Lanner

Network Appliance Platform

Hardware Platforms for Network Computing

NCA-4240
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.

Icon Descriptions

The icons are used in the manual to serve as an indication of interest topics or important messages.

Icon	Usage
 **Note or Information**	This mark indicates that there is something you should pay special attention to while using the product.
 **Warning or Important**	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 be registered 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 at our Lanner Technical Support and fill in a support ticket to our technical support department.

Documentation Feedback

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Acknowledgment

Federal Communication Commission Interference Statement

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.

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 the battery is replaced by an incorrect type.
- Dispose of used batteries according to the instructions.
- Installation should be conducted only by a trained electrician or only by an electrically trained person who knows all installation procedures 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 environment can result in an explosion or the leakage of flammable liquid or gas.
- A battery subjected to extremely low air pressure 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 Precautions

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. Particular attention should be given to supply connections other than direct connections to the branch circuit (e.g. use of power strips).
- Instruction for the installation of the conductor to building earth by a skilled person.

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 (green-and-yellow) is required and the part connecting the conductor must be greater than 6 mm2 or 8AWG.

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 6 mm2 ou 8 AWG.

Table of Contents

CHAPTER 1: PRODUCT OVERVIEW

The NCA-4240 features LGA 1700 socket, up to 64GB of DDR5 memory capacity at 4800MHz, comprehensive Intel® H610E/Q670E chipset, 1x Gbe RJ45, 8x 2.5 Gbe RJ45 with 3 pairs of bypass, 1x RJ45 console and 1x NIC slot.

Main Features

- Intel® Alder Lake S/Raptor Lake S/Raptor Lake S Refresh Processor with H610E/Q670E Chipset
- 1x GbE RJ45, 8x 2.5GbE RJ45, 1x NIC Module
- 3x Pairs of Gen 3 SE LAN Bypass
- 2x 288-pin DIMM DDR5 4800/5600 MHz (Max.64GB)
- 2x USB 3.0 Ports, 2x 2.5" HDD/SSD

Package Content

- 1x NCA-4240 Network Security Platform
- 1x Power Cable
- 1x RJ45 Console Cable; 2x SATA Cables
- 1x CPU Heatsink; 1x Air Duct
- 2x Short Ear Rack Mount Kit with Screws

Optional Kits

Model	Description
TPM Kit	IAC-TPM04A TPM Module
Riser Card Kit	PCIE Gen 3 Riser Card Kit for rear FH/HL PCIe expansion card
IO Card Kit	Upper-layer expansion card support for 2x 10G SFP
Wi-Fi Kit NCA-4240	AX201, Wi-Fi Module Kit with Antenna (CNVIO) and RF cover
Wi-Fi Kit NCA-4240	AX210, Wi-Fi Module Kit with Antenna (PCIe) and RF cover
Slide Rail Kit	Standard Slide Rail Kit, 438mm
Case Open Kit NCA-4240	Case Open Kit with 10cm cable and bracket

Note
For assistance in finding specific compatible components or kits, please inquire to your dealer or sales representative.

Ordering Information

SKU No.	Main Features
NCA-4240A	Intel® Alder Lake-S/Raptor Lake S/Raptor Lake S Refresh Processor, PCH H610E, 2x DDR5 U-DIMM, 1x Gbe RJ45, 8x 2.5 GbE RJ45 with 3 Pairs of Bypass, 1x RJ45 Console, 1x NIC Module Slot (1x PCIE*8), Single PSU
NCA-4240B	Intel® Alder Lake-S/Raptor Lake S/Raptor Lake S Refresh Processor, PCH Q670E, 2x DDR5 U-DIMM, 1x Gbe RJ45, 8x 2.5 GbE RJ45 with 3 Pairs of Bypass, 1x RJ45 Console, 1x NIC Module Slot (1x PCIE*8), Single PSU

System Specifications

Form Factor		1U 19" Rackmount
Platform	Processor Options	Intel® Alder Lake S/Raptor Lake S/Raptor Lake S Refresh
	CPU Socket	1x LGA1700 socket
	Chipset	SKU A: Intel® H610E SKU B: Intel® Q670E
BIOS		AMI SPI Flash BIOS
System Memory	Technology	DDR5 4800/5600 Non-ECC UDIMM
	Max. Capacity	Up to 64GB
	Socket	2x 288-pin DIMM
Networking	Ethernet Ports	1x GbE RJ45 w/ LED MGMT via i219; 8x 2.5GbE RJ45 w/ LED via i226
	Bypass	3 Pairs Gen3 SE
	NIC Module Slot	1x NIC Slot
LOM	IO Interface	N/A
	OPMA slot	N/A
I/O Interface	Reset Button	1x Reset Button
	LED Indicators	Power/Status/Storage LED Indicators
	Power Button	1x ATX Power Switch
	Console Port	1x RJ45 Console Port
	USB Port	2x USB 3.0 Port
	LCD Module	2x20 Character LCM, 4x Keypads
	Power input	AC Power Inlet on PSU
Storage	HDD/SSD Support	2x 2.5" Internal HDD/SSD Bays
	Onboard Slots	SKU A: 1x M.2 2242 M-Key SATA SKU B: 1x M.2 2242 M-Key SATA & 1x M.2 2280 M-Key NVME (PCIe Gen4x4)
Expansion	PCIe	1x PCIe x8 Gen4 FH/HL (SKU B only)
	Mini-PCIe	1x M.2 2230 E-Key (SKU B only)
Miscellaneous	Watchdog	Yes
	Internal RTC with Li Battery	Yes
	TPM	N/A; TPM 2.0 (Optional)
Cooling	Processor	Passive CPU Heatsink
	System	3x Cooling Smart Fans
Environmental Parameters	Temperature	0~40°C Operating; -40~70°C Non-Operating
	Humidity (RH)	5~90% Operating; 5~ 95% Non-Operating
System Dimensions	(WxDxH)	438mm x 321mm x 44mm
	Weight	19.3kg
Package Dimensions	(WxDxH)	533mm x 494mm x 185mm
	Weight	TBA
Power	Type/Watts	220W ATX Single PSUs
	Input	AC 90-264V@ 47~63 Hz
Approvals and Compliance		RoHS, CE/FCC Class A, UKCA, UL

Front Panel

No.	Description	
F1	LED Indicators	 System Power System Status HDD Activity
F2	Control Panel	2x20 Character LCM & 4x Keypad
F3	Reset Button	1x Reset Button
F4	Console Port	1x RJ45 Console Port
F5	USB Ports	2x USB 3.0 Ports
F6	LAN Port	1x GbE RJ45; 8x 2.5GbE RJ45
F7	NIC Slot	1x PCIe x8 for Front Slim Type NIC module (Slot1) NOTE: Unable to support dual PCIe*4 configuration

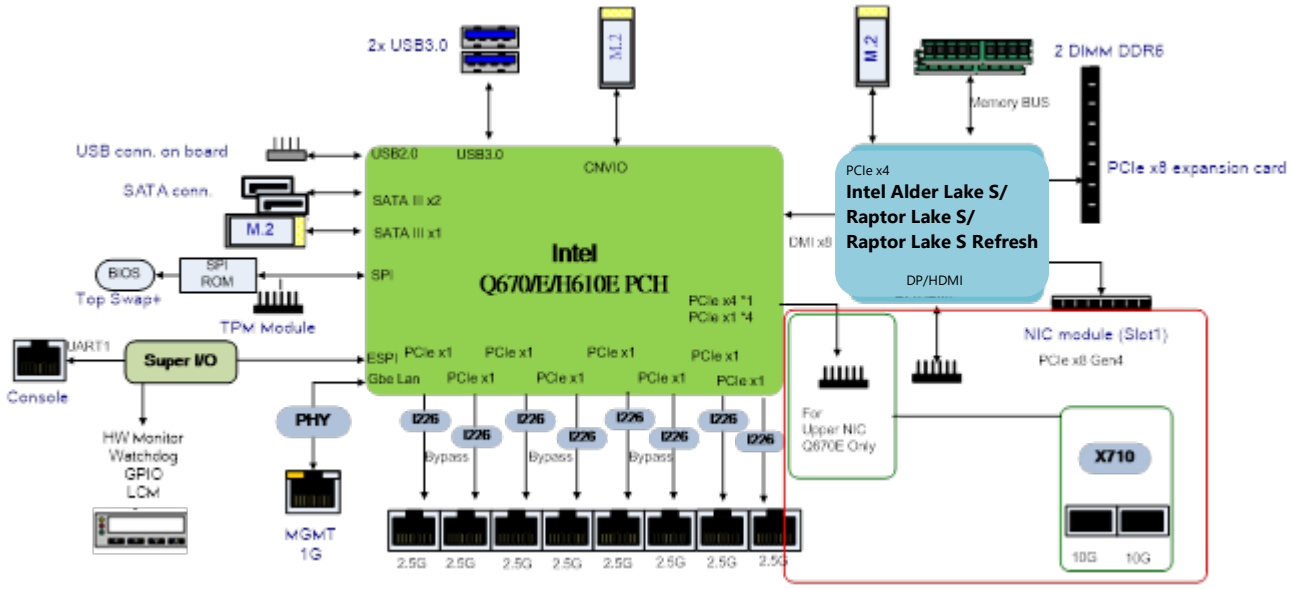
Rear Panel

No.	Description	
R1	PCIe Expansion Slot	FH/HL Size PCIe Slot for 1x PCIE*8 (Optional)
R2	Cooling Fan	3x Smart Fans
R3	Power Button	1x Power On/Off Switch
R4	Power Inlet	AC Power Inlet on PSU

Motherboard Information

Block Diagram

The block diagram indicates how data flows among components on the motherboard. Please refer to the following figure for your motherboard's layout design.

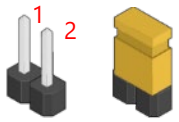
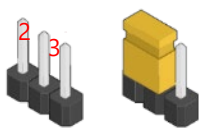
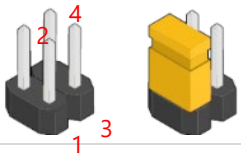


Internal Jumpers

The pin headers on the motherboard play a crucial role in controlling key functions. By placing a shunt (jumper) over the specified pins (whose numbers are labeled on the circuit board around the pin header), you can enable or disable specific features. Always ensure that your system is powered off before adjusting the jumpers.

Jumper Setting

To short the designated pins, push the jumper down on them so that they become **SHORT**. To make the pins setting **OPEN**, simply remove the jumper cap.

2-pin Header	3-pin Header	4-pin Header
		
Open Short	Open (1-2) Jumped	Open (1-2) Jumped

1. JRTC1：RTC Reset

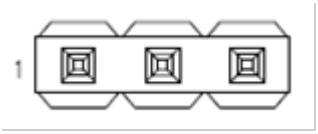
Jumper	Description
1-2 (Default)	Normal
2-3	Reset register bits in the RTC well

2. JCMOS1: Secured RTC Reset

Jumper	Description
1-2 (Default)	Normal
2-3	Reset the manageability register bits in the RTC well

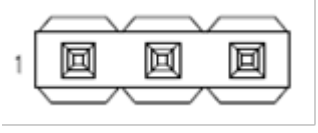
3. JRST1: HW/SW Reset Selection

Jumper	Description
1-2	Hardware Reset
2-3 (Default)	Software Reset



4. JMCU1: Update LPC844 FW

Jumper	Description
1-2 (Default)	Normal
2-3	ISP Mode



Connectors Pin Assignment

1. JOPEN1: Case Open Wafer

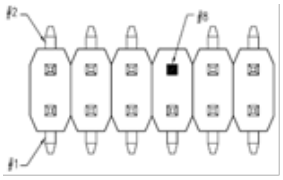
Pin No.	Description	Pin No.	Description
1	GND	2	PCH_INTRUDER_HDR_N

2. JPWR1: Power On/Off Wafer

Pin No.	Description	Pin No.	Description
1	PWRBTN_N	2	GND

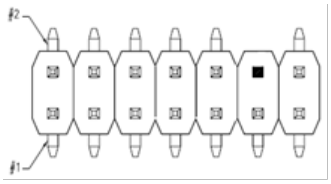
3. JESPI1: ESPI Debug 80 Port Pin Header

Pin No.	Description	Pin No.	Description
1	ESPI_CLK_SIO	2	ESPI_IO1_SIO
3	ESPI_RST_SIO_N	4	ESPI_IO0_SIO
5	ESPI_CS0_SIO_N	6	+V3P3S
7	ESPI_IO3_SIO	-	--
9	ESPI_IO2_SIO	10	GND
11	+V3P3DSW	12	NC



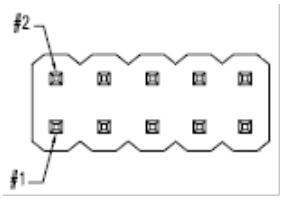
4. JSPI_TPM1: SPI and TPM Pin Header

Pin No.	Description	Pin No.	Description
1	SPI_HD#	2	NC
3	SPI_CS0_SF_N	4	+V3P3A_TPM
5	SPI_MISO_TPM	6	SPI_HOLD_SF_N
7	NC	8	SPI_CLK_TPM
9	GND	10	SPI_MOSI_TPM
11	IRQ_TPM_N	-	--
13	SPI_CS2_TPM_N	14	PLTRST_TPM_N



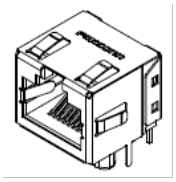
5. JGPIO1: GPIO Pin Header

Pin No.	Description	Pin No.	Description
1	GPO_B_1	2	GPI_B_1
3	GPO_B_2	4	GPI_B_2
5	GPO_B_3	6	GPI_B_3
7	GPO_B_4	8	GPI_B_4
9	GND	10	GND



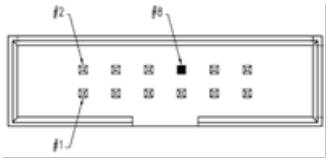
6. COM1: Console RJ45

Pin No.	Description	Pin No.	Description
1	COM1_RTS_N	5	GND
2	COM1_DTR_N	6	COM1_RXD
3	COM1_TXD	7	COM1_DSR_N
4	GND	8	COM1_CTS_N



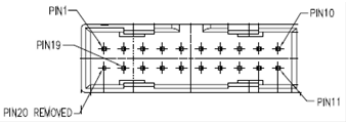
7. COM2: Serial Port 2 Box Header

Pin No.	Description	Pin No.	Description
1	+V5S	2	HDD_LED_N
3	COM2_DCD_N	4	COM2_DSR_N
5	COM2_RXD	6	COM2_RTS_N
7	COM2_TXD	-	--
9	COM2_DTR_N	10	COM2_CTS_N
11	GND_COM	12	COM2_RI_N



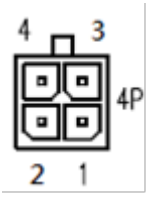
8. JUSB1: Internal USB Box Header

Pin No.	Description	Pin No.	Description
1	+USB3_PW	11	USB2_4+
2	USB3_R3-	12	USB2_4-
3	USB3_R3+	13	GND_USB2
4	GND_USB2	14	USB3_T4+
5	USB3_T3-	15	USB3_T4-
6	USB3_T3+	16	GND_USB2
7	GND_USB2	17	USB3_R4+
8	USB2_3-	18	USB3_R4-
9	USB2_3+	19	+USB4_PW
10	NC	-	--



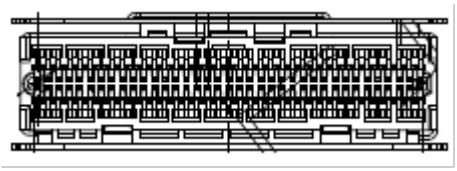
9. ATX3: IO Power Connector

Pin No.	Description
1	GND
2	GND
3	+V3P3S
4	+V12S



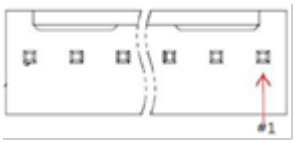
10. JSL1: IO Slim SAS Connector

Pin No.	Description	Pin No.	Description	Pin No.	Description	Pin No.	Description
A1	GND	A20		B1	GND	B20	
A2	CLK_SLIM_DP	A21		B2	PCIE21_TX_C_DP	B21	
A3	CLK_SLIM_DN	A22	GND	B3	PCIE21_TX_C_DN	B22	GND
A4	GND	A23		B4	GND	B23	
A5	PCIE21_RX_DP	A24		B5	PCIE22_TX_C_DP	B24	
A6	PCIE21_RX_DN	A25	GND	B6	PCIE22_TX_C_DN	B25	GND
A7	GND	A26		B7	GND	B26	
A8	PCIE22_RX_DP	A27		B8	PCIE23_TX_C_DP	B27	
A9	PCIE22_RX_DN	A28	GND	B9	PCIE23_TX_C_DN	B28	GND
A10	GND	A29		B10	GND	B29	SMB_CLK
A11	PCIE23_RX_DP	A30		B11	PCIE24_TX_C_DP	B30	SMB_DATA
A12	PCIE23_RX_DN	A31	GND	B12	PCIE24_TX_C_DN	B31	GND
A13	GND	A32		B13	GND	B32	PCH_WAKE_N
A14	PCIE24_RX_DP	A33		B14		B33	PCIE1_PRSNT1_N
A15	PCIE24_RX_DN	A34	GND	B15		B34	GND
A16	GND	A35	PCIE1_PRSNT0_N	B16	GND	B35	+V3P3_DUAL
A17		A36	PLTRST_PCIE3_N	B17		B36	+V3P3_DUAL
A18		A37	GND	B18		B37	GND
A19	GND			B19	GND		



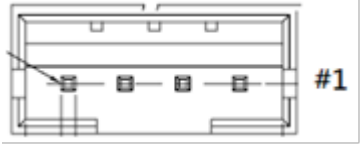
11. FAN1 ~ FAN3: FAN Connector

Pin No.	Description
1	GND
2	+V12S
3	HM_FAN_TECH_IN1
4	HM_FAN_TECH_IN2
5	HM_PWMOUT1



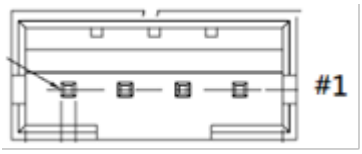
12. CON1: LPC844 Flash Write Wafer

Pin No.	Description
1	+V3P3DSW
2	MCU_RXD
3	GND
4	MCU_TXD



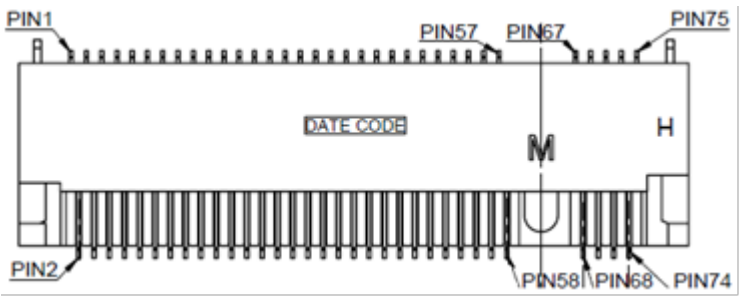
13. CON2: LPC844 SW Debug Wafer

Pin No.	Description
1	+V3P3DSW
2	GND
3	MCU_CLK
4	MCU_DIO



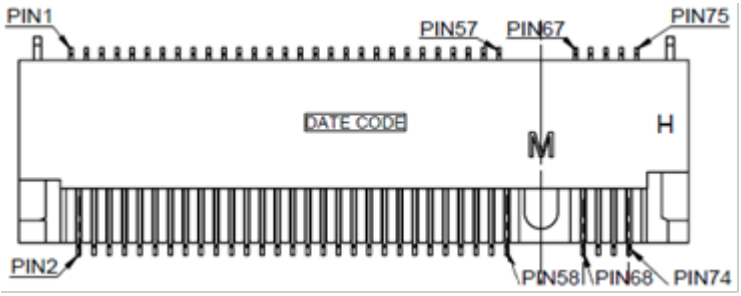
14. NGFF1: PCIe M.2 M-Key Connector

Pin No.	Description	Pin No.	Description	Pin No.	Description	Pin No.	Description
1	GND	39	GND	2	+P3V3	40	NC
3	GND	41	NGFF_CRX_DTX_N0	4	+P3V3	42	NC
5	NGFF_CRX_DTX_N3	43	NGFF_CRX_DTX_P0	6	NC	44	NC
7	NGFF_CRX_DTX_P3	45	GND	8	NC	46	NC
9	GND	47	NGFF_CTX_DRX_N0	10	M2_ACT_LED_L	48	NC
11	NGFF_CTX_DRX_N3	49	NGFF_CTX_DRX_P0	12	+V3P3S	50	RST_M2_N
13	NGFF_CTX_DRX_P3	51	GND	14	+V3P3S	52	M2_CLKREQ_N
15	GND	53	CLK_CPU_M2_DN	16	+V3P3S	54	M2_PEWAKE_N
17	NGFF_CRX_DTX_N2	55	CLK_CPU_M2_DP	18	+V3P3S	56	NC
19	NGFF_CRX_DTX_P2	57	GND	20	NC	58	NC
21	GND	59	KEY	22	NC	60	KEY
23	NGFF_CTX_DRX_N2	61	KEY	24	NC	62	KEY
25	NGFF_CTX_DRX_P2	63	KEY	26	NC	64	KEY
27	GND	65	KEY	28	NC	66	KEY
29	NGFF_CRX_DTX_N1	67	NC	30	NC	68	CLK32K_M2_R
31	NGFF_CRX_DTX_P1	69	M2_PEDET	32	NC	70	+V3P3S
33	GND	71	GND	34	NC	72	+V3P3S
35	NGFF_CTX_DRX_N1	73	GND	36	NC	74	+V3P3S
37	NGFF_CTX_DRX_P1	75	GND	38	NC	-	--



15. NGFF2: SATA M.2 M-Key Connector

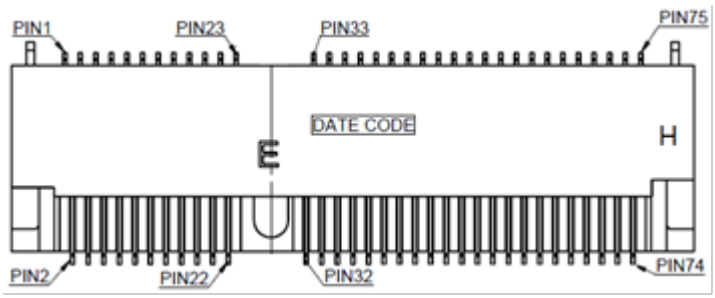
Pin No.	Description	Pin No.	Description	Pin No.	Description	Pin No.	Description
1	GND	39	GND	2	+V3P3S	40	NC
3	GND	41	SATA_RX6_P	4	+V3P3S	42	NC
5	NC	43	SATA_RX6_N	6	NC	44	NC
7	NC	45	GND	8	NC	46	NC
9	GND	47	SATA_TX6_N	10	NC	48	NC
11	NC	49	SATA_TX6_P	12	+V3P3S	50	NC
13	NC	51	GND	14	+V3P3S	52	NC
15	GND	53	NC	16	+V3P3S	54	NC
17	NC	55	NC	18	+V3P3S	56	NC
19	NC	57	GND	20	NC	58	NC
21	GND	59	KEY	22	NC	60	KEY
23	NC	61	KEY	24	NC	62	KEY
25	NC	63	KEY	26	NC	64	KEY
27	GND	65	KEY	28	NC	66	KEY
29	NC	67	NC	30	NC	68	NC
31	NC	69	M2_PEDET	32	NC	70	+V3P3S
33	GND	71	GND	34	NC	72	+V3P3S
35	NC	73	GND	36	NC	74	+V3P3S
37	NC	75	GND	38	NC	-	--



16. NGFF3: CNVio M.2 E-Key Connector

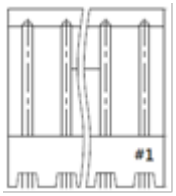
Pin No.	Description	Pin No.	Description	Pin No.	Description	Pin No.	Description
1	GND	39	GND	2	+V3P3_WIFI	40	CLINK_DATA
3	USB2_DP14	41	PCIE16_RX_DP	4	+V3P3_WIFI	42	CLINK_CLK
5	USB2_DN14	43	PCIE16_RX_DN	6	WLAN_LED1	44	M2_COEX3
7	GND	45	GND	8	M.2_PCMCLK	46	M2_COEX2
9	CNV_WR_1_DN	47	CLK_PCH_M2_DP	10	M.2_RST_N	48	M2_COEX1
11	CNV_WR_1_DP	49	CLK_PCH_M2_DN	12	M.2_PCMIN	50	M2_E_SUSCLK
13	GND	51	GND	14	M.2_PCMOUT	52	M2_E_RST#
15	CNV_WR_0_DN	53	E_CLKREQ_N	16	WLAN_LED2	54	M.2_BT_RF_KILL_N

17	CNV_WR_0_DP	55	PCH_WAKE_N	18	GND	56	M.2_WIFI_RF_KILL_N
19	GND	57	GND	20	UART_BT_WAKE_N	58	NC
21	CNV_WR_CLK_DN	59	CNV_WT_1_DN	22	CNV_BRI_RSP	60	NC
23	CNV_WR_CLK_DP	61	CNV_WT_1_DP	24	KEY	62	NC
25	KEY	63	GND	26	KEY	64	NC
27	KEY	65	CNV_WT_0_DN	28	KEY	66	NC
29	KEY	67	CNV_WT_0_DP	30	KEY	68	NC
31	KEY	69	GND	32	CNV_RGI_DT	70	NC
33	GND	71	CNV_WT_CLK_DN	34	CNV_RGI_RSP	72	+V3P3_WIFI
35	PCIE16_TX_C_DP	73	CNV_WT_CLK_DP	36	CNV_BRI_DT	74	+V3P3_WIFI
37	PCIE16_TX_C_DN	75	GND	38	CLINK_RST_N		



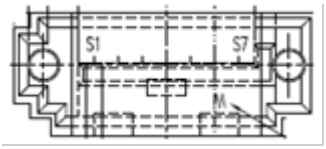
17. PWR1 ~ PWR2: SATA Power Wafer

Pin No.	Description
1	+V12S
2	GND
3	GND
4	+V5S



18. SATA1~SATA2: SATA Signal

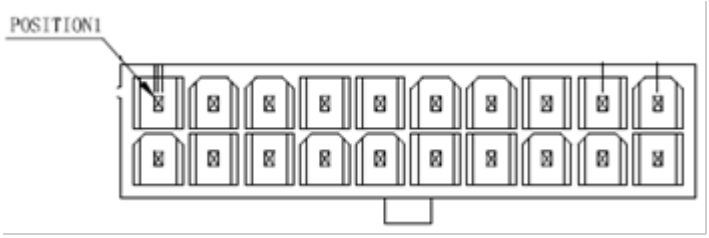
Pin No.	Description	Pin No.	Description
1	GND	5	SATA_RX_DN
2	SATA_TX_DP	6	SATA_RX_DP
3	SATA_TX_DN	7	GND
4	GND		



19. ATX1: ATX Power Connector

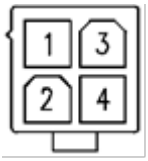
Pin No.	Description	Pin No.	Description	Pin No.	Description	Pin No.	Description
1	+V3P3S	39	GND	2	+V3P3S	40	GND
3	+V3P3S	41	POK	4	NC	42	NC
5	GND	43	+V5DSW	6	GND	44	+V5S
7	+V5S	45	+V12S	8	PSON#	46	+V5S

9	GND	47	+V12S	10	GND	48	+V5S
11	+V5S	49	+V3P3S	12	GND	50	GND



20. ATX2: ATX Power Connector

Pin No.	Description
1	+GND
2	+P12V
3	GND
4	+P12V



CHAPTER 2: HARDWARE SETUP

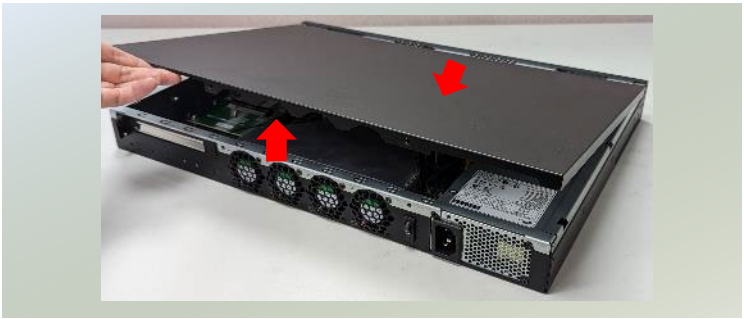
To reduce the risk of personal injury, electric shock, or damage to the system, please remove all power connections to shut down the device completely, and wear ESD protection gloves when handling the installation steps.

Opening the Chassis

1. Power off the system and remove all power connections.

2. Locate and remove the two (2) screws on the chassis cover.

3. Gently slide the chassis cover away from the system and lift the cover to remove.



Installing the System Memory

The motherboard supports two memory slots for DDR5 UDIMM. Please follow the steps below to install the DIMM memory modules.

Supported System Memory Summary

Total Slots	2
Number of Channels	2 (2 DIMMs per channel)
Supported DIMM Capacity	4GB, 8GB, 16GB, 32GB
Memory Size	Maximum 64GB (32GB*2)
Memory Type	DDR5 Non-ECC UDIMM 4800/5600MHz
Minimum DIMM Installed	At least 1 memory modules to boot and run from

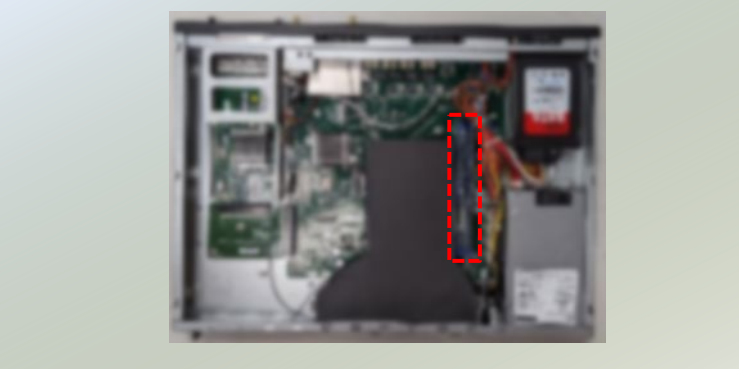
DIMM Population Guidelines

- The CPU requires at least 1 memory module to boot and run from.
- Use memory modules of the same capacity, speed, and from the same manufacturer to avoid compatibility issues and to achieve optimal CPU performance.

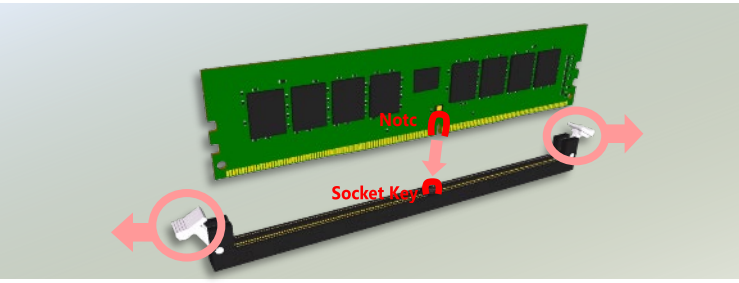
Memory Module Installation Instructions

Please follow the steps below to install the DIMM memory modules.

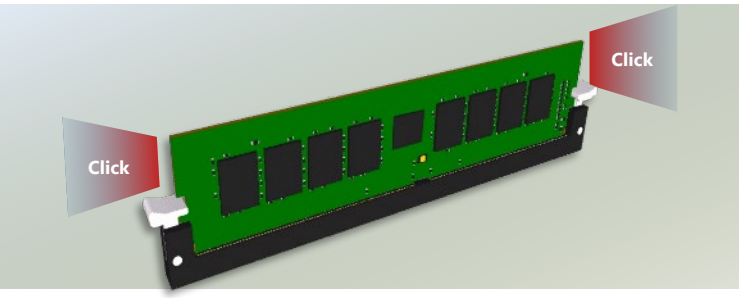
1. Power off the system and open the chassis cover.
2. Locate the DIMM memory slots.



3. Pull open the DIMM slot latches.
4. Align the notch of the module with the socket key in the slot and carefully insert the card into the slot.



5. Push the module down into the slot until it is firmly seated. Press vertically on both corners of the card until it clicks into place.



Installing the TPM Module (Optional)

The system provides one slot for a TPM module card for hardware-based security related functions. Follow the steps below for installation.

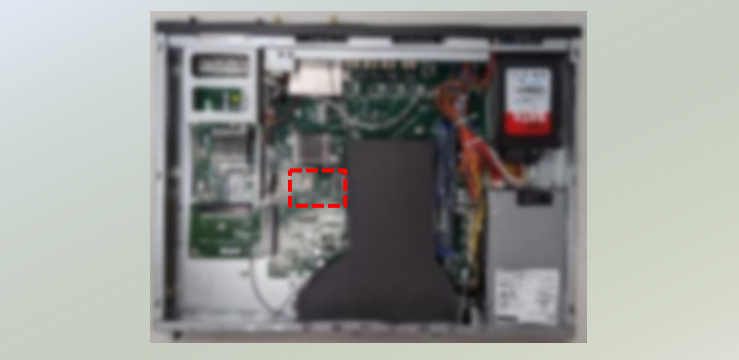
1. Power off the system and open the chassis cover.
2. Locate the TPM connector pins on the motherboard.

3. Insert the module card pins with the connector pins, until the module card is firmly seated.

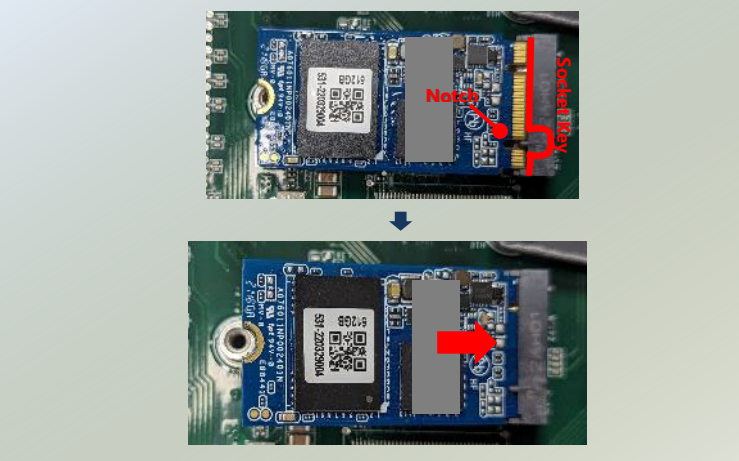
Installing the M.2 Storage (Optional)

The system supports one M.2 slot for additional data storage. Please follow the steps for installation.

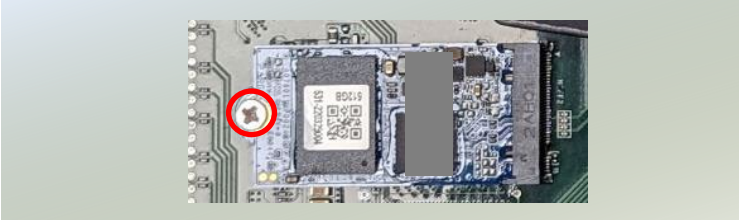
1. Power off the system and open the chassis cover.
2. Locate the M.2 2242 M-Key slot on the motherboard.



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



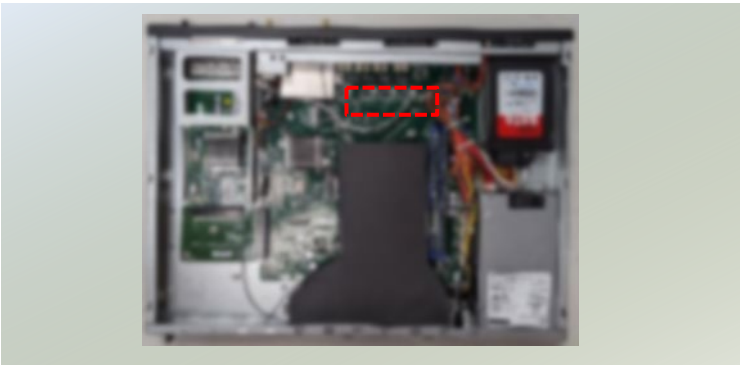
5. Push down on the module card and secure with a screw.



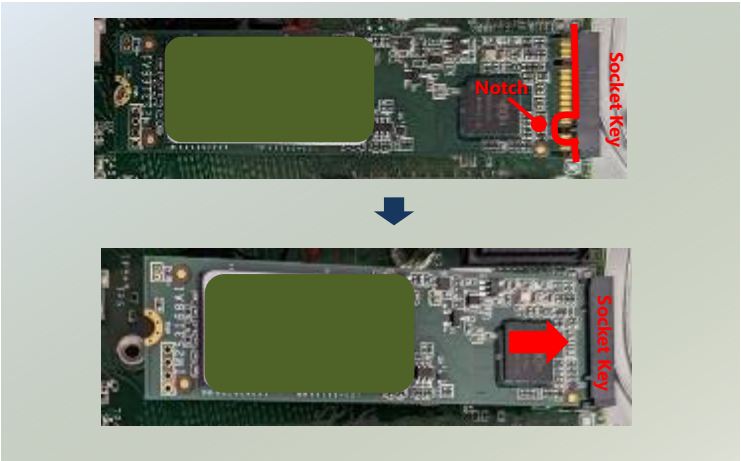
Installing the M.2 Storage (SKU B Only, Optional)

NCA-4240 SKU B also supports an additional M.2 2280 M-Key slot for NVMe storage. Please follow the steps for installation.

1. Power off the system and open the chassis cover.
2. Locate the M.2 2280 M-Key slot on the motherboard.



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



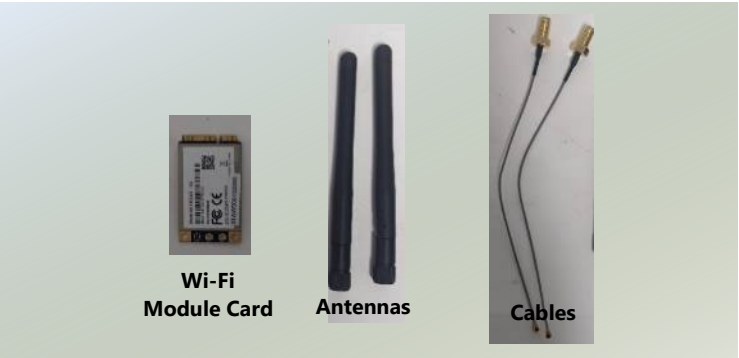
5. Push down on the module card and secure with one (1) screw.

Installing the Wi-Fi Module Card (SKU B Only, Optional)

NCA-4240 SKU B supports one M.2 2230 E-Key for a Wi-Fi or BT module card. Wi-Fi module requires two antennas. Please follow the steps to install the Wi-Fi module card.

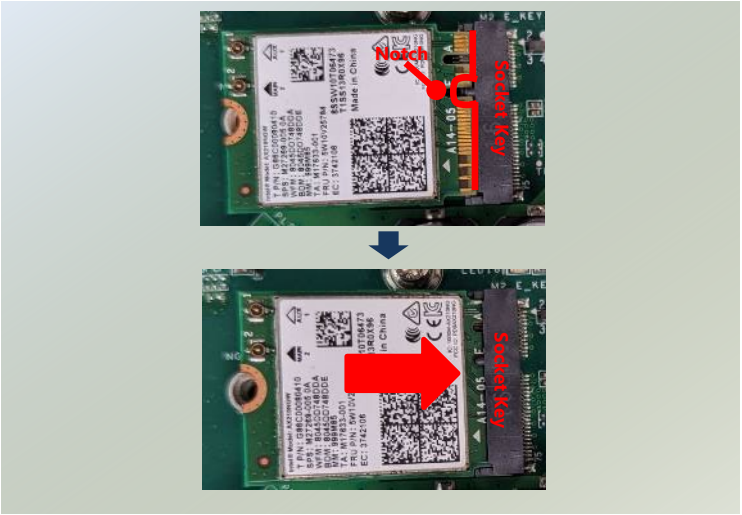
The Wi-Fi Module Card kit contains the following items:

- 1x Wi-Fi Module Card
- 2x SMA to IPEX cable
- 2x Antennas



1. Power off the system and open the chassis cover.
2. Locate the M.2 2230 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 card pins at 30 degrees into the socket until it is fully seated.

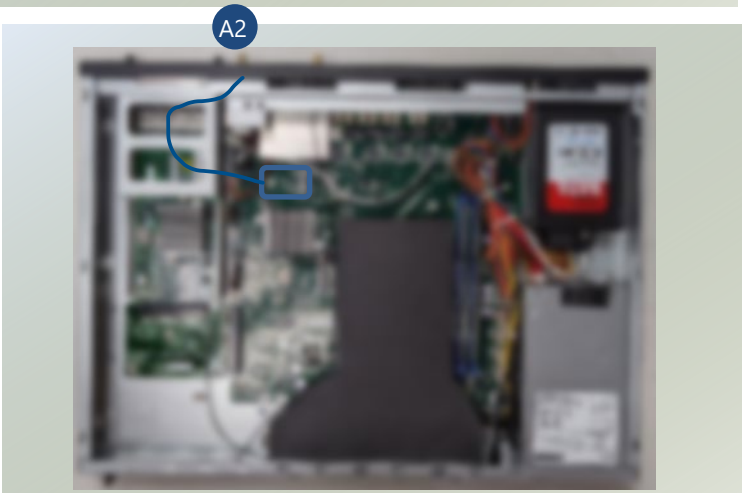


5. Push down on the module card and secure with a screw.

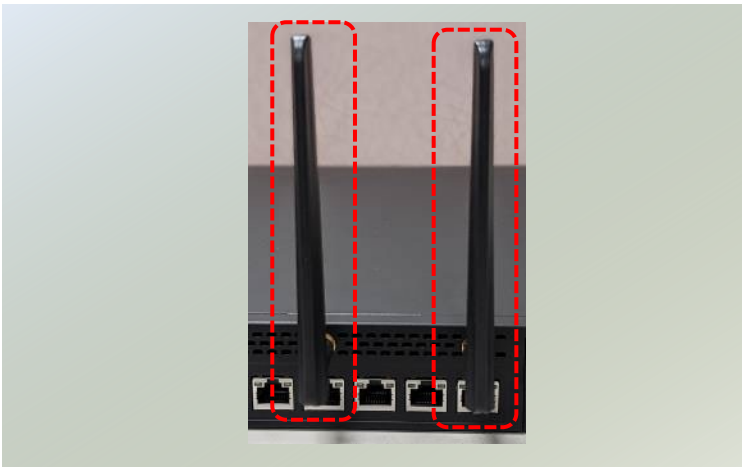
Installing Wi-Fi Antennas

1. Locate the two (2) antenna hole placements (A1, A2). Locate the two (2) IPEX connectors on the Wi-Fi module card.

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



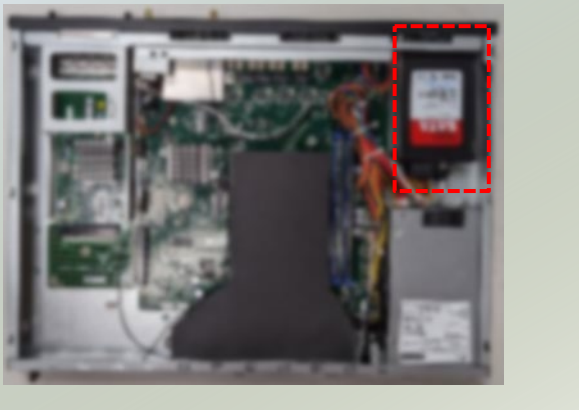
3. Then, screw on the antennas on the outside of the system.



Installing the Disk Drives (Optional)

The HDD/SSD bay supports two 2.5" SATA HDDs or SSD for additional data storage. Follow the steps for installation.

1. Power off the system and open the chassis cover.
2. Locate the 2.5" disk tray inside the system.

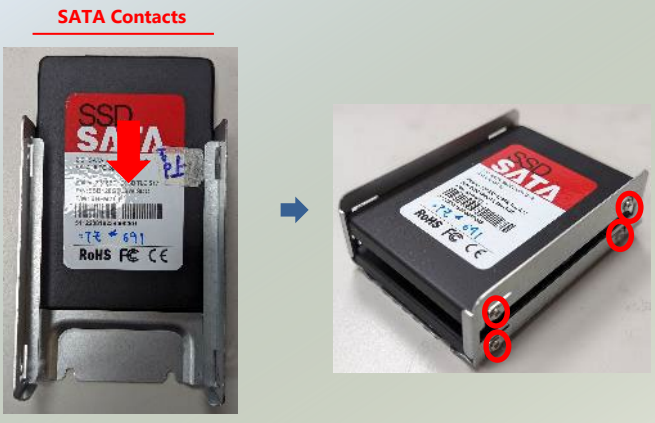


3. Loosen the one (1) screw that secures the tray. Remove the screw, take the tray out and prepare to install the disk drives.

NOTE: Make sure to watch out for the notches (circled in blue) on the sides of the tray, especially when placing the tray back in the system.

4. Mount the disk drives in the tray, make sure the SATA Contacts (SATA data cables and power cable connectors) are facing outwards. Apply two (2) screws on each side of the disk drive.

NOTE: When installing two disk drives, begin with the one in the lower (bottom) slot.



5. Attach the SATA data cable and power cable to the HDD/SSD disk.

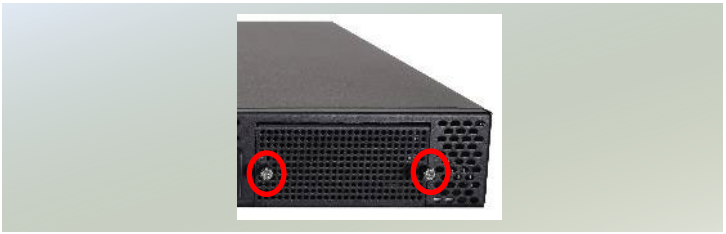
6. Place the tray (with the disk drives now installed) back to its original place inside the system. Secure with the original one (1) screw.

Installing the NIC Modules

The system comes with one NIC module slot for expansion. Follow the steps for installation.

1. Locate the NIC module slot on the front panel of the system.

2. Rotate clockwise and loosen the two lock-screws, and remove the NIC module slot door.



3. Insert your NIC module. (The module shown here is for reference only.)

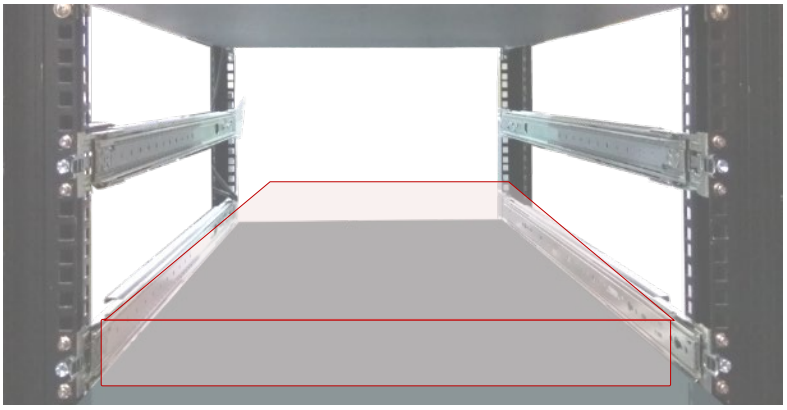
4. Once the module is firmly seated, rotate counter-clockwise and tighten the two lock-screws.

Mounting the System

This system offers multiple mounting options to suit your application and environment. It includes two types of mounting kits: one for standard rack or enclosure installations and another for integrating this system into a rack.

- **Ear Brackets**

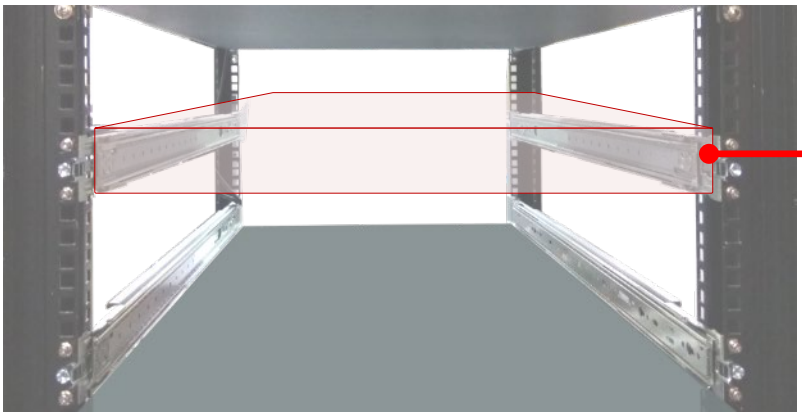
This quick and straightforward method involves attaching the system to the rack's front posts. To prevent the chassis from tipping over, it's crucial to pair this method with a shelf or slide rails for added stability.



Note: The system should be installed on the rack using a shelf or slide rails, as the "Mounting Ears" are designed for securing the system, not supporting it.

- **Slide Rail Kit + Short Ear Brackets**

The sliding rack-mount rails provide easy access to the system while ensuring it is securely fastened to the rack.



The Slide Rail Kit ensures the system is securely held in place while providing adequate weight support for the device.

CHAPTER 3: SOFTWARE SETUP

BIOS Setup

BIOS is a firmware embedded on an exclusive chip on the system's motherboard. Lanner's BIOS firmware offering including market-proven technologies such as Secure Boot and Intel Boot Guard technology deliver solid commitments for the shield protection against malware, uncertified sequences and other named cyber threats.

Main Setup

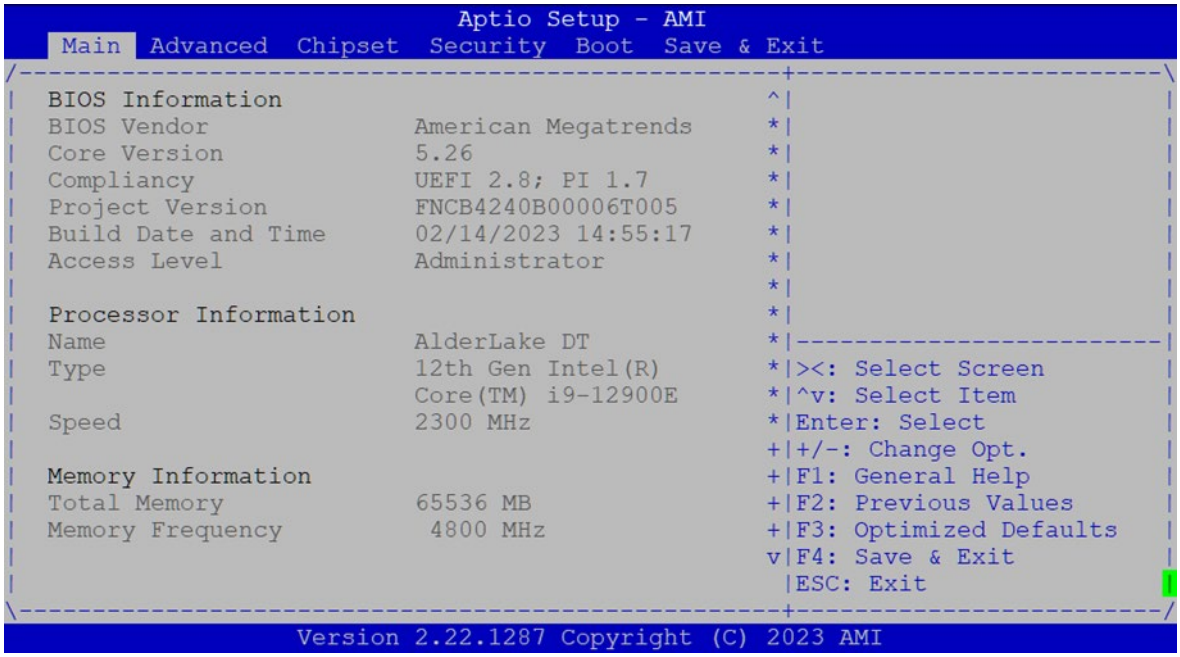
To enter the BIOS setup utility, simply follow the steps below:

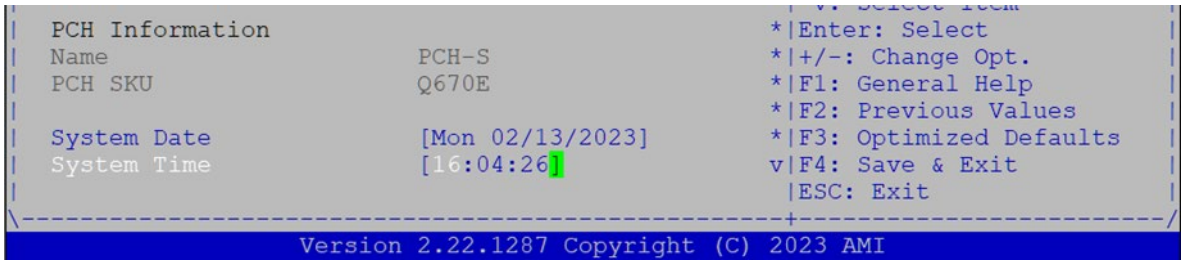
1. Boot up the system.
2. Pressing the **<Tab>** or **<Del>** key immediately allows you to enter the Setup utility, and then you will be directed to the BIOS main screen. The instructions for BIOS navigations are as below:

Control Keys	Description
→←	select a setup screen
↑↓	select an item/option on a setup screen
<Enter>	select an item/option or enter a sub-menu
+/-	adjust values for the selected setup item/option
F1	display General Help screen
F2	retrieve previous values, such as the last configured parameters during the last time you entered BIOS
F3	load optimized default values
F4	save configurations and exit BIOS
<Esc>	exit the current screen

Main Page

Setup main page contains BIOS information and project version information.

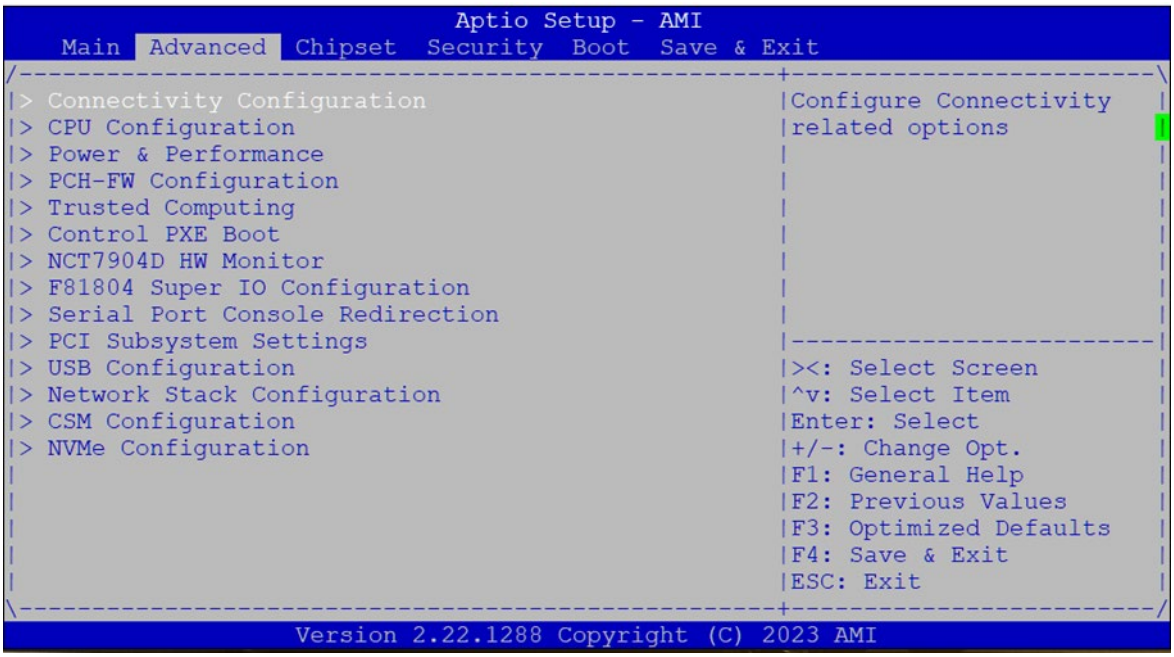




Feature	Description
BIOS Information	BIOS Vendor: American Megatrends Core Version: AMI Kernel version, CRB code base, X64 Compliancy: UEFI version, PI version Project Version: BIOS release version Build Date and Time: MM/DD/YYYY Access Level: Administrator / User
Processor Information	Information of platform processor
Memory Information	Information of memory
PCH Information	Information of platform pch
System Date	To set the Date, use **<Tab>** to switch between Date elements. Default Range of Year: 1998-9999 Default Range of Month: 1-12 Days: dependent on Month.
System Time	To set the Date, use **<Tab>** to switch between Date elements.

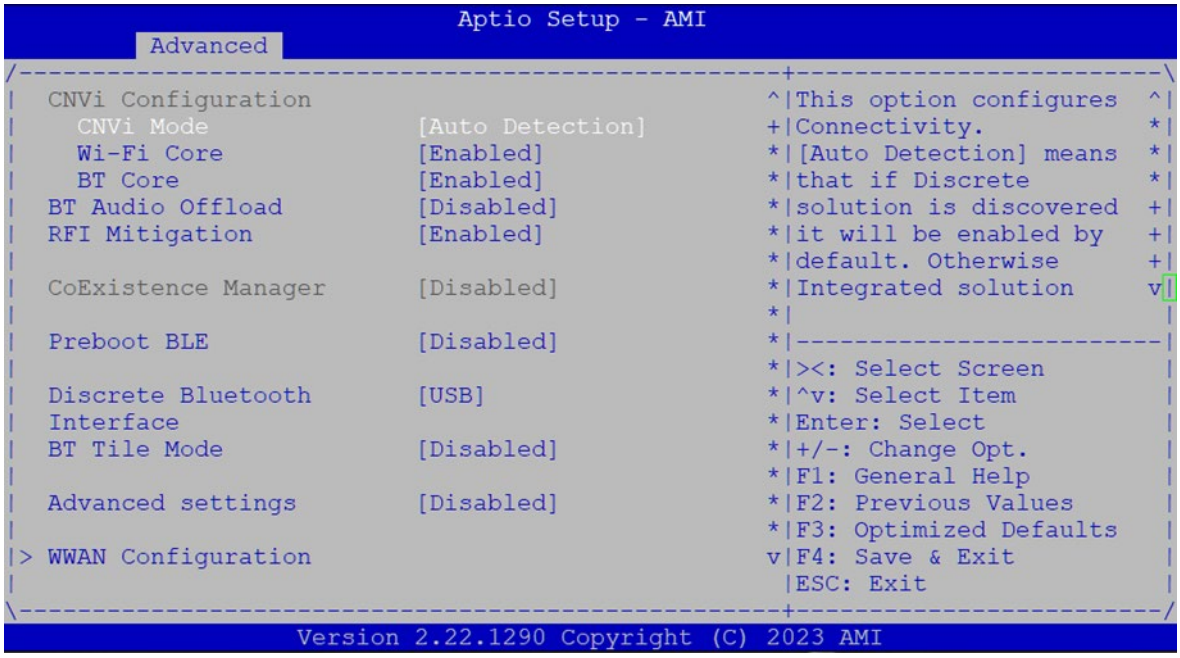
Advanced Page

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.



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

Connectivity Configuration



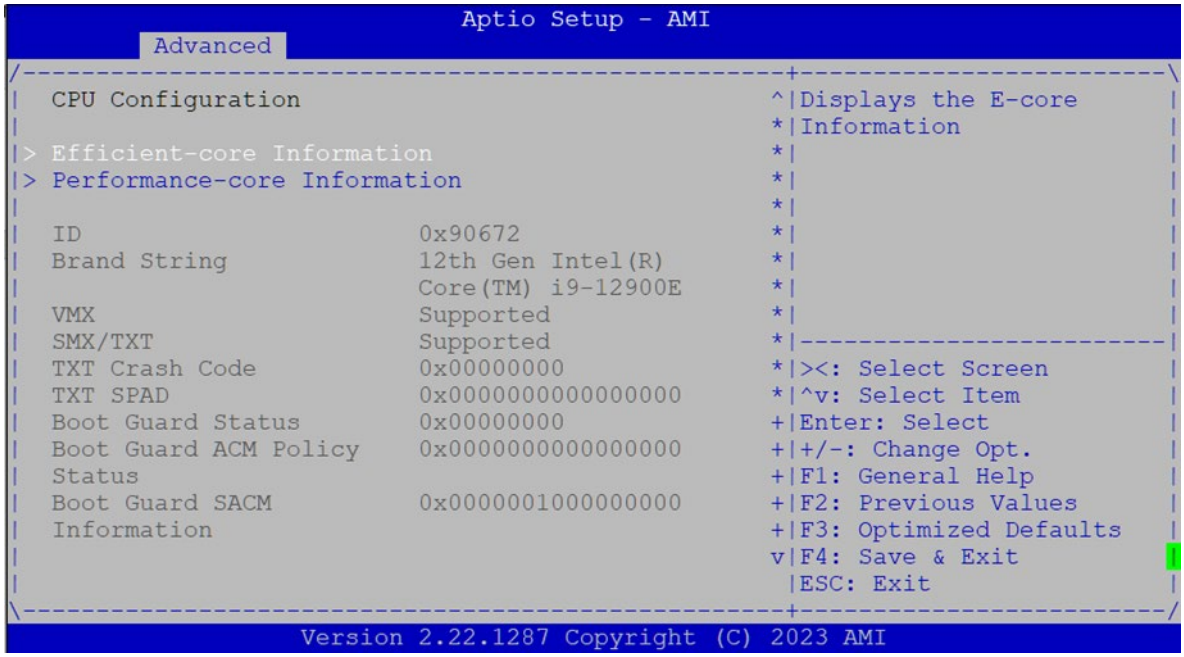
Feature	Options	Description
CNVi Mode	Disable Integrated Auto Detection	This option configures Connectivity. **[Auto Detection]** means that if Discrete solution is discovered it will be enabled by default. Otherwise Integrated solution (CNVi) will be enabled; **[Disable Integrated]** disables Integrated Solution. **NOTE**: When CNVi is present, the GPIO pins that are used for radio interface cannot be assigned to the other native function.
Wi-Fi Core	Enabled Disabled	This is an option intended to Enable/Disable Wi-Fi Core in CNVi
BT Core	Enabled Disabled	This is an option intended to Enable/Disable BT Core in CNVi
BT Audio Offload	Disabled Enabled	This is an option to Enable/Disable BT Audio Offload which enables audio input from BT device to the audio DSP and enables power efficient audio output to BT device.
RFI Mitigation	Enabled Disabled	This is an option intended to Enable/Disable DDR-RFIM feature for Connectivity This RFI mitigation feature may result in temporary slowdown of the DDR speed.
Preboot BLE	Disabled Enabled	This will be used to enable Preboot Bluetooth function
Discrete Bluetooth Interface	Disabled USB	Serial IO UART0 needs to be enabled to select BT interface
BT Tile Mode	Disabled Enabled	Enable/Disable Tile

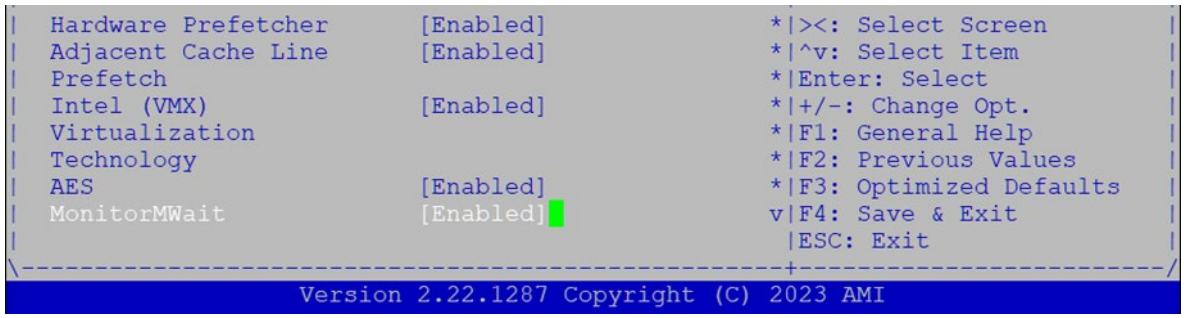
Advanced Setting	Disabled Enabled	Configure ACPI objects for wireless devices

WWAN Configuration

Feature	Options	Description
WWAN Device	Disabled 4G-730/7560 5G-M80	Select the M.2 WWAN Device options to enable 4G - 7360/7560 (Intel), 5G - M80 (MediaTek) Modems

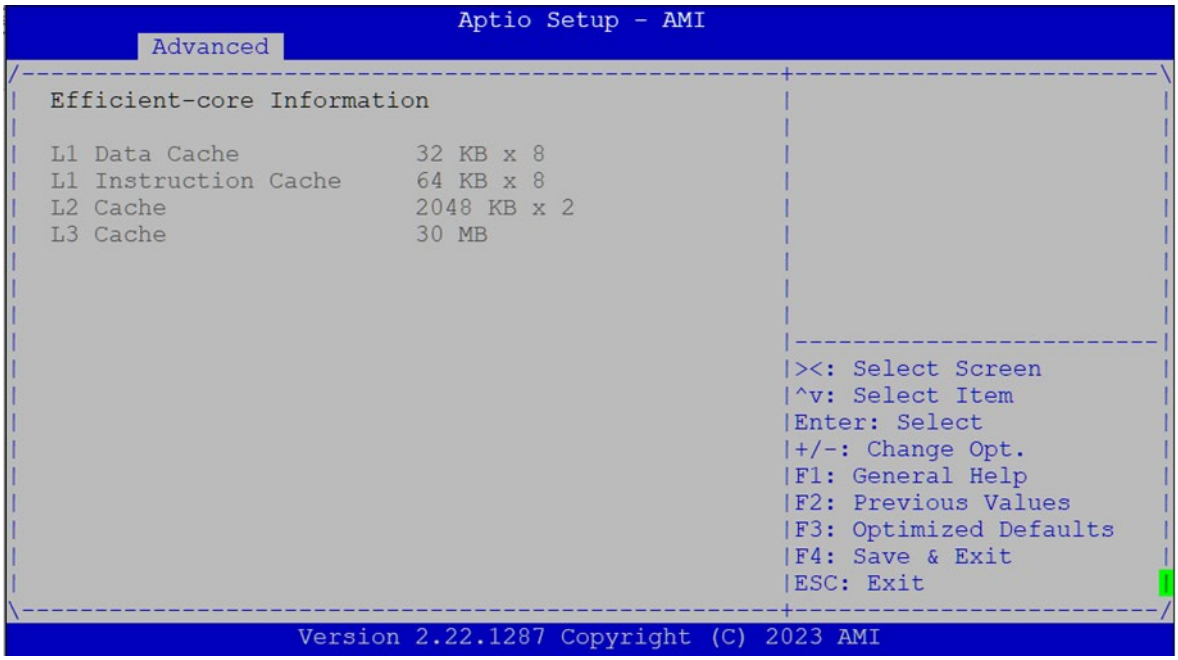
CPU Configuration



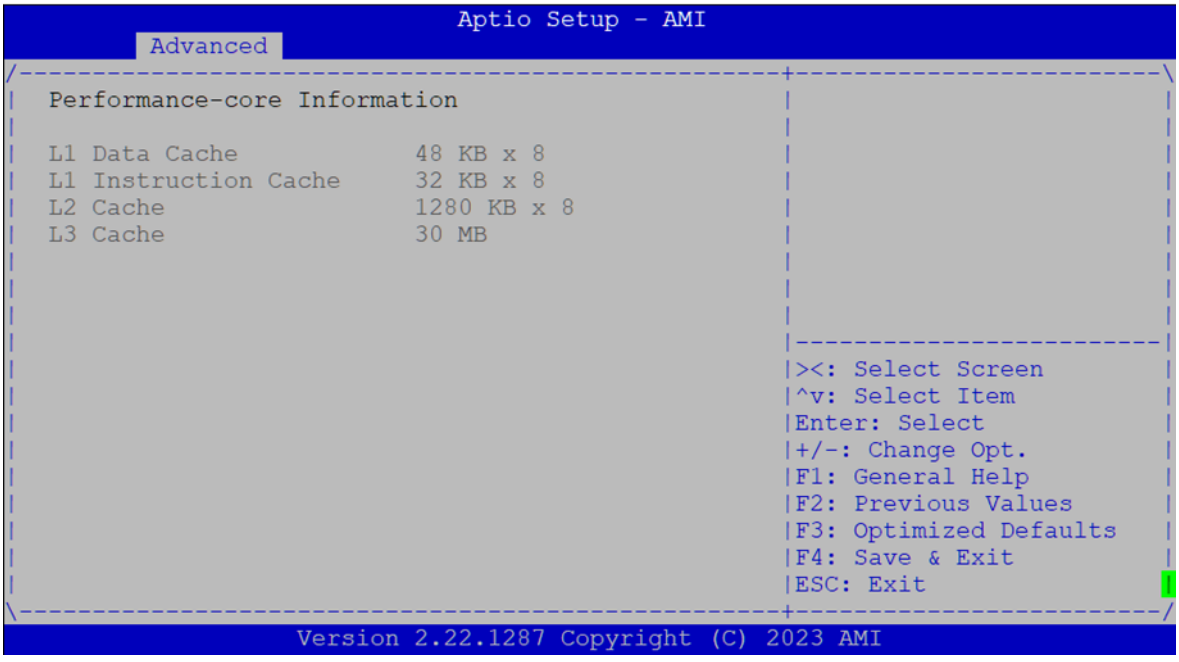


Feature	Options	Description
Hardware Prefetcher	Disabled Enabled	To turn on/off the MLC streamer prefetcher.
Adjacent Cache Line Prefetch	Disabled Enabled	To turn on/off prefetching of adjacent cache lines.
Intel (VMX) Virtualization Technology	Disabled Enabled	When enabled, a VMM can utilize the additional hardware capabilities provided by Vanderpool Technology.
AES	Disabled Enabled	Enable/Disable AES (Advanced Encryption Standard)
MonitorMWait	Disabled Enabled	Enable/Disable MonitorMWait, if Disable MonitorMwait, the AP threads Idle Manner should not set in MWAIT Loop

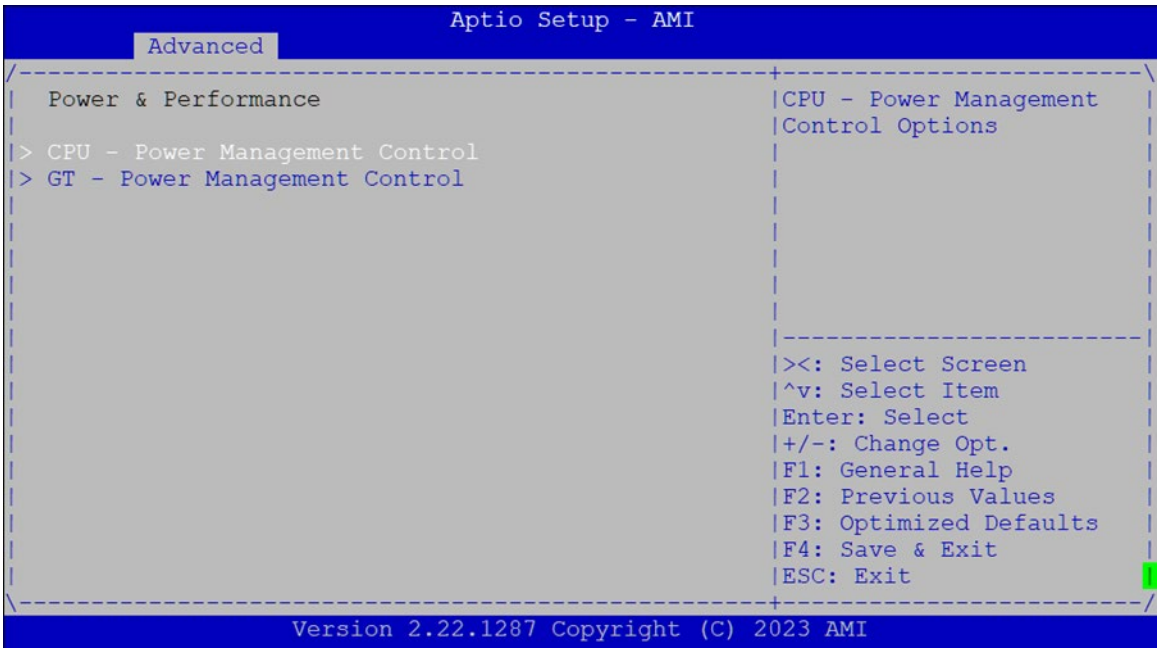
Efficient-Core Information



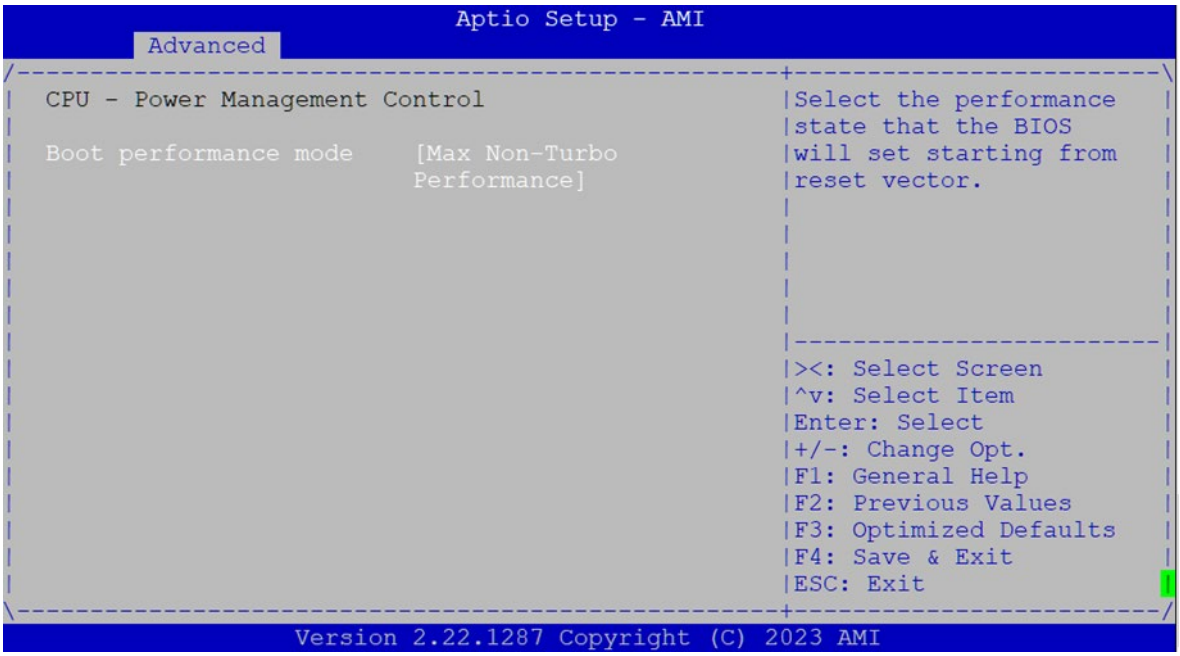
Performance-Core Information



Power & Performance

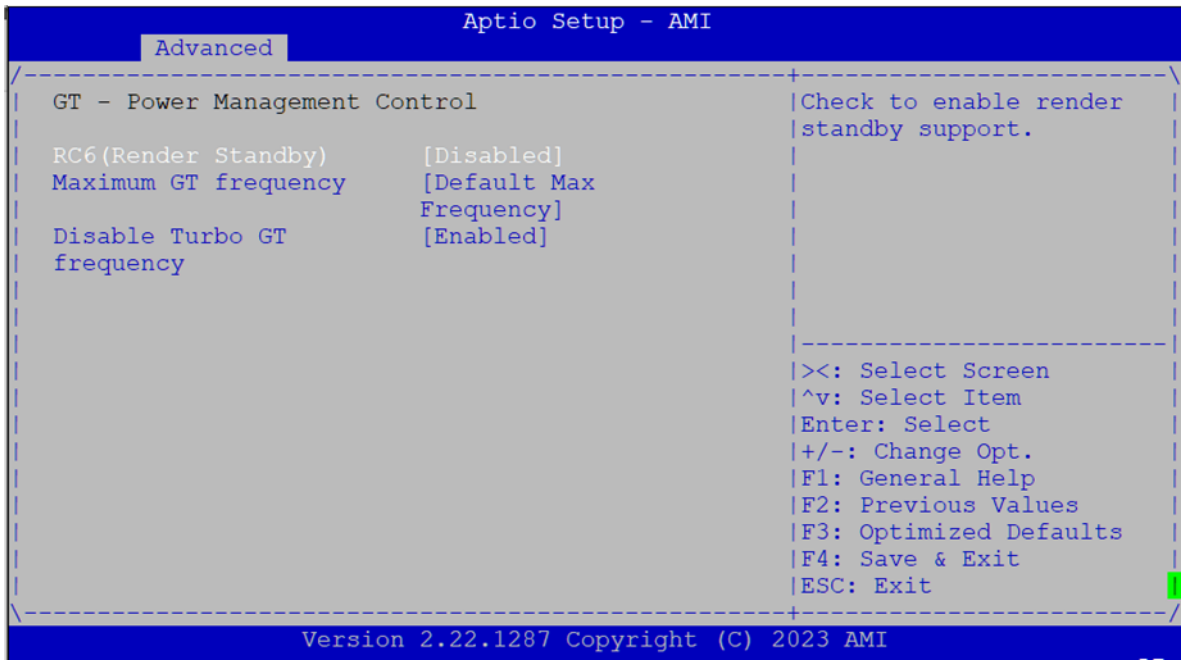


CPU – Power Management Control



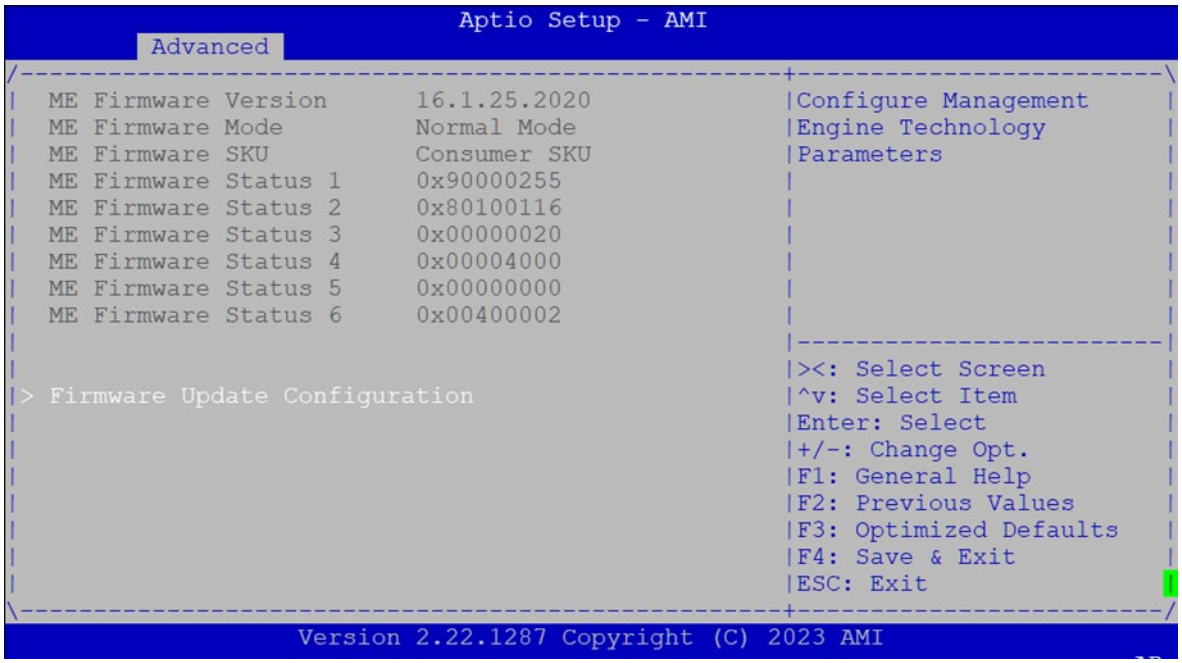
Feature	Options	Description
Boot Performance Mode	Max Battery Max Non-Turbo Performance Turbo Performance	Select the performance state that the BIOS will set starting from reset vector.

GT – Power Management Control

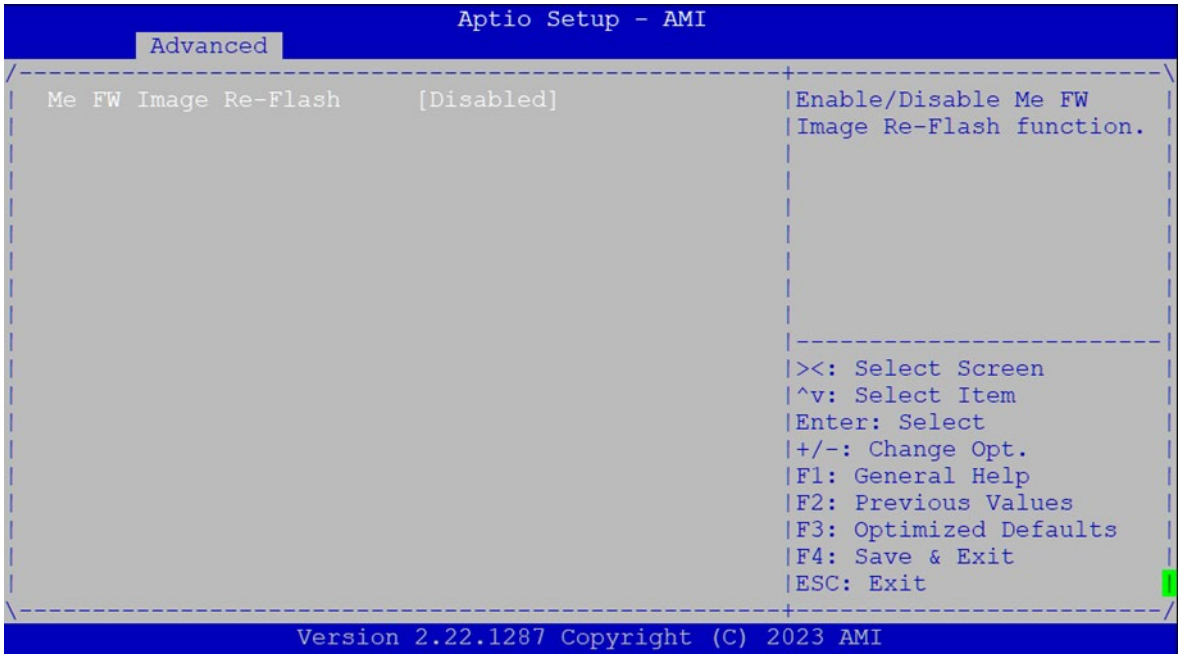


Feature	Options	Description
RC6 (Render Standby)	Disabled Enabled	Check to enable render standby support.
Maximum GT Frequency	Default Max Frequency	Maximum GT frequency limited by the user. Choose between 300MHz (RPN) and 1550MHz (RP0). Value beyond the range will be clipped to min/max supported by SKU
Disable Turbo GT Frequency	Enabled Disabled	Enabled: Disables Turbo GT frequency. Disabled: GT frequency is not limited

PCH-FW Configuration

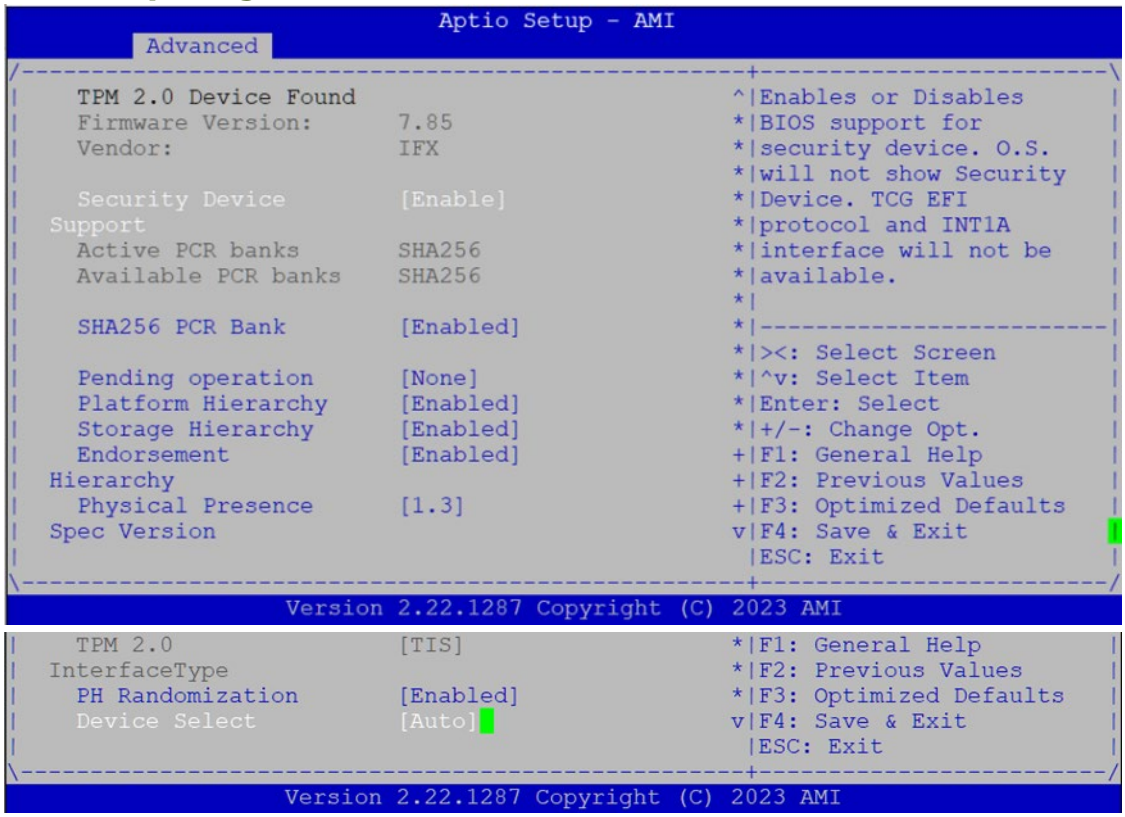


Firmware Update Configuration



Feature	Options	Description
Me FW Image Re-Flash	Disabled Enabled	Enable/Disable Me FW Image Re-Flash function.

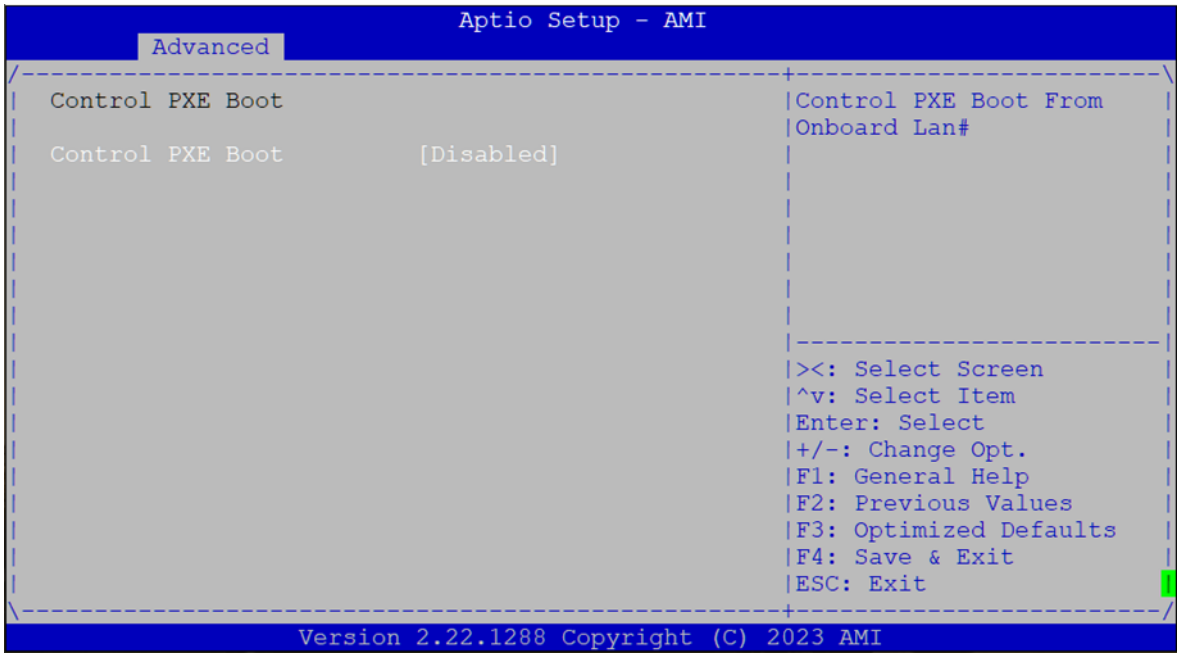
Trusted Computing



Feature	Options	Description
Security Device Support	Disable Enable	Enables or Disables BIOS support for security device. O.S. will not show Security Device. TCG EFI protocol and INT1A interface will not be available.
SHA256 PCR Bank	Disable Enable	Enable or Disable SHA256 PCR Bank
Pending Operation	None TPM Clear	Schedule an Operation for the Security Device. **NOTE:** Your Computer will reboot during restart to change State of Security Device.
Platform Hierarchy	Disabled Enabled	Enable or Disable Platform Hierarchy
Storage Hierarchy	Disabled Enabled	Enable or Disable Storage Hierarchy
Endorsement Hierarchy	Disabled Enabled	Enable or Disable Endorsement Hierarchy
Physical Presence Spec Version	1.2 1.3	Select to Tell O.S. to support PPI Spec Version 1.2 or 1.3. **NOTE:** some HCK tests might not support 1.3.
PH Randomization	Disabled Enabled	Enables or Disables Platform Hierarchy randomization. DO NOT ENABLE THIS QUESTION IN PRODUCTION PLATFORMS. THIS IS FOR DEVELOPMENT TESTING. OVERRIDE ChangePlatformAuth ELINK for production platforms supporting TXT.

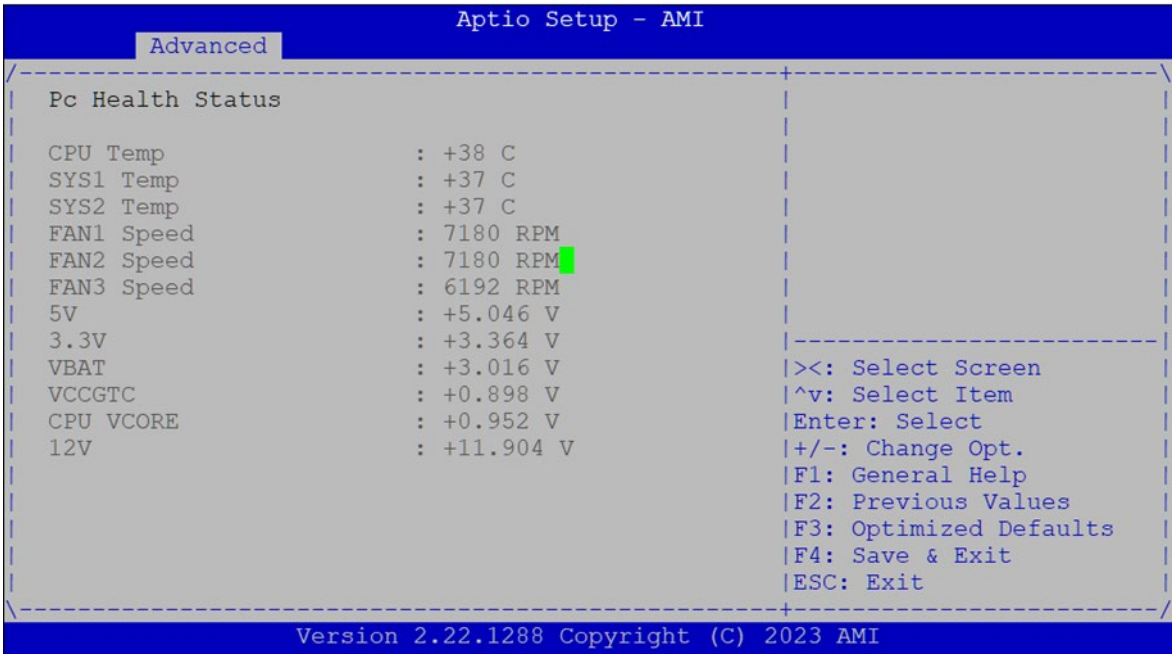
Device Select	TPM 1.2 TPM 2.0 Auto	**TPM 1.2** will restrict support to TPM 1.2 devices, **TPM 2.0** will restrict support to TPM 2.0 devices, **Auto** will support both with the default set to TPM 2.0 devices if not found, TPM 1.2 devices will be enumerated

Control PXE Boot



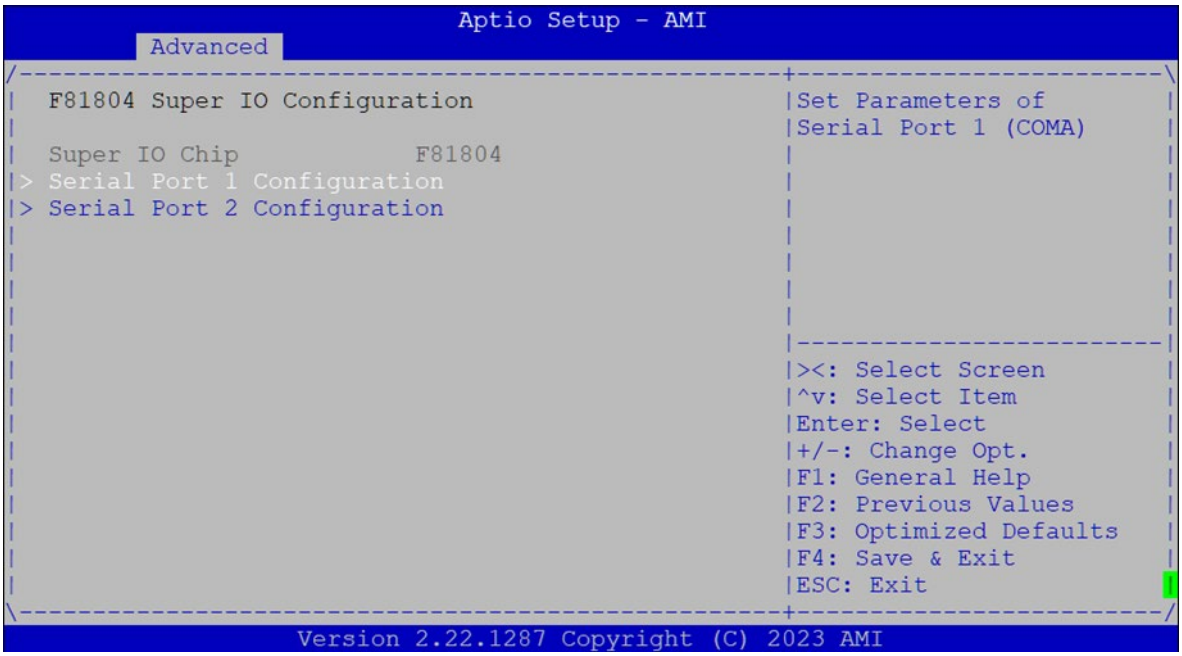
Feature	Options	Description
Control PXE Boot	Disabled Lan0	Control PXE Boot from onboard Lan#.

NCT7904D HW Monitor

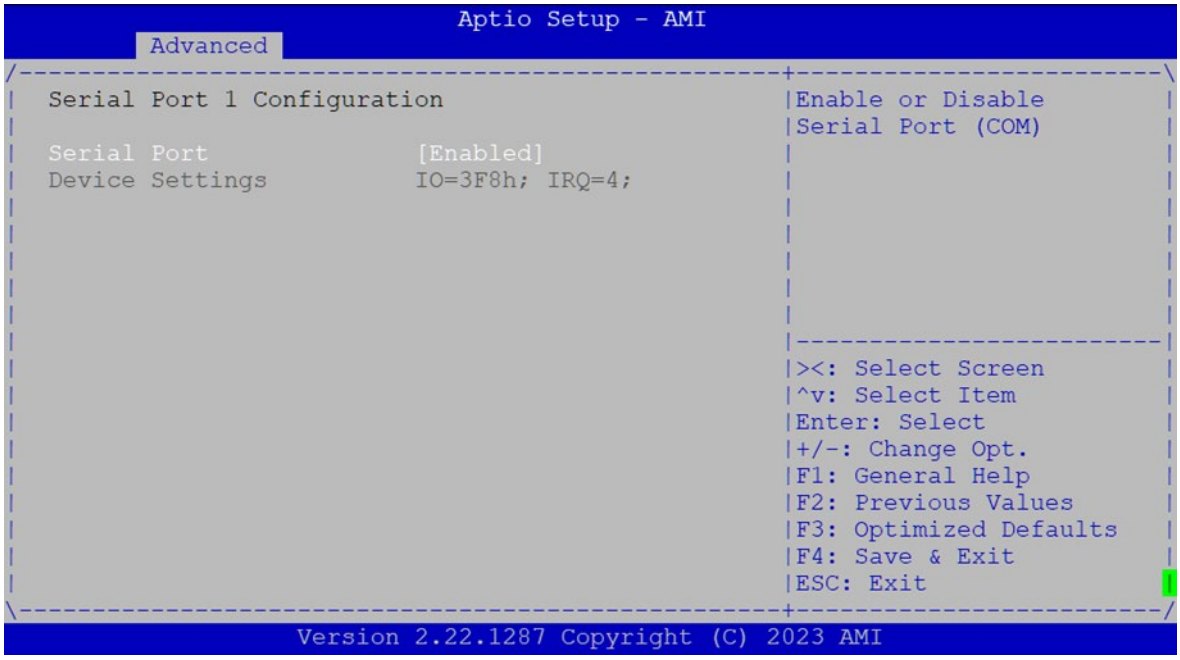


Feature	Description
CPU Temp	This value reports the CPU temperature
SYS1 Temp	This value reports the System temperature
SYS2 Temp	This value reports the System temperature (Close CPU)
FAN1 Speed	This value reports the Fan1 speed
FAN2 Speed	This value reports the Fan2 speed
FAN3 Speed	This value reports the Fan3 speed
5V	This value reports the 5V Input voltage
3.3V	This value reports the 3.3V Input voltage
VBAT	This value reports the VBAT Input Voltage
VCCGTC	This value reports the VCCGT Input voltage
CPU VCORE	This value reports the CPU VCORE Input voltage
12V	This value reports the 12V Input voltage

F81804 Super IO Configuration

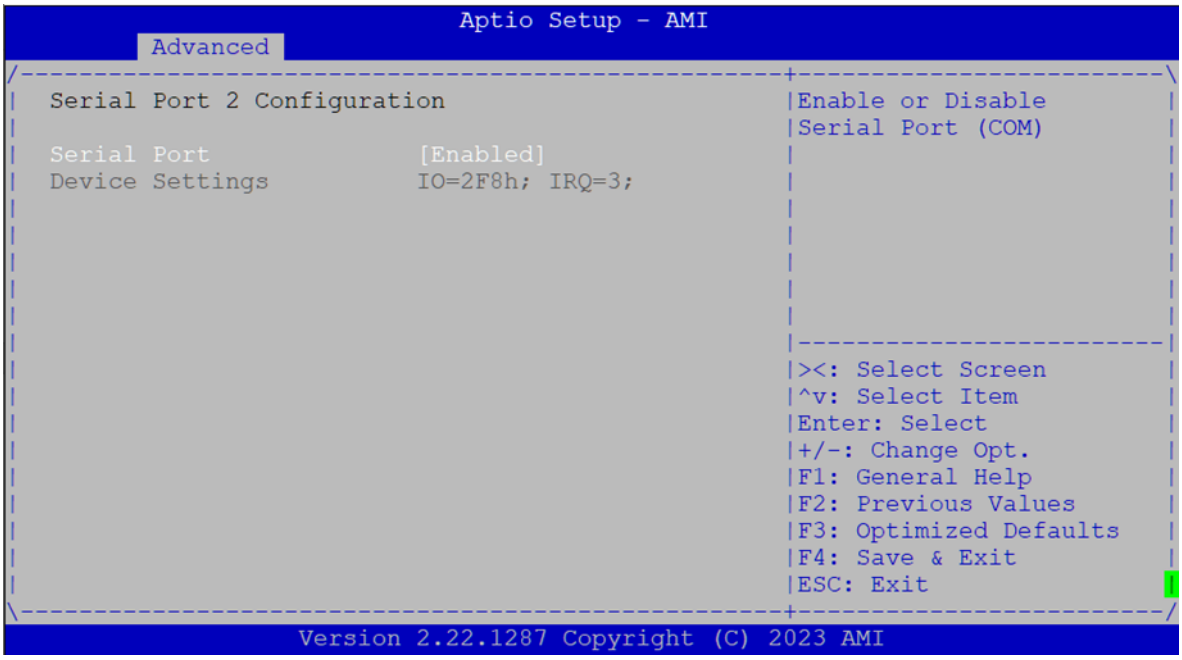


Serial Port 1 Configuration



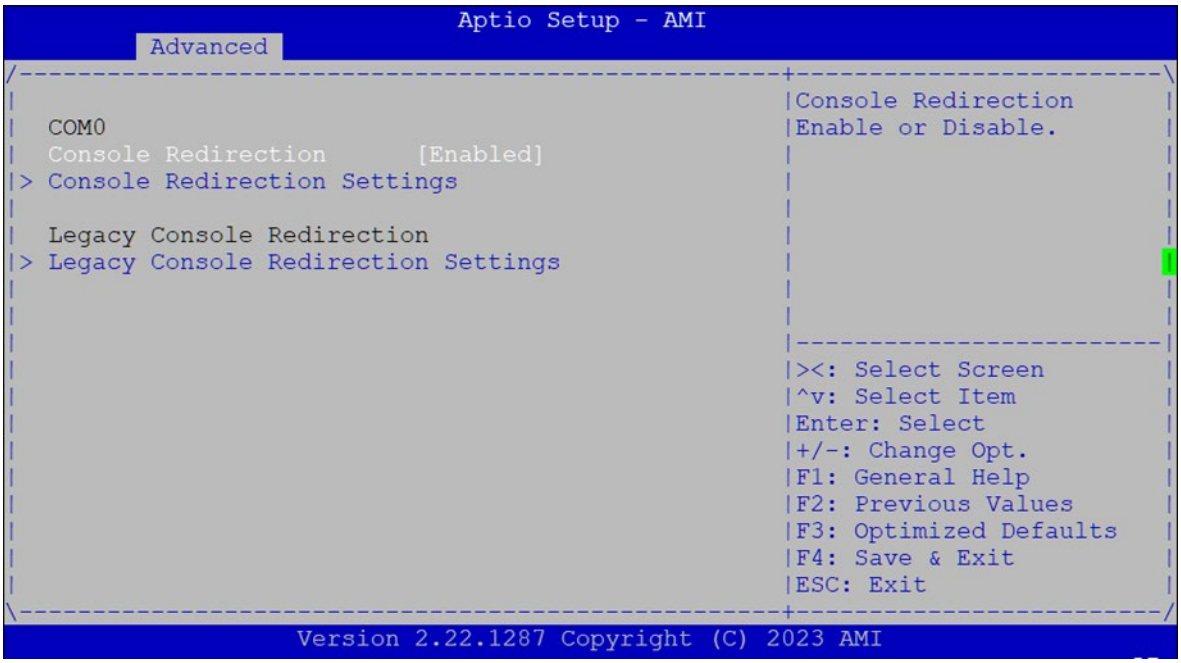
Feature	Options	Description
Serial Port	Disabled Enabled	Enable or Disable Serial Port (COM)
Device Settings	N/A	IO=3F8h; IRQ=4;

Serial Port 2 Configuration



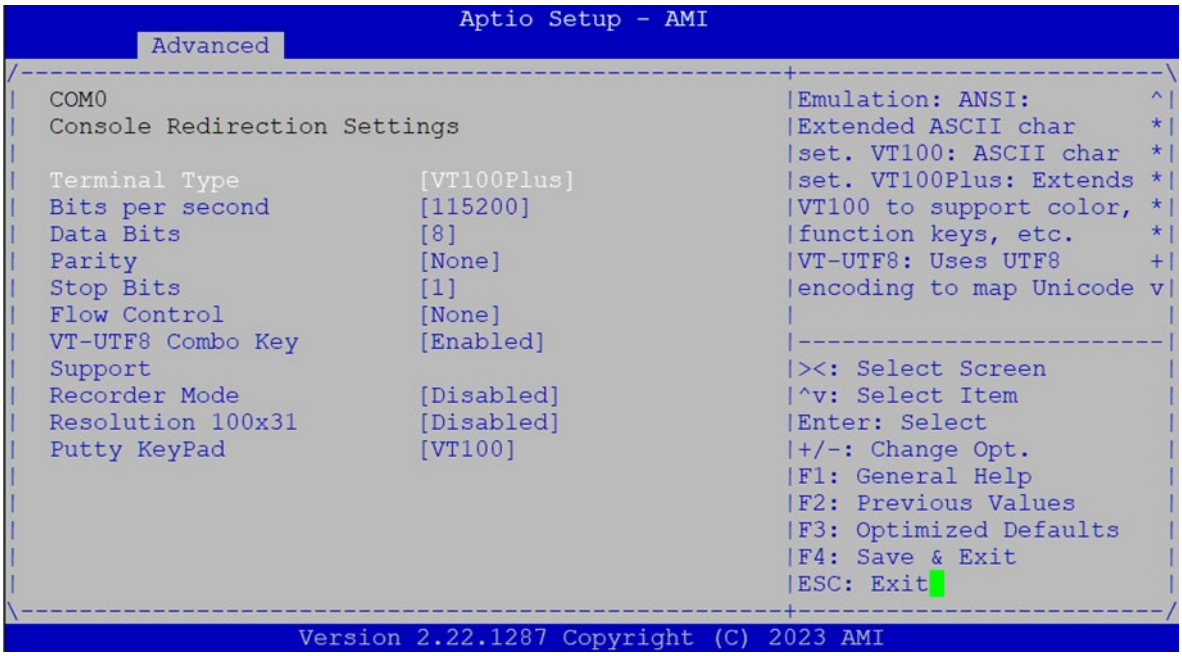
Feature	Options	Description
Serial Port	Disabled Enabled	Enable or Disable Serial Port (COM)
Device Settings	N/A	IO=2F8h; IRQ=3;

Serial Port Console Redirection



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

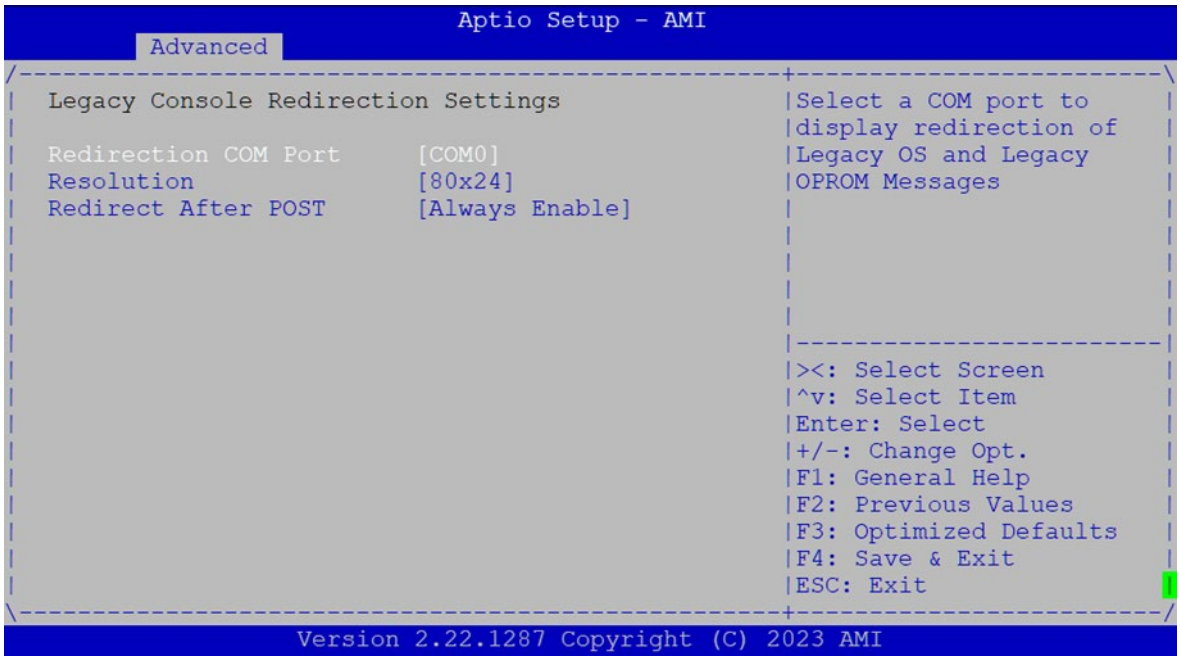
Console Redirection Settings



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	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.

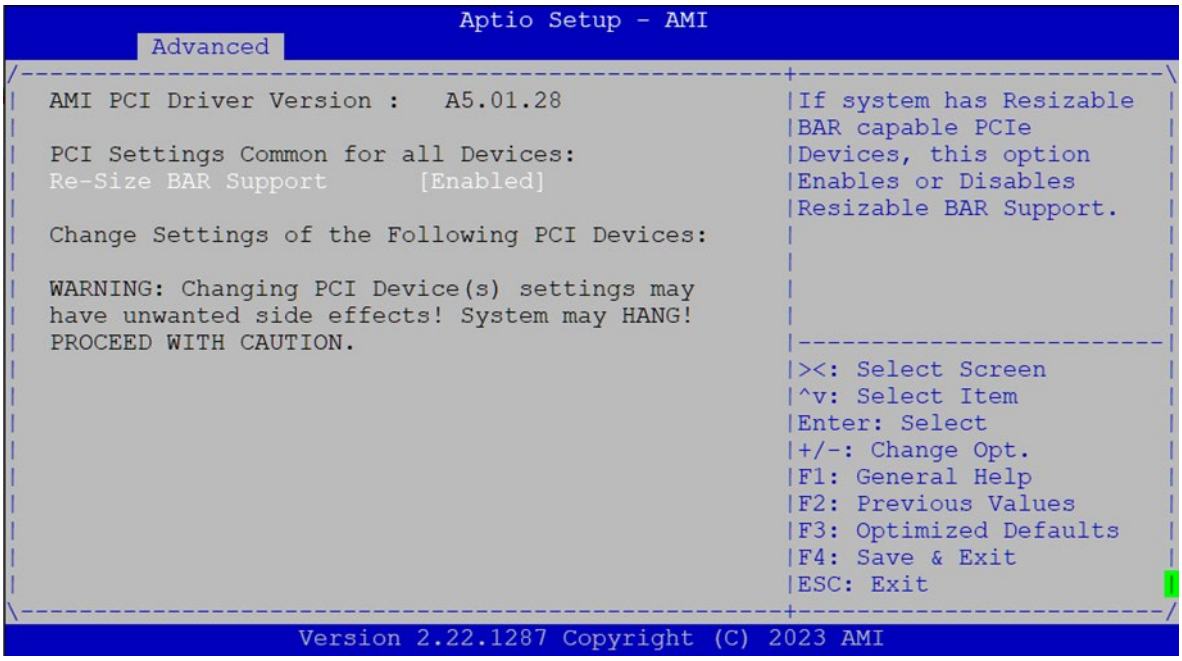
VT-UTF8 Combo Key Support	Disabled Enabled	Enable VT-UTF8 Combination Key Support for ANSI/VT100 terminals
Recorder Mode	Disabled Enabled	With this mode enabled only text will be sent. This is to capture Terminal data.
Resolution 100x31	Disabled Enabled	Enables or disables extended terminal resolution.
Putty Keypad	VT100 LINUX XTERMR6 SCO ESCN VT400	Select FunctionKey and KeyPad on Putty.

Legacy Console Redirection Settings



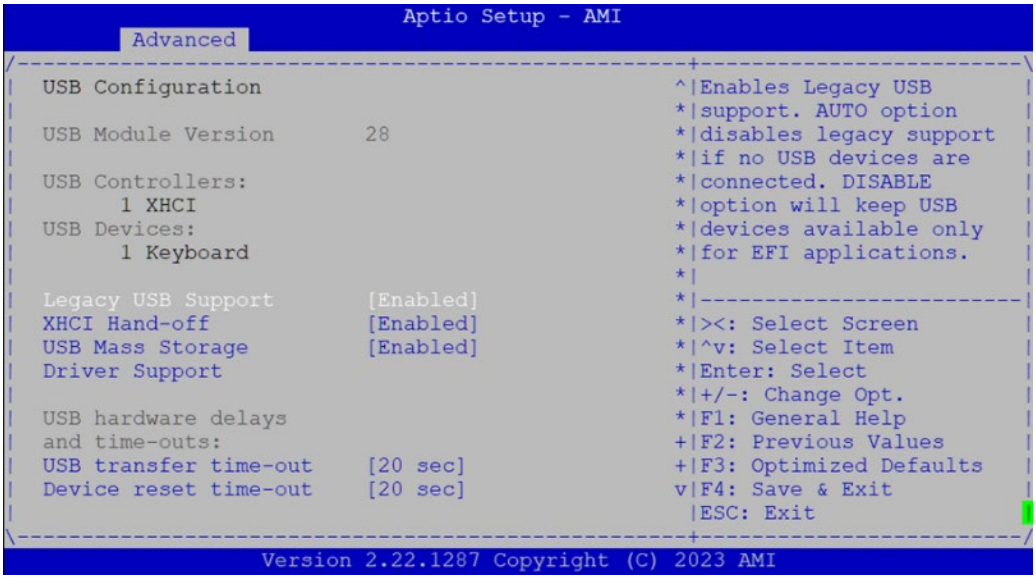
Feature	Options	Description
Redirection COM Port	COM0	Select a COM port to display redirection of Legacy OS and Legacy OPROM Messages
Resolution	80x24 80x25	On Legacy OS, the Number of Rows and Columns supported redirection
Redirect After POST	Always Enable BootLoader	When Bootloader is selected, then Legacy Console Redirection is disabled before booting to legacy OS. When Always Enable is selected, then Legacy Console Redirection is enabled for legacy OS. Default setting for this option is set to Always Enable.

PCI Subsystem Settings



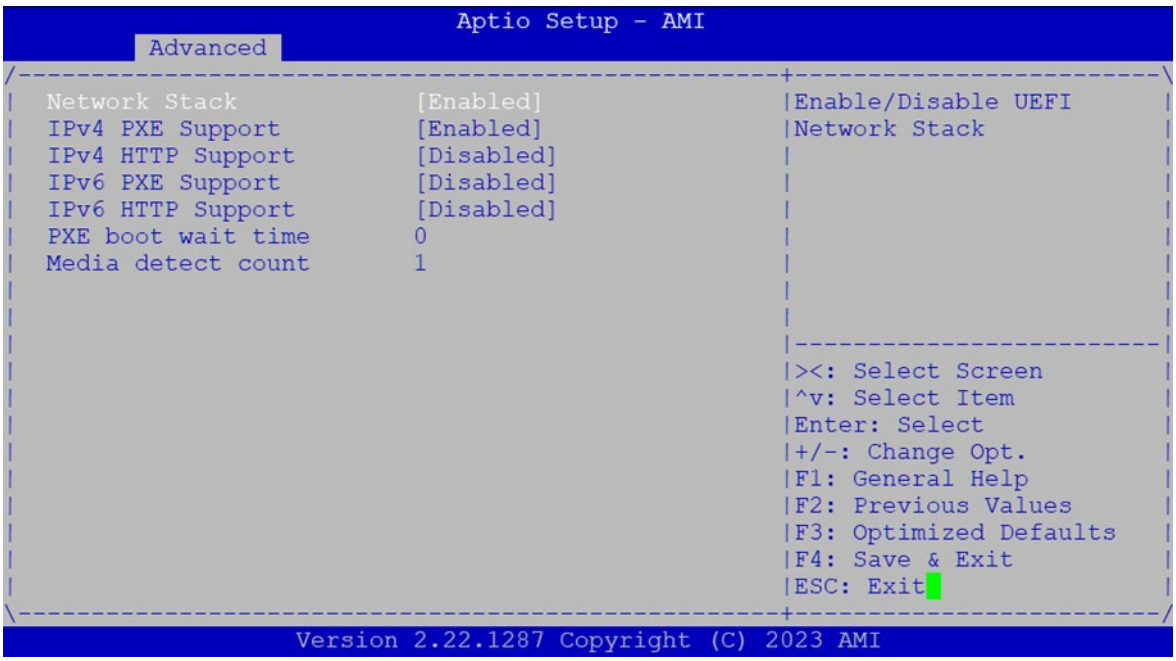
Feature	Options	Description
Re-Size BAR Support	Disabled Enabled	If system has Resizable BAR capable PCIe Devices, this option Enables or Disables Resizable BAR Support

USB Configuration



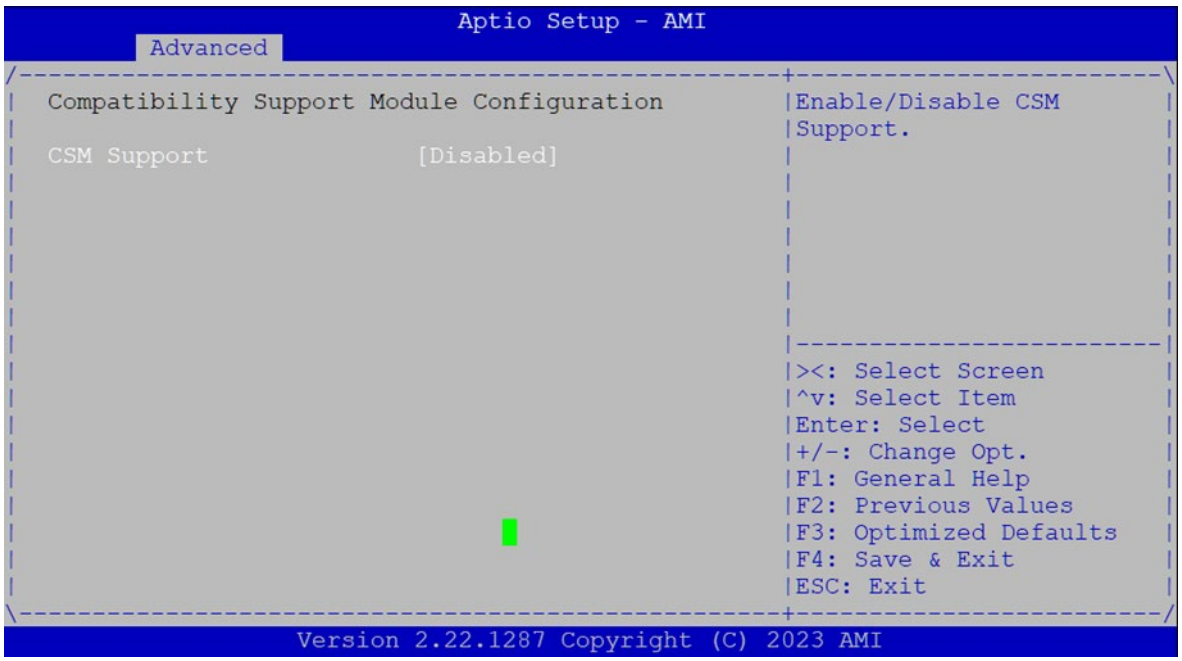
Feature	Options	Description
Legacy USB Support	Enabled Disabled Auto	Enables Legacy USB support. **Auto** option disables legacy support if no USB devices are connected. **Disabled** option will keep USB devices available only for EFI applications.
XHCI Hand-off	Enabled Disabled	This is a workaround 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



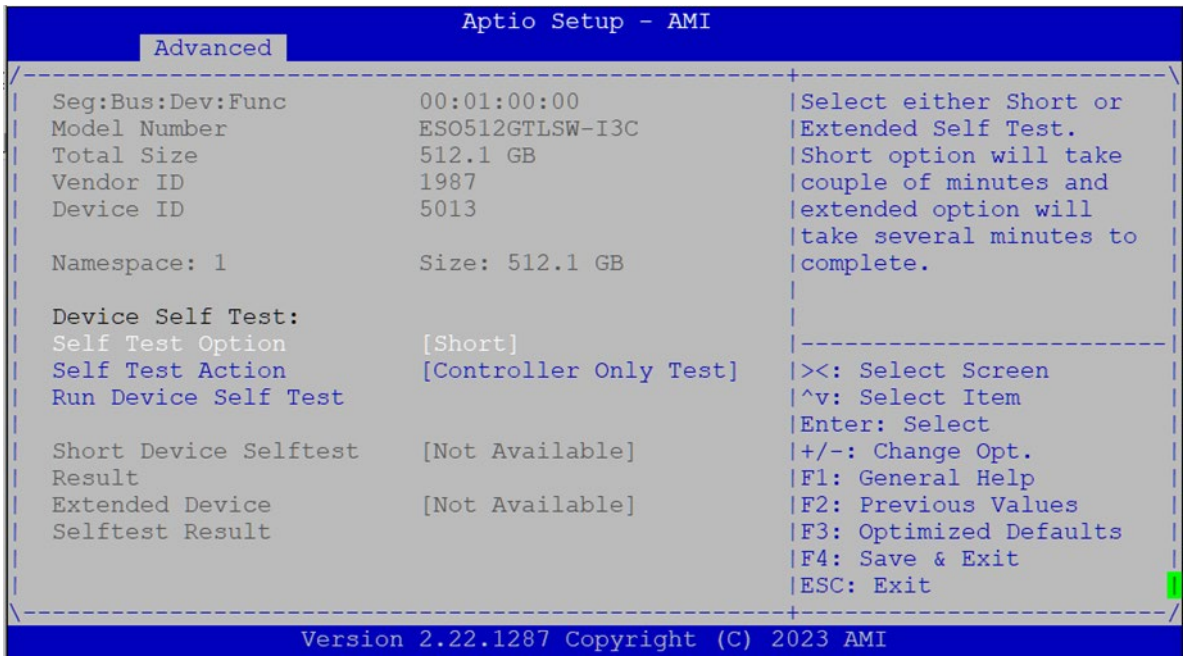
Feature	Options	Description
Network Stack	Disabled Enabled	Enable/Disable UEFI Network Stack
IPv4 PXE Support	Disabled Enabled	Enable/Disable IPv4 PXE boot support. If disabled, IPv4 PXE boot support will not be available.
IPv4 HTTP Support	Disabled Enabled	Enable/Disable IPv4 HTTP boot support. If disabled, 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. Use either +/- or numeric keys to set the value.

CSM Configuration



Feature	Options	Description
CSM Support	Disabled Enabled	Enable/Disable CSM Support

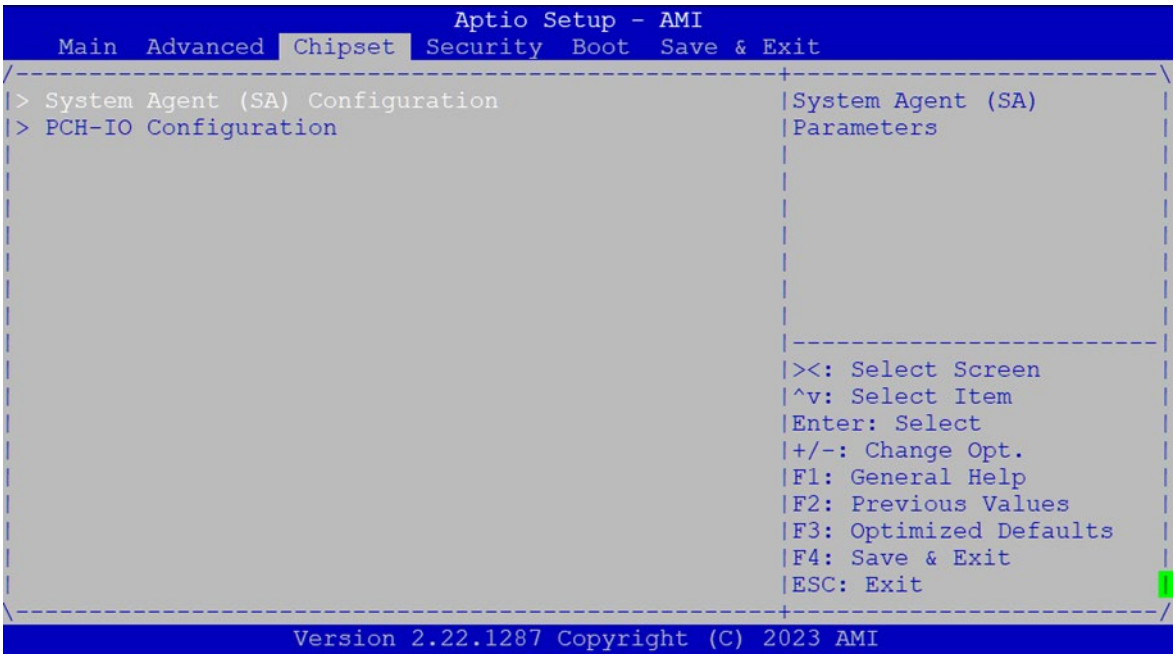
NVMe Configuration



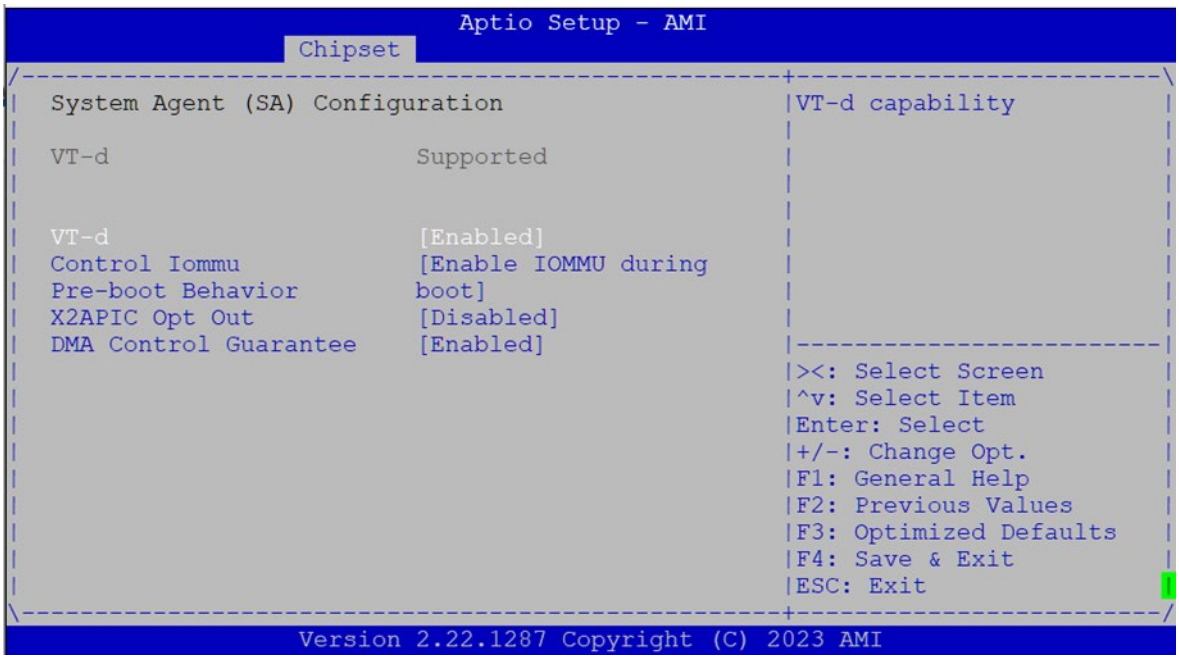
Feature	Options	Description
Self-Test Option	Short Extended	Select either Short or Extended Self-Test. Short option will take couple of minutes and extended option will take several minutes to complete.
Self-Test Action	Controller Only Test Controller and NameSpace Test	Select either to test Controller alone or Controller and NameSpace. Selecting Controller and Namespace option will take lot longer to complete the test.
Run Device Self-Test	N/A	Perform device self-test for the corresponding Option and Action selected by user. Pressing 'Esc' key will abort the test. Result shown below is the recent result logged in the device.

Chipset Page

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

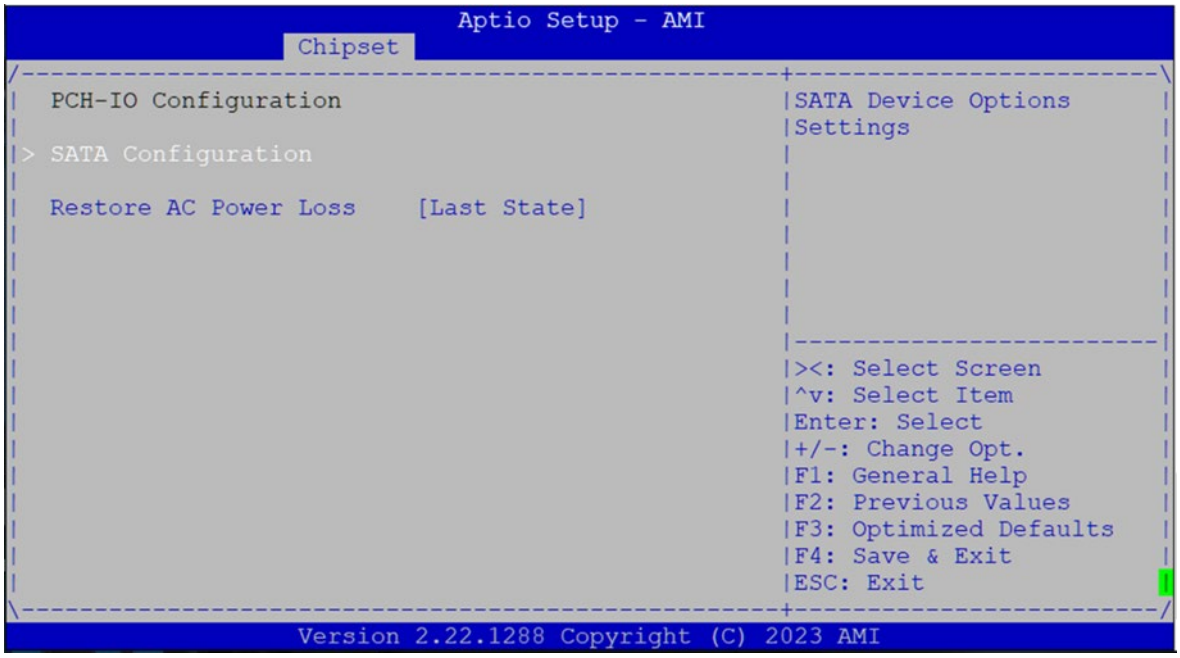


System Agent (SA) Configuration



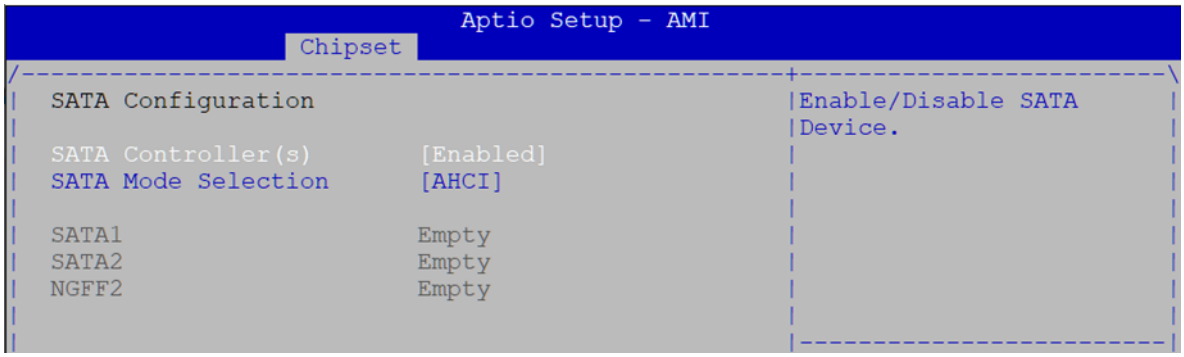
Feature	Options	Description
VT-d	Disabled Enable	VT-d capability
Control Iommu	Disable IOMMU Enable IOMMU during Boot	Enable IOMMU in Pre-boot environment (If DMAR table is installed in DXE and If VTD_INFO_PPI is installed in PEI.)
X2APIC Opt Out	Enabled Disabled	Enable/Disable X2APIC_OPT_OUT bit
DMA Control Guarantee	Enabled Disabled	Enable/Disable DMA_CONTROL_GUARANTEE bit

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).

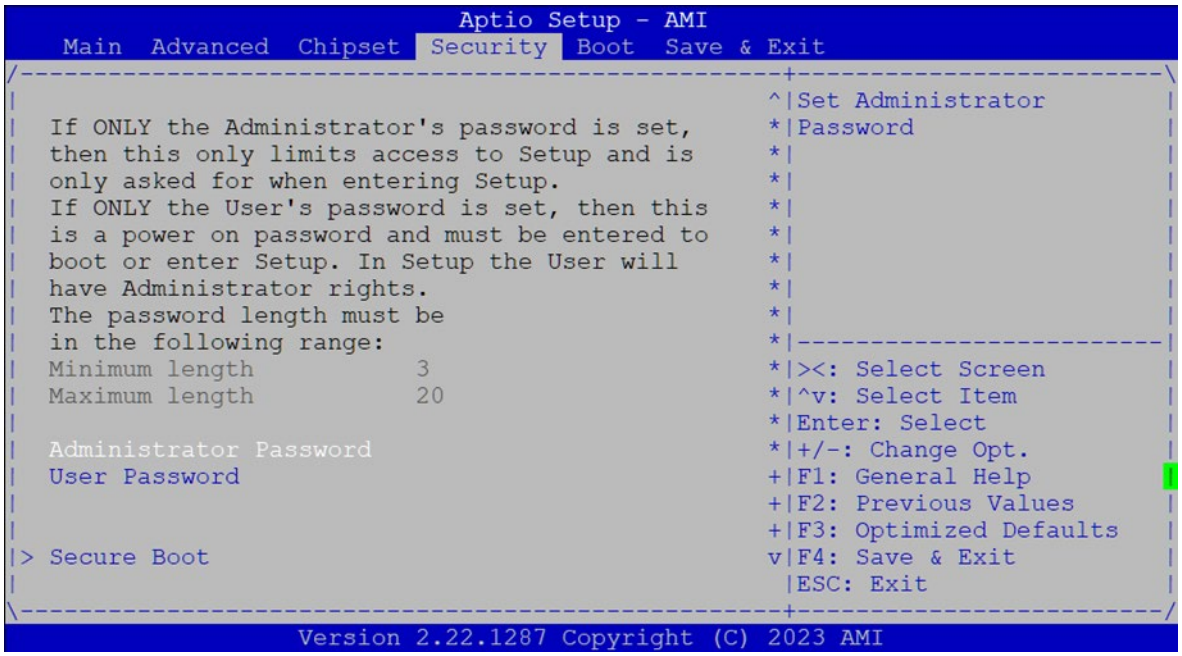
SATA Configuration



Feature	Options	Description
SATA Controller(s)	Enabled Disabled	Enable/Disable SATA Device
SATA Mode Selection	AHCI	Determines how SATA controller(s) operate.

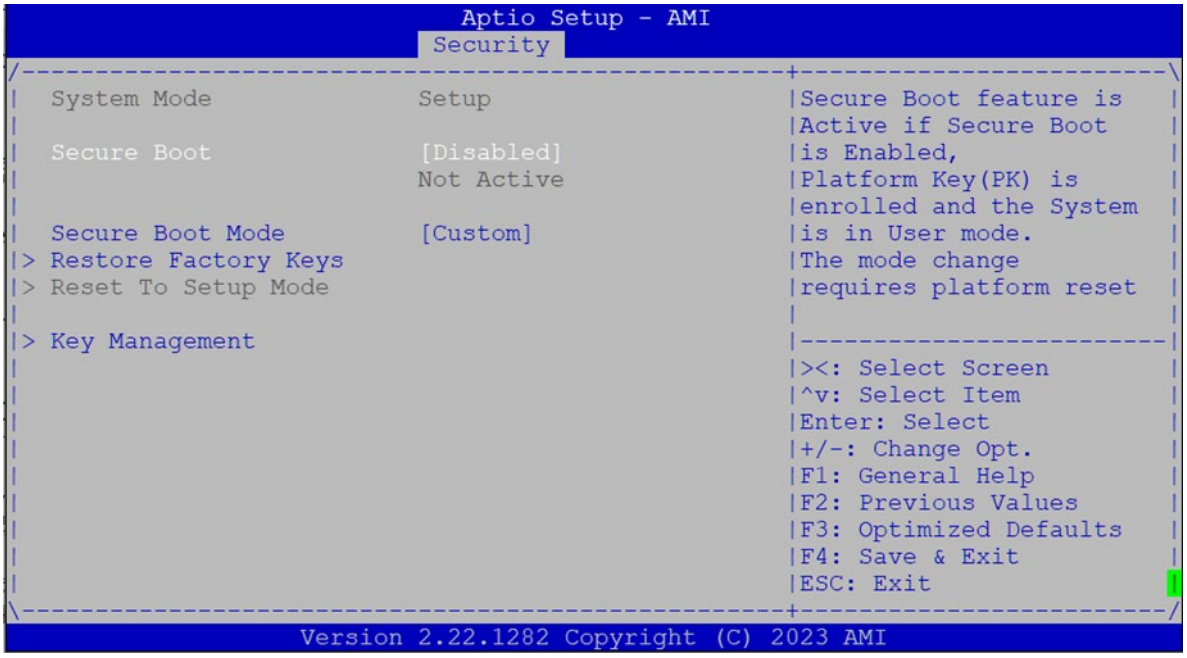
Security Page

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.



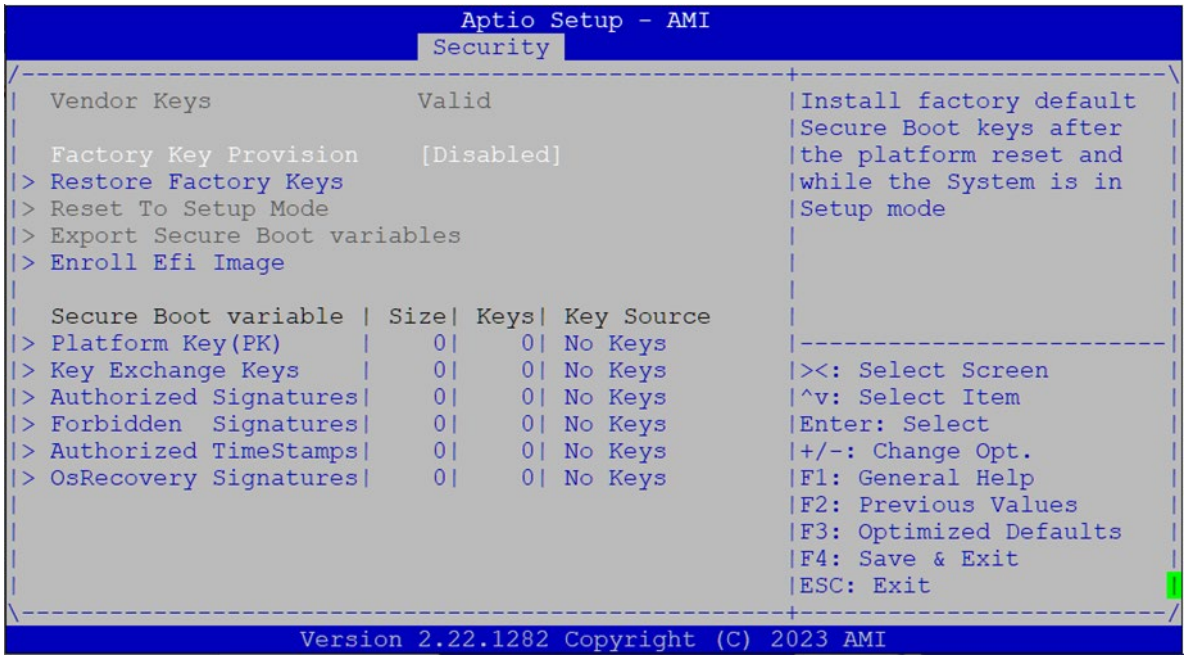
Feature	Description
Setup Administrator Password	If ONLY the Administrator's password is set, it only limits access to Setup and is only asked for when entering Setup.
User Password	If ONLY the User's password is set, it serves as a power-on password and must be entered to boot or enter Setup. In Setup,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

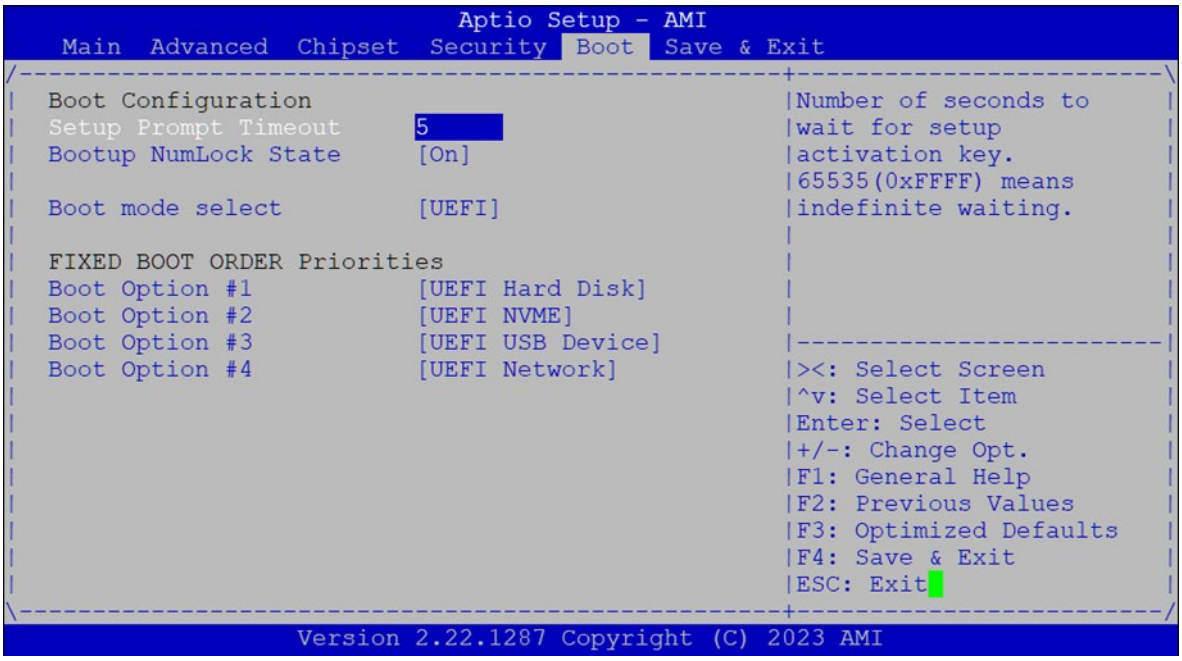
Key Management



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 Page

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

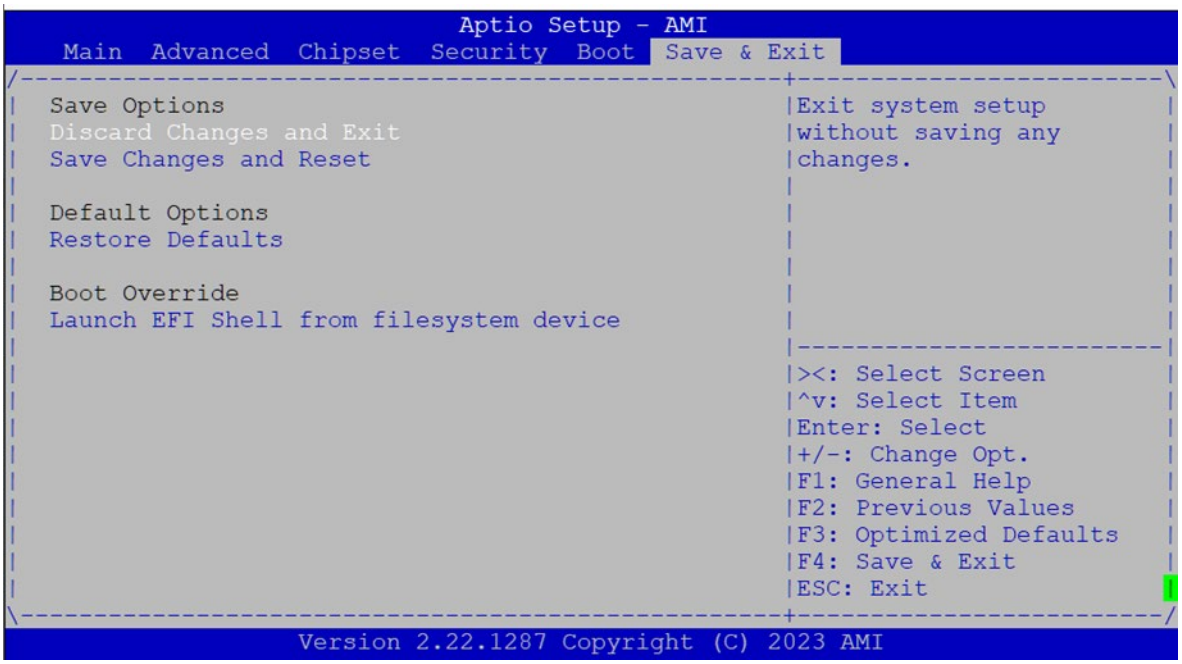


Feature	Options	Description
Setup Prompt Timeout	5	The number of seconds to wait for setup activation key. 65535 means indefinite waiting.
Bootup NumLock State	On Off	Select the keyboard NumLock state
Boot Mode Select	LEGACY UEFI DUAL	Select boot mode LEGACY/UEFI

- 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.

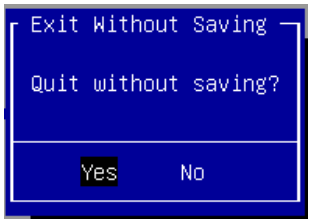
Save and Exit Page

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



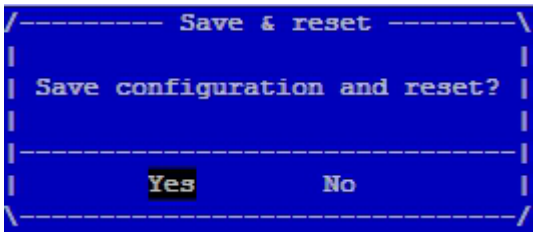
- **Discard Changes and Exit**

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.



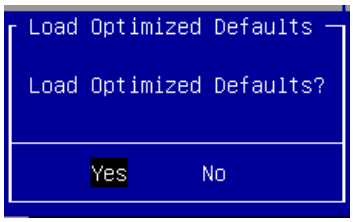
- **Save Changes and Reset**

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.

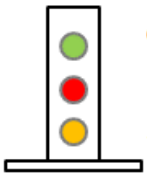


Note

The items under Boot Override may not be the same image as above. It should depend on the actual devices connect on system.

APPENDIX A: LED INDICATOR EXPLANATIONS

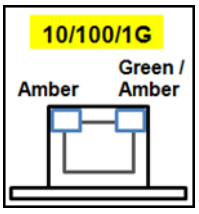
▸ System Power / Status / HDD Activity

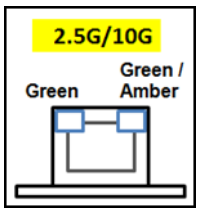


Green : Power
Green / Red : Status
Amber : HDD

LED	COLOR ON LCM	COLOR ON BOARD	LED ACTION	DESCRIPTION
POWER	**Green**	**Green**	Steady	When system power on
	Off	Off	N/A	No power on
STATUS	**Green**	**Green**	Steady	control by GPIO
	Amber	**Red**	Steady	control by GPIO
	Off	Off	N/A	control by GPIO (Default) or No power on
HDD	**Amber**	**Amber**	Blinking	Blinking indicates HDD activity Include SATA / NVME
	Off	Off	N/A	No data access or No power on

▸ RJ45 LAN LED





1Gb RJ-45 Define:

Speed	Amber (Active)	Green/Amber (Link)
10M	Blinking / Data access	OFF
100M	Blinking / Data access	ON (**Green**)
1G	Blinking / Data access	ON (**Amber**)
1. When cable is plugged-in and network is linked. Both LED will be bright. The behavior is as defined. 2. Without the Cable plug-in, the LED should be off. 3. If LAN Driver controls the LED, the behavior will follow the driver		

2.5Gb RJ-45 Define:

Speed	Green (Active)	Green/Amber (Link)
10/100M	Blinking / Data access	OFF
1G	Blinking / Data access	ON (**Amber**)
2.5G	Blinking / Data access	ON (**Green**)
1. When cable is plug-in and network is linked. Both LED lights will be bright. The behavior is as defined. 2. Without the Cable plug-in, the LED should be off 3. If LAN Driver controls the LED, the behavior will follow the driver		

APPENDIX B: 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 the "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: The 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: ▫ Repair(Please include failure details) ▫ Testing Purpose
Company:	Contact Person:
Phone No.	Purchased Date:
Fax No.:	Applied Date:
Return Shipping Address: _____	
Shipping by: ▫ Air Freight ▫ Sea ▫ Express_____ ▫ 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 R.M.A.	08: Keyboard Controller Fail	14: LPT Port	20: Buzzer
	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

Authorized Signature / Date

Confirmed By Supplier

Authorized Signature / Date