

Lanner

Embedded Computing Platform

Hardware Platforms for Intelligent Edge Computing

EAI-I500 User Manual

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About this Document

This manual describes the overview of the various functionalities of this product, and the information you need to get it ready for operation. It is intended for those who are:

- responsible for installing, administering and troubleshooting this system or Information Technology professionals.
- assumed to be qualified in the servicing of computer equipment, such as professional system integrators, or service personnel and technicians.

The latest version of this document can be found on Lanner's official website, available either through the product page or through the [Lanner Download Center](#) page with a login account and password.

Icons Descriptions

The icons are used in the manual to serve as an indication of interest topics or important messages. Below is a description of these icons:



Note: This mark indicates that there is a note of interest and is something that you should pay special attention to while using the product.



Warning: This mark indicates that there is a caution or warning and it is something that could damage your property or product.

Online Resources

To obtain additional documentation resources and software updates for your system, please visit the [Lanner Download Center](#). As certain categories of documents are only available to users who are logged in, please register for a Lanner Account at <http://www.lannerinc.com/> to access published documents and downloadable resources.

Technical Support

In addition to contacting your distributor or sales representative, you could submit a request to our **Lanner Technical Support** at <http://www.lannerinc.com/technical-support> where you can fill in a support ticket to our technical support department.

Documentation Feedback

Your feedback is valuable to us, as it will help us continue to provide you with more accurate and relevant documentation. To provide any feedback, comments or to report an error, please email to contact@lannerinc.com. Thank you for your time.

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Federal Communication Commission Interference Statement

CE

This product has passed the CE test for environmental specifications. Test conditions for passing included the equipment being operated within an industrial enclosure. To protect the product from being damaged by ESD (Electrostatic Discharge) and EMI leakage, we strongly recommend the use of CE-compliant industrial enclosure products.

FCC Class A

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of 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 instruction, 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 or more 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.

FCC Caution

- ▶ Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.
- ▶ This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.



Note

1. An unshielded-type power cord is required in order to meet FCC emission limits and also to prevent interference to the nearby radio and television reception. It is essential that only the supplied power cord be used.
2. Use only shielded cables to connect I/O devices to this equipment.
3. Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.



Important

1. Operations in the 5.15-5.25GHz band are restricted to indoor usage only.
2. This device meets all the other requirements specified in Part 15E, Section 15.407 of the FCC Rules.

Safety Guidelines

Follow these guidelines to ensure general safety:

- ▶ Keep the chassis area clear and dust-free during and after installation.
- ▶ Do not wear loose clothing or jewelry that could get caught in the chassis. Fasten your tie or scarf and roll up your sleeves.
- ▶ Wear safety glasses if you are working under any conditions that might be hazardous to your eyes.
- ▶ Do not perform any action that creates a potential hazard to people or makes the equipment unsafe.
- ▶ Disconnect all power by turning off the power and unplugging the power cord before installing or removing a chassis or working near power supplies
- ▶ Do not work alone if potentially hazardous conditions exist.
- ▶ Never assume that power is disconnected from a circuit; always check the circuit.
- ▶ This product is intended to be supplied by an UL Listed Power Adapter rated 24 Vdc, min. 9.17A, min. 40 degree C, 5000 m.
- ▶ The PoE networks without routing to the outside of plant that installation instructions clearly states; therefore, these circuits are not considered external circuit.

Consignes de sécurité

Suivez ces consignes pour assurer la sécurité générale :

- ▶ Laissez la zone du châssis propre et sans poussière pendant et après l'installation.
- ▶ Ne portez pas de vêtements amples ou de bijoux qui pourraient être pris dans le châssis. Attachez votre cravate ou écharpe et remontez vos manches.
- ▶ Portez des lunettes de sécurité pour protéger vos yeux.
- ▶ N'effectuez aucune action qui pourrait créer un danger pour d'autres ou rendre l'équipement dangereux.
- ▶ Coupez complètement l'alimentation en éteignant l'alimentation et en débranchant le cordon d'alimentation avant d'installer ou de retirer un châssis ou de travailler à proximité de sources d'alimentation.
- ▶ Ne travaillez pas seul si des conditions dangereuses sont présentes.
- ▶ Ne considérez jamais que l'alimentation est coupée d'un circuit, vérifiez toujours le circuit. Cet appareil génère, utilise et émet une énergie radiofréquence et, s'il n'est pas installé et utilisé conformément aux instructions des fournisseurs de composants sans fil, il risque de provoquer des interférences dans les communications radio.

Lithium Battery Caution

- ▶ There is risk of explosion if Battery is replaced by an incorrect type.
- ▶ Dispose of used batteries according to the instructions.
- ▶ Installation only by a skilled person who knows all Installation and Device Specifications which are to be applied.
- ▶ Do not carry the handle of power supplies when moving to another place.
- ▶ Please conform to your local laws and regulations regarding safe disposal of lithium BATTERY.
- ▶ Disposal of a battery into fire or a hot oven, or mechanically crushing or cutting of a battery can result in an explosion.
- ▶ Leaving a battery in an extremely high temperature surrounding environment can result in an explosion or the leakage of flammable liquid or gas.
- ▶ A battery subjected to extremely low air pressure that may result in an explosion or the leakage of flammable liquid or gas.

Avertissement concernant la pile au lithium

- ▶ Risque d'explosion si la pile est remplacée par une autre d'un mauvais type.
- ▶ Jetez les piles usagées conformément aux instructions.
- ▶ L'installation doit être effectuée par un électricien formé ou une personne formée à l'électricité connaissant toutes les spécifications d'installation et d'appareil du produit.
- ▶ Ne transportez pas l'unité en la tenant par le câble d'alimentation lorsque vous déplacez l'appareil.

Operating Safety

- ▶ Electrical equipment generates heat. Ambient air temperature may not be adequate to cool equipment to acceptable operating temperatures without adequate circulation. Be sure that the room in which you choose to operate your system has adequate air circulation.
- ▶ Ensure that the chassis cover is secure. The chassis design allows cooling air to circulate effectively. An open chassis permits air leaks, which may interrupt and redirect the flow of cooling air from internal components.

- ▶ Electrostatic discharge (ESD) can damage equipment and impair electrical circuitry. ESD damage occurs when electronic components are improperly handled and can result in complete or intermittent failures. Be sure to follow ESD-prevention procedures when removing and replacing components to avoid these problems.
- ▶ Wear an ESD-preventive wrist strap, ensuring that it makes good skin contact. If no wrist strap is available, ground yourself by touching the metal part of the chassis.
- ▶ Periodically check the resistance value of the antistatic strap, which should be between 1 and 10 megohms (Mohms).

Sécurité de fonctionnement

- ▶ L'équipement électrique génère de la chaleur. La température ambiante peut ne pas être adéquate pour refroidir l'équipement à une température de fonctionnement acceptable sans circulation adaptée. Vérifiez que votre site propose une circulation d'air adéquate.
- ▶ Vérifiez que le couvercle du châssis est bien fixé. La conception du châssis permet à l'air de refroidissement de bien circuler. Un châssis ouvert laisse l'air s'échapper, ce qui peut interrompre et rediriger le flux d'air frais destiné aux composants internes.
- ▶ Les décharges électrostatiques (ESD) peuvent endommager l'équipement et gêner les circuits électriques. Des dégâts d'ESD surviennent lorsque des composants électroniques sont mal manipulés et peuvent causer des pannes totales ou intermittentes. Suivez les procédures de prévention d'ESD lors du retrait et du remplacement de composants.
- ▶ Portez un bracelet anti-ESD et veillez à ce qu'il soit bien au contact de la peau. Si aucun bracelet n'est disponible, reliez votre corps à la terre en touchant la partie métallique du châssis.
- ▶ Vérifiez régulièrement la valeur de résistance du bracelet antistatique, qui doit être comprise entre 1 et 10 mégohms (Mohms).

Mounting Installation Precaution

The following should be put into consideration for rack-mount or similar mounting installations:

- ▶ Do not install and/or operate this unit in any place that flammable objects are stored or used in.
- ▶ The installation of this product must be performed by trained specialists; otherwise, a non-specialist might create the risk of the system's falling to the ground or other damages.
- ▶ Lanner Electronics Inc. shall not be held liable for any losses resulting from insufficient strength for supporting the system or use of inappropriate installation components.
- ▶ Elevated Operating Ambient - If installed in a closed or multi-unit rack assembly, the operating ambient temperature of the rack environment may be greater than room ambient. Therefore, consideration should be given to installing the equipment in an environment compatible with the maximum ambient temperature (Tma) specified by the manufacturer.
- ▶ Reduced Air Flow - Installation of the equipment in a rack should be such that the amount of airflow required for safe operation of the equipment is not compromised.
- ▶ Mechanical Loading - Mounting of the equipment in the rack should be such that a hazardous condition is not achieved due to uneven mechanical loading.
- ▶ Circuit Overloading - Consideration should be given to the connection of the equipment to the supply circuit and the effect that overloading of the circuits might have on overcurrent protection and supply wiring. Appropriate consideration of equipment nameplate ratings should be used when addressing this concern.
- ▶ Reliable Grounding - Reliable grounding of rack mounted equipment should be maintained. Attention should be given to supply connections other than direct connections to the branch circuit (e.g. use of power strips).

Installation & Operation:

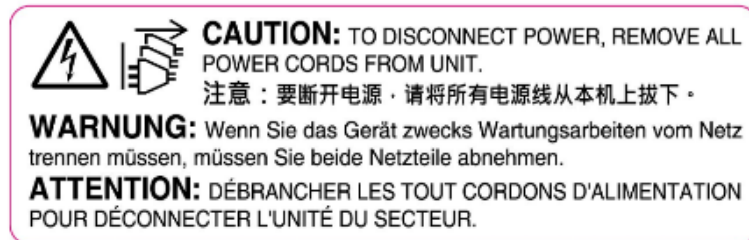
- ▶ This equipment must be grounded. The power cord for product should be connected to a socket-outlet with earthing connection.
Cet équipement doit être mis à la terre. La fiche d'alimentation doit être connectée à une prise de terre correctement câblée
- ▶ Suitable for installation in Information Technology Rooms in accordance with Article 645 of the National Electrical Code and NFPA 75.
Peut être installé dans des salles de matériel de traitement de l'information conformément à l'article 645 du National Electrical Code et à la NFPA 75.
- ▶ The machine can only be used in a restricted access location and must be installed by a skilled person.
Les matériels sont destinés à être installés dans des EMPLACEMENTS À ACCÈS RESTREINT.

Warning

- ▶ This equipment must be grounded. The power cord for product should be connected to a socket-outlet with Class I Equipment. This equipment must be earthed. The power plug must be connected to a properly wired earth ground socket outlet. An improperly wired socket outlet could place hazardous voltages on accessible metal parts.
- ▶ Product shall be used with Class 1 laser device modules.

Avertissement

- ▶ Équipement de classe I. Ce matériel doit être relié à la terre. La fiche d'alimentation doit être raccordée à une prise de terre correctement câblée. Une prise de courant mal câblée pourrait induire des tensions dangereuses sur des parties métalliques accessibles.
- ▶ Le produit doit être utilisé avec des modules de dispositifs laser de classe 1.



This equipment is for INDOOR USE ONLY

Electrical Safety Instructions

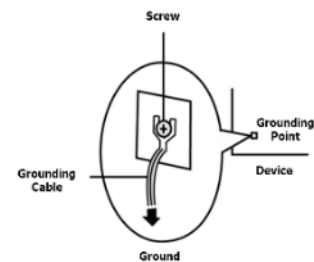
Before turning on the device, ground the grounding cable of the equipment. Proper grounding (grounding) is very important to protect the equipment against the harmful effects of external noise and to reduce the risk of electrocution in the event of a lightning strike. To uninstall the equipment, disconnect the ground wire after turning off the power. A ground wire is required and the part connecting the conductor must be greater than 4 mm² or 10 AWG.

Consignes de sécurité électrique

- ▶ Avant d'allumer l'appareil, reliez le câble de mise à la terre de l'équipement à la terre.
- ▶ Une bonne mise à la terre (connexion à la terre) est très importante pour protéger l'équipement contre les effets néfastes du bruit externe et réduire les risques d'électrocution en cas de foudre.
- ▶ Pour désinstaller l'équipement, débranchez le câble de mise à la terre après avoir éteint l'appareil.
- ▶ Un câble de mise à la terre est requis et la zone reliant les sections du conducteur doit faire plus de 4 mm² ou 10 AWG.

Grounding Procedure for Power Source

- ▶ Loosen the screw of the earthing point.
- ▶ Connect the grounding cable to the ground.
- ▶ The protection device for the power source must provide 30 A current.
- ▶ This protection device must be connected to the power source before power.
- ▶ The cable should be 16 AWG



Procédure de mise à la terre pour source d'alimentation

- ▶ Desserrez la vis du terminal de mise à la terre.
- ▶ Branchez le câble de mise à la terre à la terre.
- ▶ L'appareil de protection pour la source d'alimentation doit fournir 30 A de courant.
- ▶ Cet appareil de protection doit être branché à la source d'alimentation avant l'alimentation.
- ▶ Le câble doit être 16 AWG

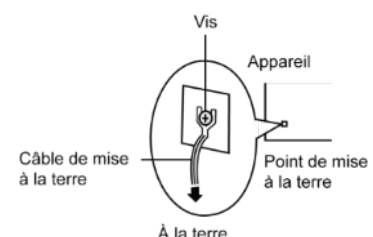


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CHAPTER 1: PRODUCT OVERVIEW

Lanner's EAI-I500 stands as a state-of-the-art inference box meticulously crafted for retail applications. It harnesses the formidable capabilities of the Intel® Meteor Lake H/U CPU. This forward-looking solution provides a robust and efficient platform meticulously designed to address the distinctive requirements of the retail sector. With its advanced hardware and seamlessly integrated artificial intelligence features, the EAI-I500 is well-positioned to elevate and streamline diverse retail processes, fostering heightened performance, responsiveness, and overall operational efficiency within the dynamic retail landscape.

Key Features

- ▶ Intel® Core™ Ultra Processor (Meteor Lake-H/U)
- ▶ 2x DDR5 5600 non-ECC SODIMM, up to 96GB/48GB
- ▶ 3x 2.5GbE RJ45 & 1x GbE RJ45, 2x COM Ports, 4x USB Ports
- ▶ 2x DP 1.2 Port, 4x DI & 4x DO
- ▶ 1x M.2 2230 E-Key for Wi-Fi 6/6E, 1x M.2 3042/3052 B-Key for LTE/5G, 2x SIM slot
- ▶ 1x TPM 2.0 onboard, Operating Temperature 0°C~40°C, UL/CB 62368-1 compliant

Package Content

Your package contains the following items:

- ▶ 1x EAI-I500 AI Inference System
- ▶ 1x 4-Pin Terminal Block
- ▶ 1x Adapter 120W 24V
- ▶ 1x 2-Pin Terminal Block for Power

Additional Accessories

Model	S/N	Description
IO Card Support	WAL-I500B	For supporting add-on MIPI IO Cards (IEE-IOI5001A/IEE-IOI5002A) with screws
GMSL IO Board	IEEE-IOI5001A	MIPI GMSL IO Board
FPD-Link IO Board	IEEE-IOI5002A	MIPI FPD-Link IO Board
Hailo H8	Hailo H8 AI Accelerator Module	
VESA Mount Kit	VESA Mount for EAI-I500	

Ordering Information

SKU No.	Description
EAI-I500A	Intel® Core™ Ultra 7 processor (Meteor Lake-H), 2x DDR5 5600, non-ECC SODIMM up to 96GB memory, 4x Ethernet ports, 2x COM ports, 2x 2.5" SATA Drive Bay, 1x M.2 NVMe, 4x USB ports, 2x DP1.2 port, 4x DI & DO, 1x M.2 2230 E-Key for Wi-Fi 6/6E, 1x M.2 3042/3052 B-Key for LTE/5G
EAI-I500B	Intel® Core™ Ultra 5 processor (Meteor Lake-H), 2x DDR5 5600, non-ECC SODIMM up to 96GB memory, 4x Ethernet ports, 2x COM ports, 2x 2.5" SATA Drive Bay, 1x M.2 NVMe, 4x USB ports, 2x DP 1.2 port, 4x DI & DO, 1x M.2 2230 E-Key for Wi-Fi 6/6E, 1x M.2 3042/3052 B-Key for LTE/5G
EAI-I500C	Intel® Core™ Ultra 7 processor (Meteor Lake-U), 2x DDR5 5600, non-ECC SODIMM up to 48GB memory, 4x Ethernet ports, 2x COM ports, 2x 2.5" SATA Drive Bay, 1x M.2 NVMe, 4x USB ports, 2x DP 1.2 port, 4x DI & DO, 1x M.2 2230 E-Key for Wi-Fi 6/6E, 1x M.2 3042/3052 B-Key for LTE/5G
EAI-I500D	Intel® Core™ Ultra 5 processor (Meteor Lake-U), 2x DDR5 5600, non-ECC SODIMM up to 48GB memory, 4x Ethernet ports, 2x COM ports, 2x 2.5" SATA Drive Bay, 1x M.2 NVMe, 4x USB ports, 2x DP 1.2 port, 4x DI & DO, 1x M.2 2230 E-Key for Wi-Fi 6/6E, 1x M.2 3042/3052 B-Key for LTE/5G

Specifications

Processor System	CPU	SKU A: Intel® Core™ Ultra 7 165H (Meteor Lake-H), 14C (6P + 8E) SKU B: Intel® Core™ Ultra 5 135H (Meteor Lake-H), 12C (4P + 8E) SKU C: Intel® Core™ Ultra 7 165U (Meteor Lake-U), 10C (2P+8E) SKU D: Intel® Core™ Ultra 5 135U (Meteor Lake-U), 10C (2P+8E)
	CPU TDP	SKU A/B: 28W SKU C/D: 15W
	Frequency	1.4GHz~1.7GHz (By SKU)
	BIOS	AMI SPI Flash BIOS
AI Accelerator	Chip	1x Hailo-H8 onboard
Memory	Technology	DDR5 5600 non-ECC SODIMM
	Max. Capacity	Up to 96GB
	Socket	2x 262-pin SODIMM
Graphic	Controller	SKU A/B: Intel® Arc™ Graphics; SKU C/D: Intel® UHD Graphics
	Display	2x DP 1.2 Port
Audio	Type	ALC888
	Interface	1x Mic-in, 1x Line-out
Ethernet	Controller	Intel® i226LM/i210AT
	Speed	10/100/1000/2500 Mbps; 10/100/1000 Mbps
	Interface	3x 2.5GbE RJ45; 1x GbE RJ45
Storage	Type	2x 2.5" SATA Drive Bay for SSD/HDD;
I/O	Serial Port	2x DB9 RS232/422/485
	Digital I/O	4x Isolated DI, 4x Isolated DO
	USB Port	1x USB 2.0; 1x USB 3.0; 2x USB 3.2 Type A
	Power-ON/Reset Button	1x Power-ON Button, 1x Reset Button;
	Remote Power Switch	1x 2-Pin Remote Power Switch
	LED Indicators	Power/Status LED Indicator, refer to Appendix A
	Display Port	2x DP 1.2 Port
	Ethernet Port	3x 2.5GbE RJ45; 1x GbE RJ45
	Audio Ports	1x Mic-In; 1x Line-Out
	Antenna	6x Antenna Holes for Wi-Fi/LTE/5G Modules
Expansion Interface	M.2	1x M.2 2280 M-Key PCIe Gen3*4 (NVMe); 1x M.2 2230 E-Key for Wi-Fi6/6E (or BT); 1x M.2 3042/3052 B-Key for LTE/5G;
	SIM	1x Nano-SIM, 1x eSIM
Miscellaneous	Watchdog Timer	Yes
	Internal RTC w/ Li Battery	Yes
	TPM	TPM 2.0 Onboard
	Mounting	Wall mount, VESA mount (Optional)
Power	Power Supply	+24VDC DC Source
	Connector	1x 2-Pin Terminal Block
Environment	Operating Temperature	0°C~40°C
	Storage Temperature	-40°C~70°C
	Relative Humidity	Operating: 5%~90%, Non-Condensing Non-Operating: 5%~95%, Non-Condensing
System Dimensions	Dimension (WxHxD)	287mm x 76mm x 180mm
	Weight	2.4kg
Package Dimensions	Dimensions (WxHxD)	370mm x 351mm x 391mm
	Weight	4.6kg

Software Support	Linux OS	Linux Ubuntu
	Windows OS	Windows 10, Windows 11
	Security Boot	BIOS Boot Loader Protected, OS Protected; Support PXE/USB Boot and/or HTTP(s) boot w/ UEFI BIOS
Certification	EMC	CE/UKCA, Class A; RoHS; UL/CB 62368-1

Front Panel



No.	Description	
F1	Power Button	1x ON/OFF Power Button
F2	Reset Button	1x Reset Button
F3	LED Indicators	Storage/Power Status LED Indicators
F4	Power Switch	1x 2-Pin Terminal Block Remote Power Switch
F5	USB Port	2x USB 3.2, 1x USB 3.0, 1x 2.0 Type A Port
F6	Display Port	2x DP 1.2 Ports
F7	Audio Port	1x Mic-In; 1x Line-Out
F8	SIM Card Cover	1x Nano SIM card slot
F9	Antenna	4x Antennas Holes for Wi-Fi/4G LTE/5G

Rear Panel

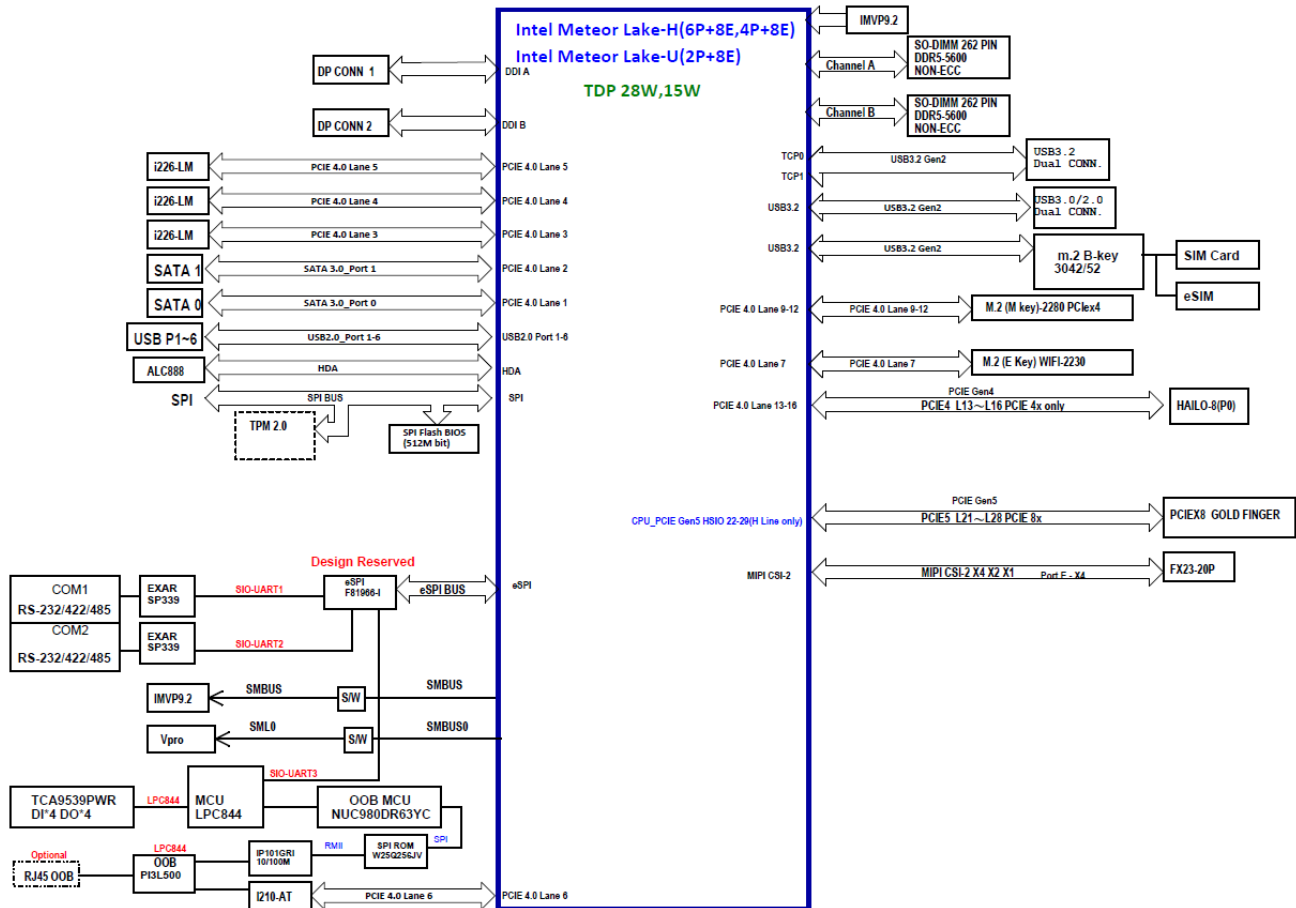


No.	Description	
R1	Power Input	1x 2-Pin Terminal Block for +24Vdc Power Input
R2	Ground Hole	1x Semi-shearing hole for grounding
R3	LAN Port	3x 2.5GbE RJ45 Ports; 1x GbE RJ45
R4	COM Port	2x DB9, RS-232/422/485 COM Ports; [Only COM1 Supports Console]
R5	DIO Port	1x 2x10-Pin Terminal Block for +24V: 4x DI and 4x DO
R6	Antenna Hole	2x Antennas Holes for LTE/ 5G Modules

Motherboard Information

Block Diagram

The block diagram indicates how data flows among components on the motherboard.



Internal Jumpers and Connector

The pin headers on the motherboard are often associated with important functions. With the shunt (Jumper) pushed down on the designated pins (the pin numbers are printed on the circuit board, surrounding the pin header), certain feature can be enabled or disabled. When changing the jumpers, make sure your system is completely turned off.

PW1 (+24V)

Pin	Signal
1	DC_GND(-)
2	DC_IN(+)

JCOMS1: RTC Reset

1-2: Save CMOS (Default)

2-3: Clear CMOS

Pin	Signal
1	NC
2	RTC_RST#
3	GND

JCOMS2: RTC Reset

1-2: Save ME RTC

2-3: Clear ME RTC

Pin	Signal
1	NC
2	SRTC_RST#
3	GND

J7

1-2: Default

2-3: For Program MCU

Pin	Signal
1	+P3V3_MCU
2	PIO0_12
3	GND

CON1

Pin	Signal
1	+P3V3_MCU
2	MCU_UART_RX_ISP
3	GND
4	MCU_UART_TX_ISP

SW3

	Normal	Program
1-8, 2-7	ON	OFF
3-6, 4-5	OFF	ON

Pin	Signal
1 ON (Default)	SOUT3
2 ON (Default)	SIN3
3 OFF	MCU_UART_RX_ISP
4 OFF	MCU_UART_TX_ISP

J2 (OOB_POWER)

1-2: Default

Pin	Signal
1	+P3V3_STBY
2	--
3	+P3V3_USB_OOB
4	--

USB1 (OOB_FW)

Pin	Signal
1	+P5V_VBUS
2	USB0_DM
3	USB0_DP
4	NC
5	GND

JSPI1

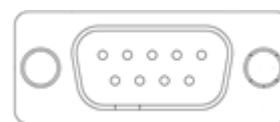
Pin	Signal
1	SOC_SPI_IO3_ROM
2	NC
3	SOC_SPI_CS0#_ROM
4	VFLASH_SPI
5	SOC_SPI_MISO_ROM
6	SOC_SPI_IO3_ROM
7	NC
8	SOC_SPI_CLK_ROM
9	GND
10	SOC_SPI_MOSI_ROM

ESPI1

Pin	Signal
1	ESPI_CLK
2	ESPI_IO1
3	ESPI_RST#
4	ESPI_IO0
5	ESPI_CS0#
6	+P3V3
7	ESPI_IO3
8	NA
9	ESPI_IO2
10	GND
11	+P3V3_STBY
12	NC

COM1-2

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

**MIC1**

Pin	Signal
1	GND_AUD
2	MIC_OUT_L
3	MIC1_JD
4	GND_AUD
5	MIC_OUT_R

LINE1

Pin	Signal
1	GND_AUD
2	FRONT_OUT_L
3	FRONT_JD
4	GND_AUD
5	FRONT_OUT_R

M2_E_KEY1 (M.2 Slots E-Key)

Pin	Signal	Pin	Signal	Pin	Signal
1	GND	26	NC	51	GND
2	+P3V3	27	NC	52	PERST#EKEY
3	USB2_P10	28	NC	53	+P3V3
4	+P3V3	29	NC	54	PMC_I2C_SCL
5	USB2_N10	30	NC	55	PCH_WAKE#
6	LED_WLAN1-	31	NC	56	GSPI0_CS0#
7	GND	32	CNV_RGI_DT	57	GND
8	I2S2_SCLK	33	GND	58	NC
9	CNV_WR_D1_DN	34	CNV_UART0_CTS#	59	CNVI_WT_D1N
10	CNV_RF_RESET#	35	PCH_PCIE_TXP9	60	NC
11	CNV_WR_D1_DP	36	PCH_GPP_F0	61	CNVI_WT_D1P
12	I2S2_RXD	37	PCH_PCIE_TXN9	62	NC
13	GND	38	CL_RST#	63	GND
14	CLKREQ_CNV	39	GND	64	NC
15	CNV_WR_D0_DN	40	CL_DATA	65	CNVI_WT_D0N
16	LED_WLAN2-	41	PCH_PCIE_RXP9	66	NC
17	CNV_WR_D0_DP	42	CL_CLK	67	CNVI_WT_D0P
18	GND	43	PCH_PCIE_RXN9	68	NC
19	GND	44	GPP_F6	69	GND
20	NC	45	GND	70	NC
21	CNV_WR_CLKN	46	CNV_MFUART2_TXD	71	CNVI_WT_CLKN
22	CNV_UART0_RXD	47	CLKOUT_PCIE_P2	72	+P3V3
23	CNV_WR_CLKP	48	CNV_MFUART2_RXD	73	CNVI_WT_CLKP
24	NC	49	CLKOUT_PCIE_N2	74	+P3V3
25	NC	50	SUSCLK	75	GND

M2_B_KEY1: M.2 Slots B-Key

Pin	Signal	Pin	Signal	Pin	Signal
1	M2_1_Config_3	26	V3P3_G1/NC	51	GND
2	V3P3_G1	27	GND	52	E3_CLKREQ-
3	GND	28	UIM1_VPP_1	53	CLK_PCIE_N_MPCIE2_SW
4	V3P3_G1	29	USB3_M2_R1-	54	E3_WAKE-
5	GND	30	UIM1_RST	55	CLK_PCIE_P_MPCIE2_SW
6	PWROFF1#	31	USB3_M2_R1+	56	NC
7	USB2_2+	32	UIM1_CLK	57	GND
8	W_DIS1#	33	GND	58	NC
9	USB2_2-	34	UIM1_DAT	59	ANTCTL0
10	NGFF_LED_1N	35	USB3_M2_T1-	60	NC
11	GND	36	UIM1_PWR	61	ANTCTL1
12	NC	37	USB3_M2_T1+	62	NC
13	NC	38	V3P3_G1/NC	63	ANTCTL2
14	NC	39	GND	64	NC
15	NC	40	M2_1_UIM2_Detect	65	ANTCTL3
16	NC	41	PCH_PCIE_RXN5	66	M2_1_UIM1_DET
17	NC	42	NC	67	PERST#M
18	NC	43	PCH_PCIE_RXP5	68	V3P3_G1
19	NC	44	NC	69	M2_1_Config_1
20	PCIE_DIS	45	GND	70	V3P3_G1
21	M2_1_Config_0	46	NC	71	GND
22	+P5V/ +P1V8_STBY	47	PCH_PCIE_TXN5	72	V3P3_G1
23	WWAN_WAKE_N	48	NC	73	GND
24	V3P3_G1/NC	49	PCH_PCIE_TXP5	74	V3P3_G1
25	M2_1_DPR	50	PERST#1	75	M2_1_Config_2

JNGFF1: NVMe Slots M-Key

Pin	Signal	Pin	Signal	Pin	Signal
1	GND	26	NC	51	GND
2	+P3V3	27	GND	52	M2_2_CLKREQ_N
3	GND	28	NC	53	CLKOUT_PCIE_N0
4	+P3V3	29	PCIE4_RX_N1	54	PCH_WAKE#
5	PCIE4_RX_N3	30	NC	55	CLKOUT_PCIE_P0
6	NC	31	PCIE4_RX_P1	56	NC
7	PCIE4_RX_P3	32	NC	57	GND
8	NC	33	GND	58	NC

9	GND	34	NC	59	NC
10	GEN4_LED	35	PCIE4_TX_N1	60	NC
11	PCIE4_TX_N3	36	NC	61	NC
12	+P3V3	37	PCIE4_TX_N1	62	NC
13	PCIE4_TX_P3	38	NC	63	NC
14	+P3V3	39	GND	64	NC
15	GND	40	NC	65	NC
16	+P3V3	41	PCIE4_RX_N0	66	NC
17	PCIE4_RX_N2	42	NC	67	NC
18	+P3V3	43	PCIE4_RX_P0	68	SUSCLK
19	PCIE4_RX_P2	44	NC	69	+P3V3
20	NC	45	GND	70	+P3V3
21	GND	46	NC	71	GND
22	NC	47	PCIE4_TX_N0	72	+P3V3
23	PCIE4_TX_N2	48	NC	73	GND
24	NC	49	PCIE4_TX_P0	74	+P3V3
25	PCIE4_TX_P2	50	PLTRST_GEN4	75	GND

CN1 (DIO)

Pin	Signal	Pin	Signal
1	GND	7	DO_2
2	GND	8	DI_2
3	DO_4	9	DO_1
4	DI_4	10	DI_1
5	DO_3	11	GND
6	DI_3	12	+PDIO_COM

SATA 1-2

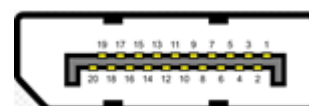
Pin	Signal
1	GND
2	SATA_TX_P1-4
3	SATA_TX_N1-4
4	GND
5	SATA_RX_N1-4
6	SATA_RX_P1-4
7	GND

JPW 2-3

Pin	Signal
1	+P12V
2	GND
3	GND
4	+P5V

DP 1-2

Pin	Signal	Pin	Signal
1	LANE0+	2	GND
3	LANE0-	4	LANE1+
5	GND	6	LANE1-
7	LANE2+	8	GND
9	LANE2-	10	LANE3+
11	GND	12	LANE3-
13	GND	14	GND
15	AUX CH+	16	GND
17	AUX CH-	18	HOT PLUG
19	RETURN	20	DP PWR

**USB2: USB 2.0 + 3.0**

Pin					
Description		--			--
Pin	10	11	12	13	
Description	+P5V_S_USB2_2	USB2_N1	USB2_P1	GND	
Pin	9	8	7	6	5
Description	USB3_TXP1	USB3_TXN1	GND	USB3_RXP1	USB3_RXN1
Pin	1	2	3	4	
Description	+P5V_S_USB3_1	USB2_N2	USB2_P2	GND	

USB3: USB 3.2 GEN2 X1

Pin	18	17	16	15	14
Description	TCP1_TX0_P	TCP1_TX0_N	GND	TCP1_TXRX0_P	TCP1_TXRX0_N
Pin	10	11	12	13	
Description	+P5V_USB2_PW	USB2_N4	USB2_P4	GND	
Pin	9	8	7	6	5
Description	TCP0_TX0_P	TCP0_TX0_N	GND	TCP0_TXRX0_P	TCP0_TXRX0_N-
Pin	1	2	3	4	
Description	+P5V_USB1_PW	USB2_N3	USB2_P3	GND	

LAN1: 2X4 Dual RJ45 with LED

Pin	Description
	2.5G/1G/100M
A1/B1	LAN1_MDX0N/ LAN2_MDX0N
A2/B2	LAN1_MDX0P/ LAN2_MDX0P
A3/B3	LAN1_MDX1N/ LAN2_MDX1N
A4/B4	LAN1_MDX1P/ LAN2_MDX1P
A5/B5	LAN1_MDX2N/ LAN2_MDX2N
A6/B6	LAN1_MDX2P/ LAN2_MDX2P
A7/B7	LAN1_MDX3N/ LAN2_MDX3N
A8/B8	LAN1_MDX3P/ LAN2_MDX3P
A9/B9	LAN1_T/ LAN2_T
A10/B10	GND/ GND
AL1/BL1	LAN1_LINK_ACT_N / LAN2_LINK_ACT_N
AL2/BL2	+P3V3 / +P3V3
AL3/BL3	LAN1_LINK_2500_N / LAN2_LINK_2500_N
AL4/BL4	LAN1_LINK_1000_N / LAN2_LINK_1000_N

LAN2: 2X4 Dual RJ45 with LED

Pin	Description
	2.5G/1G/100M
A1/B1	LAN3_MDX0N/ LAN4_MDX0N
A2/B2	LAN3_MDX0P/ LAN4_MDX0P
A3/B3	LAN3_MDX1N/ LAN4_MDX1N
A4/B4	LAN3_MDX1P/ LAN4_MDX1P
A5/B5	LAN3_MDX2N/ LAN4_MDX2N
A6/B6	LAN3_MDX2P/ LAN4_MDX2P
A7/B7	LAN3_MDX3N/ LAN4_MDX3N
A8/B8	LAN3_MDX3P/ LAN4_MDX3P
A9/B9	LAN3_T/ LAN4_T
A10/B10	GND/ GND
AL1/BL1	LAN3_LINK_ACT_N / LAN4_LINK_ACT_N
AL2/BL2	+P3V3 / +P3V3
AL3/BL3	LAN3_LINK_2500_N / LAN4_LINK_2500_N
AL4/BL4	LAN3_LINK_1000_N / LAN4_LINK_1000_N

PCIE1: X8 PCIE Slot

Pin	Description	Pin	Description
B1	12V	A1	PRSNT1#
B2	12V	A2	12V
B3	12V	A3	12V
B4	GND	A4	GND
B5	SMCLK	A5	JTAG2
B6	SMDAT	A6	JTAG3
B7	GND	A7	JTAG4
B8	3.3V	A8	JTAG5
B9	JTAG1	A9	3.3V
B10	3.3VAUX	A10	3.3V
B11	WAKE#	A11	PERST#
KEY B			
B12	RSVD	A12	GND
B13	GND	A13	REFCLKA+
B14	HSOP0	A14	REFCLKA-
B15	HSO0N0	A15	GND
B16	GND	A16	HSIP0
B17	PRSNT2#	A17	HSIN0
B18	GND	A18	GND
B19	HSOP1	A19	RSVD
B20	HSO0N1	A20	GND
B21	GND	A21	HSIP1
B22	GND	A22	HSIN1
B23	HSOP2	A23	GND
B24	HSO0N2	A24	GND
B25	GND	A25	HSIP2
B26	GND	A26	HSIN2
B27	HSOP3	A27	GND
B28	HSO0N3	A28	GND
B29	GND	A29	HSIP3
B30	RSVD	A30	HSIN3
B31	PRSNT2#	A31	GND
B32	GND	A32	RSVD(REFCLKB+)
B33	HSOP4	A33	RSVD(REFCLKB-)
B34	HSO0N4	A34	GND

B35	GND	A35	HSIP4
B36	GND	A36	HSIN4
B37	HSOP5	A37	GND
B38	HSOP5	A38	GND
B39	GND	A39	HSIP5
B40	GND	A40	HSIN5
B41	HSOP6	A41	GND
B42	HSOP6	A42	GND
B43	GND	A43	HSIP6
B44	GND	A44	HSIN6
B45	HSOP7	A45	GND
B46	HSOP7	A46	GND
B47	GND	A47	HSIP7
B48	PRSNT2#	A48	HSIN7
B49	GND	A49	GND

J3: MIPI-GSML/FPDIII

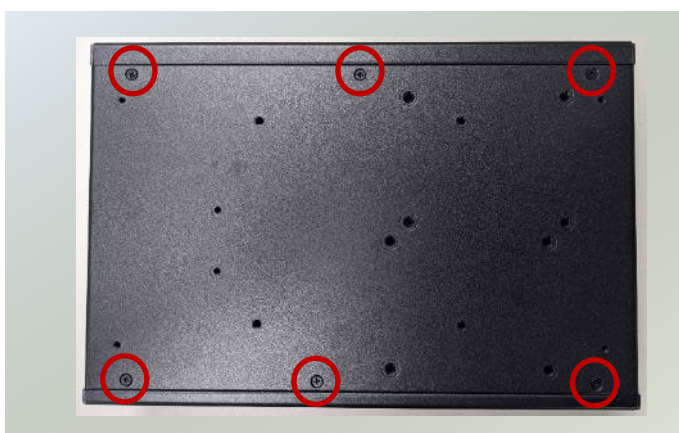
Pin	Signal	Pin	Signal
1	+P3V3	2	GND
3	I2C0_SCL	4	I2C0_SDA
5	GND	6	CSI_F_DP_1-
7	CSI_F_DN_1	8	GND
9	CSI_F_DP_0	10	CSI_F_DN_0
11	GND	12	CSI_E_DP_0
13	CSI_E_DN_0	14	GND
15	CSI_E_DP_1	16	CSI_E_DN_1
17	GND	18	CSI_E_CLK_P
19	CSI_E_CLK_N	20	GND

CHAPTER 2: HARDWARE SETUP

To reduce the risk of personal injury, electric shock, or damage to the unit, please remove all power connections to completely shut down the device and wear ESD protection gloves when handling the installation steps.

Open the Chassis

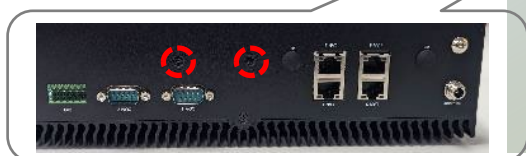
1. Power off the system and disconnect the power cord. Turn the system over. Unscrew the six (6) screws securing the bottom chassis cover.
2. Then loosen the four (4) screws securing the bottom chassis cover on the left and right sides.
3. Lift and open the bottom chassis cover.



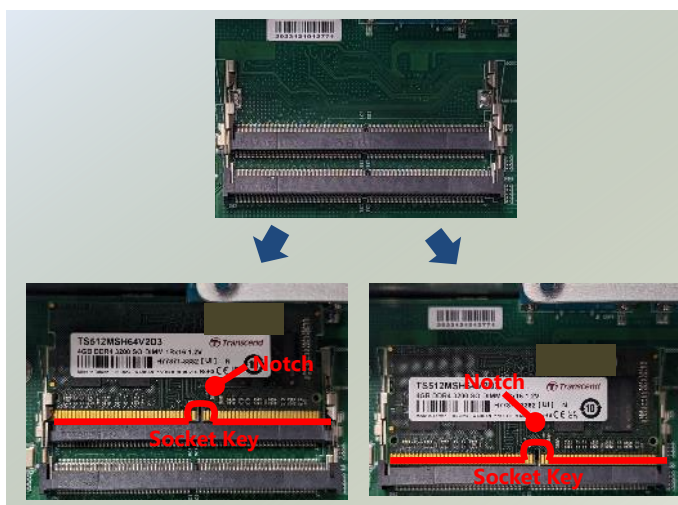
Installing System Memory (Optional)

The motherboard supports two system memory slots, please follow the steps for installation.

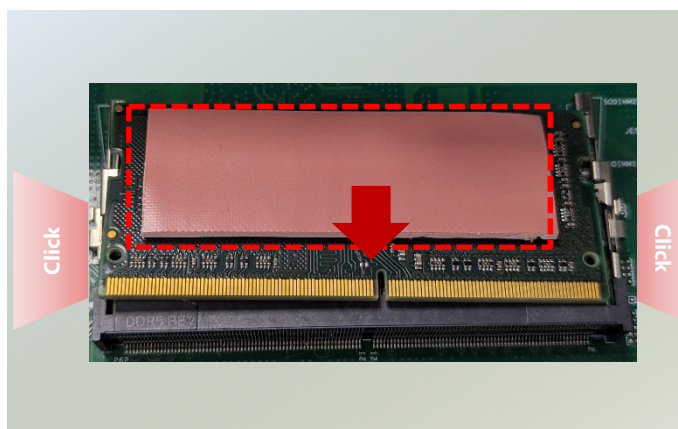
1. Power off the system, turn the system around, and open the bottom chassis cover.
2. Locate the DIMM socket area on the motherboard. Unscrew and remove the two screws holding *Metal Cover A* in place.



3. Align the notches of the DIMM module with the socket key in the pin slot.



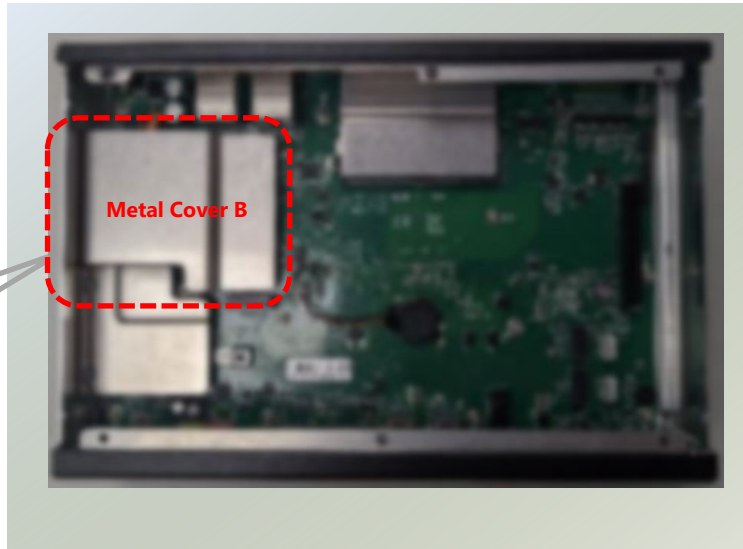
4. Insert the module into the slot at a diagonal angle and gently press down until it is firmly seated by the clips on both sides.
5. Next, place the thermal pad: Peel off the protective film on the thermal pad (included in accessory package). Gently position it on the upper surface of the module card.



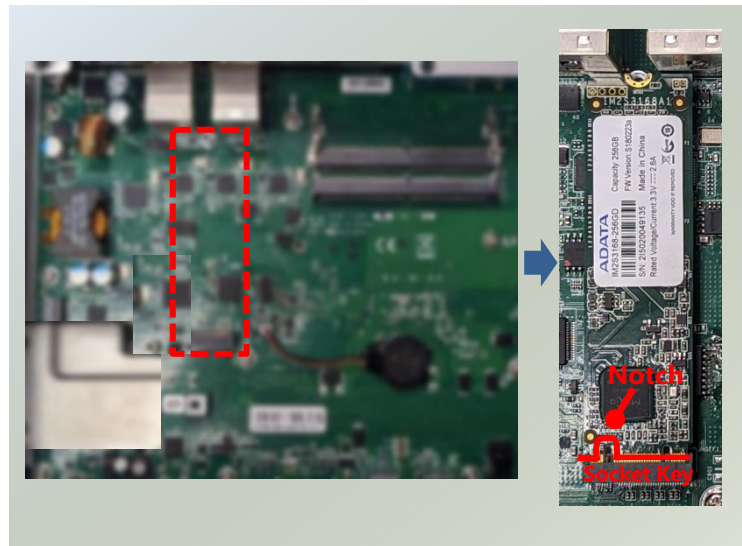
Installing NVMe Storage Card (Optional)

The system supports one M.2 M-Key for NVMe storage module expansion. Please follow the steps for installation.

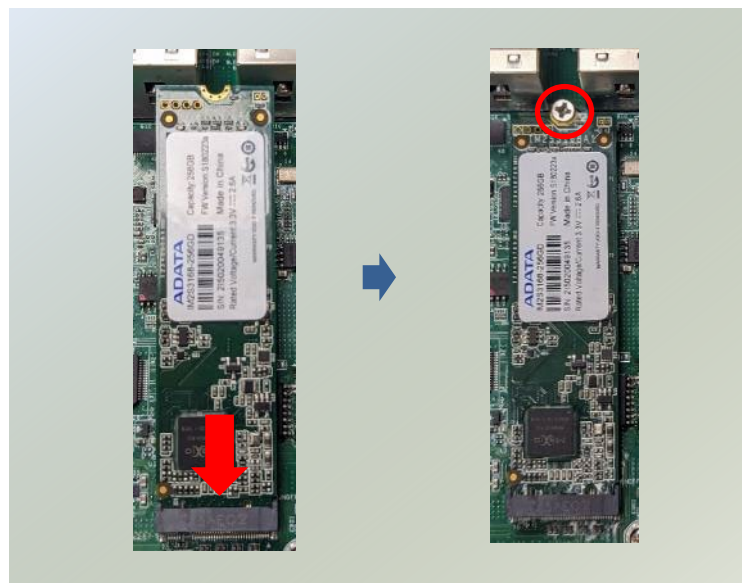
1. Power off the system, turn the system around, and open the bottom chassis cover.
2. Locate *Metal Cover B* on the motherboard. Unscrew the two (2) screws on the side panel securing it and remove the cover.



3. Locate the M.2 slot on the motherboard.
4. Align the notch of the NVMe module with the socket key in the pin slot.



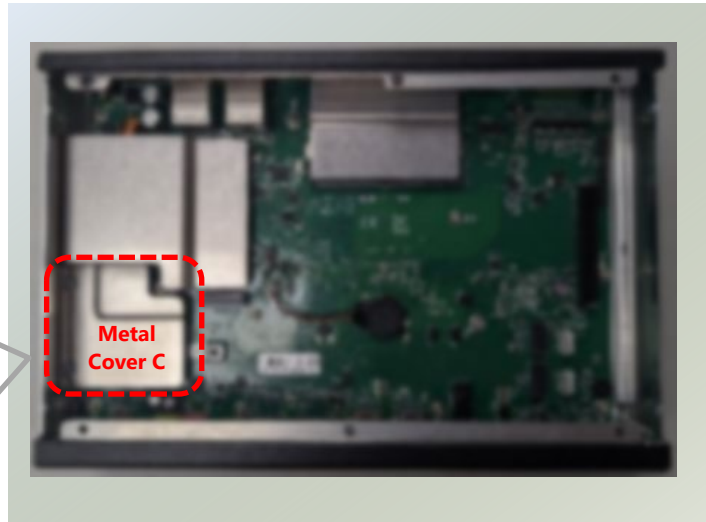
5. Insert the NVMe module pins at 30 degrees into the socket until it is fully seated.
5. Push down on the module card and secure it with a screw.



Installing Wi-Fi Module (Optional)

The system supports one M.2 E-key slot for a Wi-Fi module card, which requires two antennas. Please follow these steps to install the Wi-Fi module.

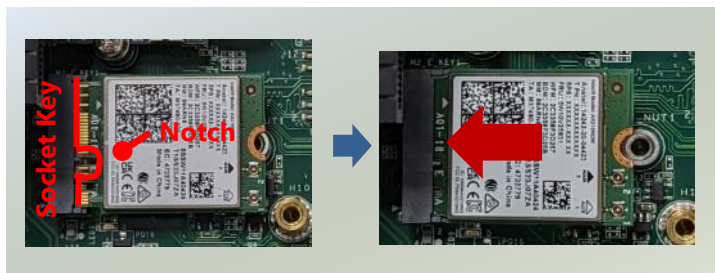
1. Power off the system, turn the system around, and open the bottom chassis cover.
2. Locate *Metal Cover C* on the motherboard. Unscrew the two (2) screws on the side panel securing it and remove the cover.



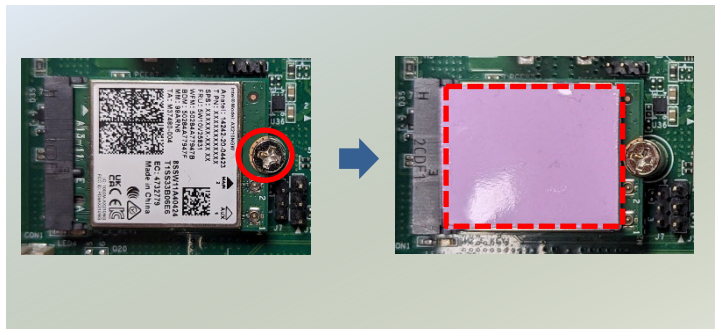
2. Locate the M.2 E-Key slot on the motherboard.



3. Align the notch of the Wi-Fi module with the socket key in the pin slot.
4. Insert the Wi-Fi module pins at 30 degrees into the socket until it is fully seated.



5. Push down on the module card and secure it with a screw.
6. Next, thermal pad placement. Remove the protective film on the Thermal Pad (included in accessory pack) and gently place on top of the Wi-Fi module.
7. Make sure to place the metal bracket back on top and secure with two (2) screws on the side panel, after installing the RF antenna cables.

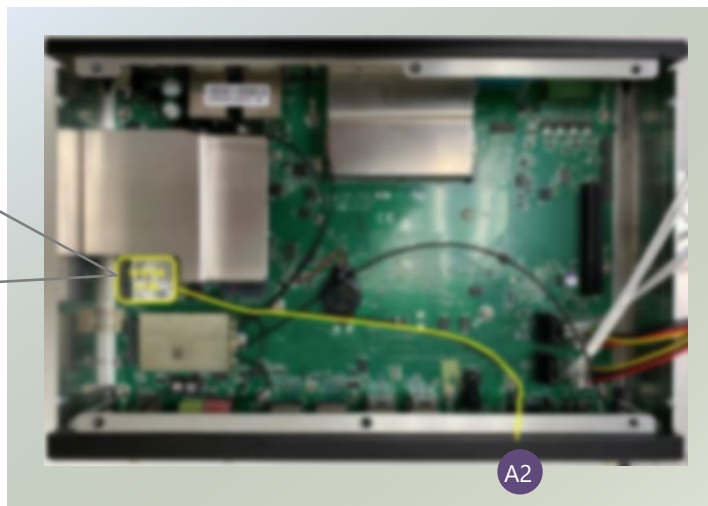


Installing Wi-Fi Antennas

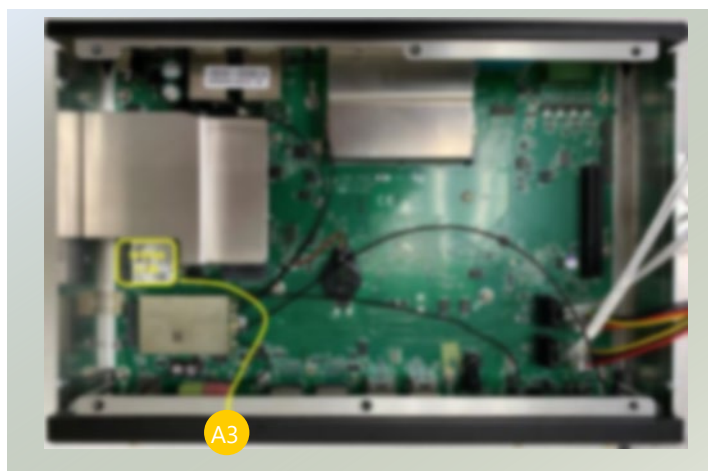
Front Panel



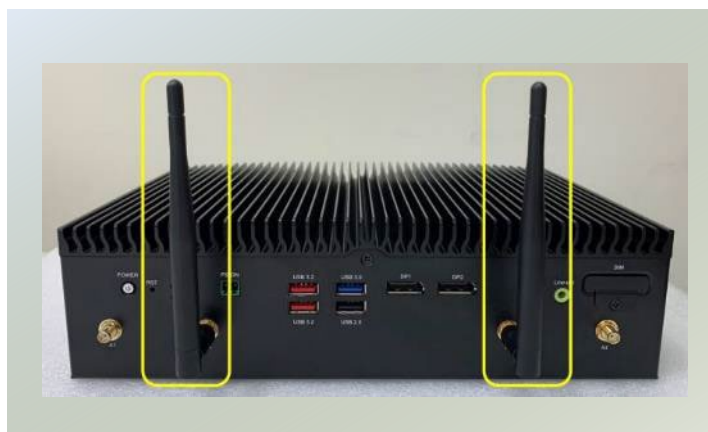
1. Locate the two (2) antenna hole placement (A2, A3). Locate the two (2) IPEX connectors on the Wi-Fi module.



2. Connect RF cables to the IPEX connectors on the Wi-Fi module and screw the other end of the cables in the antenna holes.



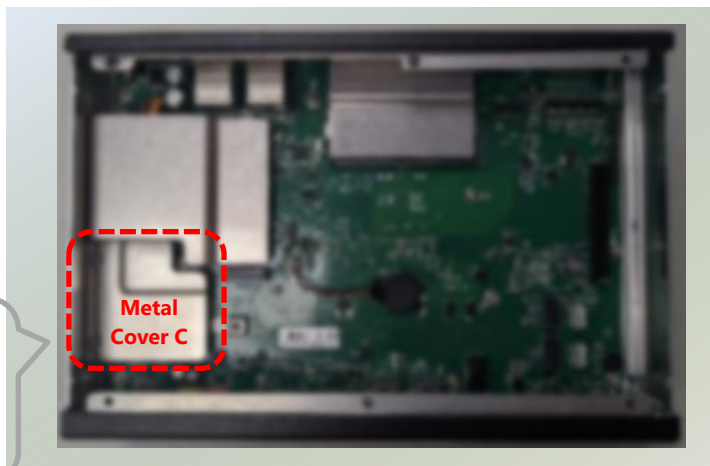
3. Then, screw the two (2) antennas on the front panel of the system.



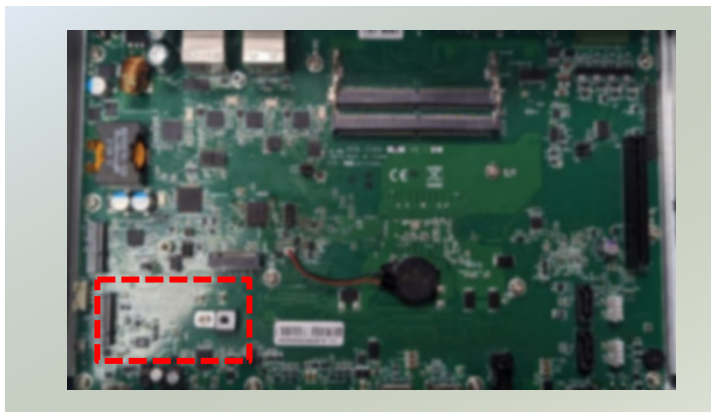
Installing LTE/5G Module (Optional)

The motherboard provides one M.2 B-Key slot for an LTE or 5G module card. The LTE module requires two antennas, while the 5G module requires four antennas. Please follow these steps to install the LTE/5G module.

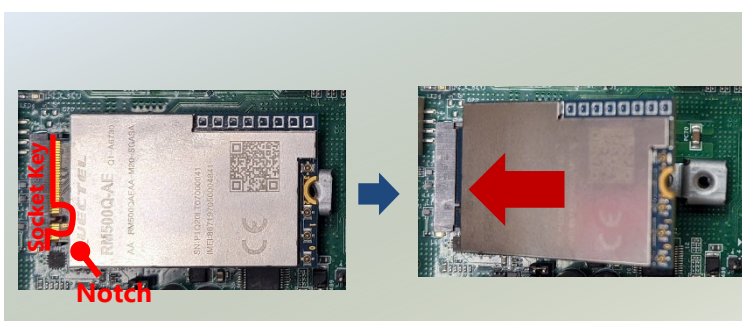
1. Power off the system, turn the system around, and open the bottom chassis cover.
2. Locate Metal Cover C on the motherboard.
Unscrew the two (2) screws on the side panel securing it and remove the cover.



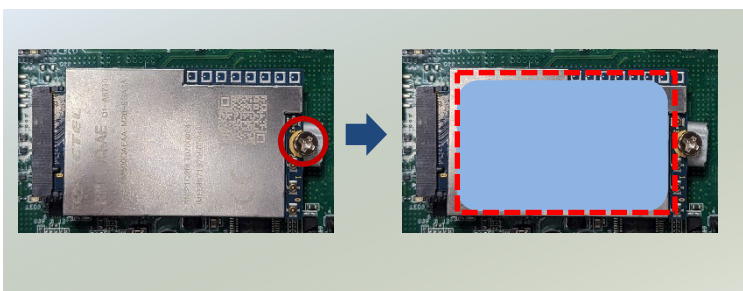
2. Locate the M.2 B-Key slot on the motherboard.



4. Align the notch of the LTE/5G module with the socket key in the pin slot.
5. Insert the LTE/5G module card pins at 30 degrees into the socket until it is fully seated.



6. Push down on the module card and secure it with a screw.
7. Then, place a thermal pad on top of the module card.
8. Make sure to place the metal bracket back and secure with two (2) screws on the side panel, after installing the RF antenna cables.

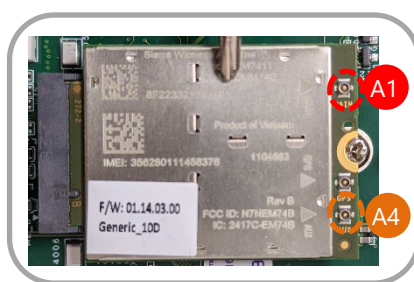


Installing LTE Antennas

Front Panel



1. Locate the two (2) antenna hole placement (A1, A4). Locate the two (2) IPEX connectors on the LTE module card.



2. Connect the RF cables to the IPEX connectors on the LTE module and screw the other end of the cables in the antenna holes.



3. Then, screw on the two (2) antennas on the front panel of the system.



Installing 5G Antennas

Front Panel



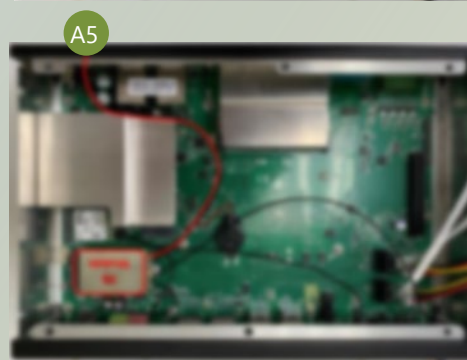
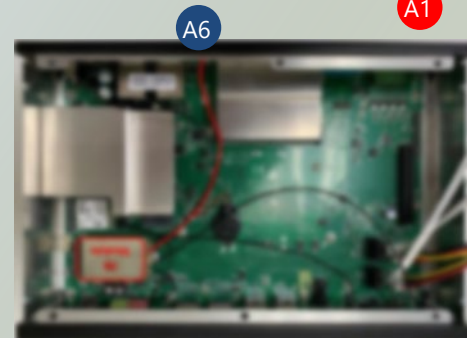
Rear Panel



1. Locate the four (4) antenna hole placement (A1, A4, A5, A6). Locate the four (4) IPEX connectors on the 5G module card.



2. Connect the RF cables to the IPEX connectors on the 5G module and screw the other end of the cables in the antenna holes.



3. Then, screw on the four (4) antennas on the front and rear panel of the system.



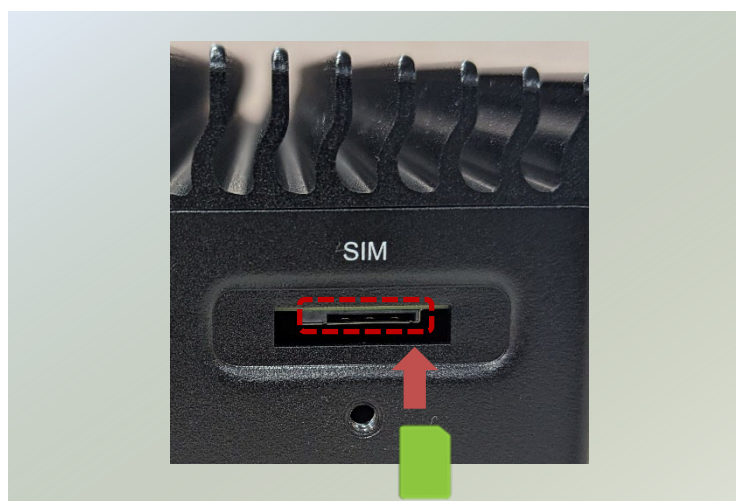
Installing SIM Cards (Optional)

The SIM slot on the side panel supports one Nano SIM card. The SIM socket supports the push-push mechanism, allowing inserting and ejecting the SIM card to be as easy as one push.

1. Locate the SIM card cover on the front panel.
2. Loosen the screw and remove the slot cover.



3. Insert and push a Nano-SIM card, gold contacts facing upwards, all the way until the card clicks into place.



4. To remove the Nano-SIM card, use your fingertips to push it once, to have the card automatically ejected.
5. Place the cover door back and secure with the original screw.

Installing Disk Drive (Optional)

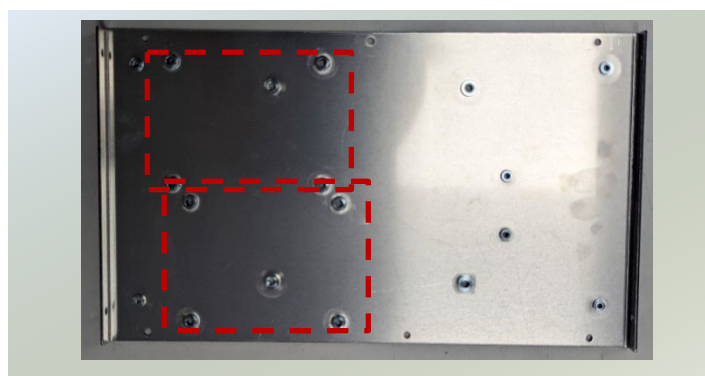
The system supports two 2.5" HDD/SSD drive for additional data storage. Please follow the steps for installation.

An HDD/SSD Kit includes:

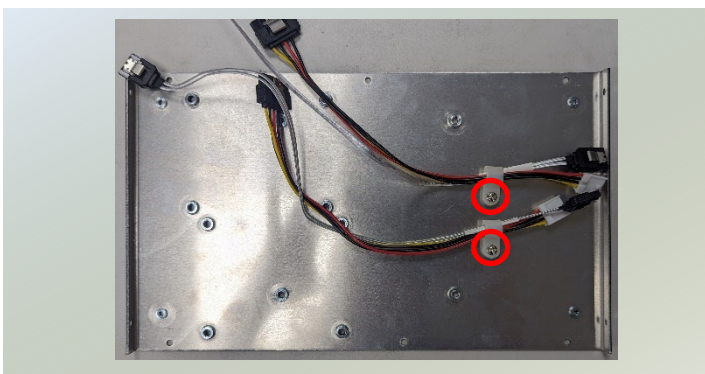
- ▶ 1x or 2x 2.5" SSD
- ▶ 1x or 2x SATA Cables



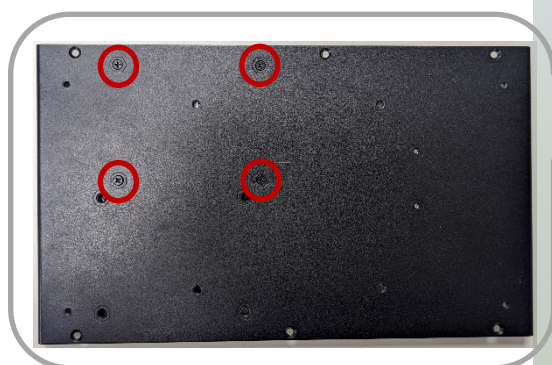
1. Power off the system and open the bottom chassis cover. Locate the 2.5" SATA HDD/SSD drive placement on underside of the chassis cover.



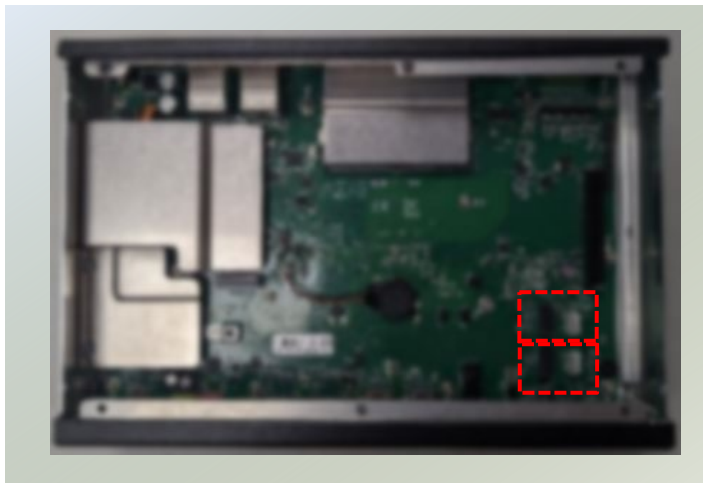
2. Secure the SATA Cables to the chassis cover, secure each with a screw.



3. Insert the SATA cables to the SATA contact on the HDD/SSD.
4. Place the 2.5" HDD/SSD on the chassis cover and secure with two (2) screws on each side.



4. Insert the other end of the SATA data cable to the SATA1 port and SATAPWR1 port on the motherboard.
5. Repeat steps to install another SSD Storage.

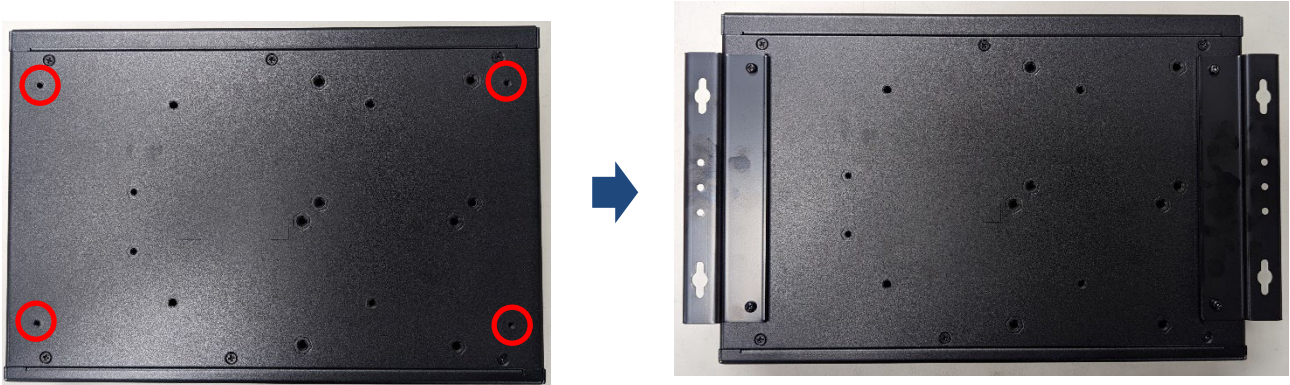


Wall Mounting the System (Optional)

The system can be mounted on a flat surfaced wall. Please take the following into considerations when mounting the system onto the wall.

Note: All pictures shown are for illustration purposes only, actual product may vary due to specific model or enhancement.

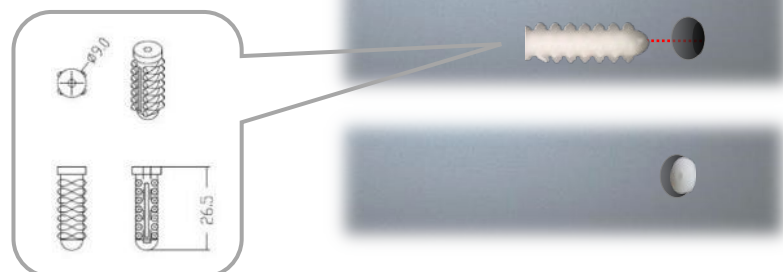
1. Fix the wall mount brackets onto the system bottom by securing them with the four (4) provided screws.



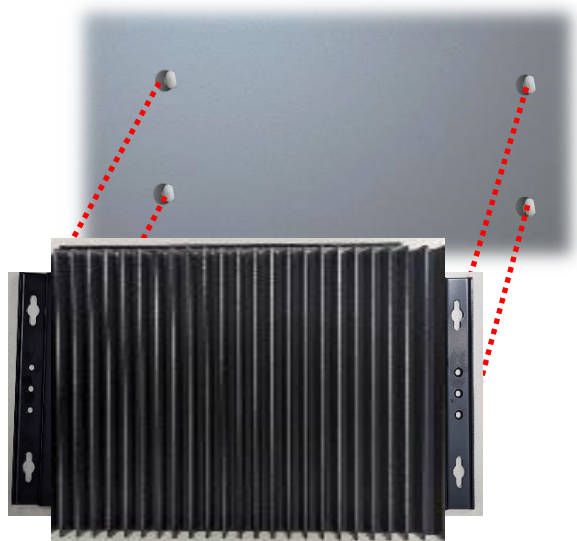
2. On the wall, measure the exact location where you want to hang the system. Drill four holes that align with the mounting holes on both brackets.



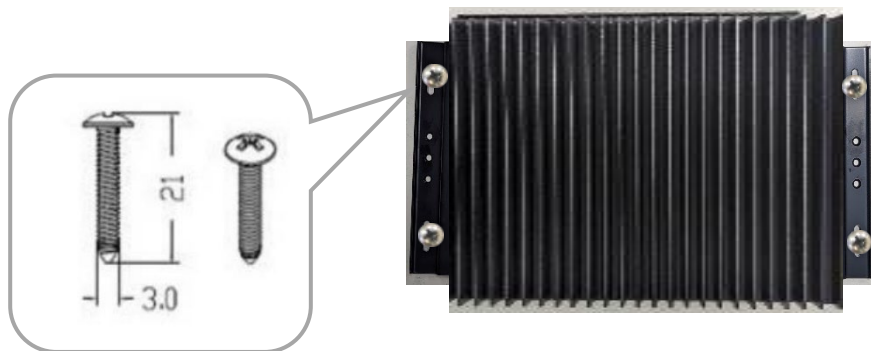
3. Insert **four** anchoring bolts into the holes.



4. Align the four mounting holes on the system's brackets with the four anchoring bolts you just installed on the wall.



5. Drive **four** long screws into the anchoring bolts to secure the system.



Rackmount the System (Optional)

With a rackmount kit, EAI-I500 can be installed into a standard rack. Please contact Lanner's sales representative for purchasing the rackmount kit.

The Rackmount Kit contains the following:

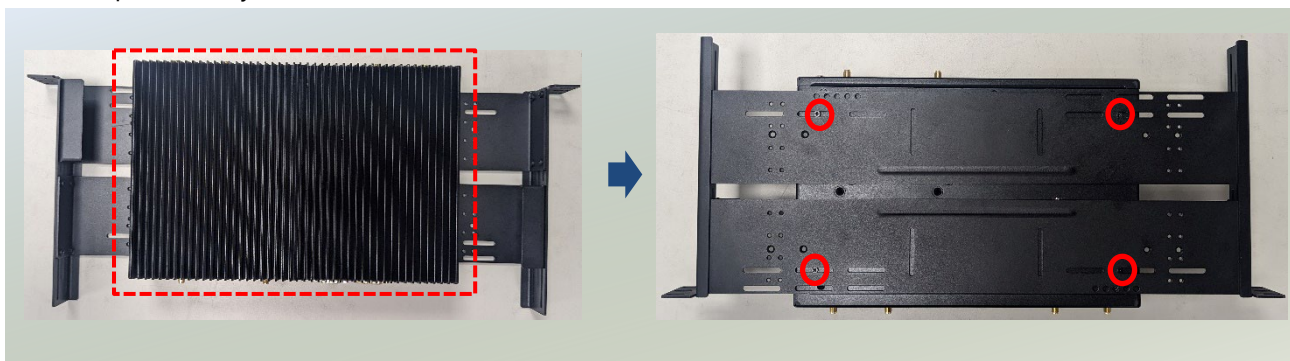
- ▶ 2x Rackmount Brackets
- ▶ 2x Ear Brackets
- ▶ 1x Screw Pack



1. Align the ear brackets to the rackmount brackets and secure using four (4) screws on each side.



2. Next, place the system in the center of the bracket, and secure with four (4) screws on the bottom side.



3. Position the system with its front facing you, gently lift it, and insert it into the rack. Attach the ear brackets to the rack rails using rackmount screws (not provided).



CHAPTER 3: SOFTWARE SETUP

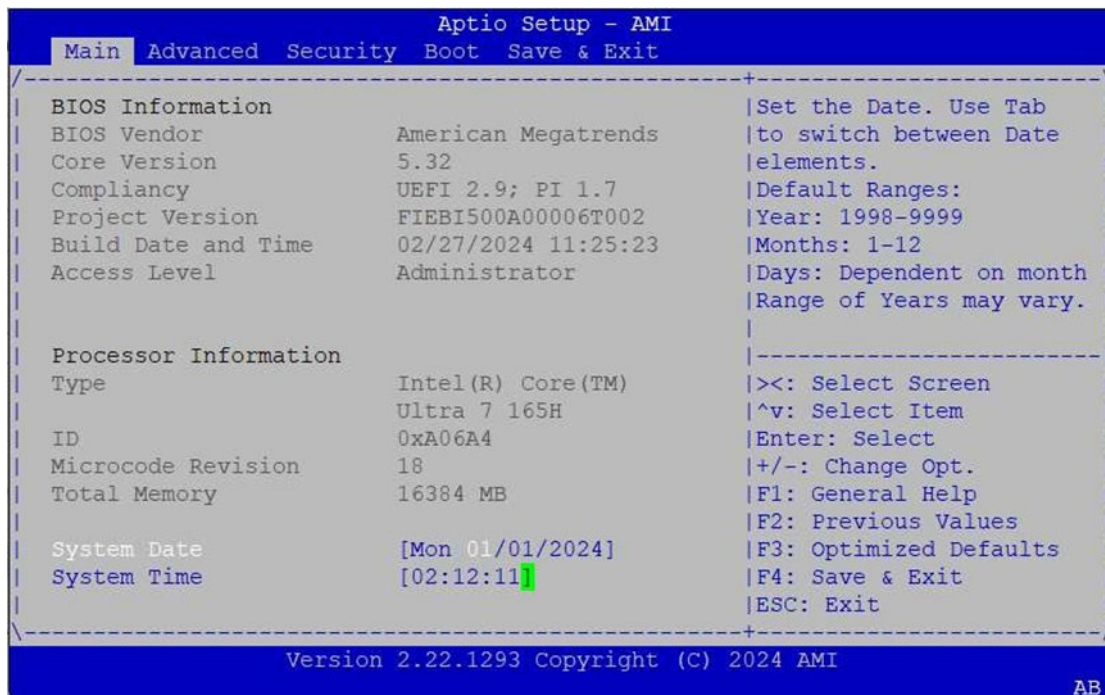
BIOS Setup

The system has AMI BIOS built-in, with a SETUP utility that allows users to configure required settings or to activate certain system features. Pressing the **<Tab>** or **** key immediately allows you to enter the Setup utility.

Control Keys	Description
→←	select a setup screen, for instance, [Main], [Advanced], [Chipset], [Security], [Boot], and [Save & Exit]
↑↓	select an item/option on a setup screen
<Enter>	select an item/option or enter a sub-menu
+/-	to adjust values for the selected setup item/option
F1	to display General Help screen
F2	to retrieve previous values, such as the parameters configured the last time you had entered BIOS.
F3	to load optimized default values
F4	to save configurations and exit BIOS
<Esc>	to exit the current screen

Main Page

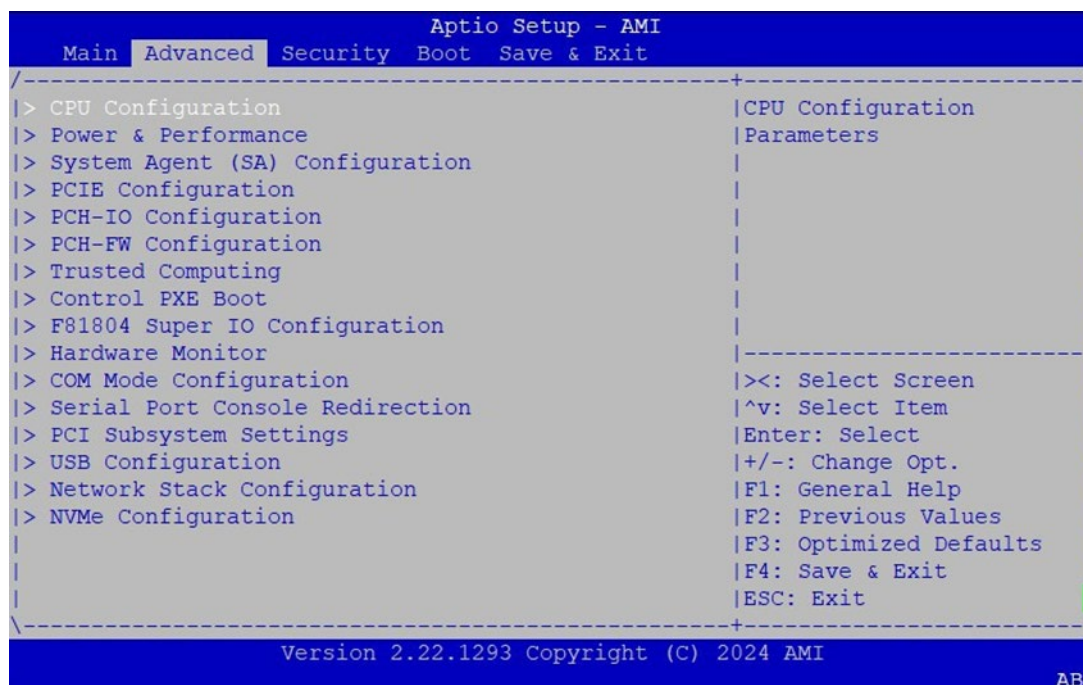
Setup main page contains BIOS information and project version information.



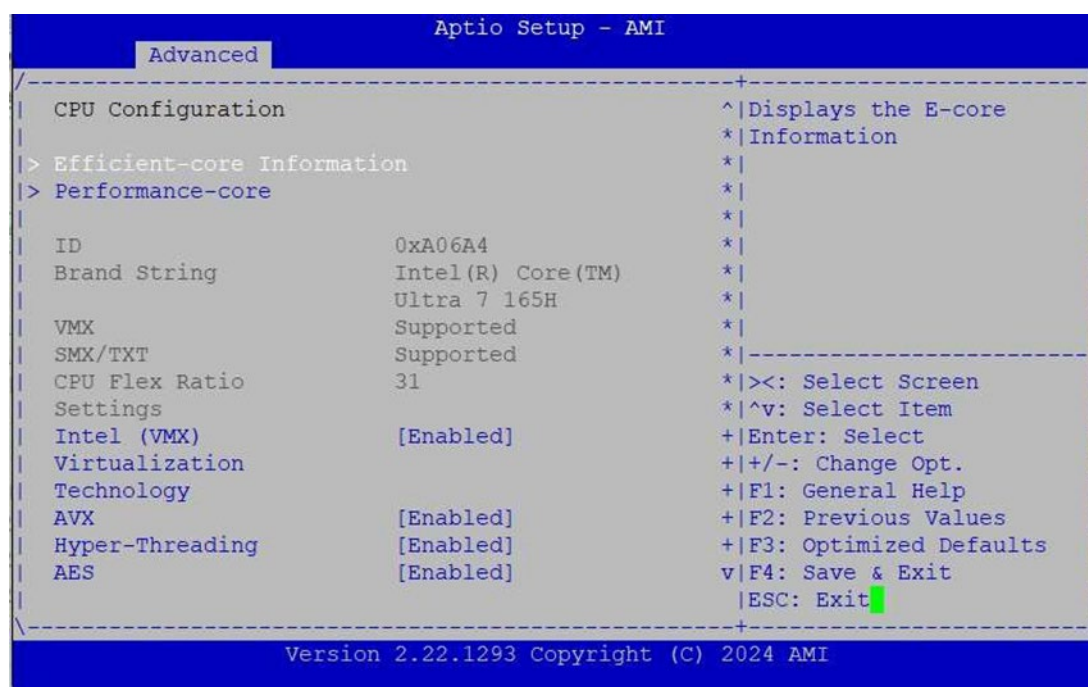
Feature	Description
BIOS Information	BIOS Vendor: American Megatrends Core Version: AMI Kernel version, CRB code base, X64 Compliance: UEFI version, PI version Project Version: BIOS release version Build Date and Time: MM/DD/YYYY Access Level: Administrator / User
Processor Information	Information of platform processor and total memory size.
System Date	To set the Date, use <Tab> to switch between Date elements. Default Range of Year: 2005-2099 Default Range of Month: 1-12 Days: dependent on Month.
System Time	To set the Date, use <Tab> to switch between Date elements.

Advanced Page

Select the **Advanced** menu item from the BIOS setup screen to enter the “Advanced” setup screen. Users can select any of the items in the left frame of the screen.



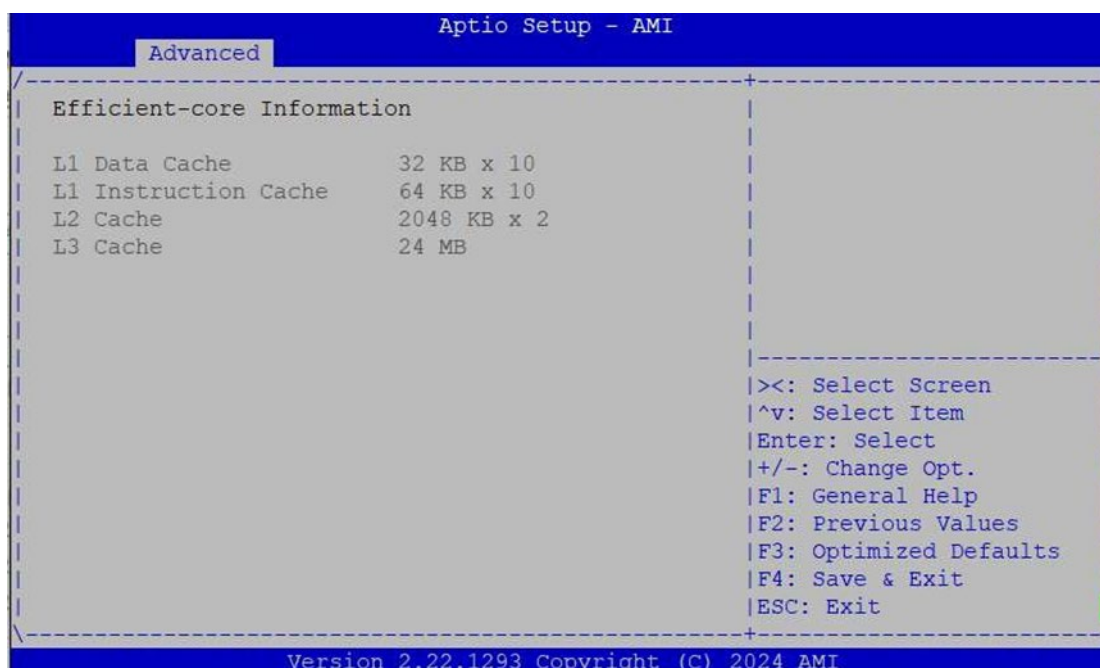
CPU Configuration



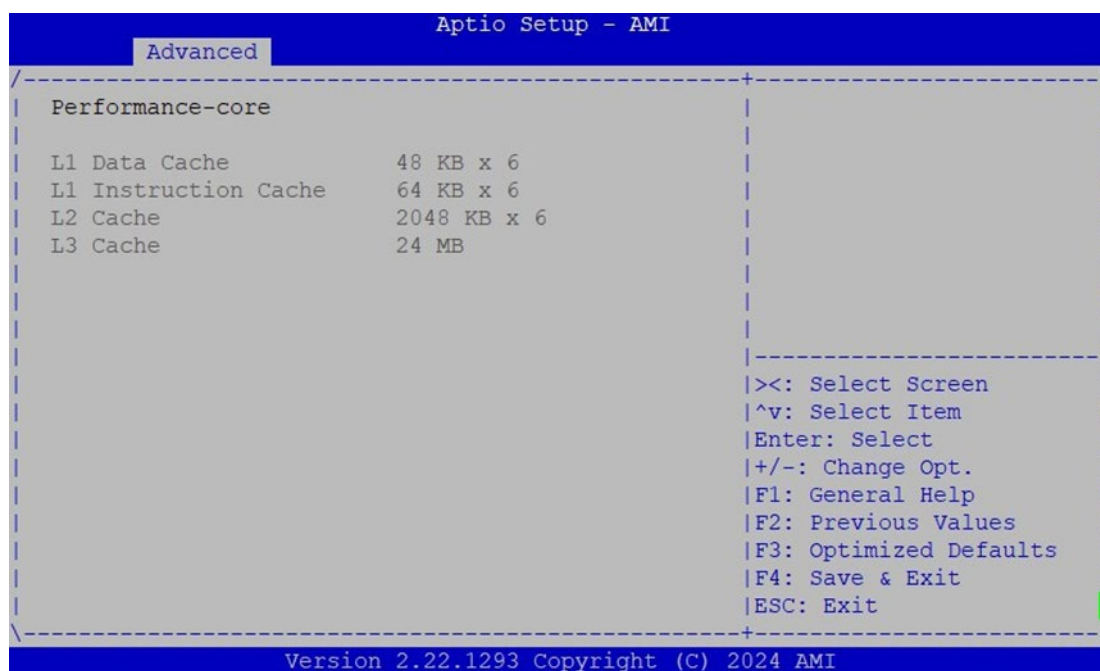
Feature	Options	Description
Intel (VMX) Virtualization Technology	Disabled Enabled	When enabled, a VMM can utilize the additional hardware capabilities provided by Vanderpool Technology.
AVX	Disabled Enabled	Enable/Disable the AVX and AVX2 Instructions
Hyper-Threading	Disabled Enabled	Enable or Disable Hyper-Threading Technology.
AES	Disabled Enabled	Enable/Disable AES (Advanced Encryption Standard)
MachineCheck	Disabled Enabled	Enable/Disable Machine Check
MonitorMWait	Disabled Enabled	Enable/Disable MonitorMWait, if Disable MonitorMwait, the AP threads Idle Manner should not set in MWAIT Loop.
Intel Trusted Execution Technology	Disabled Enabled	Enables utilization of additional hardware capabilities provided by Intel (R) Trusted Execution Technology.\n\nChanges require a full power cycle to take effect.

Alias Check Request	Disabled Enabled	Enables Txt Alias Checking capability. Changes require full Txt capability before it will take effect. It is a one-time only change; next reboot will be reset.
DPR Memory Size (MB)	4	Reserve DPR memory size (0-255) MB
Total Memory Encryption	Disabled Enabled	Configure Total Memory Encryption (TME) to protect DRAM data from physical attacks. When this option is configured as 'Enabled', 'VT-d' option must be 'Enabled'. This option will be grayed out when 'VT-d' option is configured as 'Disabled'.
X2APIC Enable	Disabled Enabled	Enable/Disable X2APIC Operating Mode. When this option is configured as 'Enabled', 'VT-d' option must be 'Enabled' and 'X2APIC Opt Out' option must be 'Disabled' as well. This option will be grayed out when 'VT-d' option is configured as 'Disabled'."

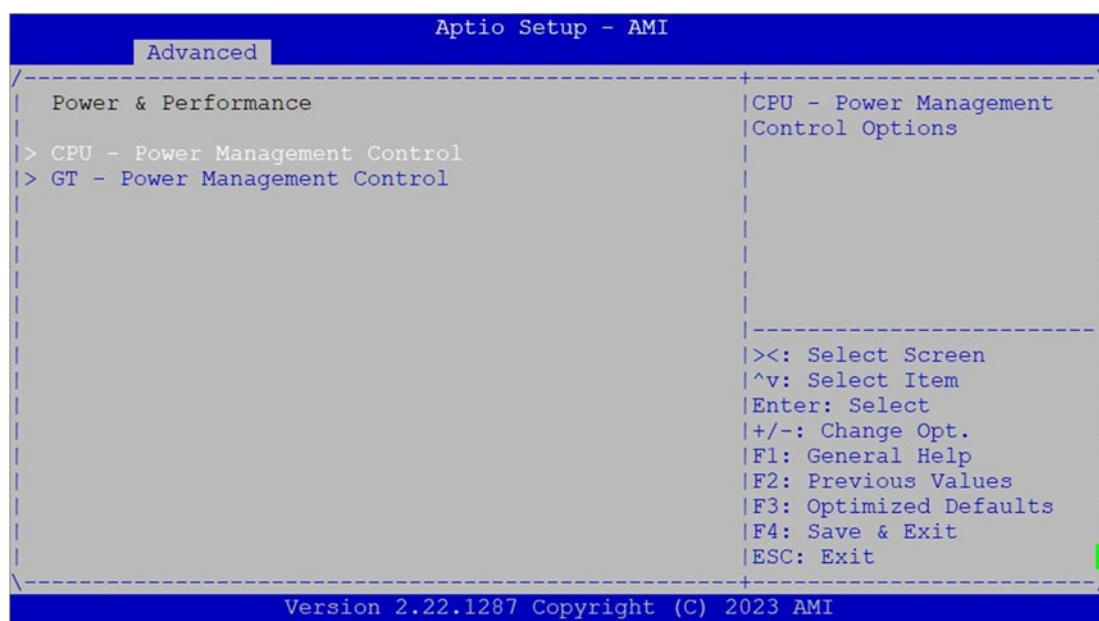
Efficient-Core Information



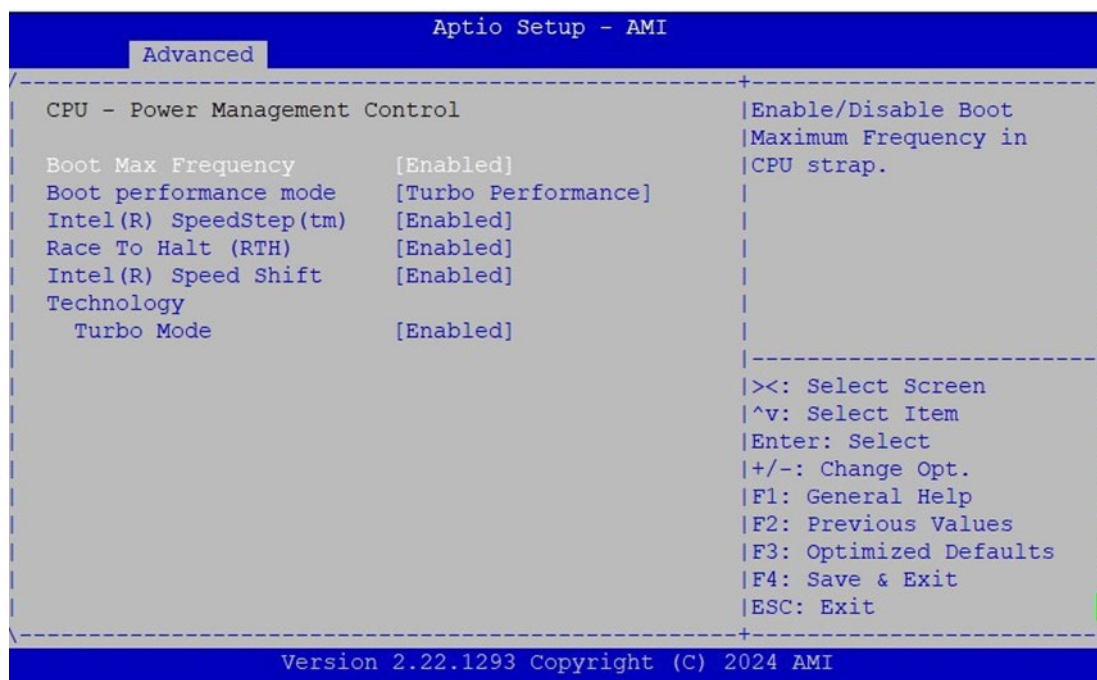
Performance-Core Information



Power & Performance

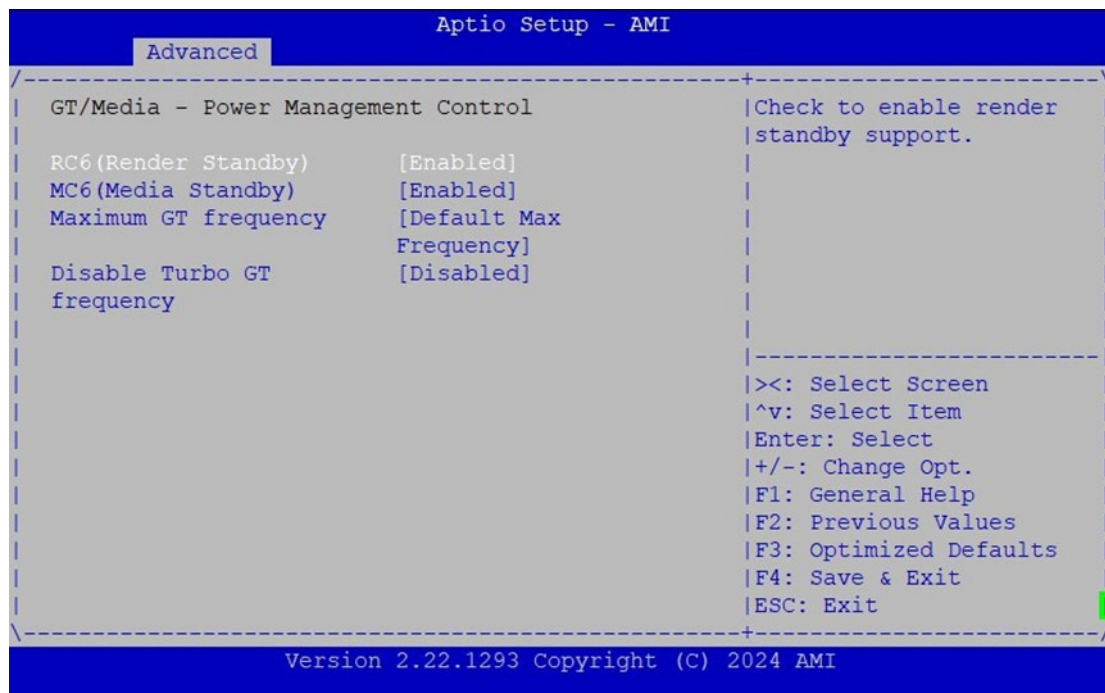


CPU – Power Management Control



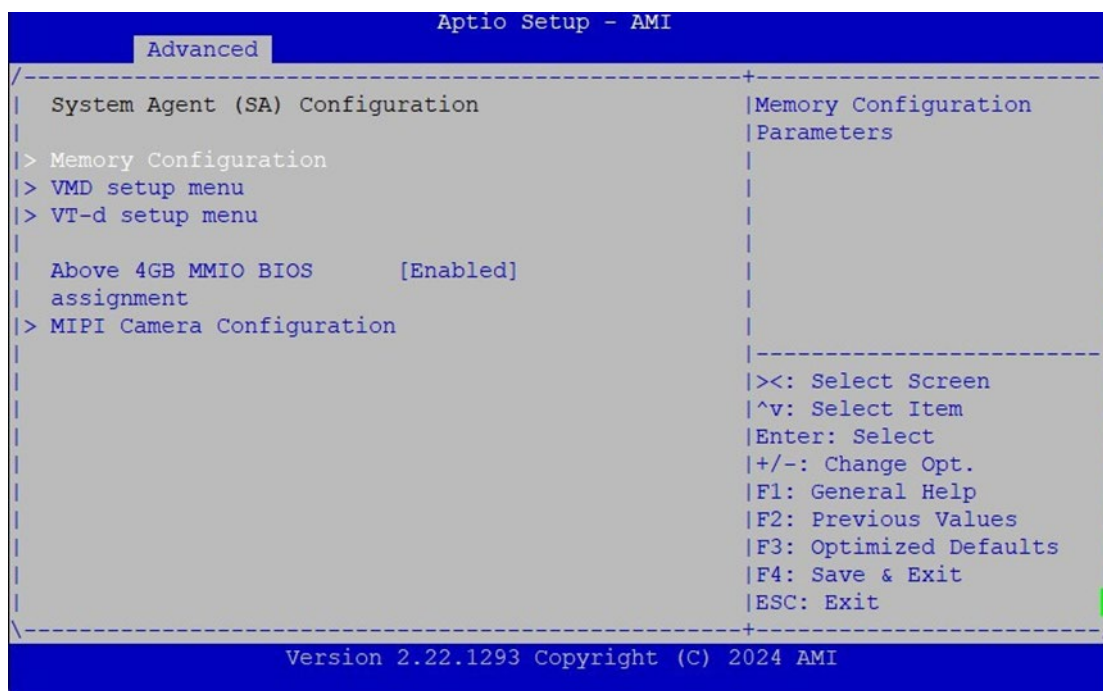
Feature	Options	Description
Boot Max Frequency	Disabled Enabled	Enable/Disable Boot Maximum Frequency in CPU strap
Boot performance mode	Max Battery Max Non-Turbo Performance Turbo Performance	Select the performance state that the BIOS will set starting from reset vector.
Intel(R) SpeedStep (tm)	Disabled Enabled	Enable/Disable Intel SpeedStep
Race To Halt (RTH)	Disabled Enabled	Enable/Disable Race To Halt feature. RTH will dynamically increase CPU frequency in order to enter pkg C-State faster to reduce overall power.
Intel(R) Speed Shift Technology	Disabled Enabled	Enable/Disable Intel(R) Speed Shift Technology support. Enabling will expose the CPPC v2 interface to allow for hardware-controlled P-states."
Turbo Mode	Disabled Enabled	Enable/Disable processor Turbo Mode.

GT/Media-Power Management Control



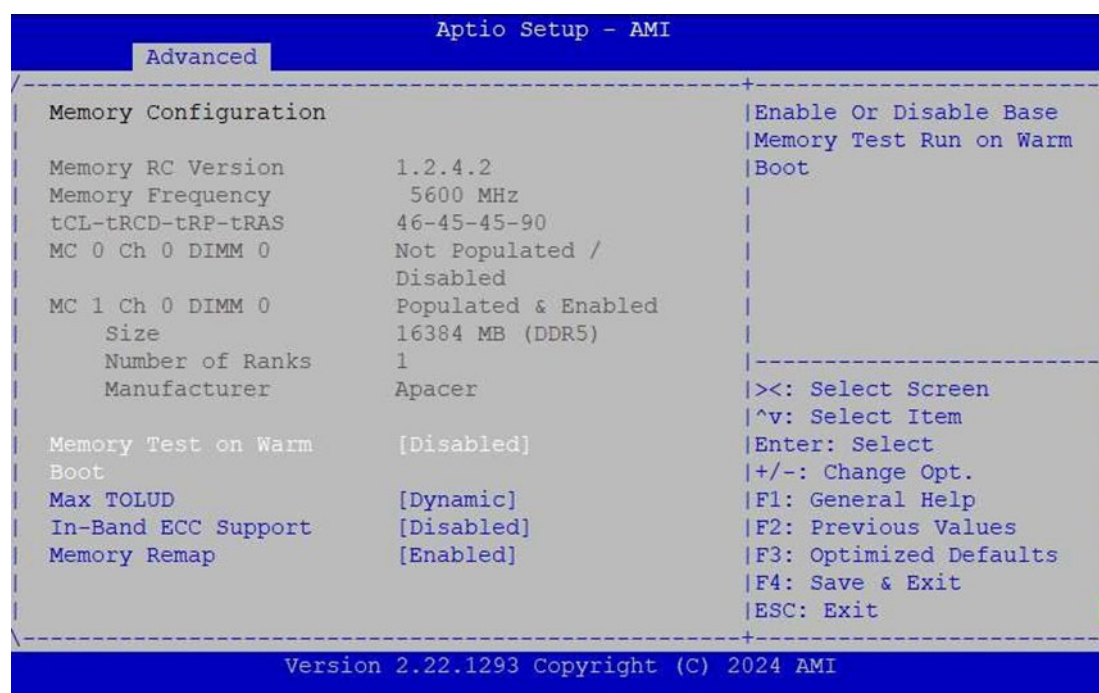
Feature	Options	Description
RC6 (Render Standby)	Enabled Disabled	Check to enable render standby support.
MC6 (Media Standby)	Enabled Disabled	Check to enable Media standby support.
Maximum GT frequency	Default Max Frequency	Maximum GT frequency limited by the user. Choose between 2400MHz (RPN) and 6900MHz (RP0). Value beyond the range will be clipped to min/max supported by SKU
Disable Turbo GT frequency	Disabled Enabled	Enabled: Disables Turbo GT frequency. Disabled: GT frequency is not limited

System Agent (SA) Configuration



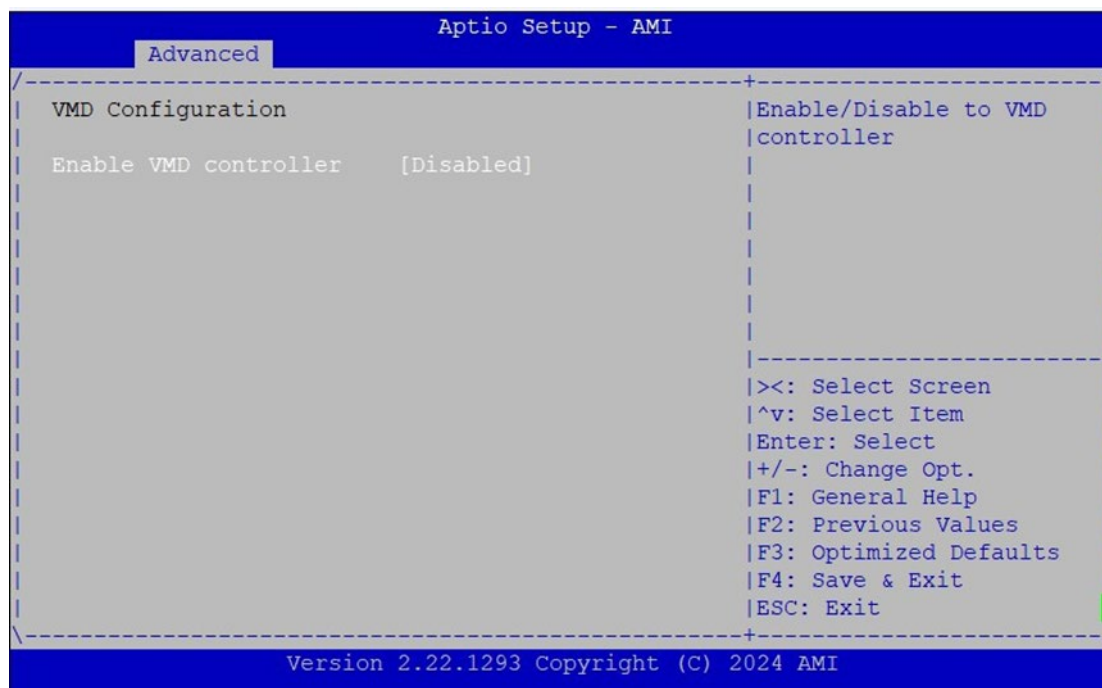
Feature	Options	Description
Above 4GB MMIO BIOS assignment	Enabled	Enable/Disable above 4GB MemoryMappedIO BIOS assignment.
	Disabled	This is enabled automatically when Aperture Size is set to 2048MB.

Memory Configuration



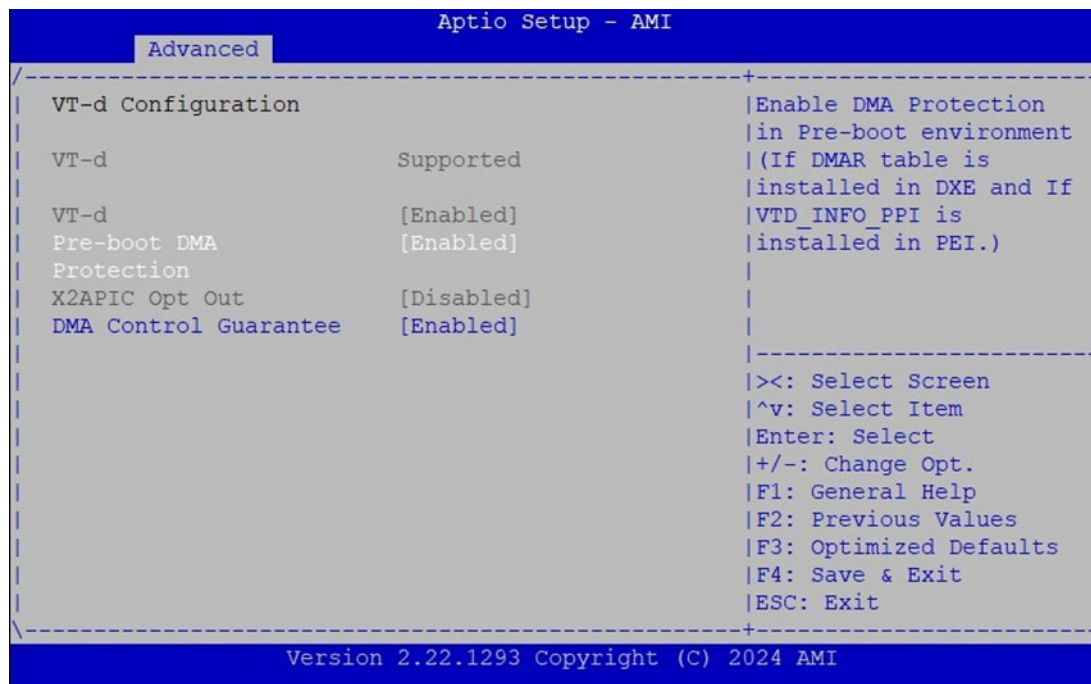
Feature	Options	Description
Memory Test on Warm Boot	Disabled Enabled	Enable Or Disable Base Memory Test Run on Warm Boot
Max TOLUD	Dynamic 3.5 GB 3.25 GB 3 GB 2.75 GB 2.5 GB 2.25 GB 2 GB 1.75 GB 1.5 GB 1.25 GB 1 GB	Maximum Value of TOLUD. Dynamic assignment would adjust TOLUD automatically based on largest MMIO length of installed graphic controller
In-Band ECC Support	Disabled Enabled	Enable/Disable In-Band ECC. Will be enabled if memory has symmetric configuration.
Memory Remap	Enabled Disabled	Enable/Disable Memory Remap above 4GB

VMD Configuration



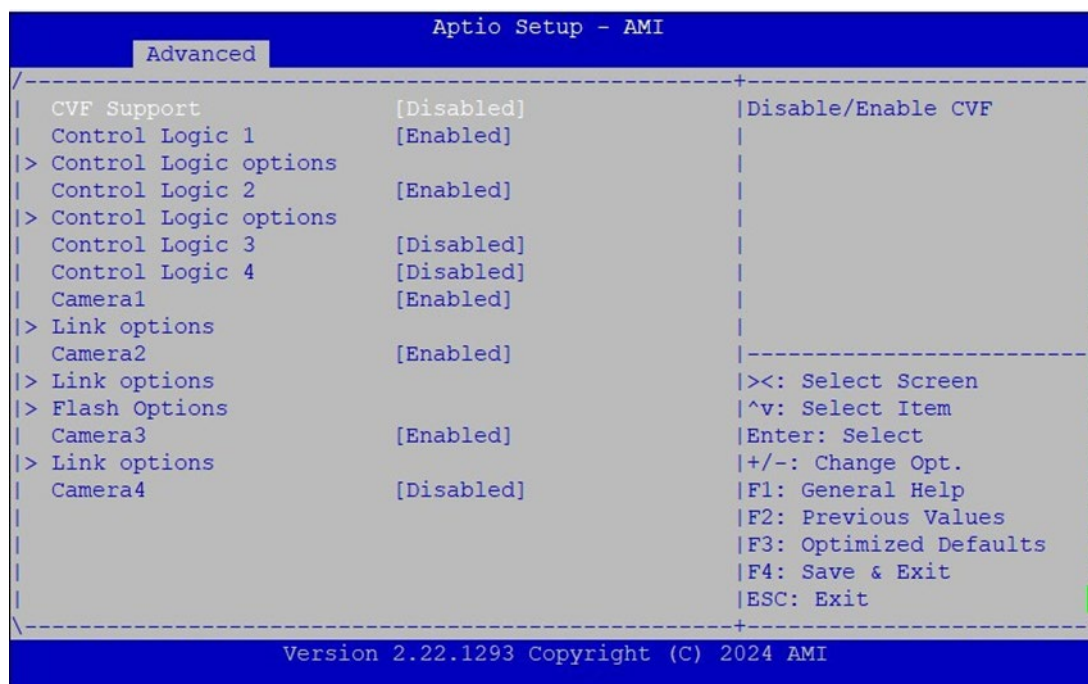
Feature	Options	Description
Enable VMD controller	Enabled Disabled	Enable/Disable to VMD controller

VT-d Configuration

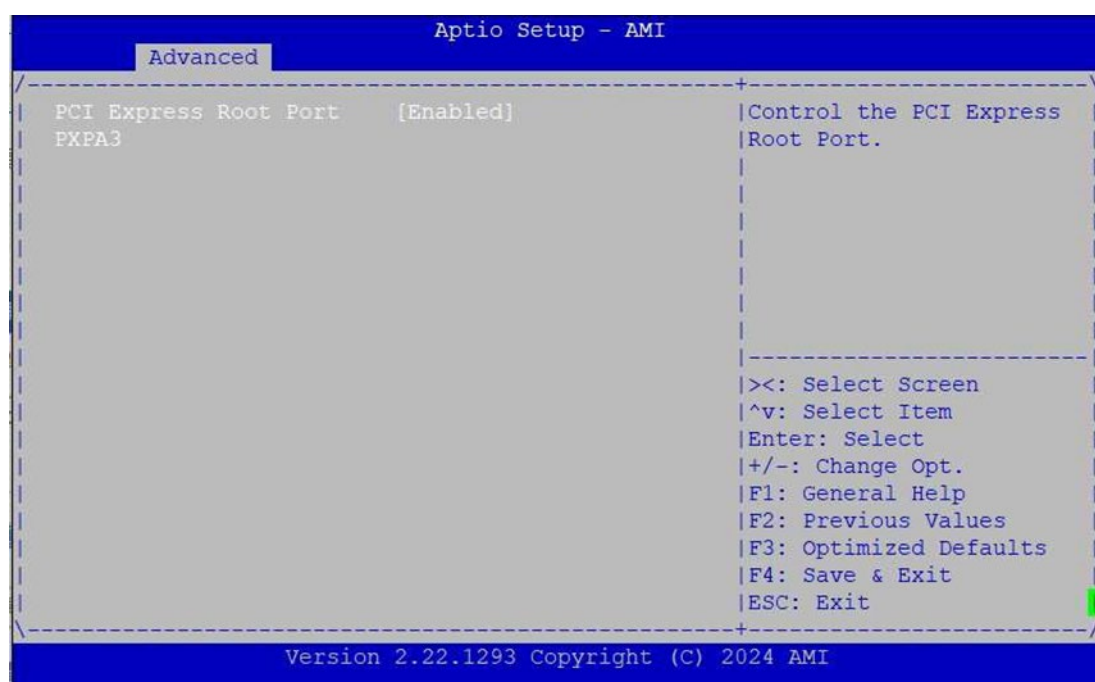
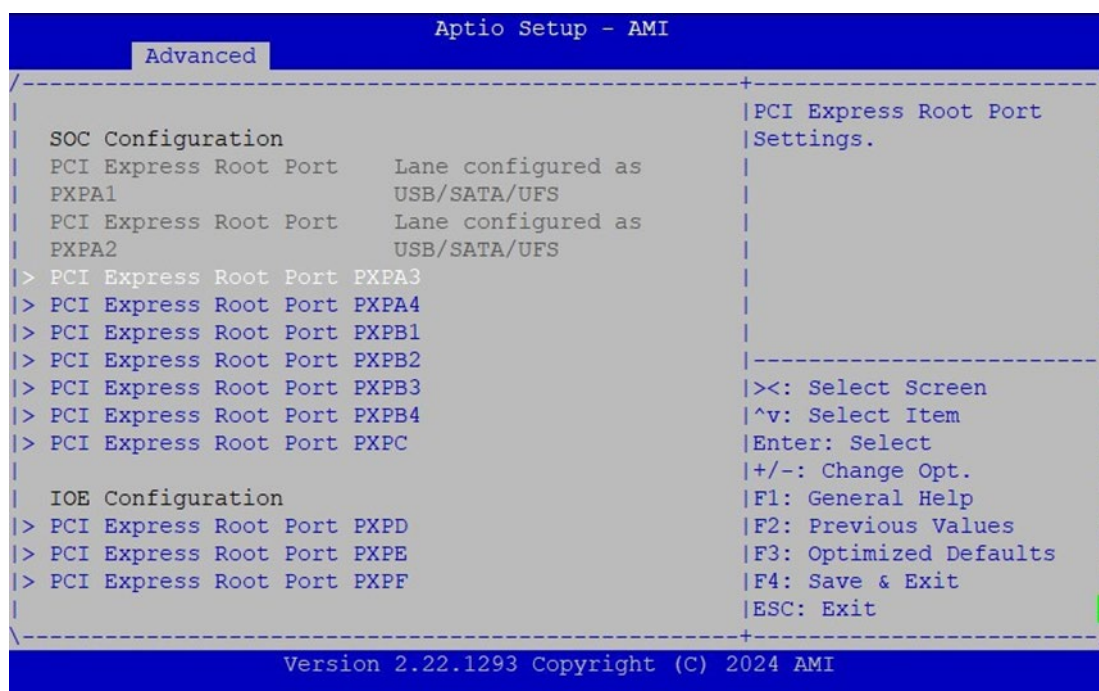


Feature	Options	Description
VT-d	Enabled	Check to enable VT-d function on MCH. This option will be grayed out when 'X2APIC Enable' option is configured as 'Enabled'.
Pre-boot DMA Protection	Enabled Disabled	Enable DMA Protection in Pre-boot environment.
X2APIC Opt Out	Enabled Disabled	Enable/Disable X2APIC_OPT_OUT bit. This option will be grayed out when 'X2APIC Enable' option is configured as 'Enabled'
DMA Control Guarantee	Enabled Disabled	Enable/Disable DMA_CONTROL_GUARANTEE bit

CVF Support

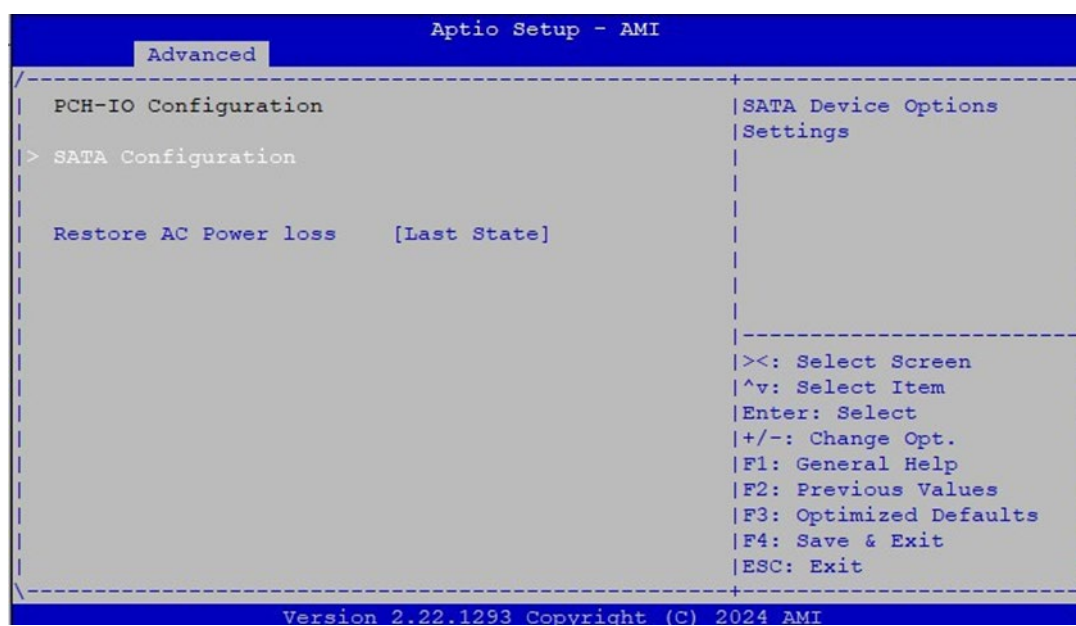


PCIe Configuration



Feature	Options	Description
PCI Express Root Port PXPxx	Enabled Disabled	Control the PCI Express Root Port.

PCH-IO Configuration



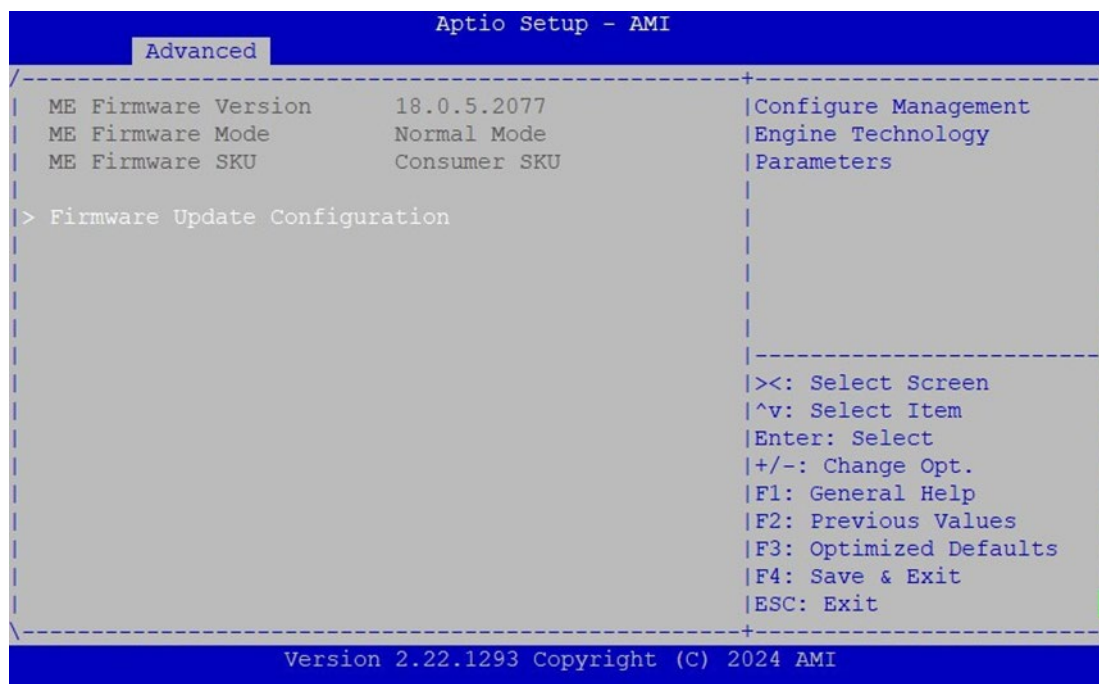
Feature	Options	Description
Restore AC Power Loss	Power On Power Off Last State	Specify what state to go to when power is re-applied after a power failure (G3 state).

SATA Configuration

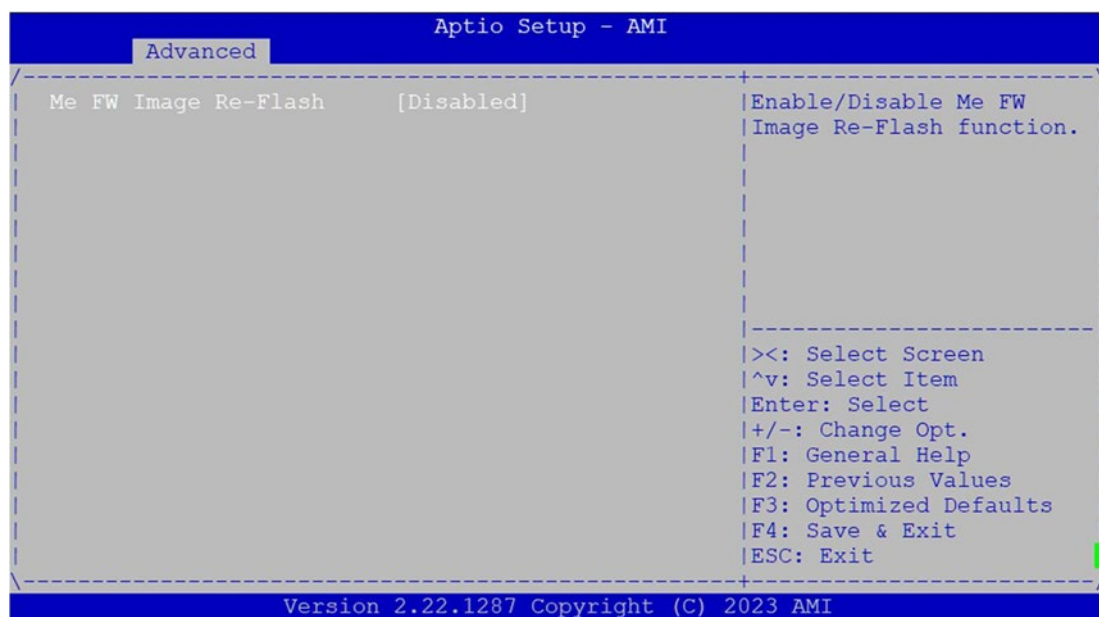


Feature	Options	Description
SATA Controllers(s)	Enabled Disabled	Enable/Disable SATA Device

PCH-IO Configuration

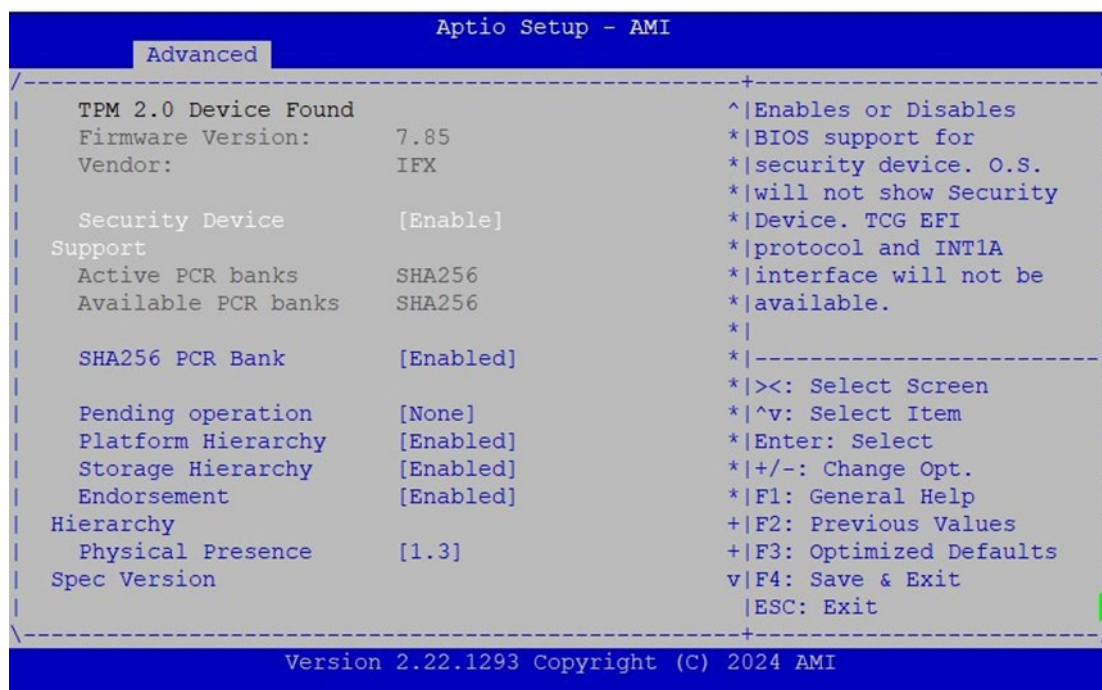


Firmware Update Configuration



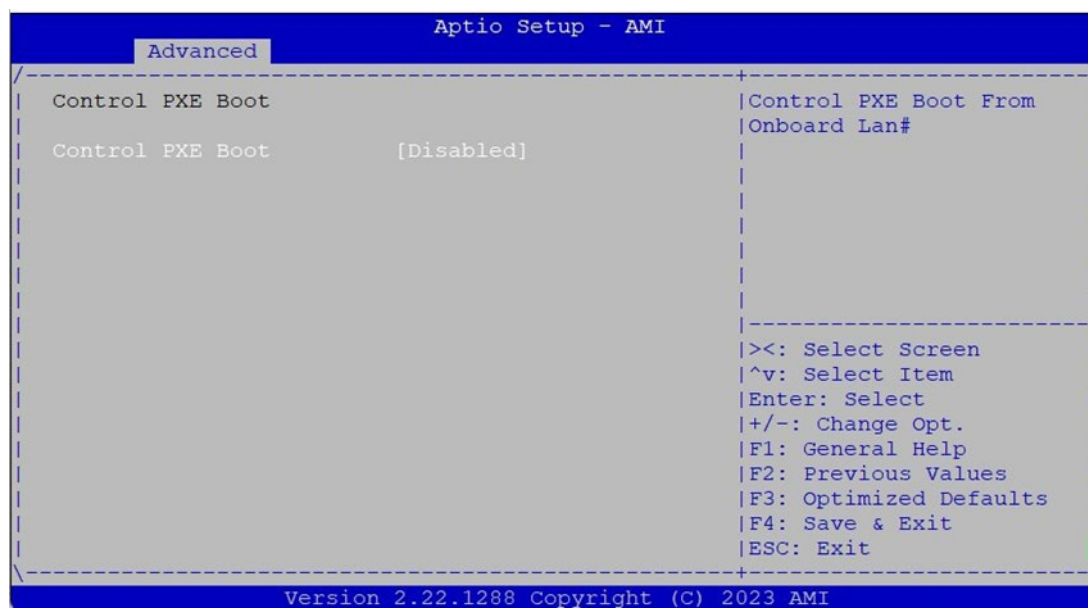
Feature	Options	Description
Me FW Image Re-Flash	Disabled Enabled	Enable/Disable Me FW Image Re-Flash function. This control item will return to "disabled" at next boot.

Trusted Computing



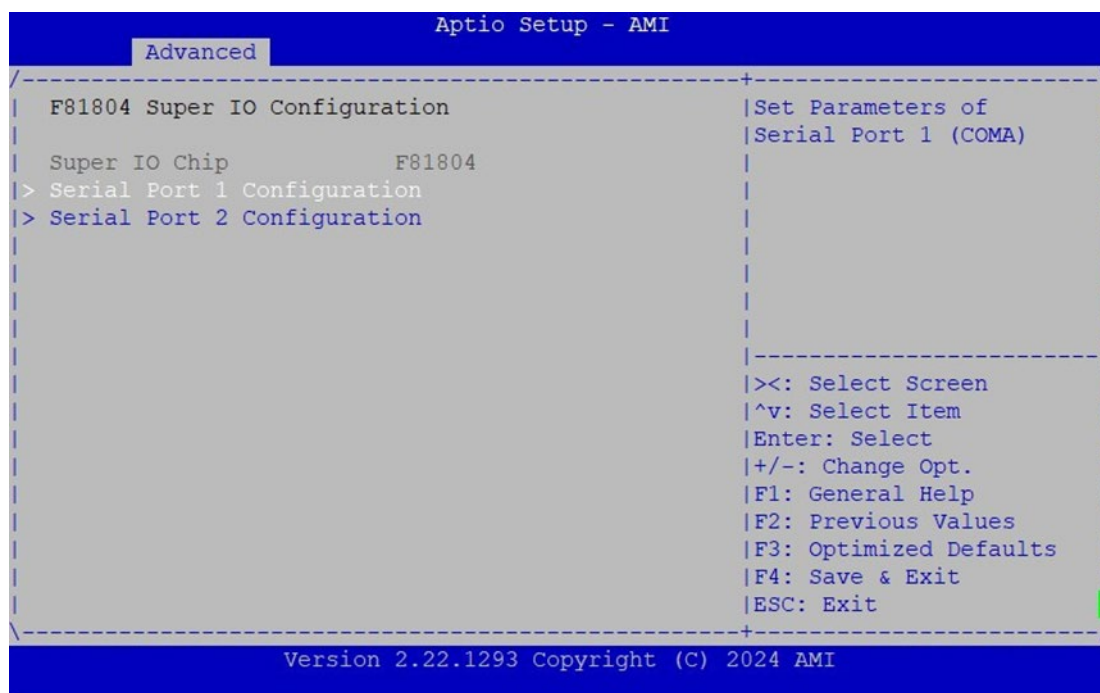
Feature	Options	Description
Security Device Support	Enabled Disabled	Enables or disables BIOS support for security device. By disabling this function, OS will not show Security Device. TCG EFI protocol and INT1A interface will not be available.
SHA256 PCR Bank	Enabled Disabled	Enables or disables SHA256 PCR Bank.
Pending operation	None TPM Clear	Schedules an Operation for the Security Device. NOTE: Your computer will reboot during restart in order to change State of Security Device.
Platform Hierarchy	Enabled Disabled	Enables or disables Platform Hierarchy.
Storage Hierarchy	Enabled Disabled	Enables or disables Storage Hierarchy.
Endorsement Hierarchy	Enabled Disabled	Enables or disables Endorsement Hierarchy.

Control PXE Boot

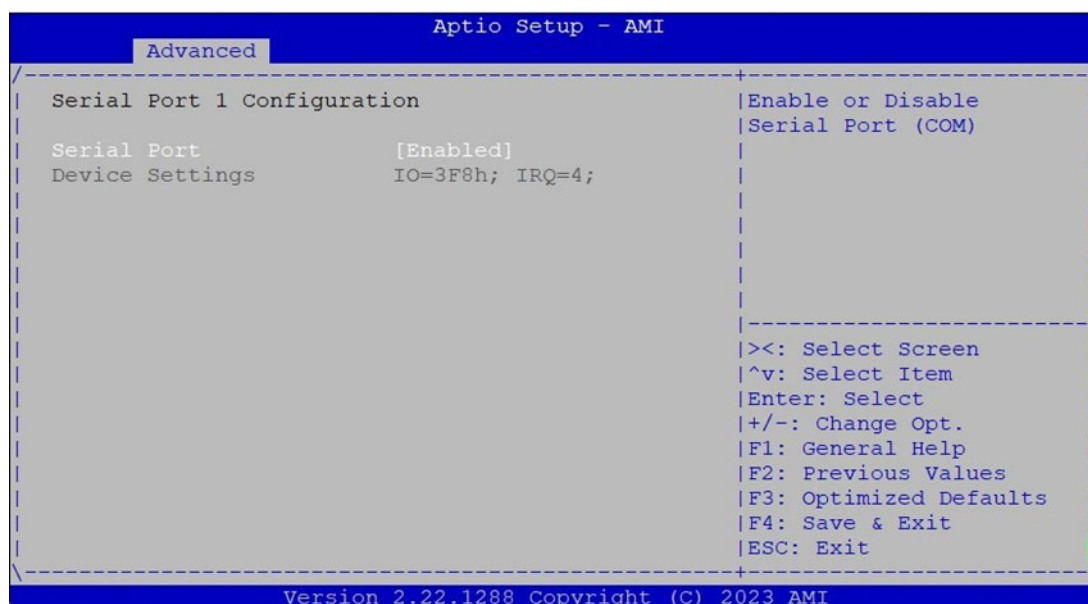


Feature	Options	Description
Control PXE Boot	Disabled	Control PXE Boot from Onboard LAN#
	LAN1	
	LAN2	
	LAN3	
	LAN4	

F81804 Super IO Configuration

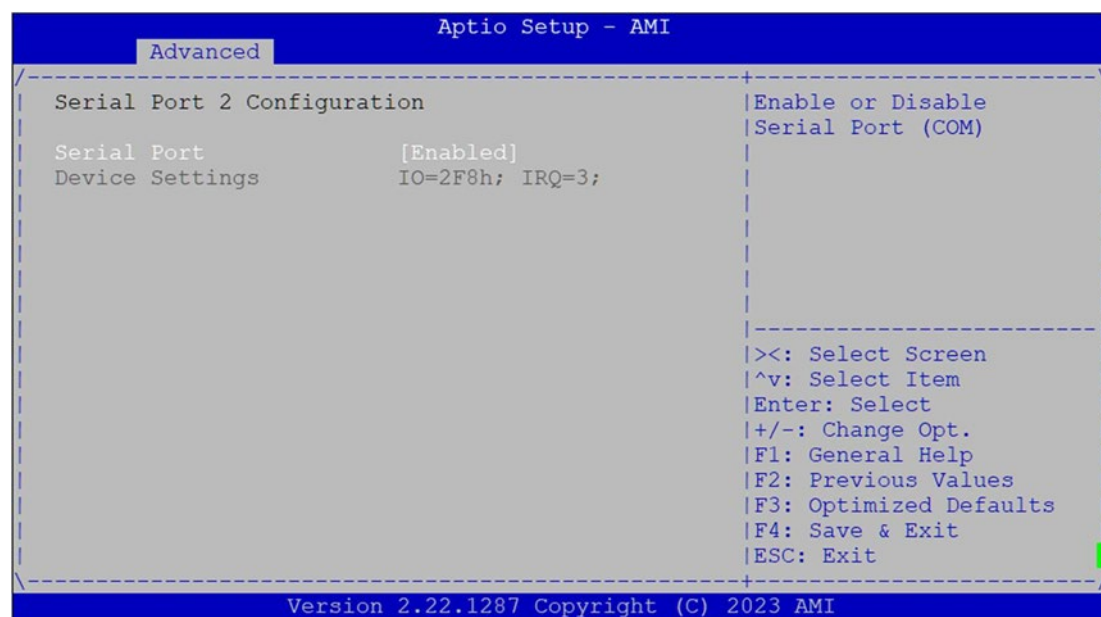


Serial Port 1 Configuration



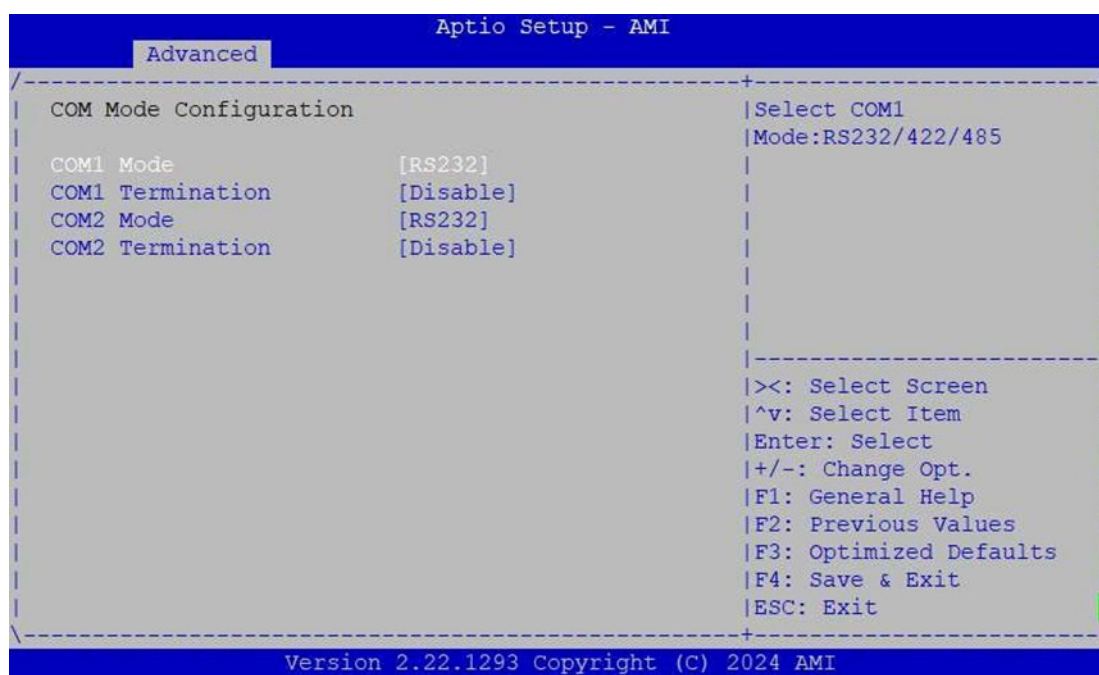
Feature	Options	Description
Serial Port	Disabled Enabled	Enable or Disable Serial Port (COM)
Device Settings	N/A	IO=3F8h; IRQ=4

Serial Port 2 Configuration



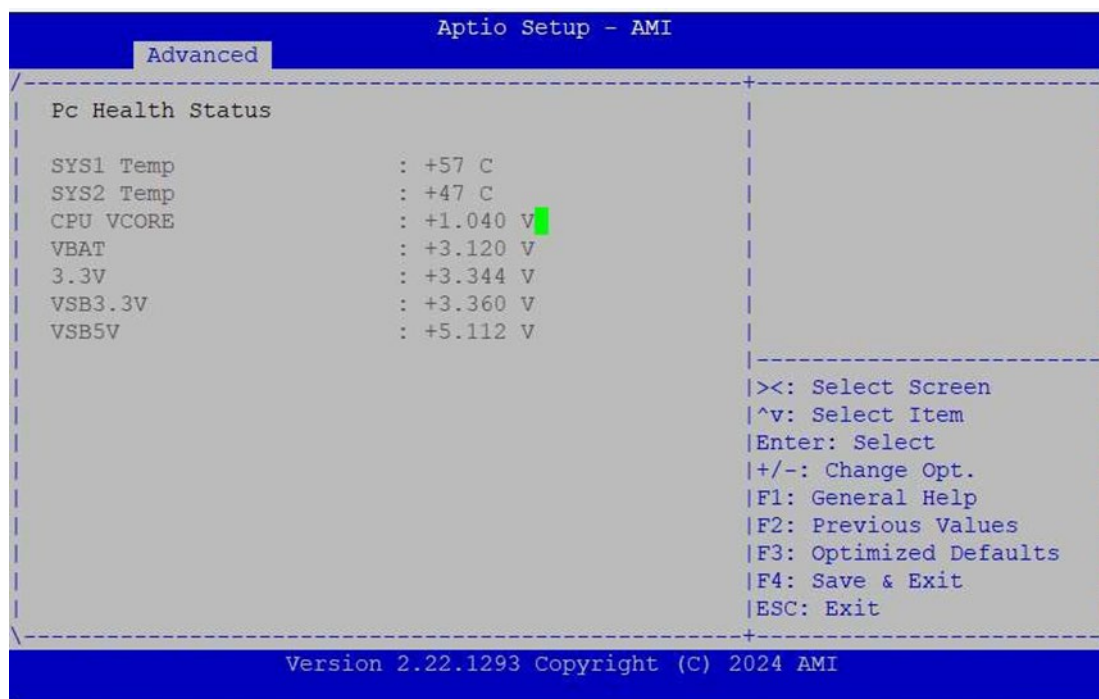
Feature	Options	Description
Serial Port	Disabled Enabled	Enable or Disable Serial Port (COM)
Device Settings	N/A	IO=2F8h; IRQ=3;

COM Mode Configuration



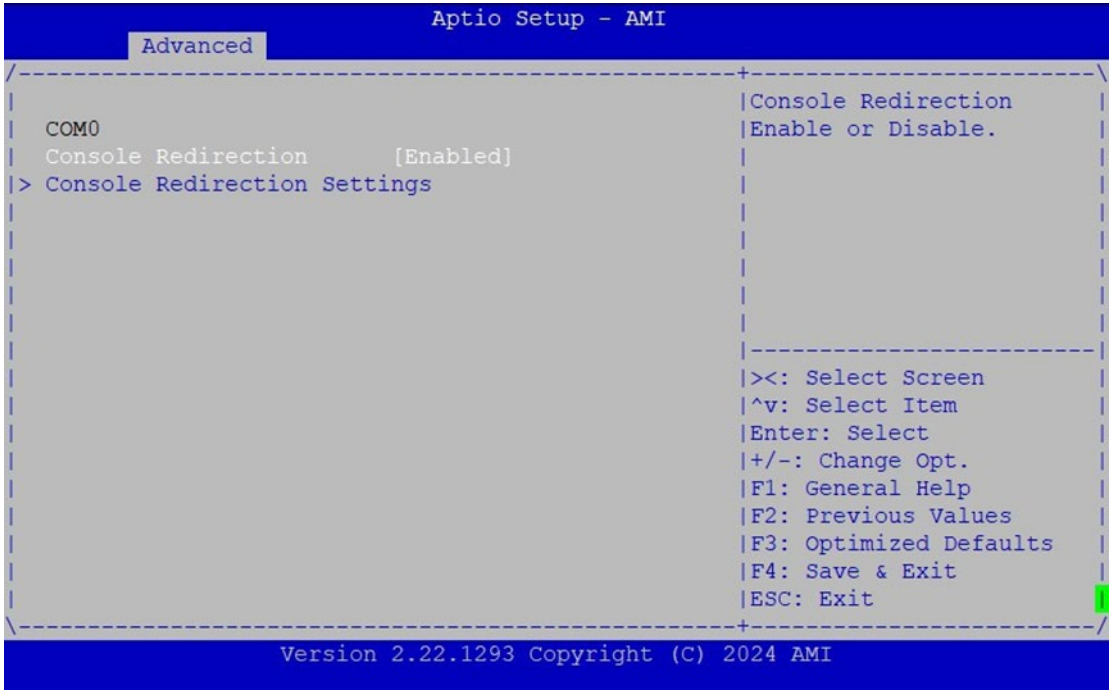
Feature	Options	Description
COM1 Mode	RS232 RS422 RS485	Select COM mode RS232/422/485
COM1 Termination	Disabled Enabled	Enable/Disabled COM termination
COM2 Mode	RS232 RS422 RS485	Select COM mode RS232/422/485
COM2 Termination	Disabled Enabled	Enable/Disabled COM termination

Hardware Monitor



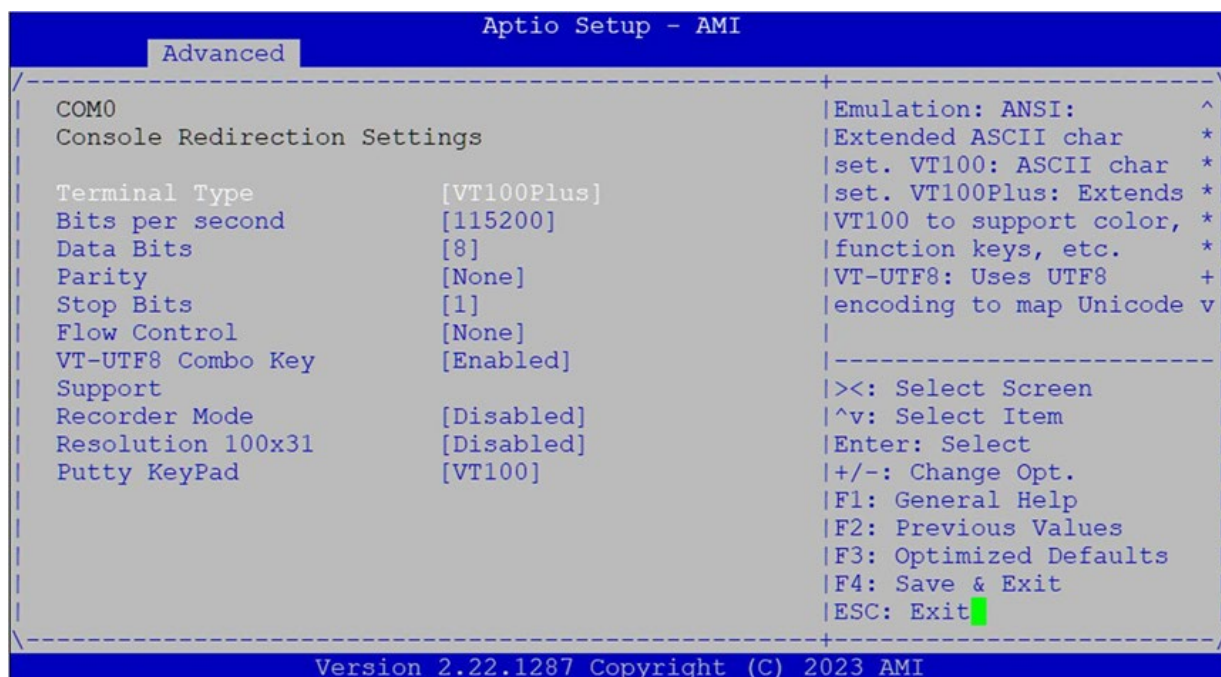
Feature	Description
SYS1 Temp	This value reports the System temperature
SYS2 Temp	This value reports the System temperature (Close to CPU)
CPU VCORE	This value reports the CPU VCORE Input voltage
VBAT	This value reports the VBAT Input voltage
3.3V	This value reports the 3.3V Input voltage
VSB3.3V	This value reports the VSB3.3V Input voltage
VSB5V	This value reports the VSB5V Input voltage

Serial Port Console Redirection



Feature	Options	Description
Console Redirection	Disabled Enabled	Console Redirection Enable or Disable.

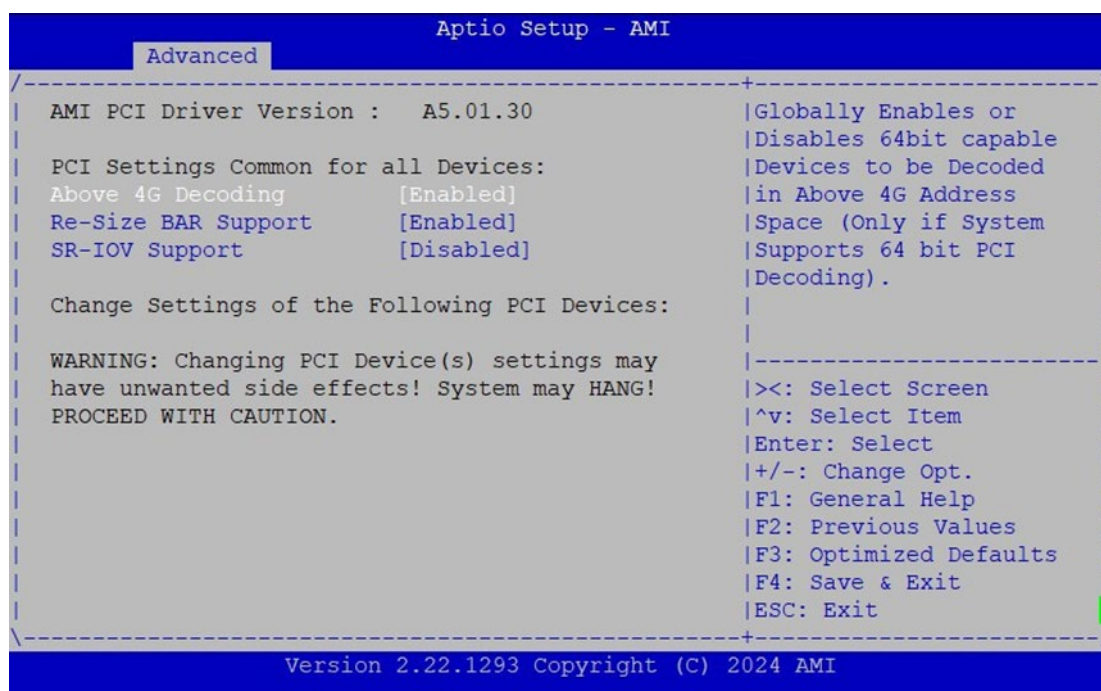
Console Redirection Settings



Feature	Options	Description
Terminal Type	VT100 VT100+ VT-UTF8 ANSI	Emulation: ANSI: Extended ASCII char set. VT100: ASCII char set. VT100+: Extends VT100 to support color, function keys, etc. VT-UTF8: Uses UTF8 encoding to map Unicode chars onto 1 or more bytes.
Bits per second	9600 19200 38400 57600 115200 230400 460800 921600	Selects serial port transmission speed. The speed must be matched on the other side. Long or noisy lines may require lower speeds.
Data Bits	7 8	Data Bits
Parity	None Even Odd Mark Space	A parity bit can be sent with the data bits to detect some transmission errors.
Stop Bits	1 2	Stop bits indicate the end of a serial data packet.
Flow Control	None Hardware RTS/CTS	Flow control can prevent data loss from buffer overflow.
VT-UTF8 Combo Key Support	Disabled Enabled	Enable VT-UTF8 Combination Key Support for ANSI/VT100 terminals

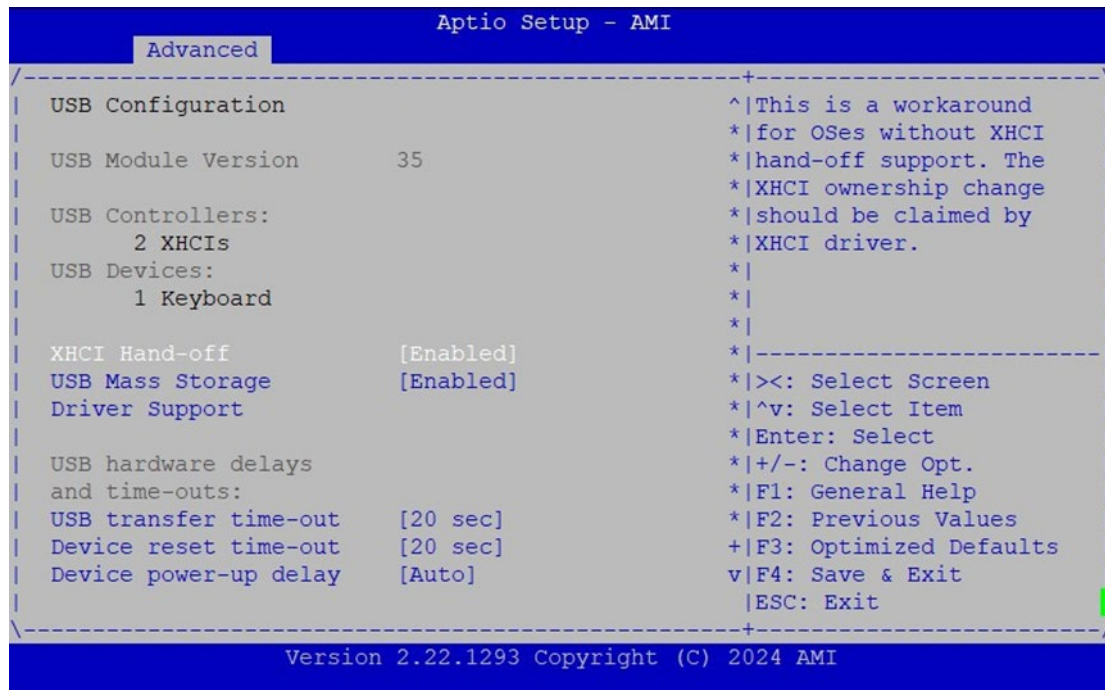
Recorder Mode	Disabled Enabled	With this mode enabled only text will be sent. This is to capture Terminal data.
Resolution 100x31	Disabled Enabled	Enables or disables extended terminal resolution.
Putty KeyPad	VT100 LINUX XTERMR6 SCO ESCN VT400	Select FunctionKey and KeyPad on Putty.

PCI Subsystem Settings



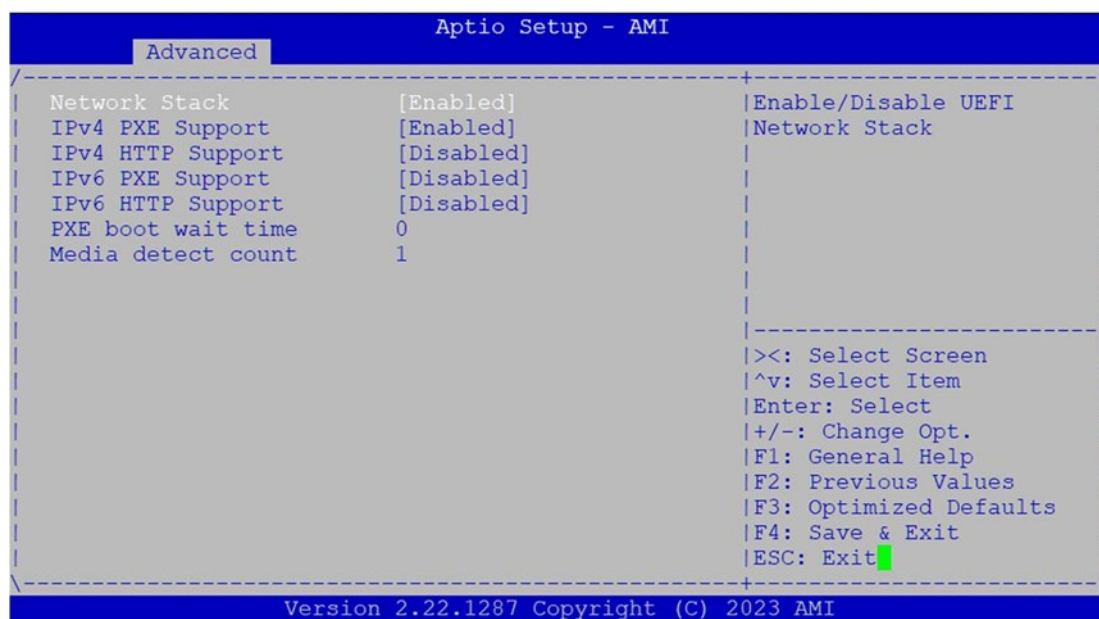
Feature	Options	Description
Above 4G Decoding	Disabled Enabled	Disables 64bit capable Device Resources to be Allocated in Above 4G Address Space.
SR-IOV Support	Disabled Enabled	If system has SR-IOV capable PCIe Devices, this option Enables or Disables Single Root IO Virtualization Support.
Re-Size BAR Support	Disabled Enabled	If system has Resizable BAR capable PCIe Devices, this option Enables or Disables Resizable BAR Support.

USB Configuration



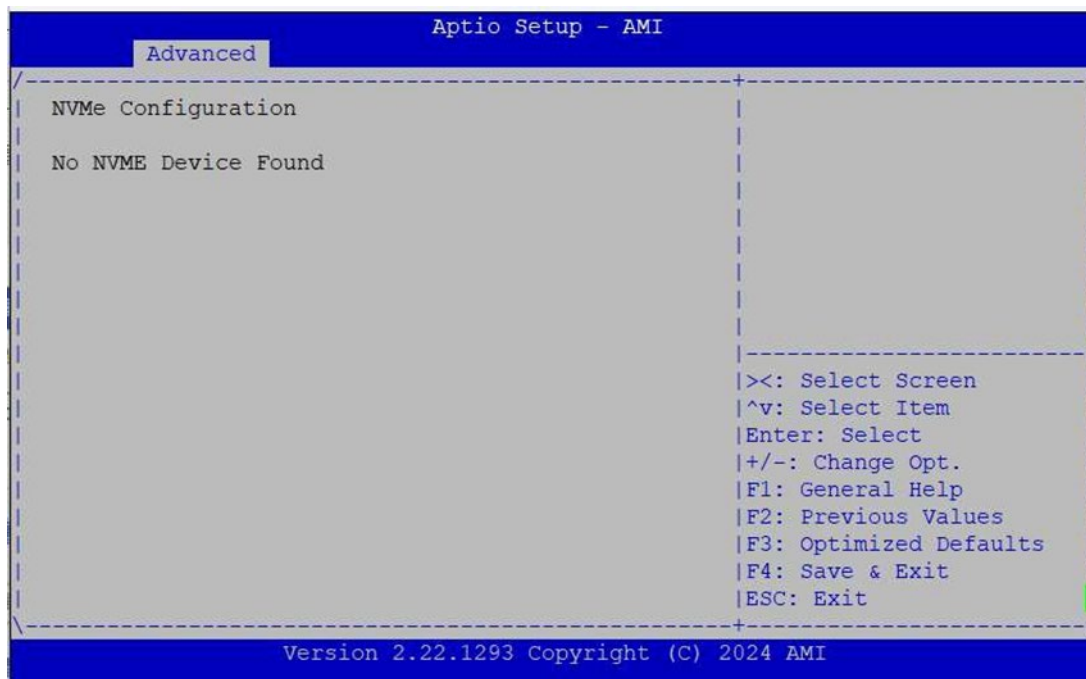
Feature	Options	Description
XHCI Hand-off	Enabled Disabled	This is a workaround for Oses without XHCI hand-off support. The XHCI ownership change should be claimed by XHCI driver.
USB Mass Storage Driver Support	Disabled Enabled	Enable/Disable USB Mass Storage Driver Support.
USB transfer time-out	1 sec 5 sec 10 sec 20 sec	The time-out value for Control, Bulk, and Interrupt transfers
Device reset time-out	10 sec 20 sec 30 sec 40 sec	USB mass storage device Start Unit command time-out
Device power-up delay	Auto Manual	Maximum time the device will take before it properly reports itself to the Host Controller. Auto uses default value: for a Root port, it is 100 ms, for a Hub port the delay is taken from Hub descriptor.

Network Stack Configuration



Feature	Options	Description
Network Stack	Disabled Enabled	Enable/Disable UEFI Network Stack
IPv4 PXE Support	Disabled Enabled	Enable/Disable IPv4 PXE boot support. If disabled, IPv4 PXE boot support will not be available.
IPv4 HTTP Support	Disabled Enabled	Enable/Disable IPv4 HTTP boot support. If disabled, IPv4 HTTP boot support will not be available.
IPv6 PXE Support	Disabled Enabled	Enable/Disable IPv6 PXE boot support. If disabled, IPv6 PXE boot support will not be available.
IPv6 HTTP Support	Disabled Enabled	Enable/Disable IPv6 HTTP boot support. If disabled, IPv6 HTTP boot support will not be available.
PXE boot wait time	0	Wait time in seconds to press ESC key to abort the PXE boot. Use either +/- or numeric keys to set the value.
Media detect count	1	Number of times the presence of media will be checked. User either +/- or numeric keys to set the value.

NVMe Configuration

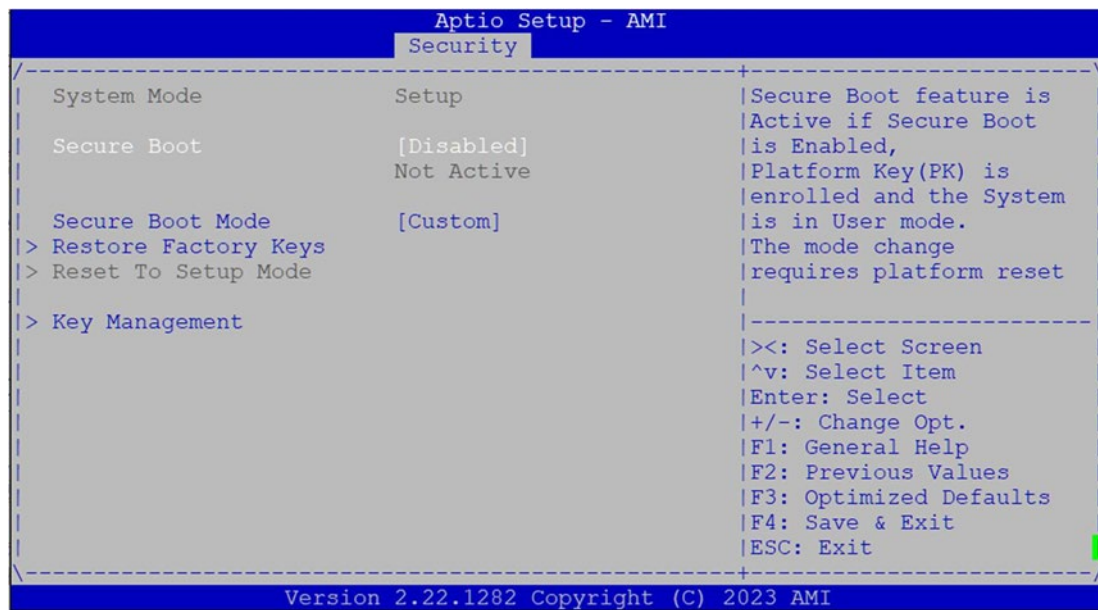


Security Page

Select the Security item from the BIOS setup screen to enter the Security page. Users can select any of the items in the left frame of the screen.

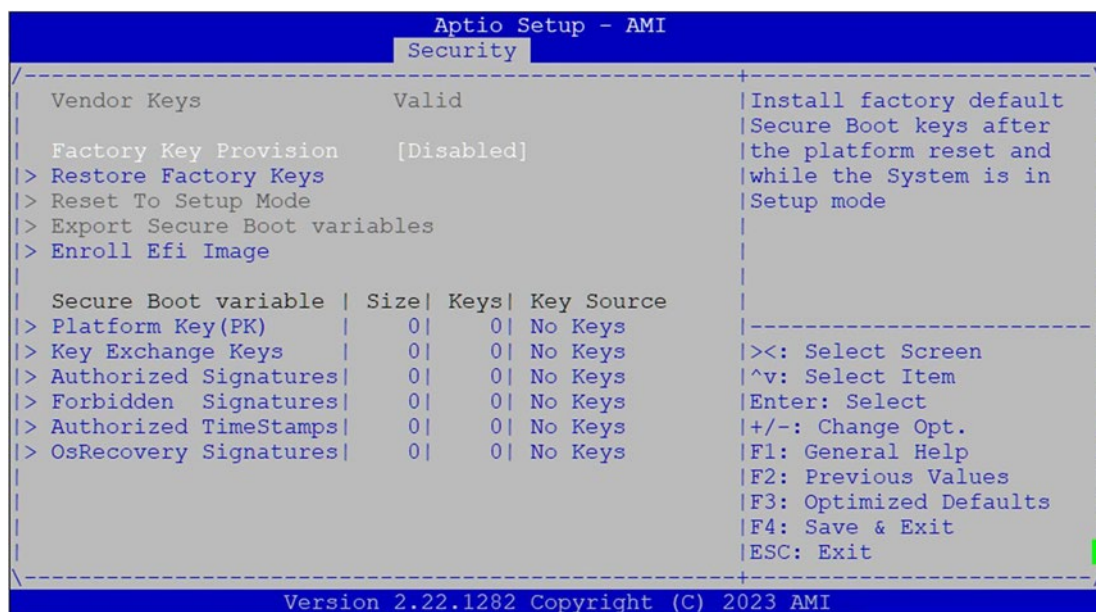
Feature	Description
Setup Administrator Password	If ONLY the Administrator's password is set, it only limits access to Setup and is only asked for when entering Setup.
User Password	If ONLY the User's password is set, it serves as a power-on password and must be entered to boot or enter Setup. In Setup the User will have Administrator rights.

Secure Boot



Feature	Options	Description
Secure Boot	Disabled Enabled	Secure Boot feature is Active if Secure Boot is Enabled, Platform Key (PK) is enrolled and the System is in User mode. The mode change requires platform reset
Secure Boot Mode	Standard Custom	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

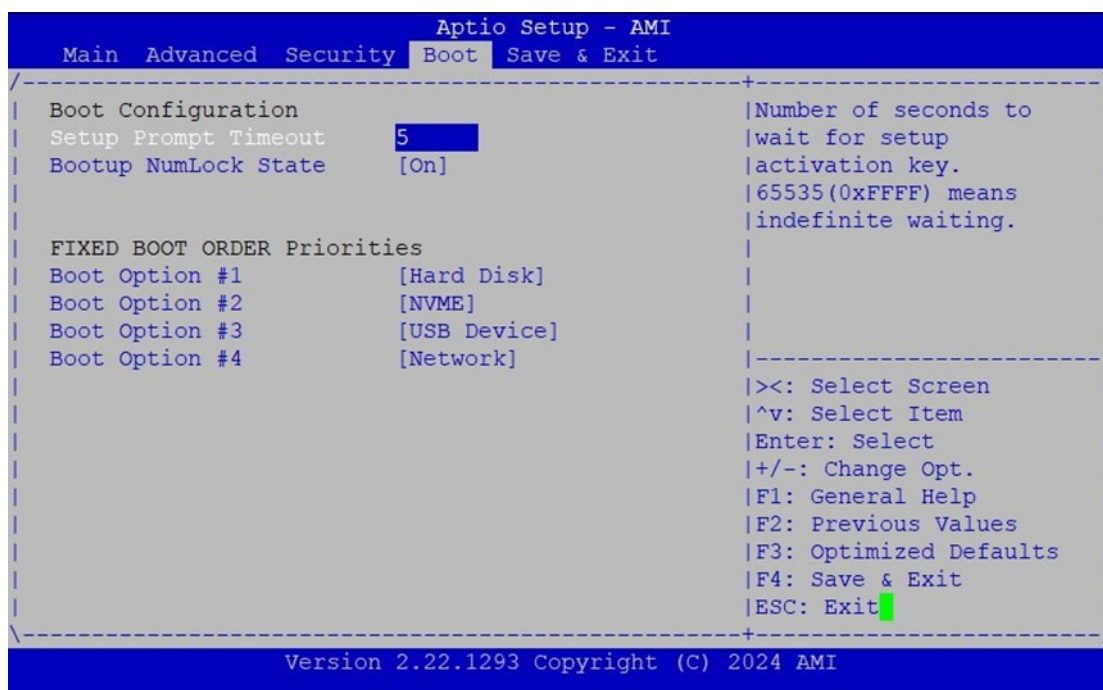
Key Management



Feature	Options	Description
Factory Key Provision	Disabled Enabled	Install factory default Secure Boot keys after the platform reset and while the System is in Setup mode
Restore Factory Keys	None	Force System to User Mode. Install factory default Secure Boot key databases
Reset To Setup Mode	None	Delete all Secure Boot key databases from NVRAM
Export Secure Boot variables	None	Copy NVRAM content of Secure Boot variables to files in a root folder on a file system device
Enroll Efi Image	None	Allow the image to run in Secure Boot mode. Enroll SHA256 Hash certificate of a PE image into Authorized Signature Database (db).

Boot Menu

Select the Boot menu item from the BIOS setup screen to enter the "Boot" setup screen. Users can select any of the items in the left frame of the screen.

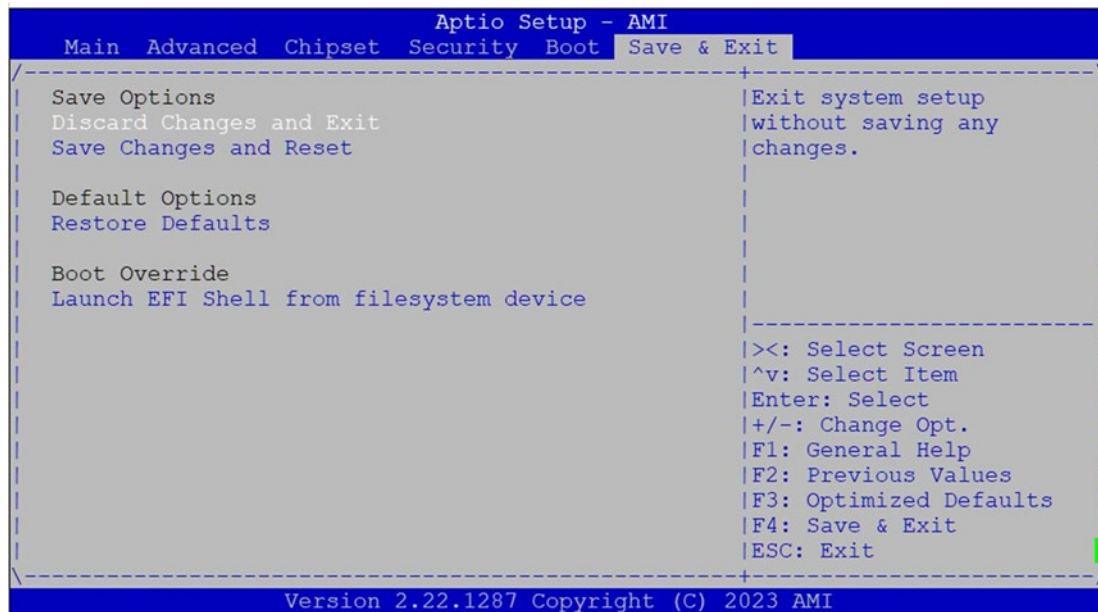


Feature	Options	Description
Setup Prompt Timeout	5	The number of seconds to wait for setup activation key. 65535 means indefinite waiting.
Bootup NumLock State	On Off	Select the keyboard NumLock state
Boot Mode Select	LEGACY UEFI DUAL	Select Boot Mode LEGACY/UEFI

- Default Boot Priority: Hard Disk → NVMe → USB → Network
- Choose specifies boot device priority sequence from available Group device.
- Choose boot priority from boot option group.

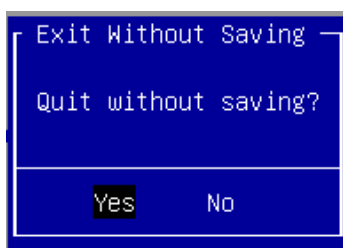
Save and Exit Menu

Select the **Save and Exit** menu item from the BIOS setup screen to enter the "Save and Exit" setup screen. Users can select any of the items in the left frame of the screen.



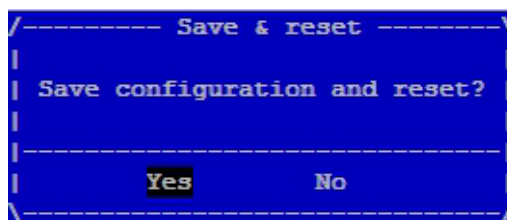
■ Discard Changes and Exit

Select this option to quit Setup without saving any modifications to the system configuration. The following window will appear after the "**Discard Changes and Exit**" option is selected. Select "**Yes**" to Discard changes and Exit Setup.



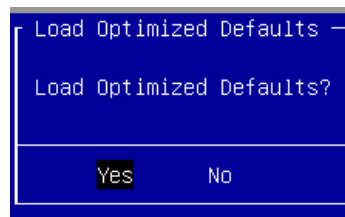
■ Save Changes and Reset

When Users have completed the system configuration changes, select this option to save the changes and reset from BIOS Setup in order for the new system configuration parameters to take effect. The following window will appear after selecting the "**Save Changes and Reset**" option is selected. Select "**Yes**" to Save Changes and reset.



■ Restore Defaults

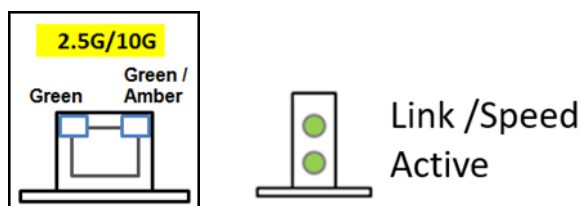
Restore default values for all setup options. Select **“Yes”** to load Optimized defaults.



Note: The items under Boot Override may not be the same as image above, as it would depend on the actual devices connected on the system.

APPENDIX A: LED INDICATOR EXPLANATIONS

► RJ45 LAN LED



2.5Gb RJ45 LAN LED Define:

Speed	Green (Link/Active)	Green/Amber (Speed)
100M	ON / Blinking (Data Access)	OFF
1G	ON / Blinking (Data Access)	ON (Amber)
2.5G	ON / Blinking (Data access)	ON (Green)

1. When cable is plugged-in and network is linked. Both LED lights will be bright. The behavior is as defined.
2. Without the cable plugged-in, the LED should be off
3. If LAN Driver controls the LED, the behavior will follow the driver

APPENDIX B: ENABLE 2.5GBE LAN FUNCTIONALITY

The EAI-I500 comes equipped with Intel® i226 Ethernet Controller. In order to enable Intel® i226 2.5GbE LAN functionality, your Linux Kernel should be version 5.16.18. or higher.

The OS Support matrix can be found [here](#).

Open Source support for 2.5 GbE Intel® Ethernet Network Controllers (igc)

Product Specifications	Linux Driver	Linux*										FreeBSD*	VMware*	DPDK*	
		Kernel 5.4	Kernel 5.8	Kernel 5.16.18	RHEL 7.9	RHEL 8.1	RHEL 8.3	RHEL 8.6	Ubuntu* 18.04 LTS	Ubuntu* 20.04 LTS	Ubuntu* 22.04 LTS	13.0	ESXi8.0	20.05	22.07
I226-LM	igc	-	-	Yes	-	-	-	Yes	-	-	-	-	Yes	-	Yes
I226-V	igc	-	-	Yes	-	-	-	Yes	-	-	-	-	Yes	-	Yes
I226-IT	igc	-	-	Yes	-	-	-	Yes	-	-	-	-	Yes	-	Yes

If a customer requires assistance with a Kernel that is not mentioned in the table above, kindly contact our technical support team.

APPENDIX C: TERMS AND CONDITIONS

Warranty Policy

1. All products are under warranty against defects in materials and workmanship for a period of one year from the date of purchase.
2. The buyer will bear the return freight charges for goods returned for repair within the warranty period; whereas the manufacturer will bear the after-service freight charges for goods returned to the user.
3. The buyer will pay for the repair (for replaced components plus service time) and transportation charges (both ways) for items after the expiration of the warranty period.
4. If the RMA Service Request Form does not meet the stated requirement as listed on "RMA Service," RMA goods will be returned at customer's expense.
5. The following conditions are excluded from this warranty:
 - ▶ Improper or inadequate maintenance by the customer
 - ▶ Unauthorized modification, misuse, or reversed engineering of the product
 - ▶ Operation outside of the environmental specifications for the product.

RMA Service

Requesting an RMA#

1. To obtain an RMA number, simply fill out and fax the "RMA Request Form," to your supplier.
2. The customer is required to fill out the problem code as listed. If your problem is not among the codes listed, please write the symptom description in the remarks box.
3. Ship the defective unit(s) on freight prepaid terms. Use the original packing materials when possible.
4. Mark the RMA# clearly on the box.

Note: Customer is responsible for shipping damage(s) resulting from inadequate/loose packing of the defective unit(s). All RMA# are valid for 30 days only; RMA goods received after the effective RMA# period will be rejected.

RMA Service Request Form

When requesting RMA service, please fill out the following form. Without this form enclosed, your RMA cannot be processed.

RMA No.:		Reasons to Return: <input type="checkbox"/> Repair(Please include failure details)	
		<input type="checkbox"/> Testing Purpose	
Company:		Contact Person:	
Phone No.		Purchased Date:	
Fax No.:		Applied Date:	
Return Shipping Address: _____			
Shipping by: <input type="checkbox"/> Air Freight <input type="checkbox"/> Sea <input type="checkbox"/> Express_____			
<input type="checkbox"/> Others:_____			
Item	Model Name	Serial Number	Configuration

Item	Problem Code	Failure Status

*Problem Code:

01:D.O.A.	07: BIOS Problem	13: SCSI	19: DIO
02: Second Time	08: Keyboard Controller Fail	14: LPT Port	20: Buzzer
R.M.A.	09: Cache RMA Problem	15: PS2	21: Shut Down
03: CMOS Data Lost	10: Memory Socket Bad	16: LAN	22: Panel Fail
04: FDC Fail	11: Hang Up Software	17: COM Port	23: CRT Fail
05: HDC Fail	12: Out Look Damage	18: Watchdog Timer	24: Others (Pls specify)
06: Bad Slot			

Request Party

Confirmed By Supplier

Authorized Signature / Date

Authorized Signature / Date