eBOX100A Series

Embedded System

User's Manual

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Safety Precautions

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

1. The eBOX100A 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 eBOX100A 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 eBOX100A 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 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 swaps moistened with rubbing alcohol or water are applicable to reach areas in keyboard, mouse and other areas.

● Foam swabs: If possible, it is better to use lint free swabs such as foam swabs.
   .

【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.

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SECTION 1
INTRODUCTION

This section contains general information and detailed specifications of the eBOX100A.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 eBOX100A is a compact, efficient industrial-grade embedded BOX PC featuring Intel® Alder Lake N97 onboard (Intel Core i3-N305/Intel Atom x7211E by request). It offers 4 USB ports, 2 DB-9 ports with RS-232/422/485, dual/Quad 2.5GbE and two independent displays for peripheral connectivity and communication protocols. Suitable for the most IoT Gateway, Factory Automation, Smart City, Retail and more.

Features

- Intel® processor N97 quad-core SoC (Alder Lake-N)

- 1 DDR5 SO-DIMM, up to 16GB

- Operating temperature range from -40^0C to $+60^0$C

- Supports either 2-port or 4-port 2.5GbE versions

- Intelligent power management for USB power on/off control

- Supports HDMI (FHD) and DisplayPort++1.4a for dual-view

- Front-access I/O design

Reliable and Stable Design
The embedded system supports Intel® Celeron® Processor N97 (Alder Lake N), along with high flexibility and multi-functional design that makes it the best solution for smart factory, AIOT, Edge Computing, Factory automation applications.

Flexible Connectivity
The eBOX100A comes with rich I/O interfaces including two RS-232/422/485 ports, two USB 3.2 ports, two USB 2.0 ports, two/four 2.5GbE port, one HDMI(lockable), one DisplayPort++1.4a, one mPCIe expansion slot and one M.2 key E.

Embedded O.S. Supported
The eBOX100A supports Windows® 10 (20H2、21H1、21H2), Windows® 11 IoT and various Linux versions.

Various Storage Supported
In terms of storage, the eBOX100A supports one 2.5" SATA storage drive bay.

1.2 System Specifications

1.2.1 CPU

- **CPU**
  - Intel® processor N97 quad-core SoC (Alder Lake-N), up to 12W
  - Intel® processor N305/X7211E by request

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

- **System Memory**
  - 1 x 262-pin DDR5-4800 SO-DIMM,up to 16GB

1.2.2 I/O System

- **Display**
  - 1 x DisplayPort ++1.4a (Resolution: 3840x2160@60Hz)
  - 1 x HDMI (FHD) (Resolution: 1920x1080@60Hz)
  - Ethernet (Either one)
    2 x 10/100/1000/2500 Mbps Ethernet supports Wake-on-LAN, UEFI PXE with i226-V *(*Supports 1 PCIe Mini Card and 1 M.2 Key E)*
  - 4 x 10/100/1000/2500 Mbps Ethernet supports Wake-on-LAN, UEFI PXE with i226-V *(*Supports only 1 PCIe Mini Card)*

- **USB Ports**
  - 2 x USB 3.2 Gen1
  - 2 x USB 2.0

- **Serial Ports**
  - 2 x RS-232/422/485 (COM1-2)(with Autoflow)
  Baud rate support up to 115200

- **Mini PCIe Interface**
    - 1 x Full-size PCI Express Mini Card slot (USB 2.0 + PCIe + SIM signal)
    - 1 x M.2 Key E 2230 socket for Wi-Fi 6E (USB 2.0 + PCIe signal) (*only for two 2.5GbE version)
    - 1 x Internal SIM slot for PCIe Mini Card slot

- **Storage**
    - 1 x 2.5" SATA HDD/SSD drive bay, up to 15mm height

- **Indicator**
    - 1 x Green LED as indicator for PWR status
    - 1 x Orange LED as indicator for HDD active

- **Switch**
    - 1 x ATX PWR switch connector
    - 1 x Reset power switch connector
    - 1 x Remote power switch connector

- **Antenna & SIM**

    - 2 x SMA type connector openings for antenna

    - 1 x SIM slot

- **TPM 2.0**
    - 1 x ST33HTPH2X32AHE4

1.2.3 System Specifications

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

- **Power Supply**
    - 9-36V DC with ignition
      (Typical : 12V/24VDC)
    - Inrush current : 1.39 - 6.67A

- **Operation Temperature**
    - -40^0C to $+60^0$C (-40°F to +140°F) (with W.T. DRAM & SSD)

- **Storage Temperature**
    - -40^0C ~$+80^0$C (-40 °F ~ 176°F)

- **Humidity**
    - 10% ~ 90% (non-condensation)

- **Shock**
    - IEC 60068-2-27 (with SSD: 50G, half-sine, 11 ms duration))

- **Vibration Endurance**
    - IEC 60068-2-64 (w/SSD: 3Grms STD, random, 5 - 500 Hz,1 hr/axis)

- **Weight**
    - 1.1 kg (2.4 lb) without package
    - 1.5 kg (3.3 lb) with package

- **Dimension**
    - 155 mm (6.1") (W) x 110 mm (4.33") (D) x 60 mm (2.36") (H)

1.2.4 Driver CD Contents

Please download the following eBOX100A drivers from the Axiomtek official website.

- **Chipset**
- **Ethernet (i226-V)**
- **Graphic**
- **Serial Port**
- **Intel® ME**

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

1.3 Dimensions

The following diagrams show dimensions and outlines of the eBOX100A.

1.3.1 System Dimensions

155.0(W)   110.0(D)

60.0(H)
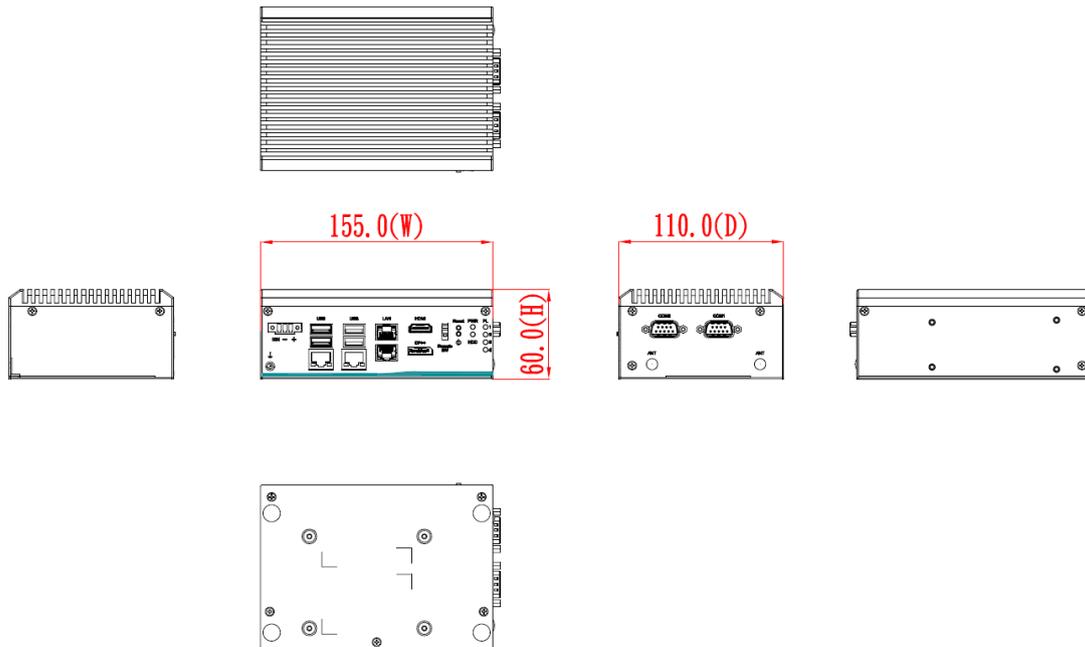
1.3.2 Wall-mount Bracket Dimensions

Users can get 4pcs truss head M3*6L screws for fixing the wall mount kit from the accessories box.

Note: When users install wall mount kit, please turn the LAN ports outlet side towards the floor.
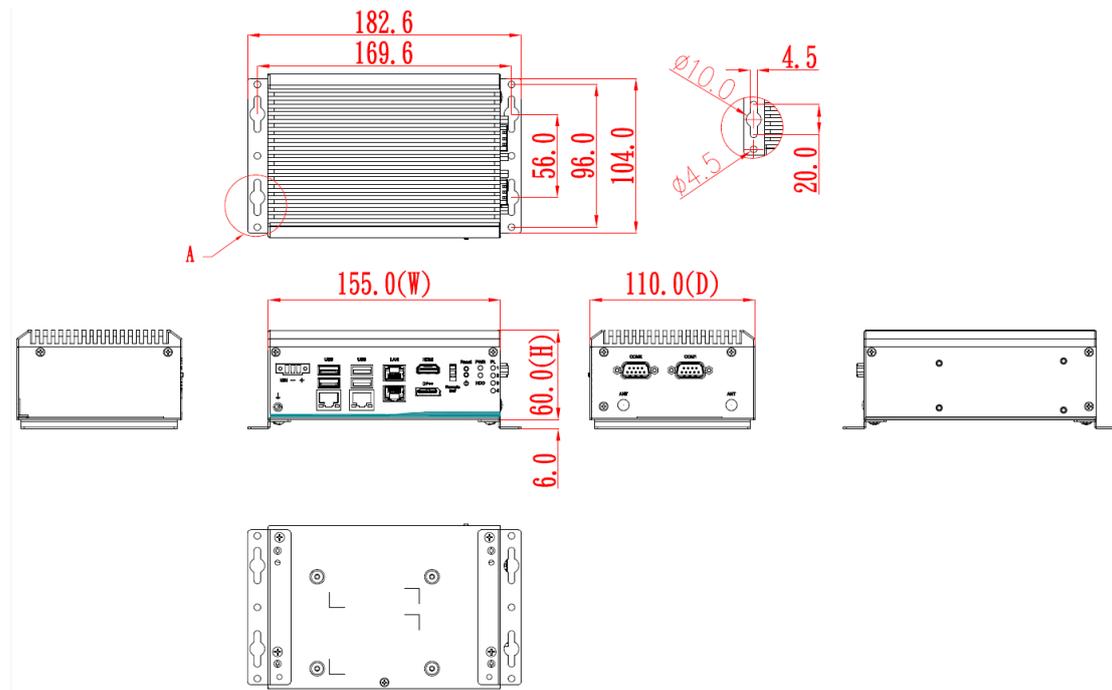
Wall-mount Bracket Assembly Drawing

Users can get 4pcs truss head M3*6L screws for fixing the wall mount kit from the accessories box.
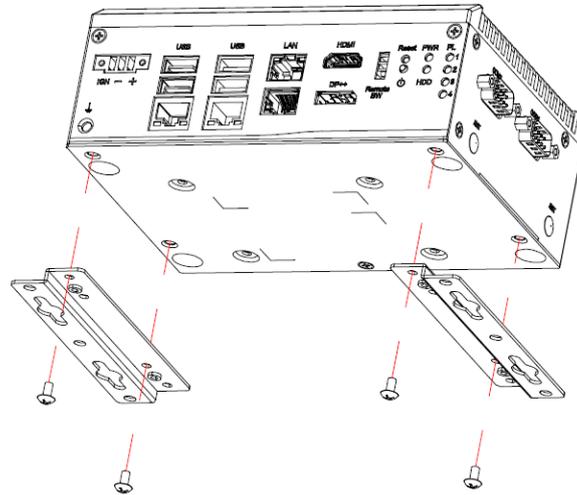
【Note】: *If users tighten the screws in drywall, use the hollow wall anchors to ensure that unit does not pull away from the wall due to prolonged strain between the cable and power connector.*

Minimum diameter: Ø5.5mm

Minimun Length: 1.2mm+ Wall's hole depth

Thread type should be decide accordingly.
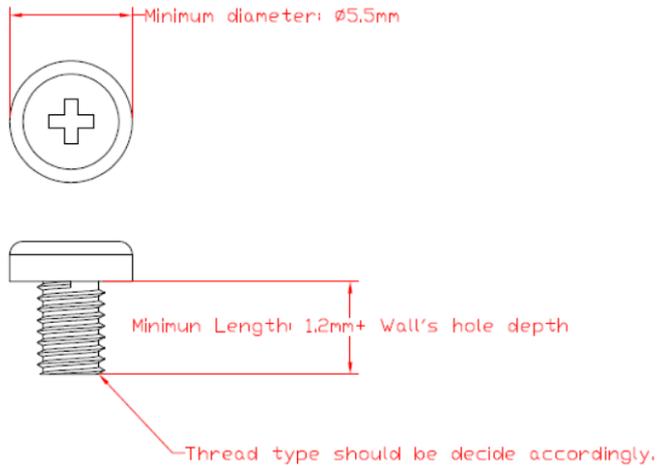
1.3.3 Din-Rail (Vertical type) Bracket Dimensions

Users can get 4pcs Countersunk screw M3*4L for fixing the Din rail mount kit from the accessory box.
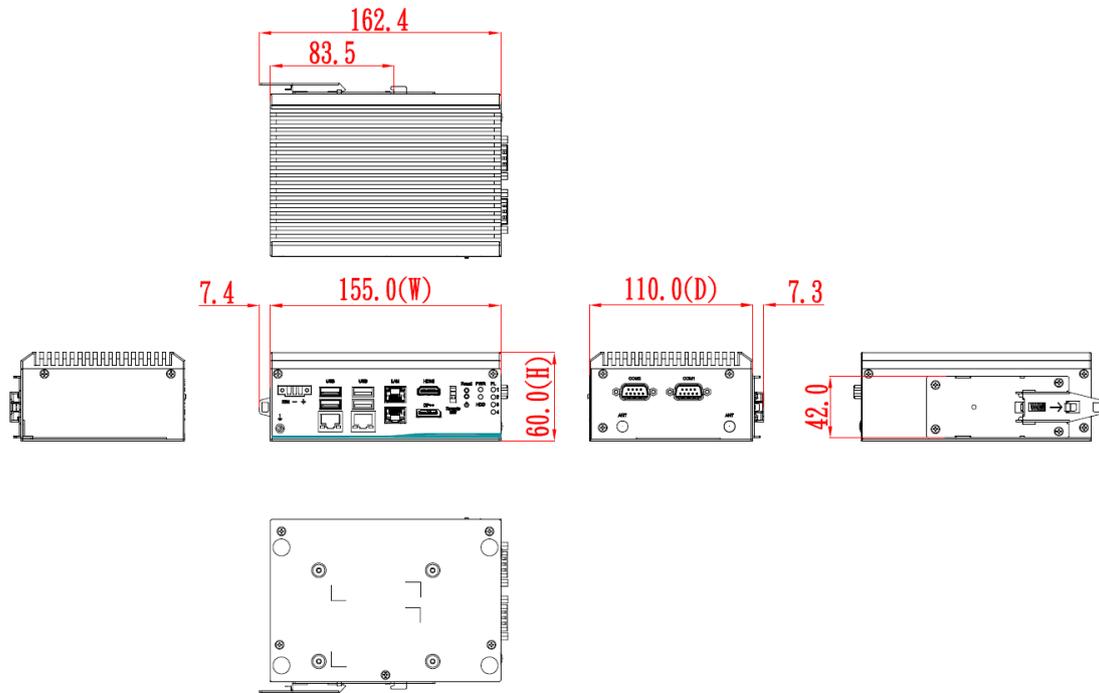
Din-Rail Bracket (Vertical type) Assembly Drawing

Users can get 4pcs truss head M3*4L screws for fixing the Din rail mount kit from the accessory box.

【**Note**】**:** *COM port IO connector facing up .*
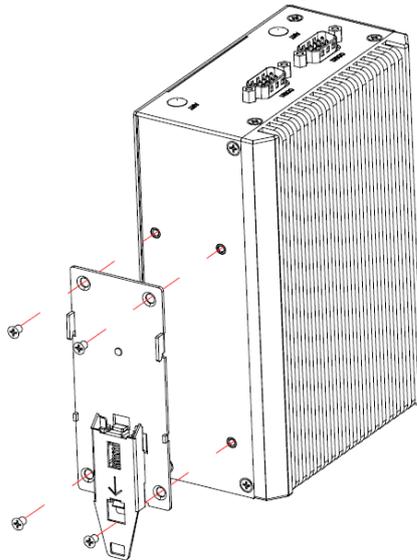
1.3.4 VESA Mount Bracket Dimensions

Users can get 4pcs truss head M3*6L screws for fixing the Vesa mount kit from the accessory box.
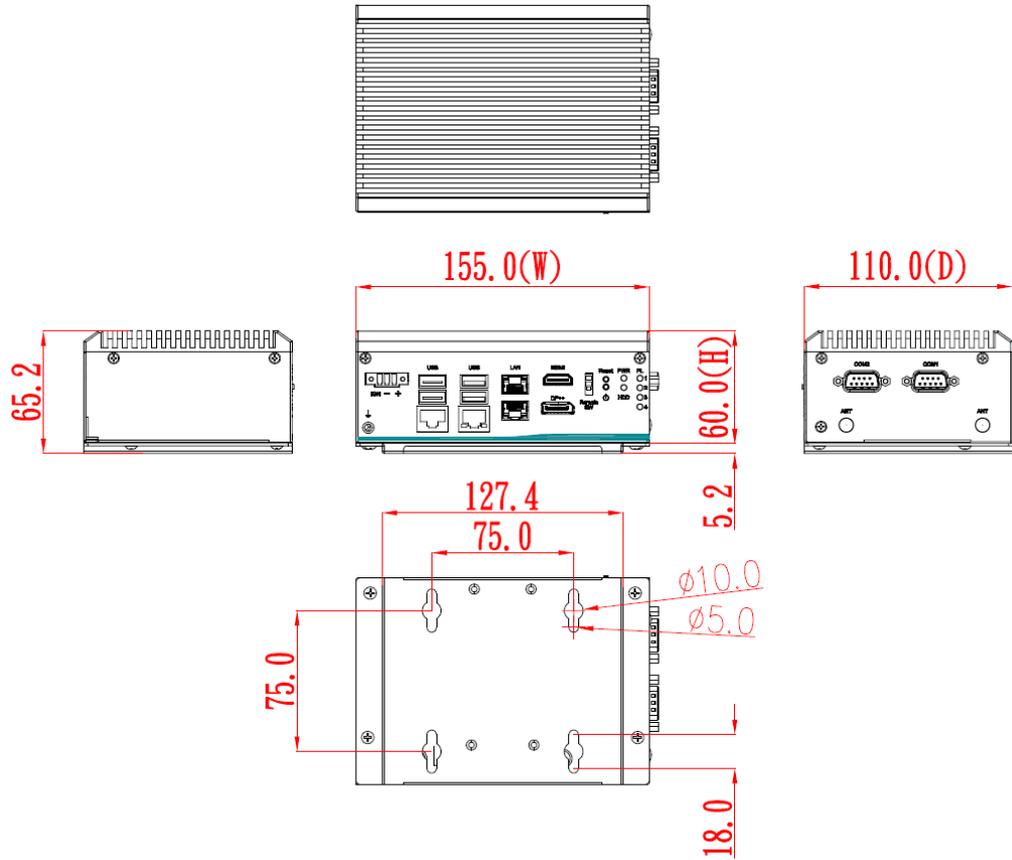
VESA Mount Bracket Assembly Drawing

Users can get 4pcs truss head M3*4L screws for fixing the Vesa mount kit from the accessory box.
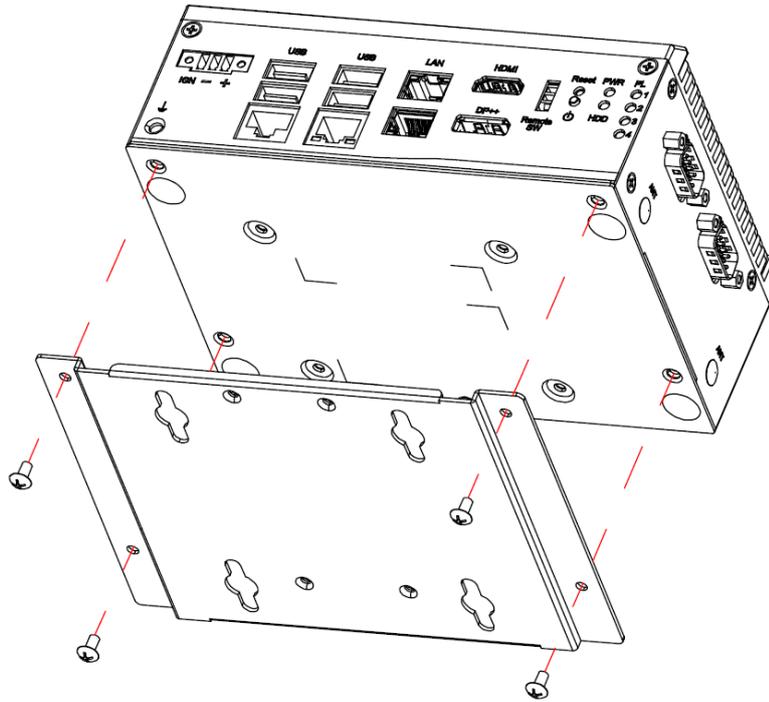
1.4 I/O Outlets

The following figures show I/O outlets on the eBOX100A.

Front View

4 LAN version
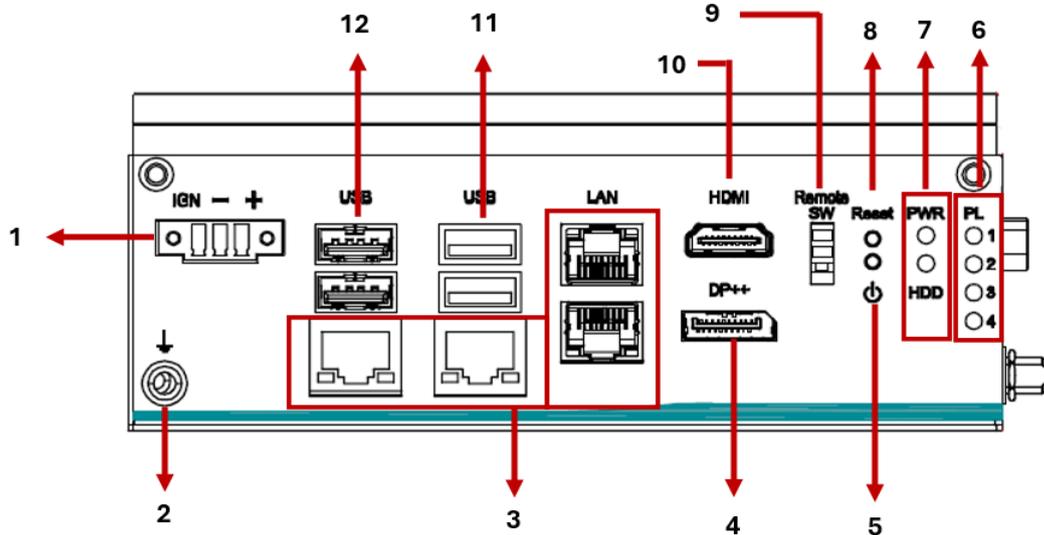
1	1 x 9-36VDC power inpout (Phoenix type)	8	1 x Reset swith connector
2	1 x Grounding	9	1 x Remote switch connector
3	4 x 2.5GbE (i226-V)	10	1 x HDMI
4	1 x DisplayPort++ 1.4a	11	2 x USB 3.2 Gen1
5	Power Switch connector	12	2 x USB 2.0
6	Programmer LEDs		
7	LEDs (PWR, HDD)		

2 LAN Version
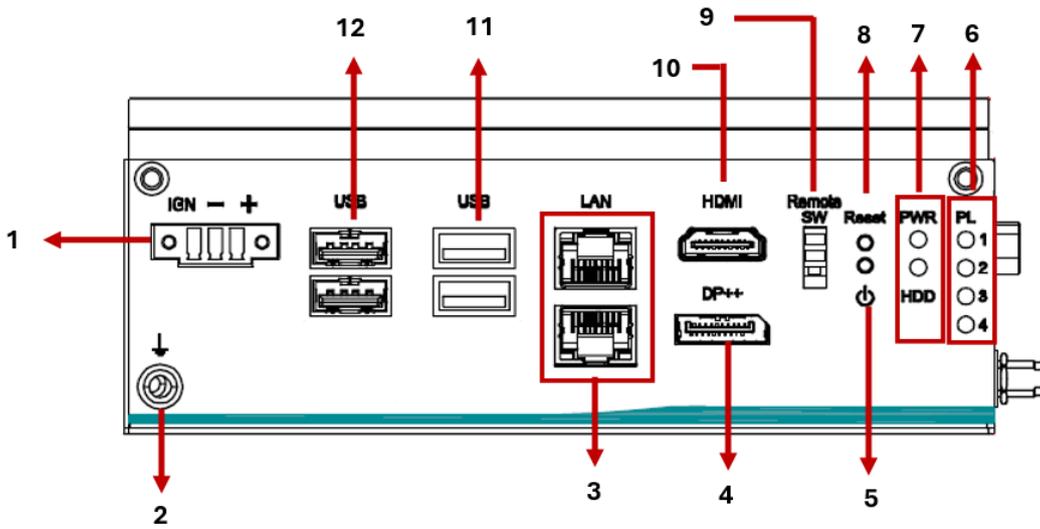
1	1 x 9-36VDC power inpout (Phoenix type)	8	1 x Reset swith connector
2	1 x Chassis Grounding	9	1 x Remote switch connector
3	2 x 2.5GbE	10	1 x HDMI
4	1 x DisplayPort++1.4a	11	2 x USB 3.2 Gen1
5	Power Switch connector	12	2 x USB 2.0
6	Programmer LEDs		
7	LEDs (PWR, HDD)		

Side View

2 x RS232/422/485

2 x Opening Antenna
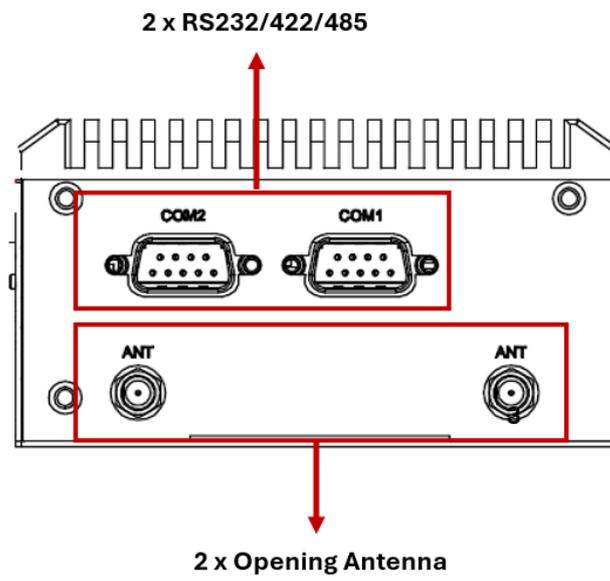
1.5 Packing List

The eBOX100A comes with the following bundle package:

- **eBOX100A System Unit x 1**

- **3-pin Terminal Block connector x 1**

- **Remote Switch Cable x 1**

- **Pre-installed Foot Pad x 4**

- **DRAM thermal pad x 3**

- **DRAM thermal pad bracket x1**

1.6 Model List

eBOX100A-N97-2E	Fanless embedded system with Intel® processor N97 quad-core SoC (Alder Lake-N), 2 LAN, HDMI, DisplayPort++, 2 COM, 4 USB, and 9 to 36 VDC
eBOX100A-N97-4E	Fanless embedded system with Intel® processor N97 quad-core SoC (Alder Lake-N), 4 LAN, HDMI, DisplayPort++, 2 COM, 4 USB, and 9 to 36 VDC

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

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SECTION 2
HARDWARE INSTALLATION

The eBOX100A is convenient for various hardware configurations, such as DRAM, HDD (Hard Disk Drive), SSD (Solid State Drive), PCI Express Mini card, M.2 module. Section 2 contains guidelines for hardware installation.

2.1 Installation of 2.5" SATA Device

Step 1   Turn off the system and unplug the power cord.
Step 2   Turn the system upside down to locate screws at the bottom side of the system, and then loosen five screws.
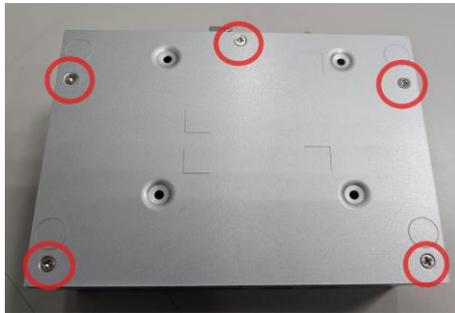
Step 3   Assemble SSD/HDD with the bottom cover with 4 screws.
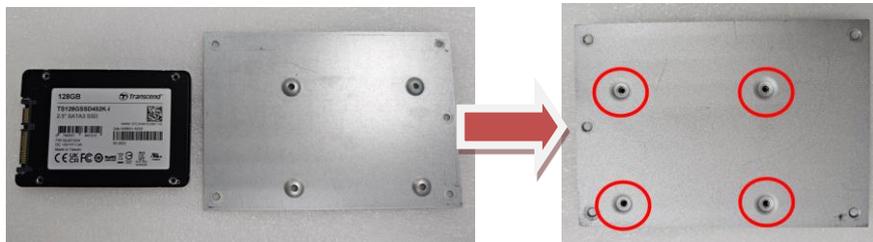
Step 4   Connect the power and SATA cable directly and then make sure the insertion is complete.
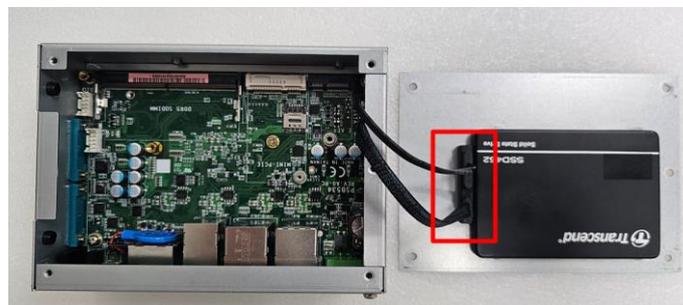
Step 5   Put the bottom cover back.

2.2 Installation of Memory Module

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

Step 2 **Turn the system upside down to locate screws at the bottom side of the system, and then loosen five screws.**
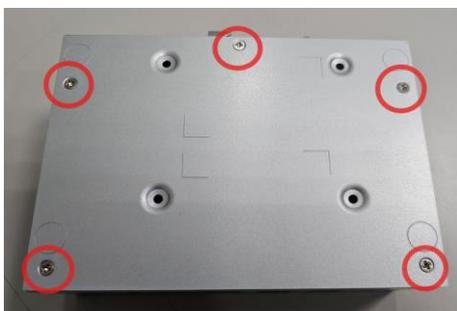
Step 3 **prepare the DRAM bracket, thermal pads, screws, and locate the DDR5 SO-DIMM slot as red marked and put the thermal pad on the DRAM module and DRAM socket.**
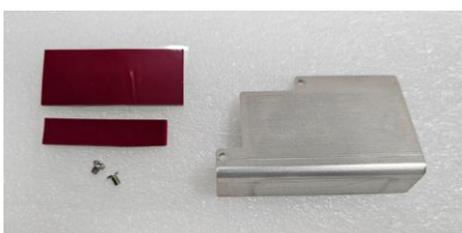
Step 4 **Insert the SO-DIMM into the socket and push the module down until it is locked in place by the two end latches.**
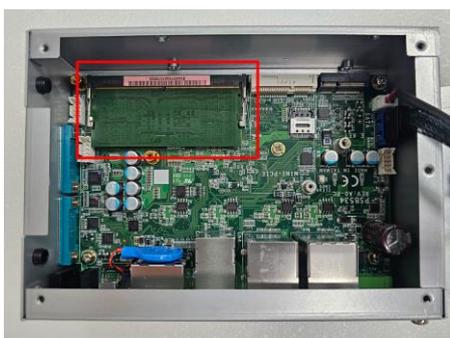
Step 5 **Place the thermal pad on the DRAM bracket and secure the DRAM bracket on top of the DRAM module with two screws.**
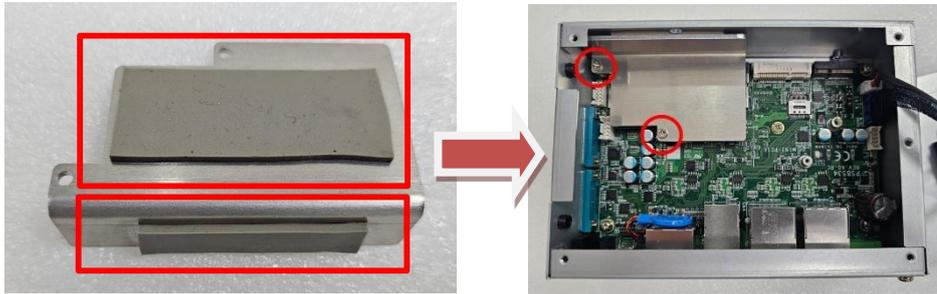
2.3 Installation of M.2 KEY E Module (CN16)

Step 1 **Turn off the system and unplug the power cord.**
Step 2 **Turn the system upside down to locate screws at the bottom side of the system, and then loosen five screws.**
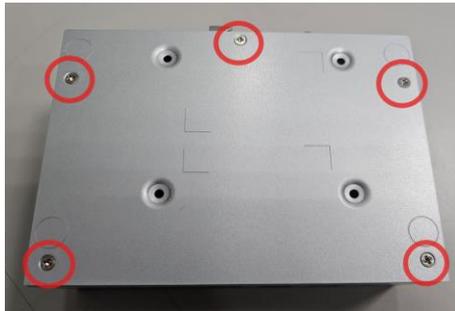
Step 3 **Located the M.2 KEY E as red marked, insert the M.2 KEY E mini card and tighten the screw.**
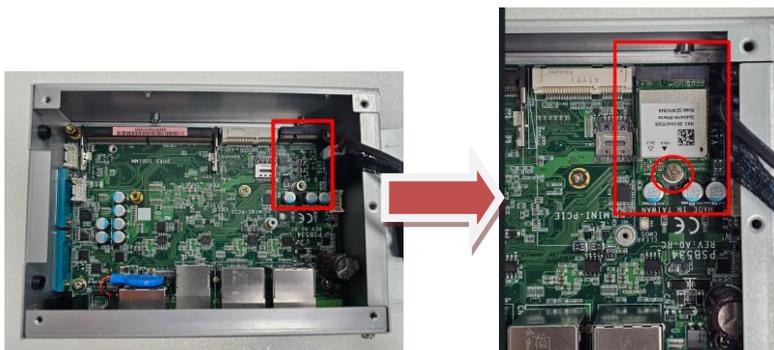
Step 4 **Put the bottom cover and tighten all screws back onto the system.**

2.4 Installation of Mini PCIe Module (Full-size)(CN15)

Step 1 **Turn off the system and unplug the power cord.**
Step 2 **Turn the system upside down to locate screws at the bottom side of the system, and then loosen five screws.**
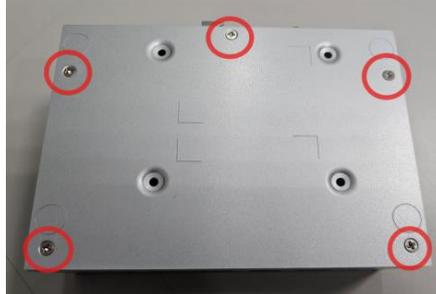
Step 3 **Locate the min card slot and insert a mini PCIe module into the sockets and then tighten the screw.**

【**Note**】： *Please use an extended bracket when using a half-size Mini card*
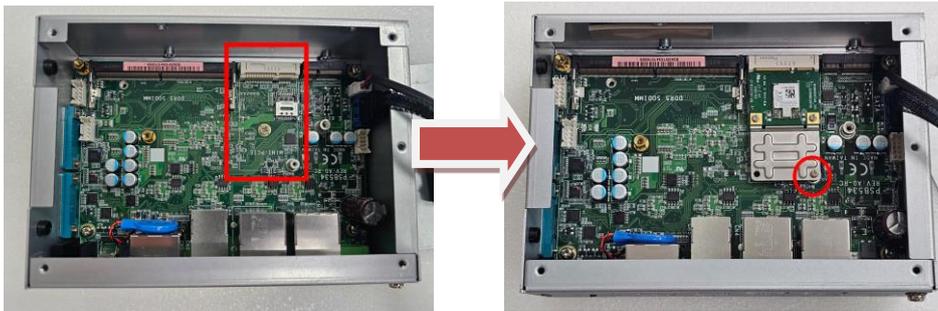
Step 4 **Remove the antenna cover from system, fix the SMA connector of the IPEX-to-SMA cable to one of the two antenna apertures on side panel.**
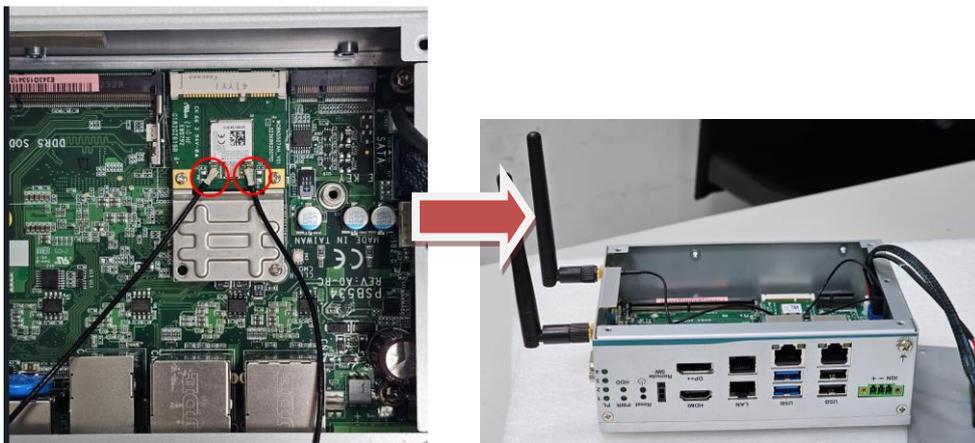
Step 5 Put the bottom cover and tighten all screws back onto the system.

**Note: If use LTE module , please Insert the corresponding SIM card into SIM socket (CN11) before you install the mini-PCIe module.*

Slide and lift SIM card holder and lies flat
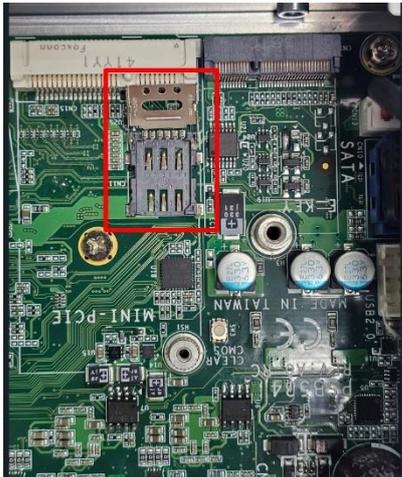
Place your SIM card into the SIM tray so that it properly fits

Secure the SIM card by sliding the holder

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SECTION 3
JUMPER & CONNECTOR SETTINGS

Proper jumper settings configure the eBOX100A 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

PSB534 Top View

PSB534 Bottom View

```
┌─────────────────────────────────────────────────────────────┐
│   (SMB)                                              (SMB)      │
├─────────────────────────────────────────────────────────────┤
│                                                                │
│  ┌─┐                                                           │
│  │ │                                                           │
│  │ │                                                           │
│  └─┘                                                           │
│                                                                │
│  ┌─┐          ┌─────────────────┐                             │
│  │ │          │                 │                             │
│  │ │          │      SU15       │                             │
│  │ │          │                 │                             │
│  └─┘          └─────────────────┘                             │
│                                                                │
│   (SMB)                                              (SMB)      │
└─────────────────────────────────────────────────────────────┘
```

【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 Jumper Settings

Proper jumper settings configure the eBOX100A to meet various application purposes. A table of all jumpers and their default settings is listed below.

Pushbutton	Descriptions	Settings
SW3	Use this switch SW3 for clear CMOS (button you press and hold the button for at least 10 seconds)	Pushbutton *normally open* (default) Pushbutton *normally closed* (clear CMOS)

3.3 Connectors

Please refer to below connector table to get their pin assignments.

External Connectors	Sections
DC-in Phoenix Power Connector (CN1)	3.3.1
HDMI Connector (CN2)	3.3.2
DisplayPort (CN2)	3.3.3
Serial Port Connector (CN6, CN8)	3.3.4
USB 3.2 Connector (CN4)	3.3.5
Ethernet Connector (CN5)	3.3.6
Remote Power Switch Connector (SW2)	3.3.7
Reset Switch (SSW1)	3.3.8
Internal Connectors	**Sections**
SATA Power Connector (CN13)	3.3.9
SATA Signal Connector (CN10)	3.3.10
SIM Slot (CN11)	3.3.11
Full-Size Express Mini Card slot (CN15)	3.3.12
M.2 Key E (CN16)	3.3.13
USB 2.0 (CN7)	3.3.14
Digital I/O (CN9 and CN12) (optional)	3.3.15

3.3.1   DC-in Phoenix Power Connector (CN1)

The system supports 9-36V Phoenix DC-in connector for system power input.

Pins	Signals
1	+
2	-
3	IGN
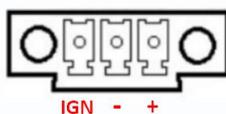
3.3.2   HDMI Connector (CN2)

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
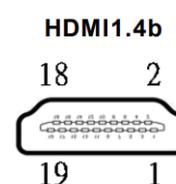
3.3.3 DisplayPort++ Connector (CN2)

eBOX100A supports one DisplayPort++ output.

Pins	Signals	Pins	Signals
1	RED	2	GREEN
3	BLUE	4	N.C
5	GND	6	GND
7	CRT_VCC	8	GND
9	CRT_VCC	10	GND
11	N.C	12	DDC_DATA
13	Hsync	14	Vsync
15	DDC_CLK		
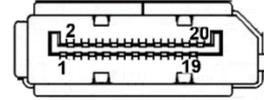
3.3.4 Serial Port Connector (CN6, CN8)

The system has two RS232/422/485 serial ports. Please refer to Chapter 4 for the details of BIOS setting.

Pin	RS-232	RS-422	RS-485
1	DCD	TX-	Data-
2	RXD	TX+	Data+
3	TXD	RX+	N/C
4	DTR	RX-	N/C
5	GND	GND	GND
6	DSR	N/C	N/C
7	RTS	N/C	N/C
8	CTS	N/C	N/C
9	RI	N/C	N/C
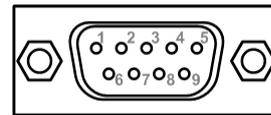
3.3.5 USB 3.2 Connector (CN4)

The system has two port compliant with USB 3.2 gen1 (5GB/s), and ideally for installing USB peripherals such as scanner, camera, and USB devices, etc.

USB 3.2 Gen1

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+
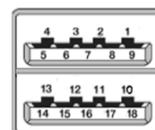
3.3.6   Ethernet Connector (CN5)

The eBOX100A has two version: two RJ-45 connectors or four RJ-45 connectors.

Two or Four LAN ports are all 2.5GbE and designed by Intel i226-V.

Pin assignment

Pins	2500/1000 Base-T	Description
L1	BI_DA+	Bidirectional or Transmit Data+
L2	BI_DA-	Bidirectional or Transmit Data-
L3	BI_DB+	Bidirectional or Receive Data+
L4	BI_DC+	Bidirectional or Not Connected
L5	BI_DC-	Bidirectional or Not Connected
L6	BI_DB-	Bidirectional or Receive Data-
L7	BI_DD+	Bidirectional or Not Connected
L8	BI_DD-	Bidirectional or Not Connected
A	Active Link LED (Yellow) Off: No link Blinking: Data activity detected	
B	Speed LED 2500: Green 1000: Orange 100/10: OFF	

2.5G

3.3.7   Remote Power Switch Connector (SW2)

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

Functions	Descriptions
Short (1-2)	Turn on/off system
Open	Keep system status
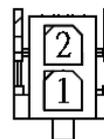
3.3.8   Power switch /Reset switch connector (SW1)

	Functions	Descriptions
1	Power switch	Turn on/off system
2	Reset switch	Reset system

3.3.9   SATA Power Connector (CN13)

Based on CN13 to offer the SATA power for SATA 2.5" HDD/SSD.

Pins	Signals
1	+5V level
2	GND
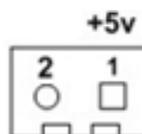
3.3.10 SATA Connector (CN10)

The Serial Advanced Technology Attachment (Serial ATA or SATA) connector is for high-speed SATA interfaces. It is computer bus interfaces for connecting to devices such as hard disk drives. This board has one 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
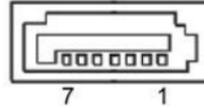
3.3.11 Nano SIM Card Slot (CN11)

The eBOX100A has one SIM slots: CN15 on top side that support mini PCIe slot (for CN11). It is mainly used in wireless network application.

Pins	Signals
C1	PWR
C2	RST
C3	CLK
C4	NC
C5	GND
C6	VPP
C7	I/O

3.3.12 Full-Size PCI Express Mini Card Slot (CN15)

The eBOX100A supports one full-size PCI-Express Mini Card slot.

CN15 is applying for PCI-Express complies with PCI-Express Mini Card Spec. V1.2. Users can install WLAN/WWAN cards into this slot.

Pins	Signals	Pins	Signals
1	WAKE#	2	+3.3VSB
3	NC	4	GND
5	NC	6	+1.5V
7	CLKREQ# 8 No use	8	UIM_PWR
9	GND	10	UIM_DATA
11	REFCLK-	12	UIM_CLK
13	REFCLK+	14	UIM_REST
15	GND	16	UIM_VPP
17	NC	18	GND
19	NC	20	W_DISABLE#100k PU
21	GND	22	PERST#
23	PE_RXN3/	24	+3.3VSB
25	PE_RXP3/	26	GND
27	GND	28	+1.5V
29	GND	30	NC
31	PE_TXN3/	32	NC
33	PE_TXP3/	34	GND
35	GND	36	USB_D8-
37	GND	38	USB_D8+
39	+3.3VSB	40	GND
41	+3.3VSB	42	NC
43	GND	44	NC
45	NC	46	NC
47	NC	48	+1.5V
49	NC	50	GND
51	NC	52	+3.3VSB
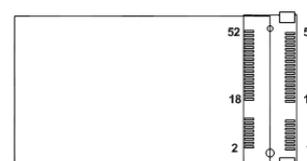
3.3.13   M.2 2230 Key E slot (CN16)

The M.2 2230 Key E for WIFI Module.

Pins	Signals	Pins	Signals
1	GND	2	+3.3V_SBY
3	USB_D+	4	+3.3V_SBY
5	USB_D-	6	NC
7	GND	8	NC
9	NC	10	NC
11	NC	12	NC
13	NC	14	NC
15	NC	16	NC
17	NC	18	GND
19	GND	20	NC
21	NC	22	NC
23	NC	24	Key E
25	Key E	26	Key E
27	Key E	28	Key E
29	Key E	30	Key E
31	Key E	32	NC
33	GND	34	NC
35	PCIE_TX_+	36	NC
37	PCIE_TX_-	38	NC
39	GND	40	NC
41	PCIE_RX_+	42	NC
43	PCIE_RX_-	44	NC
45	GND	46	NC
47	CLK_PCIE_+	48	NC
49	CLK_PCIE_-	50	NC
51	GND	52	PERST# (+3.3V Level)
53	CLKREQ0#	54	W_DISABLE 100k PU
55	NC	56	W_DISABLE 100k PU
57	GND	58	NC
59	NC	60	NC
61	NC	62	NC
63	GND	64	GND
65	NC	66	NC

67	NC	68	NC
69	GND	70	NC
71	NC	72	+3.3V_SBY
73	NC	74	+3.3V_SBY
75	GND		
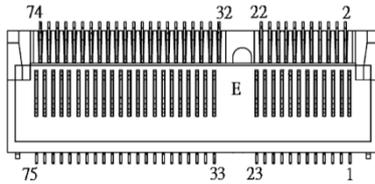
3.3.14 Internal USB 2.0 (CN7)(optional)

Pins	Signals	Pins	Signals
1	USB_VCC (+5V level standby power)	2	USB_VCC (+5V level standby power)
3	USB DATA-	4	USB DATA-
5	USB DATA+	6	USB DATA+
7	GND	8	GND
9	NC	10	GND
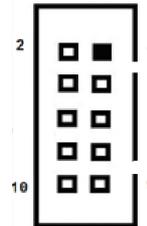
3.3.15   Digital I/O (CN9 and CN12) (by request)

The system is equipped with 16bit programmable Digital I/O (2 ports, 8-CH for each port), please refer to the following table to get default pin define.

The digital I/O can be configured to control cash drawers and sense warning signals from an Uninterrupted Power System (UPS) or perform store security control. You may use software programming to control these digital signals.

*This optional feature is supported by MOQ, please contact sales if required. *

CN12

Pins	Signals	Pins	Signals
1	DIO1_OUT	2	DIO8_IN
3	DIO2_IN	4	DIO7_OUT
5	DIO3_OUT	6	DIO6_IN
7	DIO4_IN	8	DIO5_OUT
9	+5V	10	GND
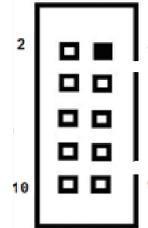
CN9

Pins	Signals	Pins	Signals
1	DIO9_OUT	2	DIO16_OUT
3	DIO10_OUT	4	DIO15_OUT
5	DIO11_OUT	6	DIO14_OUT
7	DIO12_OUT	8	DIO13_OUT
9	+5V	10	GND
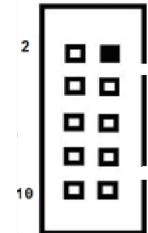
SECTION 4
BIOS SETUP UTILITY

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.

```
                          Aptio Setup - AMI
        Main  Advanced  Chipset  Security  Boot  Save & Exit

        BIOS Information                              Set the Date. Use Tab to
        Build Date and Time    06/28/2024 08:15:42   switch between Date elements.
        Project Version        PSB534 X008 CRB        Default Ranges:
                                                      Year: 1998-9999
        Firmware Information                          Months: 1-12
        ME Firmware Version    16.50.12.1453          Days: Dependent on month
        ME Firmware Mode       Normal Mode            Range of Years may vary.
        ME Firmware SKU        Consumer SKU

        Board Information
         Processor Name        AlderLake ULX
                 Type          Intel(R) Core(TM)
                               i3-N305
                 Stepping      A0
                                                      →←: Select Screen
                                                      ↑↓: Select Item
         PCH     Name          PCH-N                  Enter: Select
                 SKU           N Premium SKU          +/-: Change Opt.
                 Stepping      A0                     F1: General Help
         Memory  Size          16384 MB               F2: Previous Values
                 Frequency      4800 MHz              F3: Optimized Defaults
                                                      F4: Save & Exit
        System Date            [Sat 08/03/2024]       ESC: Exit
        System Time            [17:07:46]

        Access Level           Administrator



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```

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:

> ► ACPI Settings
> ► Trusted Computing
> ► CPU Configurations
> ► Storage Configuration
> ► F81804 Super IO Configuration
> ► Hardware monitor
> ► USB Configuration
> ► Smart Ignition Management
> ► Device Configuration

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

```
                              Aptio Setup - AMI
        Main  Advanced  Chipset  Security  Boot  Save & Exit

    ▶ ACPI Settings                              System ACPI Parameters.
    ▶ Trusted Computing
    ▶ CPU Configuration
    ▶ Storage Configuration
    ▶ F81804 Super IO Configuration
    ▶ Hardware Monitor
    ▶ USB Configuration
    ▶ Smart Ignition Management
    ▶ Device Configuration

                                                 →←: 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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```

ACPI Settings

Use this screen to select options for the ACPI configuration and change the value of the selected option. A description of the selected item appears on the right side of the screen.

```
                          Aptio Setup - AMI
    Advanced

  ACPI Settings                                      Select the highest ACPI sleep
                                                     state the system will enter
  ACPI Sleep State          [S3 (Suspend to RAM)]    when the SUSPEND button is
                                                     pressed.




                                                     ↔: 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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```
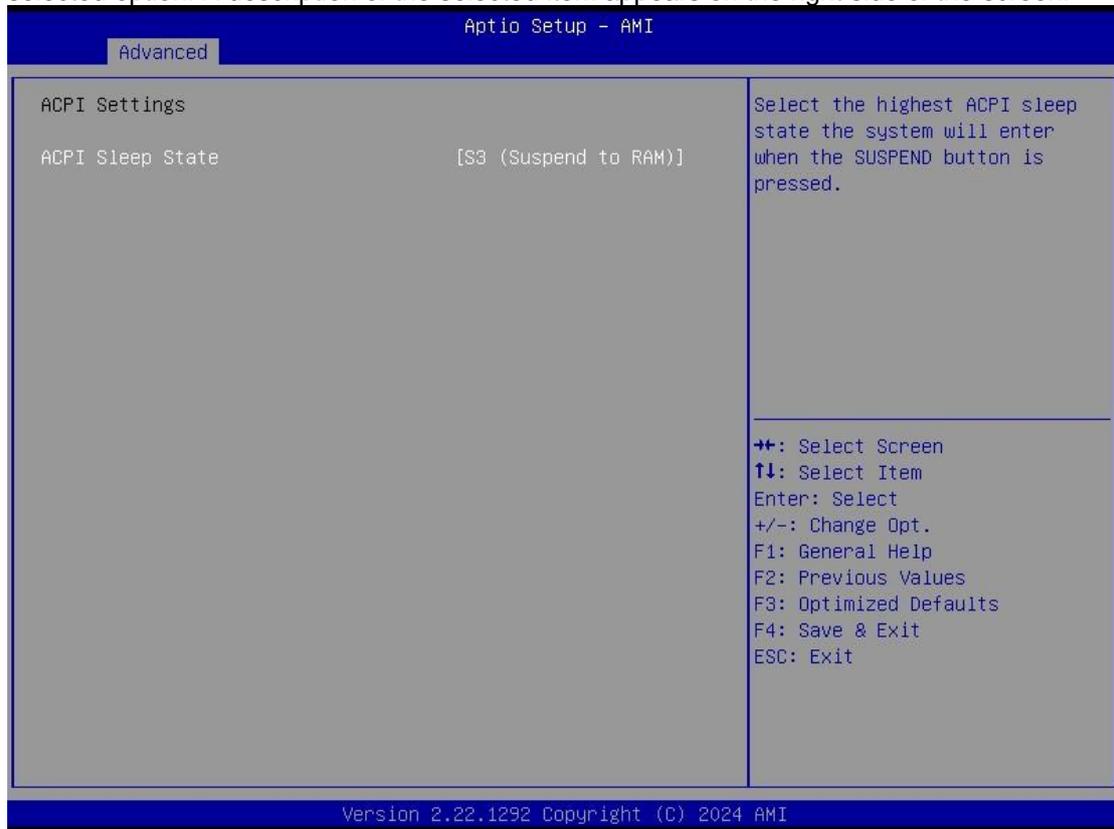
ACPI Sleep State

When the sleep button is pressed, the system will be in the ACPI sleep state.

The default is S3 (Suspend to RAM).

Trust Computing

If users install a security device, such as TPM, users will see the following information for the TPM device and status.

```
                              Aptio Setup - AMI
     [ Advanced ]

    TPM 2.0 Device Found                              Enables or Disables BIOS
    Firmware Version:          1.769                  support for security device.
    Vendor:                    STM                    O.S. will not show Security
                                                      Device. TCG EFI protocol and
    Security Device Support    [Enable]               INT1A interface will not be
    Active PCR banks           SHA256                 available.
    Available PCR banks        SHA256,SHA384

    SHA256 PCR Bank            [Enabled]
    SHA384 PCR Bank            [Disabled]

    Pending operation          [None]
    Platform Hierarchy         [Enabled]              →←: Select Screen
    Storage Hierarchy          [Enabled]              ↑↓: Select Item
    Endorsement Hierarchy      [Enabled]              Enter: Select
    Physical Presence Spec Version  [1.3]             +/-: Change Opt.
    TPM 2.0 InterfaceType      [TIS]                  F1: General Help
                                                      F2: Previous Values
                                                      F3: Optimized Defaults
                                                      F4: Save & Exit
                                                      ESC: Exit




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```

Security Device Support

Enable or disable BIOS support for security device. OS will not show security device. TCG EFI protocol and INT1A interface will not be available.

CPU Configuration

This screen shows the CPU version and its detailed information.

```
                          Aptio Setup - AMI
     Advanced

  CPU Configuration                                      Enable/Disable CPU Power
                                                         Management. Allows CPU to go
  Type                          Intel(R) Core(TM)        to C states when it's not 100%
                                i3-N305                  utilized.
  ID                            0xB06E0
  Speed                         1800 MHz
  VMX                           Supported
  SMX/TXT                       Not Supported

  C states                      [Disabled]
  Package C State Limit         [C0/C1]
  Intel (VMX) Virtualization    [Enabled]
  Technology
  Active Efficient-cores        [All]                    →←: Select Screen
  AES                           [Enabled]                ↑↓: Select Item
  Boot performance mode         [Max Non-Turbo           Enter: Select
                                Performance]             +/-: Change Opt.
  Intel(R) Speed Shift Technology [Enabled]              F1: General Help
     Turbo Mode                 [Disabled]               F2: Previous Values
                                                         F3: Optimized Defaults
                                                         F4: Save & Exit
                                                         ESC: Exit



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```

C states

Use this item to enable or disable CPU Power Management. When set as [Enabled], it allows CPU to go to C states when it's not 100% utilized.
C states Set the default value to: [Disabled].
The optional settings: [Enabled].

Package C states Limit

Use this item to maximum package C State Limit setting.
CPU default: leaves to factory default value. Auto: initializes to deepest available package C State Limit.
Package C State Limit Set the default value to: [Auto].
The optional settings: [C0/C1]; [C2]; [C3] ; [C6] ; [C7] ; [C7S] ; [C8] ; [C9] ; [C10] ;
[CPU Default] ; [Auto].

I**ntel (VMX) Virtualization Technology**

Enable or disable Intel Virtualization Technology. When enabled, a VMM (Virtual Machine Mode) can utilize the additional hardware capabilities. It allows a platform to run multiple operating systems and applications independently, hence enabling a single computer system to work as several virtual systems.

Active Efficient-Cores

Enter the sub-menu of Efficient the E-core Information.

AES

Enable or Disable AES (Advanced Encryption Standard).

Boot performance mode

Use this item to select the performance state that the BIOS will set starting from reset vertor.
Boot Performance Mode Set the default value to: [Turbo Performance].
The optional settings: [Min Non-Turbo Performance]; [Max Non-Turbo
Performance]; [Turbo Performance].

Intel (R) Speed Shift Technology

To speed up CPU frequency transition time from basic frequency to maximumfrequency.
Enabled : Enables Intel(R) Speed Shift Technology (Default setting)
Disabled : Disables Intel(R) Speed Shift Technology

Turbo Mode

Enable/Disable processor Turbo Mode (requires EMTTM enabled too).

When Turbo Mode is enabled, the system's operating temperature can only reach 50°C.

.

Storage Configuration

This screen allows users to select options for SATA Configuration, and change the value of the selected option.

```
                              Aptio Setup - AMI
   ┌─────────┐
   │ Advanced│
   └─────────┘

   Storage Configuration                       SATA Device Options Settings

 ▶ SATA Configuration




                                               ←→: 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

  SATA Configuration                                       Enable/Disable SATA Device.

  SATA Controller(s)             [Enabled]


  Serial ATA Port 1             Empty
   Port 1                       [Enabled]
   Hot Plug                     [Disabled]
   Spin Up Device               [Disabled]
   SATA Device Type             [Hard Disk Drive]



                                                          ↔: 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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```

SATA Controller
Highlight this item to enable or disable SATA Controller.

F81804 Super IO Configurations

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

```
                           Aptio Setup - AMI
   Advanced

   F81804 Super IO Configuration                    Set Parameters of Serial Port
                                                    1 (COMA)
   Super IO Chip                    F81804
 ► Serial Port 1 Configuration
 ► Serial Port 2 Configuration




                                                    →←: 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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```
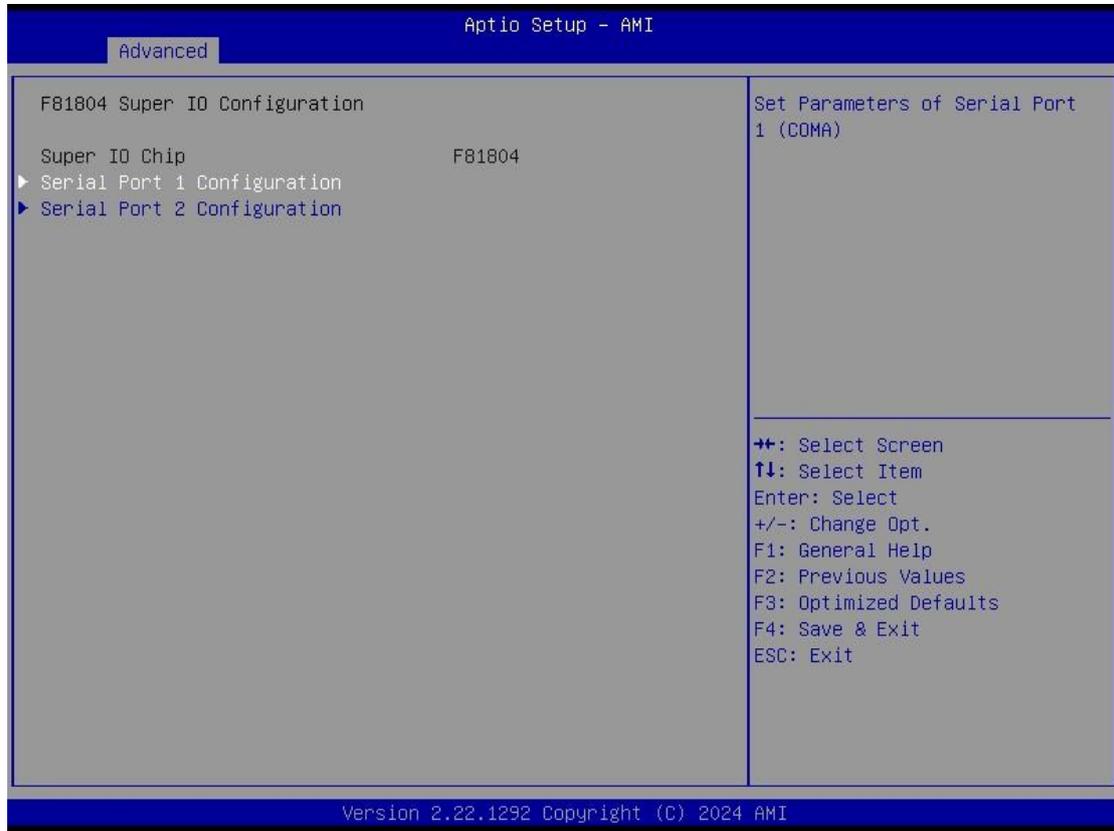
Serial Port 1~2 (COM1~2) Configurations
Use these items to set parameters related to serial ports COM1-2 (RS232/422/485)

Serial Port 1

Use this to set parameters of COM 1 (RS232422/485).

```
                            Aptio Setup - AMI
     Advanced

  Serial Port 1 Configuration                          Enable or Disable Serial Port
                                                        (COM)
  Serial Port                       [Enabled]
  Device Settings                   IO=3F8h; IRQ=4;

  COM Port Type                     [RS232]
  COM Port Term Type                [Disabled]




                                                      →←: 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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```
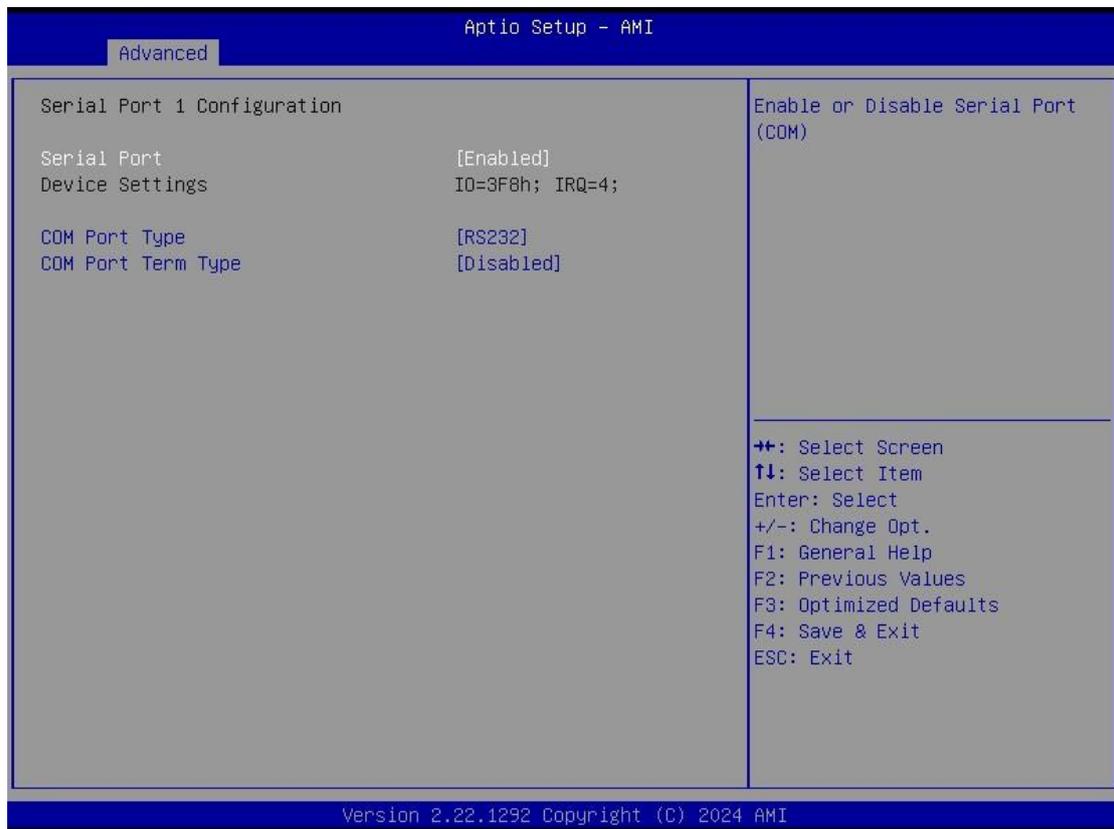
Serial Port
Enable or disable serial port 1. The optimal setting for base I/O address is 3F8h and for interrupt request address is IRQ4.

COM Port Type
Use this item to set RS-232/422/485 communication mode.

Serial Port 2

Use this to set parameters of COM 2 (RS-232).

```
                          Aptio Setup – AMI
   ┌─────────────┐
   │  Advanced   │
   └─────────────┘

   Serial Port 2 Configuration                        COM Port Type: RS232, RS422,
                                                       RS485
   Serial Port                    [Enabled]
   Device Settings                IO=2F8h; IRQ=3;

   COM Port Type                  [RS232]
   COM Port Term Type             [Disabled]


                        ┌──── COM Port Type ────┐
                        │ RS232                  │
                        │ RS422                  │
                        │ RS485                  │
                        └────────────────────────┘
                                                       →←: 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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```
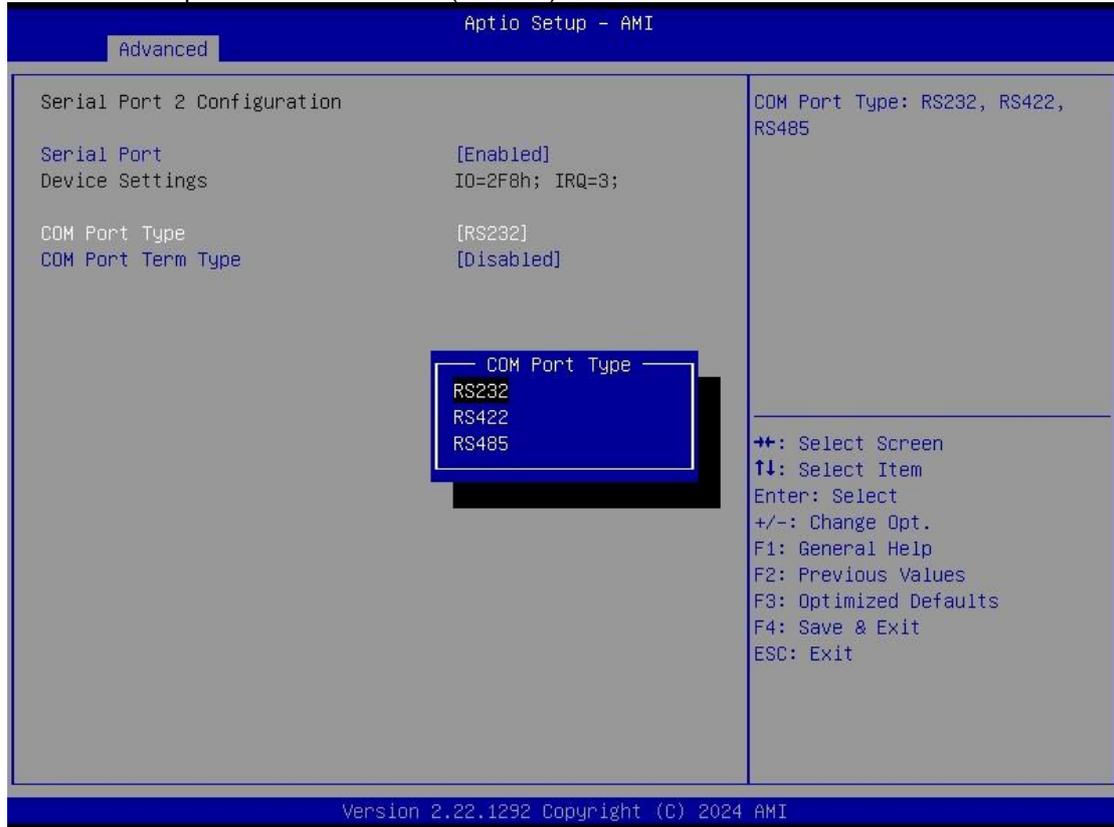
Serial port
Enable or disable serial port 2. The optimal setting for base I/O address is 2F8h and for interrupt request address is IRQ3.

Hardware Monitor

This screen monitors hardware health status.

```
                          Aptio Setup - AMI
   ┌─────────┐
   │ Advanced │
   └─────────┘

   Pc Health Status

   CPU temperature                 : +59 %
   System temperature2             : +32 %

   VCC_RTC                         : +3.104 V
   +5VDUAL                         : +5.040 V
   VCC3V                           : +3.296 V
   VSB3V                           : +3.296 V
   VSB5V                           : +5.088 V

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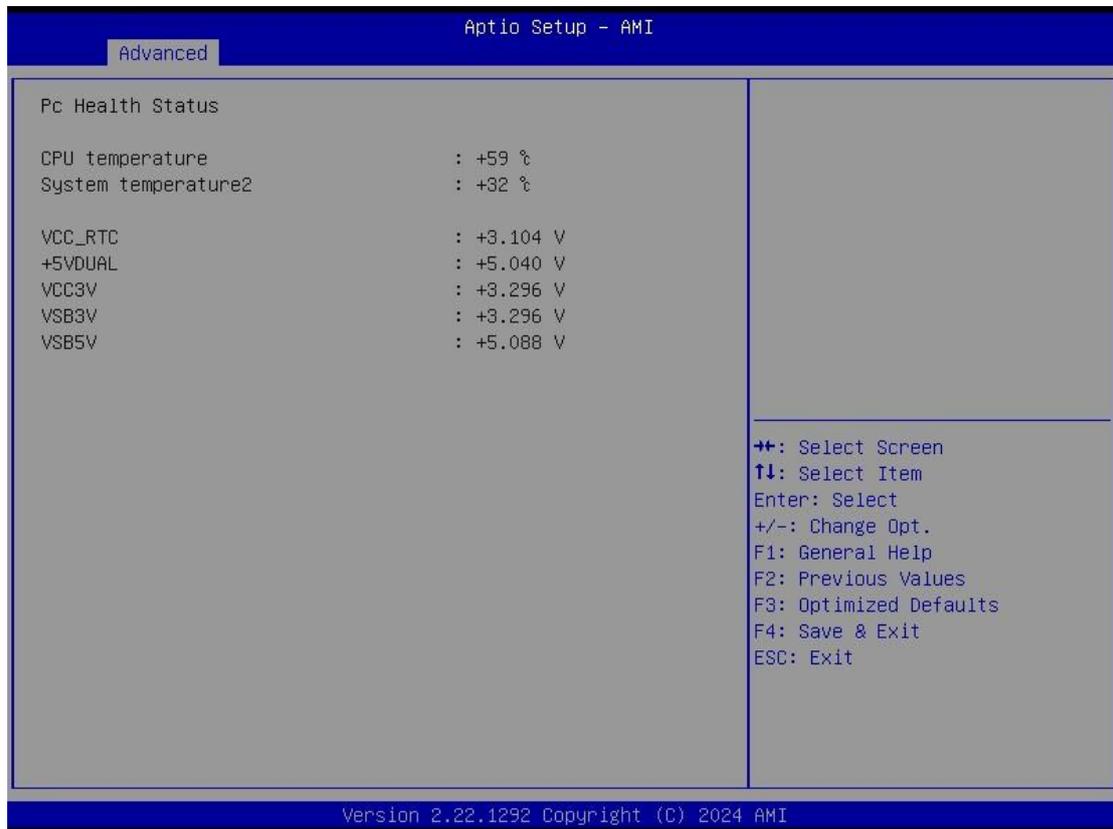
This screen displays the temperature of system and CPU as well as system voltages (VCC_RTC, +5VDUAL, VSB3V, VCC3V and VSB5V).

USB Configurations

Display all detected USB devices.

```
                          Aptio Setup - AMI
   Advanced

   USB Configuration

   USB Module Version                    32

   USB Devices:
         1 Drive, 1 Keyboard




                                                 →←: 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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```
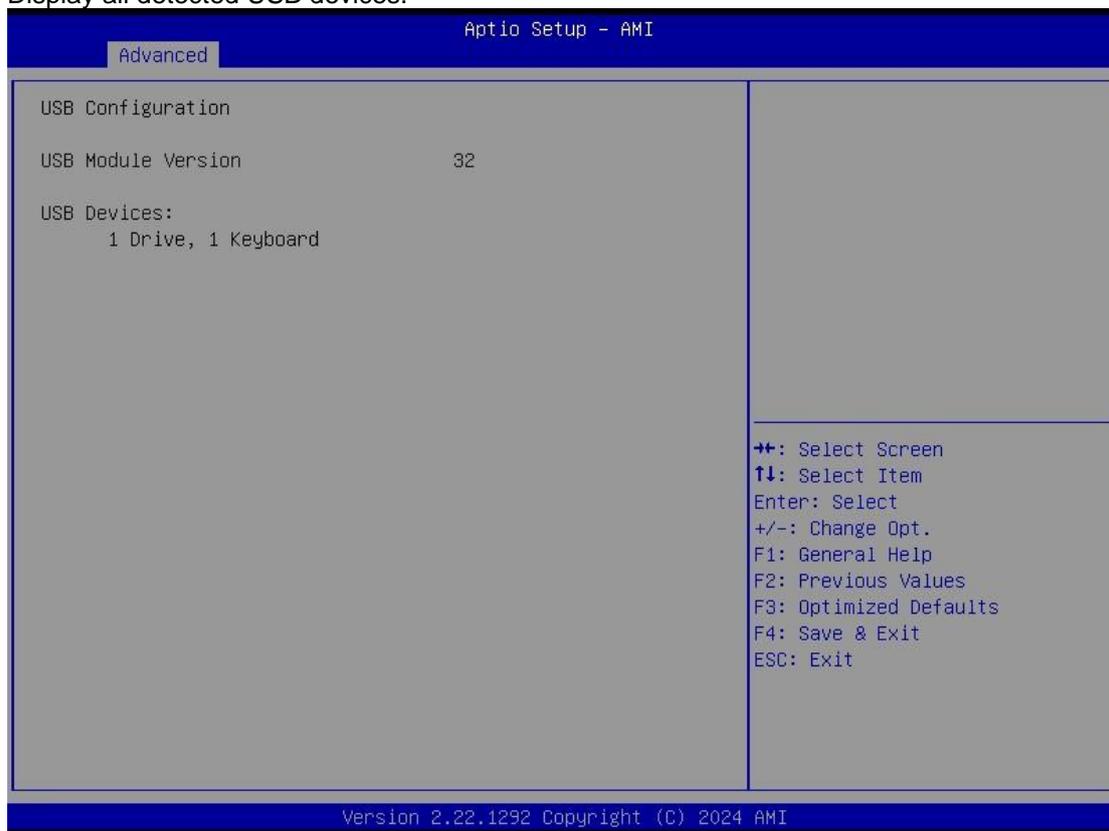
Smart Ignition Management

Press Enter to access the sub-menu. Calculated based on the 24-hour military-time clock.
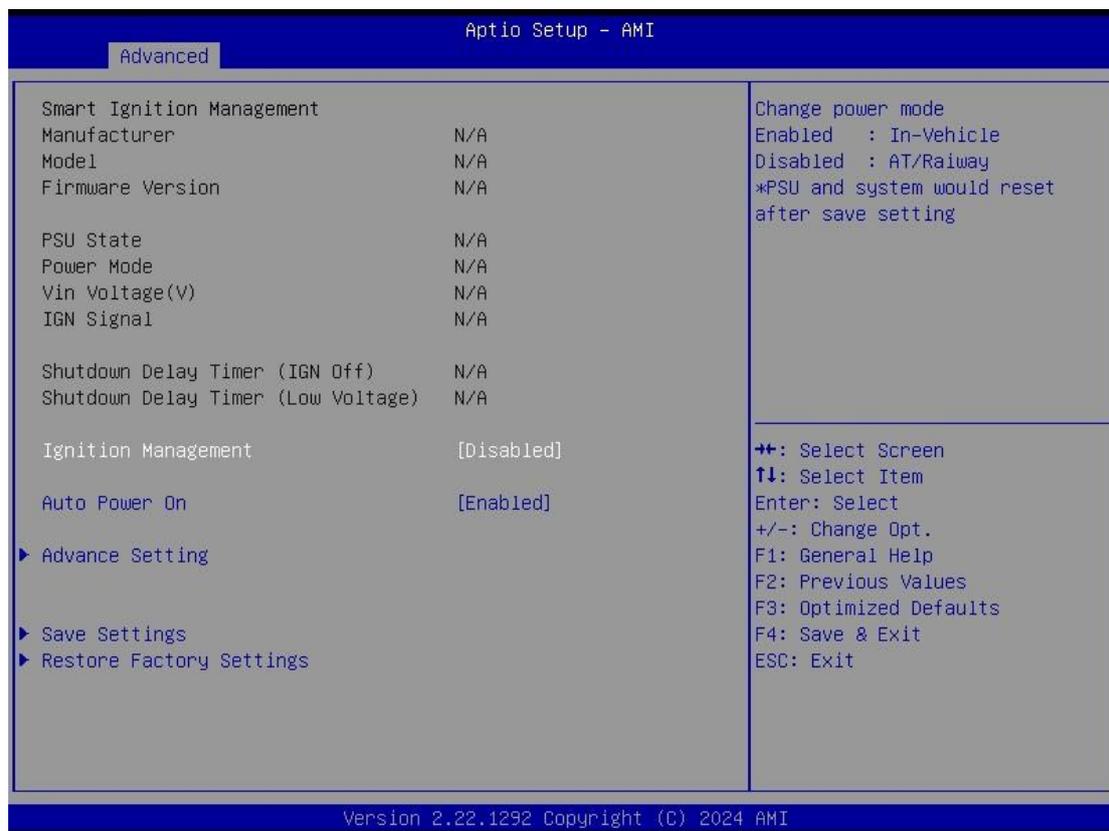
BIOS menu item	Description
Ignition Management	Enabled Switch to ACC mode *Note: IGN signal will only be triggered when DCIN Terminal Block 4-Pin IGN relates to VCC. Disabled Switch to AT mode *Note: System will be reset after Ignition Management setting has been changed and saved.
Auto Power On	Enabled 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      ========           The system only turns on when
     Activate Voltage Trigger(V)       []      the power source delivers the
     Low Voltage Trigger(V)            []      voltage above the value you set

     Shutdown Delay Timer (Low Voltage)
     Minuium Timer                    N/A
     Maximum Timer                    N/A
      Hour                             0
      Minute                           0
      Second                           0
     ======== IGN Function  ========
     IGN Trigger                  [Enabled]

     System Turn On Delay Timer(IGN On)
     Minuium Timer                    N/A       ++: Select Screen
     Maximum Timer                    N/A       ↑↓: Select Item
      Hour                             0        Enter: Select
      Minute                           0        +/-: Change Opt.
      Second                           0        F1: General Help
     Shutdown Delay Timer (IGN Off)             F2: Previous Values
     Minuium Timer                    N/A       F3: Optimized Defaults
     Maximum Timer                    N/A       F4: Save & Exit
      Hour                             0        ESC: Exit
      Minute                           0
      Second                           0

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```

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.

Device Configuration

Users can adjust the option 16-CH DIO(8-CH for each port) default setting via this page.
Users can have the function by request.

```
                          Aptio Setup - AMI
    Advanced

 ► Onboard Device Configuration              Onboard Device Configuration
                                             status








                                             ↔: 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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```
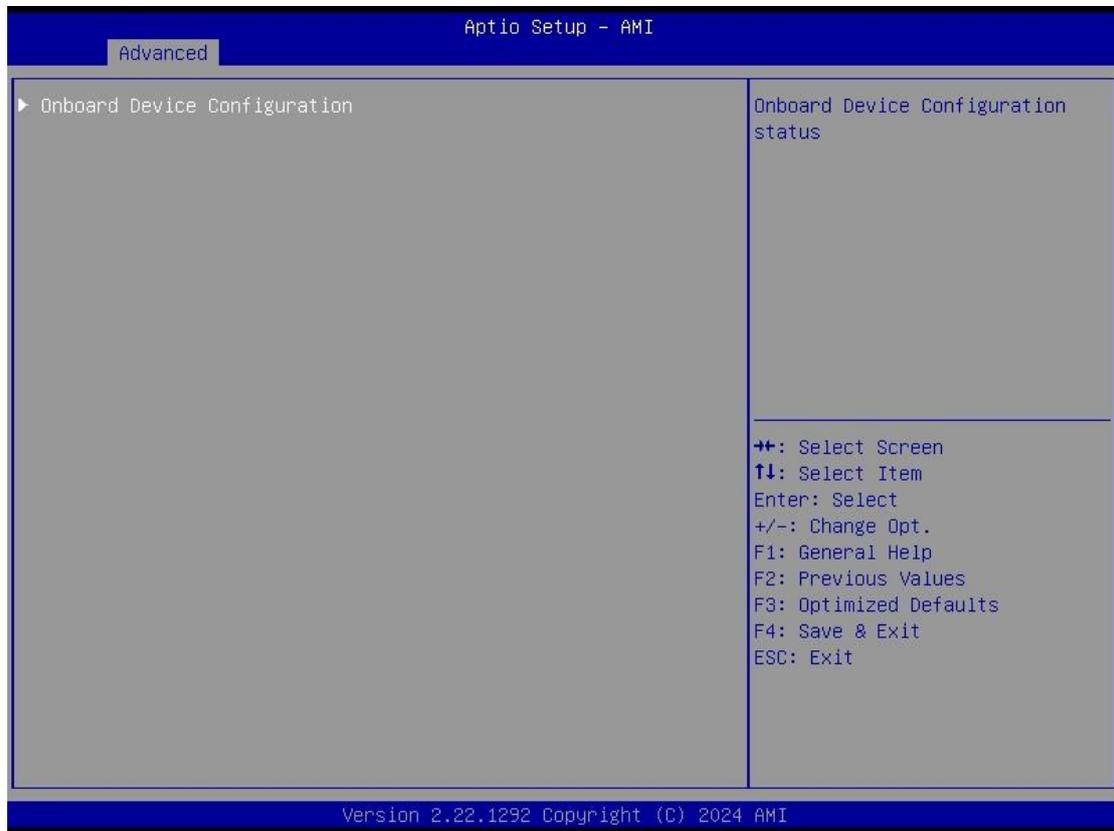
```
                              Aptio Setup - AMI
       Advanced

  Onboard DIO Configuration                              Enabled or Disabled DIO
  DIO Modification                  [Disabled]           Modification
 ▶ DIO port 1-8
 ▶ DIO port 9-16




                                                        ←→: 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

  DIO status
  1.Input/Output Status              Out & High
  2.Input/Output Status               In & High
  3.Input/Output Status              Out & High
  4.Input/Output Status               In & High
  5.Input/Output Status              Out & High
  6.Input/Output Status               In & High
  7.Input/Output Status              Out & High
  8.Input/Output Status               In & High




                                                        ←→: 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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```

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

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

```
                            Aptio Setup - AMI
   ┌──────────┐
   │ Chipset  │
   └──────────┘
  System Agent (SA) Configuration                          VT-d capability

  VT-d                          Supported

  VT-d                          [Enabled]





                                                        →←: Select Screen
                                                        ↑↓: Select Item
                                                        Enter: Select
                                                        +/-: Change Opt.
                                                        F1: General Help
                                                        F2: Previous Values
                                                        F3: Optimized Defaults
                                                        F4: Save & Exit
                                                        ESC: Exit




                    Version 2.22.1292 Copyright (C) 2024 AMI
```
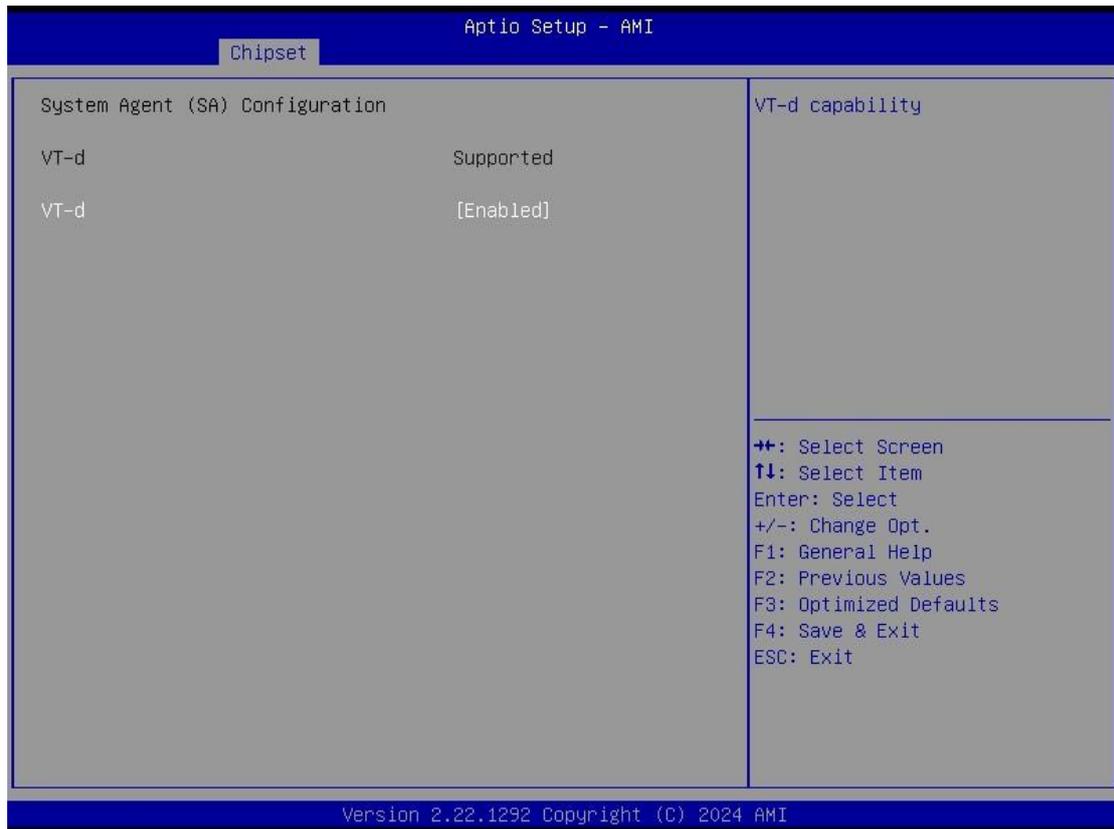
VT-d

VT-d capability.

Security Menu

```
                        Aptio Setup – AMI
   Main  Advanced  Chipset  Security  Boot  Save & Exit

   Password Description                          Set Administrator Password

   If ONLY the Administrator's password is set,
   then this only limits access to Setup and is
   only asked for when entering Setup.
   If ONLY the User's password is set, then this
   is a power on password and must be entered to
   boot or enter Setup. In Setup the User will
   have Administrator rights.
   The password length must be
   in the following range:
   Minimum length                 3
   Maximum length                 20
                                                →←: Select Screen
   Administrator Password                       ↑↓: Select Item
   User Password                                Enter: Select
                                                +/-: Change Opt.
 ▶ Secure Boot                                  F1: General Help
                                                F2: Previous Values
                                                F3: Optimized Defaults
                                                F4: Save & Exit
                                                ESC: Exit



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```

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 or Disable.

Secure Boot

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

```
                              Aptio Setup - AMI
                  Security

   System Mode                     Setup

   Secure Boot                     [Disabled]
                                   Not Active

   Secure Boot Mode                [Custom]
 ▶ Restore Factory Keys
 ▶ Reset To Setup Mode

 ▶ Key Management

                                            ➔←: Select Screen
                                            ↑↓: Select Item
                                            Enter: Select
                                            +/-: Change Opt.
                                            F1: General Help
                                            F2: Previous Values
                                            F3: Optimized Defaults
                                            F4: Save & Exit
                                            ESC: Exit

                  Version 2.22.1292 Copyright (C) 2024 AMI
```
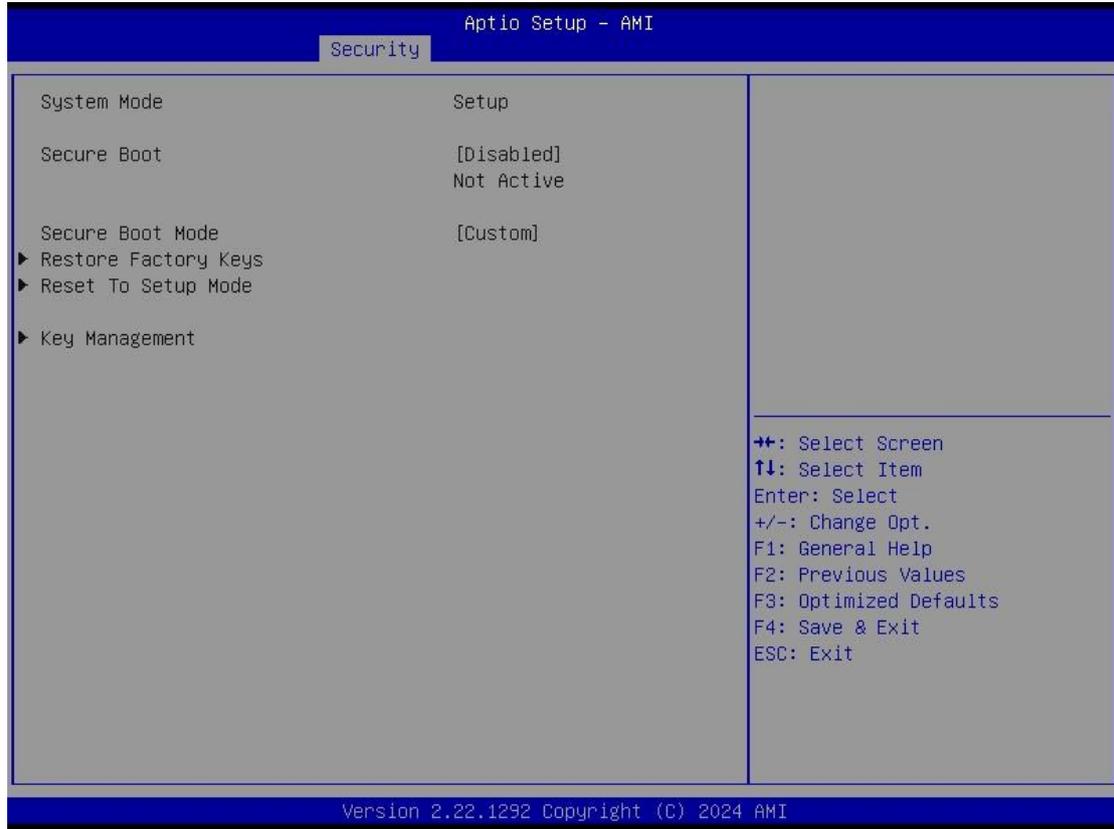
Secure Boot Mode
Secure Boot mode options: Standard or Custom.
In Custom mode, Secure Boot Policy variables can be configured by a physically present user without full authentication

Restore Factory Keys
Force System to User Mode. Install factory default Secure Boot key databases.

Reset to Setup Mode
Delete all Secure Boot key databases from NVRAM.

Key Management
Secure Boot feature is Active if Secure Boot is Enabled or Disable.

Key management

Enables expert users to modify Secure boot policy variables without full authentication

Press <Enter> to configure the advanced items.

```
                            Aptio Setup - AMI
                   Security

   Vendor Keys                        Valid                  Install factory default Secure
                                                             Boot keys after the platform
   Factory Key Provision              [Disabled]             reset and while the System is
 ▶ Restore Factory Keys                                      in Setup mode
 ▶ Reset To Setup Mode
 ▶ Enroll Efi Image
 ▶ Export Secure Boot variables

   Secure Boot variable     | Size| Keys| Key Source
 ▶ Platform Key       (PK)|     0|    0| No Keys
 ▶ Key Exchange Keys  (KEK)|     0|    0| No Keys
 ▶ Authorized Signatures (db)|   0|    0| No Keys
 ▶ Forbidden  Signatures(dbx)|   0|    0| No Keys      �→←: Select Screen
 ▶ Authorized TimeStamps(dbt)|   0|    0| No Keys      ↑↓: Select Item
 ▶ OsRecovery Signatures(dbr)|   0|    0| No Keys      Enter: Select
                                                       +/-: Change Opt.
                                                       F1: General Help
                                                       F2: Previous Values
                                                       F3: Optimized Defaults
                                                       F4: Save & Exit
                                                       ESC: Exit




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```

Factory Key Provision
Install factory default Secure Boot keys after the platform reset and while the system is in Setup mode Enabled : Enables Factory Key Provision (Default setting) Disabled : Disables Factory Key Provision

Restore Factory Keys
To restore factory settings

Reset To Setup Mode
Delete all Secure boot key databases from NVRAM

Enroll Efi Image
Allow the image to run in Secure Boot mode

Export Secure Boot variables
Copy NVRAM content of Secure Boot variables to files in a root folder on a file system device.

Platform Key (PK).
Key Exchange Keys (KEK)
Authorized Signatures (db)
Forbidden Signatures (dbx)
Authorized TimeStamps (dbt)
OsRecovery Signatures (dbr)
These items allow you to enroll factory defaults or load Certificates from a file.

4.6 Boot Menu

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

```
                              Aptio Setup – AMI
     Main  Advanced  Chipset  Security  Boot  Save & Exit

     Boot Configuration                              Number of seconds to wait for
     Setup Prompt Timeout          1                 setup activation key.
     Bootup NumLock State          [On]              65535(0xFFFF) means indefinite
     Quiet Boot                    [Disabled]        waiting.
     Network Stack                 [Disabled]

     Boot Option Priorities
     Boot Option #1                [UEFI: SanDisk,
                                   Partition 1 (SanDisk)]


                                                     →←: 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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```

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.

```
                          Aptio Setup - AMI
     Main  Advanced  Chipset  Security  Boot  Save & Exit

  Save Options                              Exit system setup after saving
  Save Changes and Exit                     the changes.
  Discard Changes and Exit

  Save Changes and Reset
  Discard Changes and Reset

  Save Changes
  Discard Changes

  Default Options
  Restore Defaults
  Save as User Defaults
  Restore User Defaults                    _____

  Boot Override                            ++: Select Screen
  UEFI: SanDisk, Partition 1 (SanDisk)     ↑↓: Select Item
                                           Enter: Select
                                           +/-: Change Opt.
                                           F1: General Help
                                           F2: Previous Values
                                           F3: Optimized Defaults
                                           F4: Save & Exit
                                           ESC: Exit



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```

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.