NEXCOM International Co., Ltd.

Network and Communication Solutions

Network Security Appliance

NSA 5200

User Manual

NEXCOM International Co., Ltd.
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Contents

Chapter 3: BIOS Setup

Appendix A: Memory Installation

PREFACE

Copyright

Disclaimer

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Acknowledgements

NSA 5200 are trademarks of NEXCOM International Co., Ltd. All other product names mentioned herein are registered trademarks of their respective owners.

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 5200 package that you received is complete. Your package should have all the items listed in the following table. Note that this packing list may vary depending on the shipping area or requirements

Item	Part Number	Name	Qty
1	19S00520000X0	NSA5200	1
2	5044440031X00	RUBBER FOOT KANG YANG:RF20-5-4P	4
3	6012200053X00	PE ZIPPER BAG #3	1
4	6012200096X00	PE BAG FOR UTM625 VAR:A CHYUAN-JYH	1
5	6014606898X00	LABEL BLANK WAI GHA	2
6	6030000350X00	CONSOLE CABLE ST:ST-1903024	1
7	Z300000040X00	OUTSIDE BOX LABEL FOR STANDARD VER.A	1
8	5040210036X00	NSA5181-112_EAR SET	1
9	6013301929X00	EPE FOR NSA5190 FRONT BOTTOM VER:A TSAIJIN	1
10	6013301930X00	EPE FOR NSA5190 FRONT TOP VER:A TSAIJIN	1
11	6013301932X00	EPE FOR NSA5190 REAR TOP VER:A TSAIJIN	1
12	60110A0229X00	ACCESSORY BOX FOR S2216/S2224 VER:A YI GIA	1
13	60111B0072X00	OUTSIDE CARTON FOR NSA3170A-OS1 VER:B YI GIA	1
14	601110A126X00	OUTSIDE CARTON FOR FTA5180 VER:A YI GIA	1

Ordering Information

The following information below provides ordering information for NSA 5200.

Barebone

- **NSA 5200 (P/N: 10S00520000X0)**
  1U w/ 14th Gen Intel® Core™ processor, 4 x DDR5 ECC/non-ECC UDIMM slot, 4 x LAN module slot (Gen Z)

Chapter 1: Product Introduction

Overview

Key Features

- 14th Gen Intel® Core™ processor
- 4 x DDR5 ECC/non-ECC UDIMM slot, up to 128GB
- 1 x M.2 Key M 2280 NVMe SSD slot (PCIe 4.0 x4)
- 1 x RJ45 console port
- 1 x 550W CRPS (1+1) Redundant power supply
- 4 x LAN module slot (Gen Z)
- 2 x 2.5” SATA 3.0 SSD (optional)

Hardware Specifications

Main Board

- 14th Gen Intel® Core™ processor
- PCH: Intel® R680E
- TPM 2.0

Main Memory

- 4 x DDR5 4400/3600 ECC/non-ECC UDIMM slot, up to 128GB, 32GB per slot (dual channel)

Storage

- 1 x M.2 Key M 2280 NVMe SSD slot (PCIe 4.0 x4)
- 2 x 2.5" SATA 3.0 SSD (optional)

Interface-External

- Buttons: Power & Reset
- LEDs: FAN/SYS/PW1/PW2
- 1 x RJ45 console port
- 1 x RJ45 MGMT port
- 1 x HDMI® port
- 2 x USB 3.0 port
- 1 x LCM
- 4 x LAN module slot (Gen Z)

	LAN Slot 1	LAN Slot 2	LAN Slot 3	LAN Slot 4
Connector Type	OCP	OCP	OCP	OCP
Signal	PCIe 5.0 x8	PCIe 5.0 x8	2 x PCIe 4.0 x4	2 x PCIe 3.0 x4

- 3 x Swappable fan

Power Input

- 1 x 550W CRPS (1+1) Redundant power supply

Dimensions and Weight

- Chassis dimension: 438 mm (W) x 511 mm (D) x 44 mm (H)
- Carton dimension: 735 mm (W) x 612 mm (D) x 255 mm (H)
- Without packing: 9.96 kg
- With packing: 17.74 kg

Environment

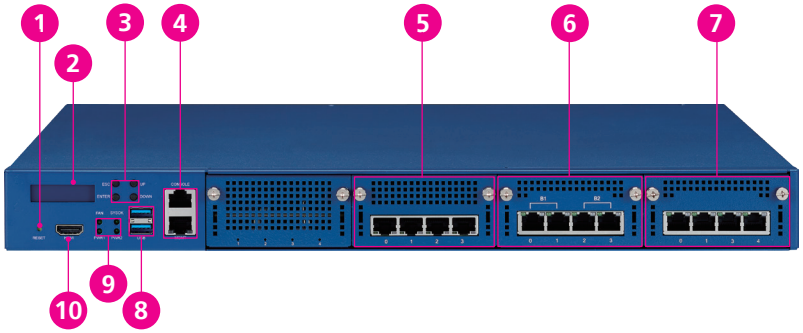
- Operating temperature: Ambient with air flow, 0°C~40°C
- Storage temperature: -20°C~80°C
- Relative humidity: 10%~90% non-condensing

Certifications

- CE
- FCC Class A

Knowing Your NSA 5200

Front Panel



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

2. LCD Display

3. LED Indicators
Indicate the FAN, SYS, PWR1, and PWR2.

4. RJ45 Type Console Serial Ports
Used to connect a console device with RJ45 type connection.

5. LAN Ports
Used to connect to a network.

6. LAN Ports
Used to connect to a network.

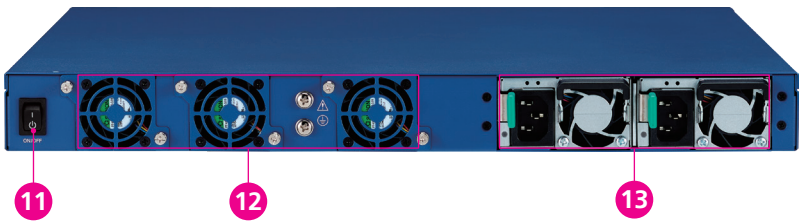
7. LAN Ports
Used to connect to a network.

8. USB 3.0 Ports
Used to connect USB 3.0/2.0/1.1 devices.

9. LED Indicators
Indicate the FAN, SYS, PWR1, and PWR2.

10. HDMI® Port
Used to connect to a display through an HDMI® cable.

Rear Panel

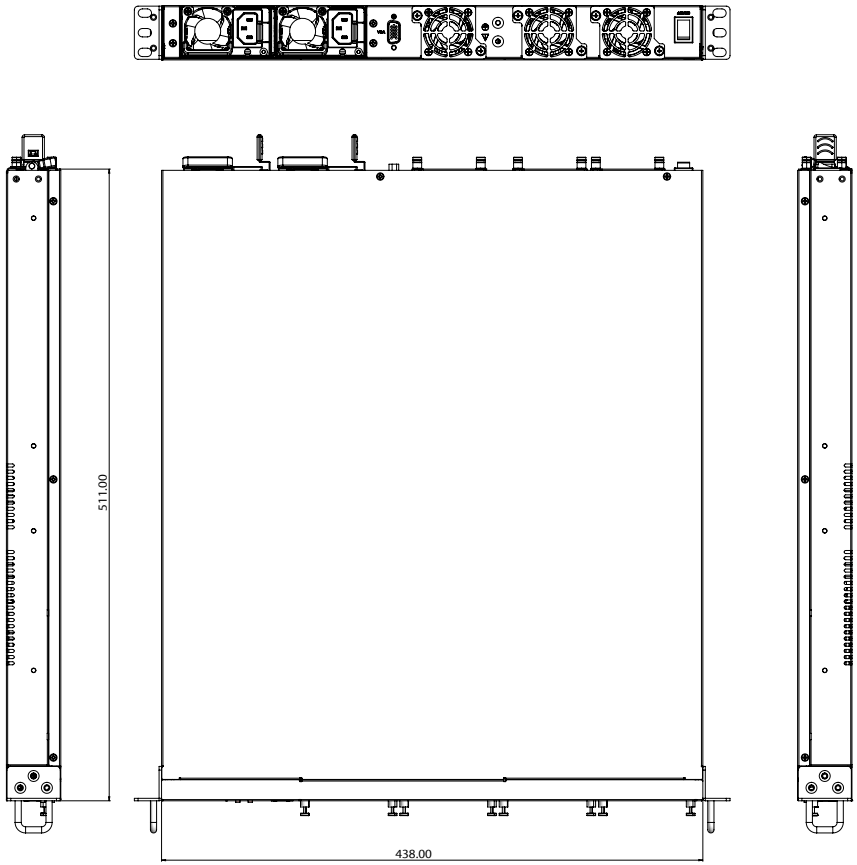


11. Power Switch
Press to power on or off the system.

12. Swappable Smart Fans

13. 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 5200 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:

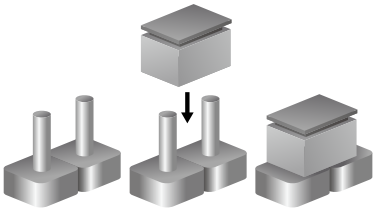
- Always disconnect the unit from the power outlet whenever you are working inside the case.
- If possible, wear a grounded wrist strap when you are working inside the computer case. Alternatively, discharge any static electricity by touching the bare metal chassis of the unit case, or the bare metal 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

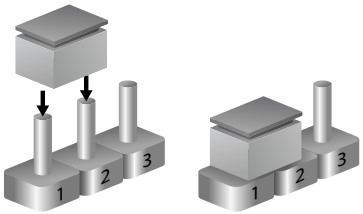
A jumper is the simplest kind of electric switch. It consists of two metal pins and a cap. When setting the jumpers, ensure that the jumper caps are placed on the correct pins. When the jumper cap is placed on both pins, the jumper is short. If you remove the jumper cap, or place the jumper cap on just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



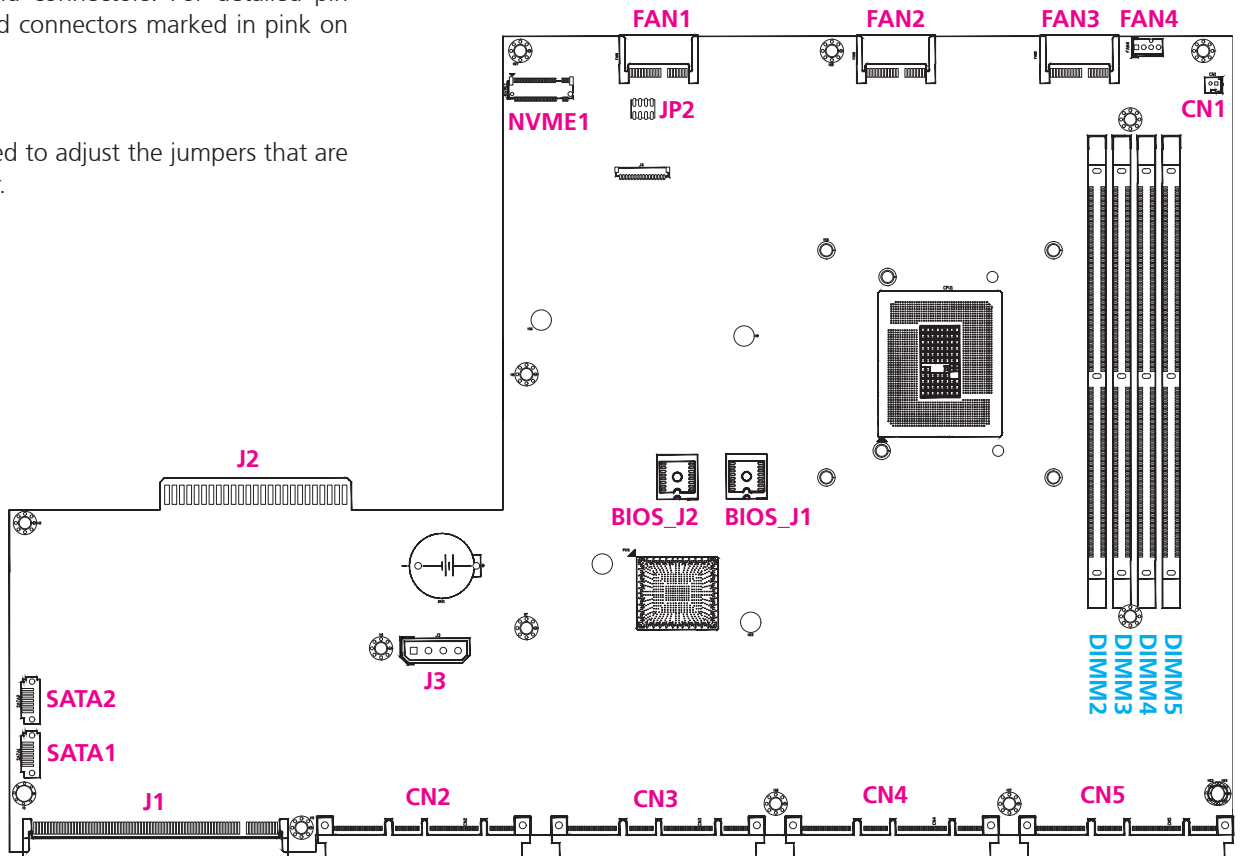
Three-Pin Jumpers: Pins 1 and 2 are Short



Locations of Mainboard Jumpers and Connectors

The following figure shows the mainboard used in the NSA 5200, 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.

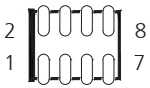
It is strongly not recommended to adjust the jumpers that are not mentioned in this chapter.



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

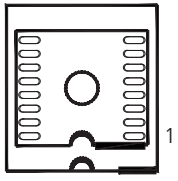
Default Setting	Status
1-3 On	Normal (default)
3-5 On	Clear CMOS

Default Setting	Status
2-4 On	ATX (default)
4-6 On	AT

Internal Connectors

BIOS Socket

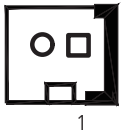
Connector location: BIOS_J1, BIOS_J2



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

Power Switch

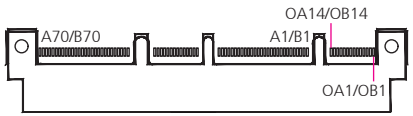
Connector type: 1x2 2-Pin (2.0 mm header)
Connector location: CN1



Pin	Definition
1	3.3V Power button
2	GND

OCP 4C+GenZ PCIe Gen5 Slot 1 (From CPU PEG)

Connector type: PCIe x8 slot
Connector location: CN2



Pin	Definition	Pin	Definition
OCP A1	NC	OCP B1	NIC_PWRGD_SLOT1
OCP A2	NC	OCP_B2	MAIN_PWR_EN_SLOT
OCP A3	NC	OCP_B3	LD_N_SLOT1
OCP A4	ARB_IN connect to	OCP_B4	DIN_SLOT1
OCP A5	ARB_OUT	OCP_B5	DOUT_SLOT1
OCP A6	SLOT1_ID1_N	OCP_B6	CLK_SLOT1
OCP A7	SLOT1_RTB_TX_EN	OCP_B7	SLOT1_ID0_N
OCP A8	SLOT1_RTB_TXD1	OCP_B8	SLOT1_RTB_RXD1
OCP A9	SLOT1_RTB_TXD0	OCP_B9	SLOT1_RTB_RXD0
OCP A10	GND	OCP_B10	GND
OCP A11	NC	OCP_B11	NC
OCP A12	NC	OCP_B12	NC
OCP A13	GND	OCP_B13	GND
OCP A14	SLOT1_RTB_CLK_IN	OCP_B14	SLOT1_RTB_CRSDV

Pin	Definition	Pin	Definition
A1	GND	B1	12V
A2	GND	B2	12V
A3	GND	B3	12V
A4	GND	B4	12V
A5	GND	B5	12V
A6	GND	B6	12V
A7	SMB_CLK_SLOT1	B7	SLOT1_BIF0
A8	SMB_DAT_SLOT1	B8	SLOT1_BIF1
A9	SMB_RST#_SLOT1	B9	SLOT1_BIF2
A10	GND	B10	SLOT1_PERST0_N
A11	SLOT1_PERST1_N	B11	3.3V AUX
A12	SLOT1_PRSNTB2_N	B12	AUX_PWR_EN_MAIN
A13	GND	B13	GND
A14	REFCLK1_SLOT1_DN	B14	REFCLK0_SLOT1_DN

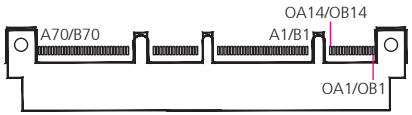
Continued on next page

Pin	Definition	Pin	Definition
A15	REFCLK1_SLOT1_DP	B15	REFCLK0_SLOT1_DP
A16	GND	B16	GND
A17	PEG0_RXN0	B17	PEG0_TXN0
A18	PEG0_RXP0	B18	PEG0_TXP0
A19	GND	B19	GND
A20	PEG0_RXN1	B20	PEG0_TXN1
A21	PEG0_RXP1	B21	PEG0_TXP1
A22	GND	B22	GND
A23	PEG0_RXN2	B23	PEG0_TXN2
A24	PEG0_RXP2	B24	PEG0_TXP2
A25	GND	B25	GND
A26	PEG0_RXN3	B26	PEG0_TXN3
A27	PEG0_RXP3	B27	PEG0_TXP3
A28	GND	B28	GND
A29	GND	B29	GND
A30	PEG0_RXN4	B30	PEG0_TXN4
A31	PEG0_RXP4	B31	PEG0_TXP4
A32	GND	B32	GND
A33	PEG0_RXN5	B33	PEG0_TXN5
A34	PEG0_RXP5	B34	PEG0_TXP5
A35	GND	B35	GND
A36	PEG0_RXN6	B36	PEG0_TXN6
A37	PEG0_RXP6	B37	PEG0_TXP6
A38	GND	B38	GND
A39	PEG0_RXN7	B39	PEG0_TXN7
A40	PEG0_RXP7	B40	PEG0_TXP7
A41	GND	B41	GND
A42	SLOT1_PRSNTB1_N	B42	SLOT1_PRSNTB0_N

Pin	Definition	Pin	Definition
A43	GND	B43	GND
A44	NC	B44	NC
A45	NC	B45	NC
A46	GND	B46	GND
A47	NC	B47	NC
A48	NC	B48	NC
A49	GND	B49	GND
A50	NC	B50	NC
A51	NC	B51	NC
A52	GND	B52	GND
A53	NC	B53	NC
A54	NC	B54	NC
A55	GND	B55	GND
A56	NC	B56	NC
A57	NC	B57	NC
A58	GND	B58	GND
A59	NC	B59	NC
A60	NC	B60	NC
A61	GND	B61	GND
A62	NC	B62	NC
A63	NC	B63	NC
A64	GND	B64	GND
A65	NC	B65	NC
A66	NC	B66	NC
A67	GND	B67	GND
A68	NC	B68	NC
A69	NC	B69	NC
A70	NC	B70	SLOT1_PRSNTB3_N

OCP 4C+GenZ PCIe Gen5 Slot 2 (From CPU PEG)

Connector type: PCIe x8 slot
Connector location: CN3



Pin	Definition	Pin	Definition
OCP A1	NC	OCP B1	NIC_PWRGD_SLOT2
OCP A2	NC	OCP_B2	MAIN_PWR_EN_SLOT
OCP A3	NC	OCP_B3	LD_N_SLOT2
OCP A4	ARB_IN connect to	OCP_B4	DIN_SLOT2
OCP A5	ARB_OUT	OCP_B5	DOUT_SLOT2
OCP A6	SLOT2_ID1_N	OCP_B6	CLK_SLOT2
OCP A7	SLOT2_RTB_TX_EN	OCP_B7	SLOT2_ID0_N
OCP A8	SLOT2_RTB_TXD1	OCP_B8	SLOT2_RTB_RXD1
OCP A9	SLOT2_RTB_TXD0	OCP_B9	SLOT2_RTB_RXD0
OCP A10	GND	OCP_B10	GND
OCP A11	NC	OCP_B11	NC
OCP A12	NC	OCP_B12	NC
OCP A13	GND	OCP_B13	GND
OCP A14	SLOT2_RTB_CLK_IN	OCP_B14	SLOT2_RTB_CRSDV

Pin	Definition	Pin	Definition
A1	GND	B1	12V
A2	GND	B2	12V
A3	GND	B3	12V
A4	GND	B4	12V
A5	GND	B5	12V
A6	GND	B6	12V
A7	SMB_CLK_SLOT2	B7	SLOT2_BIF0
A8	SMB_DAT_SLOT2	B8	SLOT2_BIF1
A9	SMB_RST#_SLOT2	B9	SLOT2_BIF2
A10	GND	B10	SLOT2_PERST0_N
A11	SLOT2_PERST1_N	B11	3.3V AUX
A12	PEG0_SLOT2_PRSNTB2_N	B12	AUX_PWR_EN_MAIN
A13	GND	B13	GND
A14	REFCLK1_SLOT2_DN	B14	REFCLK0_SLOT2_DN

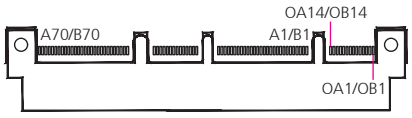
Continued on next page

Pin	Definition	Pin	Definition
A15	REFCLK1_SLOT2_DP	B15	REFCLK0_SLOT2_DP
A16	GND	B16	GND
A17	PEG0_RXN8	B17	PEG0_TXN8
A18	PEG0_RXP8	B18	PEG0_TXP8
A19	GND	B19	GND
A20	PEG0_RXN9	B20	PEG0_TXN9
A21	PEG0_RXP9	B21	PEG0_TXP9
A22	GND	B22	GND
A23	PEG0_RXN10	B23	PEG0_TXN10
A24	PEG0_RXP10	B24	PEG0_TXP10
A25	GND	B25	GND
A26	PEG0_RXN11	B26	PEG0_TXN11
A27	PEG0_RXP11	B27	PEG0_TXP11
A28	GND	B28	GND
A29	GND	B29	GND
A30	PEG0_RXN12	B30	PEG0_TXN12
A31	PEG0_RXP12	B31	PEG0_TXP12
A32	GND	B32	GND
A33	PEG0_RXN13	B33	PEG0_TXN13
A34	PEG0_RXP13	B34	PEG0_TXP13
A35	GND	B35	GND
A36	PEG0_RXN14	B36	PEG0_TXN14
A37	PEG0_RXP14	B37	PEG0_TXP14
A38	GND	B38	GND
A39	PEG0_RXN15	B39	PEG0_TXN15
A40	PEG0_RXP15	B40	PEG0_TXP15
A41	GND	B41	GND
A42	SLOT2_PRSNTB1_N	B42	SLOT2_PRSNTB0_N

Pin	Definition	Pin	Definition
A43	GND	B43	GND
A44	NC	B44	NC
A45	NC	B45	NC
A46	GND	B46	GND
A47	NC	B47	NC
A48	NC	B48	NC
A49	GND	B49	GND
A50	NC	B50	NC
A51	NC	B51	NC
A52	GND	B52	GND
A53	NC	B53	NC
A54	NC	B54	NC
A55	GND	B55	GND
A56	NC	B56	NC
A57	NC	B57	NC
A58	GND	B58	GND
A59	NC	B59	NC
A60	NC	B60	NC
A61	GND	B61	GND
A62	NC	B62	NC
A63	NC	B63	NC
A64	GND	B64	GND
A65	NC	B65	NC
A66	NC	B66	NC
A67	GND	B67	GND
A68	NC	B68	NC
A69	NC	B69	NC
A70	NC	B70	SLOT2_PRSNTB3_N

OCP 4C+GenZ PCIe Gen4 Slot 3 (From PCH HSIO)

Connector type: PCIe 2 x4 slot
Connector location: CN4



Pin	Definition	Pin	Definition
OCP A1	NC	OCP B1	NIC_PWRGD_SLOT3
OCP A2	NC	OCP_B2	MAIN_PWR_EN_SLOT
OCP A3	NC	OCP_B3	LD_N_SLOT3
OCP A4	ARB_IN connect to	OCP_B4	DIN_SLOT3
OCP A5	ARB_OUT	OCP_B5	DOUT_SLOT3
OCP A6	SLOT3_ID1_N	OCP_B6	CLK_SLOT3
OCP A7	SLOT3_RTB_TX_EN	OCP_B7	SLOT3_ID0_N
OCP A8	SLOT3_RTB_TXD1	OCP_B8	SLOT3_RTB_RXD1
OCP A9	SLOT3_RTB_TXD0	OCP_B9	SLOT3_RTB_RXD0
OCP A10	GND	OCP_B10	GND
OCP A11	NC	OCP_B11	NC
OCP A12	NC	OCP_B12	NC
OCP A13	GND	OCP_B13	GND
OCP A14	SLOT3_RTB_CLK_IN	OCP_B14	SLOT3_RTB_CRSDV

Pin	Definition	Pin	Definition
A1	GND	B1	12V
A2	GND	B2	12V
A3	GND	B3	12V
A4	GND	B4	12V
A5	GND	B5	12V
A6	GND	B6	12V
A7	SMB_CLK_SLOT3	B7	SLOT3_BIF0
A8	SMB_DAT_SLOT3	B8	SLOT3_BIF1
A9	SMB_RST#_SLOT3	B9	SLOT3_BIF2
A10	GND	B10	SLOT3_PERST0_N
A11	SLOT3_PERST1_N	B11	3.3V AUX
A12	SLOT3_PRSNTB2_N	B12	AUX_PWR_EN_MAIN
A13	GND	B13	GND
A14	REFCLK1_SLOT3_DN	B14	REFCLK0_SLOT3_DN

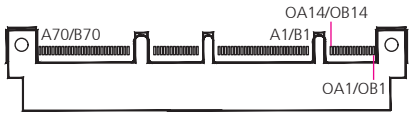
Continued on next page

Pin	Definition	Pin	Definition
A15	REFCLK1_SLOT3_DP	B15	REFCLK0_SLOT3_DP
A16	GND	B16	GND
A17	SLOT3_RXN0	B17	PCIE_SLOT3_TXN0
A18	SLOT3_RXP0	B18	PCIE_SLOT3_TXP0
A19	GND	B19	GND
A20	SLOT3_RXN1	B20	PCIE_SLOT3_TXN1
A21	SLOT3_RXP1	B21	PCIE_SLOT3_TXP1
A22	GND	B22	GND
A23	SLOT3_RXN2	B23	PCIE_SLOT3_TXN2
A24	SLOT3_RXP2	B24	PCIE_SLOT3_TXP2
A25	GND	B25	GND
A26	SLOT3_RXN3	B26	PCIE_SLOT3_TXN3
A27	SLOT3_RXP3	B27	PCIE_SLOT3_TXP3
A28	GND	B28	GND
A29	GND	B29	GND
A30	SLOT3_RXN4	B30	PCIE_SLOT3_TXN4
A31	SLOT3_RXP4	B31	PCIE_SLOT3_TXP4
A32	GND	B32	GND
A33	SLOT3_RXN5	B33	PCIE_SLOT3_TXN5
A34	SLOT3_RXP5	B34	PCIE_SLOT3_TXP5
A35	GND	B35	GND
A36	SLOT3_RXN6	B36	PCIE_SLOT3_TXN6
A37	SLOT3_RXP6	B37	PCIE_SLOT3_TXP6
A38	GND	B38	GND
A39	SLOT3_RXN7	B39	PCIE_SLOT3_TXN7
A40	SLOT3_RXP7	B40	PCIE_SLOT3_TXP7
A41	GND	B41	GND
A42	SLOT3_PRSNTB1_N	B42	SLOT3_PRSNTB0_N

Pin	Definition	Pin	Definition
A43	GND	B43	GND
A44	NC	B44	NC
A45	NC	B45	NC
A46	GND	B46	GND
A47	NC	B47	NC
A48	NC	B48	NC
A49	GND	B49	GND
A50	NC	B50	NC
A51	NC	B51	NC
A52	GND	B52	GND
A53	NC	B53	NC
A54	NC	B54	NC
A55	GND	B55	GND
A56	NC	B56	NC
A57	NC	B57	NC
A58	GND	B58	GND
A59	NC	B59	NC
A60	NC	B60	NC
A61	GND	B61	GND
A62	NC	B62	NC
A63	NC	B63	NC
A64	GND	B64	GND
A65	NC	B65	NC
A66	NC	B66	NC
A67	GND	B67	GND
A68	NC	B68	NC
A69	NC	B69	NC
A70	NC	B70	SLOT3_PRSNTB3_N

OCP 4C+GenZ PCIe Gen3 Slot 4 (From PCH HSIO)

Connector type: PCIe 2 x4 slot
Connector location: CN5



Pin	Definition	Pin	Definition
OCP A1	NC	OCP B1	NIC_PWRGD_SLOT4
OCP A2	NC	OCP_B2	MAIN_PWR_EN_SLOT
OCP A3	NC	OCP_B3	LD_N_SLOT4
OCP A4	SLOT4_ARB_IN connect	OCP_B4	DIN_SLOT4
OCP A5	to SLOT4_ARB_OUT	OCP_B5	DOUT_SLOT4
OCP A6	SLOT4_ID1_N	OCP_B6	CLK_SLOT4
OCP A7	SLOT4_RTB_TX_EN	OCP_B7	SLOT4_ID0_N
OCP A8	SLOT4_RTB_TXD1	OCP_B8	SLOT4_RTB_RXD1
OCP A9	SLOT4_RTB_TXD0	OCP_B9	SLOT4_RTB_RXD0
OCP A10	GND	OCP_B10	GND
OCP A11	NC	OCP_B11	NC
OCP A12	NC	OCP_B12	NC
OCP A13	GND	OCP_B13	GND
OCP A14	SLOT4_RTB_CLK_IN	OCP_B14	SLOT4_RTB_CRSDV

Pin	Definition	Pin	Definition
A1	GND	B1	12V
A2	GND	B2	12V
A3	GND	B3	12V
A4	GND	B4	12V
A5	GND	B5	12V
A6	GND	B6	12V
A7	SMB_CLK_SLOT4	B7	SLOT4_BIF0
A8	SMB_DAT_SLOT4	B8	SLOT4_BIF1
A9	SMB_RST#_SLOT4	B9	SLOT4_BIF2
A10	GND	B10	SLOT4_PERST0_N
A11	SLOT4_PERST1_N	B11	3.3V AUX
A12	SLOT4_PRSNTB2_N	B12	AUX_PWR_EN_MAIN
A13	GND	B13	GND
A14	REFCLK1_SLOT4_DN	B14	REFCLK0_SLOT4_DN

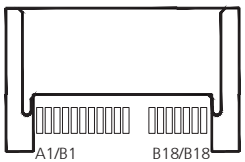
Continued on next page

Pin	Definition	Pin	Definition
A15	REFCLK1_SLOT4_DP	B15	REFCLK0_SLOT4_DP
A16	GND	B16	GND
A17	SLOT4_RXN0	B17	PCIE_SLOT4_TXN0
A18	SLOT4_RXP0	B18	PCIE_SLOT4_TXP0
A19	GND	B19	GND
A20	SLOT4_RXN1	B20	PCIE_SLOT4_TXN1
A21	SLOT4_RXP1	B21	PCIE_SLOT4_TXP1
A22	GND	B22	GND
A23	SLOT4_RXN2	B23	PCIE_SLOT4_TXN2
A24	SLOT4_RXP2	B24	PCIE_SLOT4_TXP2
A25	GND	B25	GND
A26	SLOT4_RXN3	B26	PCIE_SLOT4_TXN3
A27	SLOT4_RXP3	B27	PCIE_SLOT4_TXP3
A28	GND	B28	GND
A29	GND	B29	GND
A30	SLOT4_RXN4	B30	PCIE_SLOT4_TXN4
A31	SLOT4_RXP4	B31	PCIE_SLOT4_TXP4
A32	GND	B32	GND
A33	SLOT4_RXN5	B33	PCIE_SLOT4_TXN5
A34	SLOT4_RXP5	B34	PCIE_SLOT4_TXP5
A35	GND	B35	GND
A36	SLOT4_RXN6	B36	PCIE_SLOT4_TXN6
A37	SLOT4_RXP6	B37	PCIE_SLOT4_TXP6
A38	GND	B38	GND
A39	SLOT4_RXN7	B39	PCIE_SLOT4_TXN7
A40	SLOT4_RXP7	B40	PCIE_SLOT4_TXP7
A41	GND	B41	GND
A42	SLOT4_PRSNTB1_N	B42	SLOT4_PRSNTB0_N

Pin	Definition	Pin	Definition
A43	GND	B43	GND
A44	NC	B44	NC
A45	NC	B45	NC
A46	GND	B46	GND
A47	NC	B47	NC
A48	NC	B48	NC
A49	GND	B49	GND
A50	NC	B50	NC
A51	NC	B51	NC
A52	GND	B52	GND
A53	NC	B53	NC
A54	NC	B54	NC
A55	GND	B55	GND
A56	NC	B56	NC
A57	NC	B57	NC
A58	GND	B58	GND
A59	NC	B59	NC
A60	NC	B60	NC
A61	GND	B61	GND
A62	NC	B62	NC
A63	NC	B63	NC
A64	GND	B64	GND
A65	NC	B65	NC
A66	NC	B66	NC
A67	GND	B67	GND
A68	NC	B68	NC
A69	NC	B69	NC
A70	NC	B70	SLOT4_PRSNTB3_N

FAN Slot

Connector type: PCIe x1 slot
Connector location: FAN1, FAN2, FAN3

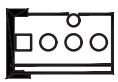


Pin	Definition	Pin	Definition
A1	FAN present	B1	12V
A2	12V	B2	12V
A3	12V	B3	5V
A4	GND	B4	GND
A5	NC	B5	SMBCLK
A6	NC	B6	SMBDAT
A7	NC	B7	GND
A8	NC	B8	3.3V
A9	3.3V	B9	NC

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

FAN Connector

Connector type: 1x4 4-Pin (2.54mm wafer)
Connector location: FAN4



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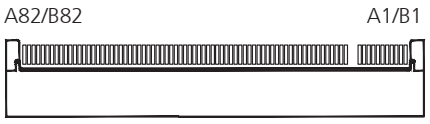
Pin	Definition	Pin	Definition
1	GND	2	12V
3	FAN4_TACH	4	FAN4_PWM

PCIe Slot (For I/O board)

Connector type: PCIe x16 slot
Connector location: J1



Pin	Definition	Pin	Definition
A1	GND	B1	GND
A2	GND	B2	SGMII TXP1
A3	GND	B3	SGMII TXN1
A4	SGMII RXP1	B4	GND
A5	SGMII RXN1	B5	GND
A6	GND	B6	NC
A7	GND	B7	GMII MDIO1
A8	NC	B8	GMII MDC1
A9	GPY211 Phy Reset1	B9	GND
A10	GPY211 Phy MDINT1	B10	NC
A11	NC	B11	NC
A12	USB OC	B12	GND
A13	GND	B13	USB3.2 Gen1 TXP1
A14	GND	B14	USB3.2 Gen1 TXN1
A15	USB3.2 Gen1 RXP1	B15	GND

Pin	Definition	Pin	Definition
A16	USB3.2 Gen1 RXN1	B16	GND
A17	GND	B17	USB3.2 Gen1 TXP0
A18	GND	B18	USB3.2 Gen1 TXN0
A19	USB3.2 Gen1 RXP0	B19	GND
A20	USB3.2 Gen1 RXN0	B20	GND
A21	GND	B21	USB2.0 DP2
A22	GND	B22	USB2.0 DN2
A23	EC Uart DTR#	B23	GND
A24	EC Uart CTS#	B24	GND
A25	GND	B25	USB2.0 DP1
A26	GND	B26	USB2.0 DN1
A27	I210 PCIE RXN0	B27	GND
A28	I210 PCIE RXP0	B28	GND
A29	GND	B29	I210 PCIE TXN0
A30	GND	B30	I210 PCIE TXP0

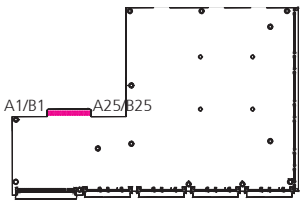
Continued on next page

Pin	Definition	Pin	Definition
A31	I210 REFCLKN	B31	GND
A32	I210 REFCLKP	B32	GND
A33	GND	B33	I210 Phy Reset
A34	NC (I210 PE Wake)	B34	NC
A35	GND	B35	NCSI TX0
A36	NCSI_RX0	B36	GND
A37	GND	B37	NCSI TX1
A38	NCSI_RX1	B38	GND
A39	GND	B39	NCSI TX EN
A40	NCSI CRS_DV	B40	GND
A41	GND	B41	I210 NCSI CLK
A42	HDMI DDC DAT	B42	GND
A43	HDMI DDC CLK	B43	GND
A44	GND	B44	HDMI TX0 DN
A45	GND	B45	HDMI TX0 DP
A46	HDMI HPD	B46	GND
A47	EC Uart RTS#	B47	GND
A48	GND	B48	HDMI TX1 DN
A49	GND	B49	HDMI TX1 DP
A50	SYS Uart TX	B50	GND
A51	SYS Uart RX	B51	GND
A52	GND	B52	HDMI TX2 DN
A53	GND	B53	HDMI TX2 DP
A54	LCM Uart TX	B54	GND
A55	LCM Uart RX	B55	GND
A56	GND	B56	HDMI TX3 DN

Pin	Definition	Pin	Definition
A57	GND	B57	HDMI TX3 DP
A58	SYS Reset	B58	GND
A59	EC Uart DCD#	B59	GND
A60	GND	B60	SGMII TXP0
A61	GND	B61	SGMII TXN0
A62	SGMII RXP0	B62	GND
A63	SGMII RXN0	B63	GND
A64	GND	B64	GMII MDIO0
A65	GND	B65	GMII MDC0
A66	GPY211 Phy Reset0	B66	NC
A67	GPY211 Phy MDINT0	B67	GPIO LED
A68	EC Uart DSR#	B68	SATA LED
A69	NC	B69	PWR LED
A70	3.3V (BMC)	B70	SYS LED
A71	NC	B71	12V
A72	5V	B72	5V
A73	5V	B73	5V
A74	NC	B74	NC
A75	3.3V	B75	3.3V
A76	3.3V	B76	3.3V
A77	NC	B77	NC
A78	3.3V AUX	B78	3.3V AUX
A79	3.3V AUX	B79	3.3V AUX
A80	NC	B80	NC
A81	3.3V (EC)	B81	3.3V (EC)
A82	3.3V (EC)	B82	3.3V (EC)

CRPS Power Golden Finger

Connector type: 2x25 50-Pin
Connector location: J2

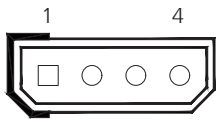


Pin	Definition	Pin	Definition
A1	GND	B1	GND
A2	GND	B2	GND
A3	GND	B3	GND
A4	GND	B4	GND
A5	GND	B5	GND
A6	GND	B6	GND
A7	GND	B7	GND
A8	GND	B8	GND
A9	GND	B9	GND
A10	12V	B10	12V
A11	12V	B11	12V
A12	12V	B12	12V
A13	12V	B13	12V

Pin	Definition	Pin	Definition
A14	12V	B14	12V
A15	12V	B15	12V
A16	12V	B16	12V
A17	12V	B17	12V
A18	12V	B18	12V
A19	PMBUS SDA	B19	PSU2 Alert
A20	PMBUS SCL	B20	PSU power on
A21	PSU1 Alert	B21	Standby 12V
A22	PSU1/PSU2 Alert	B22	SENSE
A23	PSU1 power OK	B23	PSU present1
A24	PSU2 power OK	B24	SENSE
A25	3.3V	B25	PSU present2

SATA Power Connector

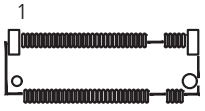
Connector type: 1x4 4-Pin
Connector location: J3



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

M.2 Key M Connector

Connector type: M.2 2280 Key M PCIe 4.0 x4
Connector location: NVMe1



Pin	Definition	Pin	Definition
1	GND	11	PCIE_NVME_TXN3
2	3.3V	12	3.3V
3	GND	13	PCIE_NVME_TXP3
4	3.3V	14	3.3V
5	PCIE_NVME_RXN3	15	GND
6	NC	16	3.3V
7	PCIE_NVME_RXP3	17	PCIE_NVME_RXN2
8	NC	18	3.3V
9	GND	19	PCIE_NVME_RXP2
10	M.2_LED_N	20	NC

Pin	Definition	Pin	Definition
21	GND	31	PCIE_NVME_RXP1
22	NC	32	NC
23	PCIE_NVME_TXN2	33	GND
24	NC	34	NC
25	PCIE_NVME_TXP2	35	PCIE_NVME_TXN1
26	NC	36	NC
27	GND	37	PCIE_NVME_TXP1
28	NC	38	GND
29	PCIE_NVME_RXN1	39	GND
30	NC	40	NC

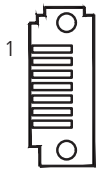
Continued on next page

Pin	Definition	Pin	Definition
41	PCIE_NVME_RXN0	50	RST_M.2_N
42	NC	51	GND
43	PCIE_NVME_RXP0	52	PCIe CLKREQ#
44	NC	53	PCIe REFCLKn
45	GND	54	PCIe Wake (NC)
46	NC	55	PCIe REFCLKp
47	PCIE_NVME_TXN0	56	NC
48	NC	57	GND
49	PCIE_NVME_TXP0	58	NC

Pin	Definition	Pin	Definition
		67	NC
		68	GND
		69	NC
		70	3.3V
		71	GND
		72	3.3V
		73	GND
		74	3.3V
		75	GND

SATA Gen3 Connector

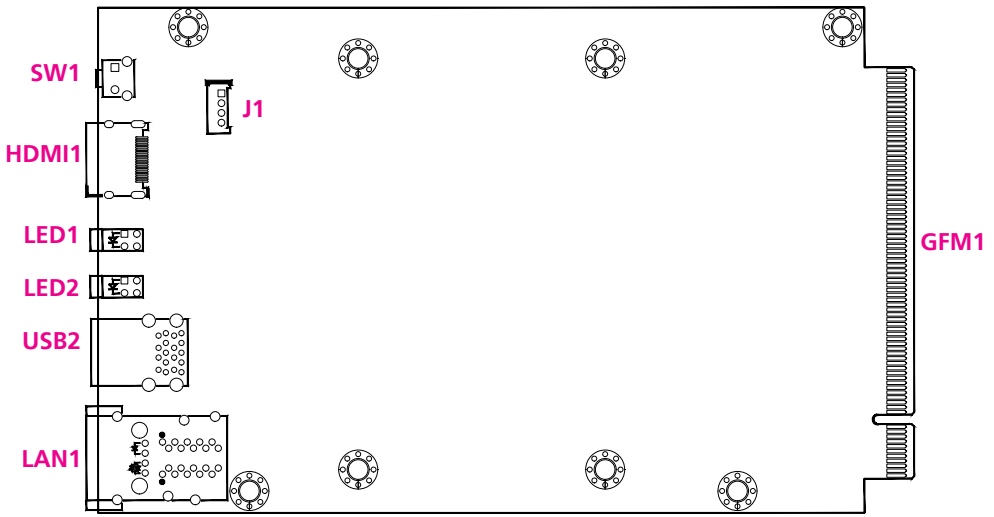
Connector location: SATA1, SATA2



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

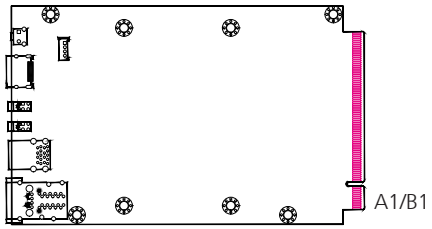
Locations of the Front Panel Board Connectors

The following figure shows the front panel board used in the NSA 5200, 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.



Golden Finger

Connector number: GFM1



Pin	Definition	Pin	Definition
A1	GND	B1	GND
A2	GND	B2	NC
A3	GND	B3	NC
A4	NC	B4	GND
A5	NC	B5	GND
A6	GND	B6	NC
A7	GND	B7	NC
A8	NC	B8	NC
A9	NC	B9	GND
A10	NC	B10	NC
A11	NC	B11	NC
A12	USB_OC0_N	B12	GND
A13	GND	B13	USB32_GEN11_TXP1
A14	GND	B14	USB32_GEN11_TXN1
A15	USB32_GEN11_RXP1	B15	GND

Pin	Definition	Pin	Definition
A16	USB32_GEN11_RXN1	B16	GND
A17	GND	B17	USB32_GEN11_TXP0
A18	GND	B18	USB32_GEN11_TXN0
A19	USB32_GEN11_RXP0	B19	GND
A20	USB32_GEN11_RXN0	B20	GND
A21	GND	B21	USB2_DP2
A22	GND	B22	USB2_DN2
A23	EC_UART1_DTR#	B23	GND
A24	EC_UART1_CTS#	B24	GND
A25	GND	B25	USB2_DP1
A26	GND	B26	USB2_DN1
A27	PCIE_I210_RXN0	B27	GND
A28	PCIE_I210_RXP0	B28	GND
A29	GND	B29	PCIE_I210_TXN0
A30	GND	B30	PCIE_I210_TXP0

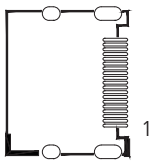
Continued on next page

Pin	Definition	Pin	Definition
A31	CLK_SRC15_I210_N	B31	GND
A32	CLK_SRC15_I210_P	B32	GND
A33	GND	B33	I210_RST_1_N
A34	WAKE_N	B34	NC
A35	GND	B35	NCSI_TXD0_A
A36	NCSI_RXD0_A	B36	GND
A37	GND	B37	NCSI_TXD1_A
A38	NCSI_RXD1_A	B38	GND
A39	GND	B39	NCSI_TX_EN_A
A40	NCSI_CRS_DV_A	B40	GND
A41	GND	B41	NCSI_I210_CLK_A
A42	DPB_CTRL_DAT	B42	GND
A43	DPB_CTRL_CLK	B43	GND
A44	GND	B44	DDI1_TX0_DN
A45	GND	B45	DDI1_TX0_DP
A46	DDPB_HPD0_HDMI	B46	GND
A47	EC_UART1_RTS#	B47	GND
A48	GND	B48	DDI1_TX1_DN
A49	GND	B49	DDI1_TX1_DP
A50	SYS_UART1_TXD	B50	GND
A51	SYS_UART1_RXD	B51	GND
A52	GND	B52	DDI1_TX2_DN
A53	GND	B53	DDI1_TX2_DP
A54	LCM_UART2_TXD	B54	GND
A55	LCM_UART2_RXD	B55	GND
A56	GND	B56	DDI1_TX3_DN

Pin	Definition	Pin	Definition
A57	GND	B57	DDI1_TX3_DP
A58	FP_RST_BTN_N	B58	GND
A59	EC_UART1_DCD#	B59	GND
A60	GND	B60	NC
A61	GND	B61	NC
A62	NC	B62	GND
A63	NC	B63	GND
A64	GND	B64	NC
A65	GND	B65	NC
A66	NC	B66	NC
A67	NC	B67	EC_GPIO_LED
A68	EC_UART1_DSR#	B68	EC_SATA_LED_N
A69	NC	B69	FP_POWER_LED
A70	+P3V3_BMC	B70	FP_SYSTEM_LED
A71	NC	B71	+P12V
A72	+P5V	B72	+P5V
A73	+P5V	B73	+P5V
A74	NC	B74	NC
A75	+P3V3	B75	+P3V3
A76	+P3V3	B76	+P3V3
A77	NC	B77	NC
A78	+P3V3_AUX	B78	+P3V3_AUX
A79	+P3V3_AUX	B79	+P3V3_AUX
A80	NC	B80	NC
A81	+P3V3_EC	B81	+P3V3_EC
A82	+P3V3_EC	B82	+P3V3_EC

HDMI® Connector

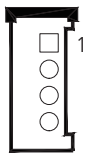
Connector number: HDMI1



Pin	Definition	Pin	Definition
1	HDMI_DATA2_P_C	11	GND
2	GND	12	HDMI_CLK_N_C
3	HDMI_DATA2_N_C	13	NC
4	HDMI_DATA1_P_C	14	NC
5	GND	15	HDMI_CLK
6	HDMI_DATA1_N_C	16	HDMI_DAT
7	HDMI_DATA0_P_C	17	GND
8	GND	18	HDMI_PWR_C
9	HDMI_DATA0_N_C	19	HDMI_HPD_C
10	HDMI_CLK_P_C		

LCM

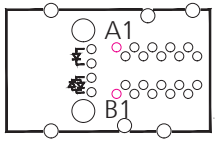
Connector number: J1



Pin	Definition
1	GND
2	SP_LCM_RXD
3	SP_LCM_TXD
4	+P5V

Console Ports

Connector type: RJ45
Connector number: LAN1



LAN1A: Console Port (upper)

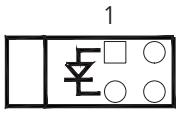
Pin	Definition	Pin	Definition
A9	GND	A14	LANA_LED_LINK1G#_R
A1	MDI_0_P_A_R	A13	LANA_LED_LINK100#_R
A2	MDI_0_N_A_R	A11	P3V3_LANA_R
A3	MDI_1_P_A_R	A12	LANA_LED_ACT#_R
A4	MDI_1_N_A_R	NH1	NC
A5	MDI_2_P_A_R	NH2	NC
A6	MDI_2_N_A_R	MH1	CGND
A7	MDI_3_P_A_R	MH2	CGND
A8	MDI_3_N_A_R	MH3	CGND
A10	GND		

LAN1B: Management Port (lower)

Pin	Definition	Pin	Definition
B9	GND	MH4	CGND
B1	COM1_RTS_N	MH5	CGND
B2	COM1_DTR_N	MH6	CGND
B3	COM1_TXD		
B4	GND		
B5	COM1_DCD_N		
B6	COM1_RXD		
B7	COM1_DSR_N		
B8	COM1_CTS_N		
B10	GND		

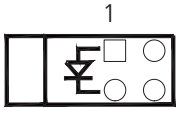
LED Indicators

Connector number: LED1



Pin	Definition
A2	+5V
A1	+5V
C2	FP_POWER_LED_R
C1	FP_SYSTEM_LED_R

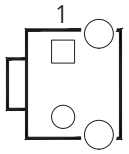
Connector number: LED2



Pin	Definition
A2	+5V
A1	+5V
C2	EC_SATA_LED_R_N
C1	EC_GPIO_LED_R

Reset Button

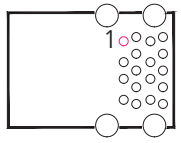
Connector number: SW1



Pin	Definition
1	GND
2	FP_RST_BTN_R_N
3	CGND
4	CGND

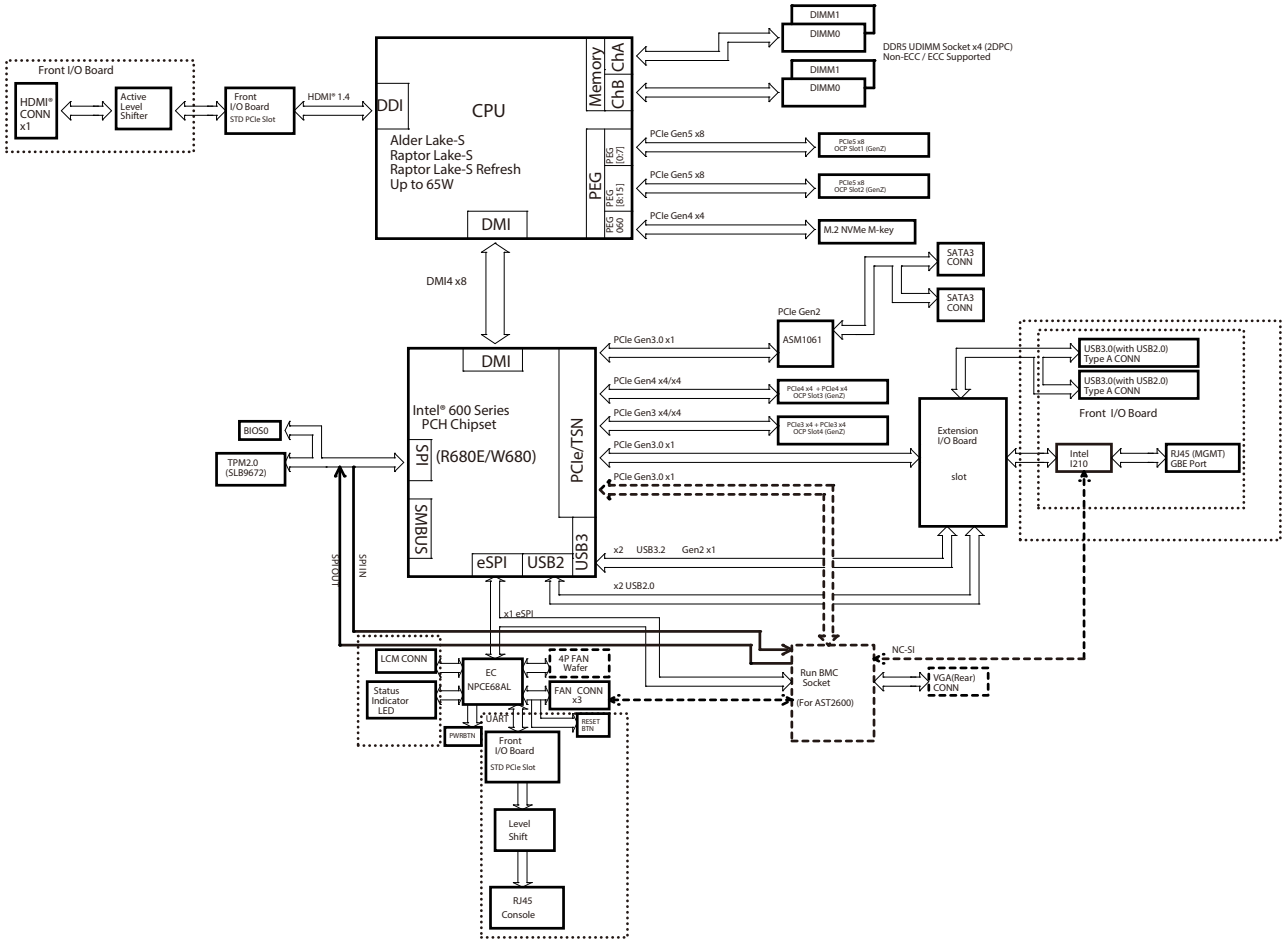
USB 3.0 Ports

Connector number: USB2



Pin	Definition	Pin	Definition
1	+P5V_USB_OCP	10	+P5V_USB_OCP
2	USB2N1_C	11	USB2N2_C
3	USB2P1_C	12	USB2P2_C
4	GND	13	GND
5	USB3RN0_C	14	USB3RN1_C
6	USB3RP0_C	15	USB3RP1_C
7	GND	16	GND
8	USB3TN0_C	17	USB3TN1_C
9	USB3TP0_C	18	USB3TP1_C

Block Diagram



Chapter 3: BIOS Setup

This chapter describes how to use the BIOS setup program for NSA 5200. 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

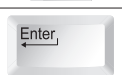
When the system is powered on, the BIOS will enter the Power-On Self Test (POST) routines. These routines perform various diagnostic checks; if an error is encountered, the error will be reported in one of two different ways:

- 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 Enter 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 Language
Choose the system default language.

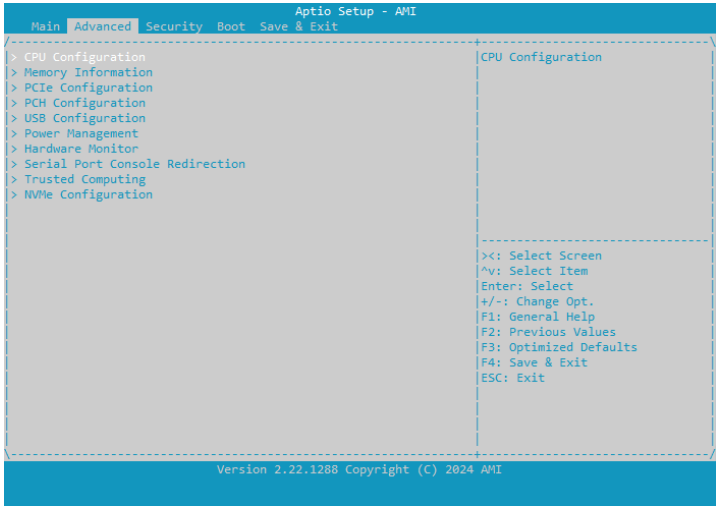
System Date
The date format is <day>, <month>, <date>, <year>. Day displays a day, from Monday to Sunday. Month displays the month, from January to December. Date displays the date, from 1 to 31. Year displays the year, from 1998 to 9999.

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

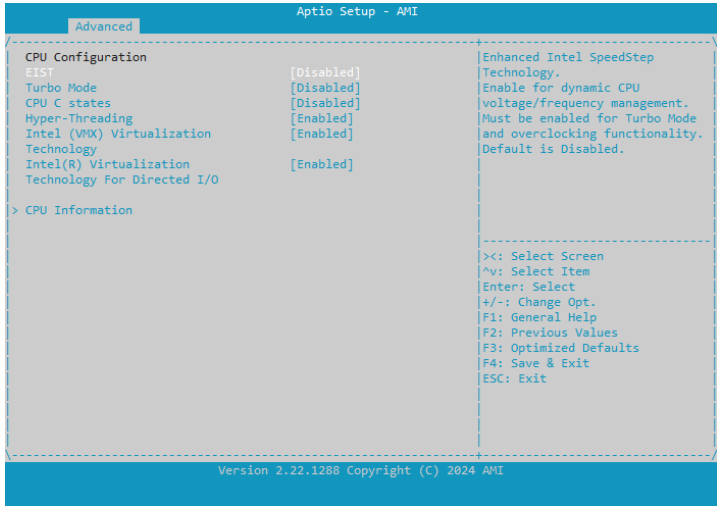
The Advanced menu allows you to configure your system for basic operation. Some entries are defaults required by the system board, while others, if enabled, will improve the performance of your system or let you set some features according to your preference.

Setting incorrect field values may cause the system to malfunction.



CPU Configuration

This section is used to configure the CPU settings.



EIST

Enhanced Intel SpeedStep Technology. Enable for dynamic CPU voltage/ frequency management. Must ve enavled for Turbo Mode and overclocking functionality. The default setting is Disabled.

Turbo Mode

Enable increase maximum CPU frequency to maximum Turbo ration. Must be enabled to allow overclocking functionality. The default setting is Enabled.

CPU C states

Enable or disable CPU C states.

Hyper-Threading

Enable or disable Hyper-Threading Technology. Intel HT Technology provide two logical cores per physical CPU coresm when enabled. It improves simultaneous processing of threads for improved efficiency and performance boost for multithreaded apps. The default setting is Enabled.

Intel (VMX) Virtualization Technology

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

Intel(R) Virtualization Technology Directed I/O

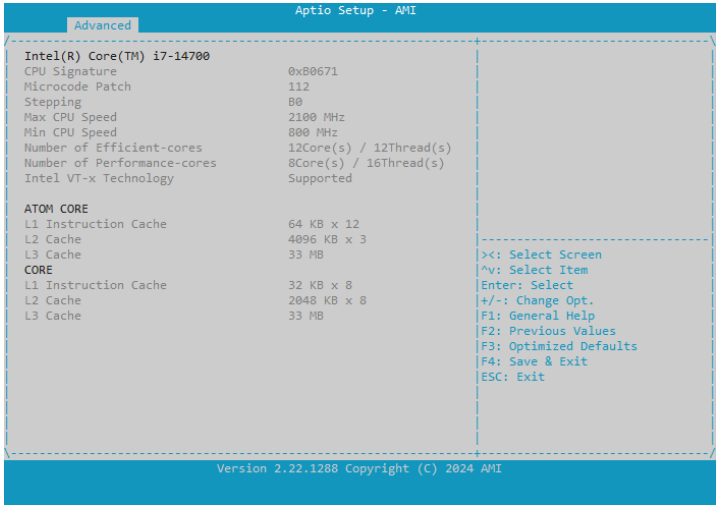
Enable or disable Intel Virtualization Technology for Directed I/I (VT-d). The default setting is Enabled.

CPU Information

Enter the CPU Information sub-menu.

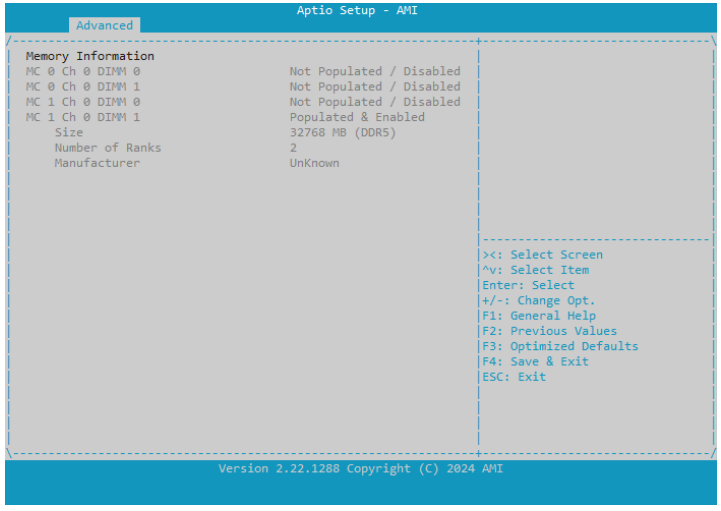
CPU Information

This sub-menu displays the CPU information of your system.



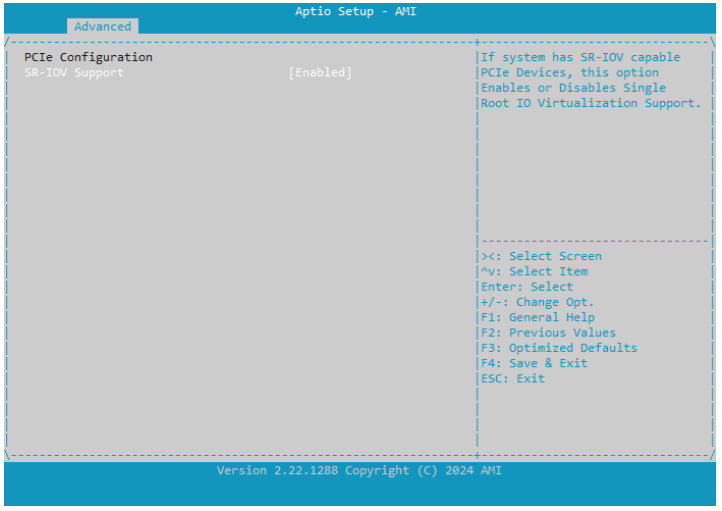
Memory Information

This section displays the memory information.



PCIe Configuration

This section is used to configure the PCIe setting.

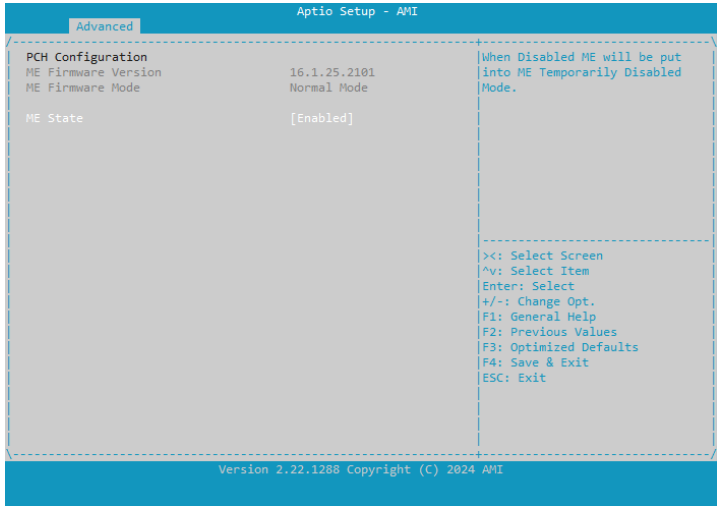


SR-IOV Support

If system has SR-IOV capable PCIe devices, this option enables or disables single root IO Virtualization support.

PCH Configuration

This section displays ME information and is used to configure the ME state.

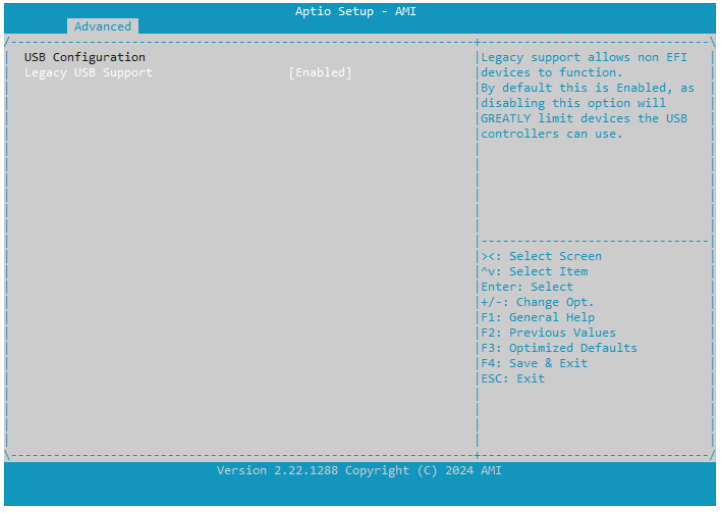


ME State

When this is disabled, ME will be put into temporarily disabled mode.

USB Configuration

This section is used to configure the USB support.

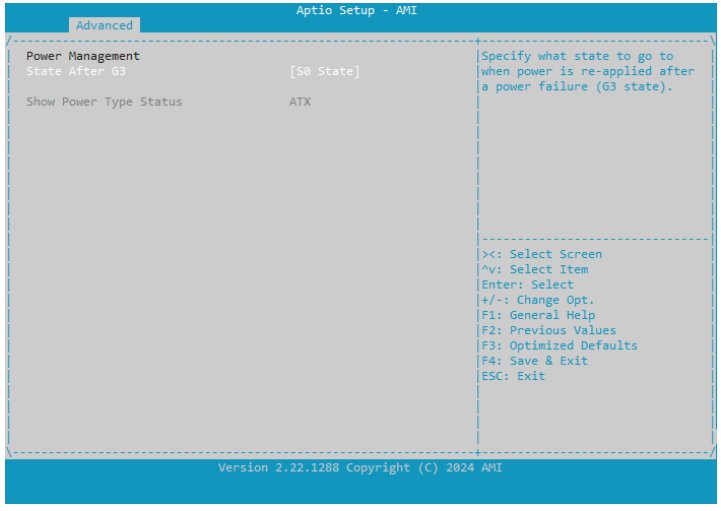


Legacy USB Support

Legacy support allows non-EFI devices to function. By default, this is enabled, as disabling this option will greatly limit devices the USB controllers can use.

Power Management

This section is used to configure the state of power management.

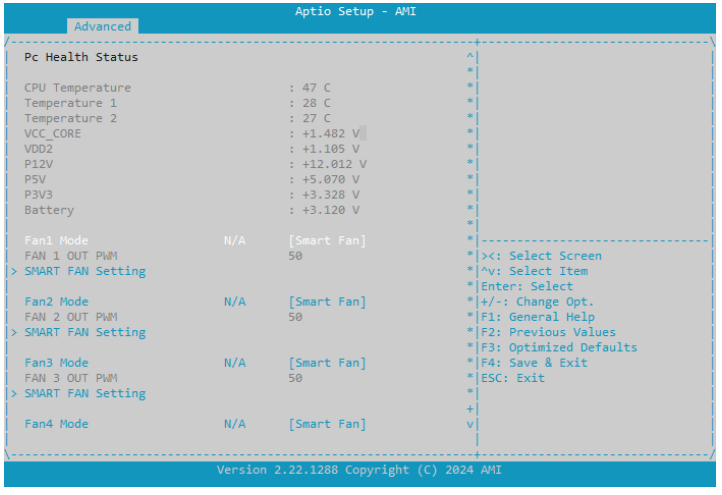


State After G3

Specify what state to go to when power is re-applied after a power failure (G3 state).

Hardware Monitor

This section is used to configure the hardware status.



Fan1 ~ Fan4 Modes

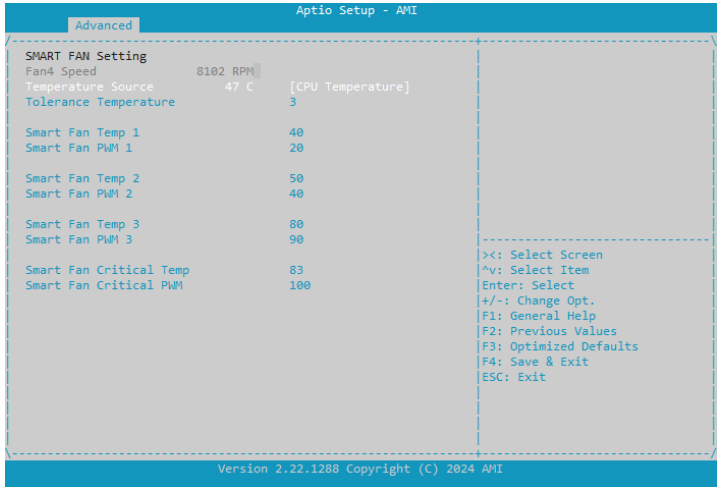
Configure the Fan1~Fan4 to the manual mode or the smart fan mode.

Fan1 ~ Fan4 Out PWM

The valid range is 0 to 100. It is 50 by default for Fan1, Fan2, Fan3, and Fan4.

Smart Fan Setting

This sub-section is used to configure parameters for fan running.



Temperature Source

Configure the temperature source from CPU or from a configured temperature level .

Tolerance Temperature

Configure the tolerance for down speed from 0 to 7°C.

Temperature Levels (Temp1/2/3 & Critical Temp) for Smart Fans

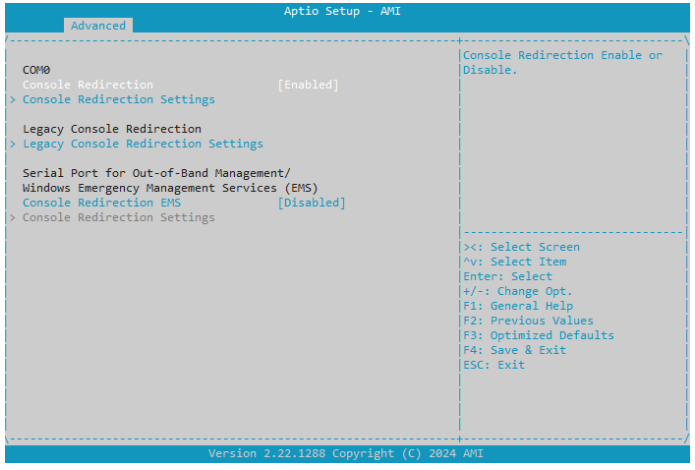
Four levels of temperature are configurable for fans among 0 to 100°C.

Speed Levels (PWM1/2/3 & Critical PWM) for Smart Fans

Four levels of temperature are configurable for fans among 0 to 100%.

Serial Port Console Redirection

This section is used to configure the serial port console redirection.



Console Redirection

Ennable or disable console redirection for COM0.

Console Redirection Settings

Press to enter the settings that specify 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.

Legacy Console Redirection Settings

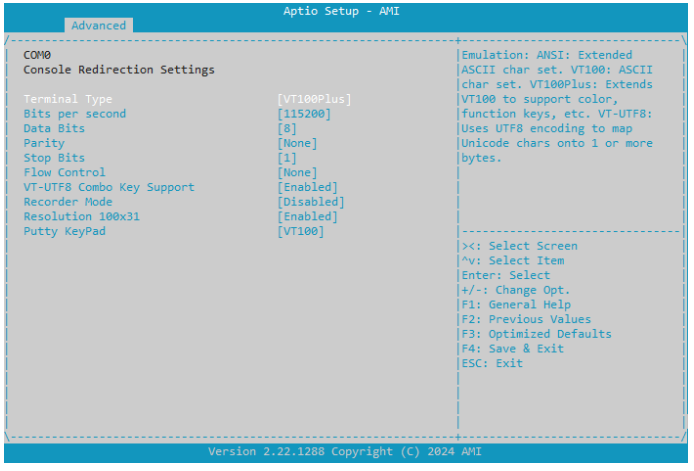
Enter the legacy console redirection settings.

Console Redirection EMS

Enable or disable consle redirection EMS.

Console Redirection Settings

This sub-section is used to configure the console redirection.



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 a serial port transmission speed. The speed must be matched on the other side. Long or noisy lines may require lower speeds. The options are 9600, 19200, 38400, 57600, and 115200.

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 number of 1's in the data bits is even.
Odd Parity bit is 0 if number of 1's in the data bit is odd.
Mark Parity bit is always 1.
Space Parity bit is always 0.
Mark and Space Parity do not allow for error detection.

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, if the receiving buffers are full, a "stop" signal can be sent to stop the data flow. Once the buffers are empty, a "start" signal can be sent to re-start the flow. Hardware flow control uses two wires to send start/stop signals.

VT-UTF8 Combo Key Support
Enable VT-UTF8 combination key support for ANSI / VT100 terminals.

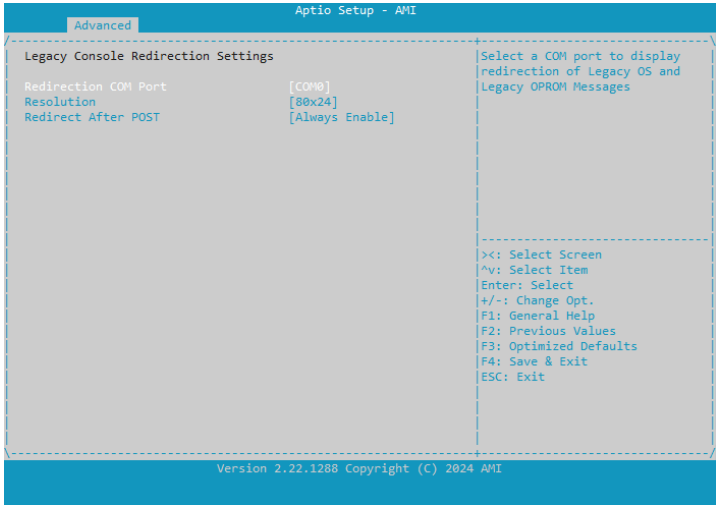
Recorder Mode
With this mode enabled, only text will be sent. This is to capture the terminal data.

Resolution 100x31
Enable or disable extended terminal resolution.

Putty KeyPad
Select FunctionKey and KeyPad on Putty. The available options are VT100, LINUX, XTERMR6, SCO, ESCN, and VT400.

Legacy Console Redirection Settings

This sub-section is used to configure the legacy console redirection.



Redirection COM Port

Select a COM port to display redirection of the legacy OS and the legacy OPROM messages.

Resolution

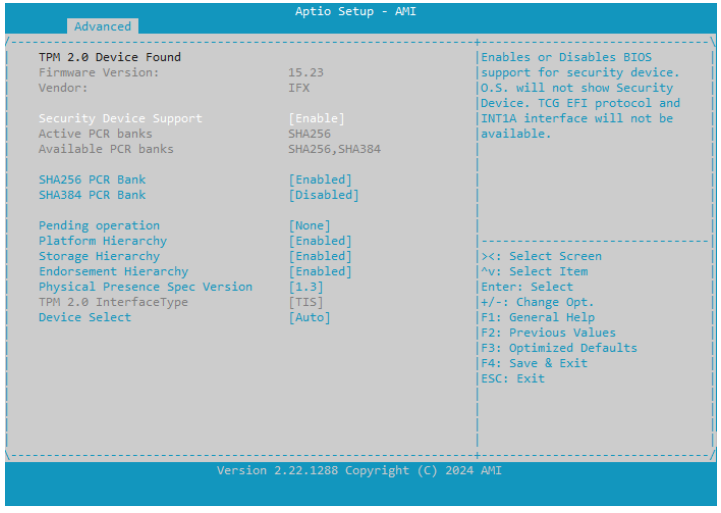
On legacy OS, the number of rows and columns supported redirection.

Redirection After POST

When Bootloader is selected, legacy console redirection is disabled before booting to legacy OS. When Always Enable (default) is selected, legacy console redirection is enabled for legacy OS.

Trusted Computing

This section is used to configure the TPM device.



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.

SHA384 PCR Bank
Enable or disable SHA384 PCR Bank.

Pending operation
Schedule an operation for the security device.
Note: Your computer will reboot during restart in order to change state of security device.

Platform Hierarchy
Enable or disable the platform hierarchy.

Storage Hierarchy
Enable or disable the storage hierarchy.

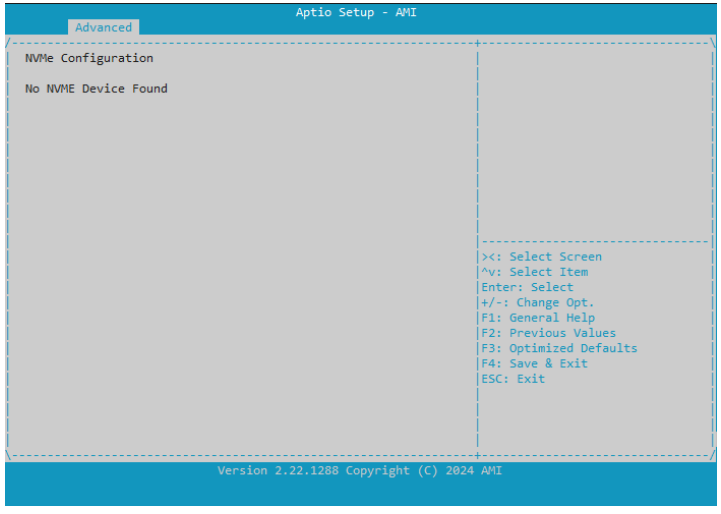
Endorsement Hierarchy
Enable or disable the endorsement hierarchy.

Physical Presence Spec Version
Select to tell OS to support PPI spec version 1.2 or 1.3.
Note: Some HCK tests might not support 1.3.

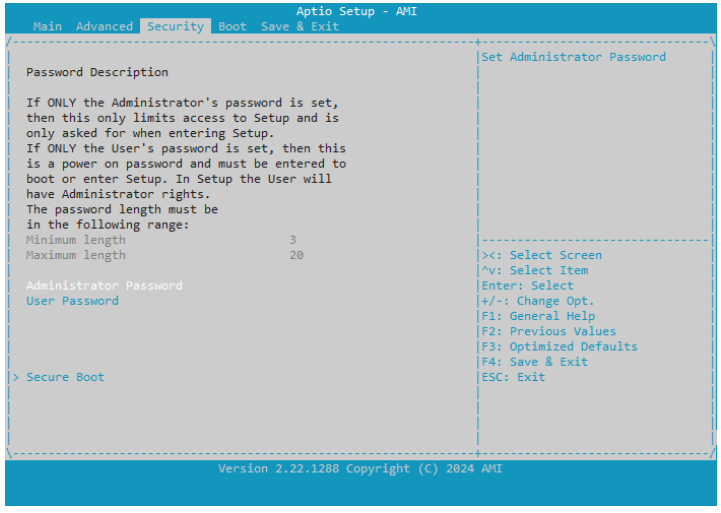
Device Select
TPM 1.2 will restrict support to TPM 1.2 devices.
TPM 2.0 will restrict support to TPM 2.0 devices.
Auto will support both with the default set to TPM 2.0 devices. If it's not found, TPM 1.2 device will be enumerated.

NVMe Configuration

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



Security



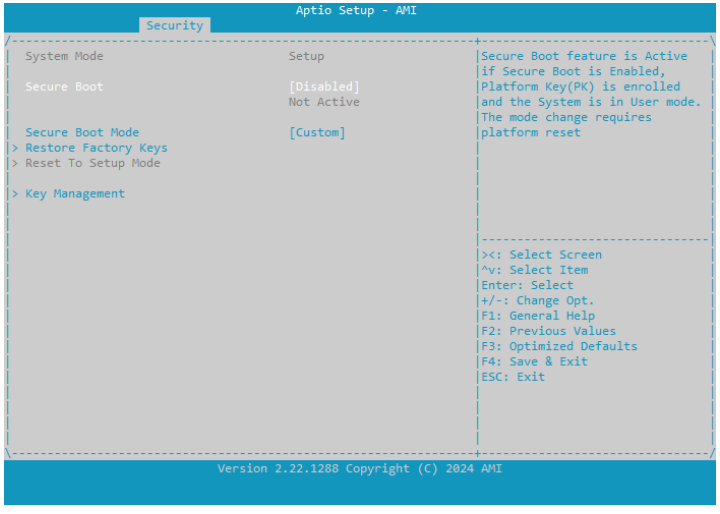
Administrator Password
Select this to reconfigure the administrator's password.

User Password
Select this to set a user password.

Secure Boot
Press to enter Secure Boot submenu.

Secure Boot

This section is used to configure the system boot mode.



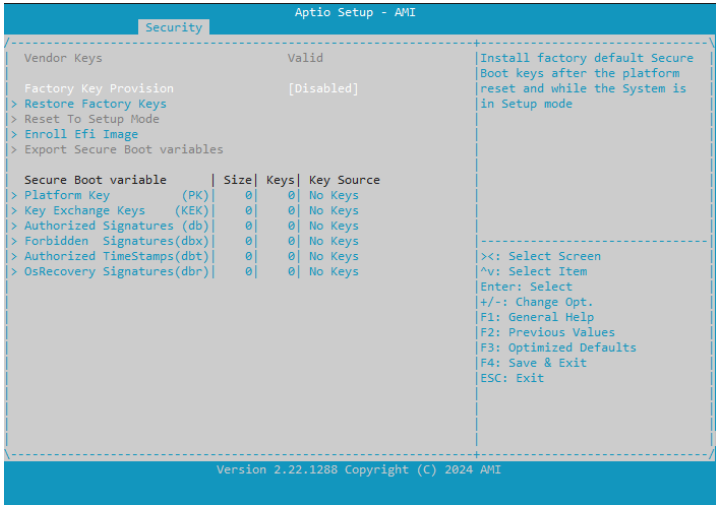
Secure Boot
Secure Boot feature is active. If Secure Boot is enabled, Platform Key (PK) is enrolled and the system is in User mode. The mode change requires platform reset.

Secure Boot Mode
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
Force the system to get into User mode. Install factory default Secure Boot key databases.

Key Management
Enable expert users to modify Secure Boot Policy variables without variable authentication.

Restore Factory Keys
This sub-menu is used to restore the factory default keys.



Factory Key Provision
Install the factory default Secure Boot keys after the platform reset and while the system is in Setup mode.

Restore Factory Keys
Select Yes or No to restore the factory defaults.

Enroll Efi Image
Allow Efi image to run in Secure Boot mode. Enroll SHA256 Hash certificate of a PE image into Authorized Signature Database (db).

Secure boot variable

Include the size, keys, and key source of the following:

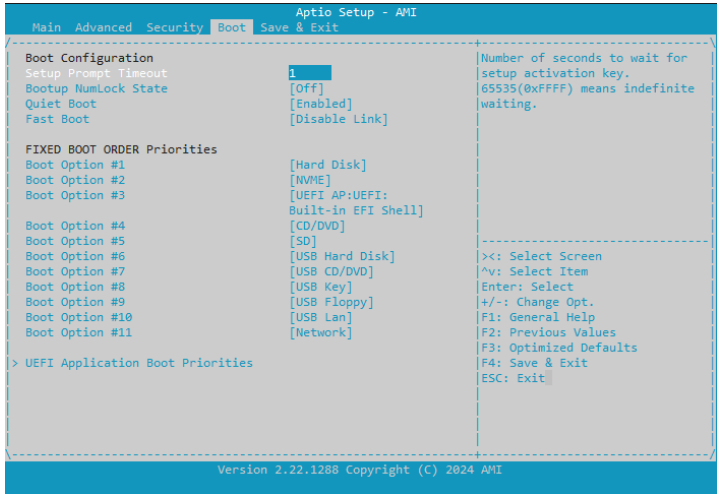
- Platform Key (PK)
- Key Exchange Keys (KEK)
- Authorized Signatures (db)
- Forbidden Signatures (dbx)
- Authorized Time Stamps (dbt)
- OsRecovery Signatures (dbr)

Enroll factory defaults or load certificates from a file:

1. Public Key Certificate:
   a) EFI_SIGNATURE_LIST
   b) EFI_CERT_X509 (DER)
   c) EFI_CERT_RSA2048 (bin)
   d) EFI_CERT_SHAXXX
2. Authenticated UEFI Variable
3. EFI PE/COFF Image (SHA256)

Key Source: Factory, Modified, Mixed

Boot



Setup Prompt Timeout
Select 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.

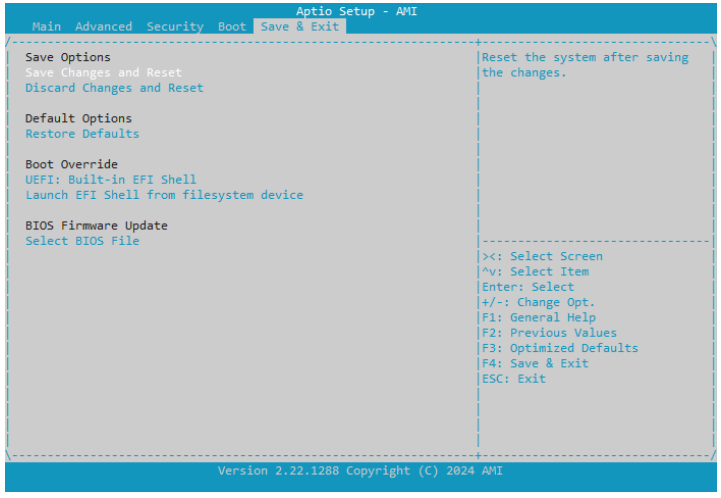
Quiet Boot
Enable or disable quiet boot function.

Fast Boot
Enable or disable boot function with initialization of a minimal set of devices requires to launch active boot option. This has no effect for BBS boot options.

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 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.

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

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>.

Launch EFI Shell from filesystem device
Attempts to launch EFI Shell application (Shell.efi) from one of the available filesystem devices.

Select BIOS File
Allow you to enter the BIOS update mode. Please follow onscreen instructions to load binary image and update BIOS ROM from USB Flash drive. Do not reboot or shut down the system while updating.

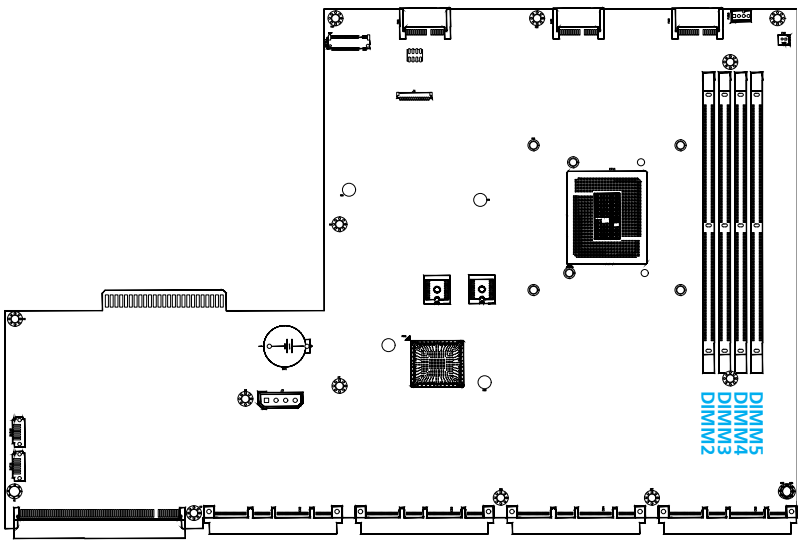
Appendix A: Memory Installation

Installing Memory Modules

Before beginning the memory installation, please pay attention to the following notices.

- Before installing or removing internal components on the motherboard, ensure that the power is disconnected and the AC power cord is unplugged.
- The memory modules are foolproof design and can only be installed in one direction. If you encounter difficulty, try reversing the module's orientation and avoid using force to prevent damage.
- It is recommended to install memory modules with the same brand, speed, and capacity.
- This motherboard supports up to 128GB of DDR5 ECC or non-ECC memory modules across four UDIMM slots, with a maximum of 32GB per slot (dual-channel configuration)

1. Refer to the illustration below to locate the UDIMM slots on the motherboard.



2. Gently push the locks outward on both ends of the memory slots. Some serial models may feature memory slots with a single-sided locking mechanism. If your model has this design, gently push the locking side outward.

3. Insert the module into the socket at a 90-degree angle. Apply firm, even pressure to each end of the module until it slides into the slot. As the module is pushed into position, the lock(s) will close automatically.

4. Repeat the steps above to install additional memory modules and refer to the table below for memory population if required.

	DIMM2 (CH-A)	DIMM3 (CH-A)	DIMM4 (CH-B)	DIMM5 (CH-B)
1 DIMM				✓
2 DIMMs		✓		✓
3 DIMMs		✓	✓	✓
4 DIMMs	✓	✓	✓	✓