



NEXCOM International Co., Ltd.

Network and Communication Solutions

Network Security Appliance

NSA 5190

User Manual

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PREFACE

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Disclaimer

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Acknowledgements

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Regulatory Compliance Statements

This section provides the FCC compliance statement for Class A devices and describes how to keep the system CE compliant.

Declaration of Conformity

FCC

This equipment has been tested and verified 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 when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. Operation of this equipment in a residential area (domestic environment) is likely to cause harmful interference, in which case the user will be required to correct the interference (take adequate measures) at their own expense.

CE

The product(s) described in this manual complies with all applicable European Union (CE) directives if it has a CE marking. For computer systems to remain CE compliant, only CE-compliant parts may be used. Maintaining CE compliance also requires proper cable and cabling techniques.

RoHS Compliance



NEXCOM RoHS Environmental Policy and Status Update

NEXCOM is a global citizen for building the digital infrastructure. We are committed to providing green products and services, which are compliant with European Union RoHS (Restriction on Use of Hazardous Substance in Electronic Equipment) directive 2011/65/EU, to be your trusted green partner and to protect our environment.

RoHS restricts the use of Lead (Pb) < 0.1% or 1,000ppm, Mercury (Hg) < 0.1% or 1,000ppm, Cadmium (Cd) < 0.01% or 100ppm, Hexavalent Chromium (Cr6+) < 0.1% or 1,000ppm, Polybrominated biphenyls (PBB) < 0.1% or 1,000ppm, and Polybrominated diphenyl Ethers (PBDE) < 0.1% or 1,000ppm.

In order to meet the RoHS compliant directives, NEXCOM has established an engineering and manufacturing task force in to implement the introduction of green products. The task force will ensure that we follow the standard NEXCOM development procedure and that all the new RoHS components and new manufacturing processes maintain the highest industry quality levels for which NEXCOM are renowned.

The model selection criteria will be based on market demand. Vendors and suppliers will ensure that all designed components will be RoHS compliant.

How to recognize NEXCOM RoHS Products?

For existing products where there are non-RoHS and RoHS versions, the suffix "(LF)" will be added to the compliant product name.

All new product models launched after January 2013 will be RoHS compliant. They will use the usual NEXCOM naming convention.

Warranty and RMA

NEXCOM Warranty Period

NEXCOM manufactures products that are new or equivalent to new in accordance with industry standard. NEXCOM warrants that products will be free from defect in material and workmanship for 2 years, beginning on the date of invoice by NEXCOM.

NEXCOM Return Merchandise Authorization (RMA)

- Customers shall enclose the “NEXCOM RMA Service Form” with the returned packages.
- Customers must collect all the information about the problems encountered and note anything abnormal or, print out any on-screen messages, and describe the problems on the “NEXCOM RMA Service Form” for the RMA number apply process.
- Customers can send back the faulty products with or without accessories (manuals, cable, etc.) and any components from the card, such as CPU and RAM. If the components were suspected as part of the problems, please note clearly which components are included. Otherwise, NEXCOM is not responsible for the devices/parts.
- Customers are responsible for the safe packaging of defective products, making sure it is durable enough to be resistant against further damage and deterioration during transportation. In case of damages occurred during transportation, the repair is treated as “Out of Warranty.”
- Any products returned by NEXCOM to other locations besides the customers’ site will bear an extra charge and will be billed to the customer.

Repair Service Charges for Out-of-Warranty Products

NEXCOM will charge for out-of-warranty products in two categories, one is basic diagnostic fee and another is component (product) fee.

System Level

- Component fee: NEXCOM will only charge for main components such as SMD chip, BGA chip, etc. Passive components will be repaired for free, ex: resistor, capacitor.
- Items will be replaced with NEXCOM products if the original one cannot be repaired. Ex: motherboard, power supply, etc.
- Replace with 3rd party products if needed.
- If RMA goods can not be repaired, NEXCOM will return it to the customer without any charge.

Board Level

- Component fee: NEXCOM will only charge for main components, such as SMD chip, BGA chip, etc. Passive components will be repaired for free, ex: resistors, capacitors.
- If RMA goods can not be repaired, NEXCOM will return it to the customer without any charge.

Warnings

Read and adhere to all warnings, cautions, and notices in this guide and the documentation supplied with the chassis, power supply, and accessory modules. If the instructions for the chassis and power supply are inconsistent with these instructions or the instructions for accessory modules, contact the supplier to find out how you can ensure that your computer meets safety and regulatory requirements.

Cautions

Electrostatic discharge (ESD) can damage system components. Do the described procedures only at an ESD workstation. If no such station is available, you can provide some ESD protection by wearing an antistatic wrist strap and attaching it to a metal part of the computer chassis.

Safety Information

Before installing and using the device, note the following precautions:

- Read all instructions carefully.
- Do not place the unit on an unstable surface, cart, or stand.
- Follow all warnings and cautions in this manual.
- When replacing parts, ensure that your service technician uses parts specified by the manufacturer.
- Avoid using the system near water, in direct sunlight, or near a heating device.
- The load of the system unit does not solely rely for support from the rackmounts located on the sides. Firm support from the bottom is highly necessary in order to provide balance stability.
- The computer is provided with a battery-powered real-time clock circuit. There is a danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Discard used batteries according to the manufacturer's instructions.

Installation Recommendations

Ensure you have a stable, clean working environment. Dust and dirt can get into components and cause a malfunction. Use containers to keep small components separated.

Adequate lighting and proper tools can prevent you from accidentally damaging the internal components. Most of the procedures that follow require only a few simple tools, including the following:

- A Philips screwdriver
- A flat-tipped screwdriver
- A grounding strap
- An anti-static pad

Using your fingers can disconnect most of the connections. It is recommended that you do not use needle-nose pliers to disconnect connections as these can damage the soft metal or plastic parts of the connectors.

Safety Precautions

1. Read these safety instructions carefully.
2. Keep this User Manual for later reference.
3. Disconnect this equipment from any AC outlet before cleaning. Use a damp cloth. Do not use liquid or spray detergents for cleaning.
4. For plug-in equipment, the power outlet socket must be located near the equipment and must be easily accessible.
5. Keep this equipment away from humidity.
6. Put this equipment on a stable surface during installation. Dropping it or letting it fall may cause damage.
7. The openings on the enclosure are for air convection to protect the equipment from overheating. **DO NOT COVER THE OPENINGS.**
8. Make sure the voltage of the power source is correct before connecting the equipment to the power outlet.
9. Place the power cord in a way so that people will not step on it. Do not place anything on top of the power cord. Use a power cord that has been approved for use with the product and that it matches the voltage and current marked on the product's electrical range label. The voltage and current rating of the cord must be greater than the voltage and current rating marked on the product.
10. All cautions and warnings on the equipment should be noted.
11. If the equipment is not used for a long time, disconnect it from the power source to avoid damage by transient overvoltage.
12. Never pour any liquid into an opening. This may cause fire or electrical shock.
13. Never open the equipment. For safety reasons, the equipment should be opened only by qualified service personnel.
14. If one of the following situations arises, get the equipment checked by service personnel:
 - a. The power cord or plug is damaged.
 - b. Liquid has penetrated into the equipment.
 - c. The equipment has been exposed to moisture.
 - d. The equipment does not work well, or you cannot get it to work according to the user's manual.
 - e. The equipment has been dropped and damaged.
 - f. The equipment has obvious signs of breakage.
15. Do not place heavy objects on the equipment.
16. The unit uses a three-wire ground cable which is equipped with a third pin to ground the unit and prevent electric shock. Do not defeat the purpose of this pin. If your outlet does not support this kind of plug, contact your electrician to replace your obsolete outlet.
17. **CAUTION: DANGER OF EXPLOSION IF BATTERY IS INCORRECTLY REPLACED. REPLACE ONLY WITH THE SAME OR EQUIVALENT TYPE RECOMMENDED BY THE MANUFACTURER. DISCARD USED BATTERIES ACCORDING TO THE MANUFACTURER'S INSTRUCTIONS.**

Technical Support and Assistance

1. For the most updated information of NEXCOM products, visit NEXCOM's website at www.nexcom.com.
2. For technical issues that require contacting our technical support team or sales representative, please have the following information ready before calling:
 - Product name and serial number
 - Detailed information of the peripheral devices
 - Detailed information of the installed software (operating system, version, application software, etc.)
 - A complete description of the problem
 - The exact wordings of the error messages

Warning!

1. Handling the unit: carry the unit with both hands and handle it with care.
2. Maintenance: to keep the unit clean, use only approved cleaning products or clean with a dry cloth.

Conventions Used in this Manual



Warning:

Information about certain situations, which if not observed, can cause personal injury. This will prevent injury to yourself when performing a task.



Caution:

Information to avoid damaging components or losing data.



Note:

Provides additional information to complete a task easily.

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Package Contents

Before continuing, verify that the NSA 5190 package that you received is complete. Your package should have all the items listed in the following table.

Item	Part Number	Name	Qty
1	19S00519000X0	NSA5190 ASSY	1
2	6014606898X00	LABEL BLANK WAI GHA	2
3	6019900094X00	PARTITION FOR RODS-HTQ-A-2AC VER:B FULPAK	1
4	6030000350X00	CONSOLE CABLE ST:ST-1903024	1
5	Z300000040X00	OUTSIDE BOX LABEL FOR STANDARD VER.A	1
6	5040210058X00	EAR SET FOR ODS-VL3 SERIES VER:A CHYUAN-JYH	1
7	50311F0684X00	I HEAD SCREW FOR nROK6221-IPAI BLACK PANEL LONG FEI	6
8	6013301929X00	EPE FOR NSA5190 FRONT BOTTOM VER:A TSAIJIN	1
9	6013301930X00	EPE FOR NSA5190 FRONT TOP VER:A TSAIJIN	1
10	5044440031X00	RUBBER FOOT KANG YANG:RF20-5-4P	4
11	6013301931X00	EPE FOR NSA5190 REAR BOTTOM VER:A TSAIJIN	1
12	6013301932X00	EPE FOR NSA5190 REAR TOP VER:A TSAIJIN	1
13	60110A0229X00	ACCESSORY BOX FOR S2216/S2224 VER:A YI GIA	1
14	60111B0072X00	OUTSIDE CARTON FOR NSA3170A-OS1 VER:B YI GIA	1
15	601110A126X00	OUTSIDE CARTON FOR FTA5180 VER:A YI GIA	1
16	6012200053X00	PE ZIPPER BAG #3 炎洲:印刷由任袋3號	1
17	6012200096X00	PE BAG FOR UTM625 VAR:A CHYUAN-JYH	1

Ordering Information

The following information below provides ordering information for NSA 5190.

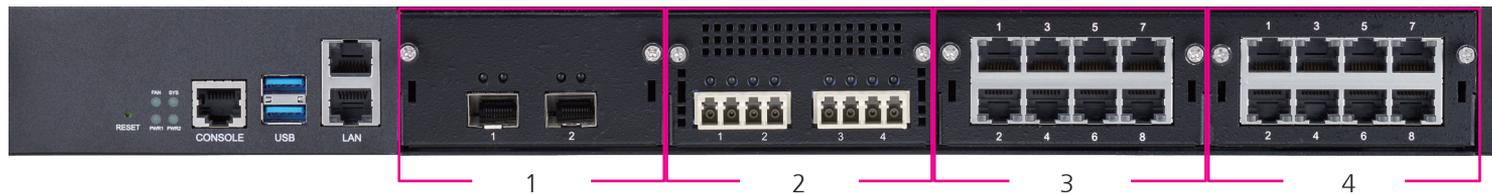
Barebone

- **NSA 5190 (P/N: 10S00519000X0)**
1U w/ 12th/13th Gen Intel® Core™ processor, 2 x 1GbE RJ45 ports, and 4 x LAN module slots

For optimal performance, the configuration of LAN modules below is recommended.

Model	P/N	Controller	Interface	Port Number	Bypass	Speed	Location Slot*
NI 180C	2BQ000ODS13X1	i350AM4 x 2	PCle	8 x RJ45	None	1 GbE	3, 4
NI 184CX1	2BQ000ODS14X1	i350AM4 x 2	PCle	8 x RJ45	4	1 GbE	3, 4
NX 140F	2BQ000ODS11X1	XL710-BM1	PCle	4 x SFP+	None	10 GbE	1, 2
NX 142FX1	2BQ000ODS15X1	XL710-BM1	PCle	4 x LC	2	10 GbE	1, 2
NX 142FX1-LR	2BQ000ODS16X1	XL710-BM1	PCle	4 x LC	2	10 GbE	1, 2
NV 120F	2BQ000ODS17X1	XXV710-AM2	PCle	2 x SFP28	None	25 GbE	1, 2

* Refer to the image below for the location of slots.



** To check the availability of other compatible LAN modules, please contact your responsible NEXCOM account manager or fill in the online inquiry form.

CHAPTER 1: PRODUCT INTRODUCTION

Overview



Key Features

- 12th/13th Gen Intel® Core™ processor
- 4 x DDR4 2666/3200 non-ECC/ECC UDIMM, up to 128GB
- 1 x M.2 2280 M key NVMe SSD (optional)
- 1 x PCIe 4.0 x8 connector for low profile riser card
- 2 x 1GbE RJ45 ports
- 4 x LAN module slots

Hardware Specifications

Main Board

- 12th/13th Gen Intel® Core™ processor, formerly Alder Lake S/Raptor Lake S, max 65W
- PCH: R680E
- TPM 2.0 onboard

Main Memory

- 4 x DDR4 2666/3200 non-ECC/ECC UDIMM with up to 32GB per slot (max. up to 128GB)

Storage

- 1 x M.2 2280 Key M PCIe 3.0 x4 NVMe SSD, up to 512GB (optional)

Interface-External

- 2 x Buttons: power/reset
- 4 x LEDs: PWR1/PWR2/FAN/SYS
- 2 x USB 3.0 ports
- 1 x RJ45 console port
- 2 x 1GbE RJ45 ports
- 4 x LAN module slots ([see details](#))
- 3 x Swappable smart fans
- 2 x Power inlets for redundant PSU

Interface-Internal

- 1 x PCIe 4.0 x8 connector, limited support for low-profile riser cards and is exclusively for NVMe storage card (optional, [see details](#))

Power Input

- 550W CRPS (1+1) redundant PSU

Dimensions and Weight

- Chassis dimension (W x D x H): 438 x 511 x 44 mm
- Packaging size: 675 x 635 x 217 mm
- Weight without packaging: 9.97 kg
- Weight with packaging: 18.09 kg

Environment

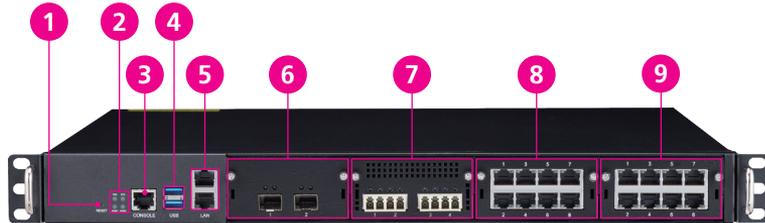
- Operating temperature: 0°C~40°C
- Storage temperature: -20°C~80°C
- Relative humidity: 10%~90% non-condensing

Certifications

- CE/FCC Class A
- LVD

Knowing Your NSA 5190

Front Panel



1. Reset Pin Hole

Reset the system by using a paperclip to press and hold the pinhole for a few seconds.

2. LED Indicators

Indicate the FAN, SYS, PWR1, and PWR2.

3. RJ45 Type Console Serial Port

Used to connect a console device with RJ45 type connection.

4. USB 3.0 Ports

Used to connect USB 3.0/2.0/1.1 devices.

5. LAN Ports

Used to connect to a network.

6. LAN Slot 1*

7. LAN Slot 2*

8. LAN Slot 3*

9. LAN Slot 4*

*

	LAN Slot 1	LAN Slot 2	LAN Slot 3	LAN Slot 4	PCIe5 (Internal for NVMe)
Connector Type	PCIe 4.0 x8	PCIe 4.0 x8	PCIe 4.0 x8	PCIe 4.0 x8	PCIe 4.0 x8
Signal	PCIe 4.0 x8	PCIe 4.0 x8	PCIe 4.0 x4 PCIe 4.0 x4	PCIe 3.0 x4 PCIe 3.0 x4	PCIe 4.0 x4

Rear Panel



10. Swappable Smart Fans

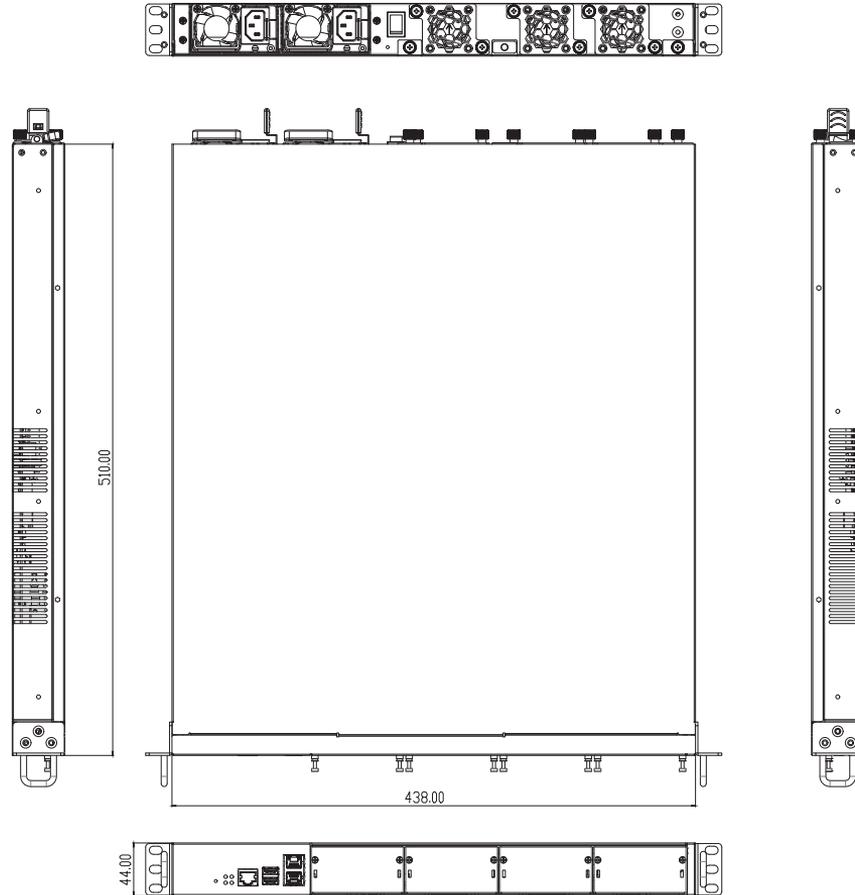
11. Power Button

Press to power on or off the system.

12. AC Power Inlets

Connect each AC cord to the dual redundant power inlets.

Mechanical Dimensions



CHAPTER 2: JUMPERS AND CONNECTORS

This chapter describes how to set the jumpers and connectors on the NSA 5190 motherboard.

Before You Begin

- Ensure you have a stable, clean working environment. Dust and dirt can get into components and cause a malfunction. Use containers to keep small components separated.
- Adequate lighting and proper tools can prevent you from accidentally damaging the internal components. Most of the procedures that follow require only a few simple tools, including the following:
 - A Philips screwdriver
 - A flat-tipped screwdriver
 - A set of jewelers screwdrivers
 - A grounding strap
 - An anti-static pad
- Using your fingers can disconnect most of the connections. It is recommended that you do not use needle-nosed pliers to disconnect connections as these can damage the soft metal or plastic parts of the connectors.
- Before working on internal components, make sure that the power is off. Ground yourself before touching any internal components, by touching a metal object. Static electricity can damage many of the electronic components. Humid environments tend to have less static electricity than

dry environments. A grounding strap is warranted whenever danger of static electricity exists.

Precautions

Computer components and electronic circuit boards can be damaged by discharges of static electricity. Working on computers that are still connected to a power supply can be extremely dangerous.

Follow the guidelines below to avoid damage to your computer or yourself:

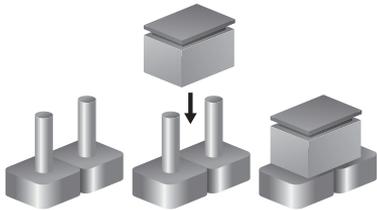
- Always disconnect the unit from the power outlet whenever you are working inside the case.
- If possible, wear a grounded wrist strap when you are working inside the computer case. Alternatively, discharge any static electricity by touching the bare metal chassis of the unit case, or the bare metal body of any other grounded appliance.
- Hold electronic circuit boards by the edges only. Do not touch the components on the board unless it is necessary to do so. Don't flex or stress the circuit board.
- Leave all components inside the static-proof packaging that they shipped with until they are ready for installation.
- Use correct screws and do not over tighten screws.

Jumper Settings

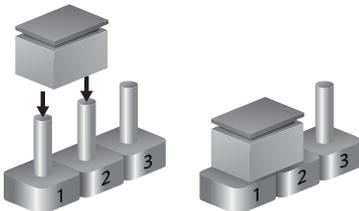
A jumper is the simplest kind of electric switch. It consists of two metal pins and a cap. When setting the jumpers, ensure that the jumper caps are placed on the correct pins. When the jumper cap is placed on both pins, the jumper is short. If you remove the jumper cap, or place the jumper cap on just one pin, the jumper is open.

Refer to the illustrations below for examples of what the 2-pin and 3-pin jumpers look like when they are short (on) and open (off).

Two-Pin Jumpers: Open (Left) and Short (Right)



Three-Pin Jumpers: Pins 1 and 2 are Short

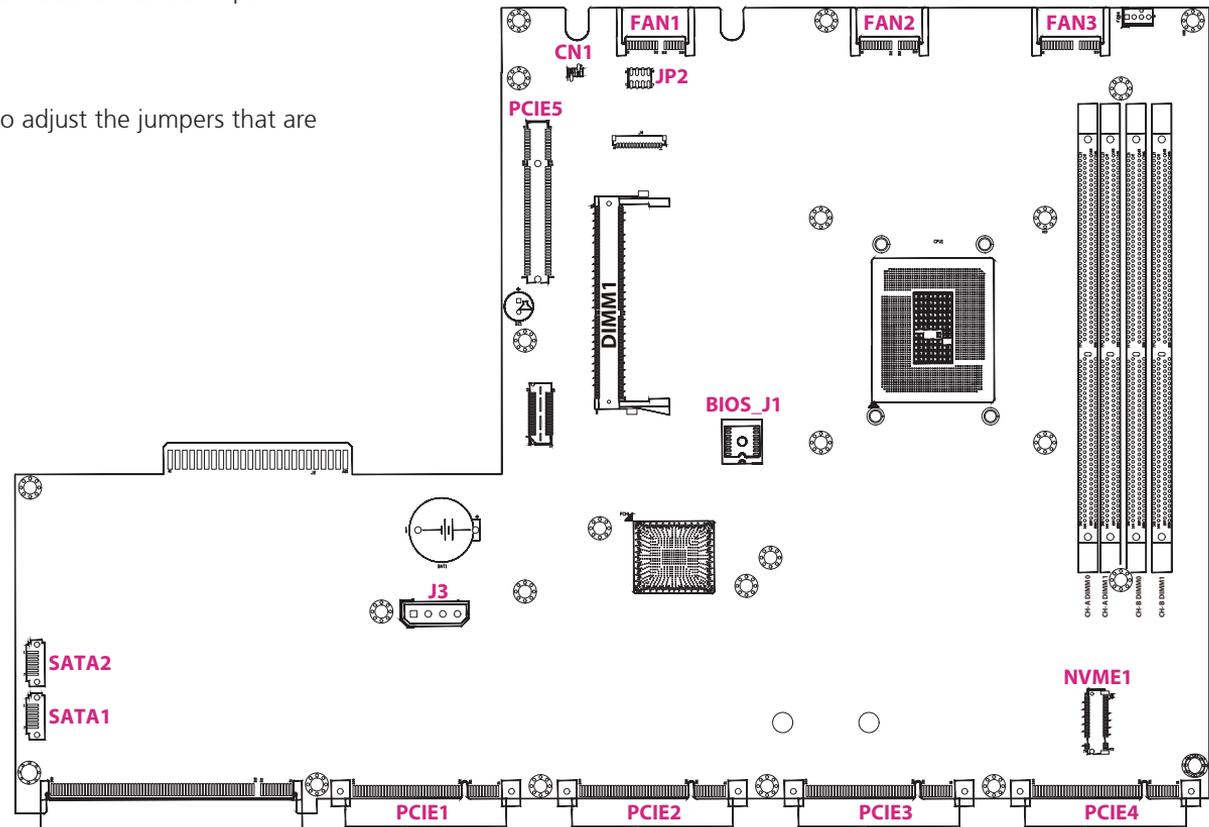


Locations of the Jumpers and Connectors

The following figure shows the mainboard used in the NSA 5190, and indicates the locations of the jumpers and connectors. For detailed pin settings and definitions of the jumpers and connectors marked in pink on the figure, please refer to this section.



It is strongly not recommended to adjust the jumpers that are not mentioned in this chapter.

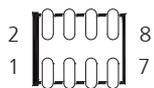


Jumper

CMOS Clear/AT_ATX

Connector type: 2x4 8-Pin (2.0 mm header)

Connector location: JP2



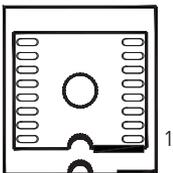
Pin	Definition	Pin	Definition
1	NC	2	3.3V
3	CMOS	4	AT_ATX_SEL
5	GND	6	GND
7	NC	8	NC

Default Setting	Status
1-3 On	RTC Normal
3-5 On	Clear CMOS

Internal Connectors

BIOS Socket (for SPI Flash)

Connector location: BIOS_J1

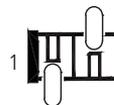


Pin	Definition	Pin	Definition
1	IO3	9	IO2
2	3.3V	10	GND
3	NC	11	NC
4	NC	12	NC
5	NC	13	NC
6	NC	14	NC
7	CS#	15	MOSI
8	MISO	16	SCK

Power Switch

Connector type: 1x2 2-Pin (2.0 mm header)

Connector location: CN1

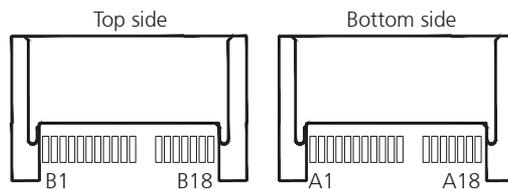


Pin	Definition
1	3.3V Power button
2	GNS

FAN Slot

Connector type: PCIe x1 slot

Connector location: FAN1, FAN2, FAN3



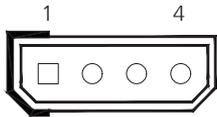
Pin	Definition	Pin	Definition
A1	FAN present	B1	12V
A2	12V	B2	12V
A3	12V	B3	5V
A4	GND	B4	GND
A5	NC	B5	SMBCLK
A6	NC	B6	SMBDAT
A7	NC	B7	GND
A8	NC	B8	3.3V
A9	3.3V	B9	NC

Pin	Definition	Pin	Definition
A10	3.3V	B10	3.3V
A11	NC	B11	NC
A12	GND	B12	5V
A13	NC	B13	GND
A14	NC	B14	FAN PWM
A15	GND	B15	FAN TACH
A16	NC	B16	GND
A17	NC	B17	NC
A18	GND	B18	GND

SATA Power Connector

Connector type: 1x4 4-Pin

Connector location: J3

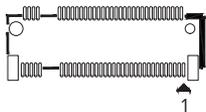


Pin	Definition
1	12V
2	GND
3	GND
4	5V

M.2 Key M Connector (Optional)

Connector type: M.2 2280 Key M PCIe 3.0 x4

Connector location: NVMe1

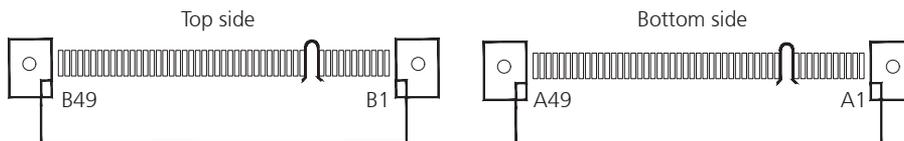


Pin	Definition	Pin	Definition
1	GND	18	3.3V
2	3.3V	19	PCIe RXP
3	GND	20	NC
4	3.3V	21	GND
5	PCIe RXN	22	NC
6	NC	23	PCIe TXN
7	PCIe RXP	24	NC
8	NC	25	PCIe TXP
9	GND	26	NC
10	NC	27	GND
11	PCIe TXN	28	NC
12	3.3V	29	PCIe RXN
13	PCIe TXP	30	NC
14	3.3V	31	PCIe RXP
15	GND	32	NC
16	3.3V	33	GND
17	PCIe RXN	34	NC

Pin	Definition	Pin	Definition
35	PCIe TXN	52	CLK request
36	NC	53	CLK N
37	PCIe TXP	54	Wake
38	GND	55	CLK P
39	GND	56	NC
40	NC	57	GND
41	PCIe RXN	58	NC
42	NC	67	NC
43	PCIe RXP	68	GND
44	NC	69	NC
45	GND	70	3.3V
46	NC	71	GND
47	PCIe TXN	72	3.3V
48	NC	73	GND
49	PCIe TXP	74	3.3V
50	reset	75	GND
51	GND		

PCIe Slot (For Nexcom LAN Module)

Connector location (version): PCIE1(4.0), PCIE2 (4.0), PCIE3 (4.0), PCIE4 (3.0)



Pin	Definition	Pin	Definition
A1	GND	A14	CLK
A2	12V	A15	GND
A3	12V	A16	RXP
A4	GND	A17	RXN
A5	NC	A18	GND
A6	NC	A19	NC
A7	NC	A20	GND
A8	NC	A21	RXP
A9	3.3V	A22	RXN
A10	3.3V	A23	GND
A11	reset	A24	GND
A12	GND	A25	RXP
A13	CLK	A26	RXN

Pin	Definition	Pin	Definition
A27	GND	A39	RXP
A28	GND	A40	RXN
A29	RXP	A41	GND
A30	RXN	A42	GND
A31	GND	A43	RXP
A32	NC	A44	RXN
A33	NC	A45	GND
A34	GND	A46	GND
A35	RXP	A47	RXP
A36	RXN	A48	RXN
A37	GND	A49	GND
A38	GND		

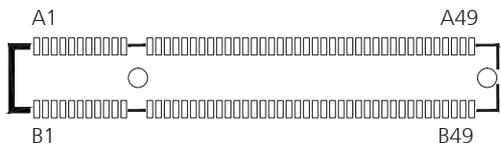
Pin	Definition	Pin	Definition
B1	12V	B14	TXP
B2	12V	B15	TXN
B3	12V	B16	GND
B4	GND	B17	NC
B5	SMBCLK	B18	GND
B6	SMBDAT	B19	TXP
B7	GND	B20	TXN
B8	3.3V	B21	GND
B9	NC	B22	GND
B10	3.3V AUX	B23	TXP
B11	wake	B24	TXN
B12	NC	B25	GND
B13	GND	B26	GND

Pin	Definition	Pin	Definition
B27	TXP	B39	GND
B28	TXN	B40	GND
B29	GND	B41	TXP
B30	NC	B42	TXN
B31	NC	B43	GND
B32	GND	B44	GND
B33	TXP	B45	TXP
B34	TXN	B46	TXN
B35	GND	B47	GND
B36	GND	B48	NC
B37	TXP	B49	GND
B38	TXN		

PCIe Slot (For NVMe Device only)

Connector type: PCIe 4.0

Connector location: PCIe5



Pin	Definition	Pin	Definition
A1	GND	A14	CLK
A2	12V	A15	GND
A3	12V	A16	RXP
A4	GND	A17	RXN
A5	NC	A18	GND
A6	NC	A19	NC
A7	NC	A20	GND
A8	NC	A21	RXP
A9	3.3V	A22	RXN
A10	3.3V	A23	GND
A11	reset	A24	GND
A12	GND	A25	RXP
A13	CLK	A26	RXN

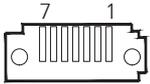
Pin	Definition	Pin	Definition
A27	GND	A39	NC
A28	GND	A40	NC
A29	RXP	A41	GND
A30	RXN	A42	GND
A31	GND	A43	NC
A32	NC	A44	NC
A33	NC	A45	GND
A34	GND	A46	GND
A35	NC	A47	NC
A36	NC	A48	NC
A37	GND	A49	GND
A38	GND		

Pin	Definition	Pin	Definition
B1	12V	B14	TXP
B2	12V	B15	TXN
B3	12V	B16	GND
B4	GND	B17	NC
B5	SMBCLK	B18	GND
B6	SMBDAT	B19	TXP
B7	GND	B20	TXN
B8	3.3V	B21	GND
B9	NC	B22	GND
B10	3.3V AUX	B23	TXP
B11	wake	B24	TXN
B12	NC	B25	GND
B13	GND	B26	GND

Pin	Definition	Pin	Definition
B27	TXP	B39	GND
B28	TXN	B40	GND
B29	GND	B41	NC
B30	NC	B42	NC
B31	NC	B43	GND
B32	GND	B44	GND
B33	NC	B45	NC
B34	NC	B46	NC
B35	GND	B47	GND
B36	GND	B48	NC
B37	NC	B49	GND
B38	NC		

SATA Gen3 Connector

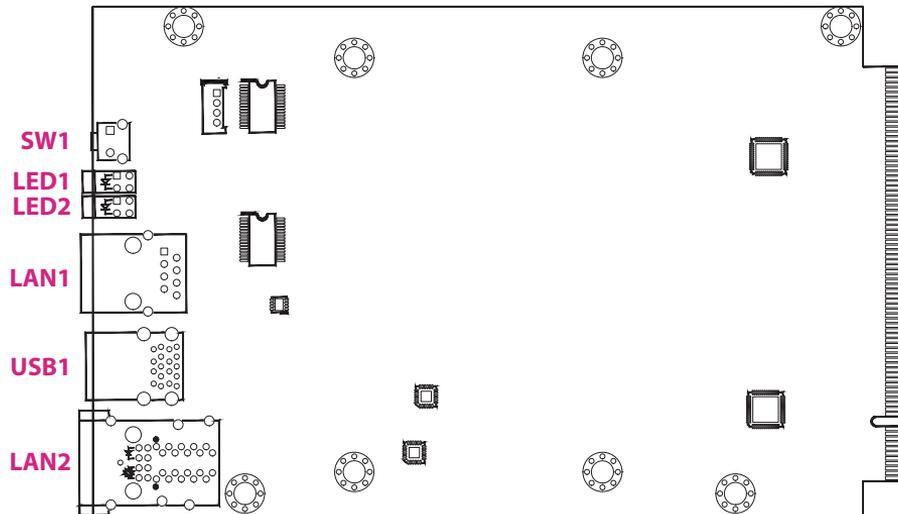
Connector location: SATA1, SATA2



Pin	Definition
1	GND
2	TXP
3	TXN
4	GND
5	RXN
6	RXP
7	GND

Locations of the Front Panel Board Connectors

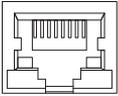
The following figure shows the front panel board used in the NSA 5190, and indicates the locations of the connectors. Refer to this section for detailed pin settings and definitions of the connectors marked in pink on the figure below.



Console Port

Connector type: RJ45

Connector number: LAN1

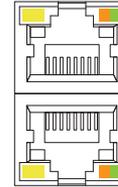


Pin	Definition
1	RTS
2	DTR
3	TXD
4	GND
5	DCD
6	RXD
7	DSR
8	CTS

LAN Port

Connector type: RJ45 (For Ethernet)

Connector number: LAN2



Pin	Definition	Pin	Definition
1	MDI0P	8	MDI3N
2	MDI0N	9	CT
3	MDI1P	10	GND
4	MDI1N	11	Active/Link LED
5	MDI2P	12	
6	MDI2N	13	Speed LED
7	MDI3P	14	

LED	Status	Description
Act/Link	Green	10Mbps/100Mbps/1Gbps link
	Blinking Green	LAN is accessing
Speed	Off	10Mbps network speed
	Yellow	100Mbps network speed
	Green	1Gps network speed

LED Indicators

Connector number: LED1

FAN



PWR1

Pin	Definition
A1	Power LED
C1	
A2	FAN LED
C2	

Connector number: LED2

SYS



PWR2

Pin	Definition
A1	Power LED
C1	
A2	SYS LED
C2	

Reset Button

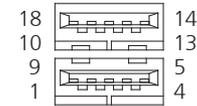
Connector number: SW1



Pin	Definition
1	GND
2	Reset
3	GND
4	GND

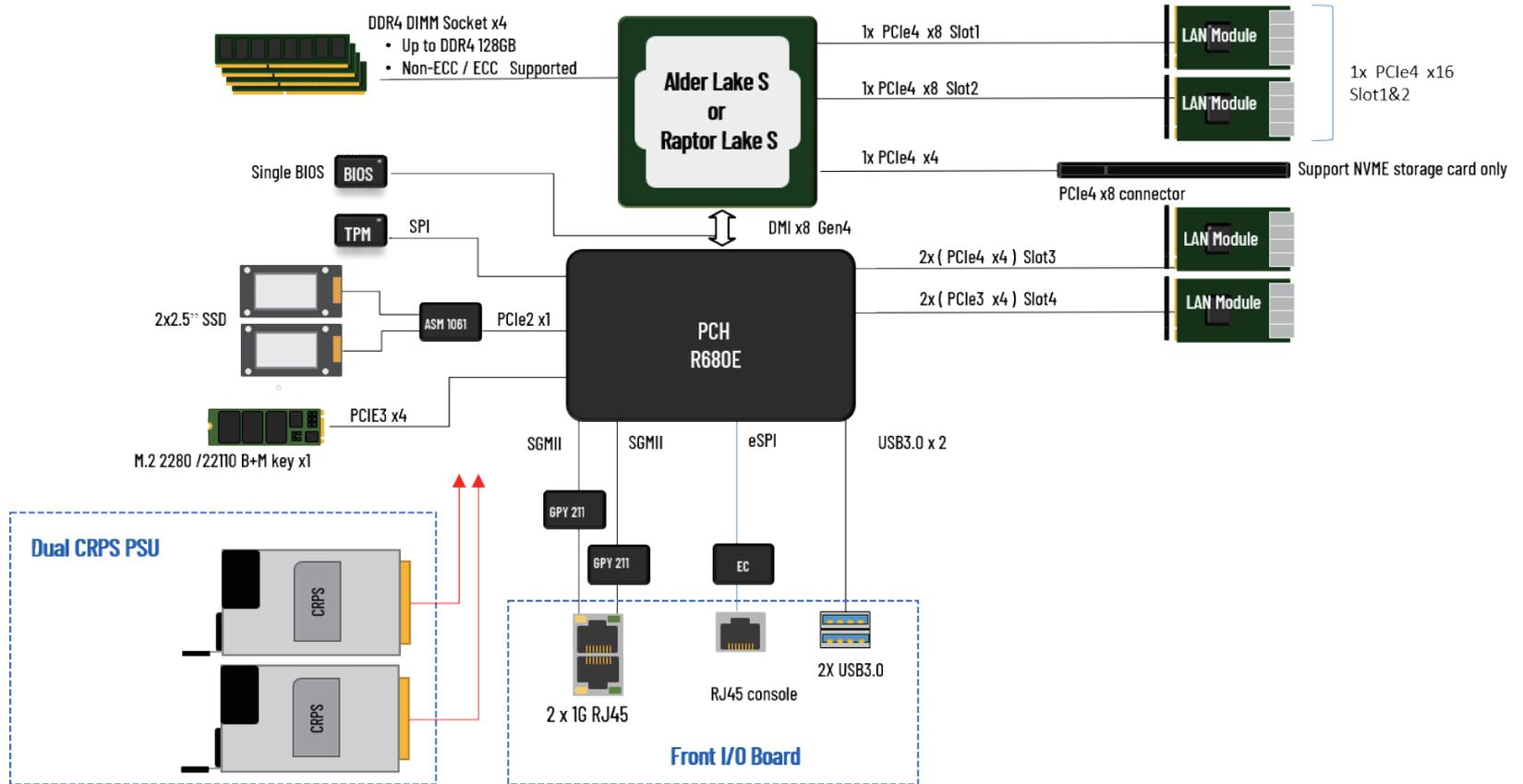
USB 3.0 Ports

Connector number: USB1



Pin	Definition	Pin	Definition
1	5V	10	5V
2	D-	11	D-
3	D+	12	D+
4	GND	13	GND
5	RXN	14	RXN
6	RXP	15	RXP
7	GND	16	GND
8	TXN	17	TXN
9	TXP	18	TXP

Block Diagram



CHAPTER 3: BIOS SETUP

This chapter describes how to use the BIOS setup program for NSA 5190. The BIOS screens provided in this chapter are for reference only and may change if the BIOS is updated in the future.

To check for the latest updates and revisions, visit the NEXCOM website at www.nexcom.com.tw.

About BIOS Setup

The BIOS (Basic Input and Output System) Setup program is a menu driven utility that enables you to make changes to the system configuration and tailor your system to suit your individual work needs. It is a ROM-based configuration utility that displays the system's configuration status and provides you with a tool to set system parameters.

These parameters are stored in non-volatile battery-backed-up CMOS RAM that saves this information even when the power is turned off. When the system is turned back on, the system is configured with the values found in CMOS.

With easy-to-use pull down menus, you can configure such items as:

- Hard drives, diskette drives, and peripherals
- Video display type and display options
- Password protection from unauthorized use
- Power management features

The settings made in the setup program affect how the computer performs. It is important, therefore, first to try to understand all the setup options, and second, to make settings appropriate for the way you use the computer.

When to Configure the BIOS

- This program should be executed under the following conditions:
 - When changing the system configuration
 - When a configuration error is detected by the system and you are prompted to make changes to the setup program
 - When resetting the system clock
 - When redefining the communication ports to prevent any conflicts
 - When making changes to the Power Management configuration
 - When changing the password or making other changes to the security setup

Normally, CMOS setup is needed when the system hardware is not consistent with the information contained in the CMOS RAM, whenever the CMOS RAM has lost power, or the system features need to be changed.

Default Configuration

Most of the configuration settings are either predefined according to the Load Optimal Defaults settings which are stored in the BIOS or are automatically detected and configured without requiring any actions. There are a few settings that you may need to change depending on your system configuration.

Entering Setup

When the system is powered on, the BIOS will enter the Power-On Self Test (POST) routines. These routines perform various diagnostic checks; if an error is encountered, the error will be reported in one of two different ways:

- If the error occurs before the display device is initialized, a series of beeps will be transmitted.
- If the error occurs after the display device is initialized, the screen will display the error message.

Powering on the computer and immediately pressing  allows you to enter Setup.

Legends

Key	Function
	Moves the highlight left or right to select a menu.
	Moves the highlight up or down between sub-menu or fields.
	Exits the BIOS Setup Utility.
	Scrolls forward through the values or options of the highlighted field.
	Scrolls backward through the values or options of the highlighted field.
	Selects a field.
	Displays General Help.
	Load previous values.
	Load optimized default values.
	Saves and exits the Setup program.
	Press <Enter> to enter the highlighted sub-menu

Scroll Bar

When a scroll bar appears to the right of the setup screen, it indicates that there are more available fields not shown on the screen. Use the up and down arrow keys to scroll through all the available fields.

Submenu

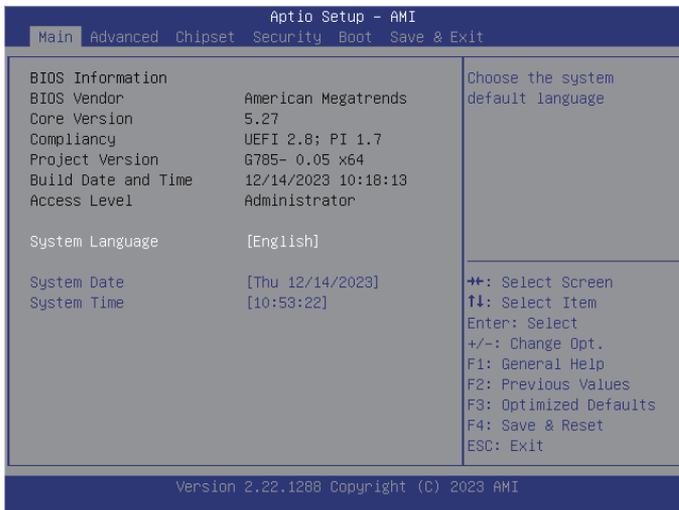
When “▶” appears on the left of a particular field, it indicates that a submenu which contains additional options are available for that field. To display the submenu, move the highlight to that field and press  .

BIOS Setup Utility

Once you enter the AMI BIOS Setup Utility, the Main Menu will appear on the screen. The main menu allows you to select from several setup functions and one exit. Use arrow keys to select among the items and press  to accept or enter the submenu.

Main

The Main menu is the first screen that you will see when you enter the BIOS Setup Utility.



System Date

The date format is <day>, <month>, <date>, <year>. Day displays a day, from Monday to Sunday. Month displays the month, from January to December. Date displays the date, from 1 to 31. Year displays the year, from 1998 to 9999.

System Time

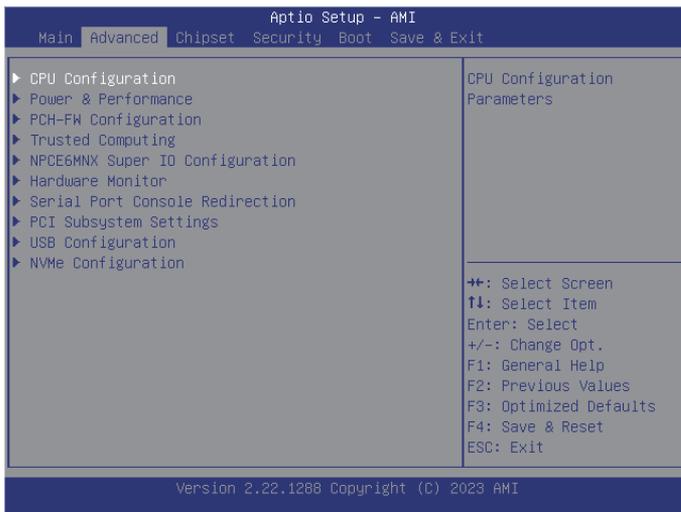
The time format is <hour>, <minute>, <second>. The time is based on the 24-hour military-time clock. For example, 1 p.m. is 13:00:00. Hour displays hours from 00 to 23. Minute displays minutes from 00 to 59. Second displays seconds from 00 to 59.

Advanced

The Advanced menu allows you to configure your system for basic operation. Some entries are defaults required by the system board, while others, if enabled, will improve the performance of your system or let you set some features according to your preference.

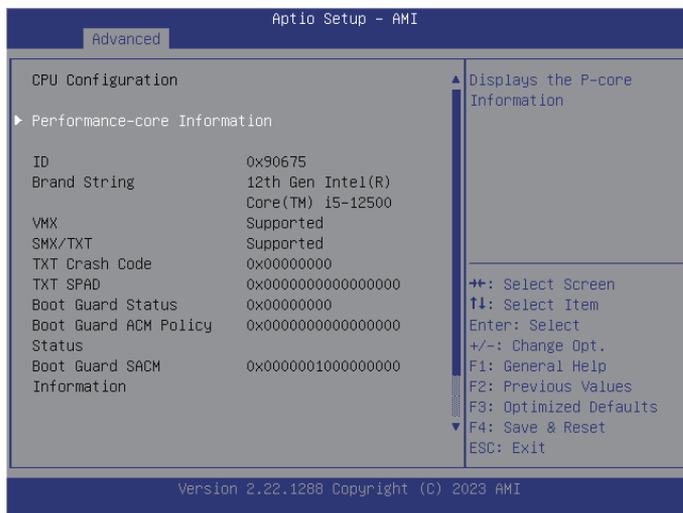


Setting incorrect field values may cause the system to malfunction.



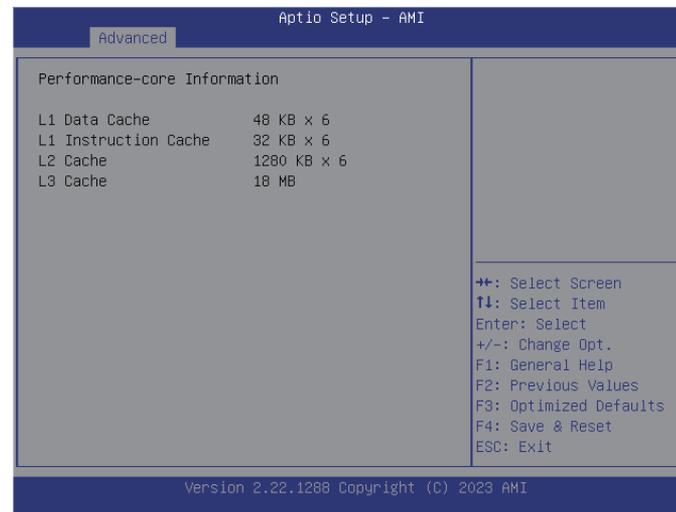
CPU Configuration

This section is used to configure the CPU settings.



Performance-core Information

This section is used to display the information of performance-core.



Performance-core Information

Press to enter the submenu and see the P-core information.

Intel (VMX) Virtualization Technology

When this field is set to Enabled, the VMX can utilize the additional hardware capabilities provided by Vanderpool Technology.

Hyper-Threading

Enable or disable Hyper-Threading Technology.

Power & Performance

This section is used to configure the CPU power management features.



CPU - Power Management Control

Press to enter CPU - Power Management Control submenu.

CPU - Power Management Control

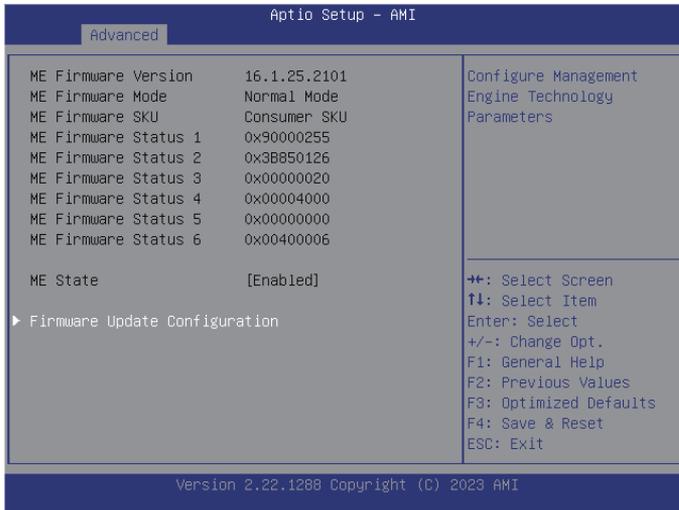


Intel(R) SpeedStep™

Allows more than two frequency ranges to be supported.

PCH-FW Configuration

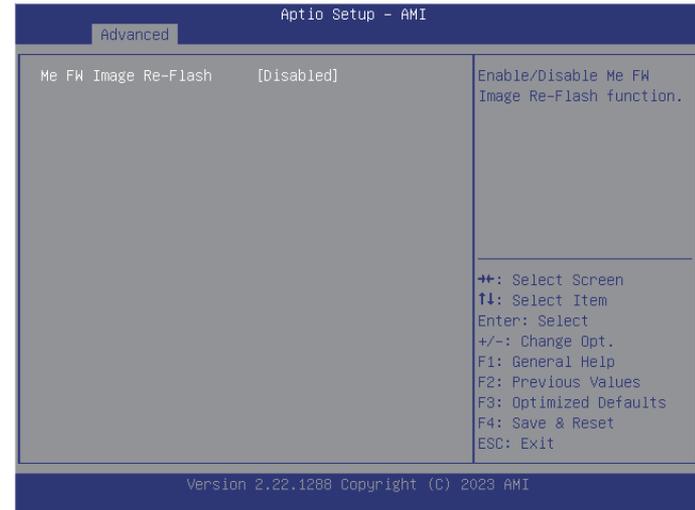
This section is used to configure the firmware update options.



Firmware Update Configuration

Press to enter Firmware Update Configuration submenu.

Firmware Update Configuration

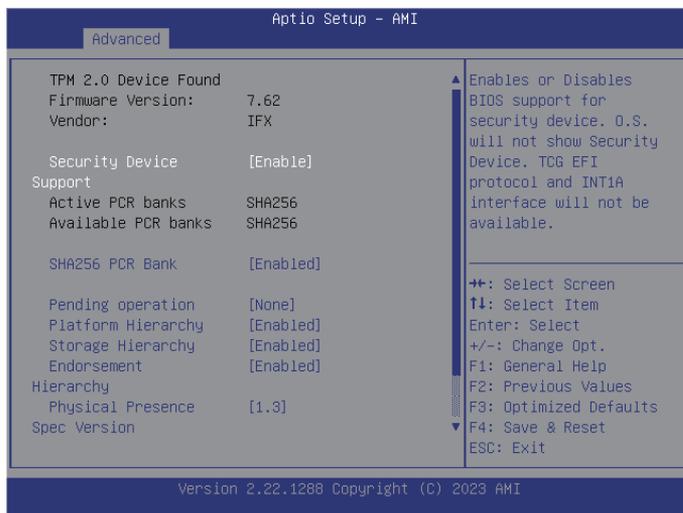


Me FW Image Re-Flash

Enable or disable Me FW Image Re-Flash function.

Trusted Computing

This section is used to configure Trusted Platform Module (TPM) settings.



Security Device Support

Enable or disable 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

Enable or disable SHA256 PCR Bank.

Pending operation

Schedule an operation for the security device.

Platform Hierarchy

Enable or disable platform hierarchy.

Storage Hierarchy

Enable or disable storage hierarchy.

Endorsement Hierarchy

Enable or disable endorsement hierarchy.

Physical Presence Spec Version

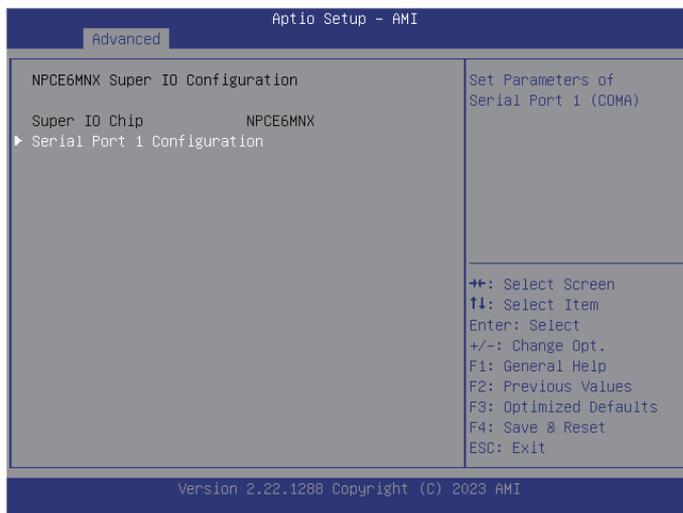
Configures the physical presence spec version.

Device Select

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 TPM 1.2 and 2.0 devices with the default set to TPM 2.0 devices if not found, and TPM 1.2 devices will be enumerated.

NPCE6MNX Super IO Configuration

This section is used to configure the serial port.

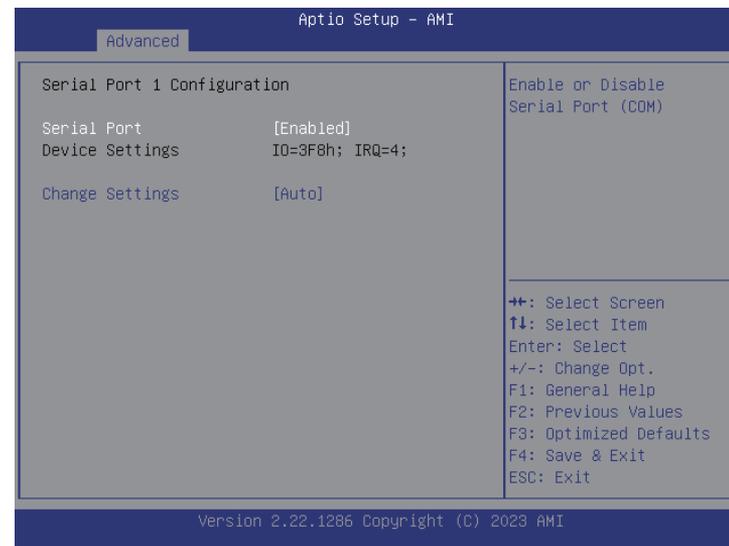


Serial Port 1 Configuration

Press to enter Serial Port 1 Configuration submenu.

Serial Port 1 Configuration

This section is used to configure serial port 1.



Serial Port

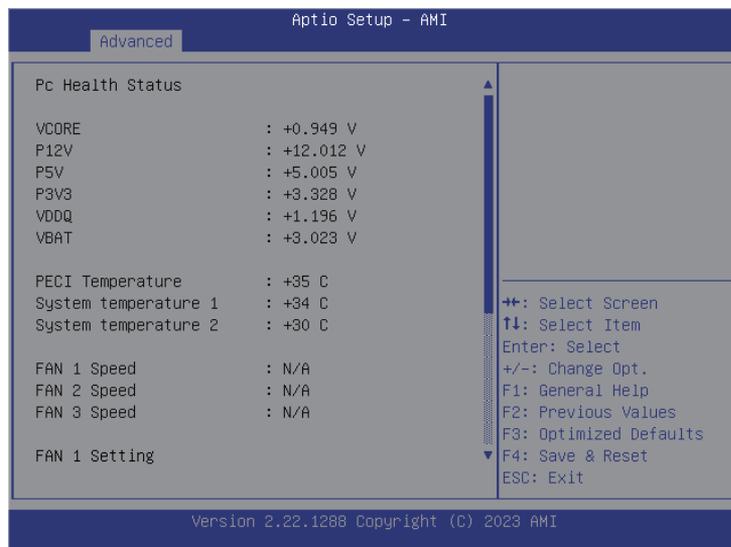
Enable or disable the serial port.

Change Settings

Select an optimal setting for the Super IO device.

Hardware Monitor

This section is used to monitor hardware status such as temperature, fan speed and voltages.



Fan Min PWM

Configure the min. PWM for the fan in the system.

Fan Max PWM

Configure the max. PWM for the fan in the system.

Tolerance Temperature

Configure the temperature tolerance for the system.

Fan1/2/3 OUT Mode

Configure a fan out mode for the system.

Fan Min Temperature

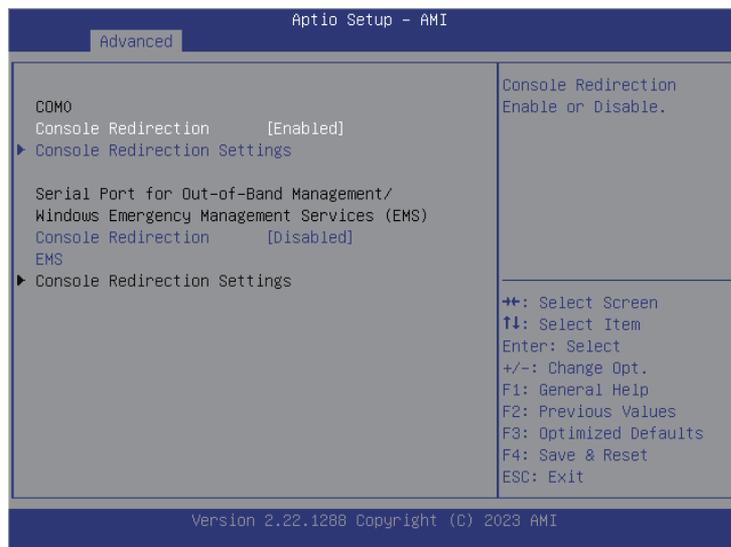
Configure the min. temperature for the fan in the system.

Fan Max Temperature

Configure the max. temperature for the fan in the system.

Serial Port Console Redirection

This section is used to configure the serial port that will be used for console redirection.



Console Redirection

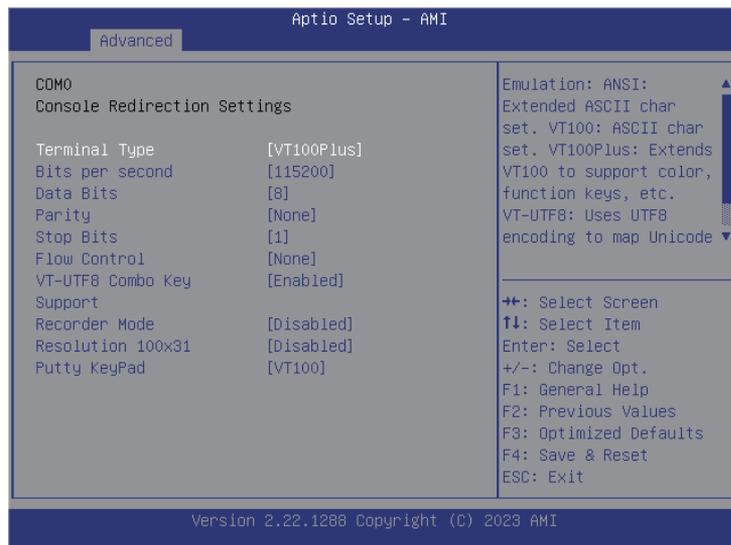
Enable or disable console redirection for COM0.

Console Redirection Settings

Press to enter Console Redirection Settings submenu.

Console Redirection Settings

Specifies how the host computer and the remote computer (which the user is using) will exchange data. Both computers should have the same or compatible settings.



Terminal Type

ANSI Extended ASCII character set.
 VT100 ASCII character set.
 VT100Plus Extends VT100 to support color, function keys, etc.
 VT-UTF8 Uses UTF8 encoding to map Unicode characters onto 1 or more bytes.

Bits Per Second

Select the serial port transmission speed. The speed must match the other side. Long or noisy lines may require a lower speed.

Data Bits

The options are 7 and 8.

Parity

A parity bit can be sent with the data bits to detect some transmission errors.

Even Parity bit is 0 if the number of 1's in the data bits is even.
 Odd Parity bit is 0 if number of 1's in the data bits is odd.

Stop Bits

Stop bits indicate the end of a serial data packet. (A start bit indicates the beginning). The standard setting is 1 stop bit. Communication with slow devices may require more than 1 stop bit.

Flow Control

Flow control can prevent data loss from buffer overflow. When sending data and the receiving buffers are full, a "stop" signal can be sent to stop the data flow.

VT-UTF8 Combo Key Support

Enable or disable VT-UTF8 combo key support.

Recorder Mode

When this field is enabled, only text will be sent. This is to capture the terminal data.

Resolution 100x31

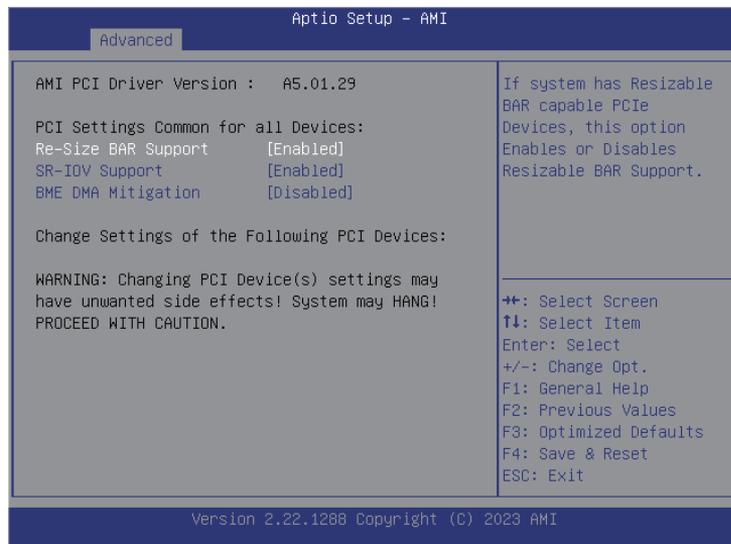
Enable or disable extended terminal resolution.

Putty KeyPad

Select the Putty keyboard emulation type.

PCI Subsystem Settings

This section is used to configure the PCI.



Re-Size BAR Support

If system has resizable BAR capable PCIe devices, this option enables or disables resizeable BAR support.

SR-IOV Support

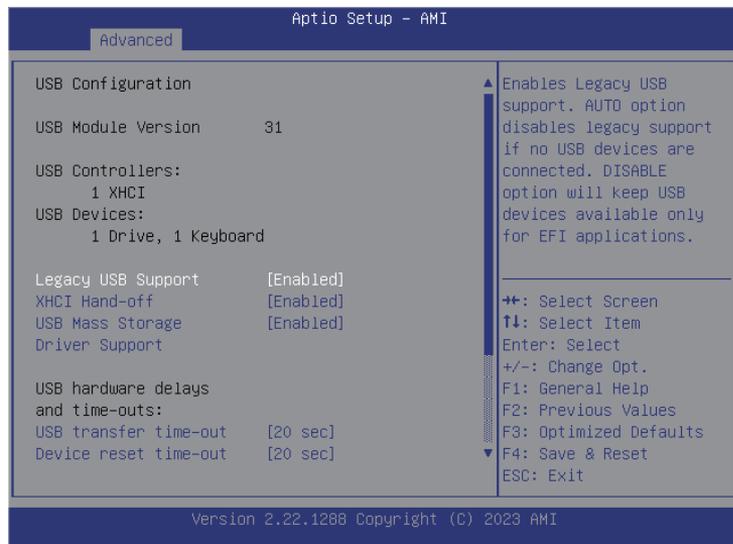
Enable or disable SR-IOV support.

BME DMA Mitigation

Enable or disable the function to re-enable bus master attribute during PCI enumeration for PCI bridges after SMM is locked.

USB Configuration

This section is used to configure the USB.



Legacy USB Support

Enable Enables Legacy USB.

Auto Disables support for Legacy when no USB devices are connected.

Disable Keeps USB devices available only for EFI applications.

XHCI Hand-off

This is a workaround for OSs that does not support XHCI hand-off. The XHCI ownership change should be claimed by the XHCI driver.

USB Mass Storage Driver Support

Enables or disables USB mass storage driver support.

USB transfer time-out

The time-out value for control, bulk, and Interrupt transfers.

Device reset time-out

Selects the USB mass storage device's start unit command timeout.

Device power-up delay

Maximum time the value 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.

NVMe Configuration

This section is used to configure the NVMe devices installed. The options will become available upon installation of the NVMe device.



Chipset

This section gives you functions to configure the system based on the specific features of the chipset. The chipset manages bus speeds and access to system memory resources.



System Agent (SA) Configuration

Press to enter System Agent Configuration submenu.

PCH-IO Configuration

Press to enter PCH-IO Configuration submenu.

System Agent (SA) Configuration



Memory Configuration

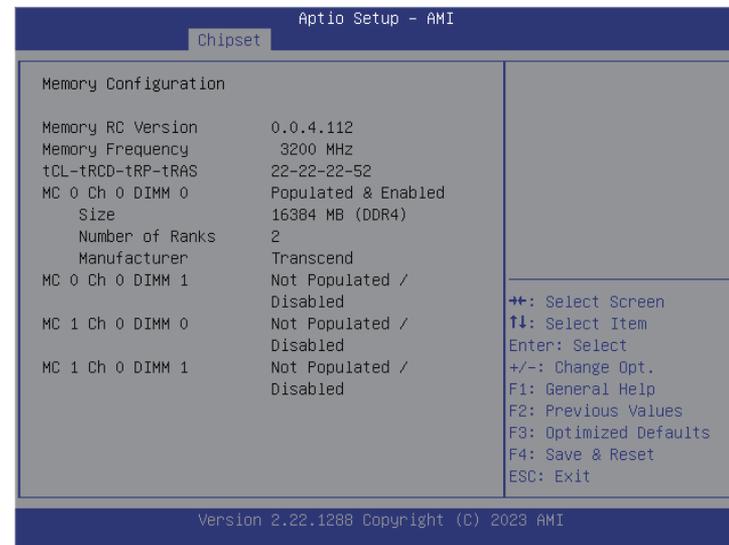
Press to enter Memory Configuration submenu.

VT-d

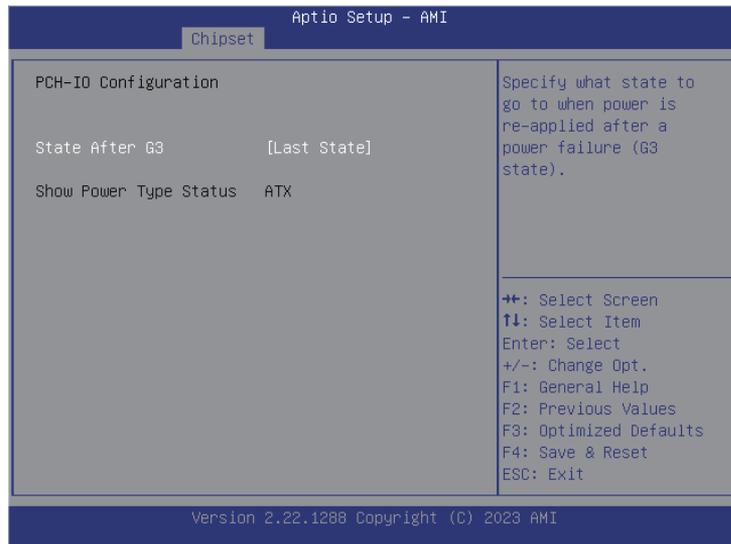
Enable or disable VT-d function.

Memory Configuration

Detects and displays the information on the memory installed.



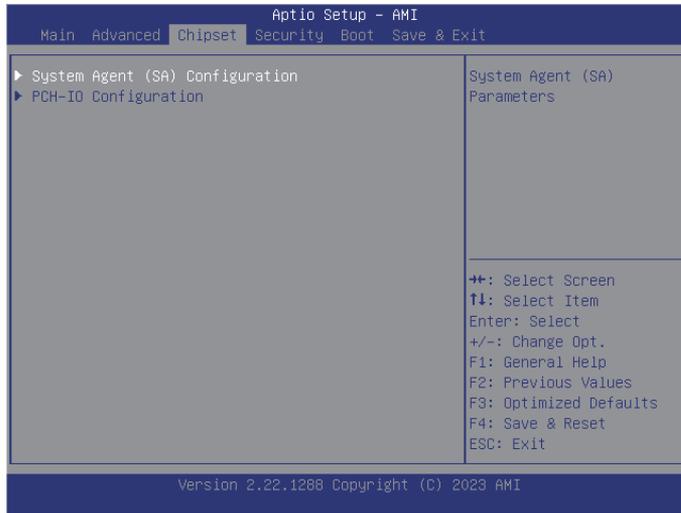
PCH-IO Configuration



State After G3

Press to enter Memory Configuration submenu. Specify what state to go to when power is re-applied after a power failure (G3 state).

Security



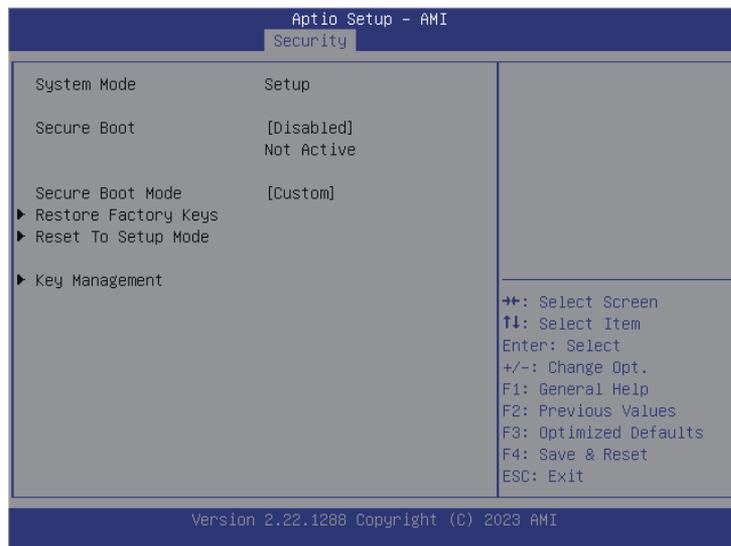
Administrator Password

Select this to reconfigure the administrator's password.

Secure Boot

Press to enter Secure Boot submenu.

Secure Boot



Secure Boot

Enable or disable Secure Boot. Secure Boot only works when the system runs in user mode.

Secure Boot Mode

Select this to configure the Secure Boot mode.

Standard Fixed secure boot policy.

Custom Secure boot policy variables can be configured by a physically present user without full authentication.

Restore Factory Keys

Allow you to install factory default secure boot key databases

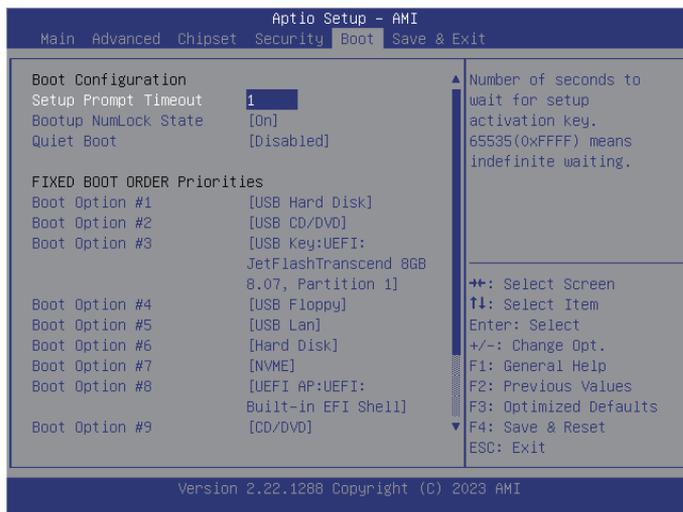
Reset to Setup Mode

Delete all Secure Boot Key databases from NVRAM.

Key Management

Enable experienced users to modify Secure Boot variables.

Boot



Setup Prompt Timeout

Selects the number of seconds to wait for the setup activation key. 65535(0xFFFF) denotes indefinite waiting.

Bootup NumLock State

This allows you to determine the default state of the numeric keypad. By default, the system boots up with NumLock on wherein the function of the numeric keypad is the number keys. When set to Off, the function of the numeric keypad is the arrow keys.

Quiet Boot

Enable or disable quiet boot function.

Boot Option Priorities

Adjust the boot sequence of the system. Boot Option #1 is the first boot device that the system will boot from, next will be #2 and so forth.

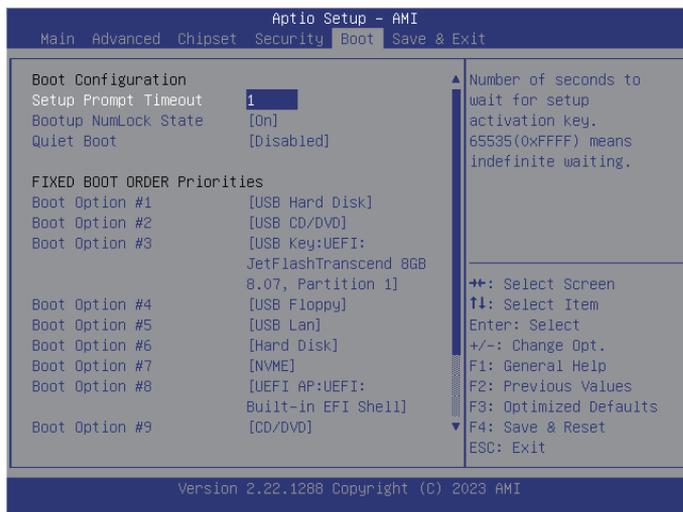
UEFI USB Key Drive BBS Priorities

Configure the boot device priority sequence from available UEFI USB key drives.

UEFI Application Boot Priorities

Specify the boot device priority sequence from available UEFI Application.

Save & Exit



Save Changes and Reset

To save the changes and reset, select this field then press <Enter>. A dialog box will appear. Confirm by selecting Yes.

Discard Changes and Reset

To exit the Setup utility and reset without saving the changes, select this field then press <Enter>. You may be prompted to confirm again before exiting.

Save Changes

To save changes and continue configuring the BIOS, select this field then press <Enter>. A dialog box will appear. Confirm by selecting Yes.

Discard Changes

To discard the changes, select this field then press <Enter>. A dialog box will appear. Confirm by selecting Yes to discard all changes made and restore the previously saved settings.

Restore Defaults

To restore the BIOS to default settings, select this field then press <Enter>. A dialog box will appear. Confirm by selecting Yes.

Save as User Defaults

To use the current configurations as user default settings for the BIOS, select this field then press <Enter>. A dialog box will appear. Confirm by selecting Yes.

Restore User Defaults

To restore the BIOS to user default settings, select this field then press <Enter>. A dialog box will appear. Confirm by selecting Yes, then press <Enter>. You may be prompted to confirm again before exiting.

Boot Override

To bypass the boot sequence from the Boot Option List and boot from a particular device, select the desired device and press <Enter>.