



MODEL:
SWBOX-ASL Series

**Ruggedized Fanless Embedded System with Intel® Amston Lake Processor,
pre-installed 8GB DDR5, 2.5GbE, RS232/422/485, CAN BUS, GPIO, 10~28V DC,
M12 waterproof, Stainless Steel Chassis, Full body IP69K**

User Manual



Revisions

Date	Version	Changes
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Manual Conventions

**WARNING**

Warnings appear where overlooked details may cause damage to the equipment or result in personal injury. Warnings should be taken seriously.

**CAUTION**

Cautionary messages should be heeded to help reduce the chance of losing data or damaging the product.

**NOTE**

These messages inform the reader of essential but non-critical information. These messages should be read carefully as any directions or instructions contained therein can help avoid making mistakes.

**HOT SURFACE**

This symbol indicates a hot surface that should not be touched without taking care.

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Chapter

1

Introduction



1.1 Overview



Figure 1-1: SWBOX-ASL Series

The SWBOX-ASL Series is a fanless, embedded, waterproof stainless-steel chassis that supports wall-mount, Din-rail installation. It features an Intel Atom® X Series processor and a DDR5-4800 SO-DIMM memory slot with a maximum capacity of 16 GB.

The SWBOX-ASL Series provides two 2.5 GbE Ethernet ports via an Intel® I226-IT controller. It also includes two independent HDMI display outputs. The SWBOX-ASL series offers a wide range of expansion slot options, including an M.2 2280 M-key slot, an M.2 3042/52 B-key slot, an M.2 2230 E-key slot.

The SWBOX-ASL Series provides a variety of waterproof I/O interfaces, utilizing M12 and professional waterproof connectors, including one USB 3.2 Gen1, two USB 2.0, two 2.5G network ports, two CAN bus ports, two COM ports with 2 kV isolation, two HDMI ports, 8-bit GPIO, and an optional fiber optic module port.



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1.2 Model Variations

The model variations of the SWBOX-ASL Series are listed below.

Model No.	CPU
SWBOX-ASL-R3C-R10	Intel® Atom™ x7433RE on-board CPU
SWBOX-ASL-R4C-R10	Intel® Atom™ x7835RE on-board CPU

Table 1-1: SWBOX-ASL Series Model Variations

1.3 Features

The SWBOX-ASL Series features are listed below:

- Intel Atom® Processor X Series (Amston Lake)
Intel® Atom™ x7433RE on-board CPU
Intel® Atom™ x7835RE on-board CPU
- CE/FCC compliant
- SUS304 stainless; full-body IP69K
- M12 waterproof I/O; 2 x 2.5GbE (M12)
- Rich M12 ports: USB, COM, DIO
- 10-28V DC via M12

1.4 Technical Specifications

The SWBOX-ASL Series' technical specifications are listed in **Table 1-2**.

Model		SWBOX-ASL
Chassis	Color	Natural (brushed stainless steel)
	Dimensions (W x D x H)	226.4 mm x 178.5 mm x 81 mm
	System Fan	Fanless
	Chassis Construction	SUS304 enclosure, brushed finish
Motherboard	CPU	Intel Atom® Processor X Series (Amston Lake) Intel® Atom™ x7433RE on-board CPU Intel® Atom™ x7835RE on-board CPU
	Chipset	SoC



Model		SWBOX-ASL
	Memory	1 x SO-DIMM DDR5 4800 (8GB pre-installed) (up to 16GB)
Storage	HDD Bay	1 x 2.5" SATA 6Gb/s HDD/SSD bay
I/O Interfaces	Ethernet	2 x 2.5GbE (M12, 8-pin, X code, Female, Intel® I226-IT controller) 1 x 1GbE Fiber LAN (waterproof I/O connector) via fiber module (Optional)
	USB	1 x USB 3.2 Gen1 (M12, 8-pin, X code, Female) 2 x USB 2.0 (M12, 8-pin, A code, Female)
	COM	2 x RS232/422/485 (2.0 kV isolation) (M12, 12-pin, A code, Female)
	Digital I/O	1 x GPIO (4 x DI, 4 x DO, 5V, M12, 12-pin, A code, Female)
	Display Interface	2 x HDMI™ 1.4b (Waterproof connector, Female)
	CAN	2 x CANBUS (2.0 kV isolation) (M12, 8-pin, A code, Female)
Internal Expansions	M.2	1 x 2280 M-key (PCIe Gen3 x2) 1 x 2230 E-key (PCIe Gen3 x1 /USB 2.0) 1 x 3042/52 B-key (PCIe Gen3 x1 /USB 2.0) 1 x On-board SIM card socket (hinge type) for M.2 B key
Power	Power Input	10 ~ 28V DC by (M12, 5-pin, L-Code, Male) Accessory: M12 to Mini-Din 4P Female power cable (included)
	Power Consumption	12V @ 3A (Intel® Atom X7835RE with 8GB memory)
Reliability	Mounting	Wall mount / Din-rail
	IP Level	Full body IP69K (IEC 60529:2013 / ISO 20653:2023)
	Operating Temperature	-40°C ~ 70°C (SSD)
	Storage Temperature	-40°C ~ 85°C, 10% ~ 95%, non-condensing
	Operating Shock	IEC60068-2-27 half-sine, 5G, 11ms, 100 shocks (SSD)
	Operating Vibration	Random Vibration Mode, MIL-STD-810H 514.8C-I (SSD)
	Weight (Net/Gross)	2.58kg / 4.15kg
	Safety/EMC	CE, FCC
OS	Watchdog Timer	Programmable 1 ~ 255 sec/min
	Supported OS	Windows® 10/11 IoT Enterprise, Linux

Table 1-2: Technical Specifications



SWBOX-ASL Series

1.5 Front Panel

The front panel of the SWBOX-ASL Series are shown in **Figure 1-2**.

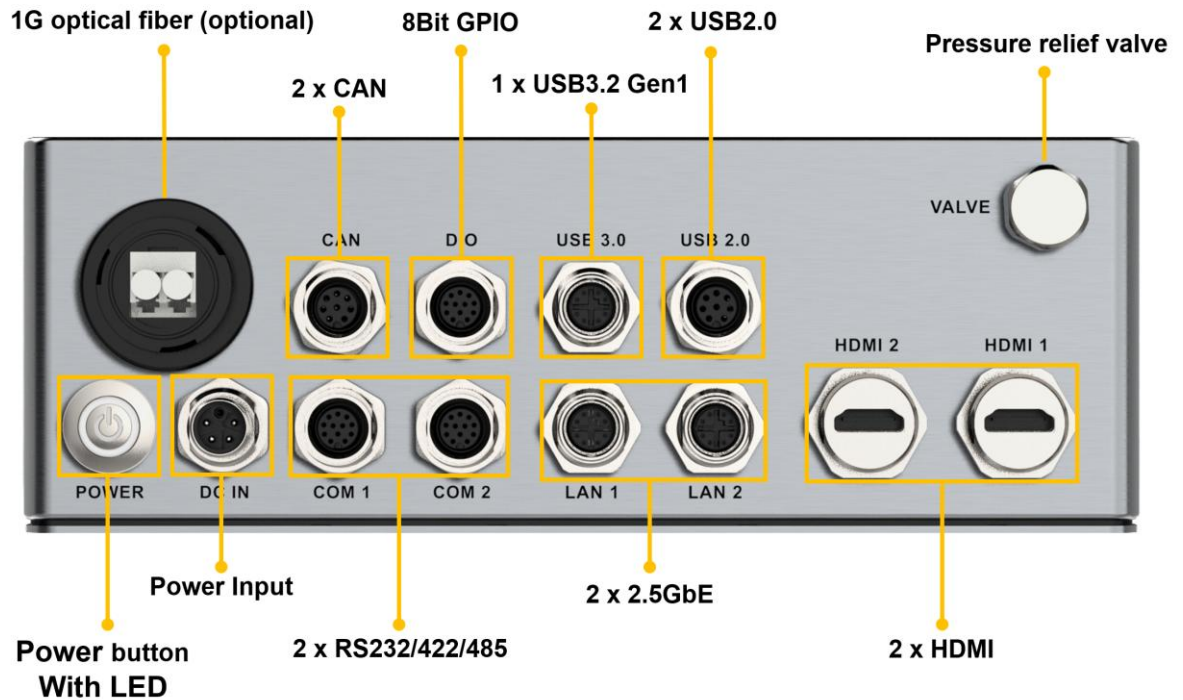


Figure 1-2: Front Panel

1.6 Rear Panel

The rear panel provides access to retention screw holes that support Din-rail mounting. See **Figure 1-3**.



Figure 1-3: Rear View

1.7 Physical Dimensions

The physical dimensions of the SWBOX-ASL Series are shown in **Figure 1-4**.

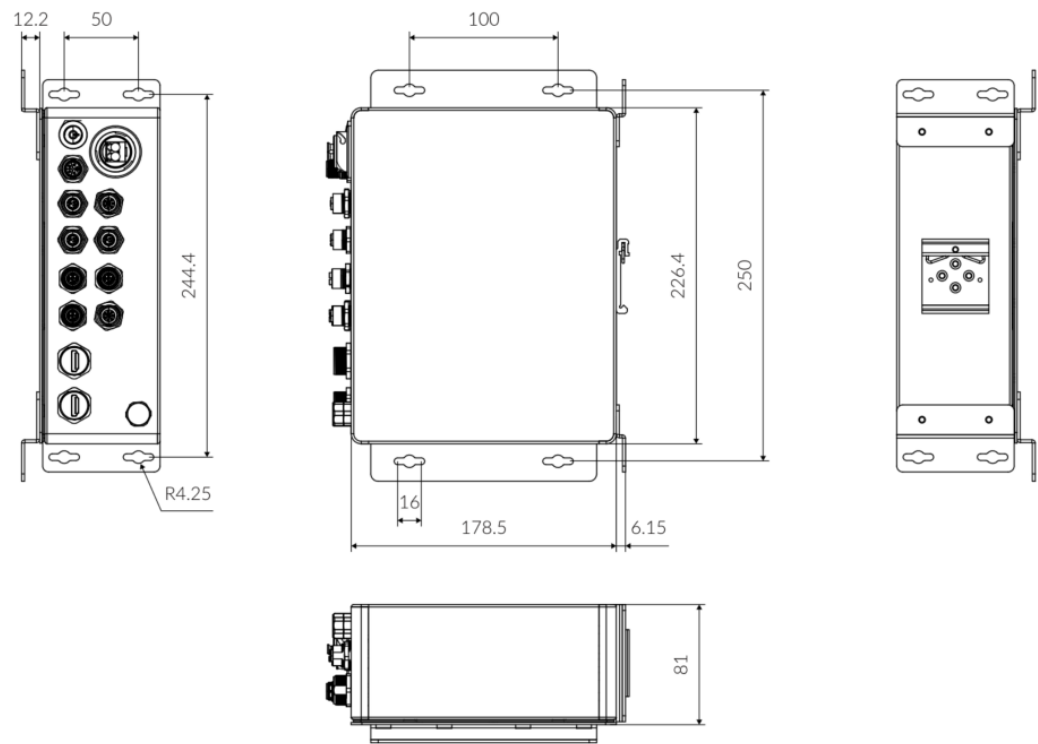


Figure 1-4: Physical Dimensions (mm)

Chapter

2

Unpacking

2.1 Anti-static Precautions



WARNING:

Failure to take ESD precautions during installation may result in permanent damage to the SWBOX-ASL Series and severe injury to the user.

Electrostatic discharge (ESD) can cause serious damage to electronic components, including the SWBOX-ASL Series. Dry climates are especially susceptible to ESD. It is therefore critical that whenever the SWBOX-ASL Series or any other electrical component is handled, the following anti-static precautions are strictly adhered to.

- ***Wear an anti-static wristband:*** Wearing a simple anti-static wristband can help to prevent ESD from damaging the board.
- ***Self-grounding:*** Before handling the device, touch any grounded conducting material. During the time the device is handled, frequently touch any conducting materials that are connected to the ground.
- ***Use an anti-static pad:*** When configuring the SWBOX-ASL Series, place it on an anti-static pad. This reduces the possibility of ESD damaging the SWBOX-ASL Series.

2.2 Unpacking Precautions

When the SWBOX-ASL Series is unpacked, please do the following:

- Follow the anti-static precautions outlined in **Section 2.1**.
- Make sure the packing box is facing upwards so the SWBOX-ASL Series does not fall out of the box.
- Make sure all the components shown in **Section 2.3** are present.

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2.3 Unpacking Checklist

**NOTE:**

If some of the components listed in the checklist below are missing, please do not proceed with the installation. Contact the IEI reseller or vendor you purchased the SWBOX-ASL Series from or contact an IEI sales representative directly. To contact an IEI sales representative, please send an email to sales@ieiworld.com.

The SWBOX-ASL Series are shipped with the following components:

Quantity	Item and Part Number	Image
1	SWBOX-ASL Series	
4	Mount brackets	
1	Power Cable	

Quantity	Item and Part Number	Image
1	USB2.0 Cable	
1	LAN Cable	
8	Screws	

Table 2-1: Unpacking Checklist

2.4 Optional Items

The following table lists the optional items that can be purchased separately.

Optional	
Power Adapter (P/N: 63040-010120-300-RS)	

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Optional	
Power Cord (P/N: 32702-003600-100-RS)	EUROPEAN CODE(VDE) ;1000mm;(A)PLUG :LT-322(16A 250V);(B) CONNECTOR:LT-501(10A 250V)
Fiber Module (IEI 1G USB optical fiber Module) Excluding SFP transceiver (P/N: iuOF-1G1PW-WF1-R10)	
DIO Cable (1000mm M12 A code 12pin Male to DB15 Male) (P/N: 32031-000700-100-RS)	
CAN Cable (1000mm M12 A code 8pin Male to DB9 Male) (P/N: 32005-006400-100-RS)	
COM Cable (1000mm M12 A code 9pin Male to DB9 Male) (P/N: 32005-006300-100-RS)	
Fiber Cable (1000mm Optical Fiber Cable, Single mode) (P/N: 32903-000001-100-RS)	

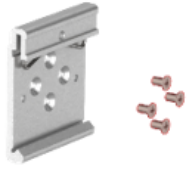
Optional	
HDMI Cable (1000mm Waterproof Type-A Male to HDMI Type-A Female) (P/N: 32012-003800-100-RS)	
LAN Cable (1000mm M12 X code 8pin Male to RJ45 Female) (P/N: 32013-007300-100-RS)	
USB 3.0 Cable (1000mm Waterproof Type-A Male to USB3.0 Type-A Female) (P/N: 32001-033700-100-RS)	
M.2 Cooling Module (M.2 2280 SSD Cooling Module Rated for 3W heat dissipation) (P/N: M2-SSD-HS-01-R10)	
TPM Module (20-pin Infineon SPI TPM2.0 module, software management tool) (P/N: TPM-IN03-R10)	
Din-rail kit (P/N: 42311-0054E4-00-HF*1 & 44030-040102-RS*4)	

Table 2-2: Optional Items

Chapter

3

Installation

3.1 Installation Precautions

**CAUTION:**

The SWBOX-ASL Series has more than one power supply connection point.

To reduce the risk of electric shock, disconnect all power sources before installing or servicing the SWBOX-ASL Series.

During installation, be aware of the precautions below:

- **Read the user manual:** The user manual provides a complete description of the SWBOX-ASL Series, installation instructions and configuration options.
- **DANGER! Disconnect power:** Power to the SWBOX-ASL Series must be disconnected during the installation process, or before any attempt is made to access the rear panel. Electric shock and personal injury might occur if the rear panel of the SWBOX-ASL Series is opened while the power cord is still connected to an electrical outlet.
- **Qualified personnel:** The SWBOX-ASL Series must be installed and operated only by trained and qualified personnel. Maintenance, upgrades, or repairs may only be carried out by qualified personnel who are familiar with the associated dangers.
- **Heat Dissipation and Clearance:** The SWBOX-ASL Series features a fanless, fully-sealed waterproof enclosure. While there are no ventilation openings, it relies entirely on the chassis surface for passive cooling. Ensure the device is installed in an environment with sufficient natural convection, and leave at least 5 cm of clearance around the chassis to facilitate heat dissipation and prevent overheating.
- **Waterproof Integrity :**
To maintain the IP69K waterproof rating, ensure the chassis cover screws are securely tightened to the specified torque (5 ± 0.5 kgf-cm). For all M12 waterproof cables, carefully observe the connection to ensure the connectors are fully seated and securely tightened in place. Improper installation or forcing the connectors may crush the internal O-rings and permanently compromise the waterproof seal.
Any unused M12 ports must be securely covered and sealed with the provided metal waterproof caps. Failure to properly seal unused ports will result in liquid or dust

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ingress, voiding the IP69K protection and potentially causing severe damage to the internal components.

- **Hot Surface Warning:**

The system is designed to operate reliably in wide-temperature environments.

However, when running under extreme high-temperature conditions or heavy computing loads, the external stainless-steel chassis acts as a heatsink and will become extremely hot. Always power off and allow the system to cool down for several minutes before handling or performing any maintenance.

- **Grounding:** The SWBOX-ASL Series should be properly grounded. The voltage feeds must not be overloaded. Adjust the cabling and provide external overcharge protection per the electrical values indicated on the label attached to the back of the SWBOX-ASL Series.

3.2 Cover Removal

Before installing or maintaining the internal components, the cover must be removed from the SWBOX-ASL. Follow the steps below to complete the task.

Step 1: Turn the SWBOX-ASL over and remove the fifteen screws on the cover.

Step 2: Detach the cover from the SWBOX-ASL (**Figure 3-1**).



Figure 3-1: Remove the Cover

3.3 Memory Installation

The SWBOX-ASL Series is pre-installed with an 8GB memory module. Users can add or replace memory with different capacity by themselves. The installation procedures are described below.

Step 1: Push outwards the retaining clips located at each end of the SO-DIMM slots. See

Figure 3-2.



Figure 3-2: Remove the Memory

Step 2: Insert a new memory module. Carefully align the memory module, ensuring the notches on the memory lines up with the notches on the memory socket (**Figure 3-3**).

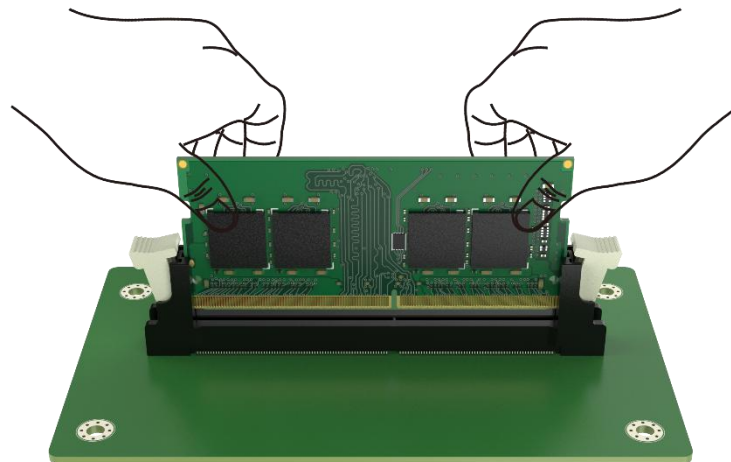


Figure 3-3: Insert a Memory

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Step 3: Once aligned, firmly press the module into position until the module is completely seated in the socket and the retaining clips lock the module into the socket (**Figure 3-4**).

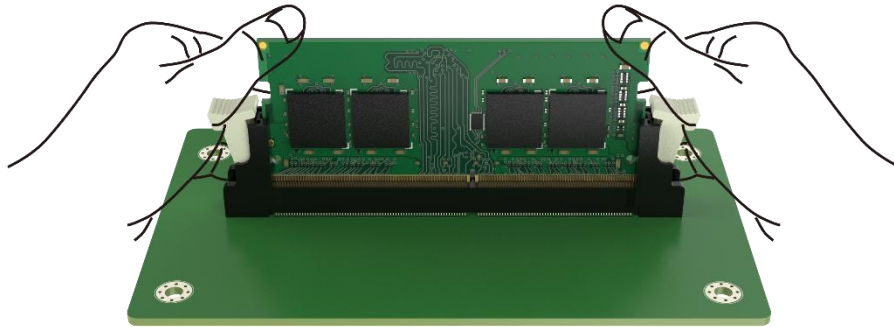


Figure 3-4: Lock the Memory

3.4 Storage Installation

The SWBOX-ASL Series supports two types of storage, one M.2 M Key & one 2.5" SSD.

3.4.1 M.2 SSD Installation

To install an M.2 SSD module, please follow the steps below.

Step 1: Locate the M.2 M-key slot. See **Section 4**.

Step 2: Remove the retention screw secured on the motherboard (**Figure 3-5**).



Figure 3-5: Remove the Retention Screw

Step 3: Line up the notch on the module with the notch on the slot. Slide the M.2 module into the slot at an angle of about 20° (**Figure 3-6**).

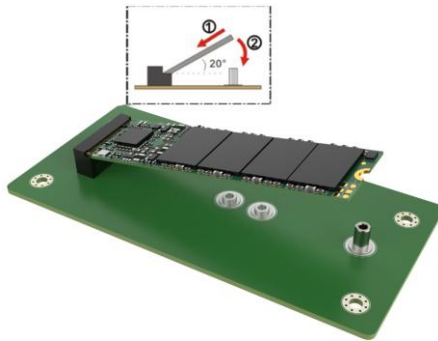


Figure 3-6: Insert the M.2 SSD Module

Step 4: Secure the M.2 module with the previously removed retention screw (**Figure 3-7**).

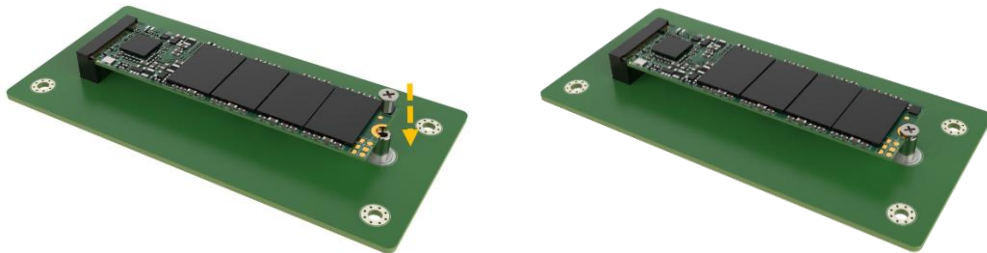


Figure 3-7: Secure the Screw

3.4.2 2.5-Inch drive Installation

The SWBOX-ASL provides one 2.5-inch hard drive mounting slots Installation instructions are as follows:

Step 1: Place the hard drive in the hard drive position on the back cover and tighten the 4 fixing screws (**Figure 3-8**).

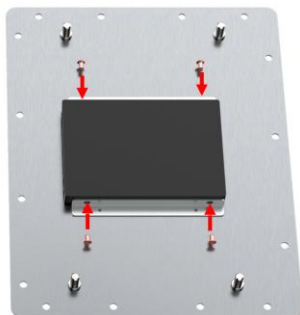


Figure 3-8: hard drive Installation

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Step 2: Plug in the SATA cable on the hard drive side, move the back cover closer to the machine, and plug the SATA cable into the motherboard.

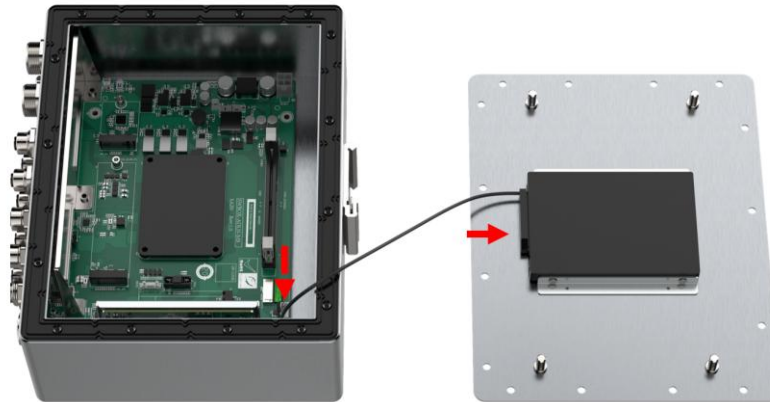


Figure 3-9: Plug in the hard drive cable

Step 3: Lock the back cover back to the machine. See **Section 3.7**

3.5 TPM Module Installation (Optional)

To install the TPM module, follow the steps below.

Step 1: Locate the TPM connector on the solder side of the system motherboard. See **Section 4.1**.

Step 2: Insert the TPM module into the connector. Line up the pins of the TPM module with the pins of the connector (**Figure 3-10**).

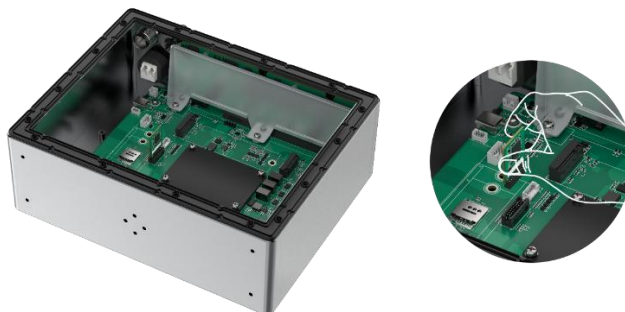


Figure 3-10: Insert the TPM Module

3.6 Fiber Installation (Optional)

When achieving high-speed, stable, secure and long-distance data transmission in complex and harsh industrial environments. Optional optical fibers can help the SWBOX-ASL series solve transmission problems. To install the optional optical fiber, please follow the steps below.

Step 1: Remove the two screws that support the small pallet in the SWBOX-ASL series (**Figure 3-11**).



Figure 3-11: Remove Screws

Step 2: Connect the cable to the optical fiber module (**Figure 3-12**).



Figure 3-12: Install the Optical fiber Module

SWBOX-ASL Series

Step 3: Connect the optical fiber module to the small card (**Figure 3-13**).



Figure 3-13: Connect the small card

Step 4: Connect the other end of the small card cable to the optical fiber port on the IO panel. (**Figure 3-14**)



Figure 3-14: Connect the IO optical fiber port

Step 5: Install the two screws that support the small tray in the SWBOX-ASL series and install the small card. (**Figure 3-15**)



Figure 3-15: install the small card

3.7 Cover Installation

Please ensure the O-ring remains positioned correctly when installing the chassis cover to maintain the unit's IP69K protection rating.

Install the cover by fastening the fifteen screws (**Figure 3-16**). Please secure each screw with a torque range of 5 ± 0.5 kgf-cm for waterproof capability.



Figure 3-16: Cover Installation

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3.8 Mounting the System

The methods of mounting the SWBOX-ASL Series are listed below.

- Wall mounting
- Din-rail mounting

The mounting methods are described below.

3.8.1 Wall mounting

The SWBOX-ASL Series supports wall mounting on either the side or bottom. To mount the embedded system onto a wall or other surfaces using the mounting brackets, please follow the steps below.

Step 1: Align the screw holes in each bracket with the corresponding retention screw holes on the side or bottom (**Figure 3-17, Figure 3-18**).

Step 2: Secure the brackets to the system by inserting the four retention screws into each bracket and the system (**Figure 3-17, Figure 3-18**).

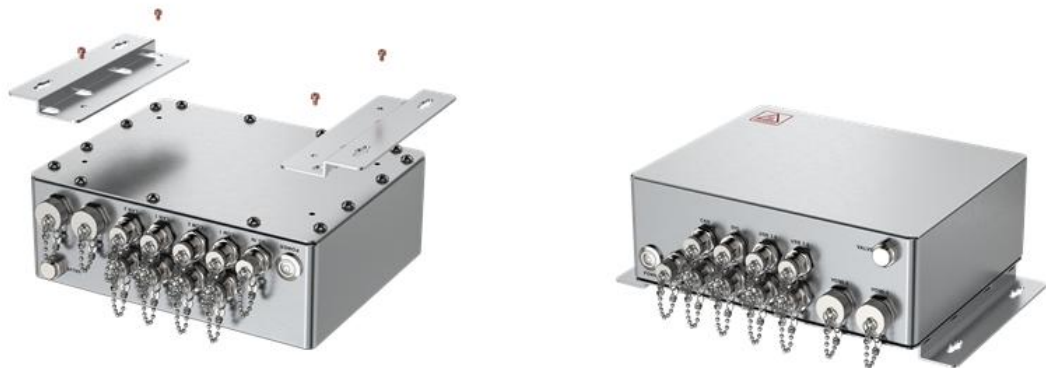


Figure 3-17: Wall Mounting on the Bottom



Figure 3-18: Wall Mounting on the Side

Step 3: Drill holes on the intended installation surface.

Step 4: Align the mounting holes of the mounting brackets with the pre-drilled holes in the mounting surface.

Step 5: Secure the system to the wall using the screws.

3.8.2 Din-rail mounting

Step 1: Attach the supplied DIN rail mounting bracket to the rear panel of the embedded system. Secure the bracket to the embedded system with three retention screws. **(Figure 3-19)**



Figure 3-19: DIN Rail Mounting Bracket Installation

SWBOX-ASL Series

**NOTE:**

In the diagrams below, the DIN rail is already installed on a surface or on a chassis.

Step 2: Attach the upper edge of the mounting bracket to the DIN rail as shown in **Figure 3-20**

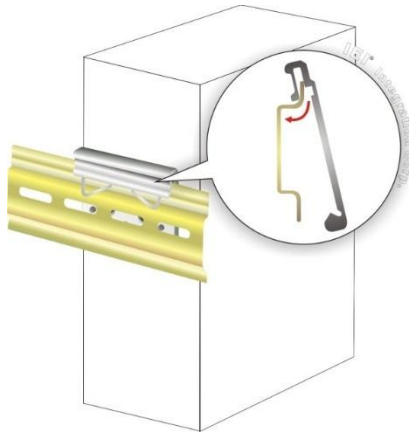


Figure 3-20: Attach the Mounting Bracket to the DIN Rail

Step 3: Push the system toward the DIN rail until the mounting bracket clips into place firmly. (**Figure 3-21**)

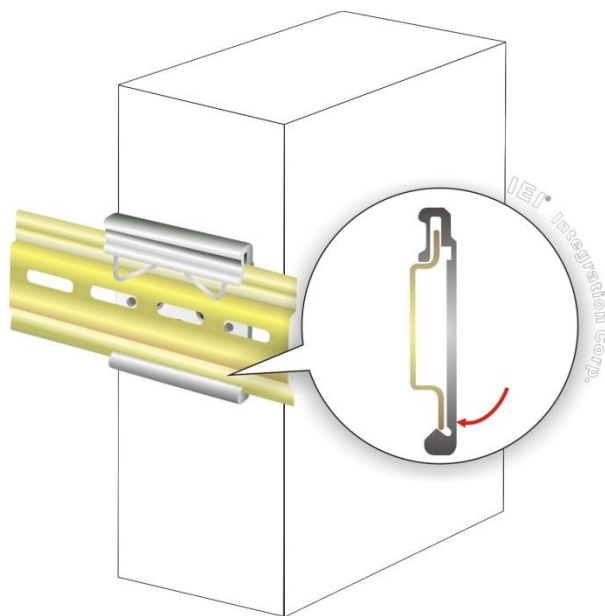


Figure 3-21: Mounting the System

3.9 M12 Cable Installation

Step 1: Align the keyway of the M12 cable connector with the corresponding notch on the system port. Push the connector straight in. Do not forcefully twist the connector or the cable body during insertion.

Step 2: Secure the connector by tightening the metal coupling nut. Carefully observe the connection to ensure it is fully seated. The recommended tightening torque is 3 to 4 kgf-cm.



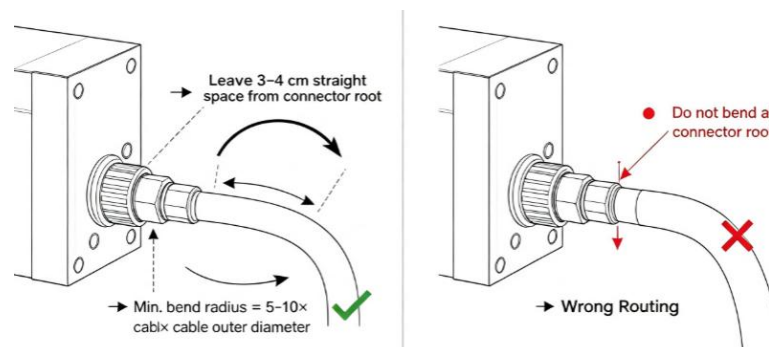
NOTE:

Do NOT apply excessive force. Over-tightening will crush or deform the internal rubber O-ring seal, which will severely degrade the waterproof performance and lead to fluid ingress.

To prevent mechanical stress on the M12 connectors and internal wiring, observe proper cable bend radiuses. Do not bend the cable sharply immediately behind the connector.

Static/Fixed Routing: The minimum bend radius should be at least 5 times the cable's Outer Diameter (OD).

Dynamic Routing: If the cable is subject to movement, the minimum bend radius should be at least 10 times the cable's OD



3.10 Power On/Off the System



WARNING!

Make sure a power supply with correct input voltages is being fed into the system. Incorrect voltages applied to the system may cause damage to the internal electronic components and injuries to users.

Step 1: Connect the power source to the power input connector.

Step 2: Push the power button, and then the button lights up in green.

- **Power on** the system: press the power button for 1 seconds
- **Power off** the system: press the power button for 6 seconds



Power button
With LED

Figure 3-22: Power Button

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3.11 Available Drivers

All the drivers for the SWBOX-ASL Series are available on IEI Resource Download Center (<https://download.ieiworld.com>). Type SWBOX-ASL Series and press Enter to find all the relevant software, utilities, and documentation.

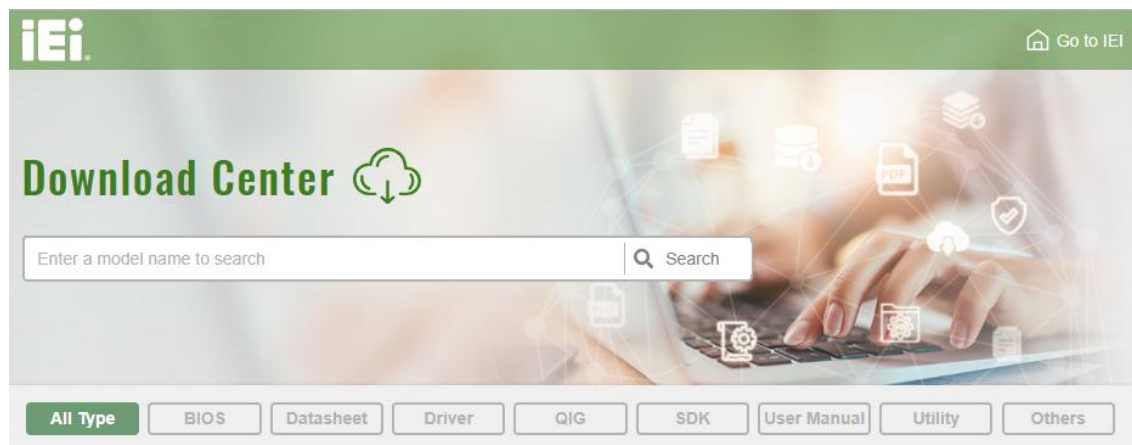
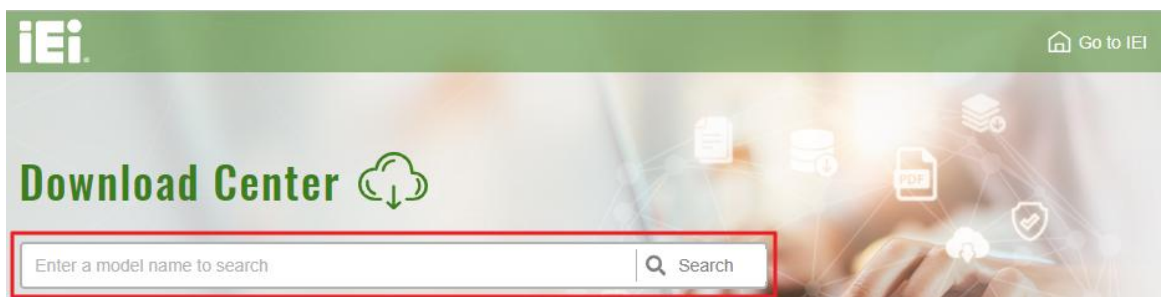


Figure 3-23: IEI Resource Download Center

3.11.1 Driver Download

To download drivers from IEI Resource Download Center, follow the steps below.

Step 1: Go to <https://download.ieiworld.com>. Type SWBOX-ASL Series and press Enter.



Step 2: All product-related software, utilities, and documentation will be listed. You can choose Driver to filter the result.

All Type BIOS Datasheet **Driver** QIG SDK User Manual Utility Others

WAFER-BT-i1 Product Info ▶

Embedded Computer ▶ Single Board Computer ▶ Embedded Board

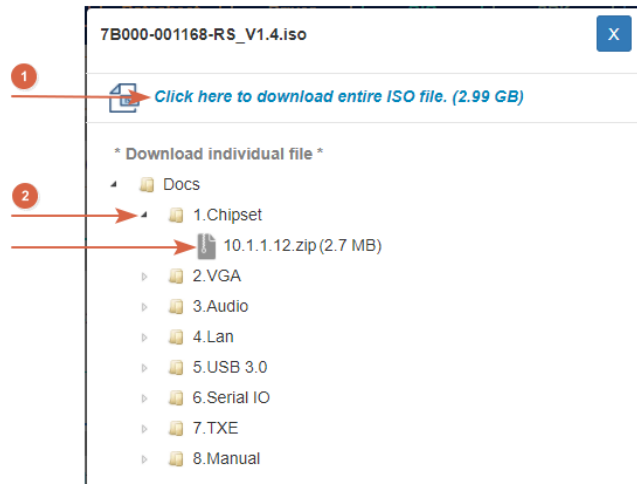
3.5" SBC with Intel® 22nm Atom™/Celeron® on-board SoC

Driver

File Name	Published	Version	File Checksum
7B000-001033-RS V2.3.iso (2.23 GB)	2017/10/03	2.30	3B2DB1F792779A93A8F50DDBC3943E30

Step 3: Click the driver file name on the page and you will be prompted with the following window.

You can download the entire ISO file (❶), or click the small arrow to find an individual driver and click the file name to download (❷).



NOTE:

To install software from the downloaded ISO image file in Windows 8 or later, double-click the ISO file to mount it as a virtual drive to view its content. On Windows 7 system, an additional tool (such as Virtual CD-ROM Control Panel from Microsoft) is needed to mount the file.

Chapter

4

System Motherboard

4.1 Overview

The SWBOX-ASL Series panel PC motherboard comes with a number of peripheral interface connectors and configuration jumpers. The connector locations are shown in **Figure 4-1** & **Figure 4-2**. The connector pinouts for these connectors are listed in the following sections.

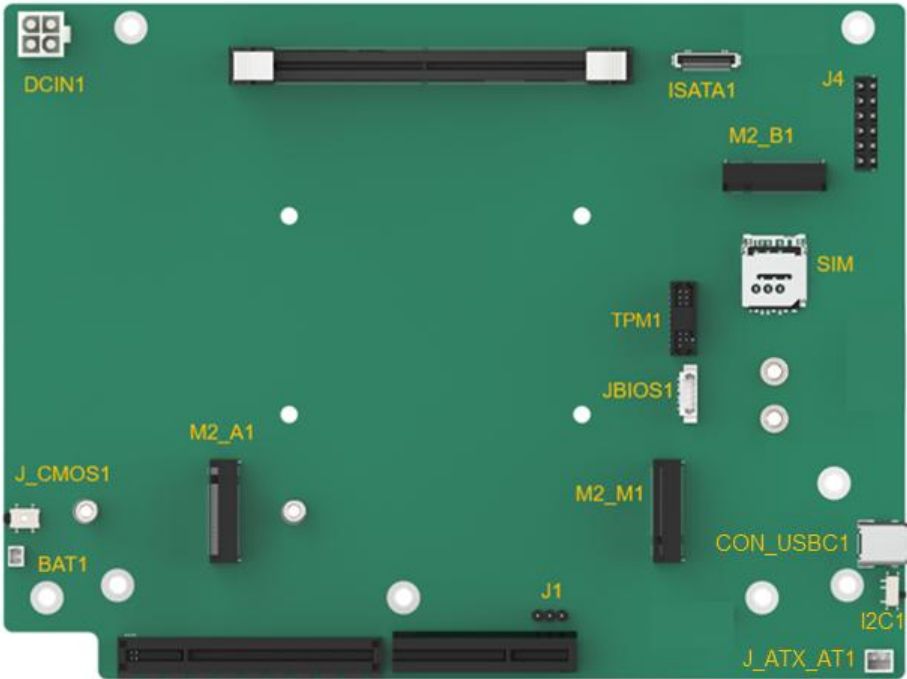


Figure 4-1: Main Board Layout Diagram (Front Side)

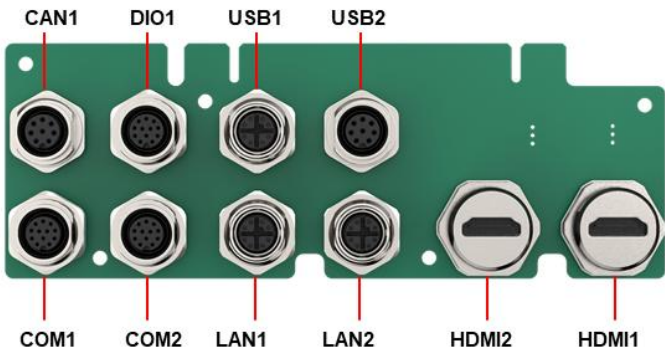


Figure 4-2: I/O Board Layout Diagram

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4.2 Internal Peripheral Connectors

Internal peripheral connectors are found on the motherboard and are only accessible when the motherboard is outside of the chassis. The table below shows a list of the peripheral interface connectors on the SWBOX-ASL Series motherboard. Pinouts of these connectors can be found in the following sections.

Connector	Type	Label
ME Override Connector	2-pin header, p=1.27mm	ME_FLASH1
Min SATA Connector	20-pin wafer, p=0.5mm	iSATA1
SFP CONN USB3.0	12-pin header, p=2.0mm	J4
Flash EC ROM Connector	4-pin wafer, p=1.25mm	I2C1
Power Button and LED INDICATORS	4-pin wafer, p=2.00mm	CN1
SPI TPM ROM Connector	6-pin wafer, p=1.25mm	JBIOS1
SPI TPM Card Connector	19-pin header, p=1.27mm	TPM1
M.2 E Key Slot	E-key slot	M2_A1
M.2 M Key Slot	M-key slot	M2_M1
M.2 B Key Slot	B-Key Slot	M2_B1

Table 4-1: Peripheral Interface Connectors

4.2.1 ME Override Connector (ME_FLASH1)

PIN NO.	DESCRIPTION
1	1.8V
2	HDA_SDO

Table 4-2: ME Override Connector (ME_FLASH1) Pinouts

4.2.2 Min SATA Connector (iSATA1)

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GND	11	+V5S
2	GND	12	N/C
3	GND	13	N/C
4	GND	14	GND
5	GND	15	SATA_RX0+_C
6	GND	16	SATA_RX0-_C

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
7	+V5S	17	GND
8	+V5S	18	SATA_TX0-_C
9	+V5S	19	SATA_TX0+_C
10	+V5S	20	GND
			

Table 4-3: Min SATA Connector (iSATA1) Pinouts

4.2.3 SFP CONN USB 3.0 (J4)

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	+V5A	2	USB3_TX2_P_C
3	+V5A	4	USB3_TX2_N_C
5	GND	6	GND
7	USB2_P3_DP_C	8	USB3_RX2_P_C
9	USB2_P3_DN_C	10	USB3_RX2_N_C
11	SFP1_MODDET#	12	GND

Table 4-4: SFP CONN USB 3.0 (J4) Pinouts

4.2.4 Flash EC ROM Connector (I2C1)

PIN NO.	DESCRIPTION
1	GND
2	SMDAT1_EC_R
3	SMCLK1_EC_R
4	+V5S

Table 4-5: Flash EC ROM Connector (I2C1) Pinouts

4.2.5 Power Button and LED INDICATORS (CN1)

PIN NO.	DESCRIPTION
1	PWR_LED+
2	PWR_LED-

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PIN NO.	DESCRIPTION
3	PWR_BTN+
4	PWR_BTN-

Table 4-6: Power Button and LED INDICATORS (CN1) Pinouts

4.2.6 Flash SPI ROM Connector (JB IOS1)

PIN NO.	DESCRIPTION
1	+3.3V
2	SPI_CS0_N_SW_R1
3	SPI_IO_1_SW_R1
4	SPI_CLK_SW_R1
5	SPI_SI_SW_R1
6	GND

Table 4-7: Flash SPI ROM Connector (JB IOS1) Pinouts

4.2.7 SPI TPM Card Connector (TPM1)

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	NC	2	PLT_RST_N
3	+V3P3A_TPM	4	SPI_TPM_INT
5	TPM_SERIRQ	6	TPM_WP#
7	GND	8	SPI_CS2_N_TPM
9	SPI_SI_SW_TPM	10	SPI_TPM_HOLD_R_N
11	SPI_IO_1_TPM	12	SPI_IO_3_TPM
13	SPI_IO_2_TPM	14	SPI_CLK_TPM
15	+V3P3A_TPM	16	GND
17	SPI_CS1_N_TPM	18	NC
19	SPI_CS0_N_TPM	20	NC

Table 4-8: SPI TPM Card Connector (TPM1) Pinouts



4.2.8 M.2 E Key Slot (M2_A1)

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GND	2	+V3.3_M2
3	USB2_P6_DP_C	4	+V3.3_M2
5	USB2_P6_DN_C	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	NC	20	NC
21	NC	22	NC
23	NC	24	GND
25	NC	26	NC
27	NC	28	NC
29	NC	30	GND
31	NC	32	NC
33	GND	34	NC
35	PCIE_TXP4_C	36	GND
37	PCIE_TXN4_C	38	NC
39	GND	40	NC
41	PCIE_RXP4_C	42	NC
43	PCIE_RXN4_C	44	NC
45	GND	46	NC
47	PCIE_CLKP0_C	48	NC
49	PCIE_CLKN0_C	50	M2_SUS_CLK
51	GND	52	BUF_PLT_RST_N
53	NC	54	BT_RF_KILL_N
55	PCIE_WAKE#	56	WIFI_RF_KILL_N
57	GND	58	NC
59	NC	60	NC
61	NC	62	NC



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PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
63	GND	64	NC
65	NC	66	NC
67	NC	68	NC
69	GND	70	WIGIG_PE_WAKE_N
71	NC	72	+V3.3_M2
73	NC	74	+V3.3_M2
75	GND		

Table 4-9: M.2 E Key Slot (M2_A1) Pinouts

4.2.9 M.2 M Key Slot (M2_M1)

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GND	2	+V3P3S
3	GND	4	+V3P3S
5	NC	6	NC
7	NC	8	NC
9	GND	10	M2_1_LED_N
11	NC	12	+V3P3S
13	NC	14	+V3P3S
15	GND	16	+V3P3S
17	NC	18	+V3P3S
19	NC	20	NC
21	GND	22	NC
23	NC	24	NC
25	NC	26	NC
27	GND	28	NC
29	PCIE_RXN10_C	30	NC
31	PCIE_RXP10_C	32	NC
33	GND	34	NC
35	PCIE_TXN10_C	36	NC
37	PCIE_TXP10_C	38	GND
39	GND	40	M2_I2C_CLK
41	PCIE_RXN9_C	42	M2_I2C_DAT



PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
43	PCIE_RXP9_C	44	NC
45	GND	46	NC
47	PCIE_TXN9_C	48	NC
49	PCIE_TXP9_C	50	BUF_PLT_RST_N
51	GND	52	TP313
53	PCIE_CLKN2_C	54	PCIE_WAKE#
55	PCIE_CLKP2_C	56	TP314
57	GND	58	TP315
59	NC	60	NC
61	NC	62	NC
63	NC	64	NC
65	NC	66	NC
67	NC	68	TP316
69	M2_IFDET1_N	70	+V3P3S
71	GND	72	+V3P3S
73	GND	74	+V3P3S
75	GND		

Table 4-10: M.2 M Key Slot (M2_M1) Pinouts

4.2.10 M.2 B Key Slot (M2_B1)

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	M2_WWAN_CONFIG3	2	+V3P3_M2_BS
3	GND	4	+V3P3_M2_BS
5	GND	6	M2_B1-PIN6
7	USB2_P8_DP_C	8	M2_B1-PIN8
9	USB2_P8_DN_C	10	NC
11	GND	12	NC
13	NC	14	NC
15	NC	16	NC
17	NC	18	NC
19	NC	20	NC
21	NC	22	NC



PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
23	NC	24	NC
25	NC	26	GNSS_DISABLE_N
27	GND	28	NC
29	USB3_RX2_N_C	30	M2_WWAN_UIM1_RST_N
31	USB3_RX2_P_C	32	M2_WWAN_UIM1_CLK
33	GND	34	M2_WWAN_UIM1_DATA
35	USB3_TX2_N_C	36	+V_UIM1_PWR
37	USB3_TX2_P_C	38	NC
39	GND	40	NC
41	PCIE_RXN3_C	42	NC
43	PCIE_RXP3_C	44	NC
45	GND	46	NC
47	PCIE_TXN3_C	48	NC
49	PCIE_TXP3_C	50	M.2_RST_N
51	GND	52	NC
53	PCIE_CLKN3_C	54	PE_WAKE_N
55	PCIE_CLKP3_C	56	NC
57	GND	58	NC
59	NC	60	WWAN_COEX3
61	NC	62	WWAN_COEX2
63	NC	64	WWAN_COEX1
65	NC	66	M2_WWAN_SIM1_DET
67	NC	68	TP320
69	GND	70	+V3P3_M2_BS
71	GND	72	+V3P3_M2_BS
73	GND	74	+V3P3_M2_BS
75	GND		

Table 4-11: M.2 B Key Slot (M2_B1) Pinouts

4.3 Jumper Setting

Jumper	LABEL
Clear CMOS Button	J_CMOS1
Auto Power Button Setting	J_ATX_AT1
RESET BTN	RST_BTN1

Table 4-12: Jumper Setting

4.3.1 Clear CMOS Button (J_CMOS1)

BAT1 To reset the BIOS, remove the on-board battery and press the clear J_CMOS1 button for three seconds or more. The clear J_CMOS1 button location is shown below.



4.3.2 Auto Power Button Setting (J_ATX_AT1)

J_ATX_AT1 is used to configure Auto Power Button enable or disable.

J_ATX_AT1	DESCRIPTION	
A-B	ATX mode (Default)	
B-C	AT mode	

Table 4-13: Auto Power Button Setting (J_ATX_AT1)

4.3.3 RESET BTN (RST_BTN1)

PIN NO.	DESCRIPTION
1	PM_SYSRST_R#
2	GND

Table 4-14: RESET BTN (RST_BTN1)

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4.4 External Interface Panel Connectors

The table below lists the front panel connectors on the SWBOX-ASL Series motherboard. Pinouts of these connectors can be found in the following sections.

Connector
HDMI
USB3.0
USB2.0
LAN1
LAN2
CAN
DIO
COM1
COM2
Power

4.4.1 HDMI M12 Connector (HDMI1, HDMI 2)

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	HDMI1_DATA2_M12_C	2	GND
3	HDMI1_DATA2#_M12_C	4	HDMI1_DATA2#_M12_C
5	GND	6	HDMI1_DATA1#_M12_C
7	HDMI1_DATA0_M12_C	8	GND
9	HDMI1_DATA0#_M12_C	10	HDMI1_CLK_M12_C
11	GND	12	HDMI1_CLK#_M12_C
13	HDMI_CEC_M12	14	NC
15	HDMI_SCL-1_M12	16	HDMI_SDA-1_M12
17	GND	18	+V5S_HDMI1_M12
19	HDMI1_HPD_M12		

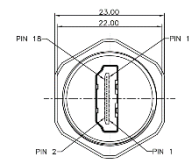


Table 4-15: HDMI M12 Connector (HDMI1, HDMI 2) Pinouts

4.4.2 USB3.0 M12 Connector (USB1)

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	USB30_M12	5	USB32_RX2_N_C
2	GND	6	USB32_RX2_P_C
3	USB2_P6_DP_C	7	USB32_TX2_N_C
4	USB2_P6_DN_C	8	USB32_TX2_P_C

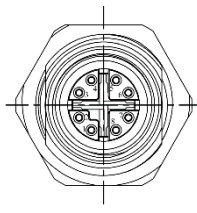


Table 4-16: USB3.0 M12 Connector (USB1) Pinouts

4.4.3 USB2.0 M12 Connector (USB2)

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	USB20_M12	5	USB20_M12
2	USB2_P2_DN_C	6	USB2_P1_DN_C
3	SB2_P2_DP_C	7	USB2_P1_DP_C
4	GND	8	GND

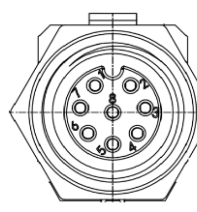


Table 4-17: USB2.0 M12 Connector (USB2) Pinouts

4.4.4 LAN M12 Connector (LAN1)

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	TRD1P0_M12_R	5	TRD1P3_M12_R
2	TRD1N0_M12_R	6	TRD1N3_M12_R
3	TRD1P1_M12_R	7	TRD1N2_M12_R
4	TRD1N1_M12_R	8	TRD1P2_M12_R

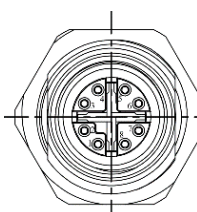


Table 4-18: LAN M12 Connector (LAN1) Pinouts

4.4.5 LAN M12 Connector (LAN2)

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	TRD2P0_M12_R	5	TRD2P3_M12_R
2	TRD2N0_M12_R	6	TRD2N3_M12_R
3	TRD2P1_M12_R	7	TRD2N2_M12_R
4	TRD2N1_M12_R	8	TRD2P2_M12_R

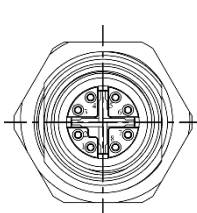


Table 4-19: LAN M12 Connector (LAN2) Pinouts

4.4.6 CAN M12 Connector (CAN1)

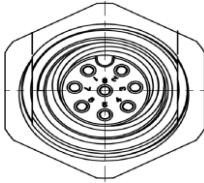
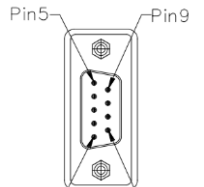
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION	
1	CAN2L	5	CAN2_G	
2	CAN1H	6	CAN1_G	
3	CAN1L	7	CAN2H	
4	NC	8	NC	
CAN cable (1000mm M12 A code 8pin Male to DB9 Male) (P/N: 32005-006400-100-RS) the pin assignment of the DB9				
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION	
1	CAN1H	6	CAN1L	
2	CAN2_G	7	NC	
3	NC	8	NC	
4	CAN2H	9	CAN2L	
5	CAN1_G			

Table 4-20: CAN M12 Connector (CAN1) Pinouts

4.4.7 DIO M12 Connector (DIO1)

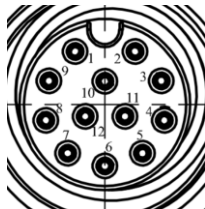
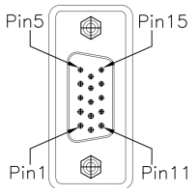
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION	
1	GPO1	7	GPO4	
2	GPI1	8	GPI4	
3	GPO2	9	SMB1_CLK_M12_C	
4	GPI2	10	SMB1_DATA_M12_C	
5	GPO3	11	5V_DIO	
6	GPI3	12	GND_DIO	
DIO Cable (P/N: 32031-000700-100-RS) DB15 pin assignment:				
1	GPO1	7	GPO4	
2	GPI1	8	GPI4	
3	GPO2	9	SMB1_CLK_M12_C	
4	GPI2	10	SMB1_DATA_M12_C	
5	GPO3	11	5V_DIO	
6	GPI3	12	GND_DIO	

Table 4-21: DIO M12 Connector (DIO1) Pinouts

4.4.8 RS232/422/485 M12 Connector (COM1/COM2)

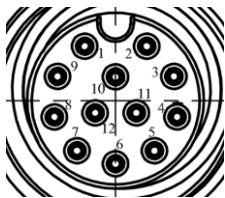
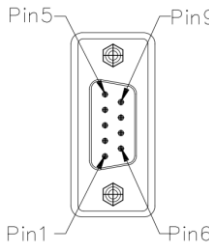
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION	
1	T-NDCD	7	T-NRTS	
2	T-NSIN	8	T-NCTS	
3	T-NSOUT	9	T-XRI	
4	T-NDTR	10	NC	
5	COM_GND	11	NC	
6	T-NDSR	12	NC	
COM Cable (P/N: 32005-006300-100-RS) DB9 pin assignment:				
PIN NO.	RS232	RS422	RS485	
1	DCD#	TX-	TX-	
2	RXD	TX+	TX+	
3	TXD	RX+		
4	DTR#	RX-		
5	GND			
6	DSR#			
7	RTS#			
8	CTS#			
9	RI#			

Table 4-22: RS232/422/485 M12 Connector (COM1/COM2) Pinouts

SWBOX-ASL Series

4.4.9 Power M12 connector

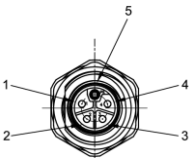
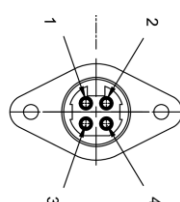
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION	
1	+	3	-	
2	-	4	+	
Power Cable (P/N: 32002-011800-100-RS) Din 4 pin assignment:				
1	-	3	-	
2	+	4	+	

Table 4-23: POWER M12 Connector Pinouts

Chapter

5

BIOS

5.1 Introduction

The BIOS is programmed onto the BIOS chip. The BIOS setup program allows changes to certain system settings. This chapter outlines the options that can be changed.



NOTE:

Some of the BIOS' options may vary throughout the life cycle of the product and are subject to change without prior notice.

5.1.1 Starting Setup

The UEFI BIOS is activated when the computer is turned on. The setup program can be activated in one of two ways.

1. **Using keyboard:** Press the **DEL** or **F2** as soon as the system is turned on.
2. **Using touchscreen:** Press the **Setup** button on the upper right corner of the BIOS Starting Menu.

If the message disappears before the **DEL** or **F2** key is pressed, restart the computer and try again, then the BIOS Starting Menu will appear. Select "Setup" and press Enter to get into the BIOS Setup.

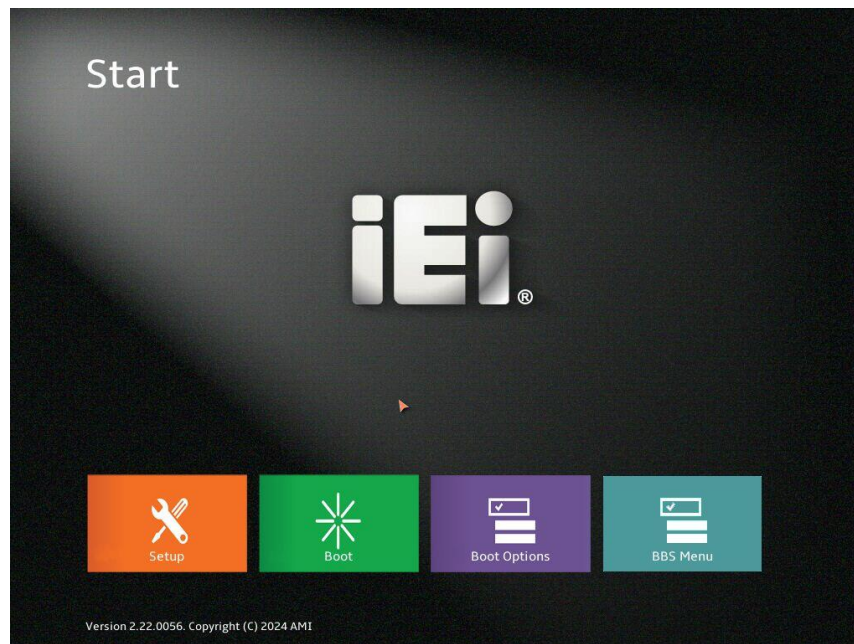


Figure 5-1: BIOS Starting Menu



5.1.2 Using Setup

The BIOS Setup menu can be navigated by using a keyboard or a touchscreen.

5.1.2.1 Keyboard Navigation

For keyboard navigation, use the navigation keys shown in **Table 5-1**.

Key	Function
Up arrow	Move to previous item
Down arrow	Move to next item
Left arrow	Move to the item on the left-hand side
Right arrow	Move to the item on the right-hand side
+	Increase the numeric value or make changes
-	Decrease the numeric value or make changes
Page Up	Move to the previous page
Page On	Move to the next page
Esc	Main Menu – Quit and not save changes into CMOS Status Page Setup Menu and Option Page Setup Menu -- Exit current page and return to Main Menu
F1	General help, only for Status Page Setup Menu and Option Page Setup Menu
F2	Load previous values
F3	Load optimized defaults
F4	Save changes and Exit BIOS
<K>	Scroll help area upwards
<M>	Scroll help area downwards

Table 5-1: BIOS Navigation Keys



5.1.2.2 Touch Navigation

For touchscreen navigation, use the on-screen navigation keys shown below.



Figure 5-2: On-screen Navigation Keys

On-screen Button	Function
Previous Values	Load the last value you set.
Optimized Defaults	Load the factory default values in order to achieve the best performance.
Back	Return to the previous menu.
Soft kbd	Display the on-screen keyboard.
Save & Exit	Save the changes made to the BIOS options and reset the system.

Table 5-2: BIOS On-screen Navigation Keys

5.1.3 Getting Help

When F1 is pressed a small help window describing the appropriate keys to use and the possible selections for the highlighted item appears. To exit the Help Window, press the Esc key.



5.1.4 Unable to Reboot after Configuration Changes

If the computer cannot boot after changes to the system configuration is made, CMOS defaults. Use the clear CMOS button described in **Chapter 4**.

5.1.5 BIOS Menu Bar

The menu bar on top of the BIOS screen has the following main items:

- Main – Changes the basic system configuration.
- Advanced – Changes the advanced system settings.
- Chipset – Changes the chipset settings.
- Security – Sets User and Supervisor Passwords.
- Boot – Changes the system boot configuration.
- Save & Exit – Selects exit options and loads default settings

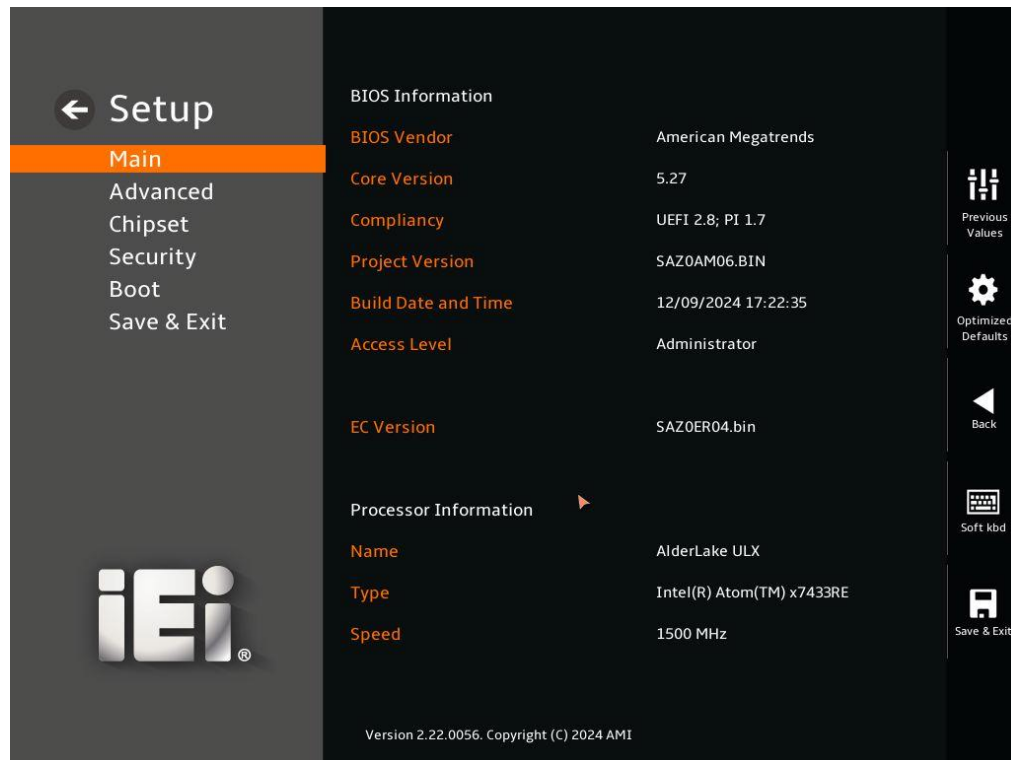
The following sections completely describe the configuration options found in the menu items at the top of the BIOS screen and listed above.



SWBOX-ASL Series

5.2 Main

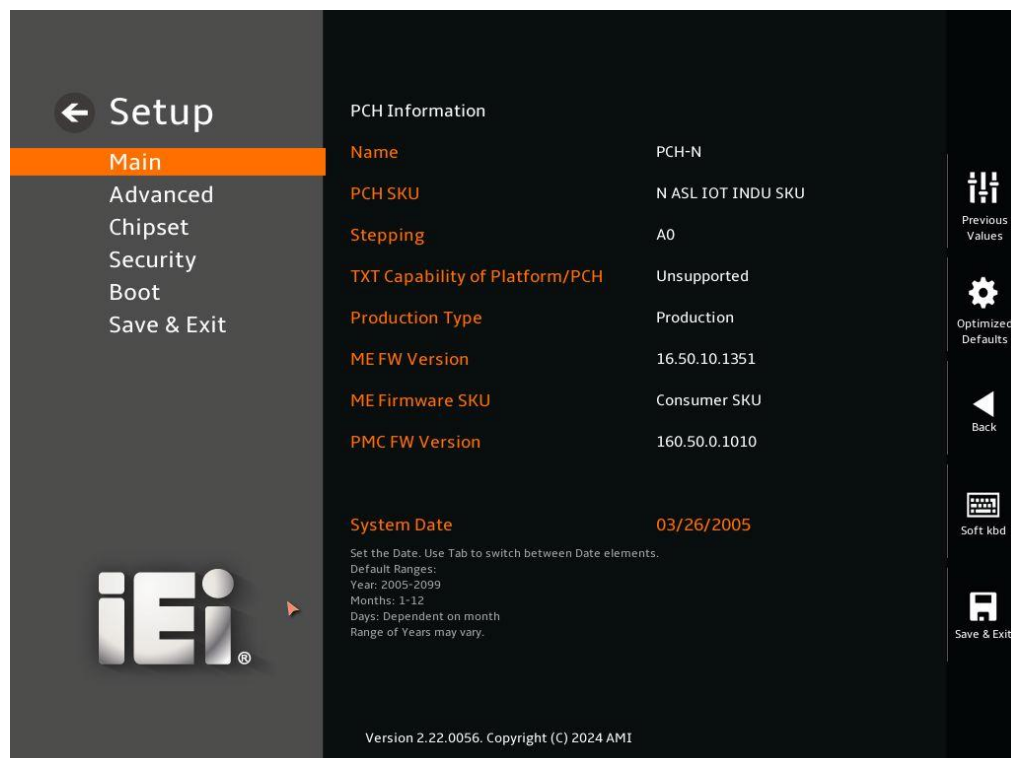
The **Main** BIOS menu (**BIOS Menu 1**, **BIOS Menu 2**, **BIOS Menu 3**, **BIOS Menu 4**) appears when the **BIOS Setup** program is entered. The **Main** menu gives an overview of the basic system information.



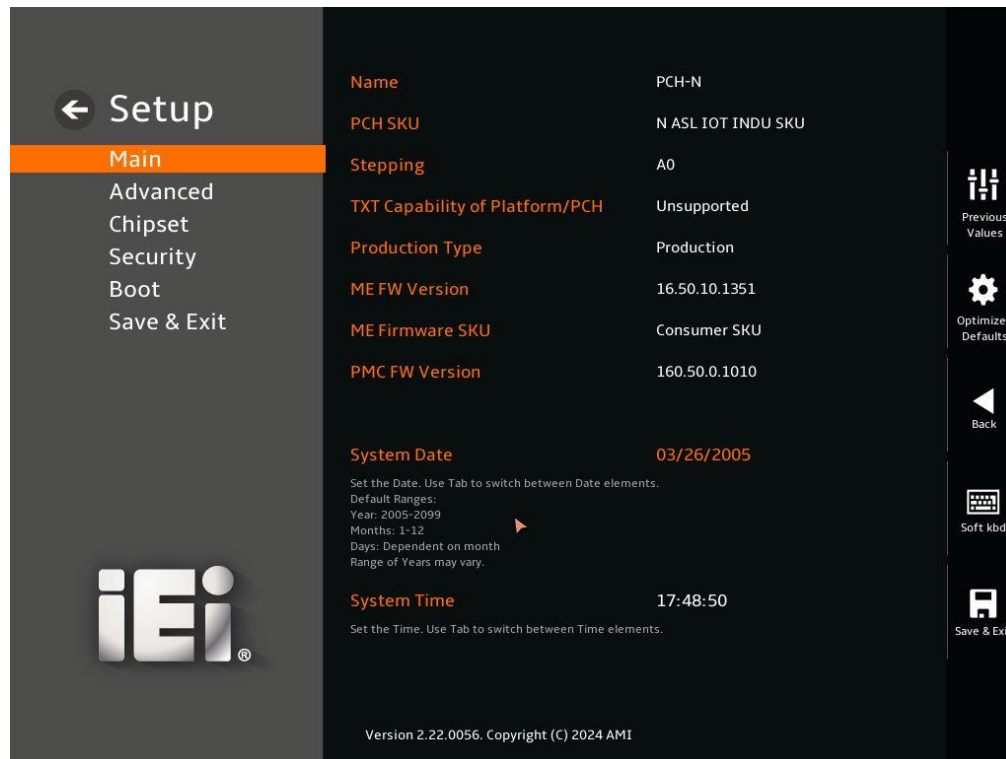
BIOS Menu 1: Main (1/4)



BIOS Menu 2: Main (2/4)



BIOS Menu 3: Main (3/4)



BIOS Menu 4: Main (4/4)

→ BIOS Information

The **BIOS Information** lists a brief summary of the BIOS. The fields in **BIOS Information** cannot be changed. The items shown in the system overview include:

- **BIOS Vendor:** Installed BIOS vendor
- **Core Version:** Current BIOS version
- **Compliance:** Current UEFI & PI version
- **Project Version:** the board version
- **Build Date and Time:** Date the current BIOS version was made
- **Access Level:** Administrator
- **EC Version:** Current EC version

→ Processor Information

The **Processor Information** lists a brief summary of the Processor. The fields in **Processor Information** cannot be changed. The items shown in the system overview include:

- **Name:** Displays the processor name

- **Type:** Displays the processor type
- **Speed:** Displays the processor speed
- **ID:** Display the processor ID
- **Stepping:** Displays the processor stepping
- **Package:** Displays the processor package
- **Number of Efficient-cores:** The number of E-cores in the processor
- **Microcode Revision:** CPU microcode revision
- **IGFX GOP Version:** The firmware version of integrated graphics
- **Total Memory:** Displays the installed memory in the system
- **Memory Frequency:** Displays the frequency of memory

➔ PCH Information

The **PCH Information** lists a brief summary of the PCH. The fields in **PCH Information** cannot be changed. The items shown in the system overview include:

- **Name:** Displays the PCH name
- **PCH SKU:** Displays the PCH SKU
- **Stepping:** Displays the PCH stepping
- **TXT Capability of Platform/PCH:** Displays whether the platform or PCH supports TXT
- **Production Type:** Displays the Production Type
- **ME FW Version:** Displays the ME firmware version
- **ME Firmware SKU:** Displays the ME firmware SKU
- **PMC FW Version:** Displays the PMC FW Version

The System Overview field also has two user configurable fields:

➔ System Date [xx/xx/xx]

Use the **System Date** option to set the system date. Manually enter the day, month and year.

➔ System Time [xx: xx: xx]

Use the **System Time** option to set the system time. Manually enter the hours, minutes and seconds.

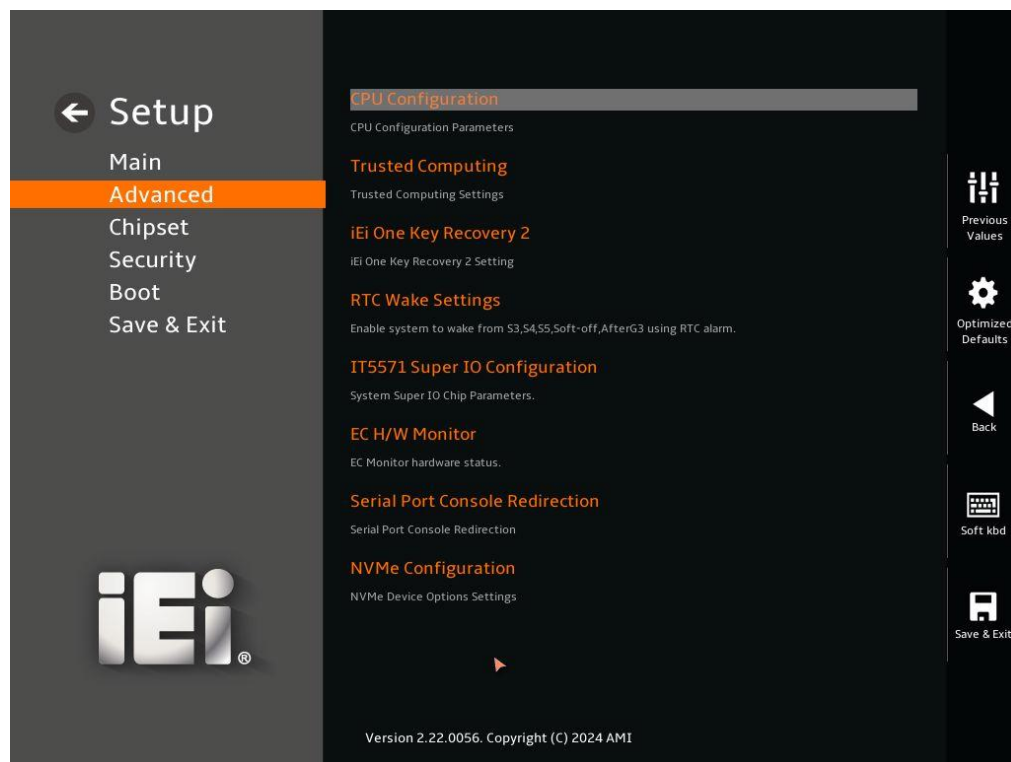
SWBOX-ASL Series

5.3 Advanced

Use the **Advanced** menu (**BIOS Menu 5**) to configure the CPU and peripheral devices through the following sub-menus:

**WARNING!**

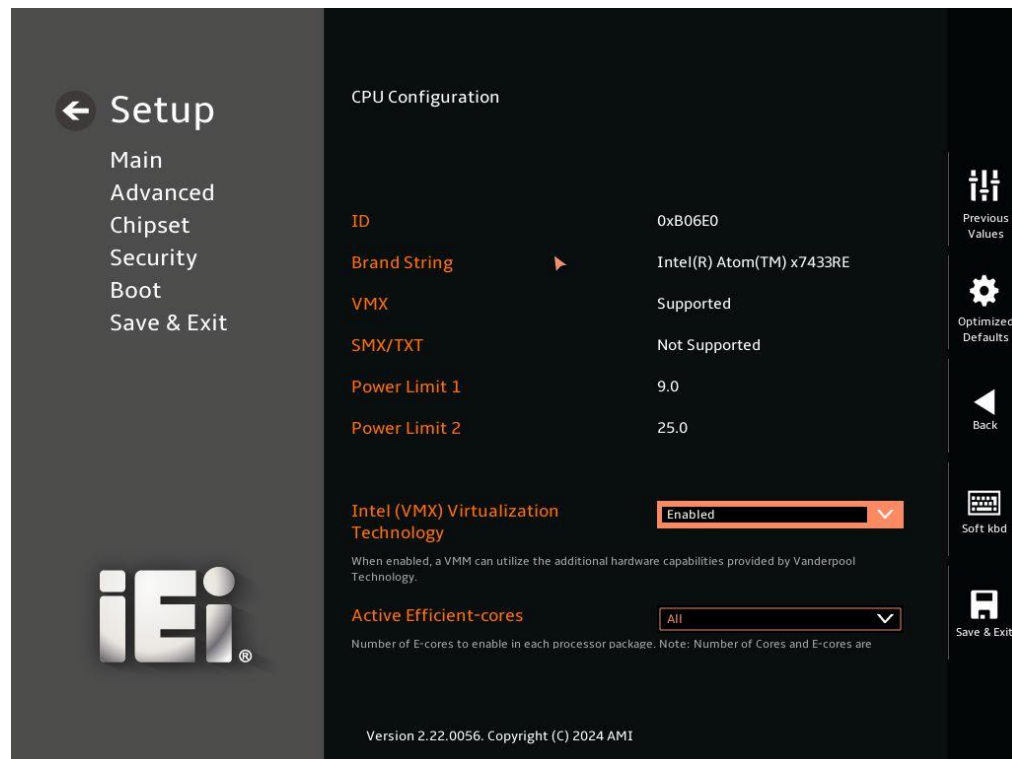
Setting the wrong values in the sections below may cause the system to malfunction. Make sure that the settings made are compatible with the hardware.



BIOS Menu 5: Advanced

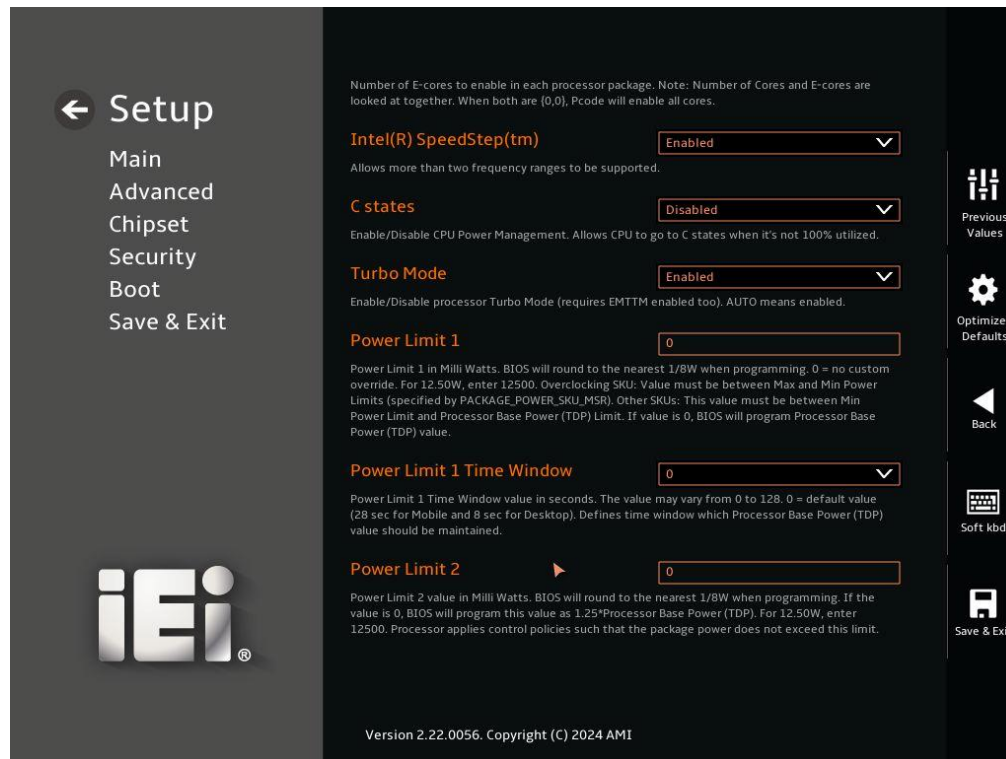
5.3.1 CPU Configuration

Use the **CPU Configuration** menu (**BIOS Menu 6, BIOS Menu 7**) to view detailed CPU specifications or enable the Intel Virtualization Technology.



BIOS Menu 6: CPU Configuration (1/2)

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BIOS Menu 7: CPU Configuration (2/2)

➔ Intel (VMX) Virtualization Technology [Enabled]

Use the **Intel (VMX) Virtualization Technology** option to enable or disable virtualization on the system. When combined with third party software, Intel® Virtualization technology allows several OSs to run on the same system at the same time.

- | | | | |
|---|-----------------|----------------|--|
| ➔ | Disabled | | Disable Intel Virtualization Technology. |
| ➔ | Enabled | DEFAULT | Enable Intel Virtualization Technology. |

➔ Active Efficient-cores [All]

Use the **Active Efficient-cores** option to enable numbers of E-cores in the processor package.

- | | | | |
|---|------------|----------------|--|
| ➔ | All | DEFAULT | Enable all E-cores in the processor package. |
| ➔ | 0 | | No E-core is enabled in the processor package. |
| ➔ | 1 | | Enable one E-core in the processor package. |
| ➔ | 2 | | Enable two E-core in the processor package. |



→ 3 Enable three E-cores in the processor package.

→ Intel(R) Trusted Execution Technology [Disabled]

Use the **Intel Trusted Execution Technology (Intel® TXT)** option to enable or disable utilization of additional hardware capabilities provided by Intel (R) Trusted Execution Technology.

- Disabled DEFAULT Disable Intel® TXT Technology
- Enabled Enable Intel® TXT Technology

→ C states [Disabled]

Use the **C states** option to enable or disable CPU power management which allows CPU to go to C states when it is not 100% utilized.

- Disabled DEFAULT Disable CPU power management
- Enabled Enable CPU power management

→ Turbo Mode [Enabled]

Use the **Turbo Mode** option to enable or disable turbo mode which requires Intel Speed Step or Intel Speed Shift to be available and enabled.

- Disabled Disable Turbo Mode Technology
- Enabled DEFAULT Enable Turbo Mode Technology

→ Power Limit 1 [0]

Use the **Power Limit 1** to set power limit in Milli Watts. BIOS will round to the nearest 1/8W when programming. 0 = no custom override. For 12.50W, enter 12500. For overclocking SKU, value must be between max and min power limits. For other SKUs, this value must be between min power limit and TDP limit. If value is 0, BIOS will program TDP value.

→ Power Limit 1 Time Window [0]

Use the **Power Limit 1 Time Window** option to defines time window which Processor Base Power (TDP) value should be maintained. The value may vary from 0 to 128. 0 is the default value.



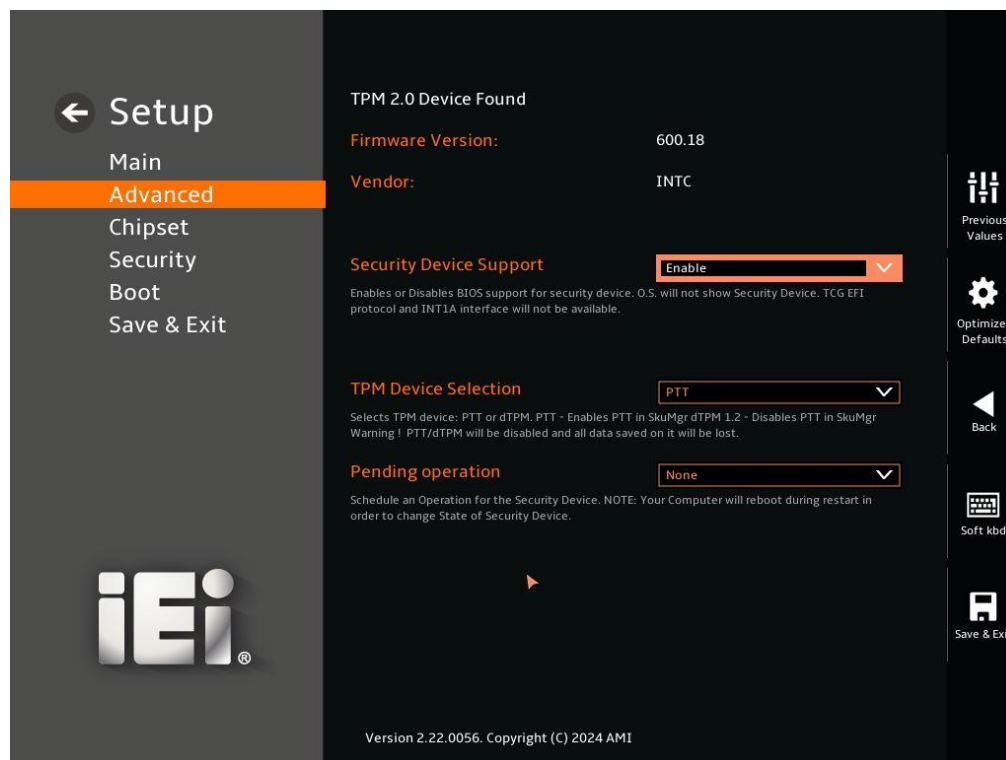
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→ Power Limit 2 [0]

Use the **Power Limit 2** to set power limit in Milli Watts. BIOS will round to the nearest 1/8W when programming. If the value is 0, BIOS will program this value as $1.25 \times \text{TDP}$. For 12.50W, enter 12500. Processor applies control policies such that the package power does not exceed this limit.

5.3.2 Trusted Computing

Use the **Trusted Computing** menu (**BIOS Menu 8**) to configure settings related to the Trusted Computing Group (TCG) Trusted Platform Module (TPM).



BIOS Menu 8: Trusted Computing Configuration

→ Security Device Support [Enabled]

Use the **Security Device Support** option to enable or disable BIOS support for TPM.

- **Disable** TPM support is disabled.
- **Enable** **DEFAULT** TPM support is enabled.

→ TPM Device Selection [PTT]

Use the **TPM Device Selection** option to enable or disable BIOS support for security devices.

- **dTPM. PTT** dTPM. PTT support is enabled.
- **PTT** **DEFAULT** PTT support is enabled.

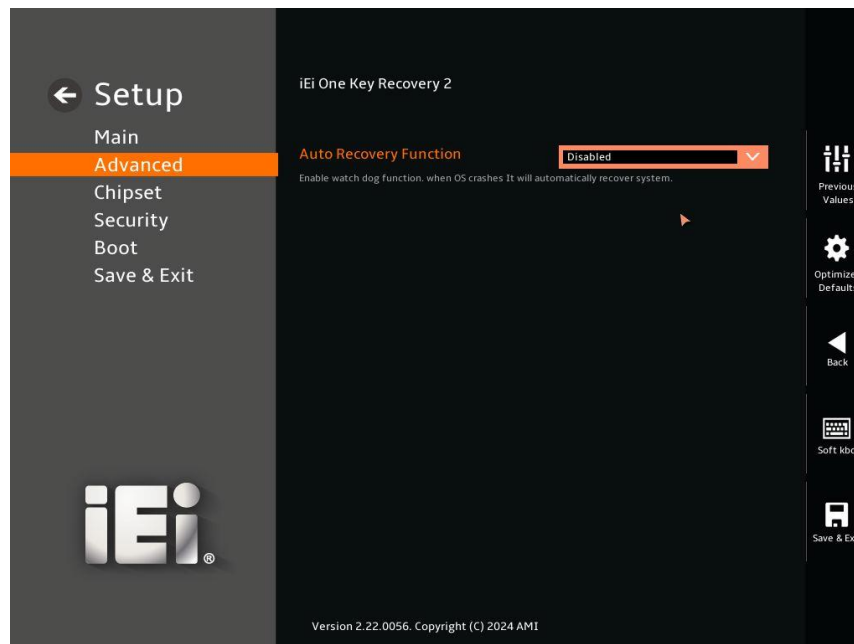
→ Pending Operation [None]

Use the **Pending Operation** option to schedule an operation for the security device.

- **None** **DEFAULT** TPM information is previous.
- **TPM Clear** TPM information is cleared

5.3.3 iEi One Key Recovery 2

The **iEi One Key Recovery 2** menu (**BIOS Menu 9**) configures iEi One Key Recovery 2.



BIOS Menu 9: iEi One Key Recovery2 Configuration

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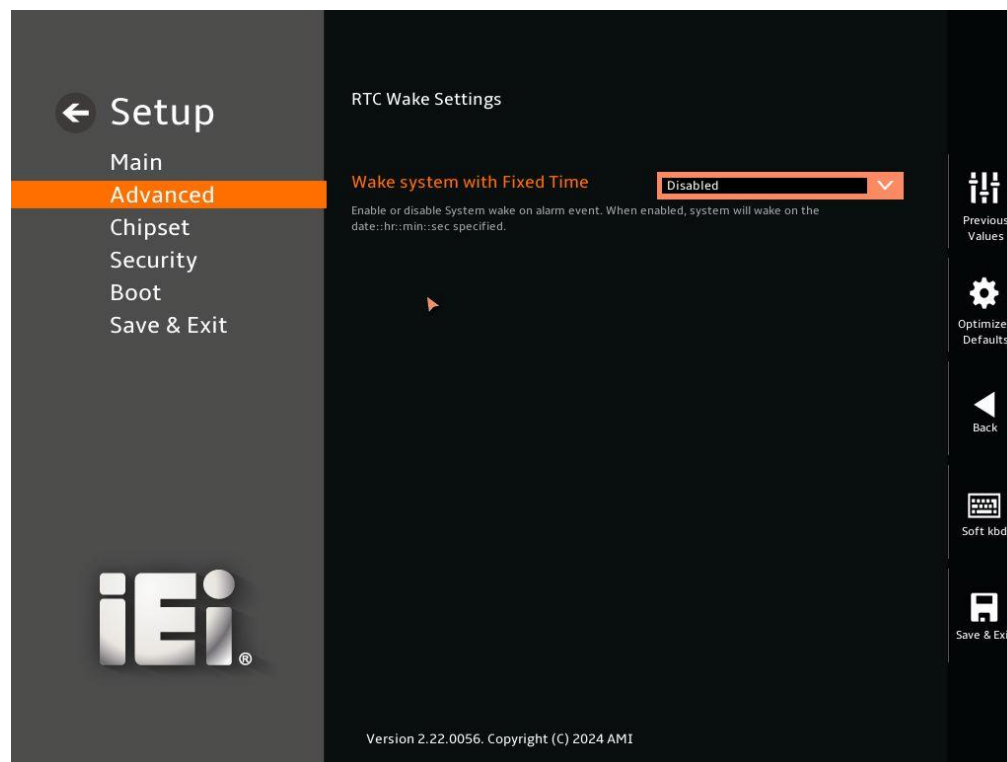
→ Auto Recovery Function [Disabled]

Use the **Auto Recovery Function** option to enable or disable watch dog function, when OS crashes, it will automatically recover system.

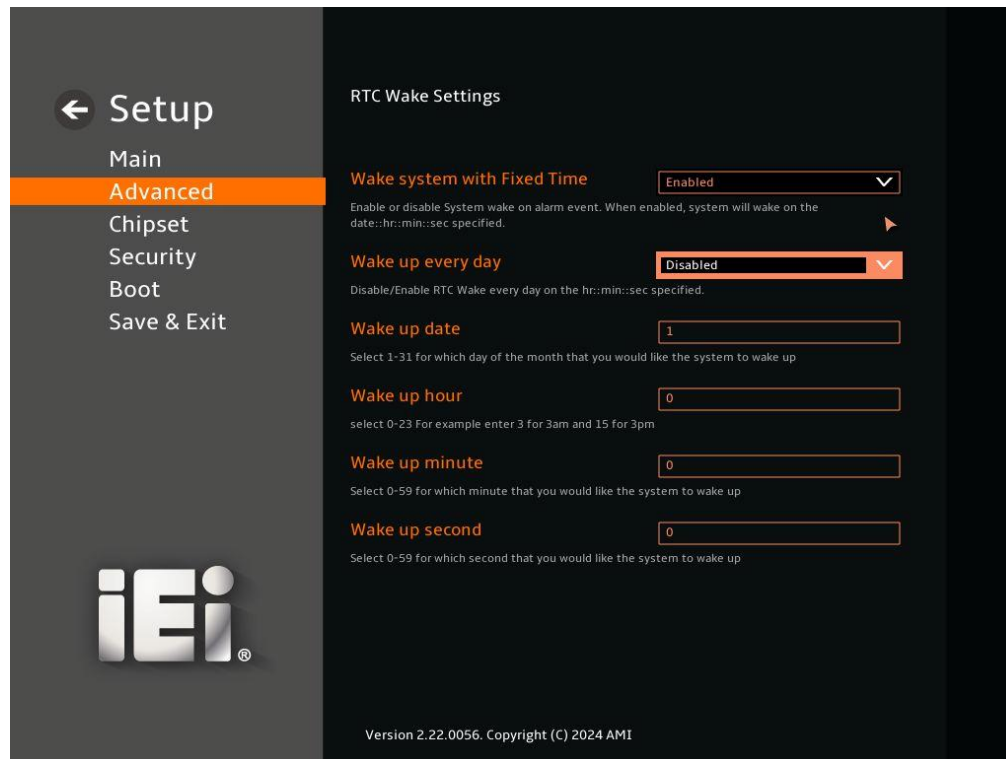
- **Disabled** **DEFAULT** Auto recovery support is disabled.
- **Enabled** Auto recovery support is enabled.

5.3.4 RTC Wake Settings

The **RTC Wake Settings** menu (**BIOS Menu 10**, **BIOS Menu 11**) enable or disable system wake on alarm event. When enabled, system will wake on the “date: hour: minute: second” specified.



BIOS Menu 10: RTC Wake Settings (1/2)



BIOS Menu 11: RTC Wake Settings (2/2)

→ Wake System with Fixed Time [Disabled]

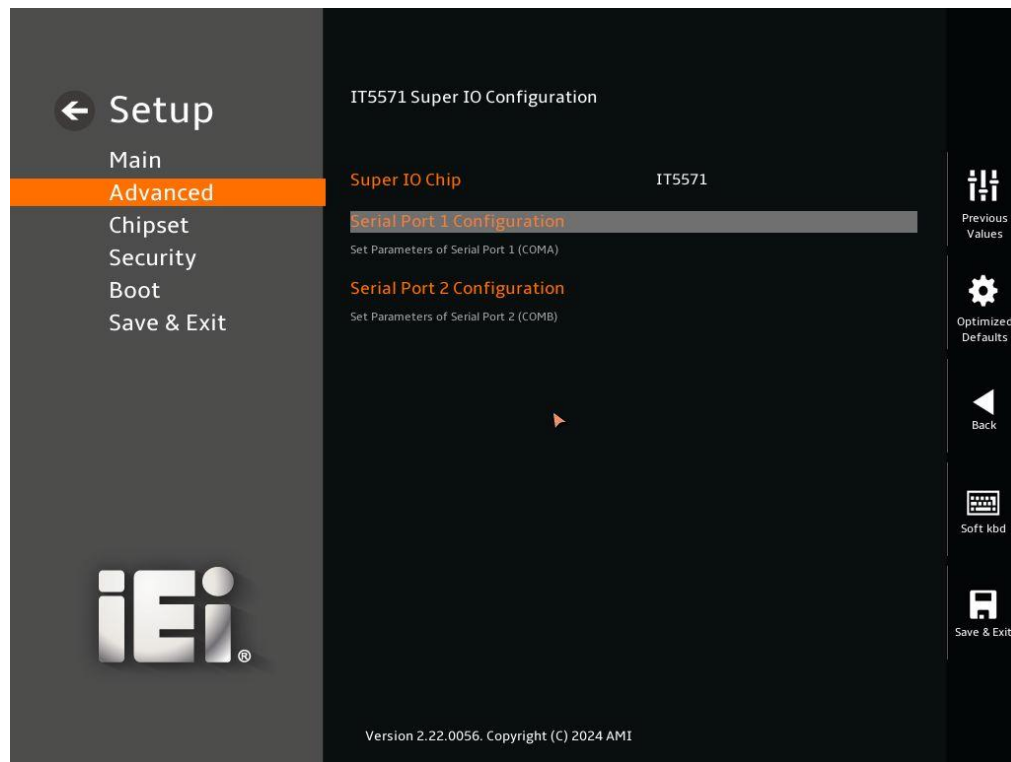
Use the **Wake System with Fixed Time** option to specify the time the system should be roused from a suspended state.

- | | | | |
|---|-----------------|----------------|---|
| → | Disabled | DEFAULT | The real time clock (RTC) cannot generate a wake event |
| → | Enabled | | <p>If selected, the following appears with values that can be selected:</p> <ul style="list-style-type: none"> *Wake up every day *Wake up date *Wake up hour *Wake up minute *Wake up second *Wake After setting the alarm, the computer turns itself on from a suspend state when the alarm goes off. |

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5.3.5 IT5571 Super IO Configuration

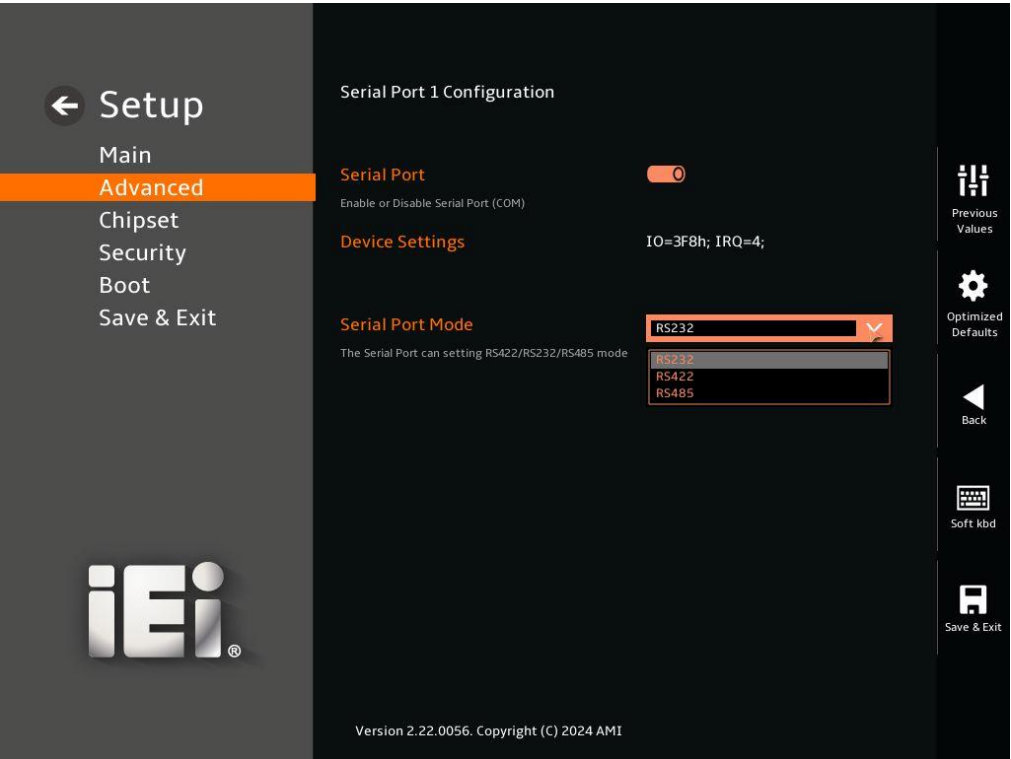
Use the **IT5571 Super IO Configuration** menu (**BIOS Menu 12**) to set or change the configurations for the serial ports.



BIOS Menu 12: IT5571 Super IO Configuration

5.3.5.1 Serial Port 1 Configuration

Use the **Serial Port 1 Configuration** menu (**BIOS Menu 13**) to configure the serial port 1.



BIOS Menu 13: Serial Port 1 Configuration Menu

➔ **Serial Port [Enabled]**

Use the **Serial Port** option to enable or disable the serial port.

- ➔ **Disabled** Disable the serial port
- ➔ **Enabled DEFAULT** Enable the serial port

➔ **Device Settings**

The **Device Settings** option shows the serial port IO port address and interrupt address.

- ➔ **IO=3F8h;** Serial Port I/O port address is 3F8h and the interrupt
- IRQ=4** address is IRQ4.

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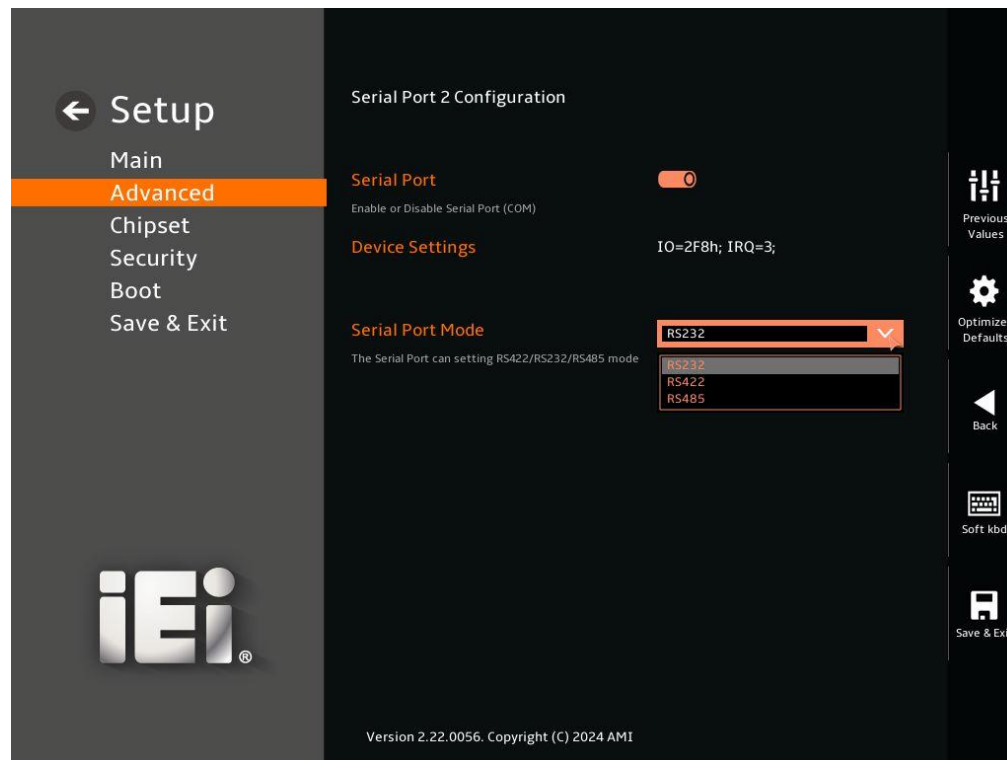
→ Device Mode [RS232]

Use the **Device Mode** option to select the Serial Port 1 signaling mode. Configuration options are listed below.

- **RS232** **DEFAULT** Serial Port 1 signaling mode is RS-232.
- **RS422 with termination resistor** Serial Port 1 signaling mode is RS-422 with resistor.
- **RS485 with termination resistor** Serial Port 1 signaling mode is RS-485 with resistor.

5.3.5.2 Serial Port 2 Configuration

Use the **Serial Port 2 Configuration** menu (**BIOS Menu 14**) to configure the serial port 2.



BIOS Menu 14: Serial Port 2 Configuration Menu

→ Serial Port [Enabled]

Use the **Serial Port** option to enable or disable the serial port.

- **Disabled** Disable the serial port



➔ **Enabled** **DEFAULT** Enable the serial port

➔ **Device Settings**

The **Device Settings** option shows the serial port IO port address and interrupt address.

➔ **IO=2F8h;** Serial Port I/O port address is 2F8h and the interrupt
 IRQ=3 address is IRQ3.

➔ **Device Mode [RS232]**

Use the **Device Mode** option to select the Serial Port 2 signaling mode. Configuration options are listed below.

- | | | |
|-----------------------------|----------------|---|
| ➔ RS232 | DEFAULT | Serial Port 2 signaling mode is RS-232. |
| ➔ RS422 with | | |
| termination resistor | | Serial Port 2 signaling mode is RS-422 with resistor. |
| ➔ RS485 with | | |
| termination resistor | | Serial Port 2 signaling mode is RS-485 with resistor. |



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5.3.6 EC H/W Monitor Configuration

The **EC H/W Monitor** menu (**BIOS Menu 15**) shows the state of H/W real-time operating temperature and system voltages, and contains the system thermal control configuration submenus.



BIOS Menu 15: EC H/W Monitor Configuration

➔ **PC Health Status**

The following system parameters and values are shown. The system parameters that are monitored are:

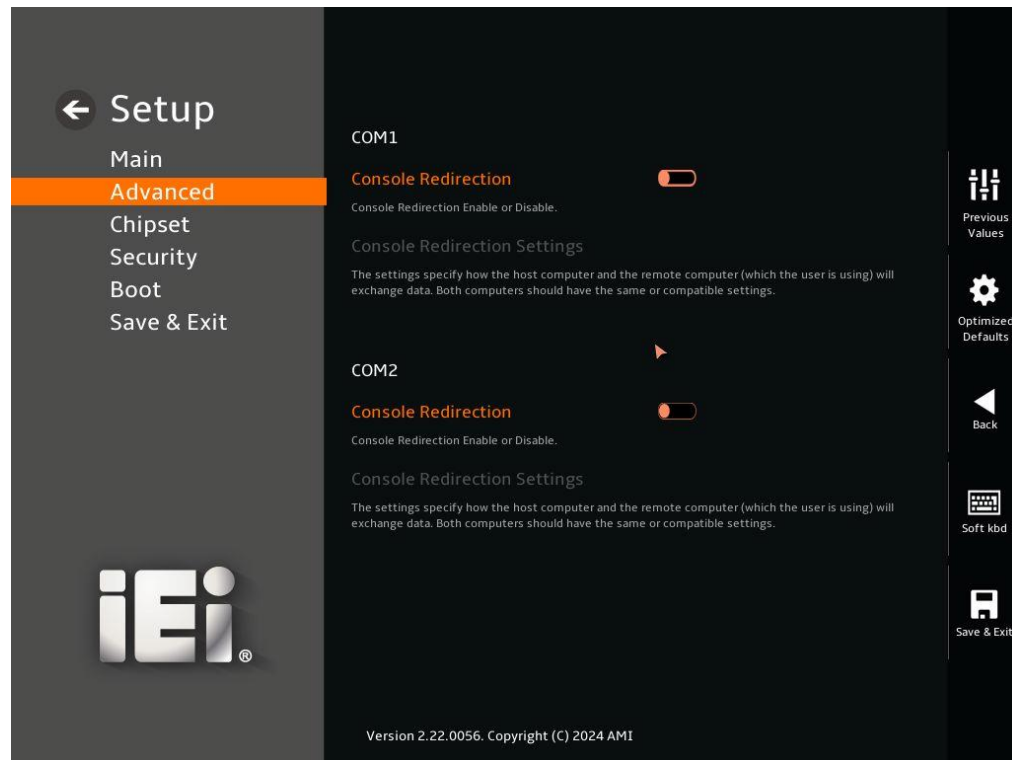
- System Temperatures:
 - CPU Temperature
 - SYS Temperature
 - Power Temperature
- Voltages:
 - +V5S
 - +V3P3S

→ Tcc Activation Offset [0]

This setting adjusts the offset from the factory-defined Thermal Control Circuit (TCC) activation temperature, determining when the TCC should activate. The activation temperature is calculated as: TCC Activation Temperature = Factory Set Temperature - TCC Activation Offset. The offset range is between 0 and 63.

5.3.7 Serial Port Console Redirection

The **Serial Port Console Redirection** menu (**BIOS Menu 16**) allows the console redirection options to be configured. Console Redirection allows users to maintain a system remotely by re-directing keyboard input and text output through the serial port.



BIOS Menu 16: Serial Port Console Redirection

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→ Console Redirection [Disabled]

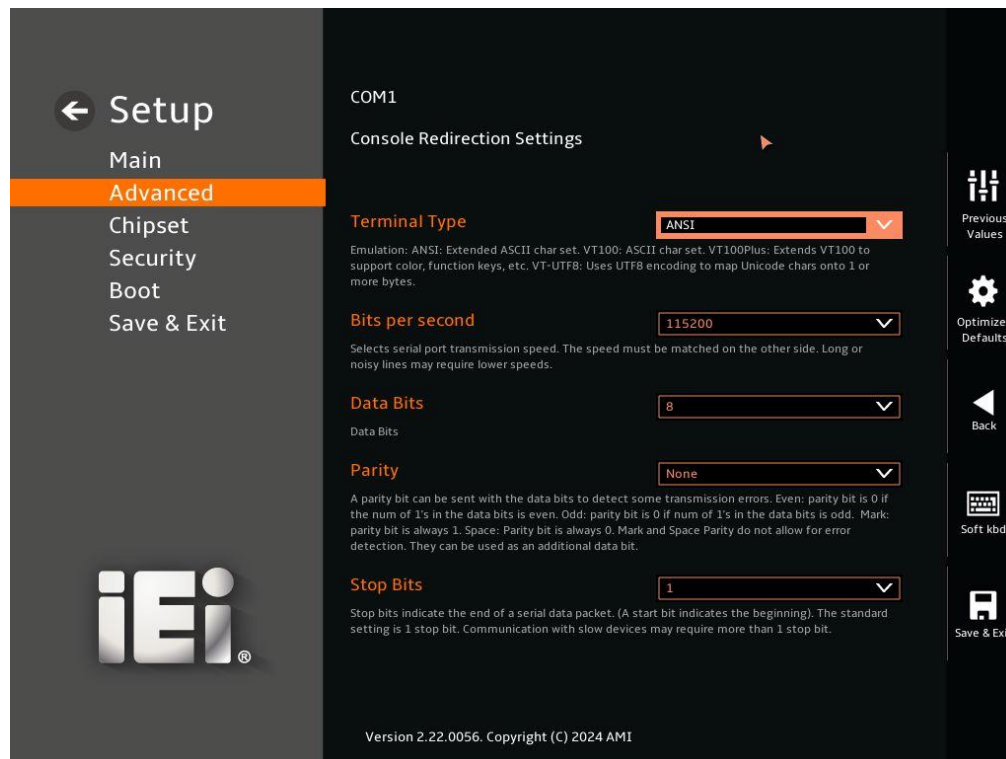
Use **Console Redirection** option to enable or disable the console redirection function.

- **Disabled** **DEFAULT** Disabled the console redirection function
- **Enabled** Enabled the console redirection function

The **Console Redirection Settings** submenu will be available when the **Console Redirection** option is enabled.

5.3.7.1 Console Redirection Settings

The following options are available in the **Console Redirection Settings** submenu (**BIOS Menu 17**) when the **COM Console Redirection (for COM1, COM2)** option is enabled.



BIOS Menu 17: COM Console Redirection Settings

→ Terminal Type [ANSI]

Use the **Terminal Type** option to specify the remote terminal type.

- | | | | |
|---|-----------|---------|-------------------------------------|
| → | VT100 | | The target terminal type is VT100 |
| → | VT100Plus | | The target terminal type is VT100+ |
| → | VT-UTF8 | | The target terminal type is VT-UTF8 |
| → | ANSI | DEFAULT | The target terminal type is ANSI |

→ **Bits per second [115200]**

Use the **Bits per second** option to specify the serial port transmission speed. The speed must match on the other side. Long or noisy lines may require lower speeds.

- | | | | |
|---|--------|---------|--|
| → | 9600 | | Sets the serial port transmission speed at 9600. |
| → | 19200 | | Sets the serial port transmission speed at 19200. |
| → | 38400 | | Sets the serial port transmission speed at 38400. |
| → | 57600 | | Sets the serial port transmission speed at 57600. |
| → | 115200 | DEFAULT | Sets the serial port transmission speed at 115200. |

→ **Data Bits [8]**

Use the **Data Bits** option to specify the number of data bits.

- | | | | |
|---|---|---------|--------------------------|
| → | 7 | | Sets the data bits at 7. |
| → | 8 | DEFAULT | Sets the data bits at 8. |

→ **Parity [None]**

Use the **Parity** option to specify the parity bit that can be sent with the data bits for detecting the transmission errors.

- | | | | |
|---|------|---------|---|
| → | None | DEFAULT | No parity bit is sent with the data bits. |
|---|------|---------|---|

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- ➔ **Even** The parity bit is 0 if the number of ones in the data bits is even.
- ➔ **Odd** The parity bit is 0 if the number of ones in the data bits is odd.
- ➔ **Mark** The parity bit is always 1. This option does not allow for error detection.
- ➔ **Space** The parity bit is always 0. This option does not allow for error detection.

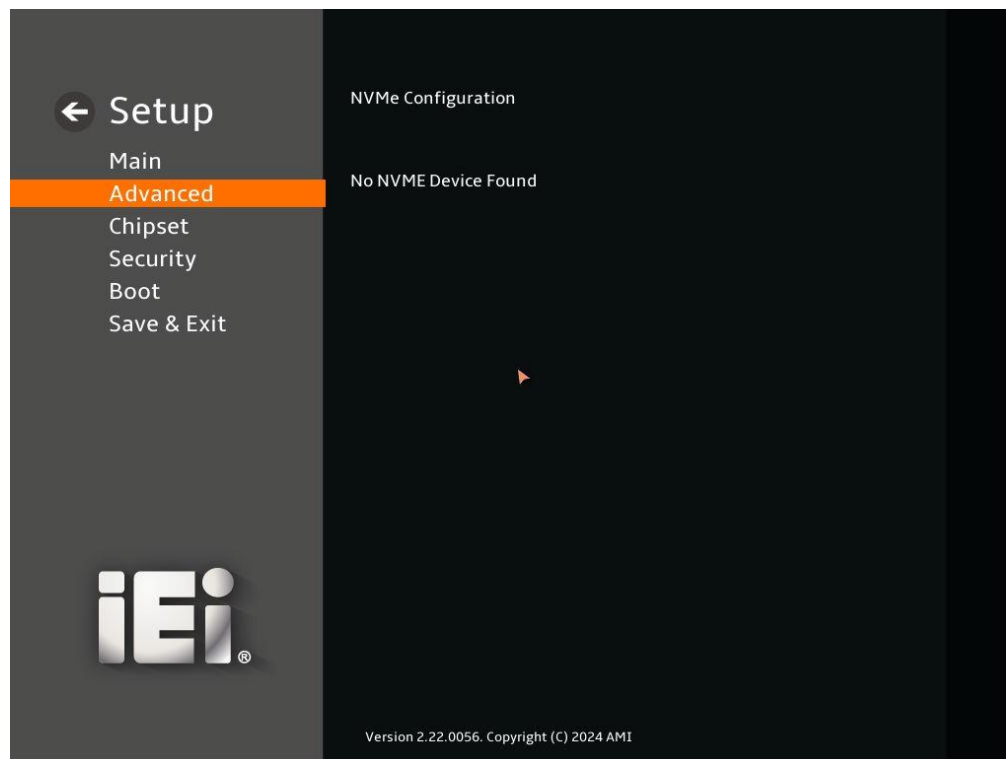
➔ Stop Bits [1]

Use the **Stop Bits** option to specify the number of stop bits used to indicate the end of a serial data packet. Communication with slow devices may require more than 1 stop bit.

- ➔ **1** **DEFAULT** Sets the number of stop bits at 1.
- ➔ **2** Sets the number of stop bits at 2.

5.3.8 NVMe Configuration

Use the **NVMe Configuration (BIOS Menu 18)** menu to display the NVMe controller and device information.



BIOS Menu 18: NVMe Configuration

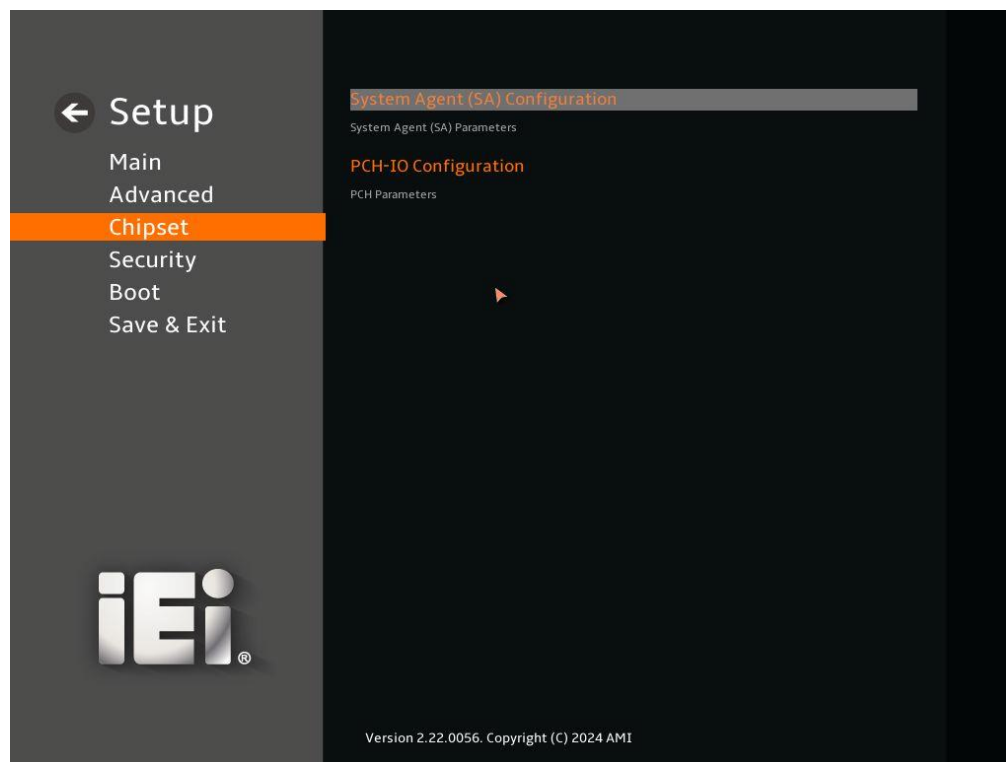
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5.4 Chipset

Use the **Chipset** menu (**BIOS Menu 19**) to access the PCH IO and System Agent (SA) configuration menus.

**WARNING!**

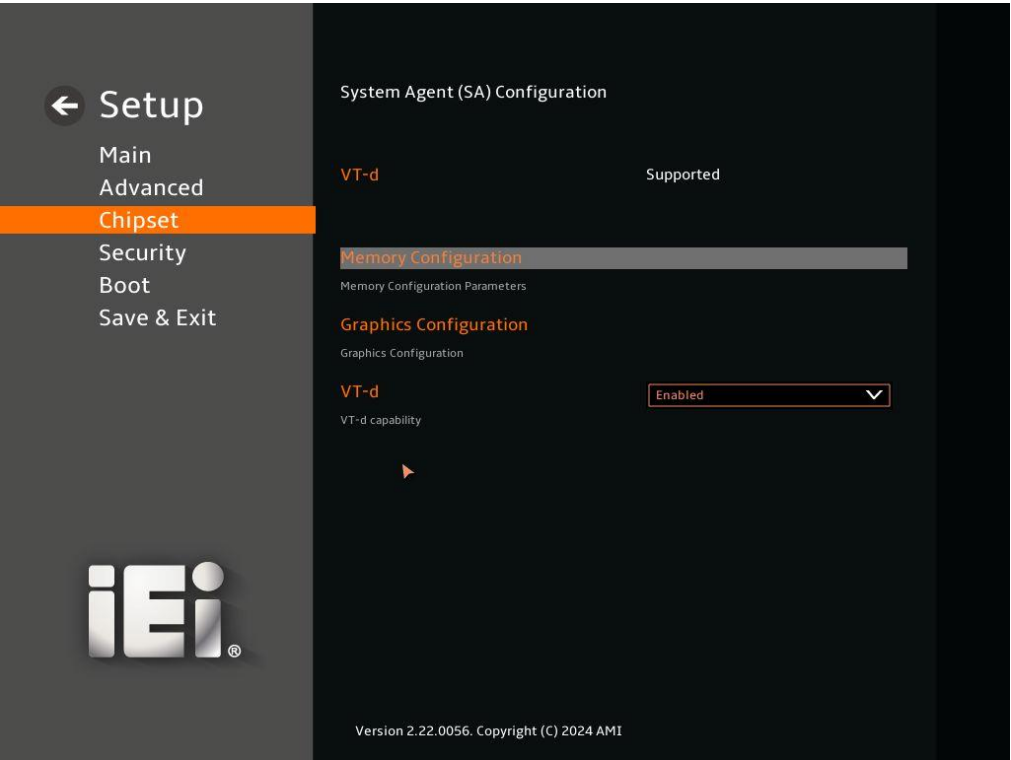
Setting the wrong values for the Chipset BIOS selections in the Chipset BIOS menu may cause the system to malfunction.



BIOS Menu 19: Chipset

5.4.1 System Agent (SA) Configuration

Use the **System Agent (SA) Configuration** menu (**BIOS Menu 20**) to configure the System Agent (SA) parameters.



BIOS Menu 20: System Agent (SA) Configuration

→ VT-d [Enabled]

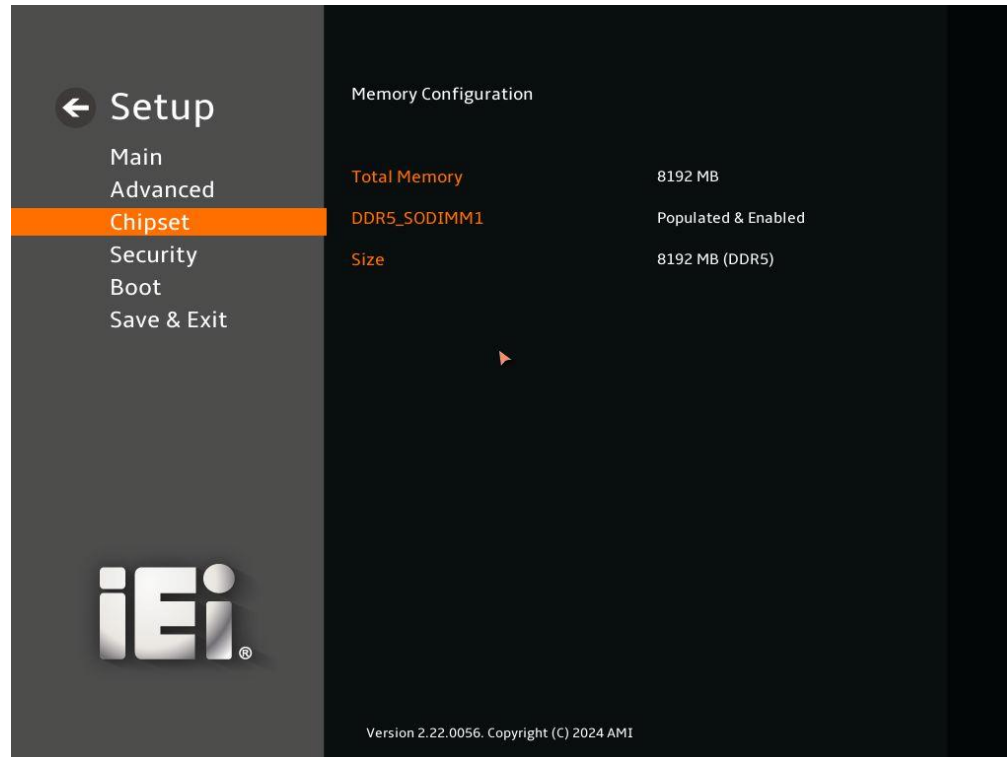
Use the **VT-d** option to enable or disable the VT-d capability.

- DisabledDisable the VT-d capability
- Enabled DEFAULT Enable the VT-d capability

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5.4.1.1 Memory Configuration

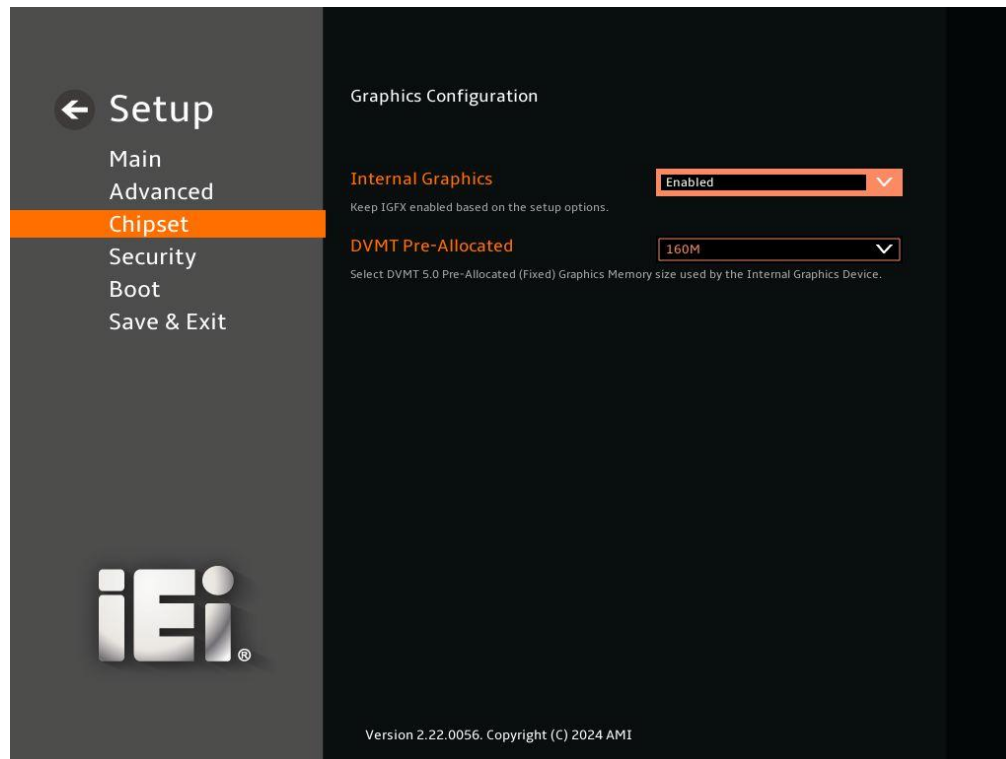
Use the **Memory Configuration** submenu (**BIOS Menu 21**) to view memory information.



BIOS Menu 21: Memory Configuration

5.4.1.2 Graphics Configuration

Use the **Graphics Configuration** (**BIOS Menu 22**) menu to configure the system's graphics.



BIOS Menu 23: Graphics Configuration

→ Internal Graphics [Enabled]

Use the **Internal Graphics** option to configure whether to keep IGFX enabled. If user wants to support dual display by internal graphics and external graphics, this Internal Graphics option should be set to Enabled and the above Primary Display option should be set to IGFX.

- | | | |
|---|-----------------|-----------------------------|
| → | Auto | Auto mode |
| → | Disabled | Disable IGFX. |
| → | Enabled | Default Enable IGFX. |

→ DVMT Pre-Allocated [160M]

Use the **DVMT Pre-Allocated** option to set the amount of system memory allocated to the integrated graphics processor when the system boots. The system memory allocated can then only be used as graphics memory, and is no longer available to applications or the operating system. Configuration options are listed below:

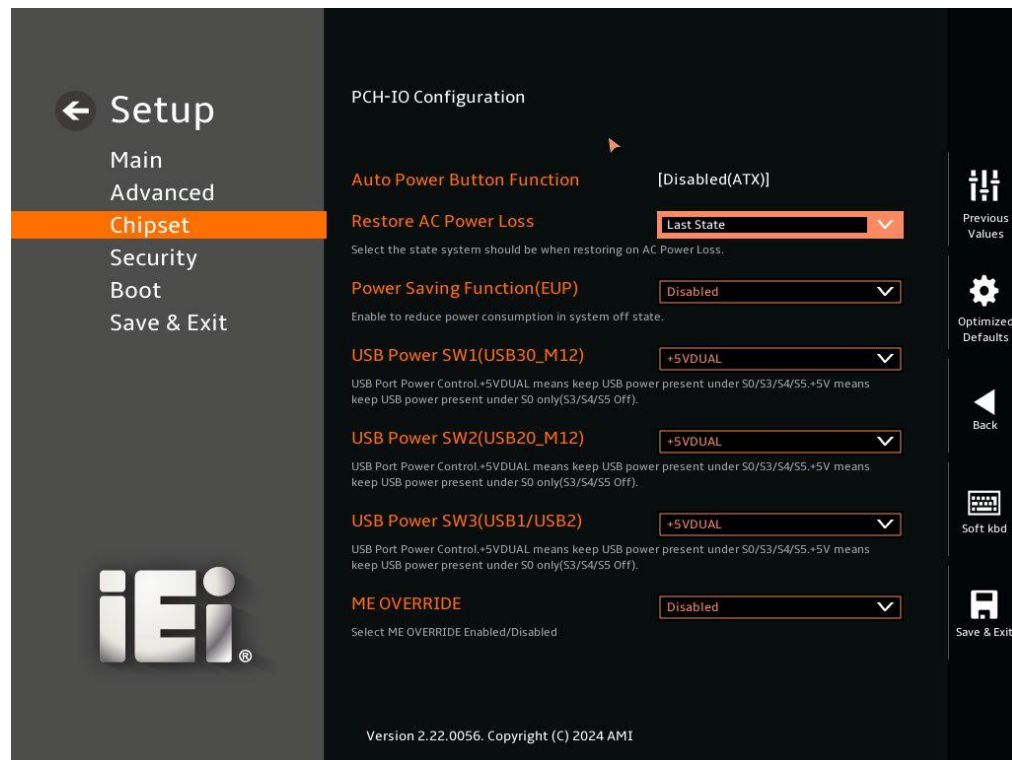
- 0M
- 4M

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- 8M
 - 12M
 - 16M
 - 32M
 - 64M
 - 96M
 - 128M
 - 160M
- Default**

5.4.2 PCH-IO Configuration

Use the **PCH-IO Configuration** menu (BIOS Menu 24, BIOS Menu 25) to configure the PCH parameters.



BIOS Menu 24: PCH-IO Configuration (1/2)



BIOS Menu 25: PCH-IO Configuration (2/2)

➔ Auto Power Button Function [Disabled (ATX)]

Use the **Auto Power Button Function** BIOS option to show the power mode state. Use the **J_ATX_AT1** to switch the AT/ATX power mode.

- ➔ **Enabled (AT)** The system power mode is AT.
- ➔ **Disabled (ATX)** **DEFAULT** The system power mode is ATX.

➔ Restore AC Power Loss [Last State]

Use the **Restore AC Power Loss** BIOS option to specify what state the system returns to if there is a sudden loss of power to the system when the power mode is ATX.

- ➔ **Power Off** The system remains turned off
- ➔ **Power On** The system turns on
- ➔ **Last State** **DEFAULT** The system returns to its previous state. If it was on, it turns itself on. If it was off, it remains off.

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→ **Power Saving Function (EUP) [Disabled]**

Use the **Power Saving Function (EUP)** BIOS option to enable or disable the power saving function.

- **Disabled** **DEFAULT** Power saving function is disabled.
- **Enabled** Power saving function is enabled. It will reduce power consumption when the system is off.

→ **USB Power SW1 (USB30_M12) [+5V DUAL]**

Use the **USB Power SW1** BIOS option to configure the USB power source for the corresponding USB connectors.

- **+5V DUAL** **DEFAULT** Set the USB power source to +5V dual
- **+5V** Set the USB power source to +5V

→ **USB Power SW2 (USB2_M12) [+5V DUAL]**

Use the **USB Power SW2** BIOS option to configure the USB power source for the corresponding USB connectors.

- **+5V DUAL** **DEFAULT** Set the USB power source to +5V dual
- **+5V** Set the USB power source to +5V

→ **USB Power SW3 (USB1/ USB1) [+5V DUAL]**

Use the **USB Power SW3** BIOS option to configure the USB power source for the corresponding USB connectors.

- **+5V DUAL** **DEFAULT** Set the USB power source to +5V dual
- **+5V** Set the USB power source to +5V

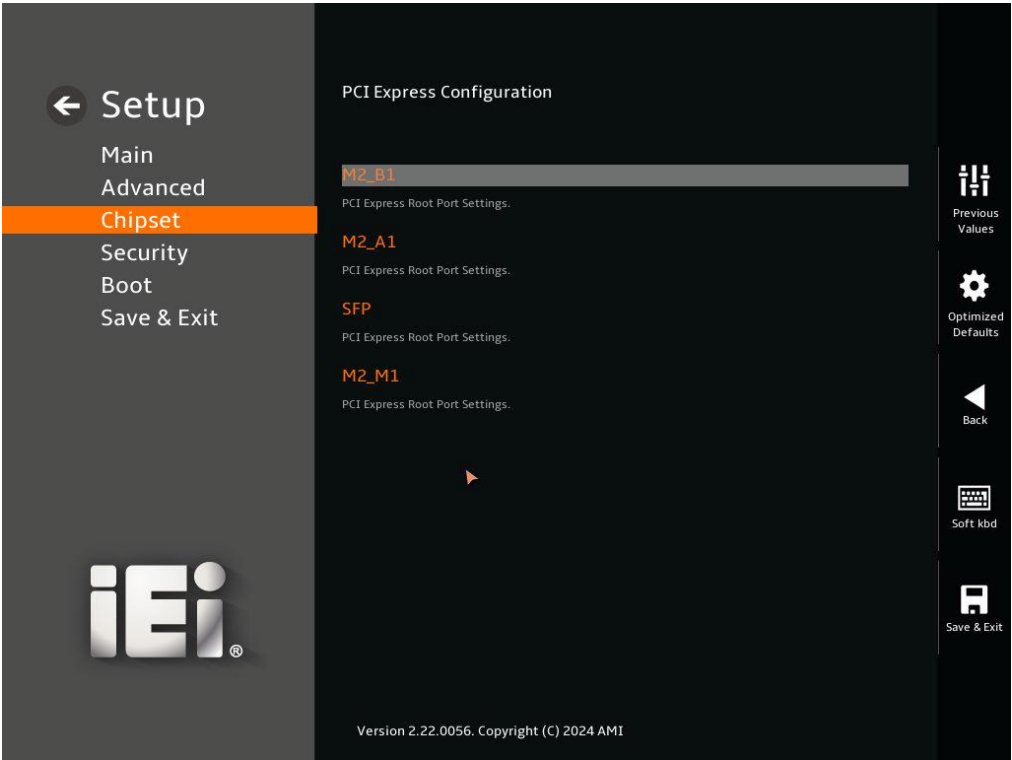
→ **ME Override [Disable]**

Use the **ME Override** to enable or disable the ME Override.

- **Disabled** **DEFAULT** ME Override is disabled.
- **Enabled** ME Override is enabled.

5.4.2.1 PCI Express Configuration

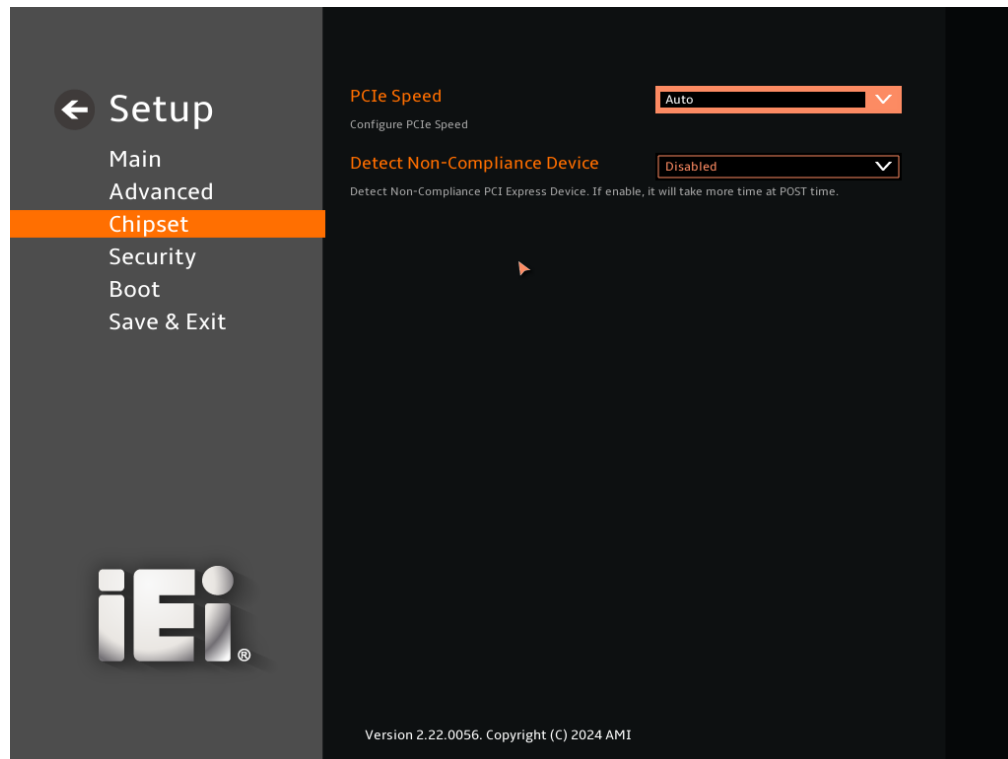
Use the **PCI Express Configuration** submenu (**BIOS Menu 26**) to configure the PCI Express Root Port Settings.



BIOS Menu 26: PCI Express Configuration

5.4.2.1.1 PCIe Root Port Setting

Use the **M2_B1**, **M2_A1**, **SFP** and **M2_M1** submenus (**BIOS Menu 27**) to configure the PCI Root Port settings.



BIOS Menu 28: PCIe Slot Configuration Submenu

→ PCIe Speed [Auto]

Use the **PCIe Speed** option to specify the PCI Express port speed. Configuration options are listed below.

- | | | | |
|---|-------------|----------------|-------------------------------|
| → | Auto | DEFAULT | Auto mode. |
| → | Gen1 | | Configure PCIe Speed to Gen1. |
| → | Gen2 | | Configure PCIe Speed to Gen2. |
| → | Gen3 | | Configure PCIe Speed to Gen3. |

→ Detect Non-Compliance Device [Disabled]

Use the **Detect Non-Compliance Device** option to configure whether to detect if a non-compliance PCI Express device is connected to the PCI Express port.

- ➔ Disabled

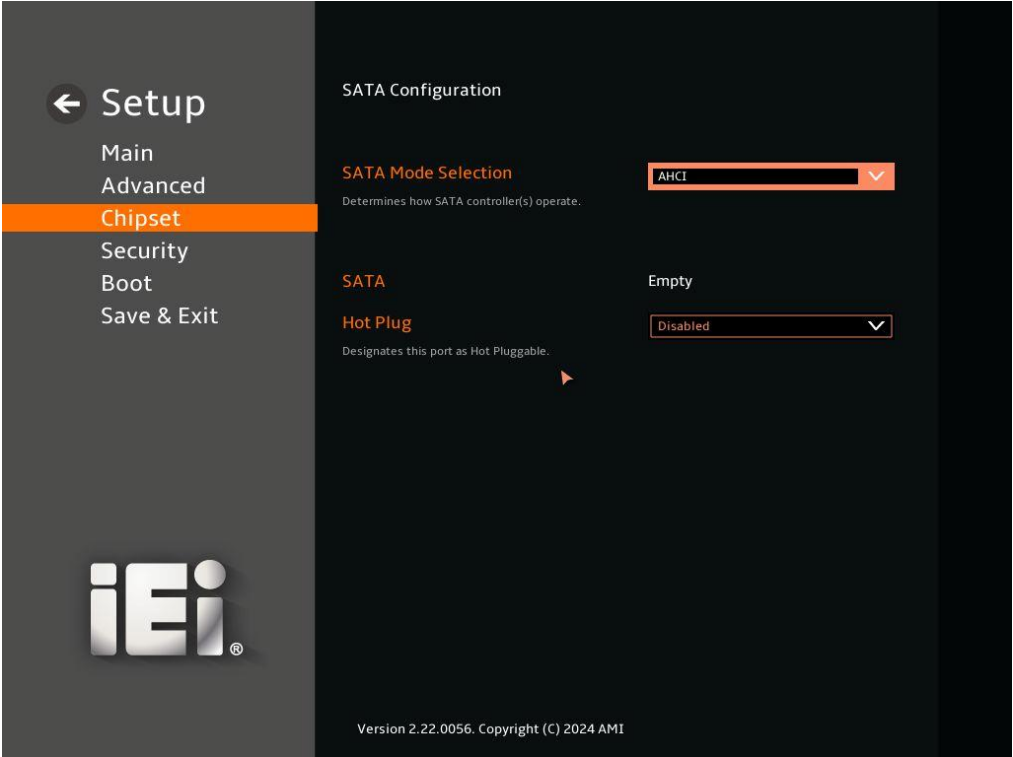
DEFAULT

Do not detect if a non-compliance PCI Express device is connected to the PCI Express port.
- ➔ Enabled

Detect if a non-compliance PCI Express device is connected to the PCI Express port.

5.4.2.2 SATA Configuration

Use the SATA Configuration menu (**BIOS Menu 29**) to change and/or set the configuration of the SATA devices installed in the system.



BIOS Menu 29: SATA Configuration

➔ SATA Mode Selection [AHCI]

Use the **SATA Mode Selection** option to determine how the SATA devices operate.

- ➔ AHCI

DEFAULT

Configures SATA devices as AHCI device.

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→ Intel RST With Intel Optane System Acceleration

When the option “Intel RST With Intel Optane System Acceleration” is selected in SATA Mode Selection, the RAID Device ID option is available.

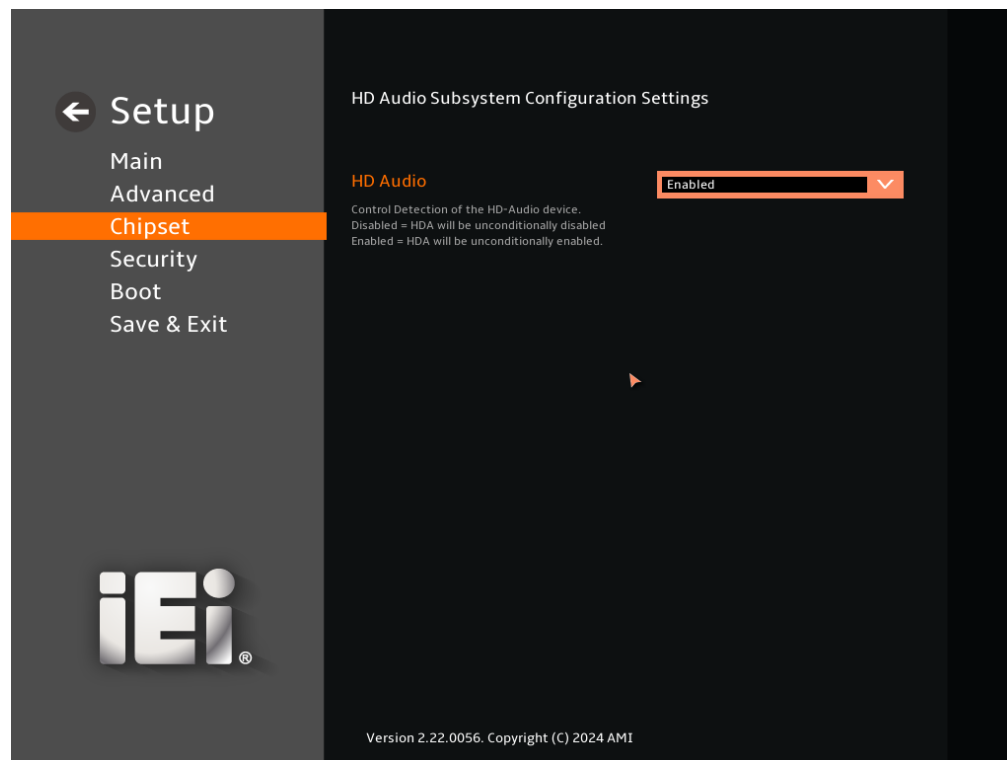
→ Hot Plug [Disabled]

Use the **Hot Plug** option to designate the SATA port as hot pluggable.

- **Disabled** **DEFAULT** Disable the hot-pluggable function of the SATA port.
- **Enabled** Designate the SATA port as hot-pluggable.

5.4.2.3 HD Audio Configuration

Use the **HD Audio Configuration** menu (**BIOS Menu 30**) to configure the HD Audio Subsystem settings.



BIOS Menu 30: HD Audio Configuration

→ HD Audio [Enabled]



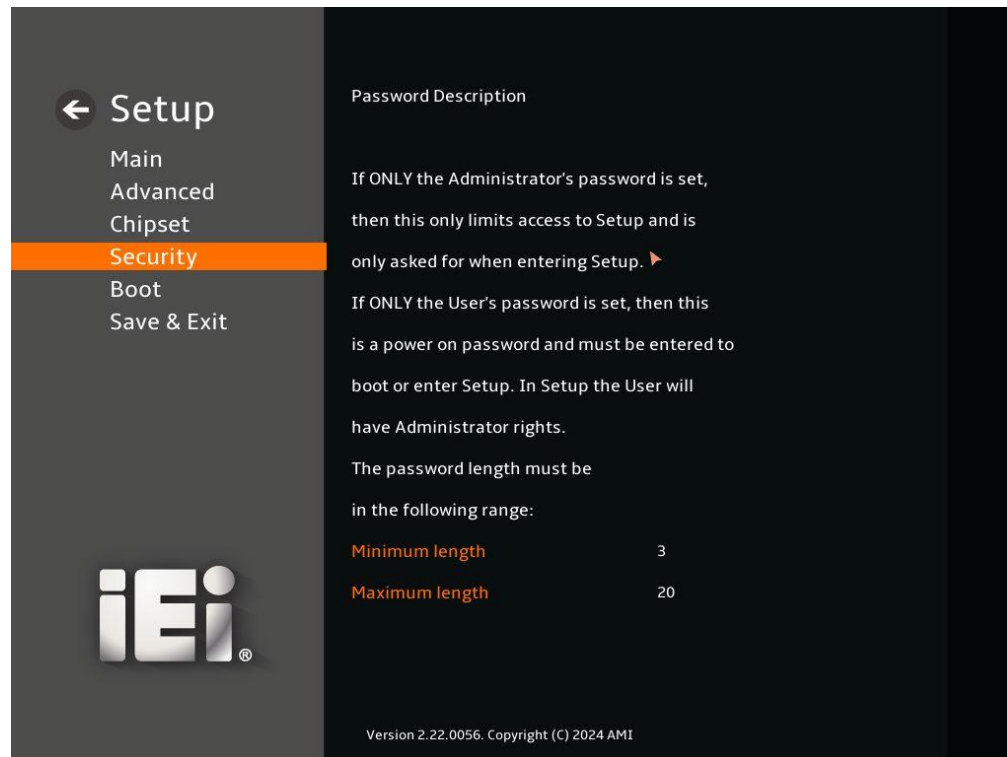
Use the **HD Audio** option to enable or disable the High Definition Audio controller.

- ➔ **Disabled** The onboard High Definition Audio controller is disabled.
- ➔ **Enabled DEFAULT** The onboard High Definition Audio controller is enabled.



5.5 Security

Use the **Security** menu (**BIOS Menu 31**, **BIOS Menu 32**) to set system and user passwords.



BIOS Menu 31: Security (1/2)



BIOS Menu 32: Security (2/2)

➔ Administrator Password

Use the **Administrator Password** to set or change an administrator password.

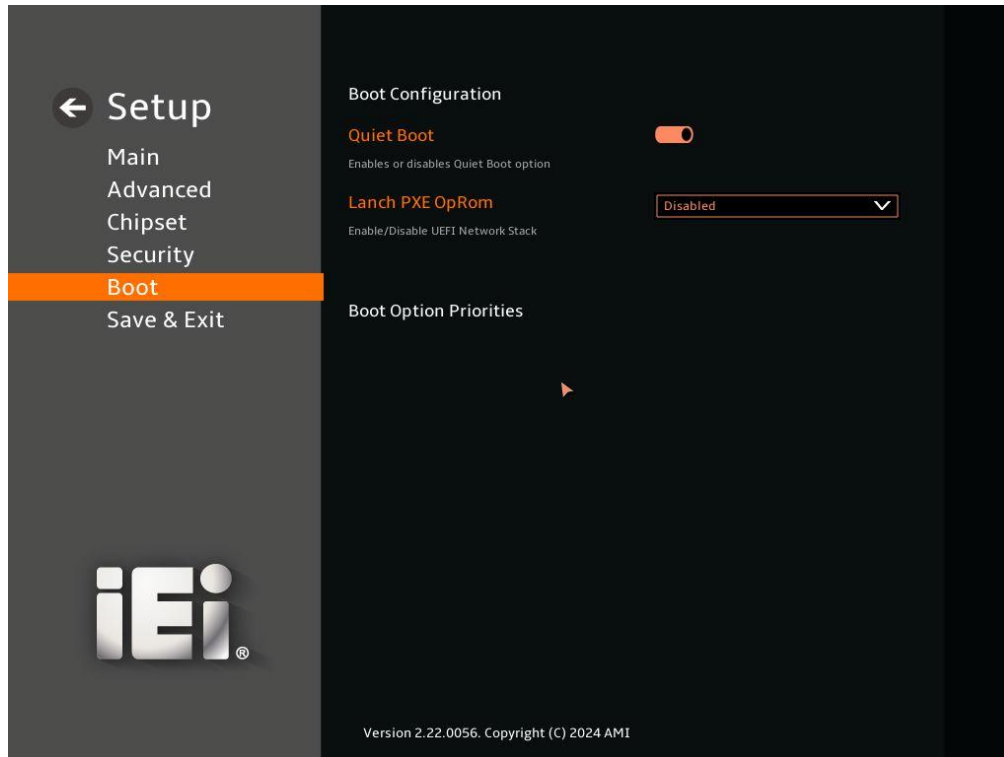
➔ User Password

Use the **User Password** to set or change a user password.

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5.6 Boot

Use the **Boot** menu (BIOS Menu 33) to configure system boot options.



BIOS Menu 33: Boot Menu

5.6.1 Boot Configuration

→ Quiet Boot [Enabled]

Use the **Quiet Boot** BIOS option to select the screen display when the system boots.

- **Disabled** Normal POST messages displayed
- **Enabled** **DEFAULT** OEM Logo displayed instead of POST messages

→ Launch PXE OpRom [Disabled]

Use the **Launch PXE OpRom** option to enable or disable boot option for legacy network devices.

- **Disabled** **DEFAULT** Ignore all PXE Option ROMs



➔ **Enabled**

Load PXE Option ROMs.

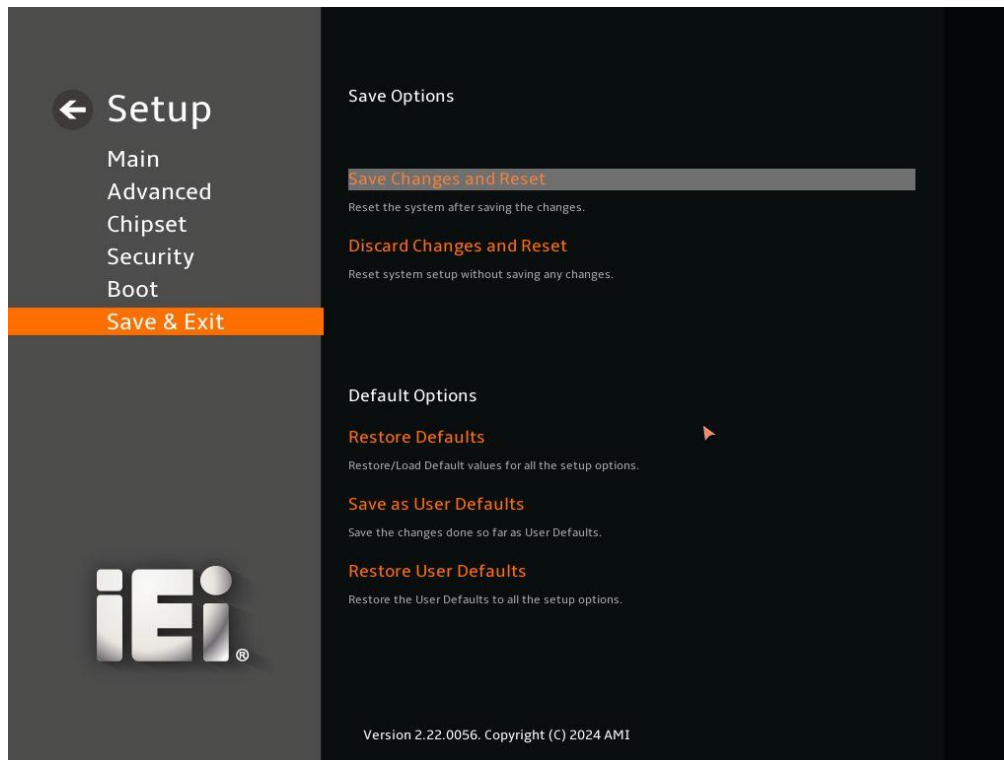
5.6.2 Boot Option Priorities

Use the Boot Option # N to choose the system boots from the peripherals you selected.



5.7 Save & Exit

Use the **Save & Exit** menu (**BIOS Menu 34**) to load default BIOS values, optimal failsafe values and to save configuration changes.



BIOS Menu 34: Save & Exit

→ Save Changes and Reset

Use the **Save Changes and Reset** option to save the changes made to the BIOS options and reset the system.

→ Discard Changes and Reset

Use the **Discard Changes and Reset** option to exit the system without saving the changes made to the BIOS configuration setup program.

→ Restore Defaults

Use the **Restore Defaults** option to load the optimal default values for each of the parameters on the Setup menus. **F3 key can be used for this operation.**

➔ **Save as User Defaults**

Use the **Save as User Defaults** option to save the changes done so far as user defaults.

➔ **Restore User Defaults**

Use the **Restore User Defaults** option to restore the user defaults to all the setup options.

Appendix

A

Regulatory Compliance

DECLARATION OF CONFORMITY



This equipment is in conformity with the following EU directives:

- EMC Directive (2004/108/EC, 2014/30/EU)
- Low-Voltage Directive (2006/95/EC, 2014/35/EU)
- RoHS Directive (2011/65/EU, 2015/863/EU)

If the user modifies and/or install other devices in the equipment, the CE conformity declaration may no longer apply.

If this equipment has telecommunications functionality, it also complies with the requirements of the Radio Equipment Directive 2014/53/EU.

English

IEI Integration Corp declares that this equipment is in compliance with the essential requirements and other relevant provisions of Directive 2014/53/EU.

Български [Bulgarian]

IEI Integration Corp. декларира, че този оборудване е в съответствие със съществените изисквания и другите приложими правила на Директива 2014/53/EU.

Česky [Czech]

IEI Integration Corp tímto prohlašuje, že tento zařízení je ve shodě se základními požadavky a dalšími příslušnými ustanoveními směrnice 2014/53/EU.

Dansk [Danish]

IEI Integration Corp erklærer herved, at følgende udstyr overholder de væsentlige krav og øvrige relevante krav i direktiv 2014/53/EU.

Deutsch [German]

IEI Integration Corp, erklärt dieses Gerät entspricht den grundlegenden Anforderungen und den weiteren entsprechenden Vorgaben der Richtlinie 2014/53/EU.

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Eesti [Estonian]

IEI Integration Corp deklareerib seadme seadme vastavust direktiivi 2014/53/EÜ põhinõuetele ja nimetatud direktiivist tulenevatele teistele asjakohastele sätetele.

Español [Spanish]

IEI Integration Corp declara que el equipo cumple con los requisitos esenciales y cualesquiera otras disposiciones aplicables o exigibles de la Directiva 2014/53/EU.

Ελληνική [Greek]

IEI Integration Corp ΔΗΛΩΝΕΙ ΟΤΙ ΕΞΟΠΛΙΣΜΟΣ ΣΥΜΜΟΡΦΩΝΕΤΑΙ ΠΡΟΣ ΤΙΣ ΟΥΣΙΩΔΕΙΣ ΑΠΑΙΤΗΣΕΙΣ ΚΑΙ ΤΙΣ ΛΟΙΠΕΣ ΣΧΕΤΙΚΕΣ ΔΙΑΤΑΞΕΙΣ ΤΗΣ ΟΔΗΓΙΑΣ 2014/53/EU.

Français [French]

IEI Integration Corp déclare que l'appareil est conforme aux exigences essentielles et aux autres dispositions pertinentes de la directive 2014/53/EU.

Italiano [Italian]

IEI Integration Corp dichiara che questo apparecchio è conforme ai requisiti essenziali ed alle altre disposizioni pertinenti stabilite dalla direttiva 2014/53/EU.

Latviski [Latvian]

IEI Integration Corp deklarē, ka iekārta atbilst būtiskajām prasībām un citiem ar to saistītajiem noteikumiem Direktīvas 2014/53/EU.

Lietuvių [Lithuanian]

IEI Integration Corp deklaruoja, kad šis įranga atitinka esminius reikalavimus ir kitas 2014/53/EU Direktyvos nuostatas.

Nederlands [Dutch]

IEI Integration Corp dat het toestel toestel in overeenstemming is met de essentiële eisen en de andere relevante bepalingen van richtlijn 2014/53/EU.

Malti [Maltese]

IEI Integration Corp jiddikjara li dan prodott jikkonforma mal-ħtiġijiet essenzjali u ma provvedimenti oħrajn rilevanti li hemm fid-Dirrettiva 2014/53/EU.

Magyar [Hungarian]

IEI Integration Corp nyilatkozik, hogy a berendezés megfelel a vonatkozó alapvető követelményeknek és az 2014/53/EU irányelv egyéb előírásainak.

Polski [Polish]

IEI Integration Corp oświadcza, że wyrobu jest zgodny z zasadniczymi wymogami oraz pozostałymi stosownymi postanowieniami Dyrektywy 2014/53/EU.

Português [Portuguese]

IEI Integration Corp declara que este equipamento está conforme com os requisitos essenciais e outras disposições da Directiva 2014/53/EU.

Româna [Romanian]

IEI Integration Corp declară că acest echipament este în conformitate cu cerințele esențiale și cu celelalte prevederi relevante ale Directivei 2014/53/EU.

Slovensko [Slovenian]

IEI Integration Corp izjavlja, da je ta opreme v skladu z bistvenimi zahtevami in ostalimi relevantnimi določili direktive 2014/53/EU.

Slovensky [Slovak]

IEI Integration Corp týmto vyhlasuje, že zariadenia spĺňa základné požiadavky a všetky príslušné ustanovenia Smernice 2014/53/EU.

Suomi [Finnish]

IEI Integration Corp vakuuttaa täten että laitteet on direktiivin 2014/53/EU oleellisten vaatimusten ja sitä koskevien direktiivin muiden ehtojen mukainen.

Svenska [Swedish]

IEI Integration Corp förklarar att denna utrustningstyp står i överensstämmelse med de väsentliga egenskapskrav och övriga relevanta bestämmelser som framgår av direktiv 2014/53/EU.

FCC WARNING

This equipment complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

- This device may not cause harmful interference, and
- This device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Federal Communication Commission Interference Statement

This equipment has been assembled with components that comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Appendix

B

Safety Precautions

B.1 Safety Precautions



WARNING:

The precautions outlined in this appendix should be strictly followed. Failure to follow these precautions may result in permanent damage to the SWBOX-ASL Series.

Please follow the safety precautions outlined in the sections that follow:

B.1.1 General Safety Precautions

Please ensure the following safety precautions are adhered to at all times.

- ***Make sure the power is turned off and the power cord is disconnected*** when moving, installing or modifying the system.
- ***Do not apply voltage levels that exceed the specified voltage range.*** Doing so may cause fire and/or an electrical shock.
- ***Electric shocks can occur*** if opened while still powered on.
- ***Due to the fully-sealed, hole-free design of the IP69K-rated waterproof chassis,*** do not attempt to drill holes or modify the enclosure, as this will permanently damage its waterproof integrity.
- ***If considerable amounts of dust, water, or fluids enter the system,*** turn off the power supply immediately, unplug the power cord, and contact the system vendor.
- **DO NOT:**
 - Drop the system against a hard surface.
 - In a site where the ambient temperature exceeds the rated temperature

B.1.2 Anti-static Precautions



WARNING:

Failure to take ESD precautions during the installation of the SWBOX-ASL Series may result in permanent damage to the SWBOX-ASL Series and severe injury to the user.

Electrostatic discharge (ESD) can cause serious damage to electronic components, including the SWBOX-ASL Series. Dry climates are especially susceptible to ESD. It is therefore critical that whenever the SWBOX-ASL Series is opened and any of the electrical components are handled, the following anti-static precautions are strictly adhered to.

- ***Wear an anti-static wristband:*** Wearing a simple anti-static wristband can help to prevent ESD from damaging any electrical component.
- ***Self-grounding:*** Before handling any electrical component, touch any grounded conducting material. During the time the electrical component is handled, frequently touch any conducting materials that are connected to the ground.
- ***Use an anti-static pad:*** When configuring or working with an electrical component, place it on an anti-static pad. This reduces the possibility of ESD damage.
- ***Only handle the edges of the electrical component:*** When handling the electrical component, hold the electrical component by its edges.

B.1.3 Product Disposal



CAUTION:

Risk of explosion if battery is replaced by an incorrect type. Only certified engineers should replace the on-board battery.

Dispose of used batteries according to instructions and local regulations.

SWBOX-ASL Series

- Outside the European Union – If you wish to dispose of used electrical and electronic products outside the European Union, please contact your local authority so as to comply with the correct disposal method.
- Within the European Union – The device that produces less waste and is easier to recycle is classified as electronic device in terms of the European Directive 2012/19/EU (WEEE), and must not be disposed of as domestic garbage.



 EU-wide legislation, as implemented in each Member State, requires that waste electrical and electronic products carrying the mark (left) must be disposed of separately from normal household waste. This includes monitors and electrical accessories, such as signal cables or power cords. When you need to dispose of your display products, please follow the guidance of your local authority, or ask the shop where you purchased the product. The mark on electrical and electronic products only applies to the current European Union Member States.

Please follow the national guidelines for electrical and electronic product disposal.

B.2 Maintenance and Cleaning Precautions

When maintaining or cleaning the SWBOX-ASL Series, please follow the guidelines below.

B.2.1 Maintenance and Cleaning

Prior to cleaning any part or component of the SWBOX-ASL Series, please read the details below.

- The interior of the SWBOX-ASL Series does not require cleaning. Keep fluids away from the SWBOX-ASL Series interior.
- Be cautious of all small removable components when vacuuming the SWBOX-ASL Series.
- Turn the SWBOX-ASL Series off before cleaning the SWBOX-ASL Series.
- Never drop any objects or liquids through the openings of the SWBOX-ASL Series.

- Be cautious of any possible allergic reactions to solvents or chemicals used when cleaning the SWBOX-ASL Series.
- Avoid eating, drinking and smoking within vicinity of the SWBOX-ASL Series.

B.2.2 Cleaning Tools

Some components in the SWBOX-ASL Series may only be cleaned using a product specifically designed for the purpose. In such case, the product will be explicitly mentioned in the cleaning tips. Below is a list of items to use when cleaning the SWBOX-ASL Series.

- ***Cloth*** – Although paper towels or tissues can be used, a soft, clean piece of cloth is recommended when cleaning the SWBOX-ASL Series.
- ***Water or rubbing alcohol*** – A cloth moistened with water or rubbing alcohol can be used to clean the SWBOX-ASL Series.
- ***Using solvents*** – The use of solvents is not recommended when cleaning the SWBOX-ASL Series as they may damage the plastic parts.
- ***Vacuum cleaner*** – Using a vacuum specifically designed for computers is one of the best methods of cleaning the SWBOX-ASL Series. Dust and dirt can restrict the airflow in the SWBOX-ASL Series and cause its circuitry to corrode.
- ***Cotton swabs*** - Cotton swaps moistened with rubbing alcohol or water are excellent tools for wiping hard to reach areas.
- ***Foam swabs*** - Whenever possible, it is best to use lint free swabs such as foam swabs for cleaning.

Appendix

C

Hazardous Materials Disclosure



C.1 RoHS Directive (2015/863/EU)

The details provided in this appendix are to ensure that the product is compliant with the RoHS Directive (2015/863/EU). The table below acknowledges the presences of small quantities of certain substances in the product, and is applicable to RoHS Directive (2015/863/EU).

Please refer to the following table.

Part Name	Toxic or Hazardous Substances and Elements									
	Lead (Pb)	Mercury (Hg)	Cadmium (Cd)	Hexavalent Chromium (CR(VI))	Polybrominated Biphenyls (PBB)	Polybrominated Diphenyl Ethers (PBDE)	Bis(2-ethylhexyl) phthalate (DEHP)	Butyl benzyl phthalate (BBP)	Dibutyl phthalate (DBP)	Diisobutyl phthalate (DIBP)
Housing	O	O	O	O	O	O	O	O	O	O
Printed Circuit Board	O	O	O	O	O	O	O	O	O	O
Metal Fasteners	O	O	O	O	O	O	O	O	O	O
Cable Assembly	O	O	O	O	O	O	O	O	O	O
Fan Assembly	O	O	O	O	O	O	O	O	O	O
Power Supply Assemblies	O	O	O	O	O	O	O	O	O	O
Battery	O	O	O	O	O	O	O	O	O	O
O: This toxic or hazardous substance is contained in all of the homogeneous materials for the part is below the limit requirement in Directive (EU) 2015/863. X: This toxic or hazardous substance is contained in at least one of the homogeneous materials for this part is above the limit requirement in Directive (EU) 2015/863.										



SWBOX-ASL Series

C.2 China RoHS

此附件旨在确保本产品符合中国 RoHS 标准。以下表格标示此产品中某有毒物质的含量符合中国 RoHS 标准规定的限量要求。

本产品上会附有“环境友好使用期限”的标签,此期限是估算这些物质“不会有泄漏或突变”的年限。本产品可能包含有较短的环境友好使用期限的可替换元件,像是电池或灯管,这些元件将会单独标示出来。

部件名称	有毒有害物质或元素					
	铅 (Pb)	汞 (Hg)	镉 (Cd)	六价铬 (CR(VI))	多溴联苯 (PBB)	多溴二苯醚 (PBDE)
壳体	O	O	O	O	O	O
印刷电路板	O	O	O	O	O	O
金属螺帽	O	O	O	O	O	O
电缆组装	O	O	O	O	O	O
风扇组装	O	O	O	O	O	O
电力供应组装	O	O	O	O	O	O
电池	O	O	O	O	O	O
O: 表示该有毒有害物质在该部件所有物质材料中的含量均在 SJ/T11364-2014 與 GB/T26572-2011 标准规定的限量要求以下。 X: 表示该有毒有害物质至少在该部件的某一均质材料中的含量超出 SJ/T11364-2014 與 GB/T26572-2011 标准规定的限量要求。						