



NEXAIOT NISE 109 Fan-less Computer User Manual

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NexAloT Co., Ltd.
IoT Automation Solutions Business Group
Fan-less Computer
NISE 109
User Manual

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PREFACE

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any particular purpose is also disclaimed.

Acknowledgements

NISE 109 is a trademark of NexAloT 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



NexAloT RoHS Environmental Policy and Status Update

NexAloT 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, NexAloT has established an engineering and manufacturing task force to implement the introduction of green products. The task force will ensure that we follow the standard NexAloT development procedure and that all the new RoHS components and new manufacturing processes maintain the highest industry quality levels for which NexAloT 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 NexAloT 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 NexAloT naming convention.

Warranty and RMA

NexAloT Warranty Period

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

NexAloT Return Merchandise Authorization (RMA)

- Customers shall enclose the "NexAloT 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 "NexAloT 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, NexAloT 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 NexAloT 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

NexAloT 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: NexAloT 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 NexAloT 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, NexAloT will return it to the customer without any charge.

Board Level

- Component fee: NexAloT 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, NexAloT 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.

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 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.
- This product is intended to be supplied by an approved power adapter, rated 12Vdc, 5A or 24Vdc, 2.5A minimum and Tma 55 degree Celsius. If further assistance is needed, please contact NexAloT for further information.



Danger of explosion if battery is incorrectly replaced. Replace with the same or equivalent type recommended by the manufacturer. Discard used batteries according to the manufacturer's instructions.

ATTENTION



bghjtyjuyukyuyuyul Y A RISQUE D'EXPLOSION SI LA BATTERIE EST REMPLACÉE PAR UNE BATTERIE DE TYPE INCORRECT. METTRE AU REBUT LES BATTERIES USAGÉES CONFORMÉMENT AUX INSTRUCTIONS.

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. This equipment is not suitable for use in locations where children are likely to be present.
14. Ensure to connect the power cord to a socket-outlet with earthing connection.

15. Never open the equipment. For safety reasons, the equipment should be opened only by qualified service personnel.
16. 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.
17. Do not place heavy objects on the equipment.
18. 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.
19. 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 NexAloT products, visit NexAloT's website at www.nexaiot.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.

Global Service Contact Information

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Package Contents

Before continuing, verify that the package that you received is complete.
Your NISE 109 package should have all the items listed in the following table.

Item	Part Number	Description	Qty
1	4NCPM00302X00	(T)Terminal Blocks 3P Phoenix Contact:1777992 5.08mm MALE DIP GREEN	1
2	4NCPM00203X00	Terminal Blocks 2P Phoenix Contact:1803578 3.81mm MALE ASSY GREEN	1
3	5050900008X00	Mini PCI-e Bracket Ver:A MP 30x29x2.1mm SPCC T=1.0mm	1
4	5060900226X00	Mini PCI-e Bracket CHYUAN-JYH 29x30x2.1mm SPCC T=1.0mm NI	1
5	5061600245X00	Washer Kangyang:TW-320-01 10.4x6.4mm T=1mm NYLON BLACK	4
6	5060200437X00	Thermal Pad E-Lin 30x20x12mm PK404SHC With Back Glue	2
7	50311F0144X00	I Head Screw Long Fei: M3x4mm NI NYLOK	5
8	50311F0295X00	Flat Head Screw Long Fei:F2x4 NYLOK NIGP F2x4 NIGP NYLOK	1
9	50311F0330X00	Round Head Screw Long Fei:P2x3 ISO+NYLON P2x3 NI NYLOK	2
10	50311P0014X00	P Head Screw Kang Yang:M3-5 5.5x2.1x5mm PLASTICS	4

Ordering Information

The following information below provides ordering information for NISE 109.

NISE 109-E01 system (P/N: 10J00010900X0)

- Intel® Atom® processor x6211E 1.3Ghz

NISE 109-E02 system (P/N: 10J00010901X0)

- Intel® Celeron® processor J6412 2.0Ghz
- 24V, 60W AC to DC power adapter w/o power cord (P/N: 7400060054X00)
- 24V, 120W AC /DC power adapter w/o power cord (P/N: 7400120029X00)

CHAPTER 1: Product Introduction

Overview



Key Features

- Onboard Intel Processor x6211E 1.3Ghz® Celeron® 630SE Processor J6412 2.0Ghz or Atom®
- Dual display port: 1 x HDMI & 1 x DP
- 2 x Intel I210-IT GbE LAN ports; support WoL, teaming, PXE and Ethercat®
- 3 x USB3.0 & 3 x USB2.0
- 2 x RS232 & 2 x RS232/422/485
- Support 1 x 2.5" SSD & 1 x M.2 Key B storage
- Support 9~30V DC input; support ATX power mode
- Operation temperature
 - Intel® J6412: -5~55°C
 - Intel Atom® Celeron® x6211E: -20~70°C
- Support 1 x M.2 & 1 x mini-PCIe expansion slot

Hardware Specifications

CPU Support

- Onboard Intel processor J6412 2.0Ghz® Celeron®
- Onboard Intel Atom® processor x6211E 1.3 Ghz

Main Memory

- 1 x SO-DIMM DDR4 non ECC up to 2666 MT/s, 16G max., support IB ECC, non-ECC, and un-buffered memory

Display Option

- 1 x DP 1.4
- 1 x HDMI 1.4

I/O Interface – Front

- ATX power on/off switch
- Status LEDs: storage, battery, and COM1/2 TX/RX.
- 3 x USB 3.0 (900mA per each)
- 1 x USB 2.0 (500mA per each)
- 2 x Intel® I210-IT GbE LAN ports; support WoL, teaming and PXE
- 1 x DP
- 1 x HDMI
- 1 x DB9 for COM3, it supports RS232/422/485 with auto flow control
 - Jumper-free setting on RS232/422/485 by BIOS
- 1 x Line-out and 1 x Mic-in
- 1 x Optional I/F window
- 3-pin DC input, support 9~30V DC

I/O Interface – Rear

- 3 x DB9 for COM2, COM3 & COM4
 - COM2: RS232/422/485 auto flow control
 - COM3 & COM4: RS232
- 2 x USB 2.0 (500mA per each)
- 1 x 2-pin remote power on/off switch
- 2 x Antenna hole for optional Wi-Fi/4G/LTE antenna

Storage Device

- 1 x M.2 (SATA/PCIe x 1, 2242, Key B & B+M)
- 1 x 2.5" SATAIII SSD

Expansion Slot

- 1 x mini-PCIe socket for optional Wi-Fi/3.5G/4G/LTE module (for 3.5G/4G/LTE function, support SIM card holder onboard)

Power Requirements

- Power input: +9 to +30V DC
- 1 x Optional 24V, 60W power adapter

Supported OS

- Windows 10 64-bit
- Linux Kernel

Dimensions

- 185mm (W) x 131mm (D) x 54mm (H) without wall mount bracket

Construction

- Aluminum and metal chassis with fanless design

Environment

- Operating temperature (according to IEC60068-2-1, IEC60068-2-2, IEC60068-2-14):
 - NISE 109-E01 ambient with air flow: -20°C to 70°C
 - NISE 109-E02 ambient with air flow: -5°C to 55°C
- Storage temperature: -20°C to 80°C
- Relative humidity: 10% to 90% (non-condensing)
- Shock protection:
 - HDD: 20G, half sine, 11ms, IEC60068-2-27
 - M.2: 50G, half sine, 11ms, IEC60068-2-27
- Vibration protection with SSD & M.2 condition:
 - Random: 2Grms @ 5~500 Hz, IEC60068-2-64
 - Sinusoidal: 2Grms @ 5~500 Hz, IEC60068-2-6

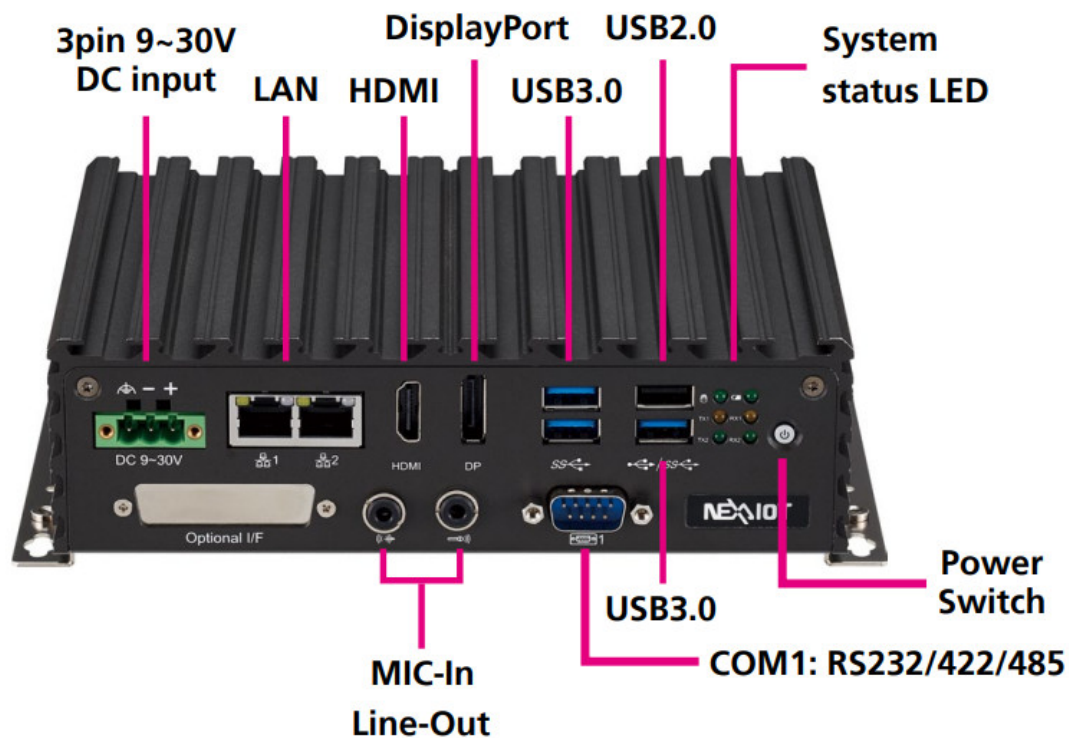
Certifications

- CE approval
 - EN61000-6-2
 - EN61000-6-4
- FCC Class A

OS Support

- Linux Kernel version 4.1
- Windows 10 IoT Enterprise, 64-bit

Knowing Your NISE 109 Front Panel



Power Switch

Press to power-on or power-off the system.

System status LED

Indicates the power status, RTC battery status, storage activity, serial port send (Tx), and transmit (Rx) activity of the system.

USB 2.0

USB 2.0 ports to connect the system with USB 2.0/1.1 devices.

USB 3.0

USB 3.0 ports to connect the system with USB 3.0/2.0 devices.

DisplayPort

A DisplayPort port used to connect DisplayPort interface displays.

HDMI

A HDMI port used to connect HDMI interface displays.

LAN

Two RJ45 ports used to connect the system to a local area network.

DC Input

Used to plug a DC power cord.

COM

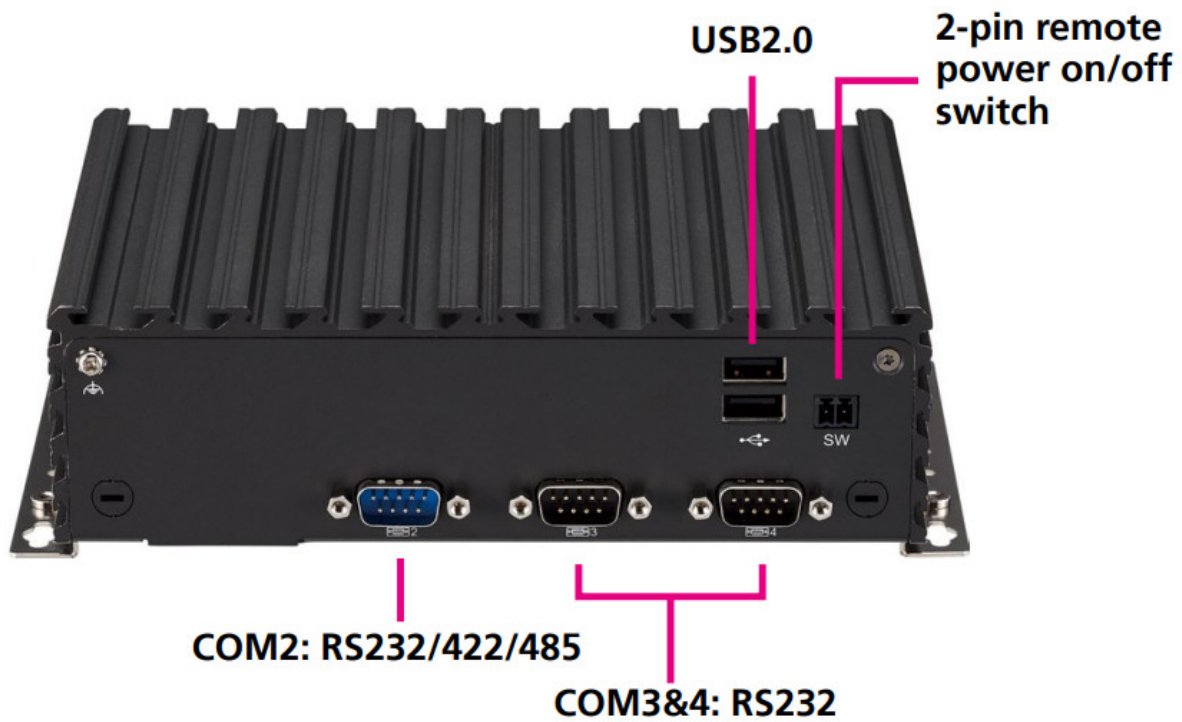
– COM1: RS232/422/485 with auto flow control

Mic-In/Line-Out

Mic-In: Used to connect an external microphone

Line-Out: Used to connect a headphone or a speaker.

Rear Panel



Remote On/Off Switch

Used to connect a remote to power on/off the system.

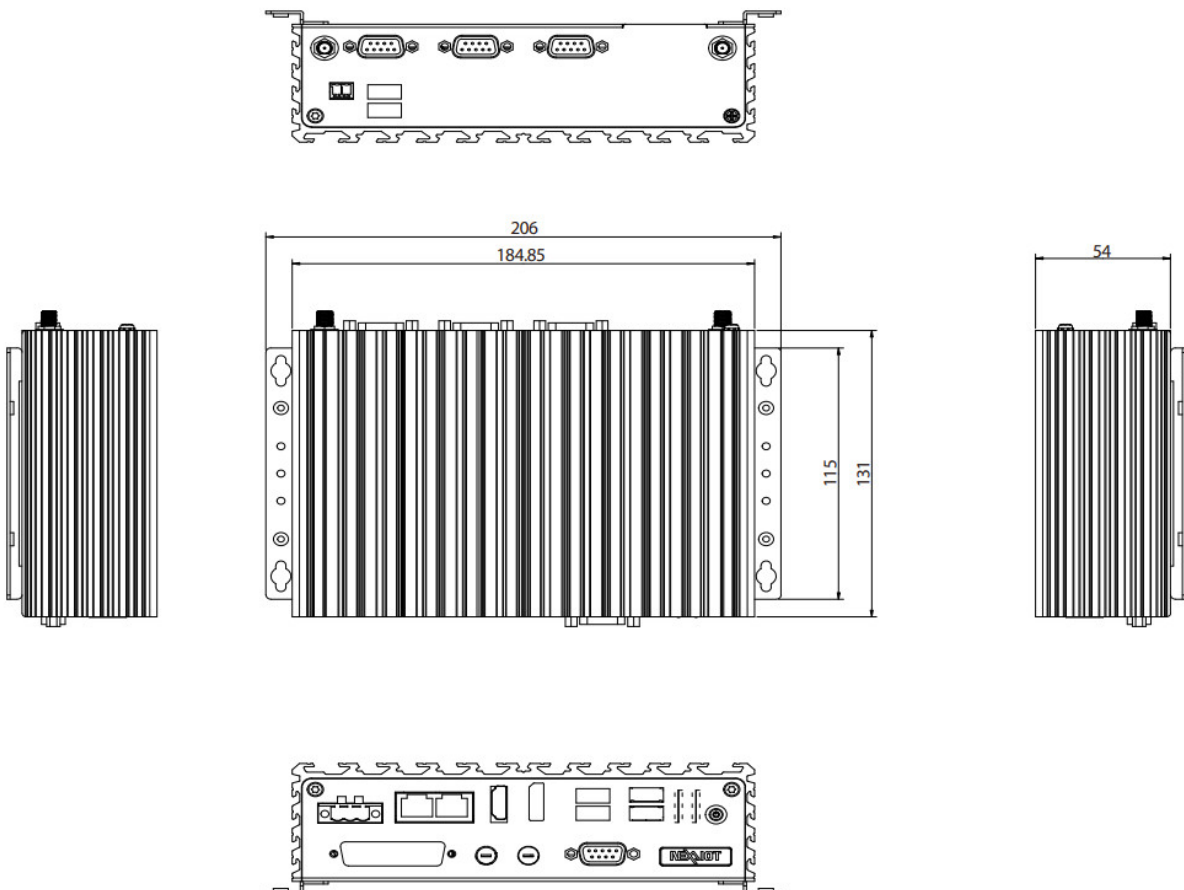
USB 2.0

USB 2.0 ports to connect the system with USB 2.0/1.1 devices.

COM

- COM2: RS232/422/485 with auto flow control
- COM3&4: RS232

Mechanical Dimensions



CHAPTER 2: Jumpers and Connectors

This chapter describes how to set the jumpers and connectors on the NISE 109 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.

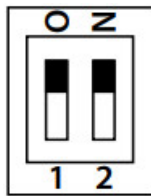
Follow the guidelines below to avoid damage to your computer or yourself:

- 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)



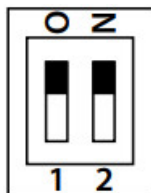
SW3 Clear CMOS	
1-4 2-3	Status
ON	Cleese CMOS
OFF	Normal (Default)

Pin	Definition
1	I_RTCRSTL
2	I_RTCTESTL
3	GND
4	GND

ATX/AT Mode Selection

Connector type: 2×2 DIP switch

Connector location: SW2



AT/ATX Selection		
1-4	2-3	MODE
ON	ON	AT (PWR BT available)
ON	OFF	AT (PWR BT invalid)
OFF	ON	ATX

Pin	Definition
1	PBT_PU
2	PBT_PU
3	ATX_PBT
4	AT_PWRBT#

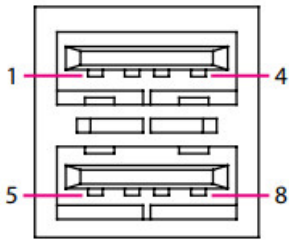
Connector Pin Definitions

External I/O Interfaces

USB2.0 Ports x2

Connector type: Dual USB 2.0 Ports

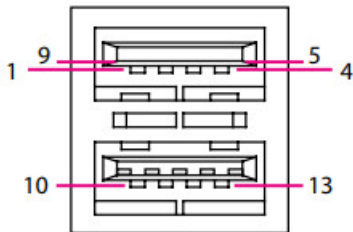
Connector location: CN1



Pin	Definition	Pin	Definition
1	5VSBUSB2	2	IUSB2N0
3	IUSB2P0	4	GND
5	5VSBUSB2	6	IUSB2N3
7	IUSB2P3	8	GND
MH1	NEAR_GND	MH2	NEAR_GND
MH3	NEAR_GND	MH4	NEAR_GND

USB3.0 + USB2.0 Ports

Connector location: CN3

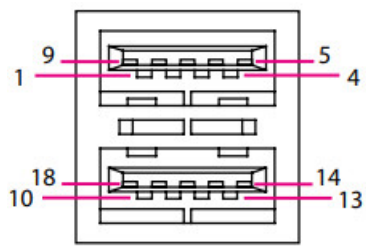


Pin	Definition	Pin	Definition
1	5VSBUSB3	2	IUSB2N5
3	IUSB2P5	4	GND
5	IUSB3CRXN0	6	IUSB3CRXP0
7	GND	8	IUSB3CTXN0
9	IUSB3CTXP0	10	5VSBUSB3
11	1USB2N1	12	1USB2P1
13	GND	MH1	CHASIS_GND
MH2	CHASIS_GND	MH3	CHASIS_GND
MH4	CHASIS_GND		

USB3.0 Ports x2

Connector type: Dual USB 3.0 Ports

Connector location: USB1

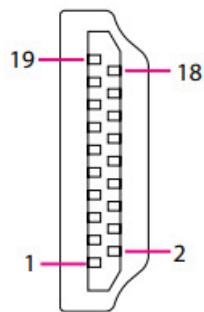


Pin	Definition	Pin	Definition
1	5VSBUSB1	2	IUSB2N2
3	IUSB2P2	4	GND
5	IUSB3CRXN1	6	IUSB3CRXP1
7	GND	8	IUSB3CTXN1
9	IUSB3CTXP1	10	5VSBUSB1
11	IUSB2N4	12	IUSB2P4
13	GND	14	IUSB3CRXN2
15	IUSB3CRXP2	16	GND
17	IUSB3CTXN2	18	IUSB3CTXP2
MH1	CHASIS_GND	MH2	CHASIS_GND
MH3	CHASIS_GND	MH4	CHASIS_GND

HDMI Connector

Connector type: HDMI port

Connector location: CN2

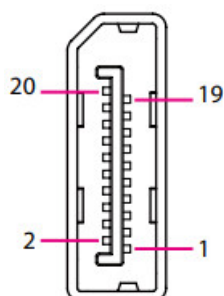


Pin	Definition	Pin	Definition
1	HDMITX2P1	2	GND
3	HDMITX2N1	4	HDMITX1P1
5	GND	6	HDMITX1N1
7	HDMITX0P1	8	GND
9	HDMITX0N1	10	HDMICLK P1
11	GND	12	HDMICLK N1
13	NC	14	NC
15	HDMIDDCSCL	16	HDMIDDCSDA
17	GND	18	VCC5HDMI
19	HDMIHPD	NH1	NC
NH2	NC	MH1	CHASIS_GND
MH2	HDMIMH2	MH3	CHASIS_GND
MH4	NC		

DisplayPort Connector

Connector type: DisplayPort

Connector location: DP1

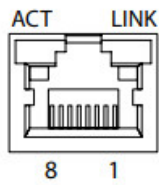


Pin	Definition	Pin	Definition
1	LANE0_P	2	GND
3	LANE0_N	4	LANE1_P
5	GND	6	LANE1_N
7	LANE2_P	8	GND
9	LANE2_N	10	LANE3_P
11	GND	12	LANE3_N
13	CONFIG1	14	CONFIG2
15	AUX_P	16	GND
17	AUX_N	18	DPHPD
19	RETURN	20	3V3DPPWR
NH1	NC	NH2	NC
MH1	CHASIS_GND	MH2	CHASIS_GND
MH3	CHASIS_GND	MH4	NC

LAN Ports x2

Connector type: RJ45 x2

Connector location: LAN1



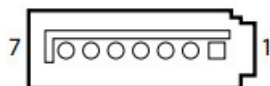
Pin	Definition	Pin	Definition
A1	LAN1MDI0P	A2	LAN1MDI0N
A3	LAN1MDI1P	A4	LAN1MDI1N
A5	LAN1TVCC1	A6	GND
A7	LAN1MDI2P	A8	LAN1MDI2N
A9	LAN1MDI3P	A10	LAN1MDI3N
A11	LAN1LINK1000L	A12	LAN1LINK100L1
A13	LAN1LEDACTL	A14	LAN1LEDPWR
NH1	NC	MH1	CHASIS_GND
B1	LAN2MDI0P	B2	LAN2MDI0N
B3	LAN2MDI1P	B4	LAN2MDI1N
B5	LAN2TVCC1	B6	GND
B7	LAN2MDI2P	B8	LAN2MDI2N
B9	LAN2MDI3P	B10	LAN2MDI3N
B11	LAN2LINK1000L	B12	LAN2LINK100L1
B13	LAN2LEDACTL	B14	LAN2LEDPWR
NH2	NC	MH2	CHASIS_GND

Internal Connectors

SATA Connector

Connector type: Standard Serial ATAII 7P (1.27mm, SATA-M-180)

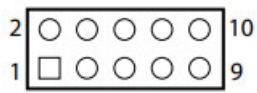
Connector location: CN4



Pin	Definition	Pin	Definition
1	GND	2	SATATXP0
3	SATATXN0	4	GND
5	SATARXN0	6	SATARXP0
7	GND	MH1	GND
MH2	GND		

GPIO Connector

Connector type: 2×5, 10-pin header
Connector location: J4



Pin	Definition	Pin	Definition
1	GPIO_PWR	2	GND
3	GPO0_OUT	4	GPI0_IN
5	GPO1_OUT	6	GPI1_IN
7	GPO2_OUT	8	GPI2_IN
9	GPO3_OUT	10	GPI3_IN

COM1 Connector

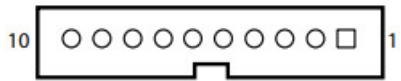
Connector type: 1×10, 10-pin header
Connector location: COM1



Pin	Definition	Pin	Definition
1	COM1DCDL	2	COM1RXD
3	COM1TXD	4	COM1DTRL
5	GND	6	COM1DSRL
7	COM1RTSL	8	COM1CTSL
9	COM1RIL	10	GND
MH1	GND	MH2	NC

COM2 Connector

Connector type: 1×10, 10-pin header
Connector location: COM2



Pin	Definition	Pin	Definition
1	COM2DCDL	2	COM2RXD
3	COM2TXD	4	COM2DTRL
5	GND	6	COM2DSRL
7	COM2RTSL	8	COM2CTSL
9	COM2RIL_CON	10	GND
MH1	GND	MH2	NC

COM3 Connector

Connector type: 1×10, 10-pin header

Connector location: COM3



Pin	Definition	Pin	Definition
1	COM3DCDL	2	COM3RXD
3	COM3TXD	4	COM3DTRL
5	GND	6	COM3DSRL
7	COM3RTSL	8	COM3CTSL
9	COM3RIL	10	GND
MH1	GND	MH2	GND

COM4 Connector

Connector type: 1×10, 10-pin header

Connector location: COM4



Pin	Definition	Pin	Definition
1	COM4DCDL	2	COM4RXD
3	COM4TXD	4	COM4DTRL
5	GND	6	COM4DSRL
7	COM4RTSL	8	COM4CTSL
9	COM4RIL	10	GND
MH1	GND	MH2	GND

DE1 Connector
Connector type: 1×10, 10-pin header
Connector location: DE1



Pin	Definition	Pin	Definition
1	GND	2	I_PLTRSTL
3	I_ESPICLK	4	I_ESPICS0L
5	I_ESPIIO3	6	I_ESPIIO2
7	I_ESPIIO1	8	I_ESPIIO0
9	I_ESPIRSTL	10	3VSB
MH1	GND	MH2	GND

Power Button
Connector location: SW1



Pin	Definition	Pin	Definition
1	GND	2	ATX_PBT
3	ATX_PBT	4	GND
A1	PWRLED_N	C1	N16937976
MH1	NC	MH2	NC

Audio Line In Connector

Connector type: 1×4, 4-pin header

Connector location: IN1



Pin	Definition
1	LINE1-L1
2	AGND
3	LINEIN_JD
4	LINE1-R1

Audio Line Out Connector

Connector type: 1×4, 4-pin header

Connector location: OUT1



Pin	Definition
1	LINE_OUT_LC
2	AGND
3	LINEOUT_JD
4	LINE_OUT_RC

Audio MIC In Connector

Connector type: 1×4, 4-pin header

Connector location: MIC1



Pin	Definition
1	MIC_OUT-L
2	AGND
3	MIC_JD
4	MIC_OUT-R

Vin Power Terminal Block

Connector type: 1×3, 3-pin header

Connector location: J1

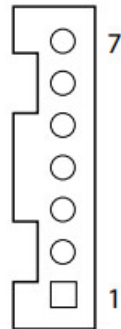


Pin	Definition	Pin	Definition
1	VINP1	2	VINVSS
3	VINPGND	NH1	NC
NH2	NC		

LCD Backlight Connector

Connector type: 1×7, 7-pin header

Connector location: J2



Pin	Definition	Pin	Definition
1	VCC5	2	V_INV
3	V_INV	4	3V5VEDPBKLCTL
5	GND	6	GND
7	BUFEDPBKLEN		

SATA Power Connector

Connector type: 1×2, 2-pin header

Connector location: J3

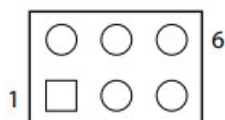


Pin	Definition
1	SATAPWR
2	GND

Flash BIOS Pin Header

Connector type: 2×3, 6-pin header

Connector location: JFW1



Pin	Definition	Pin	Definition
1	VSPI	2	GND
3	BIOSSPICSL0	4	BIOSSPICKL
5	BIOSSPISO	6	BIOSSPISI

Remote Power On/Off THR

Connector type: 1×2, 2-pin header

Connector location: JP1



Pin	Definition
1	GND
2	PWRBTN#_J

Panel LED Pin Header

Connector type: 1×3, 3-pin header

Connector location: JP2



Pin	Definition
1	N17473943
2	GND
3	N17472512

Reset Pin Header

Connector type: 1×2, 2-pin header

Connector location: JP3



Pin	Definition
1	SYSRESETN
2	GND

LCD Backlight Control Voltage Select Pin Header

Connector type: 1×3, 3-pin header

Connector location: JP4



Pin	Definition
1	VCC5
2	3V5BKLPWR
3	VCC3

LCD Voltage Select Pin Header

Connector type: 1×3, 3-pin header

Connector location: JP5

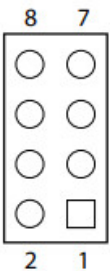


Pin	Definition
1	VCC5
2	3V5VLCDPWR
3	VCC3

USB2.0 Port Pin Header

Connector type: 2×4, 8-pin header

Connector location: JP6



Pin	Definition	Pin	Definition
1	INTUSB2PWR	2	GND
3	USB2N6	4	USB2P9
5	USB2P6	6	USB2N9
7	GND	8	INTUSB2PWR

COM2 Pin9 R#/5V Select Pin Header

Connector type: 1×3, 3-pin header
Connector location: JP7



Pin	Definition
1	COM2RIL
2	COM2RIL_CON
3	VCC5

Remote Power On/Off & S3 Pin Header

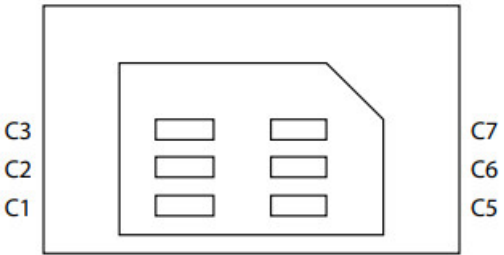
Connector type: 1×3, 3-pin header
Connector location: JP8



Pin	Definition
1	SLP_S3#_J
2	GND
3	PWRBTN#_J

Nano SIM Connector

Connector location: SIM1



Pin	Definition	Pin	Definition
C1	UIM_PWR	C2	UIM_RESET
C3	UIM_SIM_CLK	C5	GND
C6	UIM_VPP	C7	UIM_DATA
MH1	GND	MH2	GND
MH3	GND	MH4	GND

LVDS Connector 1 of 2 (Reserved for APPC/IPPC project)

Connector location: LV1



Pin	Definition	Pin	Definition
1	CHGPIO0	2	CHGPIO1
3	VCC_LCD	4	CH_LVDSTP0
5	CH_LVDSTP3	6	CH_LVDSTN0
7	CH_LVDSTN3	8	VCC_LCD
9	GND	10	CH_LVDSTP1
11	CH_LVDSCLKP1	12	CH_LVDSTN1
13	CH_LVDSCLKN1	14	GND
15	GND	16	V_INV
17	CH_LVDSTP2	18	V_INV
19	CH_LVDSTN2	20	GND
NH1	NC	NH2	NC
MH1	GND	MH2	GND

LVDS Connector 2 of 2 (Reserved for APPC/IPPC project)

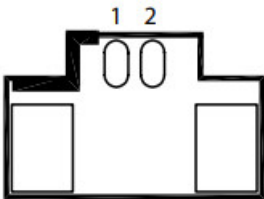
Connector location: LV2



Pin	Definition	Pin	Definition
1	CHGPIO2	2	CHGPIO3
3	VCC_LCD	4	CH_LVDSTP4
5	CH_LVDSTP7	6	CH_LVDSTN4
7	CH_LVDSTN7	8	VCC_LCD
9	GND	10	CH_LVDSTP5
11	CH_LVDSCLKP2	12	CH_LVDSTN5
13	CH_LVDSCLKN2	14	GND
15	GND	16	V_INV
17	CH_LVDSTP6	18	V_INV
19	CH_LVDSTN6	20	GND
NH1	NC	NH2	NC
MH1	GND	MH2	GND

RTC Battery

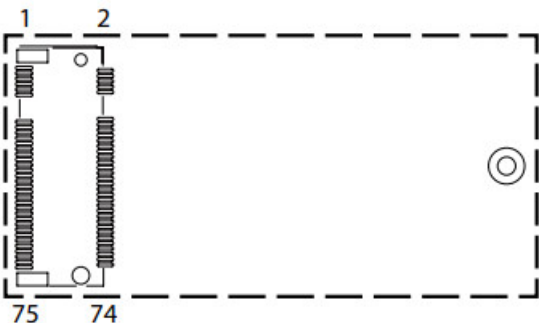
Connector location: BAT1



Pin	Definition
1	GND
2	3V_BAT1
MH1	GND
MH2	GND

M.2 Key B Connector

Connector location: CN5



Pin	Definition	Pin	Definition
1	M2BCONFIG3	2	M2LTEPWR
3	GND	4	M2LTEPWR
5	GND	6	S_GP42
7	I_USB2P7	8	S_GP43
9	I_USB2N7	10	NC
11	M2REFCLK	12	
20	NC	21	M2BCONFIG0
22	NC	23	LTEPEWAKE2
24	NC	25	NC
26	NC	27	GND
28	UIM_VPP	29	USB3RXN3
30	UIM_RESET	31	USB3RXP3
32	UIM_CLK	33	GND
34	UIM_DATA	35	USB3TXN3
36	UIM_PWR	37	USB3TXP3

Pin	Definition	Pin	Definition
38	NC	39	GND
40	NC	41	PCIESATARP
42	NC	43	PCIESATARN
44	NC	45	GND
46	NC	47	PCIESATATN
48	NC	49	PCIESATATP
50	LTEPERSTL	51	GND
52	NC	53	M2REFCLKN
54	LTEPEWAKE1	55	M2REFCLKP
56	NC	57	GND
58	NC	59	NC
60	NC	61	NC
62	NC	63	NC
64	NC	65	NC
66	NC	67	M2LTERSTL
68	M2B_SUSCLK	69	M2BCONFIG1
70	M2LTEPWR	71	GND
72	M2LTEPWR	73	GND
74	M2LTEPWR	75	M2BCONFIG2
MH1	GND	MH2	GND
NH1	NC	NH2	NC

Mini PCIe Connector

Connector location: CN7



Pin	Definition	Pin	Definition
1	I_WAKEL	2	3VSB_MINILTE
3	NC	4	GND
5	NC	6	1V5_MINI
7	I_PCIECLKREQ_L5	8	UIM_PWR
9	GND	10	UIM_DATA
11	I_PCIECLKOUT_N5	12	UIM_CLK
13	I_PCIECLKOUT_P5	14	UIM_RESET
15	GND	16	UIM_VPP
17	NC	18	GND
19	NC	20	LTEDISL
21	GND	22	LTERSTL
23	I_PCIE_RXN4	24	3VSB_MINILTE
25	I_PCIE_RXP4	26	GND
27	GND	28	1V5_MINI
29	GND	30	I_SMB3P3CLK
31	I_PCIE_TXN4	32	I_SMB3P3DATA

Pin	Definition	Pin	Definition
33	NC	34	GND
35	NC	36	I_USB2N8
37	NC	38	I_USB2P8
39	NC	40	GND
41	NC	42	NC
43	NC	44	NC
45	LTEPERSTL	46	NC
47	NC	48	1V5_MINI
49	LTEPEWAKE1	50	GND
51	NC	52	3VSB_MINILTE
MH1	NC	MH2	GND
MH3	NC	NH4	NC
MH5	NC	MH6	NC
NH1	NC	NH2	NC

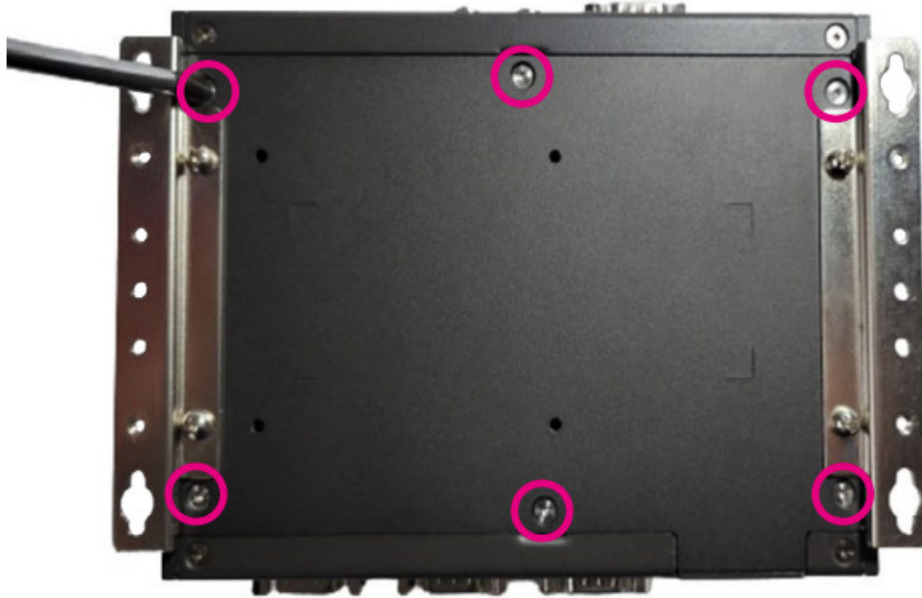
Chapter 3: System Setup

Removing the Chassis Cover



Prior to removing the chassis cover, make sure the unit's power is off and disconnected from the power sources to prevent electric shock or system damage.

1. Remove the six mounting screws from the bottom cover.



2. With the screws removed, lift up the cover and remove it from the chassis.



Installing a SO-DIMM Memory Module



Note:

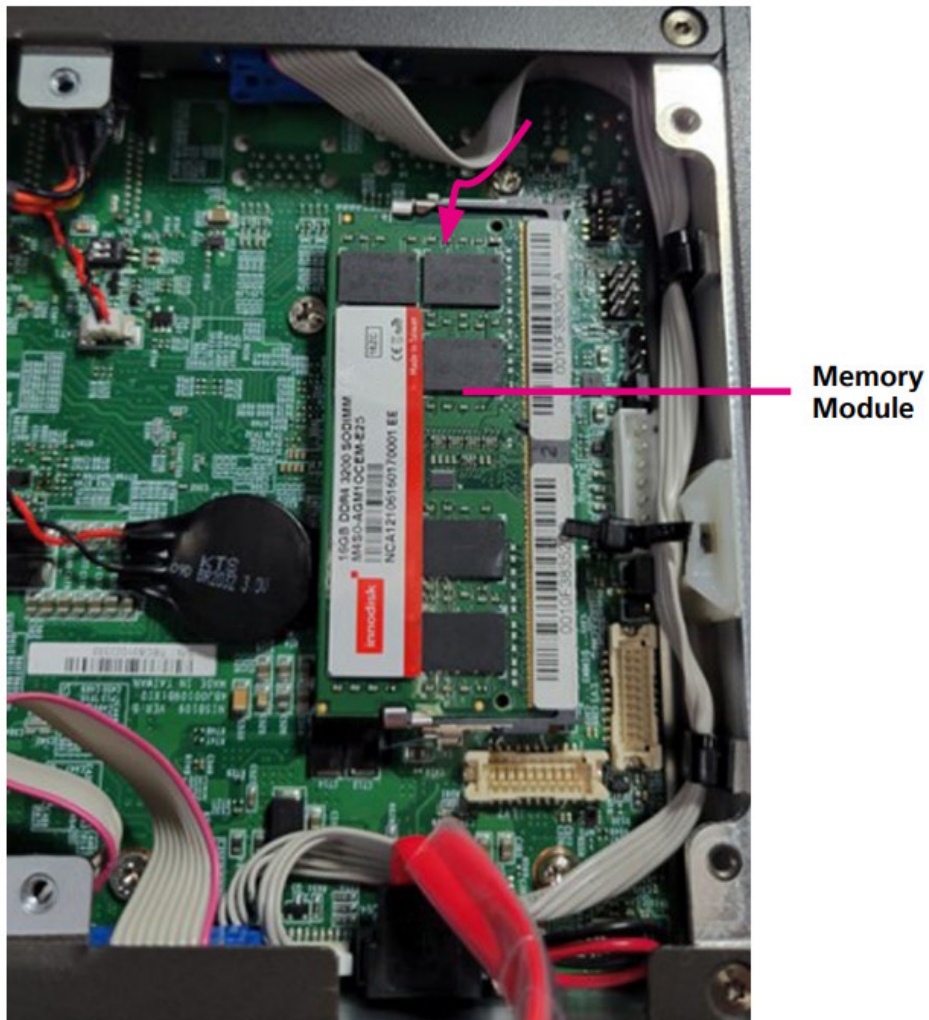
Remove the bottom cover before installing a SO-DIMM.

1. Locate the SO-DIMM socket.

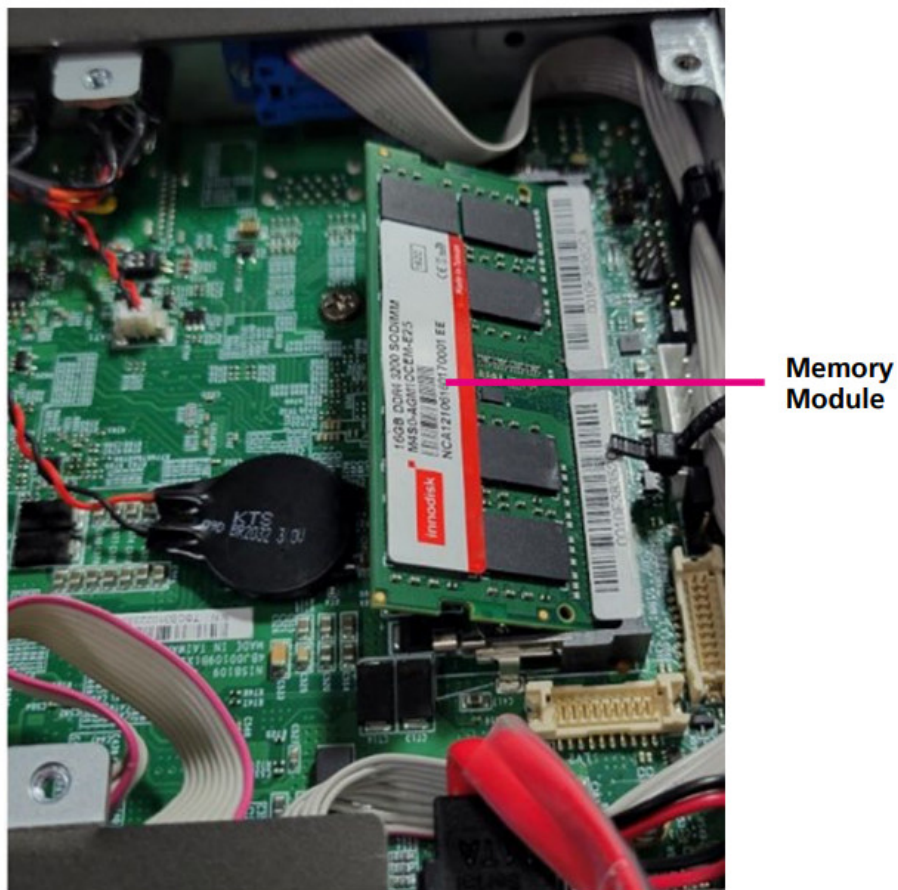


SO-DIMM Socket

2. Insert the module into the socket at an approximately 30-degree angle.
The ejector tabs at the ends of the socket will automatically snap into the locked position to hold the module in place.



3. Push the module down until the clips on both sides of the socket lock into position.



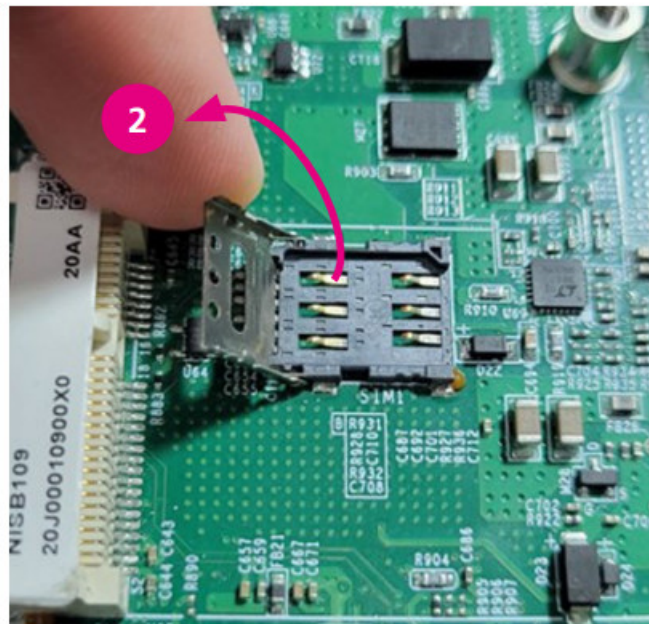
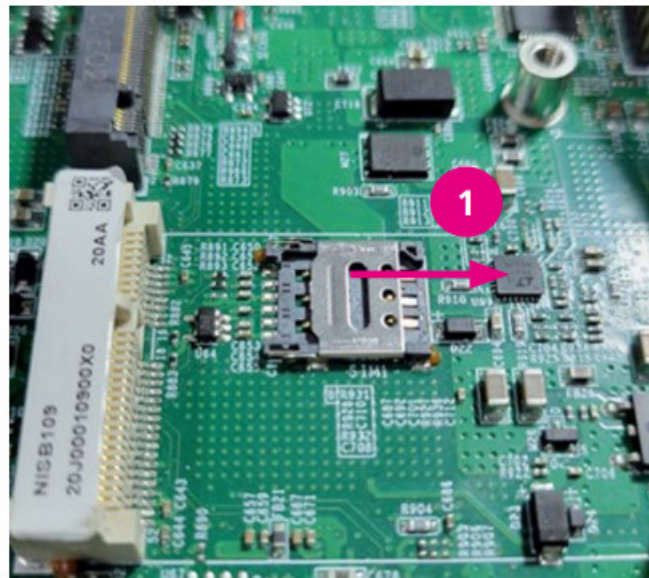
Installing a SIM Card

1. Locate the SIM card holder on the board.

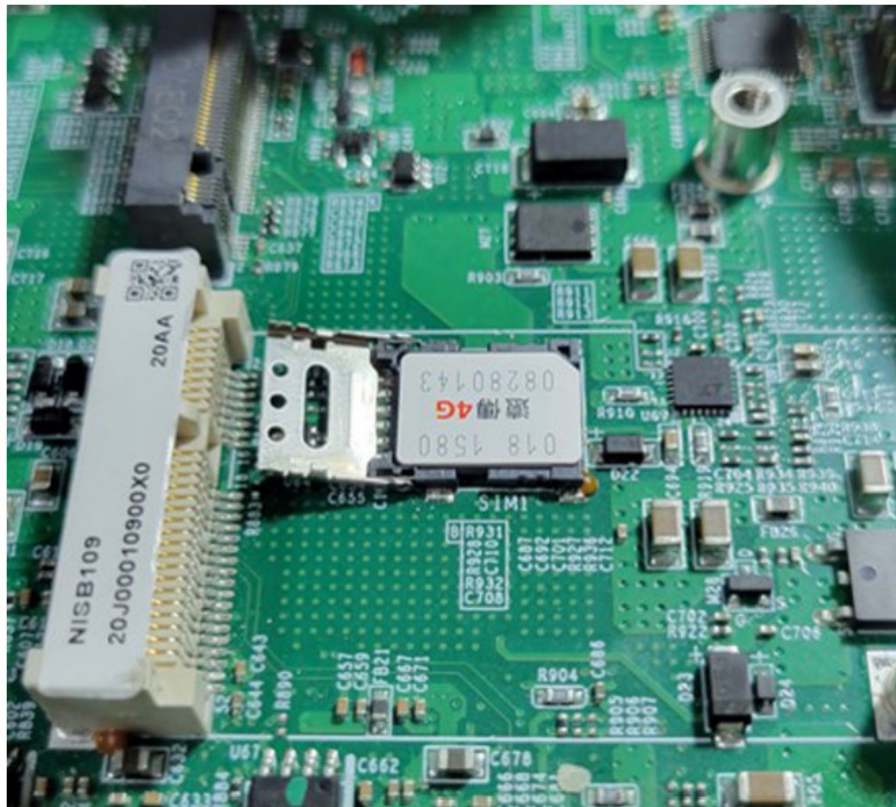


SIM holder

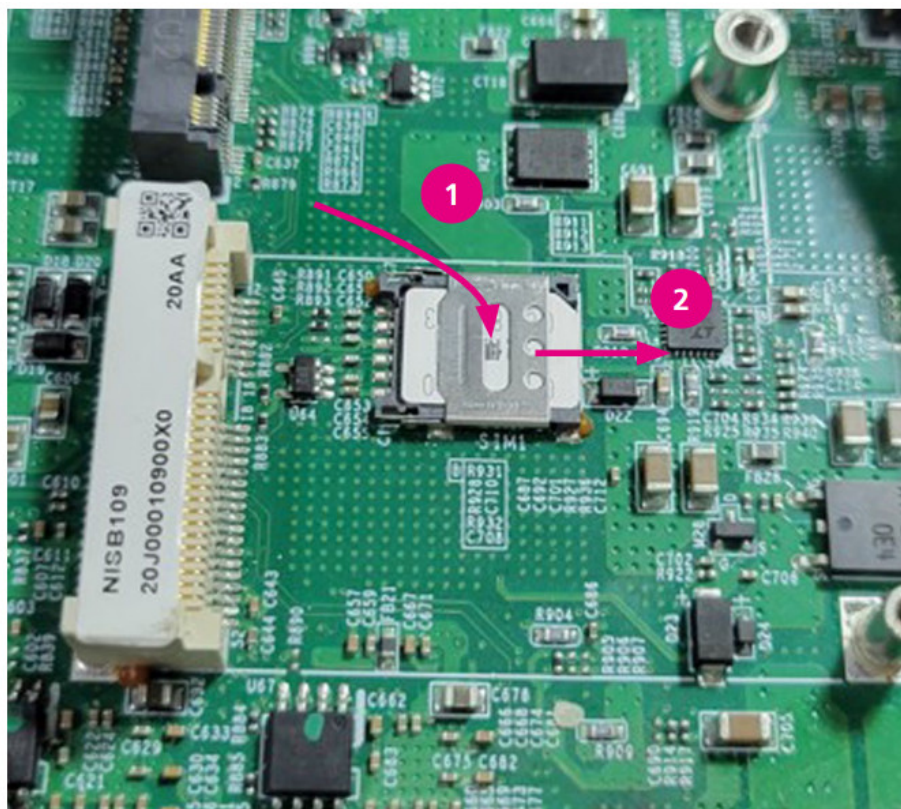
2. Follow steps to release SIM holder cover.



3. Insert your SIM card.



4. Follow the steps to lock the SIM holder.



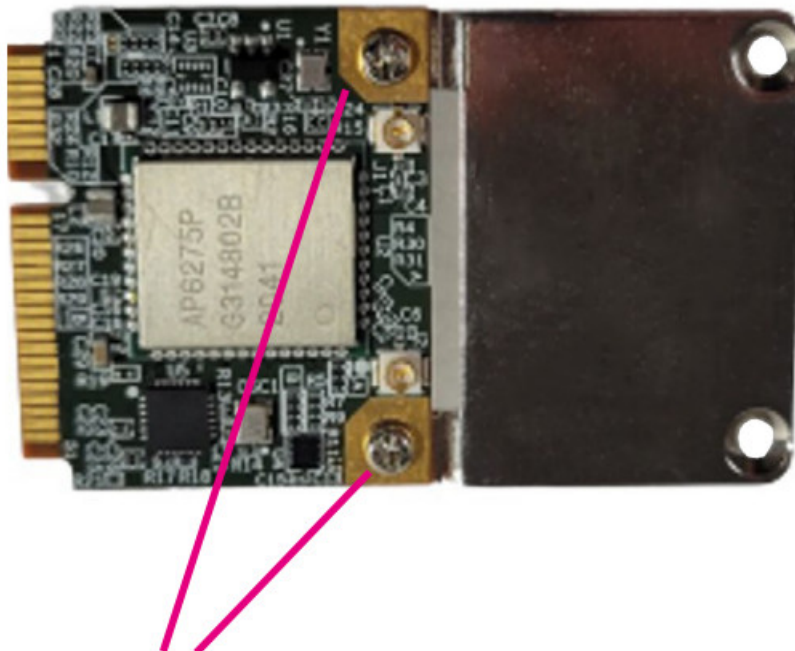
Installing a Mini-PCle Module

1. Locate the mini-PCle slot on the board.



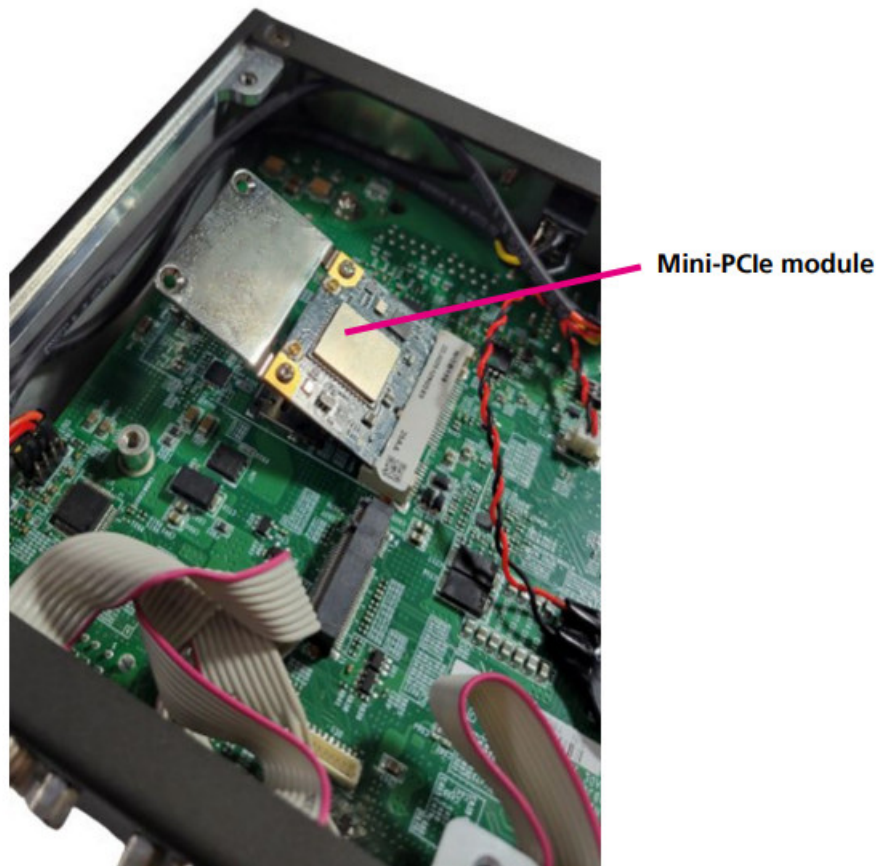
Mini-PCle socket

2. Install the mini-PCle bracket to the mini-PCle module.
(When using a half-size module)

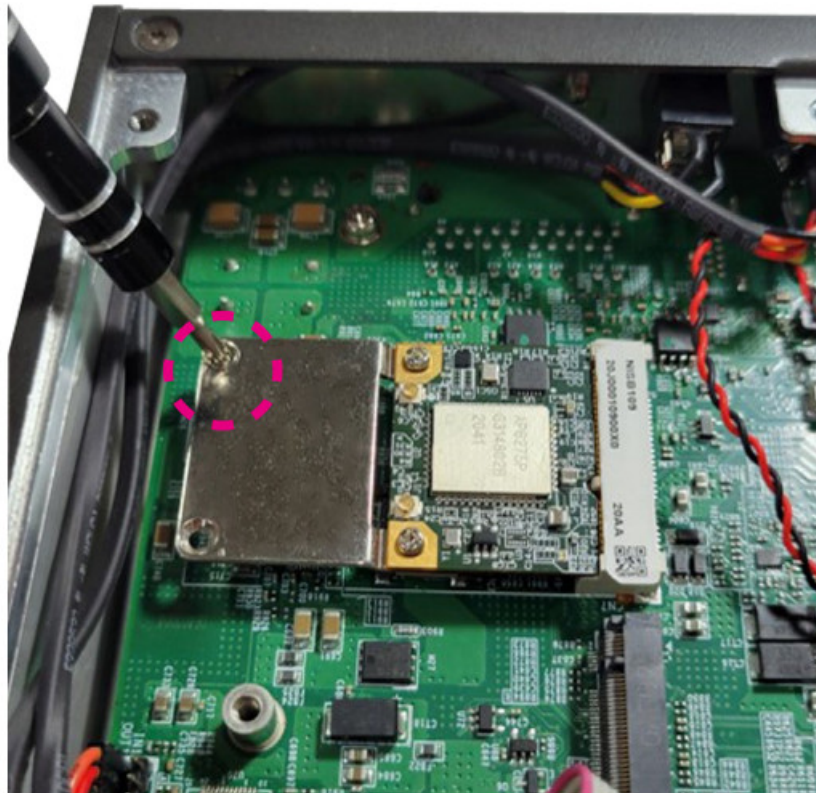


Screw

3. Insert the WLAN module into the mini-PCle slot at 45-degree angle until the gold-plated connector on the edge of the module completely disappears into the slot.

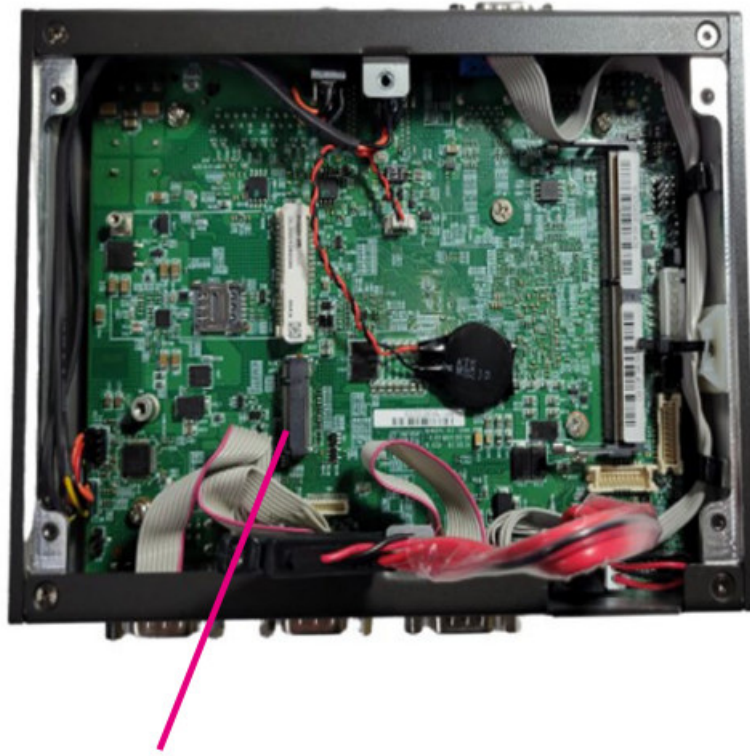


4. Push the module down and secure it with a screw.



Installing an M.2 Module (2242)

1. Locate the M.2 B-key slot on the board.



M.2 B-key slot

2. Make sure the gold-plated six-pin connector on the edge of the module is on the left, while the five-pin connector is on the right.



Five-pin

Six-pin

3. Insert the M.2 module into the M.2 slot at 45-degree angle until the gold-plated connector on the edge of the module completely disappears into the slot.



M.2 B-key module

4. Push the module down and secure it with a screw.



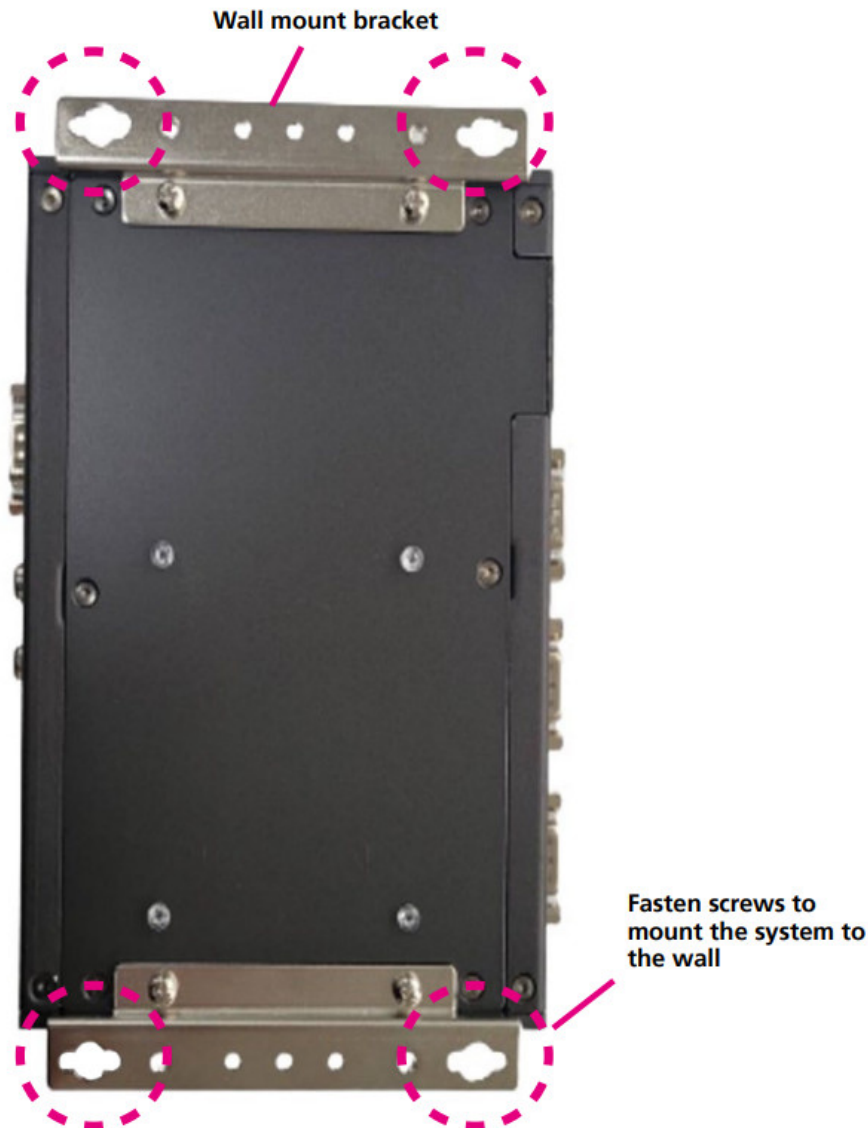
Wall Mounting Instructions

To mount the system on to a wall or some other surface using the two mounting brackets, please follow the steps below.

1. Turn the system over. Align the two retention screw holes in each bracket with the retention screw holes on the sides of the bottom surface.
2. Secure the brackets to the system by inserting two retention screws into each bracket.
3. Drill holes in the intended installation surface.
4. Align the mounting holes on the sides of the mounting brackets with the predrilled holes on the mounting

surface.

5. Insert four retention screws, two in each bracket, to secure the system to the wall.



Note:

Specification of the wall mount screw:

Round Head Screw Long Fei: P6#32Tx 1/ 4/ SW7*0.8 w/Spring+Flat Washer

CHAPTER 4: Bios setup

This chapter describes how to use the BIOS setup program for NISE 109. 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 NexAIoT website at www.nexaiot.com.

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 items such 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










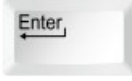
Most of the configuration settings are either predefined according to the Load Optimal Defaults settings which are stored in the BIOS or are automatically detected and configured without requiring any actions. There are a few settings that you may need to change depending on your system configuration.

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.

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.

Aptio Setup - AMI	
Main	Advanced Chipset Security Boot Save & Exit
BIOS Information	
BIOS Vendor	American Megatrends
Core Version	5.19
Compliance	UEFI 2.7; PI 1.6
Project Version	N109-002 x64
Build Date and Time	07/26/2021 14:20:10
Access Level	Administrator
FSP Information	
FSP Version	09.03.16.21
RC Version	09.03.16.21
Build Date	
FSP Mode	API Mode
Processor Information	
Name	ElkhartLake ULX
Type	Intel(R) Celeron(R)
	J6412 @ 2.00GHz
Speed	2000 MHz
ID	0x90661
Stepping	B0
Number of Processors	4Core(s)/ 4Thread(s)
→←: Select Screen ↑↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit	
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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 2005 to 2099.

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.

Aptio Setup - AMI	
Main	Advanced Chipset Security Boot Save & Exit
Speed	2000 MHz
ID	0x90661
Stepping	B0
Number of Processors	4Core(s)/ 4Thread(s)
Microcode Revision	11
GT Info	GT2 (0x4555)
IGFX GOP Version	18.0.1031
Memory RC Version	0.0.4.104
Total Memory	4096 MB
Memory Data Rate	2400 MTPS
PCH Information	
Name PCH SKU	EHL PCH
Stepping	MCC SKU O
	B1
ME FW Version	15.40.10.2252
ME Firmware SKU	Consumer SKU
PMC FW Version	154.1.10.1021
System Date	[Thu 01/06/2022]
System Time	[13:48:54]
Set the Time. Use Tab to switch between Time elements. →←: Select Screen ↑↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit	
Version 2.21.1278. Copyright (C) 2021 AMI	

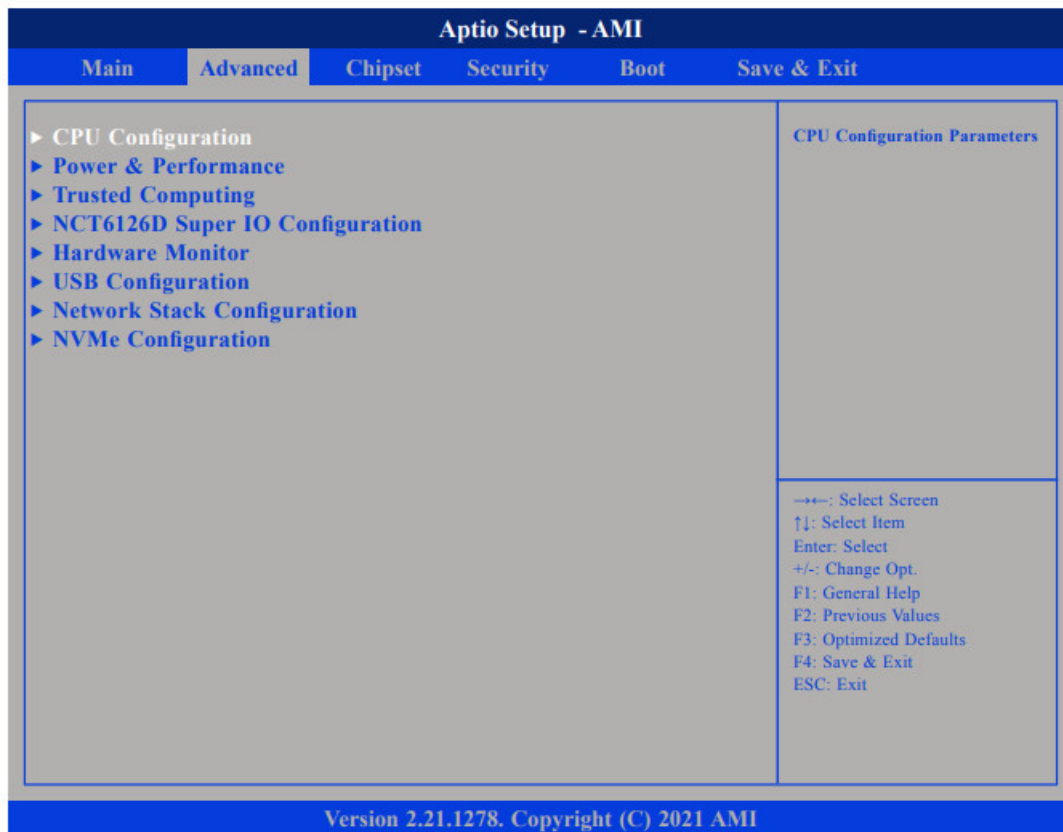
Advanced

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.

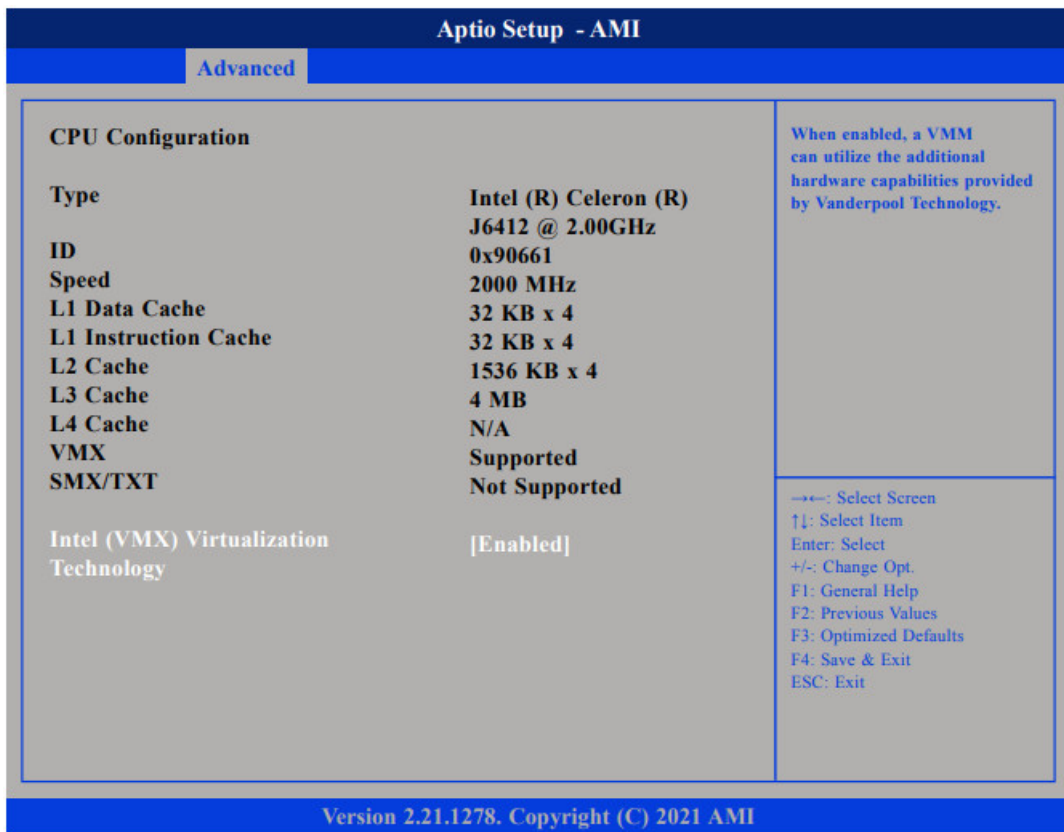


Setting incorrect field values may cause the system to malfunction.



CPU Configuration

This section is used to configure the CPU.

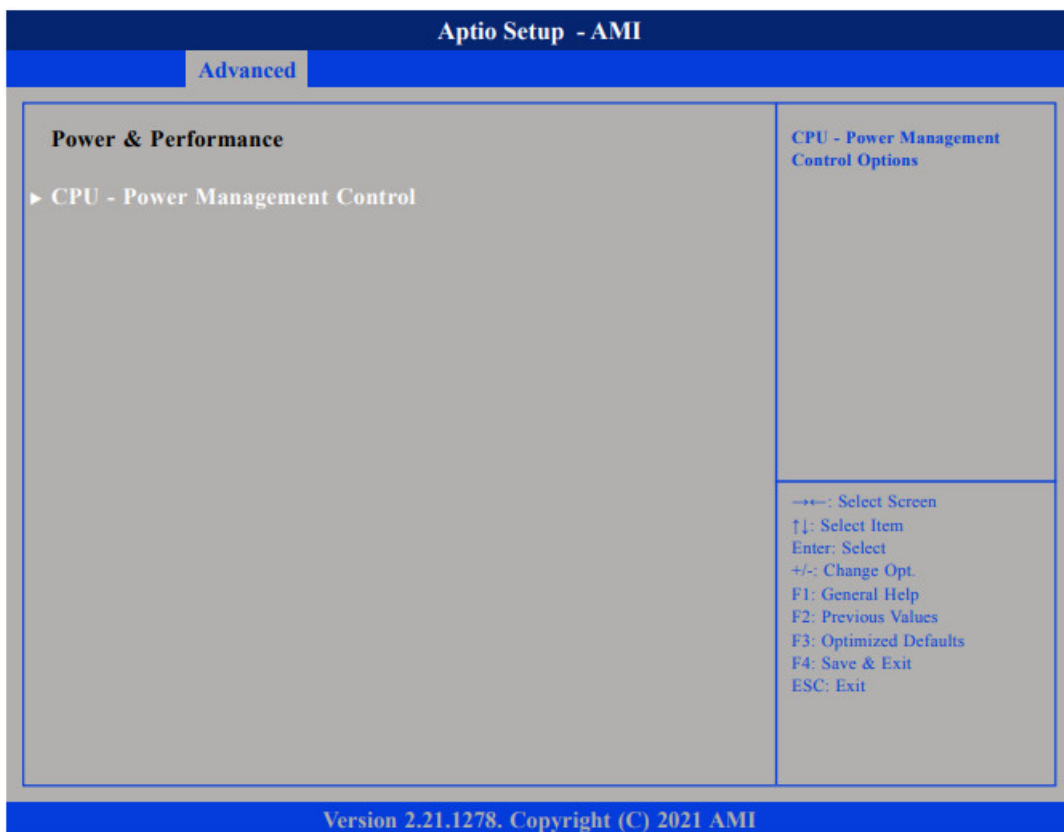


Intel® Virtualization Technology

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

Power & Performance

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



Aptio Setup - AMI		
Advanced		
CPU - Power Management Control		Enable/Disable CPU Power Management. Allows CPU to go to C states when it's not 100% utilized.
Intel(R) SpeedStep(tm) C states	[Disabled] [Disabled]	
		→←: Select Screen ↑↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
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Intel® SpeedStep™ Allows more than two frequency ranges to be supported.

C states

Enable/Disable CPU Power Management. Allows CPU to go to C states when it's not 100% utilized.

Trusted Computing

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

Aptio Setup - AMI		
Advanced		
TPM2.0 Device Found Firmware Version: Vendor:	7.62 IFX	Enables or Disables BIOS support for security device. O.S. will not show Security Device. TCG EFI protocol and INT1A interface will not be available.
Security Device Support Active PCR banks Available PCR banks	[Enable] SHA256 SHA-1,SHA256	
SHA-1 PCR Bank SHA256 PCR Bank	[Disabled] [Enabled]	→←: Select Screen ↑↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
Pending operation Platform Hierarchy Storage Hierarchy Endorsement Hierarchy TPM 2.0 UEFI Spec Version Physical Presence Spec Version TPM 20 InterfaceType Device Select	[None] [Enabled] [Enabled] [Enabled] [TCG_2] [1.3] [TIS] [Auto]	
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Security Device Support

Enables or disables BIOS support for security device. O.S will not show Security Device. TCG EFI protocol and

INT1A interface will not be available.

SHA-1 PCR Bank

Enables or disables SHA-1 PCR Bank.

SHA256 PCR Bank

Enables or disables SHA256 PCR Bank.

Pending operation

Schedules an operation for the security device.

Platform Hierarchy

Enables or disables platform hierarchy.

Storage Hierarchy

Enables or disables storage hierarchy.

Endorsement Hierarchy

Enables or disables endorsement hierarchy.

TPM2.0 UEFI Spec Version

Configures the TPM 2.0 UEFI spec version.

Physical Presence Spec Version

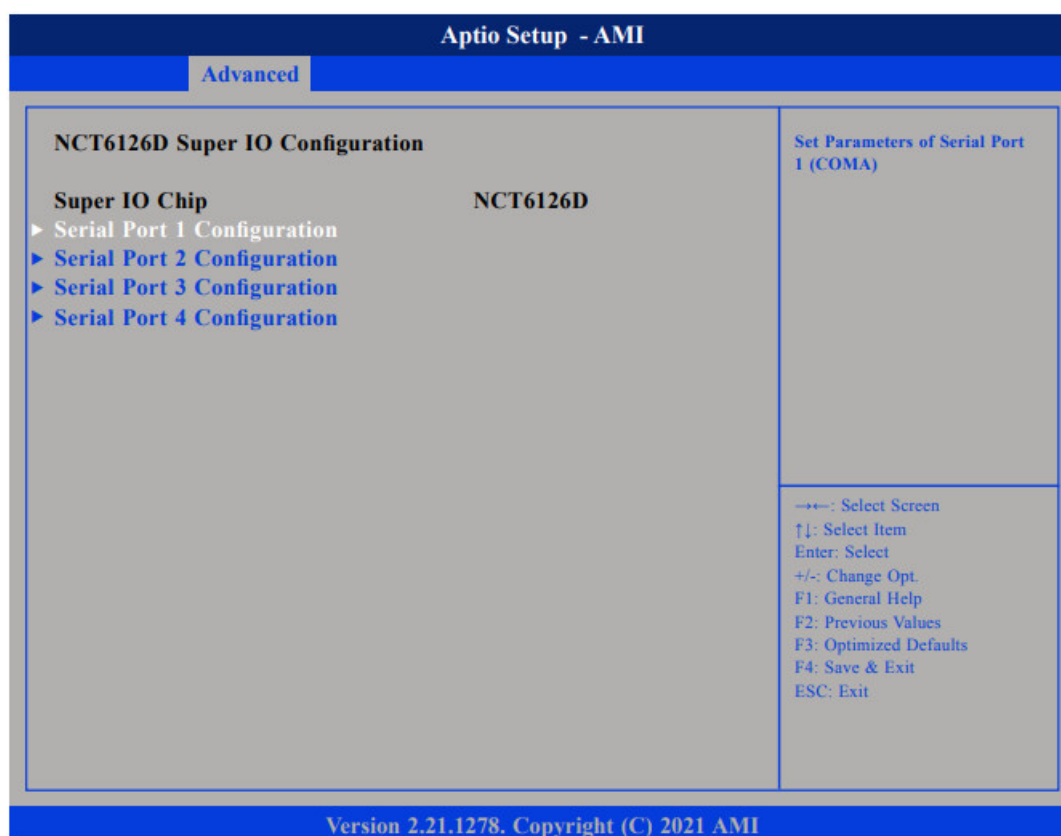
Configures the physical presence spec version. Select to tell O.S. to support PPI Spec Version 1.2 or 1.3. Note some HCK tests might not support 1.3.

Device Select

Configures the TPM version. TPM 1.2 will restrict support to TPM 1.2 devices and 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.

NCT6126D Super IO Configuration

This section is used to configure the serial ports.



Super IO Chip

Displays the Super I/O chip used on the board.

Serial Port 1 to Serial Port 4 Configuration

Configuration settings for serial port 1 to port 4.

Serial Port 1 Configuration

This section is used to configure serial port 1.

Aptio Setup - AMI		
Advanced		
Serial Port 1 Configuration		Enable or Disable Serial Port (COM)
Serial Port	[Enabled]	
Device Settings	IO=3F8h; IRQ=4;	
Onboard Serial Port Mode	[RS232]	
		→←: Select Screen ↑↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
Version 2.21.1278. Copyright (C) 2021 AMI		

Serial Port

Enables or disables the serial port.

Onboard Serial Port Mode

Select this to change the serial port mode to RS232, RS422, RS485 w/o Terminator, or RS485 W/ Terminator.

Terminal resistor

Enable or disable terminal resistor.

Serial Port 2 Configuration

This section is used to configure serial port 2.

Aptio Setup - AMI		
Advanced		
Serial Port 2 Configuration		Enable or Disable Serial Port (COM)
Serial Port	[Enabled]	
Device Settings	IO=3F8h; IRQ=4;	
Onboard Serial Port Mode	[RS232]	
		→←: Select Screen ↑↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
Version 2.21.1278. Copyright (C) 2021 AMI		

Serial Port

Enables or disables the serial port.

Onboard Serial Port Mode

Select this to change the serial port mode to RS232, RS422, RS485 w/o Terminator, or RS485 W/ Terminator.

Terminal resistor

Enable or disable terminal resistor.

Serial Port 3 Configuration

This section is used to configure serial port 3.

Aptio Setup - AMI	
Advanced	
Serial Port 4 Configuration	Enable or Disable Serial Port (COM)
Serial Port	[Enabled]
Device Settings	IO=3F8h; IRQ=4;
Onboard Serial Port Mode	[RS232]
→←: Select Screen ↑↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit	
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Serial Port

Enables or disables the serial port.

Onboard Serial Port Mode

Select this to change the serial port mode to RS232, RS422, RS485 w/o Terminator, or RS485 W/ Terminator.

Terminal resistor

Enable or disable terminal resistor.

Serial Port 4 Configuration

This section is used to configure serial port 4.

Aptio Setup - AMI	
Advanced	
Serial Port 4 Configuration	
Serial Port Device Settings Onboard Serial Port Mode	[Enabled] IO=3F8h; IRQ=4; [RS232]
Enable or Disable Serial Port (COM)	
→←: Select Screen ↑↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit	
Version 2.21.1278. Copyright (C) 2021 AMI	

Serial Port

Enables or disables the serial port.

Onboard Serial Port Mode

Select this to change the serial port mode to RS232, RS422, RS485 w/o Terminator, or RS485 W/ Terminator.

Terminal resistor

Enable or disable terminal resistor.

Hardware Monitor

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

Aptio Setup - AMI	
Advanced	
Pc Health Status	
CPU temperature System temperature VCC5 VCC3 VCORE	: +105 °c : +41 °c : +5.020 V : +3.363 V : +1.656 V
→←: Select Screen ↑↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit	
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CPU temperature

Detects and displays the current CPU temperature.

System temperature

Detects and displays the current system temperature.

VCC5 to VCORE

Detects and displays the output voltages.

USB Configuration

This section is used to configure the USB.

Aptio Setup - AMI	
Advanced	
USB Configuration	
USB Module Version	25
USB Controllers: 1 XHCI	
USB Devices: 1 Keyboard	
XHCI Hand-off	[Enabled]
USB Mass Storage Driver Support	[Enabled]
USB hardware delays and time-outs:	
USB transfer time-out	[20 sec]
Device reset time-out	[20 sec]
Device power-up delay	[Auto]
This is a workaround for OSes without XHCI hand-off support. The XHCI ownership change should be claimed by XHCI driver.	
→←: Select Screen ↑↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit	

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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 Transfer Time-out

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

Device reset time-out

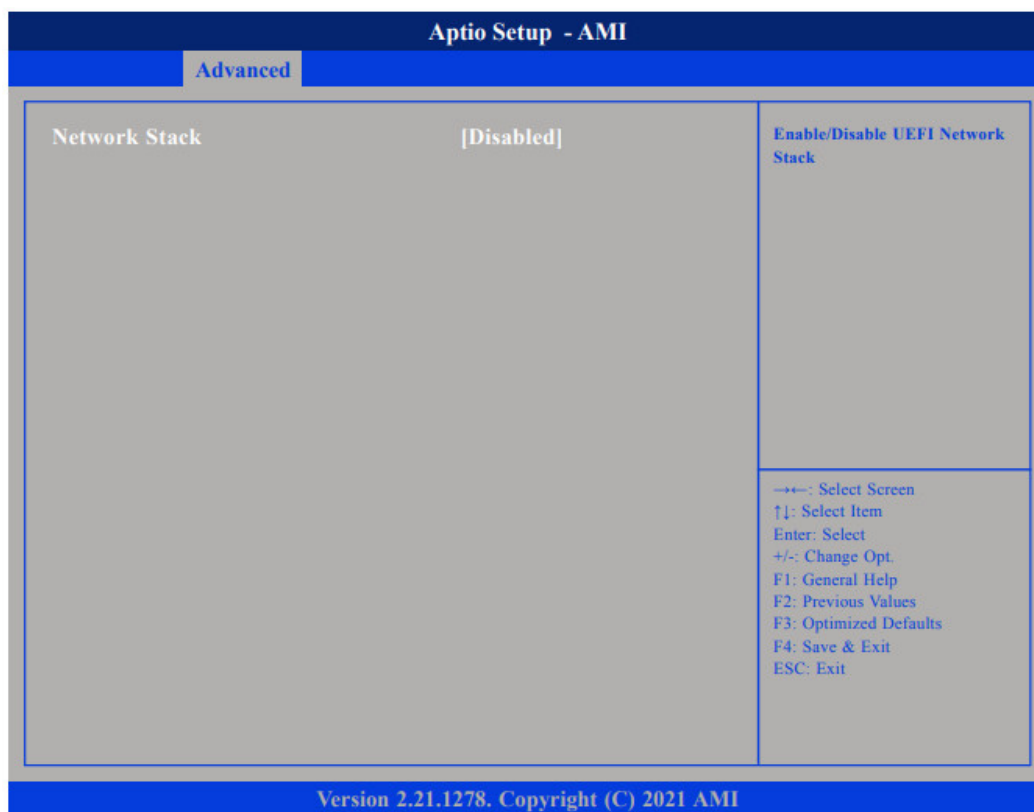
Selects the USB mass storage device's start unit command timeout.

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.

Network Stack Configuration

This section is used to configure the network stack.

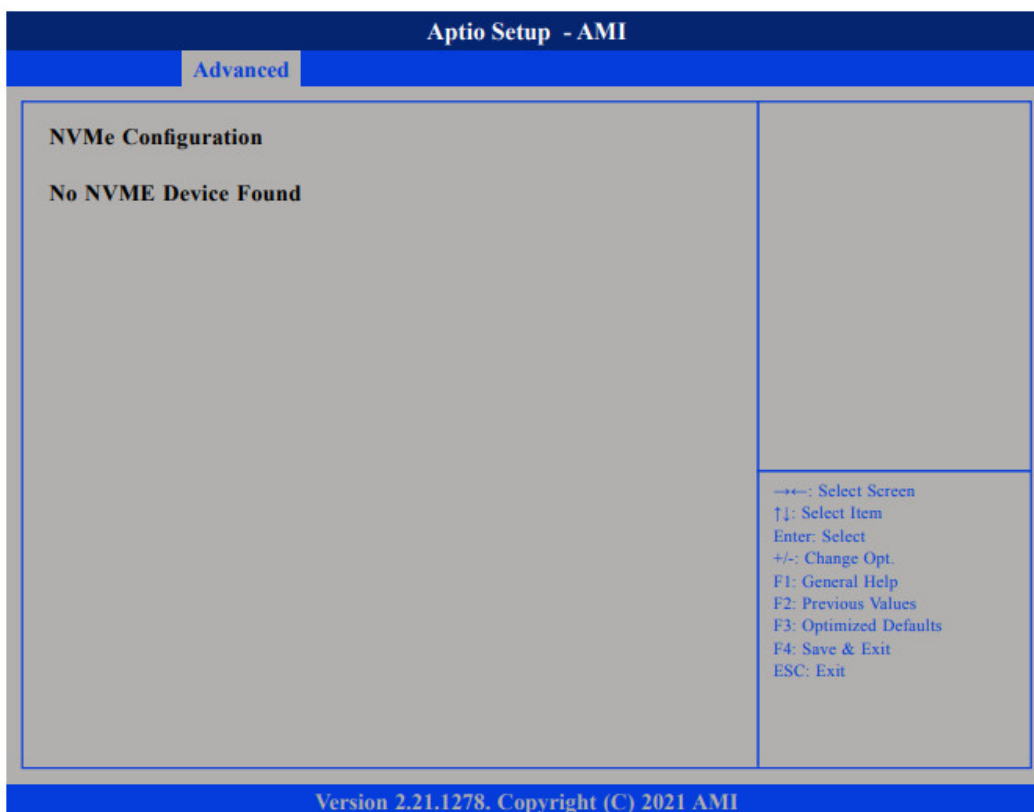


Network Stack

Enables or disables UEFI network stack.

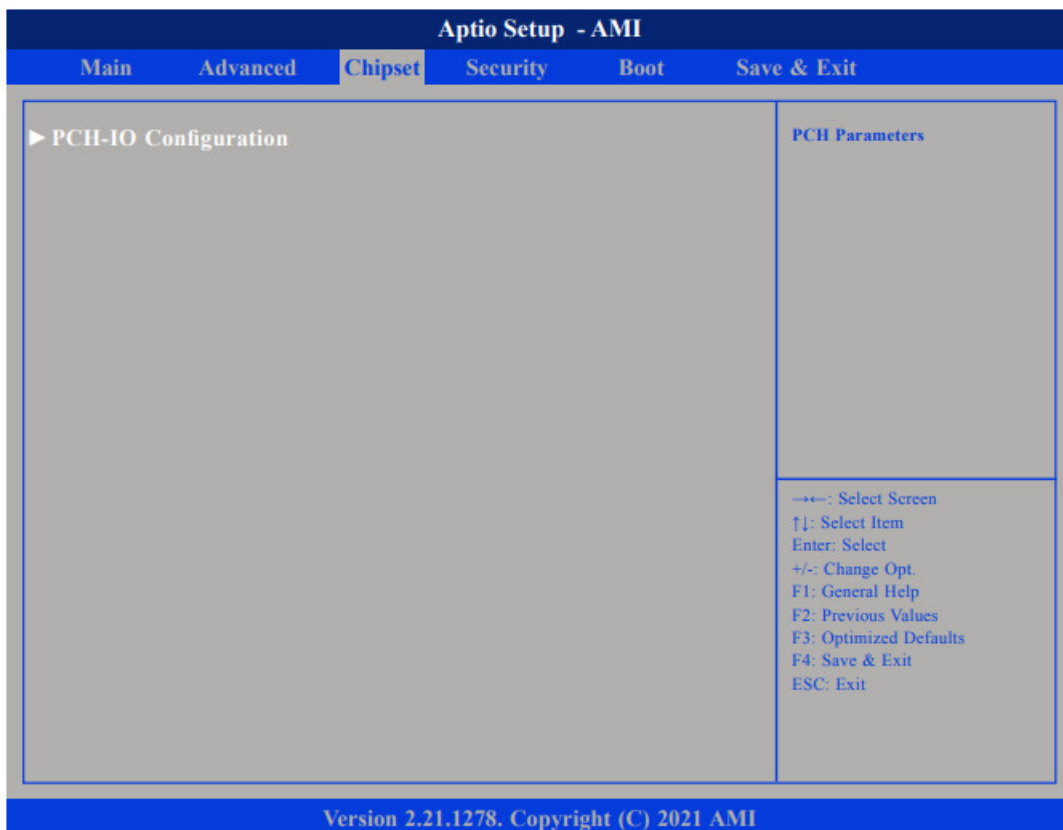
NVMe Configuration

This section is used to display information on the NVMe devices installed.



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.

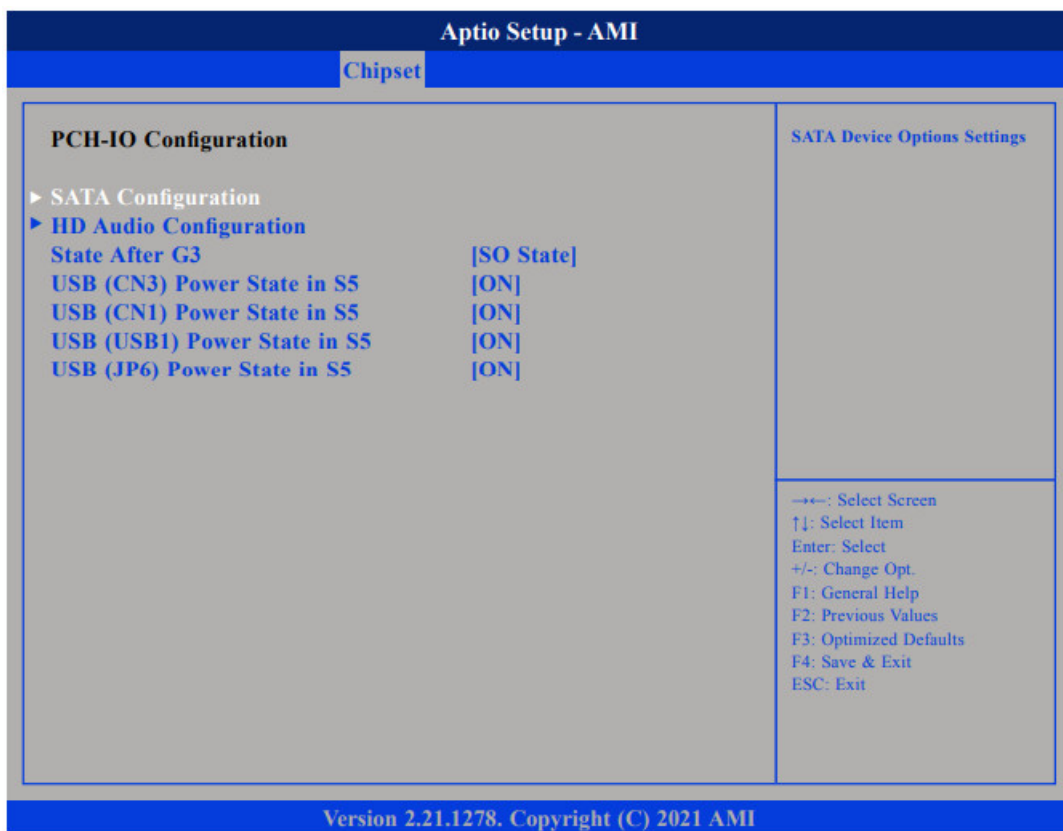


PCH-IO Configuration

Enters the PCH-IO Configuration submenu.

PCH-IO Configuration

This section is used to configure PCH-IO configuration.



State After G3

Configures the power state when power is re-applied after a power failure (G3 state).

USB Power State in S5

Configures the USB power state in S5 for USB (CN3, CN1, USB1, JP6).

HD Audio Configuration

Aptio Setup - AMI	
Chipset	
HD Audio Subsystem Configuration Settings	Control Detection of the HD-Audio device. Disabled = HDA will be unconditionally disabled Enabled = HDA will be unconditionally enabled.
HD Audio [Enabled]	→←: Select Screen ↑↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
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HD Audio

Control detection of the HD audio device.

Disabled – HD audio will be unconditionally disabled.

Enabled – HD audio will be unconditionally enabled.

Security

Aptio Setup Utility - AMI					
Main	Advanced	Chipset	Security	Boot	Save & Exit
Password Description			Set Administrator Password		
If ONLY the Administrator's password is set, then this only limits access to Setup and is only asked for when entering Setup. The password length must be in the following range:					
Minimum length 3					
Maximum length 20					
Administrator Password					
			→←: Select Screen ↑↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit		
Version 2.21.1278. Copyright (C) 2021 AMI					

Administrator Password

Select this to reconfigure the administrator's password.

Boot

Aptio Setup - AMI					
Main	Advanced	Chipset	Security	Boot	Save & Exit
Boot Configuration				Sets the system boot order	
Boot Option Priorities					
Boot Option #1				[Windows Boot Manager (P1: 2.5" SATA SSD 3ME4)]	
Boot Option #2				[UEFI OS (P1: 2.5" SATA SSD 3ME4)]	
Boot Option #3				[UEFI: Built-in EFI]	
				→←: Select Screen ↑↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit	
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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.

Save & Exit

Aptio Setup - AMI					
Main	Advanced	Chipset	Security	Boot	Save & Exit
Save Options				Reset the system after saving the changes.	
Save Changes and Reset					
Discard Changes and Reset					
Default Options					
Restore Defaults					
				→←: Select Screen ↑↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit	
Version 2.21.1278. Copyright (C) 2021 AMI					

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. You can also press <F4> to save and exit Setup.

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. You can also press <ESC> to exit without saving the changes.

Restore Defaults

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

APPENDIX A: Led status

A: Storage (for HDD, SSD, M.2), light up when lower than 2.3V, Green

B: Battery, light up when lower than 2.3V, Green

C/D: TX/RX for COM1, Yellow

E/F: TX/RX for COM2, Green




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NISE 109

Documents / Resources

	NEXAIOT NISE 109 Fan-less Computer [pdf] User Manual NISE 109, Fan-less Computer, NISE 109 Fan-less Computer, Computer
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References

- ## Manuals+,