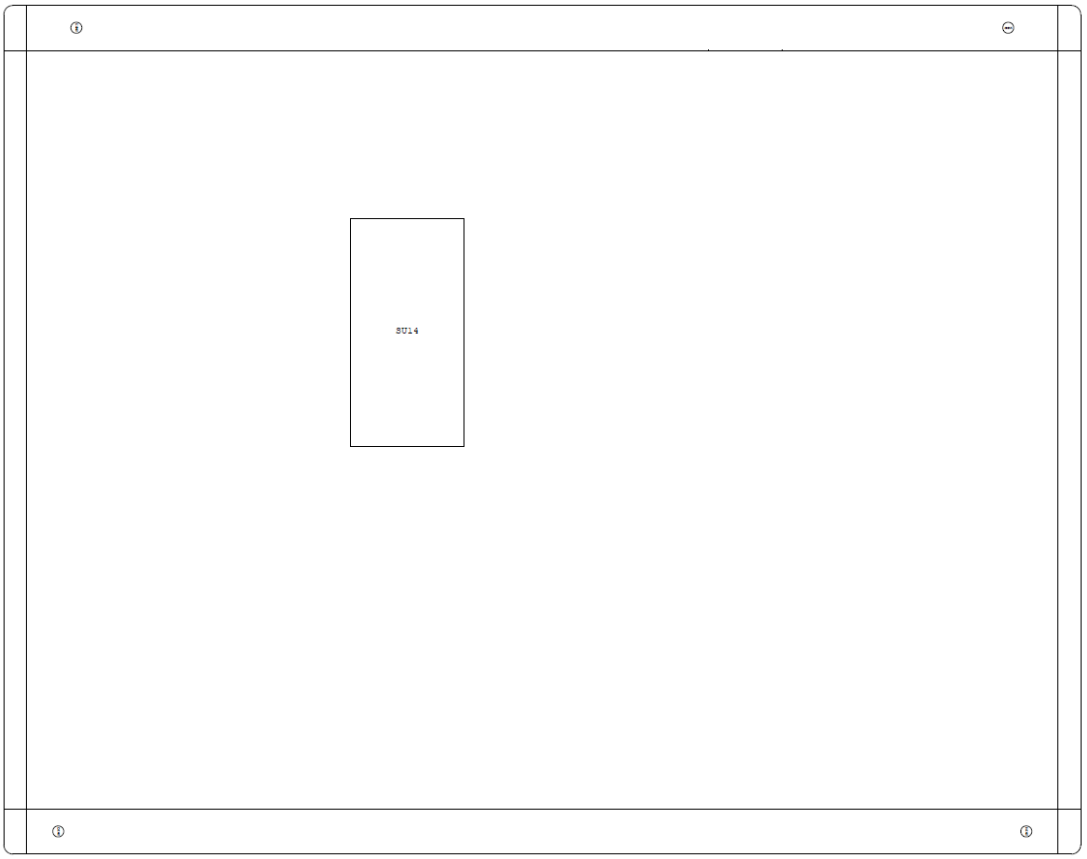
Proper jumper settings configure the eBOX630B to meet various application needs. Hereby all jumpers settings along with their default settings are listed for devices onboard.

3.1 Locations of Jumpers & Connectors

PSB538 Top View



PSB538 Botton View



【Note】: ***It is strongly recommended that any unmentioned jumper settings should not be modified without instructions by Axiomtek FAEs. Any modifications without instructions might cause system failure.***

3.2 Summary of Switch Settings

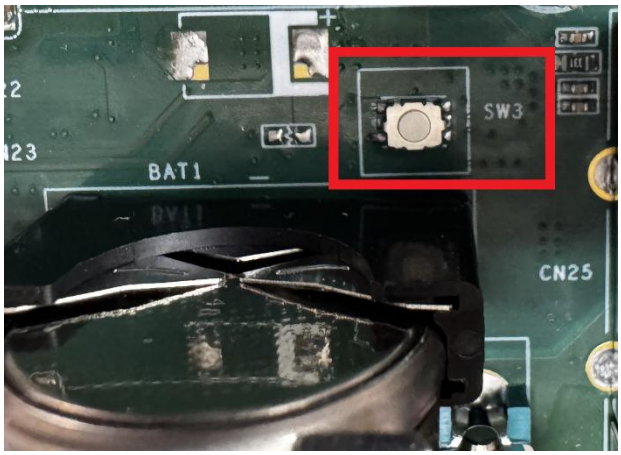
Proper switch settings configure the eBOX630B to meet various application purposes. A table of all switch and their default settings is listed below.

Jumpers	Descriptions	Settings
SW3	Clear CMOS	Press and hold

3.2.1 Restore BIOS Optimal Defaults (SW3)

Press and hold the Clear CMOS button for 10 seconds, then release it.

This procedure restores the BIOS to its optimal default settings.



3.3 Connectors

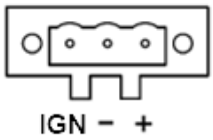
Please refer to the connector table below to get information on pin assignments for individual connectors.

External Connectors	Sections
DC-in Phoenix Power (CN29)	3.3.1
HDMI (CN28)	3.3.2
DisplayPort (CN27)	3.3.3
Serial Port (COM1/2) (CN30, CN31)	3.3.4
Ethernet (i226-IT) + USB 3.2 (CN25, CN26)	3.3.5
USB 2.0 (CN4, CN5)	3.3.6
Stacked Ethernet (CN24)	3.3.7
USB Type-C (CN1, CN2)	3.3.8
SIM slot (CN6)	3.3.9
8-CH Digital IO (CN3)	3.3.10
ATX power button (SW2)	3.3.11
Reset Switch (SW1)	3.3.12
Remote Power Switch (PWRBT1)	3.3.13
Internal Connectors	**Sections**
Serial Port (COM3/4) (CN20, CN21)	3.3.14
SATA Signal Connector (CN16,CN17)	3.3.15
SATA Power Connector (CN14, CN15)	3.3.16
Full-Size Express Mini Card Slot (CN13)	3.3.17
M.2 2280 Key M (CN10)	3.3.18
M.2 2230 Key E (CN8)	3.3.19

3.3.1 DC-in Phoenix Power Connector (CN29)

The system supports 9~60V Phoenix DC-in connector for system power input.

Pins	Signals
1	DC+
2	DC-
3	IGN

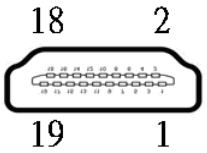


3.3.2 HDMI Connector (CN28)

The HDMI (High-Definition Multimedia Interface) is a compact digital interface which is capable of transmitting high-definition video and high-resolution audio over a single cable.

Pins	Signals	Pins	Signals
1	HDMI OUT_DATA2+	11	GND
2	GND	12	HDMI OUT Clock-
3	HDMI OUT_DATA2-	13	N.C.
4	HDMI OUT_DATA1+	14	N.C.
5	GND	15	HDMI OUT_SCL
6	HDMI OUT_DATA1-	16	HDMI OUT_SDA
7	HDMI OUT_DATA0+	17	GND
8	GND	18	+5V
9	HDMI OUT_DATA0-	19	HDMI_HTPLG
10	HDMI OUT Clock+		

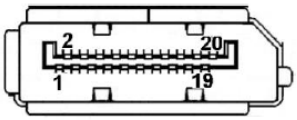
HDMI1.4b



3.3.3 DisplayPort++ (CN27)

The HDMI (High-Definition Multimedia Interface) is a compact digital interface which is capable of transmitting high-definition video and high-resolution audio over a single cable.

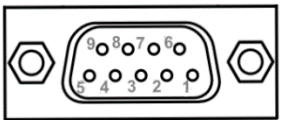
Pins	Signals	Pins	Signals
1	DPB_LANE0	11	GND
2	GND	12	DPB_LANE3#
3	DPB_LANE0#	13	Detect Pin
4	DPB_LANE1	14	GND
5	GND	15	DPB_AUX
6	DPB_LANE1#	16	GND
7	DPB_LANE2	17	DPB_AUX#
8	GND	18	DPB_HPDE
9	DPB_LANE2#	19	GND
10	DPB_LANE3	20	+3.3V



3.3.4 Serial Port Connector (CN30,CN31)

The eBOX630B supports 2x RS-232/422/485 ports (COM1/COM2). Please refer to Chapter 4 for the details of BIOS settings..

Pins	RS-232	RS-422	RS-485
1	DCD, Data Carrier Detect	TX-	Data-
2	RXD, Receive Data	TX+	Data+
3	TXD, Transmit Data	RX+	No use
4	DTR, Data Terminal Ready	RX-	No use
5	GND, Ground	No use	No use
6	DSR, Data Set Ready	No use	No use
7	RTS, Request To Send	No use	No use
8	CTS, Clear To Send	No use	No use
9	RI, Ring Indicator	No use	No use



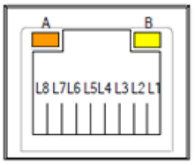
3.3.5 Ethernet + USB 3.2 Connector (CN25, CN26)

The CN25 is designed with one Ethernet port (Intel i226-IT) and two USB 3.2 Gen 1 (5Gbps) port

The CN26 is designed with one Ethernet port (Intel i226-IT) and two USB 3.2 Gen 2 (10Gbps) port.

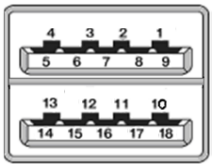
. i226-IT LAN Port

Pins	LAN Signal	Pins	LAN Signal
L1	MDI0+	L5	MDI2+
L2	MDI0-	L6	MDI2-
L3	MDI1+	L7	MDI3+
L4	MDI1-	L8	MDI3-
A	Activity link LED(Amber) OFF: No link Blinking: Link established; data activity detected		
B	Speed LED OFF: 10Mbps data rate OFF: 100Mbps data rate Orange : 1GMbps data rate Green: 2.5GMbps data rate		



USB 3.2 port

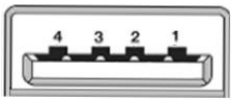
Pins	Signal USB Port 0	Pins	Signal USB Port 1
1	USB_VCC (+5V level standby power)	10	USB_VCC (+5V level standby power)
2	USB_Data-	11	USB_Data-
3	USB_Data+	12	USB_Data+
4	GND	13	GND
5	SSRX-	14	SSRX-
6	SSRX+	15	SSRX+
7	GND	16	GND
8	SSTX-	17	SSTX-
9	SSTX+	18	SSTX+



3.3.6 USB 2.0 Connector (CN4,CN5)

The Universal Serial Bus connectors are compliant with USB 2.0 (480Mbps) and ideal for installing USB peripherals such as a keyboard, mouse, scanner, etc...

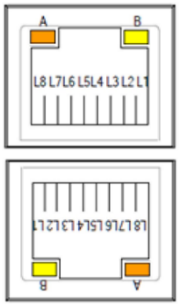
Pins	Signal USB Port 0	Pins	Signal USB Port 1
1	USB_VCC (+5V level standby power)	3	USB_Data+
2	USB_Data-	4	GND



3.3.7 Stacked Ethernet (CN24)

Stacked RJ-45 connector is designed by Intel i226-IT.

Pins	LAN Signal	Pins	LAN Signal
L1	MDI0+	L5	MDI2+
L2	MDI0-	L6	MDI2-
L3	MDI1+	L7	MDI3+
L4	MDI1-	L8	MDI3-
A	Activity link LED(Amber) OFF: No link Blinking: Link established; data activity detected		
B	Speed LED OFF: 10Mbps data rate OFF: 100Mbps data rate Amber : 1GMbps data rate Green: 2.5GMbps data rate		



3.3.8 USB Type-C Connector (CN1 and CN2)

Type-C Ports Overview:

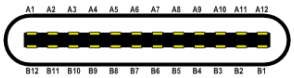
CN1: Full-featured Type-C with PD 3.0 and DP Alt Mode.

CN2: Full-featured Type-C with DP Alt Mode, 5V power only (no PD)

Feature	USB Type-C CN1	USB Type-C CN2
USB Specification	USB 3.2 Gen 2	USB 3.2 Gen 2
Display Output	DisplayPort Alternate Mode	DisplayPort Alternate Mode
	Up to 4K @ 60Hz	Up to 4K @ 60Hz
Power Delivery	PD 3.0 Supported	Not Supported (5V only)
Supported PDO Profiles	5V @ 3A	5V @ 1.5A (fixed)
	9V @ 3A	
	15V @ 2A	
	20V @ 1.5A	
Maximum Output Power	30W	7.5W

【Note】: Only Port 1 supports dynamic voltage negotiation via USB PD 3.0. Both ports support high-speed data and 4K video output through DP Alt Mode.

Pins	Signal	Pins	Signals
A1	GND	B1	GND
A2	SSTX+	B2	SSTX+
A3	SSTX-	B3	SSTX-
A4	USB_VCC	B4	USB_VCC
A5	N.C	B5	N.C
A6	USB D+	B6	USB D+
A7	USB D-	B7	USB D-
A8	N.C	B8	N.C
A9	USB_VCC	B9	USB_VCC
A10	SSRX-	B10	SSRX-
A11	SSRX+	B11	SSRX+
A12	GND	B12	GND

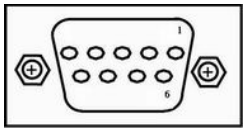


3.3.9 8-CH Digital IO (CN3)

eBOX630B supports one 8-CH output connector (DIO1~8), default: 4IN & 4OUT. Each bit can be set to function as input or output by software programming, and users can set up via BIOS setting.

Pins	Description
1	DIO1
2	DIO2
3	DIO3
4	DIO4
5	DIO5
6	DIO6
7	DIO7
8	DIO8
9	GND

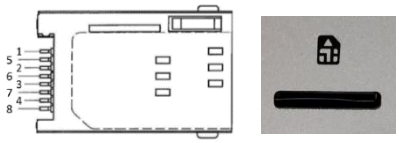
Digital I/O



3.3.10 SIM Slot (CN6)

The eBOX630B includes one SIM slot: CN6 is on front side of the system.

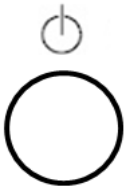
Pins	Signals
1	PRW
2	RST
3	CLK
4	NC
5	GND
6	VPP
7	IO
8	NC



3.3.11 ATX Power on/off (SW2)

The ATX power button is on the I/O side. It can allow users to control eBOX630B power on/off.

Functions	Descriptions
On	Turn on/off system
Off	Keep system status



3.3.12 Reset Button (SW1)

The Reset button can allow users to reset the eBOX630B system.

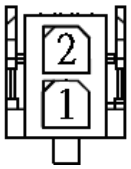
Functions	Descriptions
On	Reset system
Off	Keep system status

3.3.13 Remote Power Switch Connector (PWRBT1)

One 2-pin connector output for remote power on/off switch.

* Connector specification: Male / Female: BTX 2P 3.0mm

Functions	Descriptions
Short (1-2)	Turn on/off system
Open	Keep system status

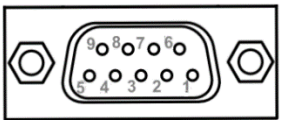


3.3.14 Serial Port Connector (CN20, CN21)

The eBOX630B supports 2x RS-232 ports (COM3/COM4). Please refer to Chapter 4 for the details of BIOS settings.

※COM3~4 (CN20,CN21)

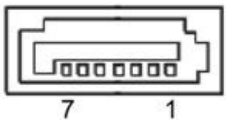
Pins	RS-232
1	DCD, Data Carrier Detect
2	RXD, Receive Data
3	TXD, Transmit Data
4	DTR, Data Terminal Ready
5	GND, Ground
6	DSR, Data Set Ready
7	RTS, Request To Send
8	CTS, Clear To Send
9	RI, Ring Indicator



3.3.15 SATA Connector (CN16, CN17)

These Serial Advanced Technology Attachment (Serial ATA or SATA) connectors are used for high-speed SATA interfaces. They are computer bus interfaces for connecting to devices such as hard disk drives. This board has two SATA 3.0 ports with 6Gb/s performance.

Pins	Signals
1	GND
2	SATA_TX+
3	SATA_TX-
4	GND
5	SATA_RX-
6	SATA_RX+
7	GND

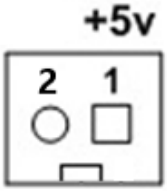


3.3.16 SATA Power Connector (CN14,CN15)

Based on CN14、CN15 to offer the SATA power for SATA 2.5" HDD/SSD.

*Connector specification: wafer 2P, P=2.5mm

Pins	Signals
1	+5V level
2	GND

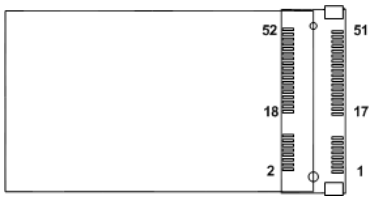


3.3.17 Full-Size PCI Express Mini Card Slot (CN13)

The eBOX630B supports one full-size PCI-Express Mini Card slots.CN13 is applying to either PCI-Express or USB 2.0 signal and complies with PCI-Express Mini Card Spec. V1.2.

CN13

Pins	Signals	Pins	Signals
1	WAKE#	2	+3.3VSB
3	No use	4	GND
5	No use	6	+1.5V
7	CLKREQ#	8	SIM_PWR
9	GND	10	SIM_DATA
11	REFCLK-	12	SIM_CLK
13	REFCLK+	14	SIM_REST
15	GND	16	SIM_VPP
17	No use	18	GND
19	No use	20	W_DISABLE#
21	GND	22	PERST#
23	PE_RXN3/	24	+3.3VSB
25	PE_RXP3/	26	GND
27	GND	28	+1.5V
29	GND	30	SMB_CLK
31	PE_TXN3/	32	SMB_DATA
33	PE_TXP3/	34	GND
35	GND	36	USB_D8-
37	GND	38	USB_D8+
39	+3.3VSB	40	GND
41	+3.3VSB	42	No use
43	GND	44	No use
45	No use	46	No use
47	No use	48	+1.5V
49	No use	50	GND
51	No use	52	+3.3VSB



3.3.18 M.2 2280 Key M (CN10)

The M.2 2280 Key M for NVMe storage.

Pins	Signals	Pins	Signals	Pins	Signals	Pins	Signals
1	GND	2	+3.3V	3	GND	4	+3.3V
5	PEX3_RX-	6	NC	7	PEX3_RX+	8	NC
9	GND	10	LED_1#	11	PEX3_TX-	12	+3.3V
13	PEX3_TX+	14	+3.3V	15	GND	16	+3.3V
17	PEX2_RX-	18	+3.3V	19	PEX2_RX+	20	NC
21	GND	22	NC	23	PEX2_TX-	24	NC
25	PEX2_TX+	26	NC	27	GND	28	NC
29	PEX1_RX-	30	NC	31	PEX1_RX+	32	NC
33	GND	34	NC	35	PEX1_TX-	36	NC
37	PEX1_TX+	38	DEV SLP	39	GND	40	NC
41	PEX0_RX-	42	NC	43	PEX0_RX+	44	NC
45	GND	46	NC	47	PEX0_TX-	48	NC
49	PEX0_TX+	50	PERST#	51	GND	52	CLKREQ#
53	PEX0_REFCLkn	54	PEWAKE#	55	PEX0_REFCLkp	56	NC
57	GND	58	NC	59	CONNECTOR KEY M	60	CONNECTOR KEY M
61	CONNECTOR KEY M	62	CONNECTOR KEY M	63	CONNECTOR KEY M	64	CONNECTOR KEY M
65	CONNECTOR KEY M	66	CONNECTOR KEY M	67	NC	68	NC
69	NC	70	+3.3V	71	GND	72	+3.3V
73	GND	74	+3.3V	75	GND		

3.3.19 M.2 2230 Key E (CN8)

The M.2 2230 Key E for Wi-Fi.

Pins	Signals	Pins	Signals	Pins	Signals	Pins	Signals
1	GND	2	+3.3V	3	USB_D+	4	+3.3V
5	USB_D-	6	NC	7	GND	8	NC
9	NC	10	NC	11	NC	12	NC
13	GND	14	NC	15	NC	16	NC
17	NC	18	GND	19	GND	20	NC
21	NC	22	NC	23	NC	24	CONNECTOR Key E
25	CONNECTOR Key E	26	CONNECTOR Key E	27	CONNECTOR Key E	28	CONNECTOR Key E
29	CONNECTOR Key E	30	CONNECTOR Key E	31	CONNECTOR Key E	32	NC
33	GND	34	NC	35	PETp0	36	NC
37	PETn0	38	NC	39	GND	40	NC
41	PERp0	42	NC	43	PERn0	44	NC
45	GND	46	NC	47	REFCLKp0	48	NC
49	REFCLKn0	50	SUSCLK	51	GND	52	PERST0#
53	CLKREQ#	54	MCP_BT_DISABLE	55	PEWAKE0#	56	MCP_WIFI_DISABLE
57	GND	58	M.2_E_SMB_DATA	59	PETp1	60	M.2_E_SMB_CLK
61	PETn1	62	NC	63	GND	64	M.2_E_REFCLK
65	PERp1	66	NC	67	PERn1	68	NC
69	GND	70	NC	71	REFCLKp1	72	+3.3V
73	REFCLKn1	74	+3.3V	75	GND		

SECTION 4
BIOS SETUP UTILITY

This section provides users with detailed descriptions in terms of how to set up basic system configurations through the BIOS setup utility.

4.1 Starting

To enter the setup screens, follow the steps below:

1. Turn on the computer and press the <Del> key immediately.
2. After pressing the <Del> key, the main BIOS setup menu displays. Users can access other setup screens, such as the Advanced and Chipset menus, from the main BIOS setup menu.

It is strongly recommended that users should avoid changing the chipset's defaults. Both AMI and system manufacturer have carefully set up these defaults that provide the best performance and reliability.

4.2 Navigation Keys

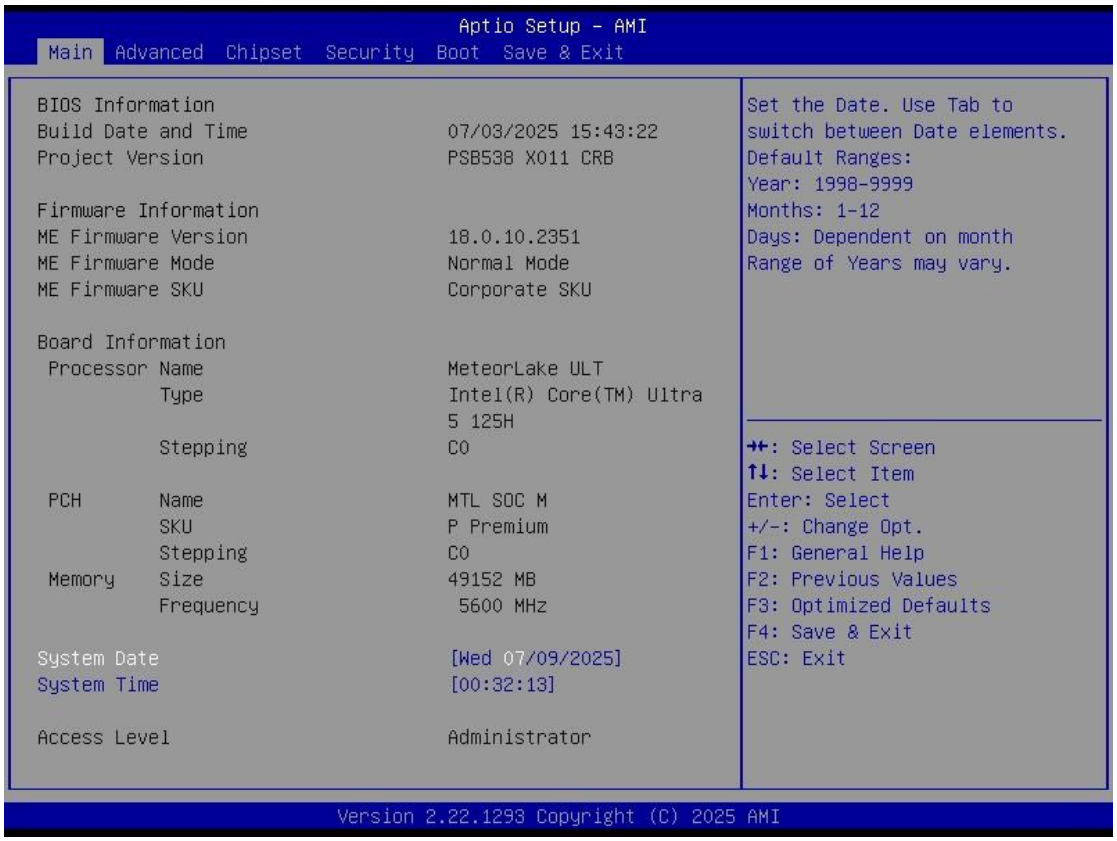
The BIOS setup/utility uses a key-based navigation system called hot keys. Most of the BIOS setup utility hot keys can be used at any time during the setup navigation process. These keys include <F1>, <F2>, <Enter>, <ESC>, <Arrow> keys, and so on.

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

Hot Keys	Descriptions
→← **Left/Right**	The Left and Right <Arrow> keys allow users to select a setup screen.
↑↓ **Up/Down**	The Up and Down <Arrow> keys allow users to select a setup screen or sub-screen.
+– Plus/Minus	The Plus and Minus <Arrow> keys allow users to change the field value of a particular setup item.
Tab	The <Tab> key allows users to select setup fields.
F1	The <F1> key allows users to display the General Help screen.
F2	The <F2> key allows users to Load Previous Values.
F3	The <F3> key allows users to Load Optimized Defaults.
F4	The <F4> key allows users to save any changes they made and exit the Setup. Press the <F4> key to save any changes.
Esc	The <Esc> key allows users to discard any changes they made and exit the Setup. Press the <Esc> key to exit the setup without saving any changes.
Enter	The <Enter> key allows users to display or change the setup option listed for a particular setup item. The <Enter> key can also allow users to display the setup sub- screens.

4.3 Main Menu

The Main Menu screen is the first screen users see when entering the setup utility. Users can always return to the Main setup screen by selecting the Main tab. System Time/Date can be set up as described below. The Main BIOS setup screen is also shown below.



BIOS Information
Display the auto-detected BIOS information.

System Date/Time
Use this option to change the system time and date. Highlight System Time or System Date using the <Arrow> keys. Enter new values through the keyboard. Press the <Tab> key or the <Arrow> keys to move between fields. The date must be entered in MM/DD/YY format. The time is entered in HH:MM:SS format.

Access Level
Display the access level of current user.

4.4 Advanced Menu

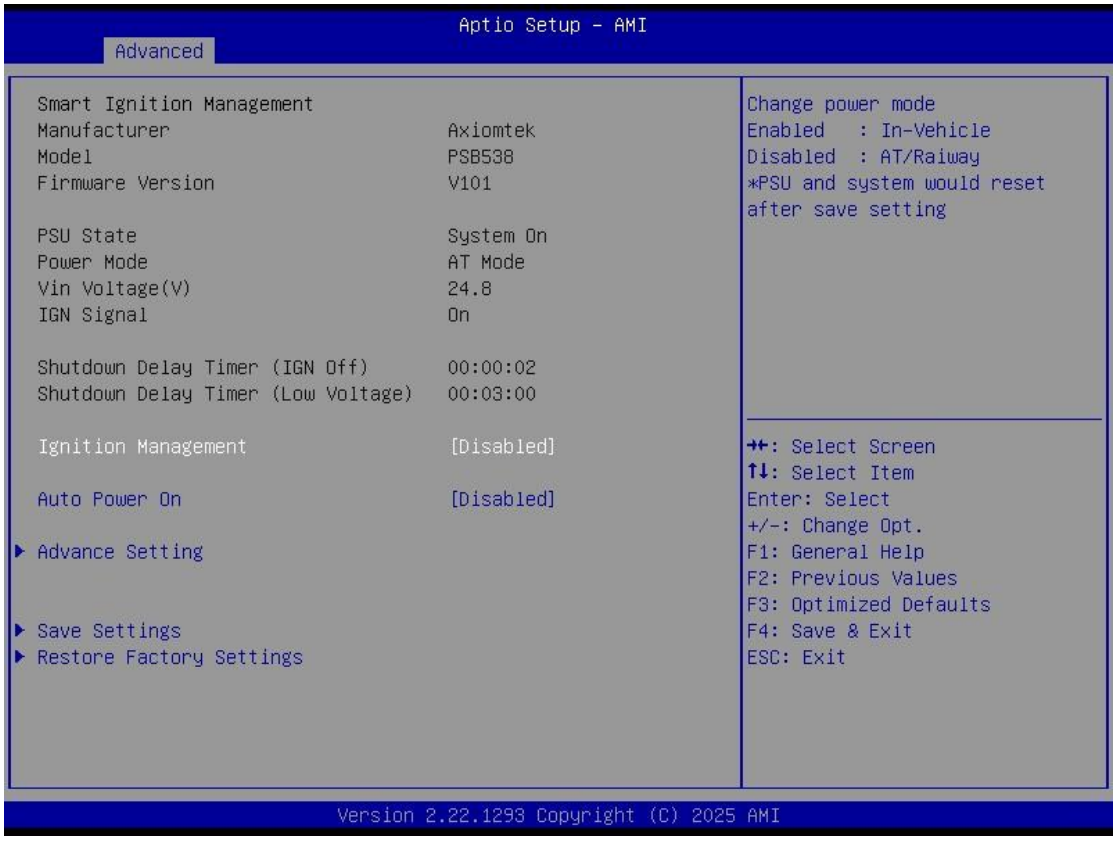
The Advanced menu also allows users to set configuration of the CPU and other system devices. Users can select any items in the left frame of the screen to go to sub menus:

- ► Smart Ignition Management
- ► Trust Computing
- ► CPU Configurations
- ► Storage Configuration
- ► NVMe Configuration
- ► F81966 Super IO Configuration
- ► Hardware Monitor
- ► USB Configuration

For items marked with "►", please press <Enter> for more options.

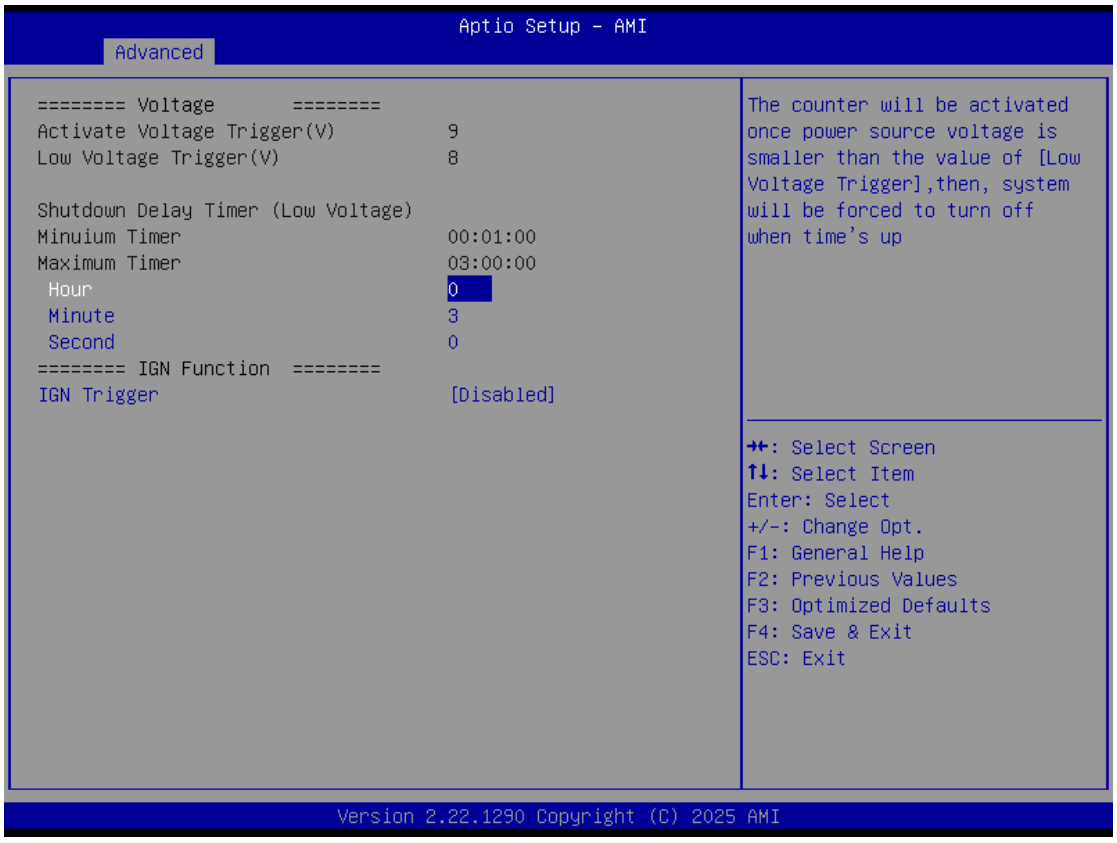
Smart Ignition Management

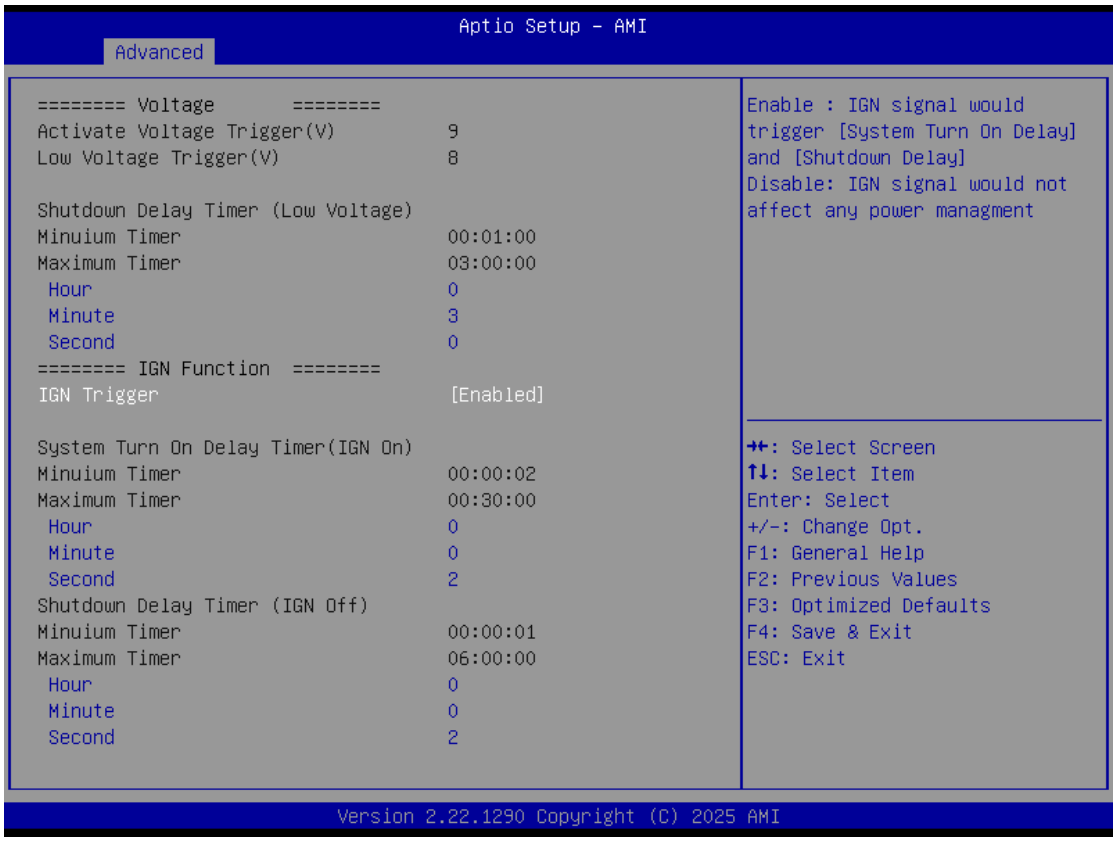
Press Enter to access the sub-menu. Calculated based on the 24-hour military-time clock



BIOS menu item	Description
Ignition Management	Enabled Switch to ACC mode *Note: IGN signal will only be triggered when DCIN Terminal Block 4-Pin IGN relates to VCC. Disabled Switch to AT mode *Note: System will be reset after Ignition Management setting has been changed and saved.
Auto Power On	Enabled System will turn on automatically under following conditions: - Manually disconnects and reconnects system power - Power interruption: Resumes power after power failure Disabled

	System will not turn on automatically when power is connected or when power resumes from a power failure
Advance Setting	Set system on/off timing and voltage threshold levels
Save Settings	Save the current settings
Restore Factory Settings	Restores factory defaults to remove any incorrect or corrupt settings that might have prevented the system from properly powering on/off.

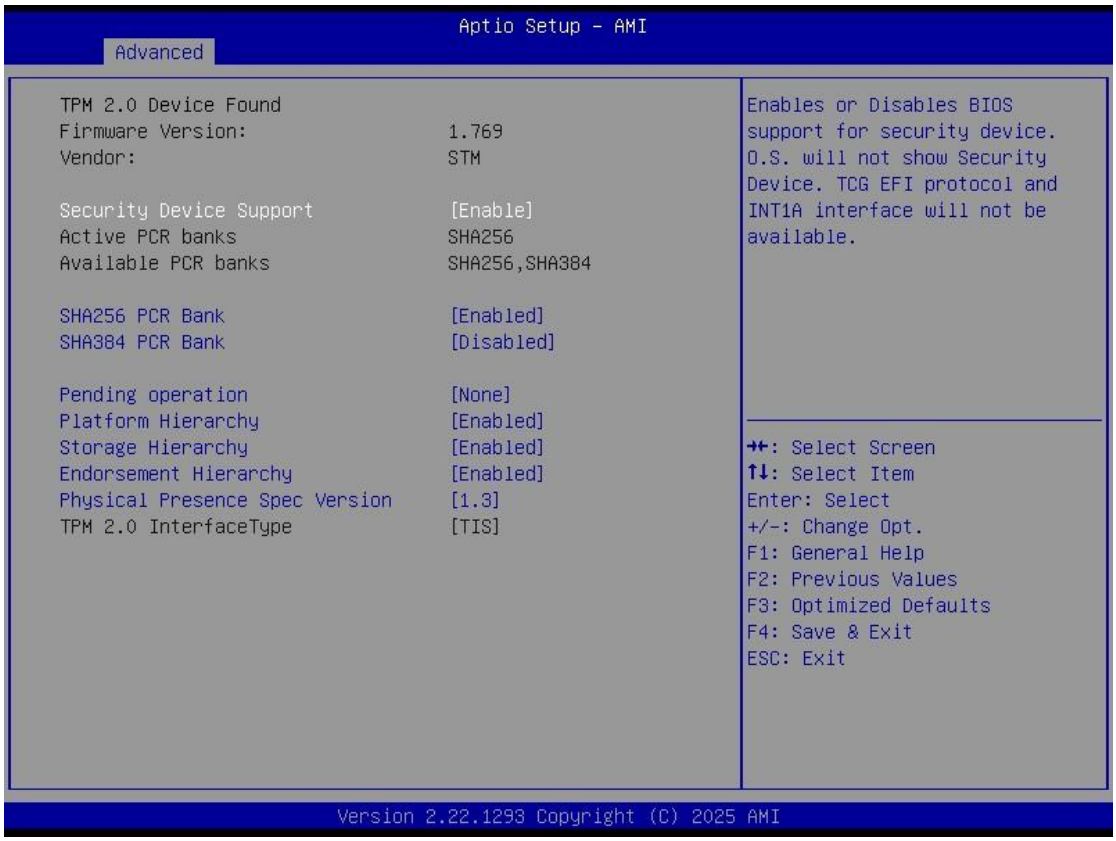

Aptio Setup – AMI
Advanced
======== Voltage ========
Activate Voltage Trigger(V) 9
Low Voltage Trigger(V) 8
Shutdown Delay Timer (Low Voltage)
Minuium Timer 00:01:00
Maximum Timer 03:00:00
Hour 0
Minute 3
Second 0
======== IGN Function ========
IGN Trigger [Disabled]
The counter will be activated once power source voltage is smaller than the value of [Low Voltage Trigger],then, system will be forced to turn off when time's up
→←: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F2: Previous Values
F3: Optimized Defaults
F4: Save & Exit
ESC: Exit
Version 2.22.1290 Copyright (C) 2025 AMI


Aptio Setup – AMI
Advanced
======== Voltage ========
Activate Voltage Trigger(V) 9
Low Voltage Trigger(V) 8
Shutdown Delay Timer (Low Voltage)
Minuium Timer 00:01:00
Maximum Timer 03:00:00
Hour 0
Minute 3
Second 0
======== IGN Function ========
IGN Trigger [Enabled]
System Turn On Delay Timer(IGN On)
Minuium Timer 00:00:02
Maximum Timer 00:30:00
Hour 0
Minute 0
Second 2
Shutdown Delay Timer (IGN Off)
Minuium Timer 00:00:01
Maximum Timer 06:00:00
Hour 0
Minute 0
Second 2
Enable : IGN signal would trigger [System Turn On Delay] and [Shutdown Delay]
Disable: IGN signal would not affect any power managment
→←: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F2: Previous Values
F3: Optimized Defaults
F4: Save & Exit
ESC: Exit
Version 2.22.1290 Copyright (C) 2025 AMI

BIOS menu item	Description
Activate Voltage Trigger	The system only turns on when the voltage delivered by the power source is higher than the value you set here.
Low Voltage Trigger	The system will begin countdown stage once voltage drops below the value you set here. If the power source voltage does not come back above the value of [Activate Voltage Trigger] within the time you set for [Shutdown Delay Time (Low Voltage)], the system will shut down and remain off.
Shutdown Delay Timer (Low Voltage)	The counter will be activated once power source voltage drops below the value defined in [Low Voltage Trigger]. The system will be forced to turn off once timer completes countdown.
IGN Trigger	Enable [System Turn On Delay] and [Shutdown Delay] will be trigged by IGN. Disable IGN signal will not affect any power management.

Trust Computing

Select Security Device Support to enable or disable the TPM function.



Pending operation
Schedule an operation for the security device. Note: Your computer will reboot during restart in order to change state of security device.

Platform Hierarchy
Enables / Disables platform hierarchy.

Storage Hierarchy
Enables / Disables storage hierarchy.

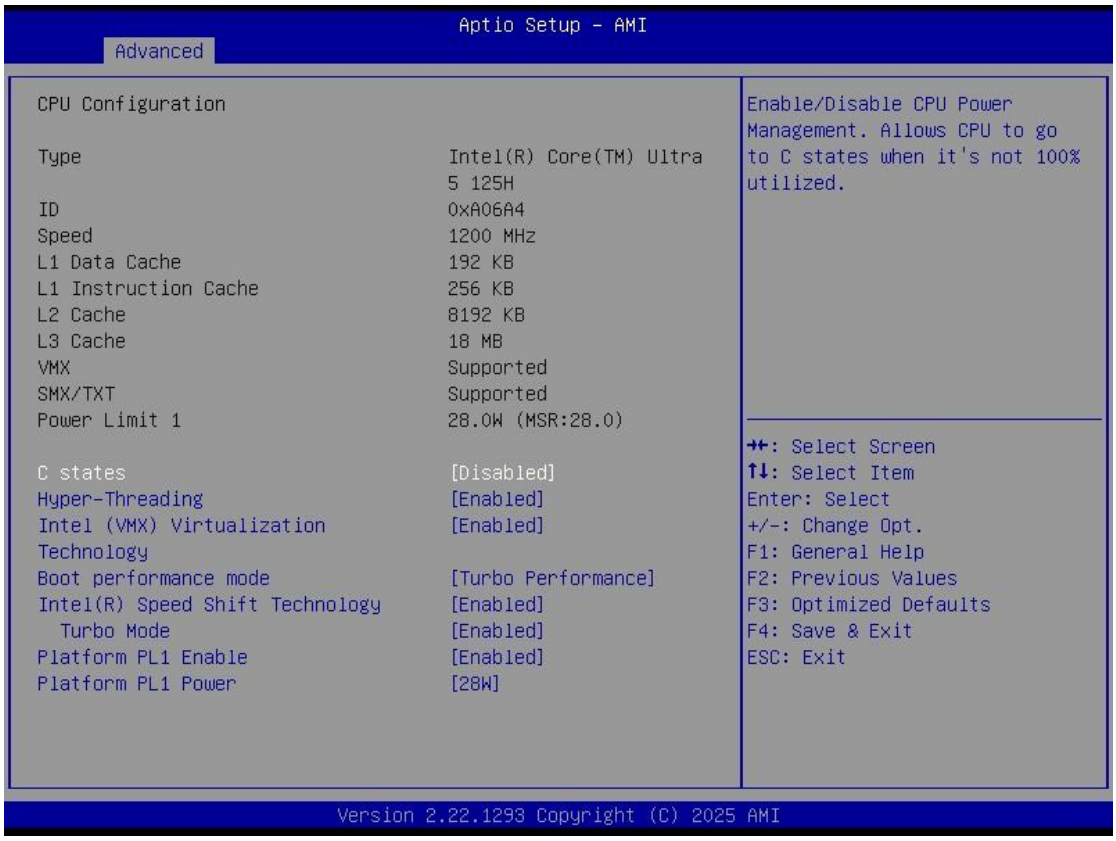
Endorsement Hierarchy
Enables / Disables endorsement hierarchy.

Physical Presence Spec version
Select to tell O.S. to support PPI Spec Version 1.2 or 1.3. Note some HCK tests might not support 1.3.

TPM 2.0 Interfacetype

CPU Configuration

This screen shows the CPU version and its detailed information.



C States
Enable/Disable CPU Power Management. Allows CPU to go to C states when it's not 100% utilized.

Hyper-Threading
Use this item to enable or disable Hyper-Threading Technology, which makes a single physical processor perform multi-tasking functions as two logical ones.

Intel® (VMX) Virtualization Technology
It allows a hardware platform to run multiple operating systems separately and simultaneously, enabling one system to virtually function as several systems.

Boot Performance mode
Select the performance state that the BIOS will set starting from reset vector

Intel® Speed shift technology
Enable/Disable Intel Speed Shift Technology support. Enabling will expose the CPPC v2 interface to allow for hardware controlled P-states.

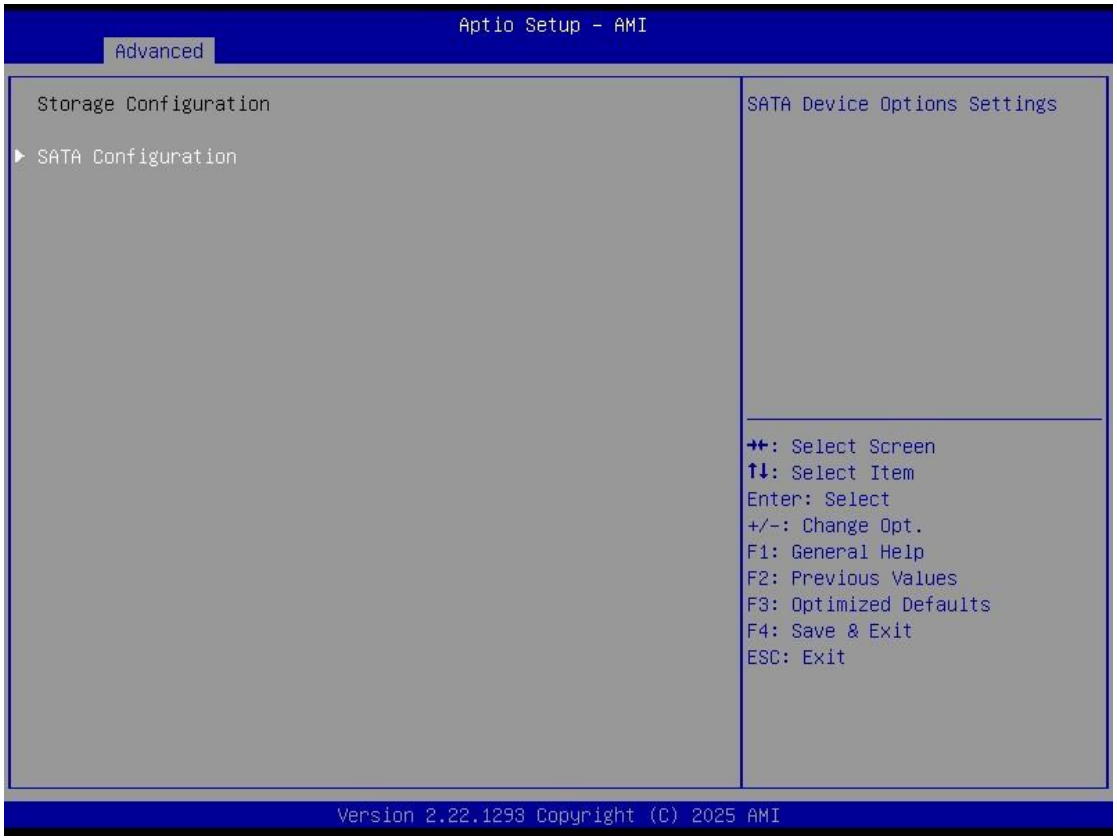
Turbo Mode
Allows to enable processor cores to raise the operating frequency.

Platform PL1 Enable
Enable/Disable Platform Power Limit 1 programming.

Platform PL1 Power
Platform PL1 Power Allow to set processor Platform PL1 power

Storage Configuration

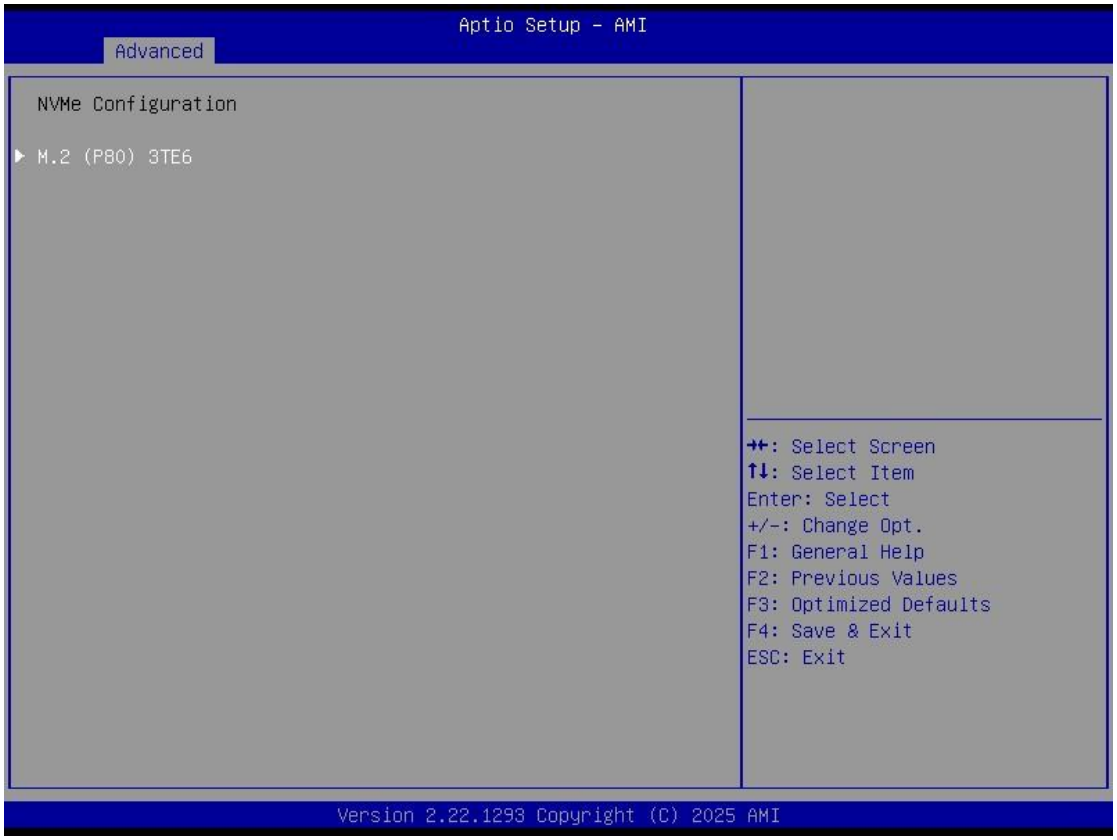
Users can read the current installed hardware configurations from those SATA ports in the SATA and RST Configuration menu. During system boot up, BIOS will detect the present SATA devices automatically.



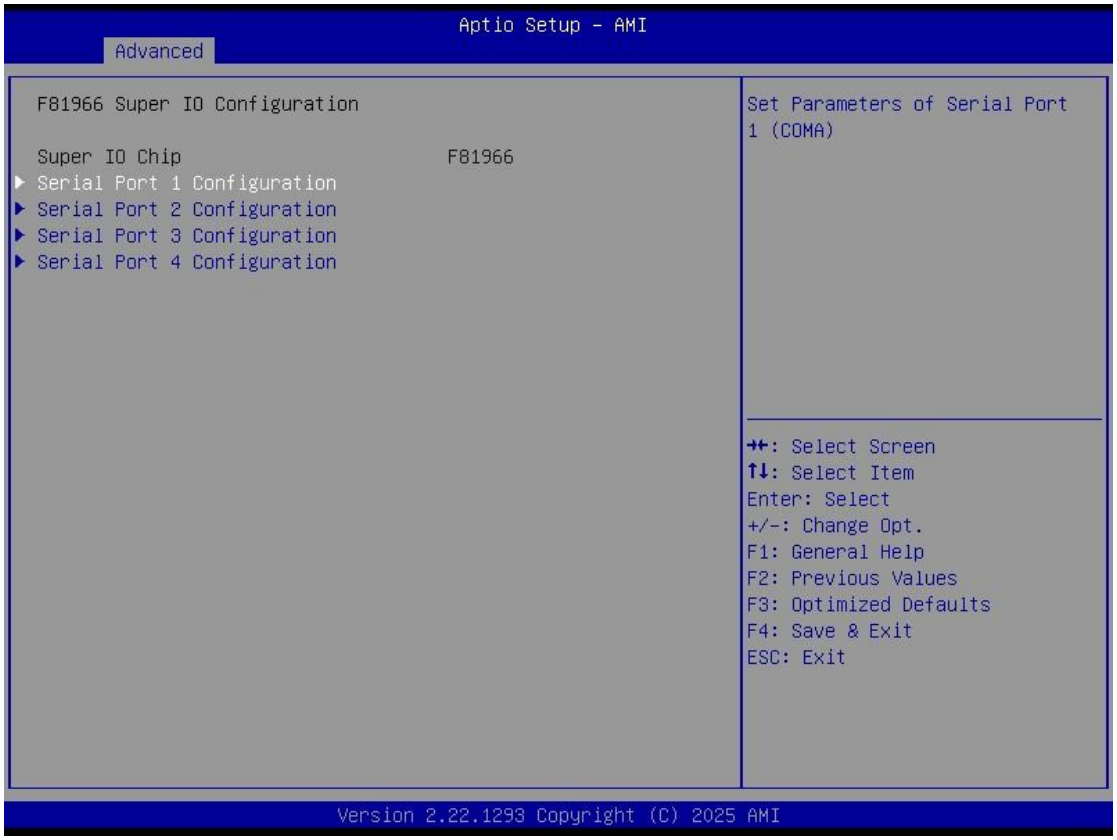
SATA Controller
Enable or disable the SATA Controller feature. The default is Enabled.

NVMe Configuration

Use the NVMe Configuration menu to display the NVMe controller and device information.



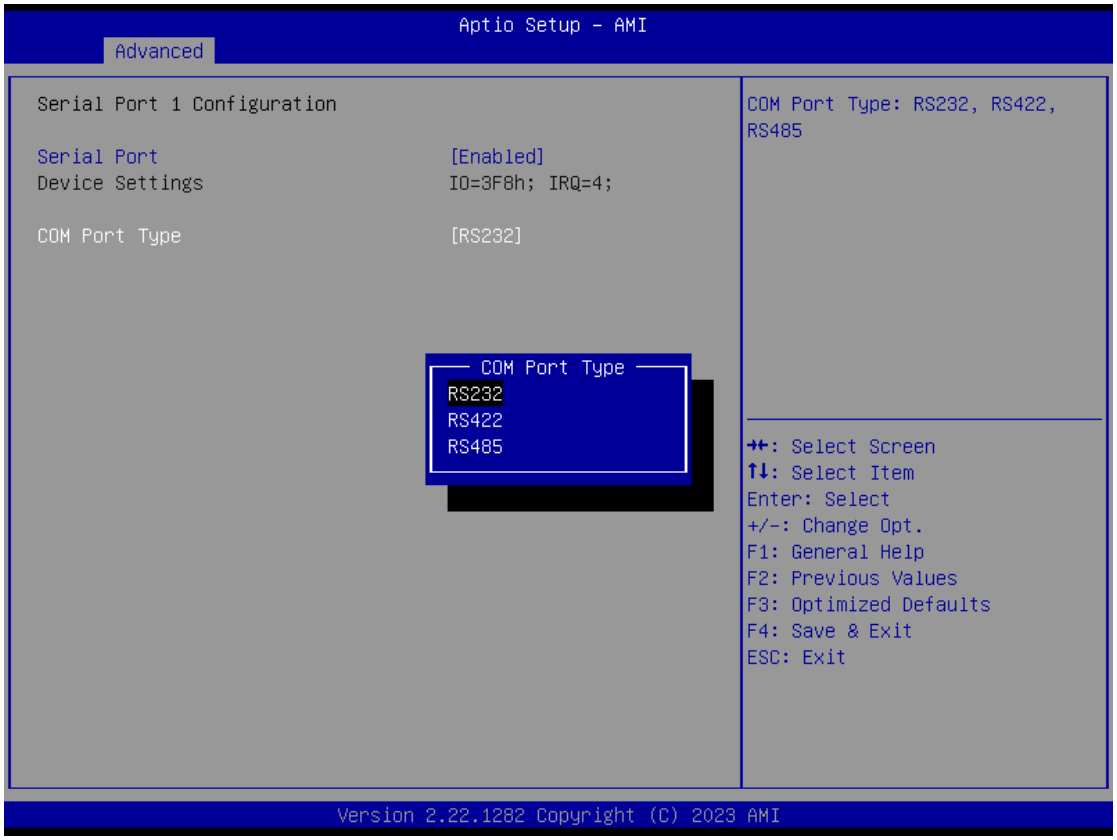
F81966 Super IO Configuration
Use this screen to select options for the F81966 Super IO Configurations and change the value of the selected option. A description of the selected item appears on the right side of the screen. For items marked with "►", please press <Enter> for more options.



Serial Port 1~4 (COM1~4) Configurations
Use these items to set parameters related to serial ports COM1/2 (RS232/422/485)
Use these items to set parameters related to serial ports COM3/4 (RS232 only)

Serial Port 1

Use this to set parameters of COM 1.

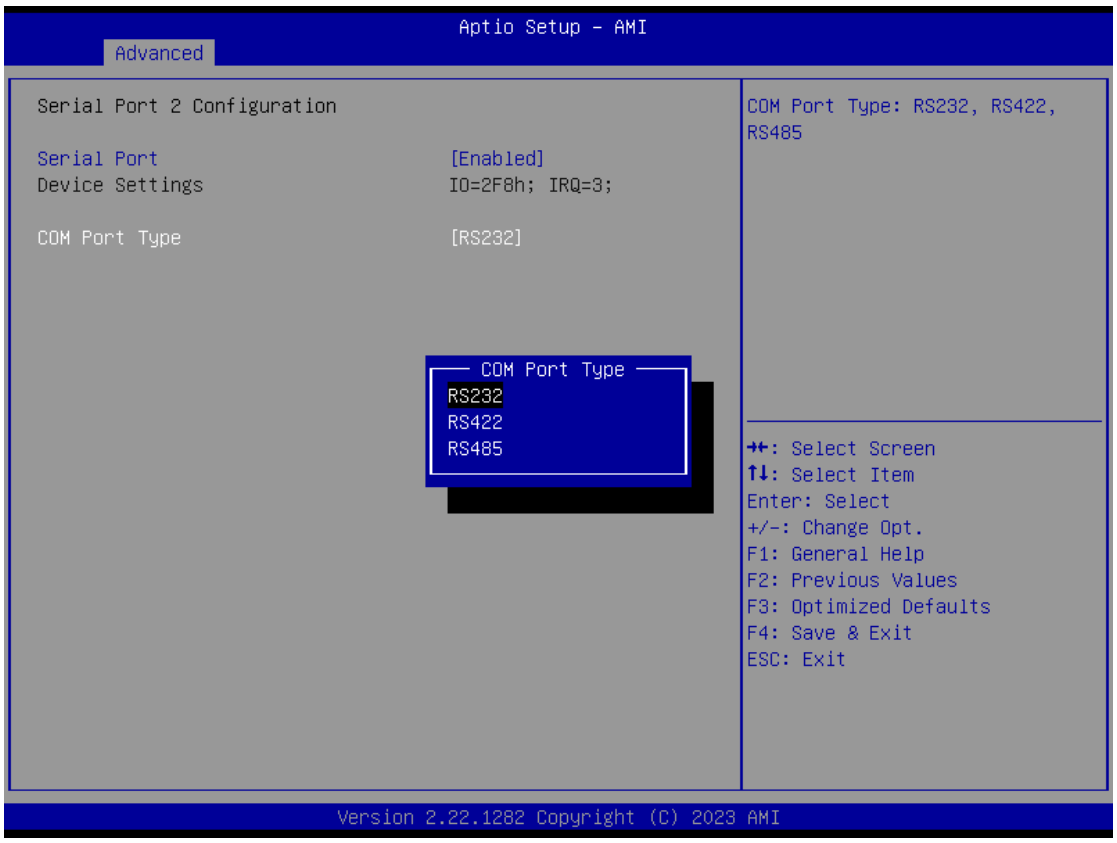


COM Port type

Use this item to set parameters related to serial ports COM 1 (RS232/422/485)

Serial Port 2

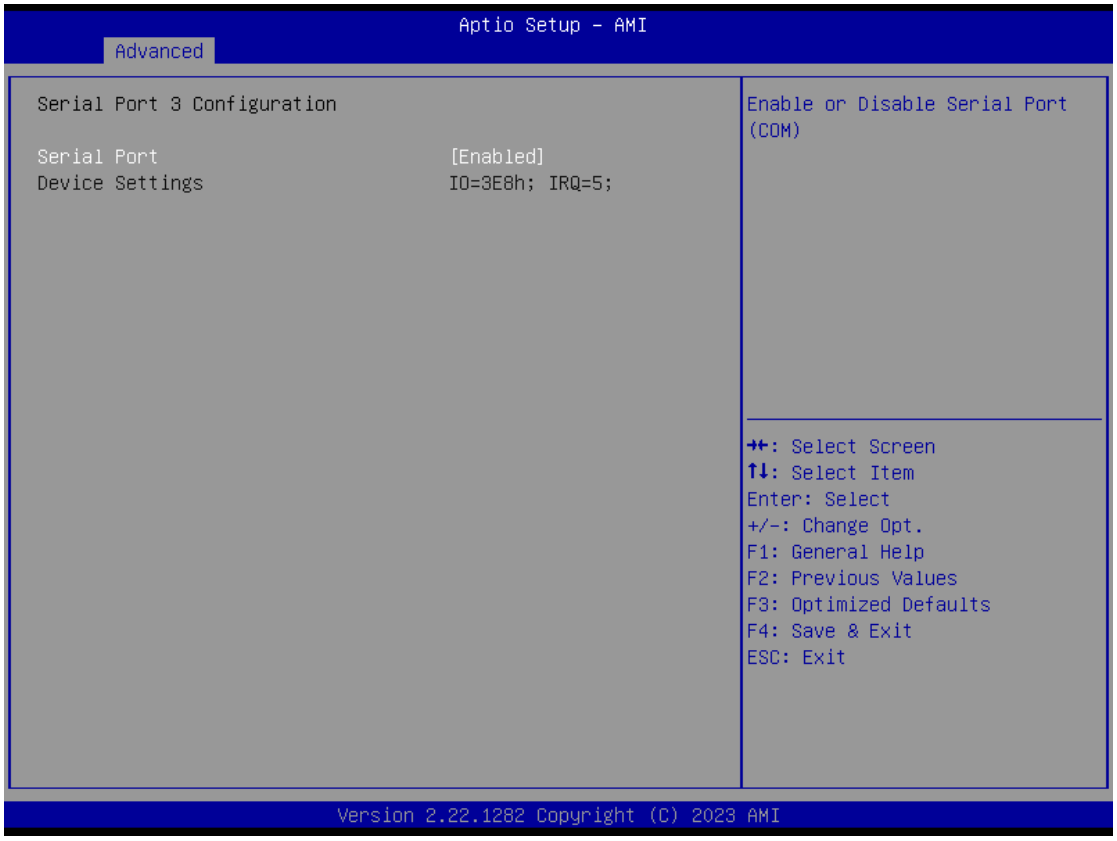
Use this to set parameters of COM 2.



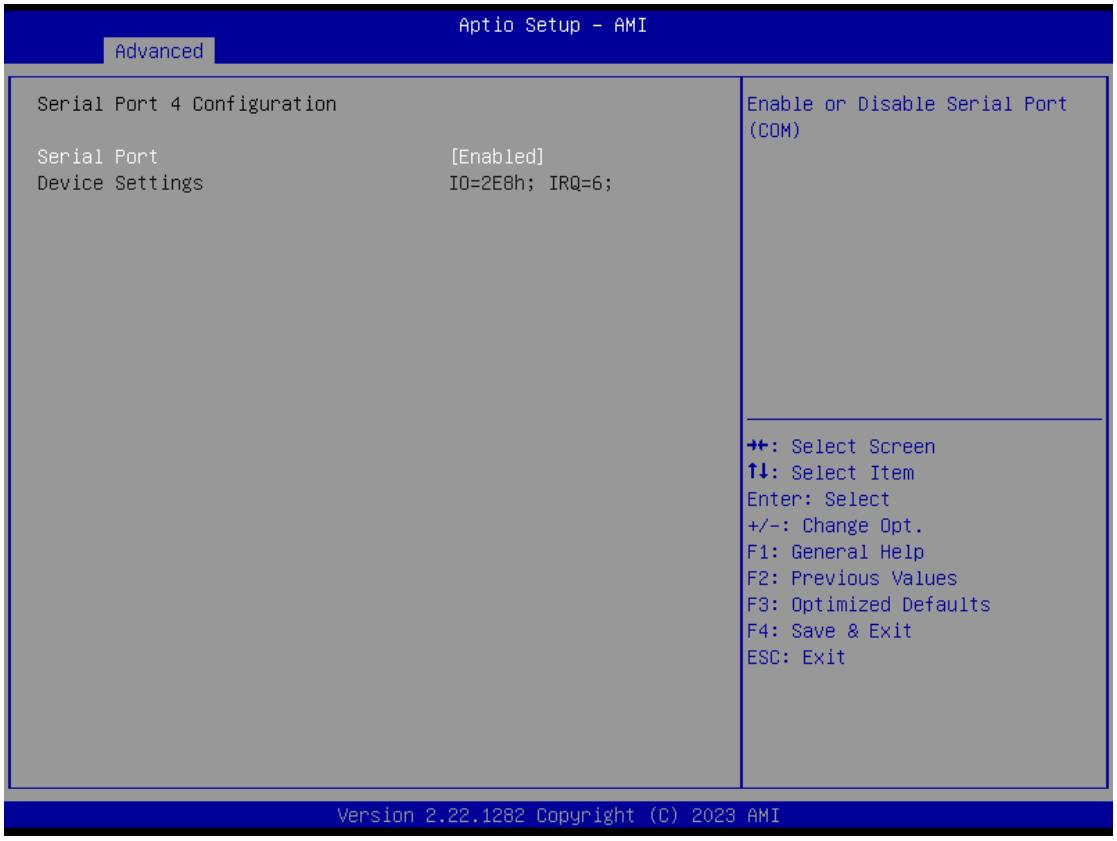
COM Port type

Use this item to set parameters related to serial ports COM 2 (RS232/422/485)

Serial Port 3

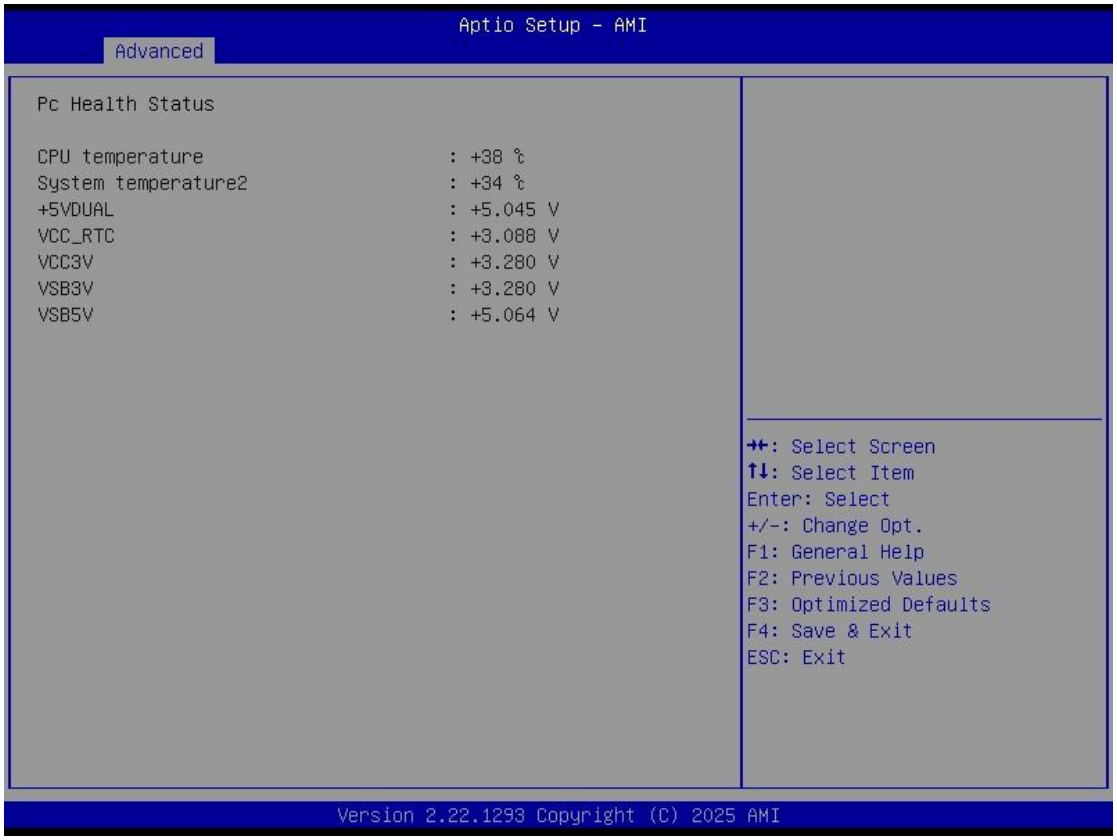


Serial Port 4



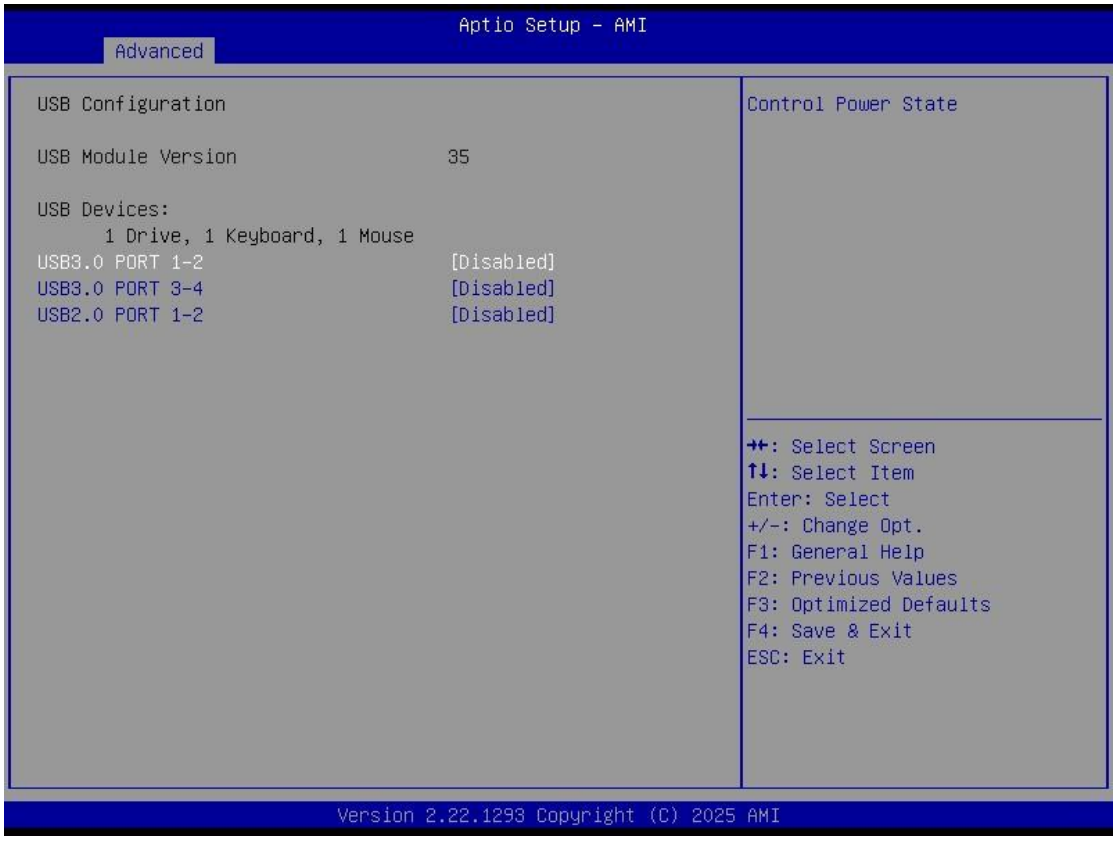
Hardware Monitor

This screen monitors hardware health status.



This screen displays the temperature of system and CPU as well as system voltages (+5VDual, VCC_RTC, VCC3V, VSB3V,VSB5V).

USB Configurations



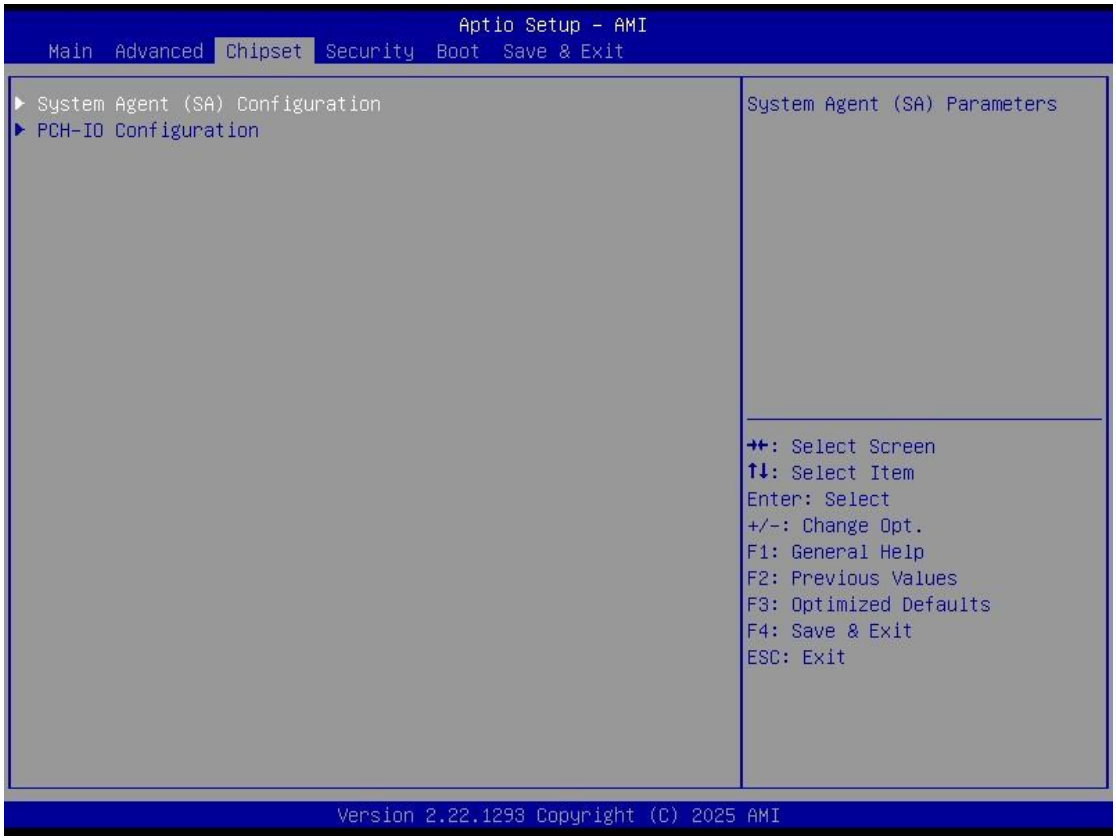
Display all detected USB devices.

4.5 Chipset Menu

The Chipset menu allows users to change the advanced chipset settings. Users can select any of the items in the left frame of the screen to go to the sub menus:

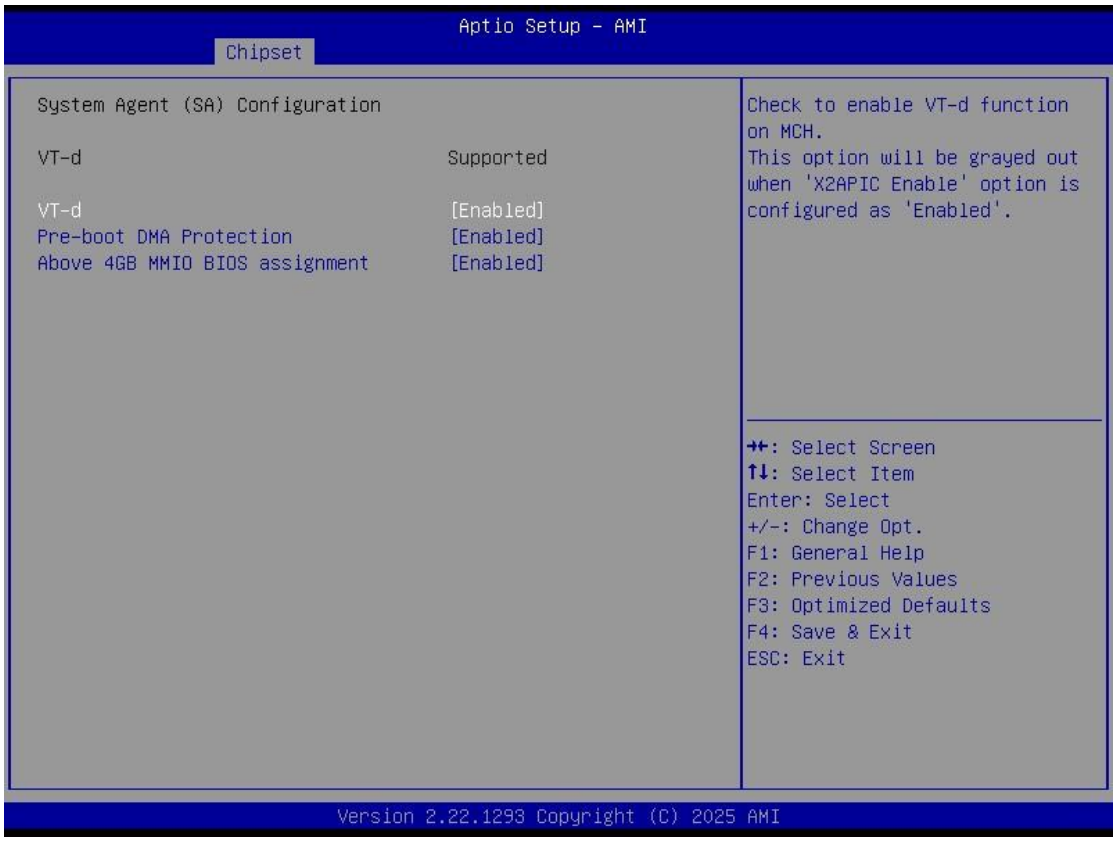
- ► System Agent (SA) Configurations
- ► PCH-IO Configurations

For items marked with "►", please press <Enter> for more options.



System Agent (SA) Configurations

This screen allows users to configure System Agent (SA) parameters. For items marked with "►" , please press <Enter> for more options.



VT-d

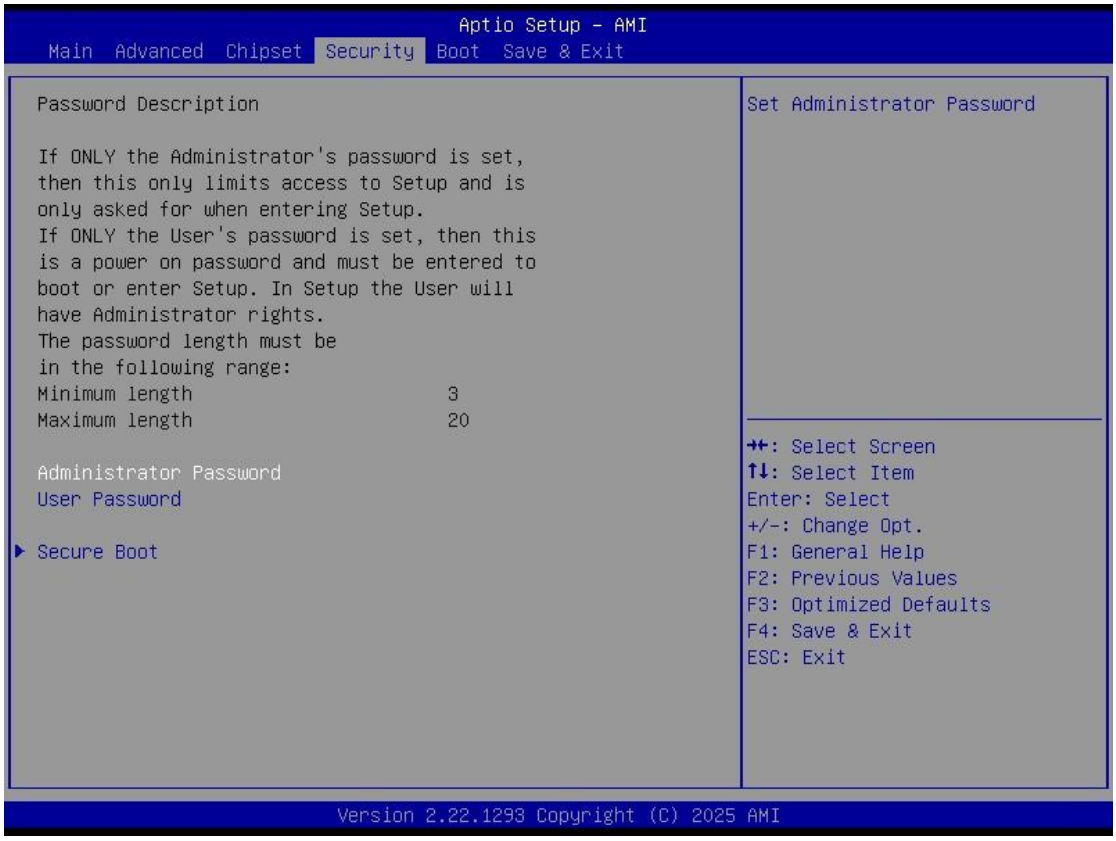
VT-d capability.

Pre-boot DMA Protection

Above 4GB MMIO BIOS assignment

Enable/Disable above 4GB Memory Mapped IO BIOS assignment. This is enabled automatically when Aperture Size is set to 2048MB.

Security Menu

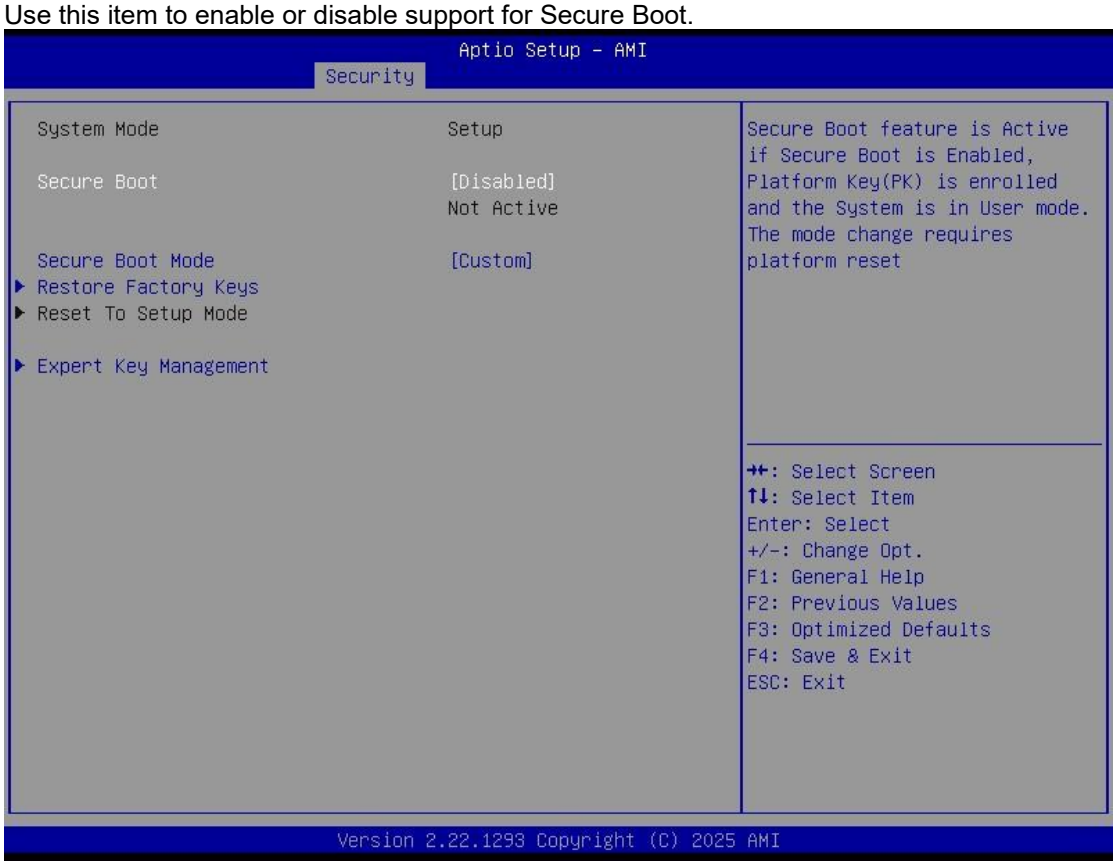


Administrator Password
This item indicates whether an administrator password has been set (installed or uninstalled).

User Password
This item indicates whether a user password has been set (installed or uninstalled).

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.

Secure Boot
Use this item to enable or disable support for Secure Boot.



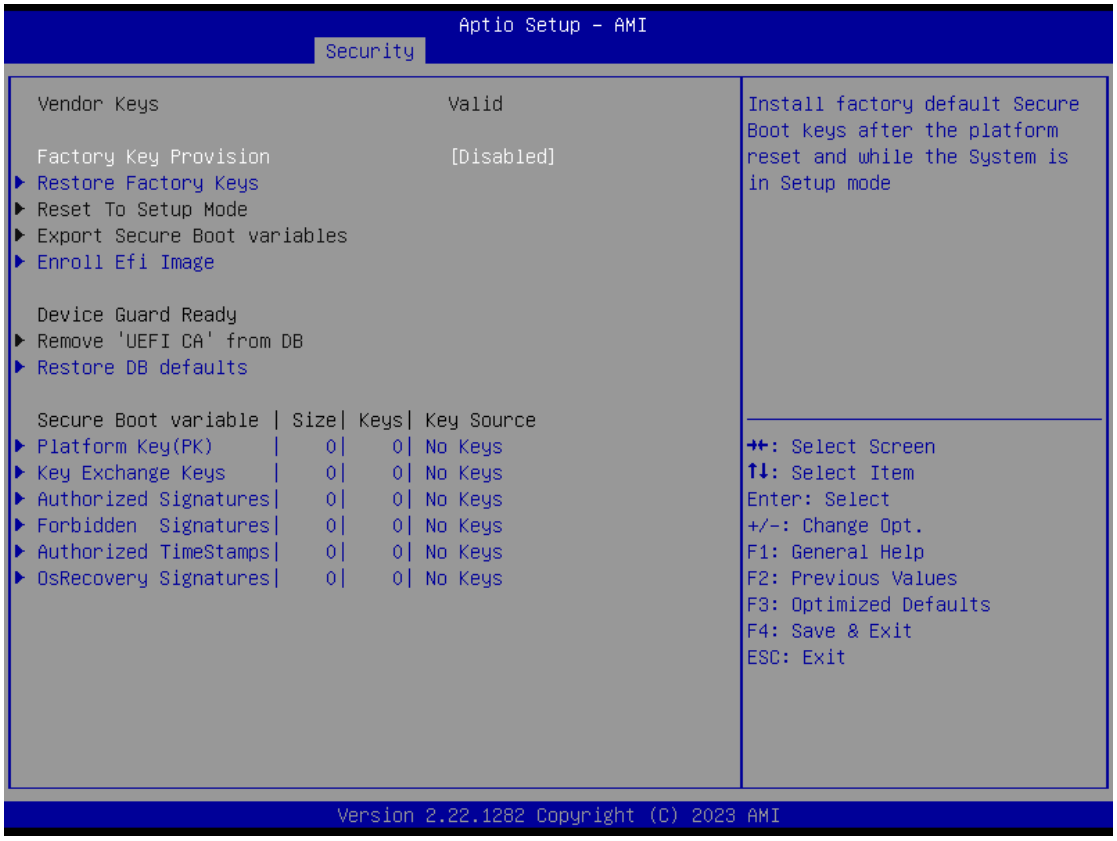
Secure Boot Mode
Secure Boot mode options: Standard or Custom.
In Custom mode, Secure Boot Policy variables can be configured by a physically present user without full authentication.

Restore Factory Keys
Use this item to force System to User Mode, to install factory default SecureBoot key databases.

Reset To Setup Mode
Select Yes and press <Enter> to restore the manufacturer default Secure Boot keys. This will also reset the system to User mode. The options are Yes and No.

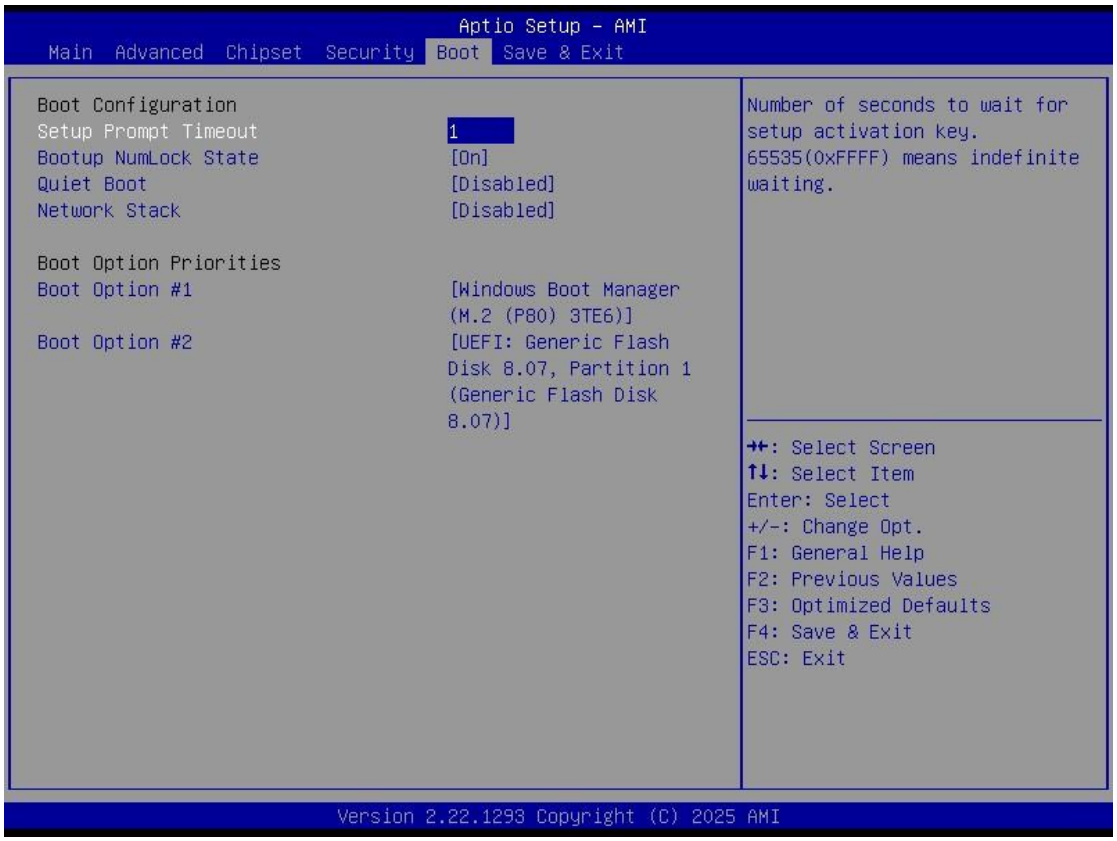
Expert Key Management
Enables expert users to modify Secure Boot Policy variables without variable authentication.

Expert Key Management
Install factory default Secure Boot key the platform rest and while the System is in Setup mode.



4.6 Boot Menu

The Boot menu allows users to change boot options of the system.



Setup Prompt Timeout
Use this item to set up number of seconds to wait for setup activation key where 65535(0xFFFF) means indefinite waiting.

Bootup NumLock State
Use this item to select the power-on state for the keyboard NumLock.

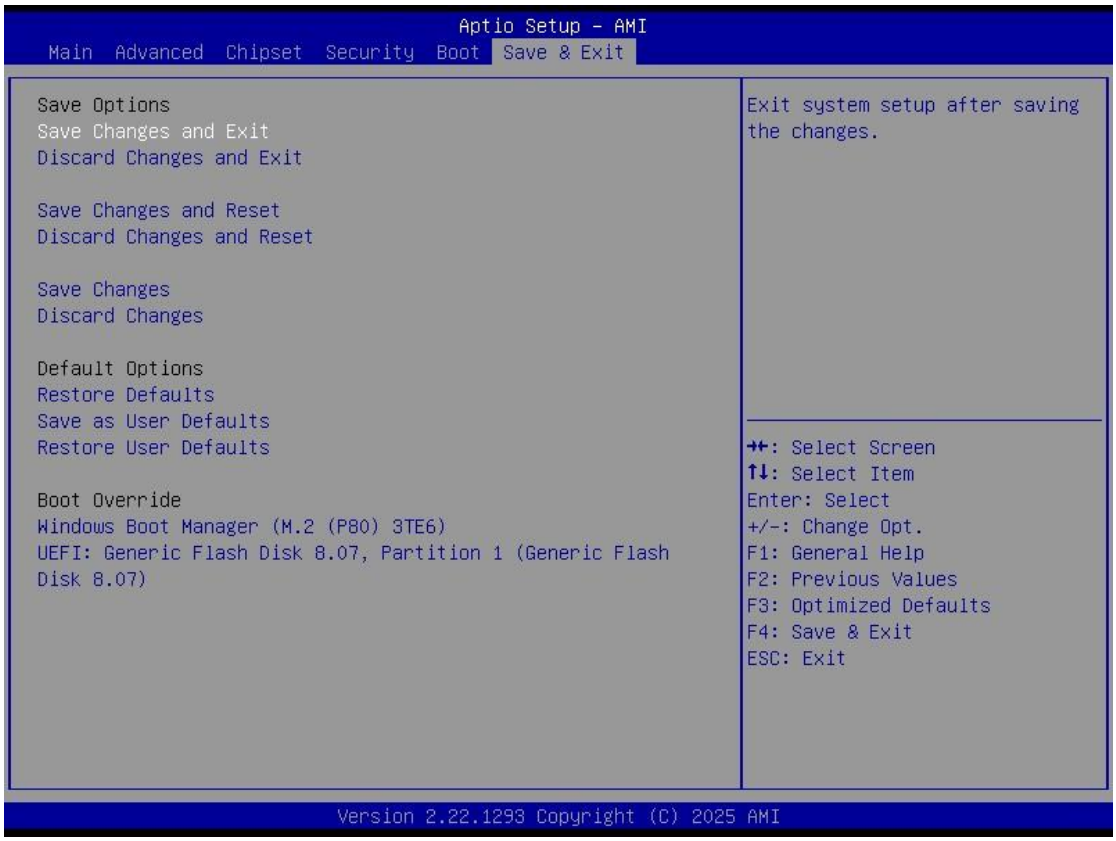
Quiet Boot
Select to display either POST output messages or a splash screen during boot-up.

Network Stack
Enable/Disable UEFI Network Stack. Default setting is Enabled.

Boot Option Priorities
These are settings for boot priority. Specify the boot device priority sequence from the available devices.

4.7 Save & Exit Menu

The Save & Exit menu allows users to load system configurations with optimal or fail-safe default values.



Save Changes and Exit
When users have completed the system configuration changes, select this option to leave Setup and return to Main Menu. Select Save Changes and Exit from the Save & Exit menu and press <Enter>. Select Yes to save changes and exit.

Discard Changes and Exit
Select this option to quit Setup without making any permanent changes to the system configurations and return to Main Menu. Select Discard Changes and Exit from the Save & Exit menu and press <Enter>. Select Yes to discard changes and exit.

Save Changes and Reset
Having completed the system configuration changes, select this option to leave Setup and reboot the computer so the new system configurations take effect. Select Save Changes and Reset from the Save & Exit menu and press <Enter>. Select Yes to save changes and reset.

Discard Changes and Reset
Select this option to quit Setup without making any permanent changes to the system configuration and reboot the computer. Select Discard Changes and Reset from the Save & Exit menu and press <Enter>. Select Yes to discard changes and reset.

Save Changes
Having completed the system configuration changes, select this option to save changes. Select Save Changes from the Save & Exit menu and press <Enter>. Select Yes to save changes.

Discard Changes
Select this option to quit Setup without making any permanent changes to the system configurations. Select Discard Changes from the Save & Exit menu and press <Enter>. Select Yes to discard changes.

Restore Defaults
It automatically sets all Setup options to a complete set of default settings when users select this option. Select Restore Defaults from the Save & Exit menu and press <Enter>.

Save as User Defaults
Select this option to save system configuration changes done so far as User Defaults. Select Save as User Defaults from the Save & Exit menu and press <Enter>.

Restore User Defaults
It automatically sets all Setup options to a complete set of User Defaults when users select this option. Select Restore User Defaults from the Save & Exit menu and press <Enter>.

Boot Override
Select a drive to immediately boot that device regardless of the current boot order.

APPENDIX A
WATCHDOG TIMER

About Watchdog Timer

Software stability is major issue in most applications. Some embedded systems are not watched by human for 24 hours. It is usually too slow to wait for someone to reboot when a computer hangs. The system needs to be able to reset automatically when things go wrong. The watchdog timer gives us solutions in this regard.

The watchdog timer is a counter that triggers a system to reset when it counts down to zero from a preset value. The software starts the counter with an initial value and must reset it periodically. If the counter ever reaches zero which means the software has crashed, the system will reboot.

Sample Program

The following example enables configurations using a debug tool.

Enable WDT

↓

Enable configuration:

O 2E 87; Un-lock super I/O

O 2E 87

↓

Select logic device:

O 2E 07

O 2F 08

↓

WDT device enable:

O 2E 30

O 2F 01

↓

Set timer unit:

O 2E F0

O 2F 00 ; (00: Sec; 08:Minute)

↓

Set base timer:

O 2E F1

O 2F 0A; Set reset time (where 0A (hex) = 10sec)

Disable WDT

↓

Enable configuration:

O 2E 87; Un-lock super I/O

O 2E 87

↓

Select logic device:

O 2E 07

O 2F 08

↓

WDT device disable:

O 2E 30

O 2F 00

APPENDIX B
Configuration of RAID

B.1 Configuring SATA Hard Drive(s) for RAID

Before you begin the SATA configuration, please prepare:

- Two SATA hard drives (to ensure optimal performance, it is recommended that you use two hard drives with identical model and capacity). If you do not want to create RAID with the SATA controller, you may prepare only one hard drive.

Please follow up the steps below to configure SATA hard drive(s):

1. Install SATA hard drive(s) in your system.
2. Enter the BIOS Setup to configure SATA controller mode and boot sequence.
3. Configure RAID by the RAID BIOS.

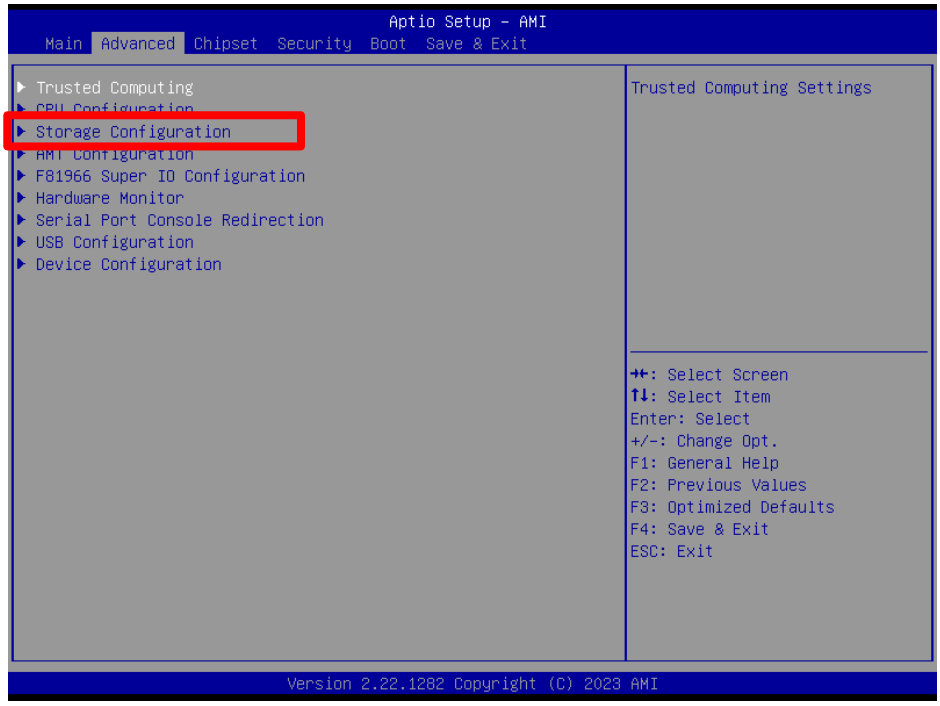
1. Installing SATA hard drive(s) in your system.

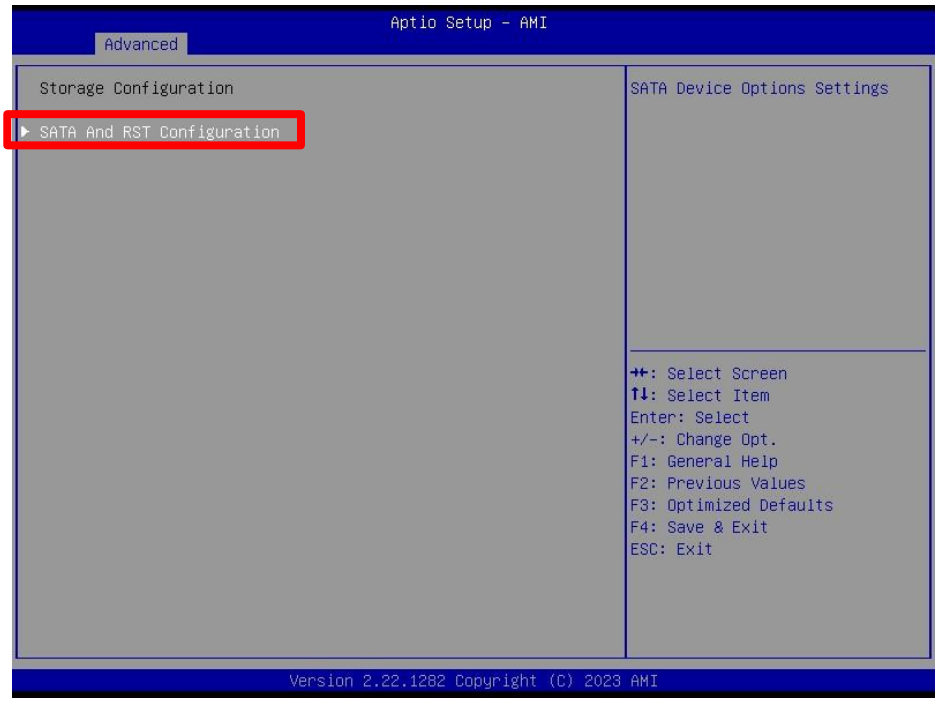
Connect one end of the SATA signal cable to the rear of the SATA hard drive, and the other end to available SATA port(s) on the board. Then, connect the power connector of power supply to the hard drive.

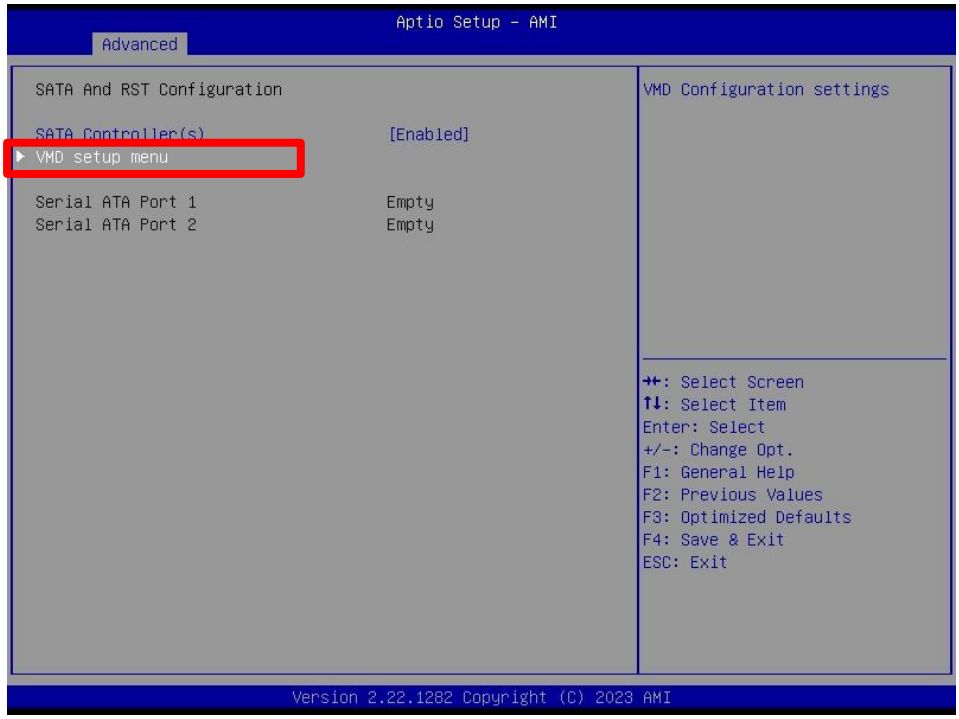
2. Configuring SATA controller mode and boot sequence by the BIOS Setup.

You have to make sure whether the SATA controller is configured correctly by system BIOS Setup and set up BIOS boot sequence for the SATA hard drive(s).

2.1 Turn on your system, and then press the <Del> button to enter BIOS Setup during running POST (Power-On Self-Test). If you want to create RAID, just go to the Advanced Settings menu\Storage Configuration\SATA and RST Configuration\VMD setup menu, enabled the "Enable VMD controller", save and exit the BIOS Setup.






Aptio Setup – AMI
Advanced
SATA And RST Configuration
SATA Controller(s) [Enabled]
VMD setup menu
Serial ATA Port 1 Empty
Serial ATA Port 2 Empty
VMD Configuration settings
→←: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F2: Previous Values
F3: Optimized Defaults
F4: Save & Exit
ESC: Exit
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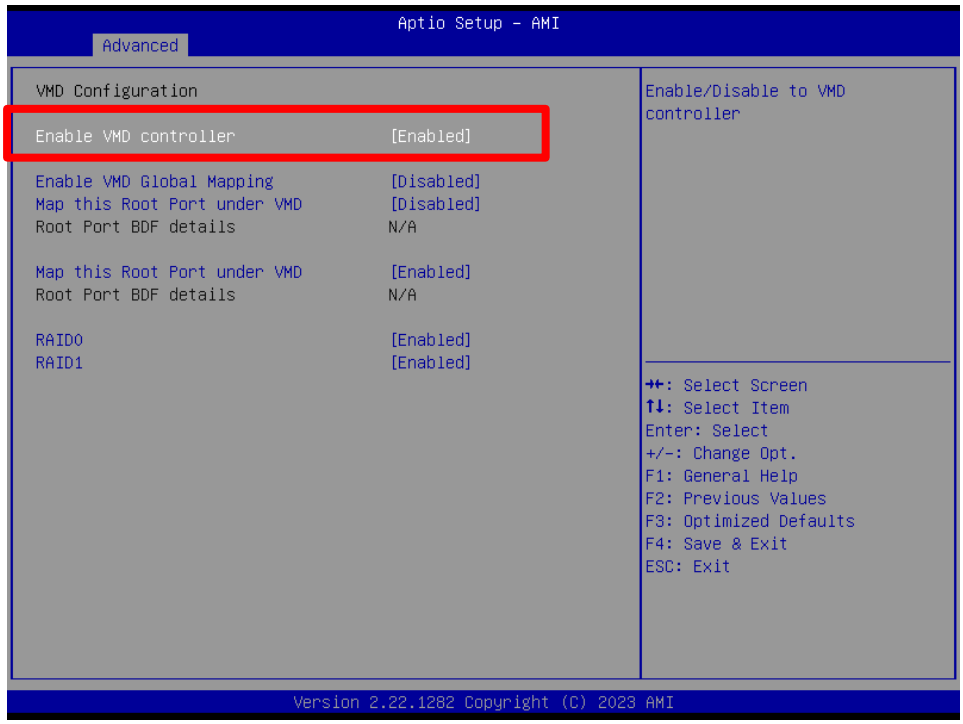
Aptio Setup – AMI
Advanced
VMD Configuration
Enable VMD controller [Enabled]
Enable VMD Global Mapping [Disabled]
Map this Root Port under VMD [Disabled]
Root Port BDF details N/A
Map this Root Port under VMD [Enabled]
Root Port BDF details N/A
RAID0 [Enabled]
RAID1 [Enabled]
Enable/Disable to VMD controller
→←: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F2: Previous Values
F3: Optimized Defaults
F4: Save & Exit
ESC: Exit
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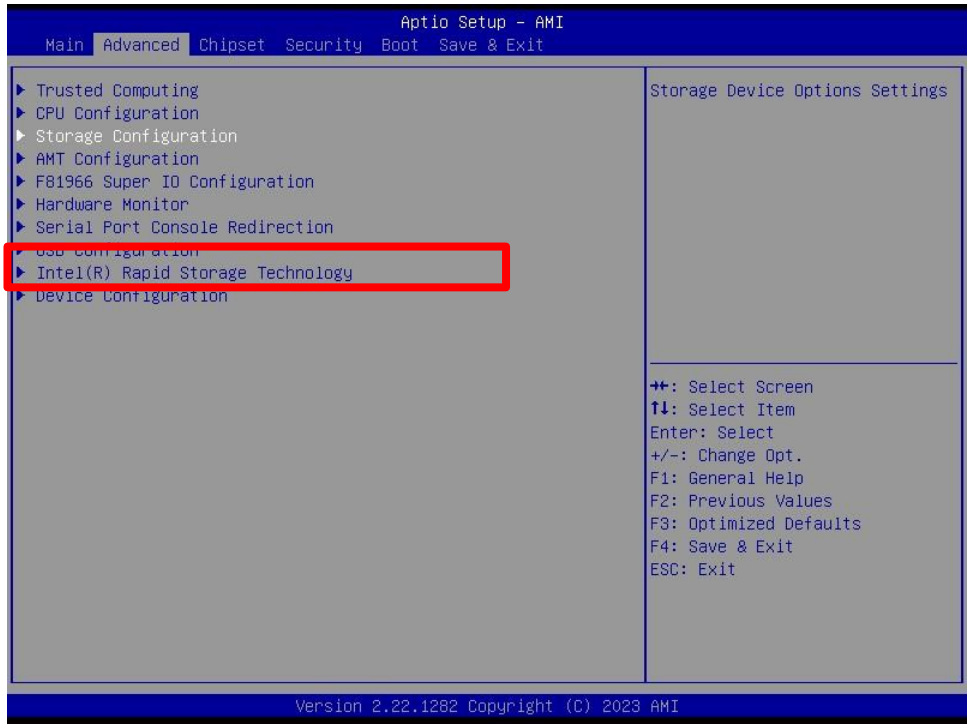
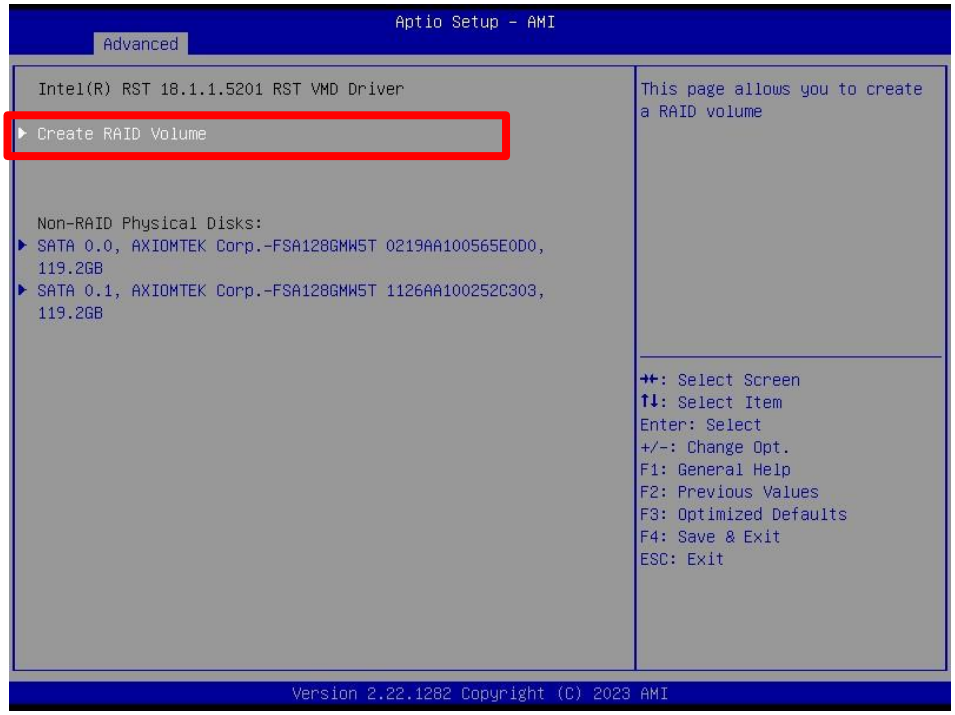
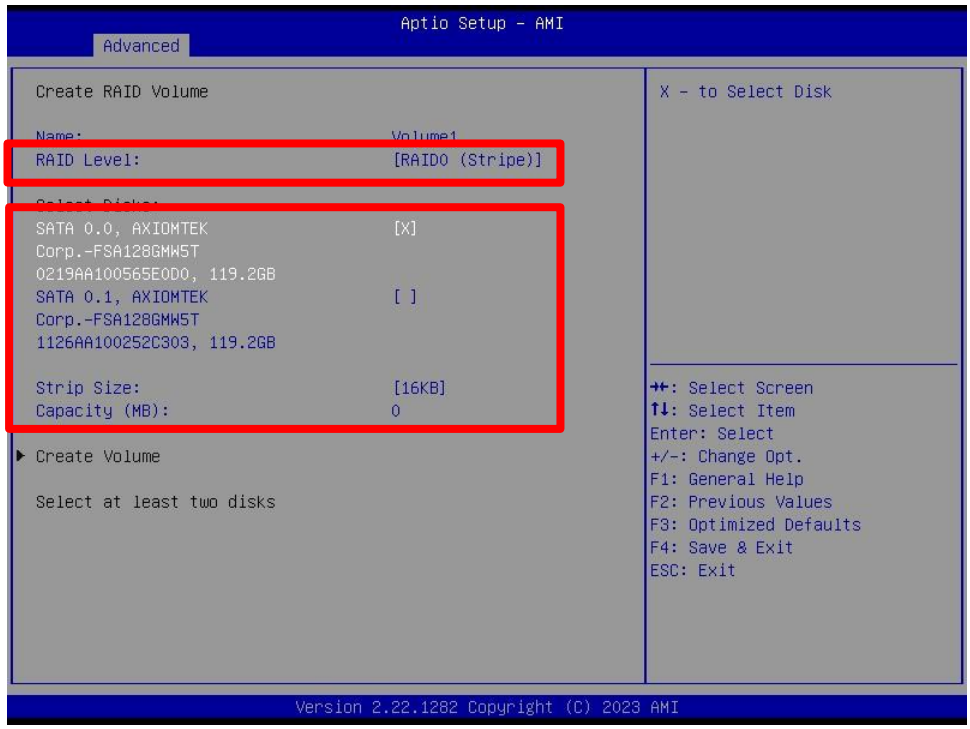
2.2 After restart, press <Del> button to enter BIOS Setup Menu. In Advanced Page, choose Intel(R) Rapid Storage Technology.



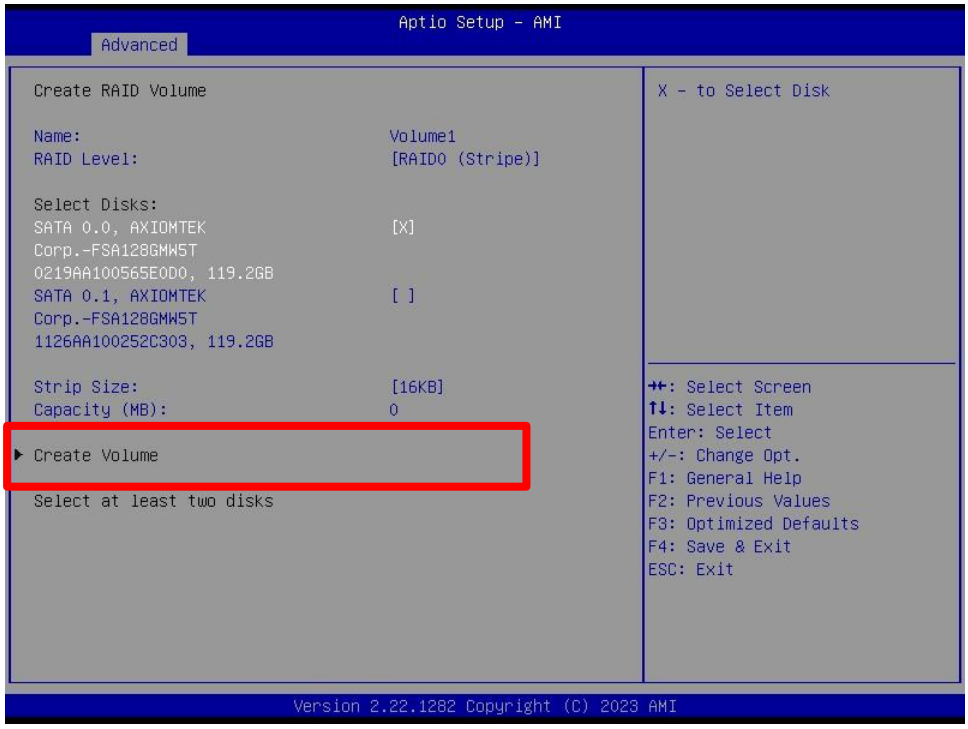
2.3 Press Create RAID volume



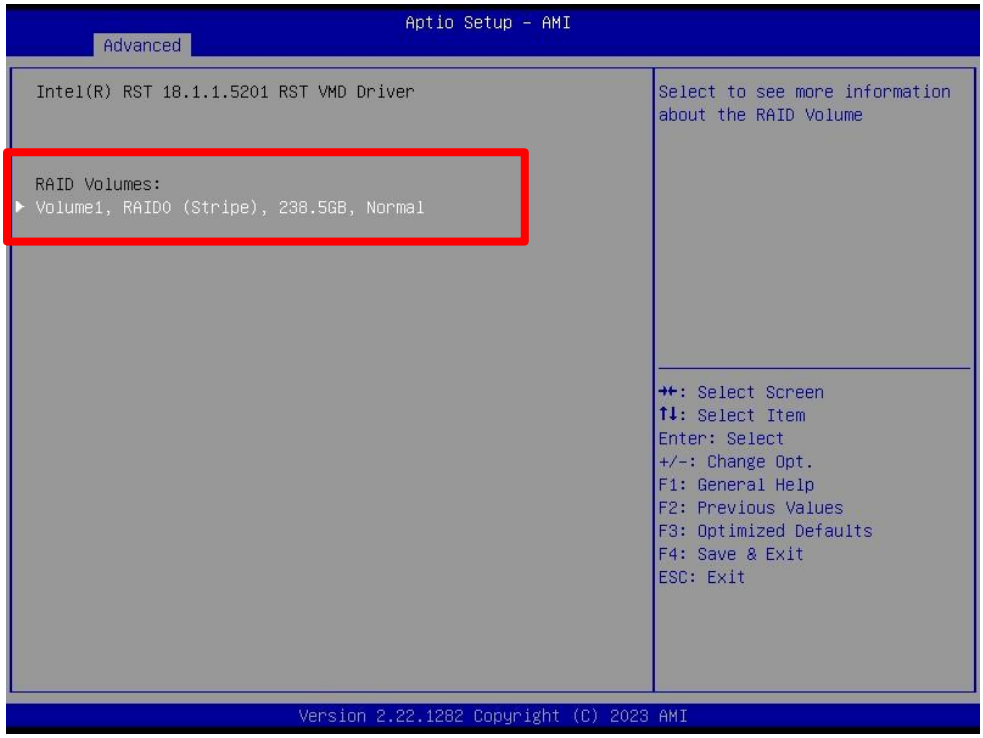
2.4 Press <RAID level> to choose RAID 0 or 1 and then select the storage device that to be used for RAID function.



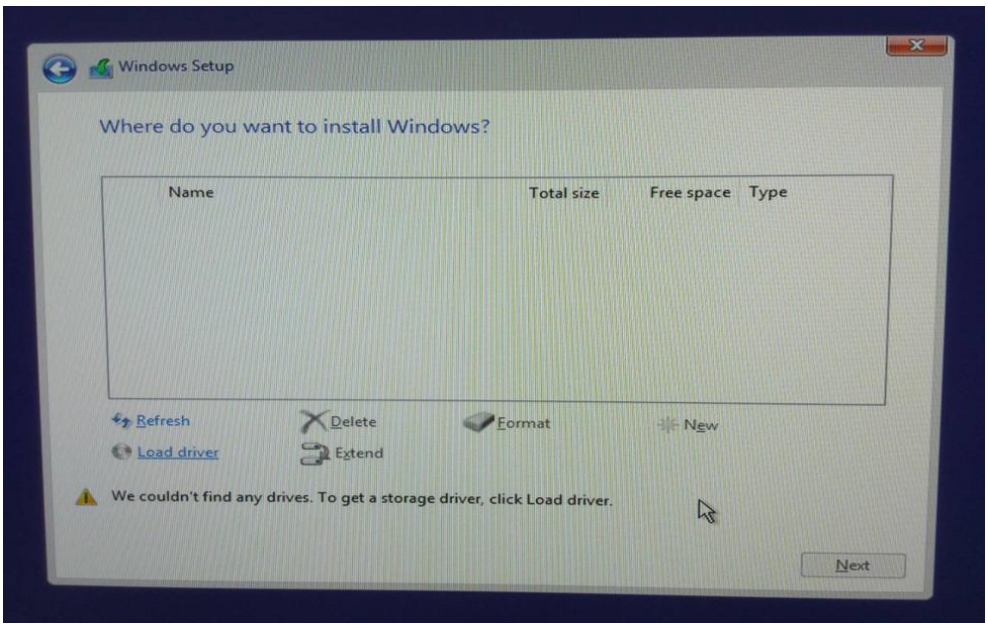
2.5 Please make sure that the storage device to be used for raid function is correct first. And press <Create RAID volume> to go to next step.

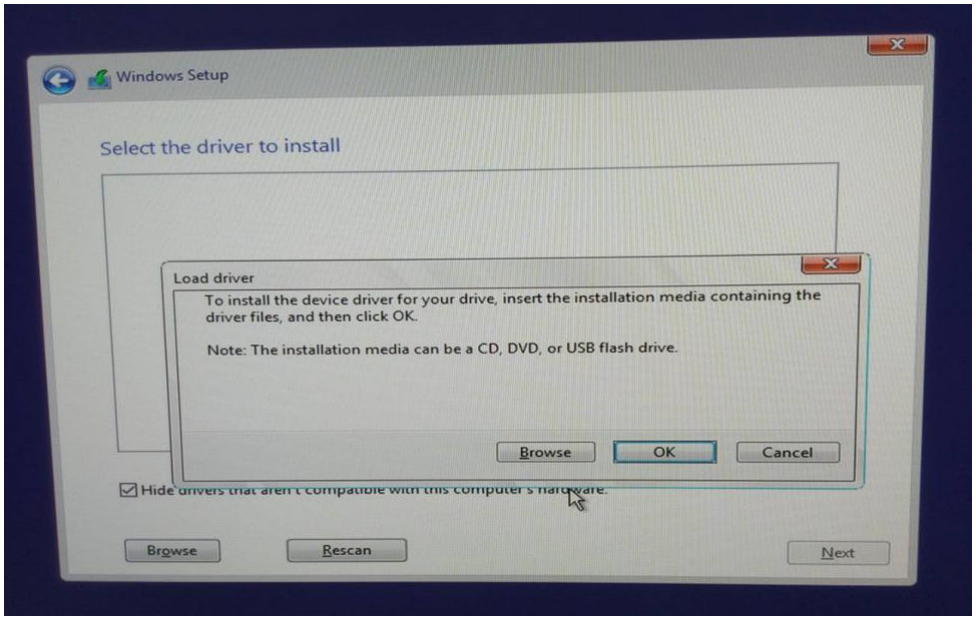


Then, users can see the final RAID volume.

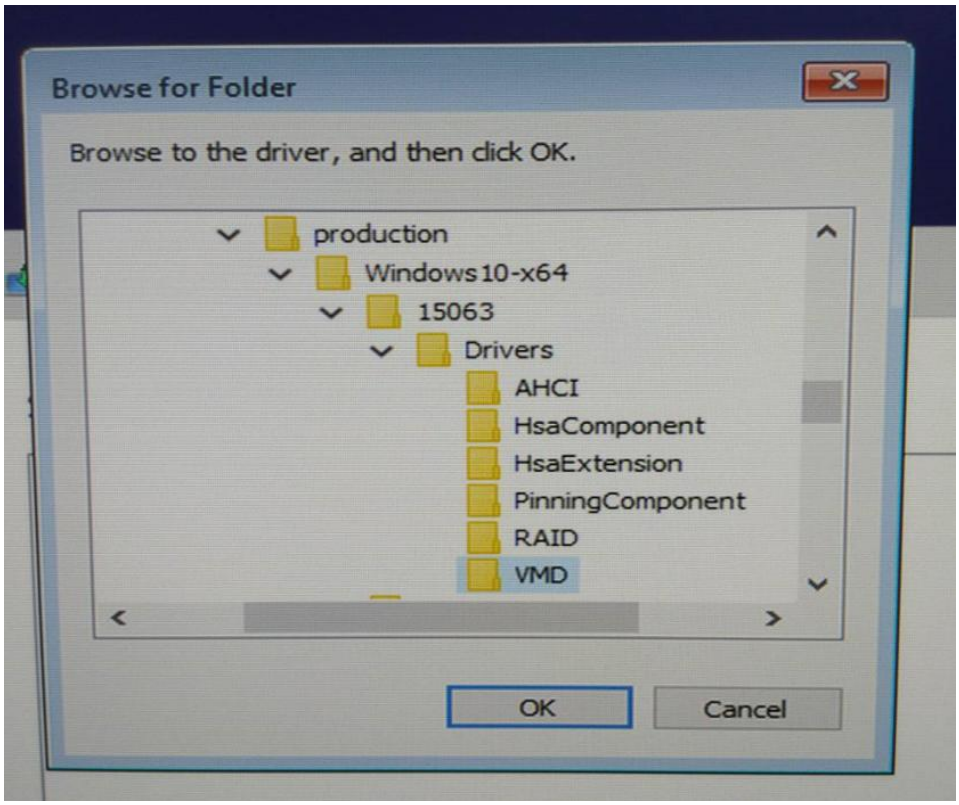


2.6 Install OS and Click Load Driver.

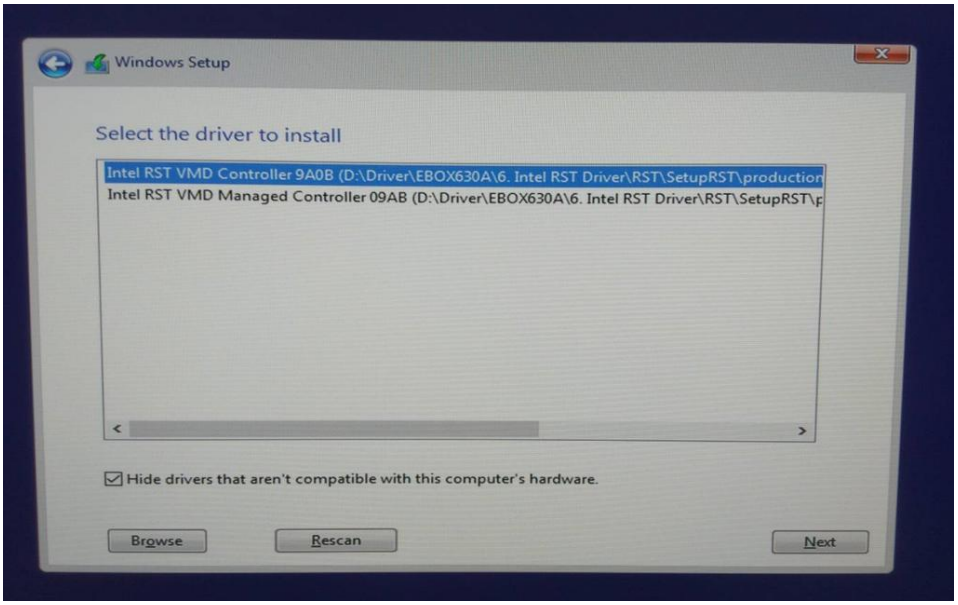




2.7 Click Browse, Find the VMD File.



2.8 Press Next



2.9 The storage will be detected after the previous steps and finished the OS install.