

NexAIoT Co., Ltd.

IoT Automation Solutions Business Group

Industrial Fanless Computer

NISE 50 A04 Series

User Manual

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PREFACE

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Disclaimer

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Acknowledgements

NISE 50-A04 Series and its series are trademarks of NexAIoT 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



NexAIoT RoHS Environmental Policy and Status Update

NexAIoT 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, NexAIoT 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 NexAIoT development procedure and that all the new RoHS components and new manufacturing processes maintain the highest industry quality levels for which NexAIoT 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 NexAIoT 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 NexAIoT naming convention.

Warranty and RMA

NexAIoT Warranty Period

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

NexAIoT Return Merchandise Authorization (RMA)

- Customers shall enclose the “NexAIoT 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 “NexAIoT 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, NexAIoT 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 NexAIoT 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

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

Board Level

- Component fee: NexAIoT 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, NexAIoT 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 NexAIoT 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
IL Y A RISQUE D'EXPLOSION SI LA BATTERIE EST
REPLACÉE 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 NexAIoT products, visit NexAIoT'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

Headquarters

NEXCOM International Co., Ltd.

9F, No. 920, Zhongzheng Rd.,
Zhonghe District, New Taipei City, 235015,
Taiwan, R.O.C.
Tel: +886-2-8226-7786
Fax: +886-2-8226-7782
www.nexcom.com

Taiwan

NexAIoT Headquarters

Industry 4.0 and Cloud Services

13F, No.922, Zhongzheng Rd.,
Zhonghe District, New Taipei City,
235015, Taiwan, R.O.C.
Tel: +886-2-8226-7796
Fax: +886-2-8226-7926
Email: contact@nexcom.com.tw
www.nexaiot.com

NexAIoT Co., Ltd. Taichung Office

16F, No.250, Sec.2, Chongde Rd.,
Beitun District,
Taichung City, 406503, Taiwan, R.O.C.
Tel: +886-4-2249-1179
Fax: +886-4-2249-1172
Email: contact@nexcom.com.tw
www.nexaiot.com

NexCOBOT Taiwan Co., Ltd.

13F, No.916, Zhongzheng Rd.,
Zhonghe District,
New Taipei City, 235015, Taiwan, R.O.C.
Tel: +886-2-8226-7786
Fax: +886-2-8226-7926
Email: contact@nexcom.com.tw
www.nexcobot.com

GreenBase Technology Corp.

13F, No.922, Zhongzheng Rd.,
Zhonghe District,
New Taipei City, 235015, Taiwan, R.O.C.
Tel: +886-2-8226-7786
Fax: +886-2-8226-7900
Email: info@greenbase.com.tw
www.greenbase.com.tw

DivioTec Inc.

29F-1A, No.97, Sec.4, ChongXin Rd.,
Sanchong District,
New Taipei City, 241513, Taiwan, R.O.C.
Tel: +886-2-8976-3077
Email: sales@diviotec.com
www.diviotec.com

AIoT Cloud Corp.

13F, No.922, Zhongzheng Rd.,
Zhonghe District,
New Taipei City, 23586, Taiwan, R.O.C.
Tel: +886-2-8226-7786
Fax: +886-2-8226-7782
Email: info@aiotcloud.dev
www.aiotcloud.dev

EMBUX TECHNOLOGY CO., LTD.

13F, No.916, Zhongzheng Rd.,
Zhonghe District,
New Taipei City, 235015, Taiwan, R.O.C.
Tel: +886-2-8226-7786
Fax: +886-2-8226-7782
Email: info@embux.com
www.embux.com

TMR TECHNOLOGIES CO., LTD.

13F, No.916, Zhongzheng Rd.,
Zhonghe District,
New Taipei City, 23586, Taiwan, R.O.C.
Tel: +886-2-8226-7786
Fax: +886-2-8226-7782
Email: services@tmrtek.com
www.nexcom.com

China

NEXCOM Surveillance Technology Corp.

Floor 8, Building B3, Xiufeng Industrial Zone, Gan-Keng Community, Buji Street, LongGang District, ShenZhen, 518112, China
Tel: +86-755-8364-7768
Fax: +86-755-8364-7738
Email: info@greenbase.com.tw
www.greenbase.com.tw

NEXCOM Shanghai

Room 406-407, Building C, No 154, Lane 953, Jianchuan Road, Minhang District, Shanghai, 201108, China
Tel: +86-21-5278-5868
Fax: +86-21-3251-6358
Email: sales@nexcom.cn
www.nexcom.cn

NEXGOL Chongqing

1st Building No.999,
Star Boulevard, Yongchuan Dist,
Chongqing City, 402160, China
Tel: +86-23-4960-9080
Fax: +86-23-4966-5855
Email: sales@nexgol.com.cn
<https://www.nexgol.com/>

Beijing NexGemo Technology Co.,Ltd.

Room 205, No.1, Fazhan Road., Beijing International Information Industry Base, Changping District , Beijing, 102206, China
Tel: +86-10-8072-2025
Fax: +86-10-8072-2022
Email: sales@nexgemo.cn
www.nexgemo.com

Japan

NEXCOM Japan

9F, Tamachi Hara Bldg.,
4-11-5, Shiba Minato-ku,
Tokyo, 108-0014, Japan
Tel: +81-3-5419-7830
Fax: +81-3-5419-7832
Email: sales@nexcom-jp.com
www.nexcom-jp.com

USA

NEXCOM USA

41300 Boyce Rd.,
Fremont CA 94538, USA
Tel: +1-510-656-2248
Fax: +1-510-656-2158
Email: sales@nexcom.com
www.nexcomusa.com

Package Contents

Before continuing, please verify the contents of the product package. The items included are listed in the table below.

Item	Part Number	Description	Qty
1	6012200052X00	PE ZIPPER BAG #8, 170x240mm	1
2	6012200053X00	PE ZIPPER BAG #3, 100x70mm	2
3	4NCPM00302X00	TERMINAL BLOCKS 3P 5.08mm MALE DIP GREEN	1
4	5061600245X00	WASHER 10.4x6.4mm T=1mm NYLON BLACK	8
5	5050300264X00	HEAT SINK 20x20x6mm BLACK	4
6	50311F0396X00	I HEAD SCREW I3x3 ISO+NYLOK BLACK	3
7	50344C0379X00	COPPER POST WITH FEMALE/MALE (FEMALE)6mmx(MALE)5mmxM3	1
8	5060201021X01	DRAM THERMAL PAD 63x20x10mm K=4W/mk TP-H400	1

Ordering Information

The following provides ordering information.

NISE 50 A04-01 (P/N: 10J00005061X0)

Intel Atom® Processor x7433RE 1.5GHz

NISE 50 A04-02 (10J00005062X0)

Intel® Processor N97 2.0GHz

NISE 50 A04-03 (P/N: 10J00005063X0)

Intel® Processor N97 2.0GHz, with I/O board

NISE 50 A04-04 (P/N: 10J00005064X0)

Intel® Processor N97 2.0GHz, with USB-C PD board

24V, 60W AC to DC power adapter w/o power cord

(P/N: 7400060054X00)

24V, 120W AC to DC power adapter w/o power cord

(P/N: 7400120029X00)

65W AC to DC USB-C PD 3.0 DC power adapter w/o power cord

(P/N: 7400065041X00)

CHAPTER 1: PRODUCT INTRODUCTION

NISE 50 A04-01

Product Overview

Front Panel



Rear Panel



Key Features

- Onboard Intel Atom® Processor x7433RE quad-core 1.5GHz
- 1 x HDMI®
- 3 x 2.5GbE LAN, supports WoL, teaming, PXE, and EtherCAT
- Storage supports 2 x M.2 SATA SSD
- 1 x M.2 2230 Key A for Wi-Fi 4/5/6E modules
- 1 x M.2 3042/3052 Key B for 4G/5G modules
- 2 x USB 3.2
- 1 x DB9 for RS-232/422/485
- Support -40°C~70°C extended operating temperature
- Support 12~24V DC input and AT/ATX power modes

Hardware Specifications

Processor

- Intel Atom® x7433RE (embedded)

Memory

- 1 x DDR5 4800 SO-DIMM socket, supports up to 32GB

Display Interface

- 1 x HDMI®

LED Indicator

- 1 x Battery low Status
- 2 x GPO

I/O Interface Front

- ATX power on/off switch
- 1 x Intel® I226-IT 2.5GbE TSN LAN port, supports WoL, teaming, PXE, and EtherCAT
- 2 x Intel® I226-V 2.5GbE LAN port, supports WoL, teaming, PXE, and EtherCAT
- 2 x USB 3.2
- 1 x HDMI®
- 1 x DB9 for COM1, supports RS-232/422/485 with auto flow control, BIOS setting
- 1 x 3-pin DC input, supports +12 / 24VDC

I/O Interface Internal

- 1 x nano-SIM holder
- TPM 2.0

Expansion Slot

- 1 x M.2 2230 Key A, supports optional Wi-Fi 4/5/6E modules
- 1 x M.2 2242/2280 Key B, supports optional SATA storage modules
- 1 x M.2 2242/3042/3052 Key B, supports optional 4G/5G/SATA storage modules

Power Requirements

- Power input: +12/24V DC
- Optional 24V, 60W/120W power adapter

Construction

Aluminum top cover and metal chassis with fanless design

Environment

- Operating temperature: Ambient with air flow (according to IEC 60068-2-1, IEC 60068-2-2, IEC 60068-2-14): -40°C~70°C
- Storage temperature: -40°C~80°C
- Relative humidity: 95% at 40°C
- Shock protection:
 - M.2: 50G@wall mount, half sine, 11ms(operation) , IEC 60068 2-27
- Vibration protection w/ M.2 & SSD condition:
 - Random: 2Grms@5~500Hz, IEC 60068-2-64
 - Sinusoidal: 2Grms@5~500Hz, IEC 60068-2-6

Dimensions

- 186mm (W) x 150mm (D) x 29.5mm (H)

Weight Information

- 0.9kg

Certifications

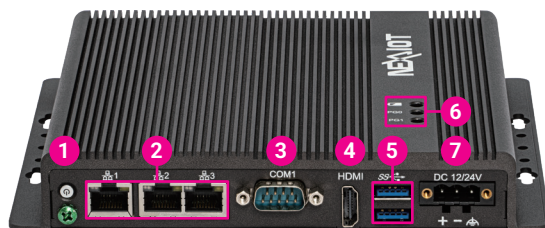
- CE
- FCC Class A

Operating System

- Windows 11
- Windows 10 IoT Enterprise, 64-bit
- Linux Kernel version 4.1

Knowing Your NISE 50 A04-01

Front Panel

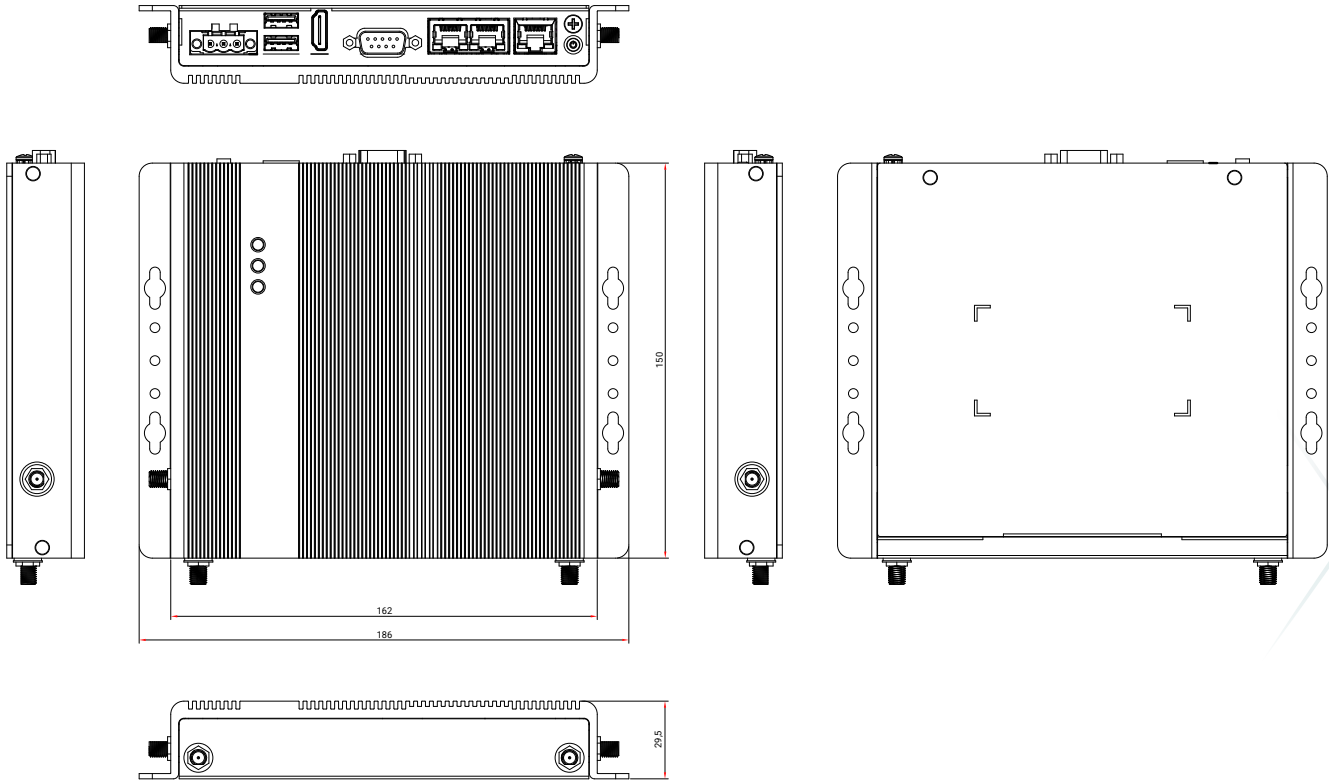


Rear Panel



- 1. Power button**
Power the system on or off
- 2. 2.5GbE RJ45 LAN ports**
Connect the system to the local area network
- 3. COM port**
Connect to an RS-232/422/485 device
- 4. HDMI®**
Connect to an HDMI display.
- 5. USB 3.2 Type-A ports**
Support USB peripherals up to USB 3.2
- 6. LED indicators**
Indicate the RTC battery status and GPO status of the system
- 7. DC input**
Connect to a DC power supply (3-pin, +12V/+24V)
- 8. Antenna holes**

Mechanical Dimensions



NISE 50 A04-02

Product Overview

Front Panel



Rear Panel



Key Features

- Onboard Intel® Processor N97 quad-core 2.0GHz
- 1 x HDMI®
- 3 x 2.5GbE LAN, supports WoL, teaming, PXE, and EtherCAT
- Storage supports 2 x M.2 SATA SSD
- 1 x M.2 2230 Key A for Wi-Fi 4/5/6E module
- 1 x M.2 3042/3052 Key B for 4G/5G module
- 2 x USB 3.2
- 1 x DB9 for RS-232/422/485
- Support 12~24V DC input and AT/ATX power modes

Hardware Specifications

Processor

- Intel® Processor N97 (embedded)

Memory

- 1 x DDR5 4800 SO-DIMM socket, supports up to 16GB

Display Interface

- 1 x HDMI®

LED Indicator

- 1 x Battery low Status
- 2 x GPO

I/O Interface Front

- ATX power on/off switch
- 1 x Intel® I226-IT 2.5GbE TSN LAN port, supports WoL, teaming, PXE, and EtherCAT
- 2 x Intel® I226-V 2.5GbE LAN port, supports WoL, teaming, PXE, and EtherCAT
- 2 x USB 3.2
- 1 x HDMI®
- 1 x DB9 for COM1, supports RS-232/422/485 with auto flow control, BIOS setting
- 1 x 3-pin DC input, supports +12 / 24VDC

I/O Interface Internal

- 1 x nano-SIM holder
- TPM 2.0

Expansion Slot

- 1 x M.2 2230 Key A, supports optional Wi-Fi 4/5/6E modules
- 1 x M.2 2242/2280 Key B, supports optional SATA storage modules
- 1 x M.2 2242/3042/3052 Key B, supports optional 4G/5G/SATA storage modules

Power Requirements

- Power input: +12/24V DC
- Optional 24V, 60W/120W power adapter

Construction

Aluminum top cover and metal chassis with fanless design

Environment

- Operating temperature: Ambient with air flow (according to IEC 60068-2-1, IEC 60068-2-2, IEC 60068-2-14): -20°C~60°C
- Storage temperature: -20°C~80°C
- Relative humidity: 95% at 40°C
- Shock protection:
 - M.2: 50G@wall mount, half sine, 11ms(operation) , IEC 60068 2-27
- Vibration protection w/ M.2 & SSD condition:
 - Random: 2Grms@5~500Hz, IEC 60068-2-64
 - Sinusoidal: 2Grms@5~500Hz, IEC 60068-2-6

Dimensions

- 186mm (W) x 150mm (D) x 29.5mm (H)

Weight Information

- 0.9kg

Certifications

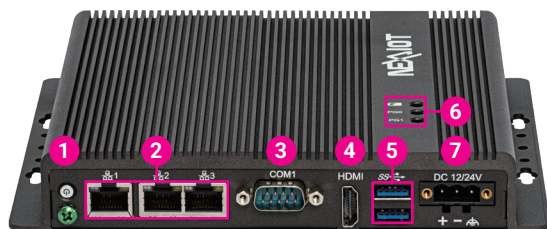
- CE
- FCC Class A

Operating System

- Windows 11
- Windows 10 IoT Enterprise, 64-bit
- Linux Kernel version 4.1

Knowing Your NISE 50 A04-02

Front Panel

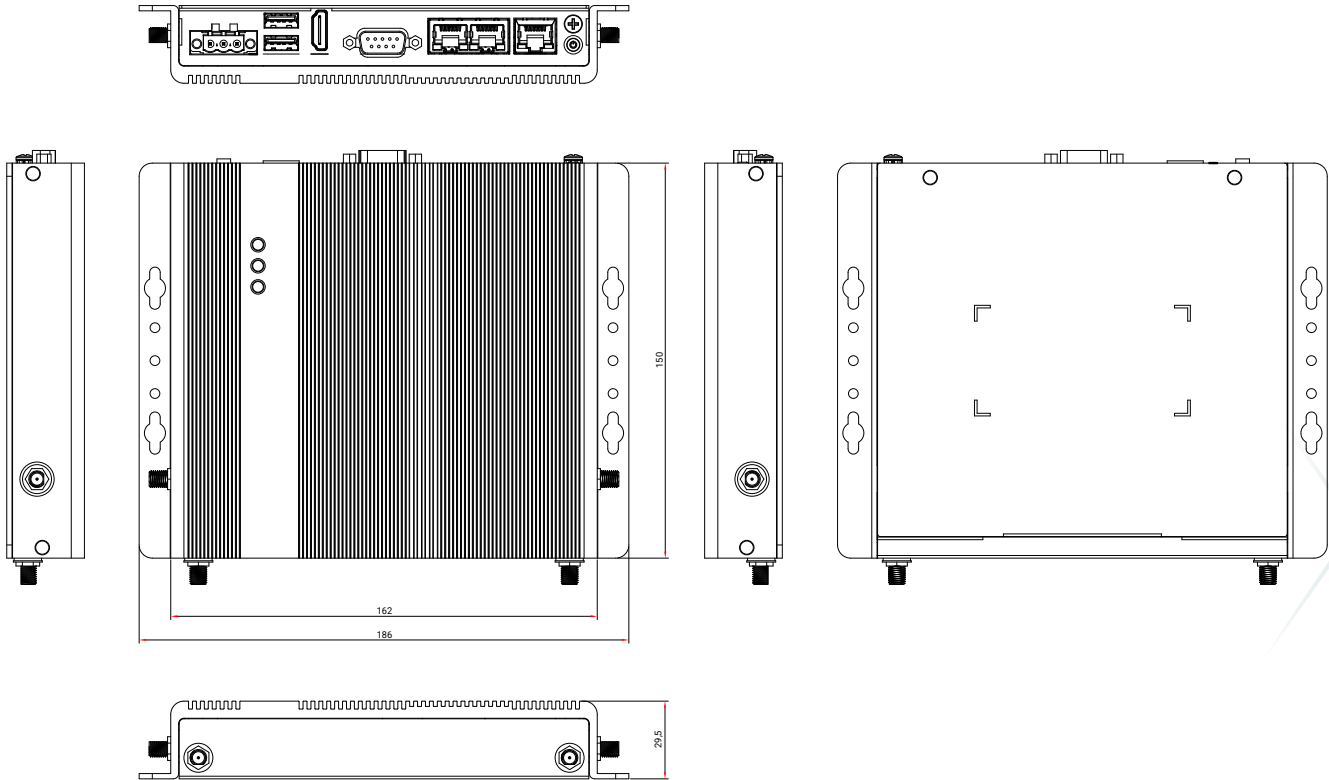


Rear Panel



- 1. Power button**
Power the system on or off
- 2. 2.5GbE RJ45 LAN ports**
Connect the system to the local area network
- 3. COM port**
Connect to an RS-232/422/485 device
- 4. HDMI®**
Connect to an HDMI display.
- 5. USB 3.2 Type-A ports**
Support USB peripherals up to USB 3.2
- 6. LED indicators**
Indicate the RTC battery status and GPO status of the system
- 7. DC input**
Connect to a DC power supply (3-pin, +12V/+24V)
- 8. Antenna holes**

Mechanical Dimensions



NISE 50 A04-03

Product Overview

Front Panel



Rear Panel



Key Features

- Onboard Intel® Processor N97 quad-core 2.0GHz
- 1 x HDMI®
- 3 x 2.5GbE LAN, supports WoL, teaming, PXE, and EtherCAT
- Storage supports 2 x M.2 SATA SSD
- 1 x M.2 2230 Key A for Wi-Fi 4/5/6E module
- 1 x M.2 3042/3052 Key B for 4G/5G module
- 6 x USB 3.2
- 2 x DB9 for RS-232/422/485
- Support 12~24V DC input and AT/ATX power modes

Hardware Specifications

Model

- Intel® Processor N97 (embedded), with I/O board

Memory

- 1 x DDR5 4800 SO-DIMM socket, supports up to 16GB

Display Interface

- 1 x HDMI®

LED Indicator

- 1 x Battery low Status
- 2 x GPO

I/O Interface Front

- ATX power on/off switch
- 1 x Intel® I226-IT 2.5GbE TSN LAN port, supports WoL, teaming, PXE, and EtherCAT
- 2 x Intel® I226-V 2.5GbE LAN port, supports WoL, teaming, PXE, and EtherCAT
- 2 x USB 3.2
- 1 x HDMI®
- 1 x DB9 for COM1, supports RS-232/422/485 with auto flow control, BIOS setting
- 1 x 3-pin DC input, supports +12 / 24VDC

I/O Interface - Rear

- 1 x DB9 for COM2, supports RS-232/422/485 with auto flow control, BIOS setting
- 4 x USB 3.2

I/O Interface Internal

- 1 x nano-SIM holder
- TPM 2.0

Expansion Slot

- 1 x M.2 2230 Key A, supports optional Wi-Fi 4/5/6E modules
- 1 x M.2 2242/2280 Key B, supports optional SATA storage modules
- 1 x M.2 2242/3042/3052 Key B, supports optional 4G/5G/SATA storage modules

Power Requirements

- Power input: +12/24V DC
- Optional 24V, 60W/120W power adapter

Construction

Aluminum top cover and metal chassis with fanless design

Environment

- Operating temperature: Ambient with air flow(according to IEC 60068-2-1, IEC 60068-2-2, IEC 60068-2-14): -20°C~60°C
- Storage temperature: -20°C~80°C
- Relative humidity: 95% at 40°C

- Shock protection:
 - M.2: 50G@wall mount, half sine, 11ms(operation) , IEC 60068 2-27
- Vibration protection w/ M.2 & SSD condition:
 - Random: 2Grms@5~500Hz, IEC 60068-2-64
 - Sinusoidal: 2Grms@5~500Hz, IEC 60068-2-6

Dimensions

- 186mm (W) x 150mm (D) x 29.5mm (H)

Weight Information

- 0.9kg

Certifications

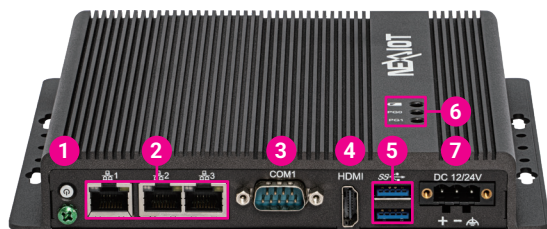
- CE
- FCC Class A

Operating System

- Windows 11
- Windows 10 IoT Enterprise, 64-bit
- Linux Kernel version 4.1

Knowing Your NISE 50 A04-03

Front Panel

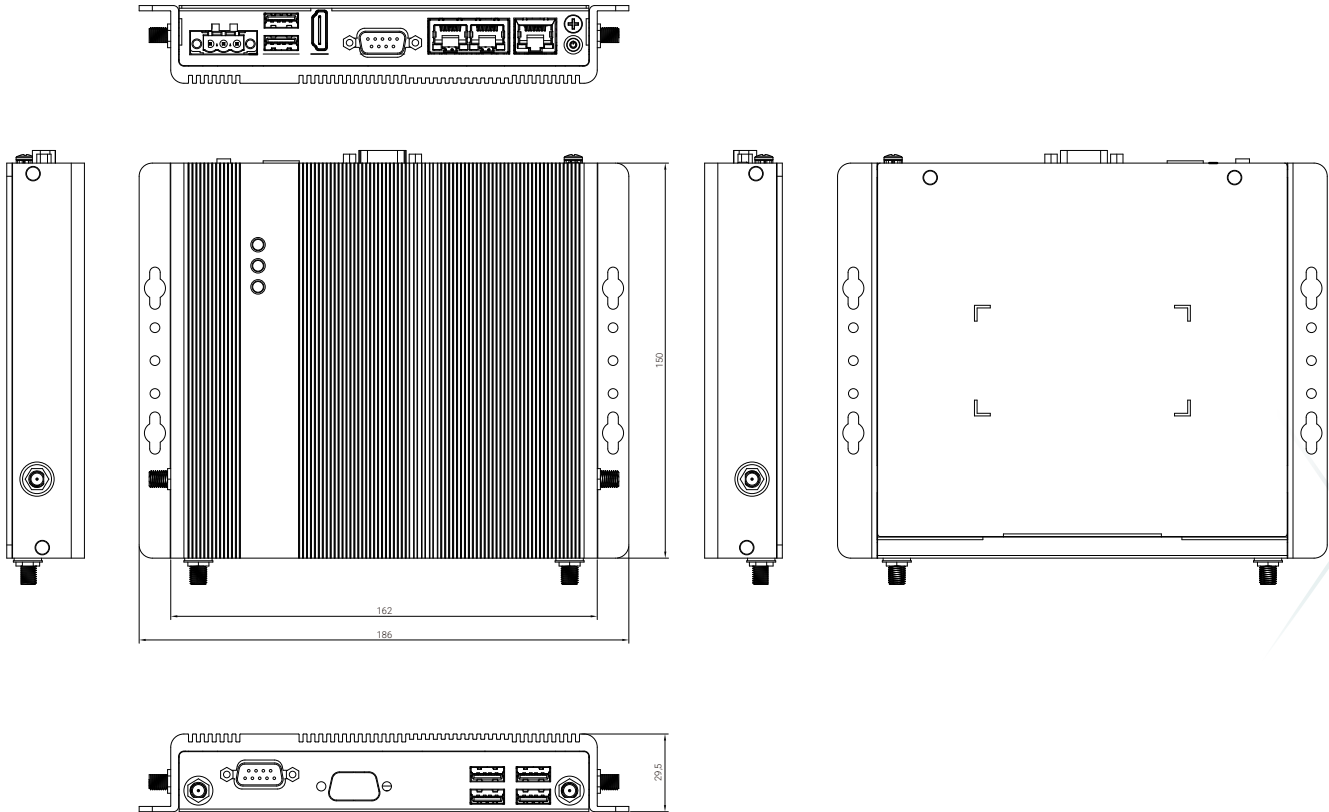


Rear Panel



- 1. Power button**
Power the system on or off
- 2. 2.5GbE RJ45 LAN ports**
Connect the system to the local area network
- 3. COM ports**
Connect to RS-232/422/485 devices
- 4. HDMI®**
Connect to an HDMI display.
- 5. USB 3.2 Type-A ports**
Support USB peripherals up to USB 3.2
- 6. LED indicators**
Indicate the RTC battery status and GPO status of the system
- 7. DC input**
Connect to a DC power supply (3-pin, +12V/+24V)
- 8. Antenna holes**

Mechanical Dimensions



NISE 50 A04-04

Product Overview

Front Panel



Rear Panel



Key Features

- Onboard Intel® Processor N97 quad-core 2.0GHz
- 1 x HDMI®
- 3 x 2.5GbE LAN, supports WoL, teaming, PXE, and EtherCAT
- Storage supports 2 x M.2 SATA SSD
- 1 x M.2 2230 Key A for Wi-Fi 4/5/6E module
- 1 x M.2 3042/3052 Key B for 4G/5G module
- 2 x USB 3.2 Type-A, 2 x USB 3.2 Type-C
- 1 x DB9 for RS-232/422/485
- Support 12~24V DC input and AT/ATX power modes

Hardware Specifications

Model

- Intel® Processor N97 (embedded), with USB-C PD board

Memory

- 1 x DDR5 4800 SO-DIMM socket, supports up to 16GB

Display Interface

- 1 x HDMI®
- 1 x USB Type-C (DP Alt Mode)

LED Indicator

- 1 x Battery low Status
- 2 x GPO

I/O Interface Front

- ATX power on/off switch
- 1 x Intel® I226-IT 2.5GbE TSN LAN port, supports WoL, teaming, PXE, and EtherCAT
- 2 x Intel® I226-V 2.5GbE LAN port, supports WoL, teaming, PXE, and EtherCAT
- 2 x USB 3.2
- 1 x HDMI®
- 1 x DB9 for COM1, supports RS-232/422/485 with auto flow control, BIOS setting
- 1 x 3-pin DC input, supports +12 / 24VDC

I/O Interface - Rear

- 1 x USB 3.2 Type-C (5V/900mA)
- 1 x USB 3.2 Type-C
 - Support Alt mode (DP 1.4 HBR3) & PD 3.0
 - PD Power output: Support 5V/3A, 9V/3A, 15V/3A, and 20V/5A
 - 20V/5A (depends on Terminal Block DC input):
 - 12V DC input: Support 40W output
 - 24V DC input: Support 80W output
 - PD Power input: 15V/5A, 20V/5A

I/O Interface Internal

- 1 x nano-SIM holder
- TPM 2.0

Expansion Slot

- 1 x M.2 2230 Key A, supports optional Wi-Fi 4/5/6E modules
- 1 x M.2 2242/2280 Key B, supports optional SATA storage modules
- 1 x M.2 2242/3042/3052 Key B, supports optional 4G/5G/SATA storage modules

Power Requirements

- Power input: +12/24V DC
- Optional 24V, 60W/120W power adapter or USB C 60W power adapter

Construction

Aluminum top cover and metal chassis with fanless design

Environment

- Operating temperature: Ambient with air flow(according to IEC 60068-2-1, IEC 60068-2-2, IEC 60068-2-14): -20°C~60°C
- Storage temperature: -20°C~80°C
- Relative humidity: 95% at 40°C
- Shock protection:
 - M.2: 50G@wall mount, half sine, 11ms(operation) , IEC 60068 2-27
- Vibration protection w/ M.2 & SSD condition:
 - Random: 2Grms@5~500Hz, IEC 60068-2-64
 - Sinusoidal: 2Grms@5~500Hz, IEC 60068-2-6

Dimensions

- 186mm (W) x 150mm (D) x 29.5mm (H)

Weight Information

- 1kg

Certifications

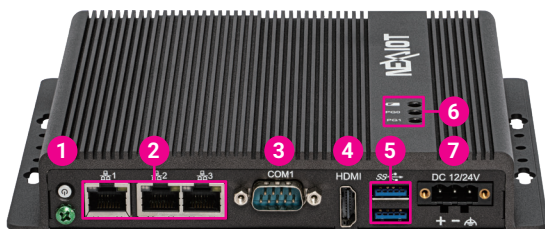
- CE
- FCC Class A

Operating System

- Windows 11
- Windows 10 IoT Enterprise, 64-bit
- Linux Kernel version 4.1

Knowing Your NISE 50 A04-04

Front Panel

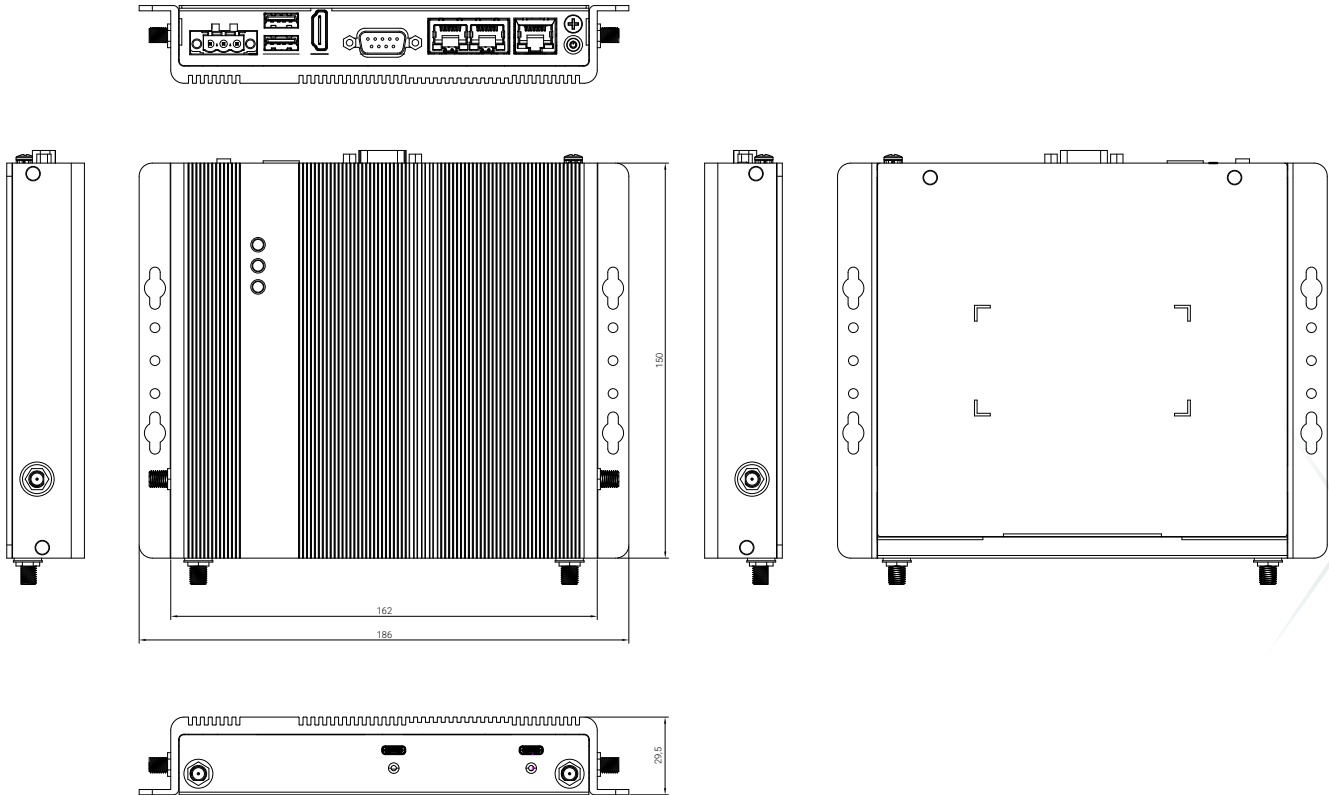


Rear Panel



1. **Power button**
Power the system on or off
2. **2.5GbE RJ45 LAN ports**
Connect the system to the local area network
3. **COM port**
Connect to an RS-232/422/485 device
4. **HDMI®**
Connect to an HDMI display.
5. **USB 3.2 Type-A ports**
Support USB peripherals up to USB 3.2
6. **LED indicators**
Indicate the RTC battery status and GPO status of the system
7. **DC input**
Connect to a DC power supply (3-pin, +12V/+24V)
8. **Antenna holes**
9. **USB 3.2 Type-C port**
Support USB 3.2 peripherals, DP 1.4 Alt mode displays, and USB PD input/output.
10. **USB 3.2 Type-C port**
Support USB peripherals up to USB 3.2

Mechanical Dimensions



CHAPTER 2: JUMPERS AND CONNECTORS

This chapter describes how to set the jumpers and connectors on the NISE 50 A04 Series 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:

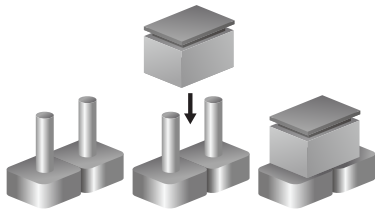
- Always disconnect the unit from the power outlet whenever you are working inside the case.
- If possible, wear a grounded wrist strap when you are working inside the computer case. Alternatively, discharge any static electricity by touching the bare metal chassis of the unit case, or the bare metal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

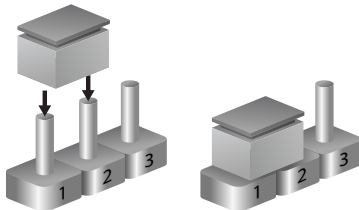
A jumper is the simplest kind of electric switch. It consists of two metal pins and a cap. When setting the jumpers, ensure that the jumper caps are placed on the correct pins. When the jumper cap is placed on both pins, the jumper is short. If you remove the jumper cap, or place the jumper cap on just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

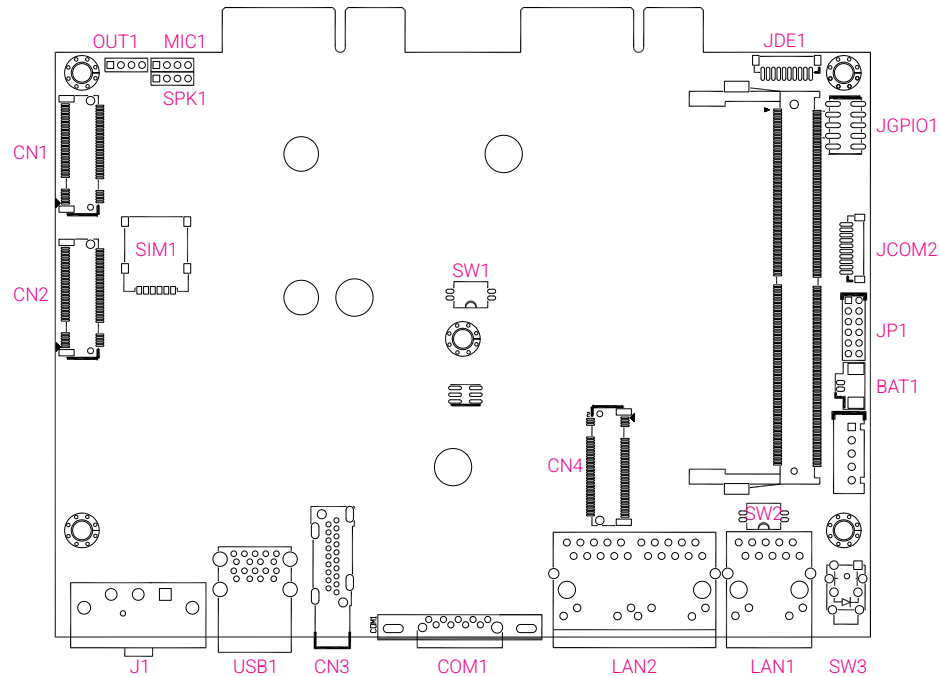


System Main Motherboard Overview

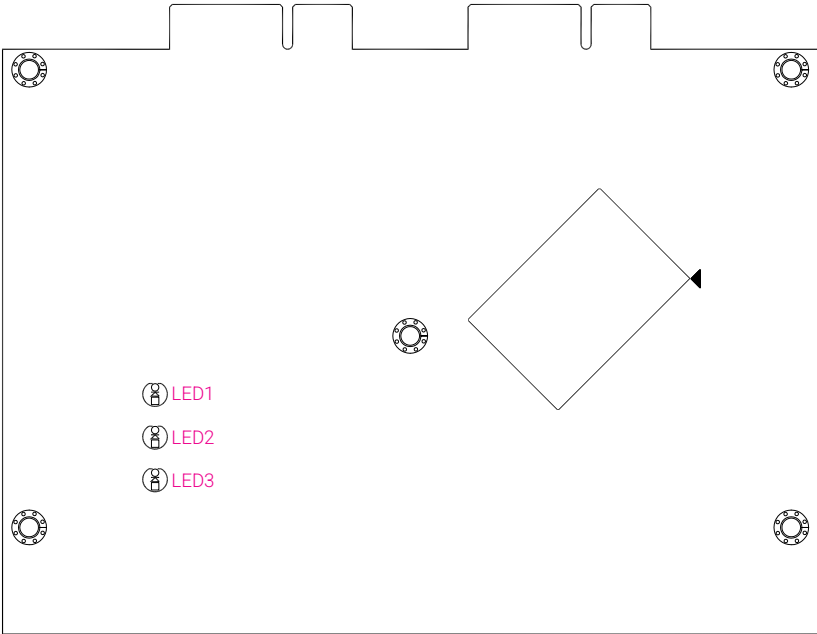
This section outlines the location and pin assignments of jumpers and connectors, with reference illustrations (not to scale) and pink-marked pin definitions to aid understanding.

Location of Jumpers and Connectors on the Main Motherboard

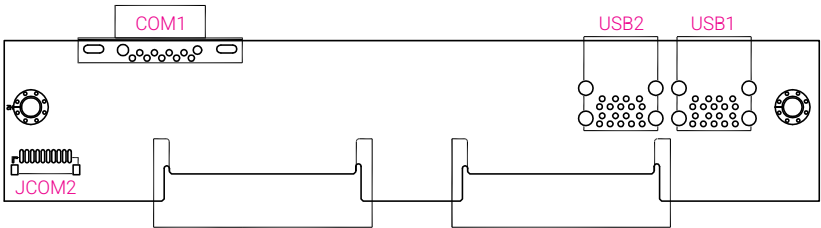
Motherboard Top View



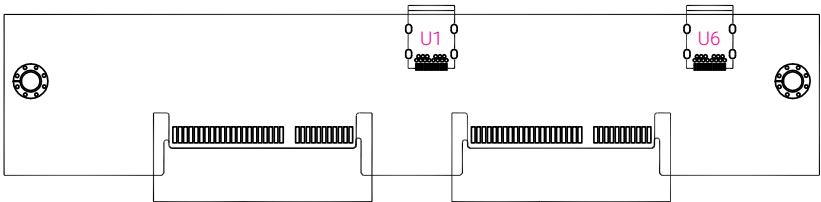
Motherboard Bottom View



Daughterboard (NISE A50 A04-03)



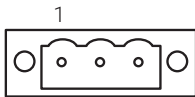
Daughterboard (NISE A50 A04-04)



External I/O Interfaces

Power Input

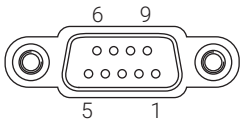
Connector type: 3-pin terminal block
Connector location: J1



Pin	Definition
1	VIN
2	GND
3	GND

COM Ports

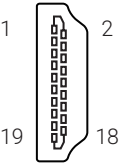
Connector type: DB9
Connector interface: RS-232/422/485
Connector location: COM1, COM1(NISE 50 A04-03 rear panel: COM2)



RS-232		RS-422		RS-485	
Pin	Definition	Pin	Definition	Pin	Definition
1	DCD	1	TX-	1	D-
2	RXD	2	TX+	2	D+
3	TXD	3	RX+	3	NC
4	DTR	4	RX-	4	NC
5	GND	5	GND	5	GND
6	DSR				
7	RTS				
8	CTS				
9	RI				

HDMI®

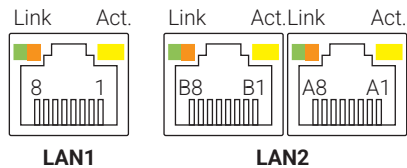
Connector location: CN3



Pin	Definition	Pin	Definition
1	HDMITX2P	11	GND
2	GND	12	HDMICLKN
3	HDMITX2N	13	NC
4	HDMITX1P	14	NC
5	GND	15	HDMICLK
6	HDMITX1N	16	HDMISDA
7	HDMITX0P	17	GND
8	GND	18	HDMI PWR
9	HDMITX0N	19	HDMIHPD
10	HDMICLKP		

LAN Ports

Connector location: LAN1, LAN2



Link Speed	Link LED (Left)	Act. LED (Right)
2.5Gbps	Steady Green	Blinking Yellow
1Gbps	Steady Green	Blinking Yellow
100Mbps	Steady Orange	Blinking Yellow
10Mbps	Off	Blinking Yellow

Pin	Definition	Pin	Definition
1	LAN1_MDIAP	8	LAN1_MDICN
2	LAN1_MDIAN	9	LAN1_MDIDP
3	LAN1_MDIBP	10	LAN1_MDIDN
4	LAN1_MDIBN	L1	LAN1_LNK2500L
5	LAN1_VC1	L2	LAN1_LNK100L
6	LAN1_VC2	L3	LAN1_LEDACT
7	LAN1_MDICP	L4	LAN1_LEDPWR

Pin	Definition	Pin	Definition
A1	LAN1_MDIAP	B1	LAN2_MDIAP
A2	LAN1_MDIAN	B2	LAN2_MDIAN
A3	LAN1_MDIBP	B3	LAN2_MDIBP
A4	LAN1_MDIBN	B4	LAN2_MDIBN
A5	LAN1_MDICP	B5	LAN2_MDICP
A6	LAN1_MDICN	B6	LAN2_MDICN
A7	LAN1_MDIDP	B7	LAN2_MDIDP
A8	LAN1_MDIDN	B8	LAN2_MDIDN
A9	LAN1_TCT	B9	LAN2_TCT
A10	LAN1_TCTG	B10	LAN2_TCTG
A11	LAN1_LNK2500L	B11	LAN2_LNK2500L
A12	LAN1_LNK100L	B12	LAN2_LNK100L
A13	LAN1_LEDACT	B13	LAN2_LEDACT
A14	LAN1_LEDPWR	B14	LAN2_LEDPWR

LED Indicators

Connector location: LED1, LED2, LED3

-   RTC Battery Low
- PG0**  Programming 0
- PG1**  Programming 1

	Pin	Definition	Pin	Definition
LED1	A	VCC3	C	BAT_LOWL
LED2	A	3VSB	C	SPG0
LED3	A	3VSB	C	SPG1

Power Button

Connector location: SW3



Pin	Definition	Pin	Definition
1	GND	2	ATX_PBT
3	ATX_PBT	4	GND
A1	PWRLED_N	C1	PWRLED

USB 3.2 (NISE 50 A04-04)

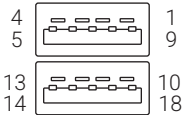
Connector type: USB Type-C
Connector location: U1, U6



Pin	Definition	Pin	Definition
A1	GND	B1	GND
A2	SSTX1P	B2	SSTXP2
A3	SSTX1N	B3	SSTXN2
A4	VBUS	B4	VBUS
A5	CC1	B5	CC2
A6	D1P	B6	D2P
A7	D1N	B7	D2N
A8	SBU1	B8	SBU2
A9	VBUS	B9	VBUS
A10	SSRX2N	B10	SSRX1N
A11	SSRX2P	B11	SSRX1P
A12	GND	B12	GND

USB 3.2

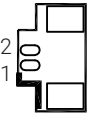
Connector type: USB Type-A
Connector location: USB1, USB1/USB2 (NISE 50 A04-03 rear panel)



Pin	Definition	Pin	Definition
1	VBUS	10	VBUS
2	DN	11	DN
3	DP	12	DP
4	GND	13	GND
5	SSRXN	14	SSRXN
6	SSRXP	15	SSRXP
7	GND	16	GND
8	SSTXN	17	SSTXN
9	SSTXP	18	SSTXP

Internal I/O Interfaces
RTC Battery

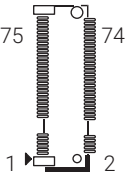
Connector location: BAT1



Pin	Definition
1	GND
2	3V_BAT1_R

M.2 Key B

Connector form factor: 2242/2280
Connector application: Storage module
Connector location: CN1

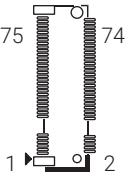


Pin	Definition	Pin	Definition
1	M2BCFG3	39	GND
3	GND	41	SATA_M2_RXP
5	GND	43	SATA_M2_RXN
7	NC	45	GND
9	NC	47	SATA_M2_TXN
11	NC	49	SATA_M2_TXP
13	KEY	51	GND
15	KEY	53	NC
17	KEY	55	NC
19	KEY	57	GND
21	M2BCFG0	59	NC
23	NC	61	NC
25	NC	63	NC
27	GND	65	NC
29	NC	67	M2BPLTRSTL
31	NC	69	M2BCFG1
33	GND	71	GND
35	NC	73	GND
37	NC	75	M2BCFG2

Pin	Definition	Pin	Definition
2	3VSB_M2B	40	NC
4	3VSB_M2B	42	NC
6	NC	44	NC
8	NC	46	NC
10	M2B_LED_L	48	NC
12	KEY	50	M2BPERSTL
14	KEY	52	NC
16	KEY	54	M2BWAKEL
18	KEY	56	NC
20	NC	58	NC
22	NC	60	NC
24	NC	62	NC
26	NC	64	NC
28	NC	66	NC
30	NC	68	M2BSUSCLK
32	NC	70	3VSB_M2B
34	NC	72	3VSB_M2B
36	NC	74	3VSB_M2B
38	DEVSLP		

M.2 Key B

Connector form factor: 2242/3042/3052
Connector application: Communication or storage modules
Connector location: CN2

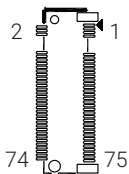


Pin	Definition	Pin	Definition
1	M2BCONFIG3	39	GND
3	GND	41	PCIE_SATARXP2
5	GND	43	PCIE_SATARXN2
7	USB2_P8_DP	45	GND
9	USB2_P8_DN	47	PCIE_SATATXN2
11	GND	49	PCIE_SATATXP2
13	KEY	51	GND
15	KEY	53	CLK_PCIE_M2_N0
17	KEY	55	CLK_PCIE_M2_P0
19	KEY	57	GND
21	M2BCONFIG0	59	NC
23	LTEPEWAKE2	61	NC
25	NC	63	NC
27	GND	65	NC
29	M2_PCIEUSBRN	67	M2PLTRSTL
31	M2_PCIEUSBRP	69	M2BCONFIG1
33	GND	71	GND
35	M2_PCIEUSBTN	73	GND
37	M2_PCIEUSBTP	75	M2BCONFIG2

Pin	Definition	Pin	Definition
2	3VSB_M2	40	NC
4	3VSB_M2	42	NC
6	S_M2POFFL	44	NC
8	S_M2DISL	46	NC
10	M2B_LEDL	48	NC
12	KEY	50	M2BPERSTL
14	KEY	52	CLKREQ0_M2_N
16	KEY	54	M2PEWAKEL
18	KEY	56	NC
20	NC	58	NC
22	NC	60	NC
24	NC	62	NC
26	NC	64	NC
28	NC	66	NC
30	UIM_RESET	68	M2_SUSCLK
32	UIM_CLK	70	3VSB_M2
34	UIM_DATA	72	3VSB_M2
36	UIM_PWR	74	3VSB_M2
38	DEVSLP		

M.2 Key A

Connector form factor: 2230
Connector application: Wi-Fi module
Connector location: CN4

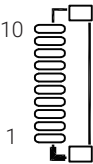


Pin	Definition	Pin	Definition
1	GND	39	GND
3	USB2_P7_DP	41	PCIE_M2_RXP
5	USB2_P7_DN	43	PCIE_M2_RXN
7	GND	45	GND
9	KEY	47	CLK_PCIE_M2_P1
11	KEY	49	CLK_PCIE_M2_N1
13	KEY	51	GND
15	KEY	53	CLKREQ4_M2A_N
17	NC	55	PCIE_WAKE#
19	NC	57	GND
21	NC	59	NC
23	GND	61	NC
25	NC	63	GND
27	NC	65	NC
29	GND	67	NC
31	NC	69	GND
33	GND	71	NC
35	PCIE_M2_TXP	73	NC
37	PCIE_M2_TXN	75	GND

Pin	Definition	Pin	Definition
2	3VSB_M2A	40	NC
4	3VSB_M2A	42	NC
6	NC	44	NC
8	KEY	46	NC
10	KEY	48	NC
12	KEY	50	M2ASUSCLK
14	KEY	52	M2APERSTL
16	NC	54	NC
18	GND	56	WDISABLE1L
20	NC	58	NC
22	NC	60	NC
24	GND	62	NC
26	NC	64	NC
28	NC	66	NC
30	GND	68	NC
32	NC	70	NC
34	NC	72	3VSB_M2A
36	GND	74	3VSB_M2A
38	NC		

COM 2 Header

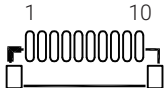
Connector location: JCOM2



Pin	Definition	Pin	Definition
1	DCD	6	DSR
2	RXD	7	RTS
3	TXD	8	CTS
4	DTR	9	RI
5	GND	10	VCC5

COM 2 Header

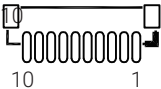
Connector location: JCOM2 (NISE 50 A04-03)



RS-232		RS-422		RS-485	
Pin	Definition	Pin	Definition	Pin	Definition
1	DCD	1	TX-	1	D-
2	RXD	2	TX+	2	D+
3	TXD	3	RX+	3	NC
4	DTR	4	RX-	4	NC
5	GND	5	GND	5	GND
6	DSR				
7	RTS				
8	CTS				
9	RI				
10	VCC				

Debug Port Header

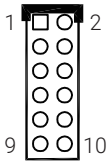
Connector location: JDE1



Pin	Definition	Pin	Definition
1	GND	6	I_ESPI_IO_2
2	I_PLTRSTN_BUFF	7	I_ESPI_IO_1
3	I_ESPI_CLK	8	I_ESPI_IO_0
4	I_ESPI_CS0_N	9	I_ESPI_RESET_N
5	I_ESPI_IO_3	10	3VSB

GPIO

Connector location: JGPIO1



Pin	Definition	Pin	Definition
1	PWRLEDP	2	PWRLEDP
3	HDLEDN	4	HDLEDP
5	3VSB_OOB	6	GND
7	PM_SLP_S3_N	8	PSONL
9	ATX_PBT	10	GND
11	SYSRESETN	12	GND

Audio

Connector location: MIC1, OUT1, SPK1



MIC1

Pin	Definition	Pin	Definition
1	MIC_IN-L	1	LINE_OUT_LC
2	AGND	2	AGND
3	MIC_JD	3	LINE2_JD
4	MIC_IN-R	4	LINE_OUT_RC

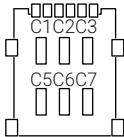
OUT1

SPK1

Pin	Definition
1	ROUTP
2	ROUTN
3	LOUTP
4	LOUTN

nano SIM Card Slot

Connector location: SIM1



Pin	Definition
C1	UIM_PWR
C2	UIM_RESET
C3	UIM_SIM_CLK
C5	GND
C6	UIM_VPP
C7	UIM_DATA

Clear CMOS

Connector location: SW1



Pin 1-4	Pin 2-3	Setting
On	On	Clean CMOS
Off	Off	Normal (Default)

AT/ATX Selection

Connector location: SW2



Pin 1-4	Pin 2-3	Setting
On	On	AT (PWR button available, default)
On	Off	AT (PWR button invalid)
Off	On	ATX

CHAPTER 3: SYSTEM SETUP



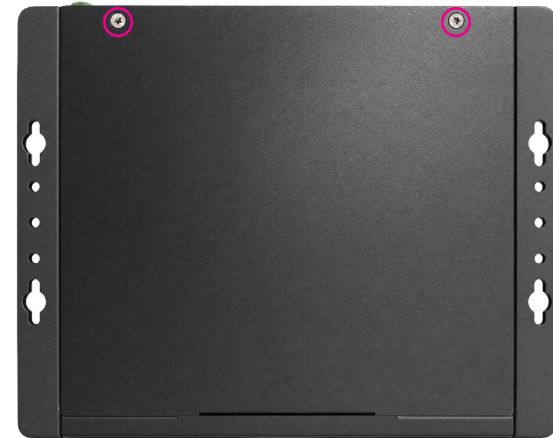
Prior to installation, make sure the unit's power is off and disconnected from all power sources to prevent electric shock or system damage.



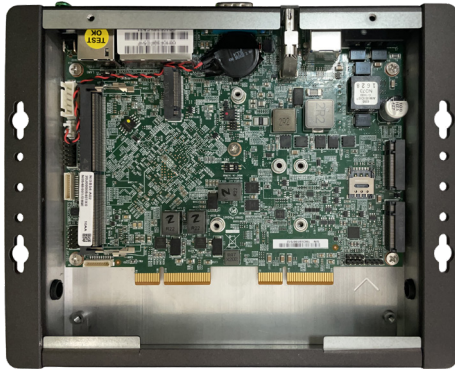
The installation demonstrated in this chapter uses NISE 50 A04-01 as an example. For other models in this series, the installation procedure is the same.

Removing the Chassis Cover

1. Remove the screws indicated below from the bottom cover.



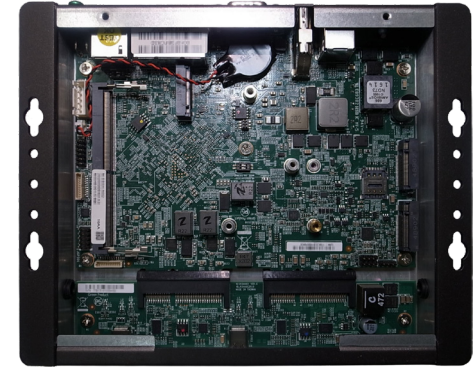
2. Remove the screws indicated below from the bottom cover.



NISE 50 A04-01, NISE 50 A04-02



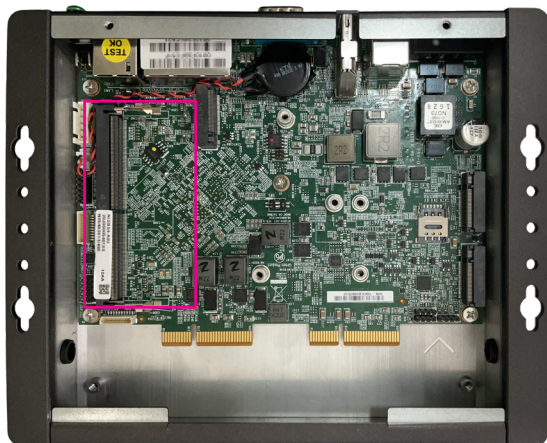
NISE 50 A04-03



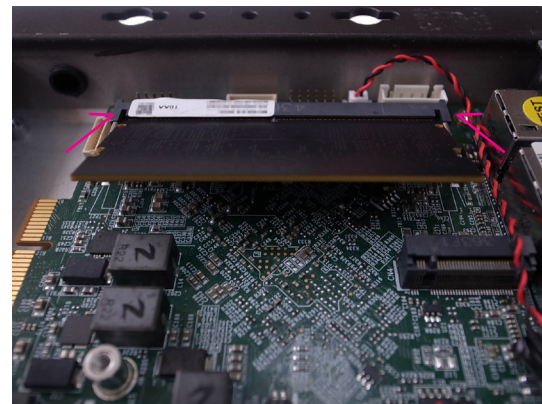
NISE 50 A04-04

Installing a SO-DIMM Memory Module

1. Locate the SO-DIMM socket.



2. Insert the module into the socket at an approximately 30-degree angle. Push the module down until the clips on both sides of the socket lock into position. The ejector tabs at the ends of the socket will automatically snap into the locked position to hold the module in place.

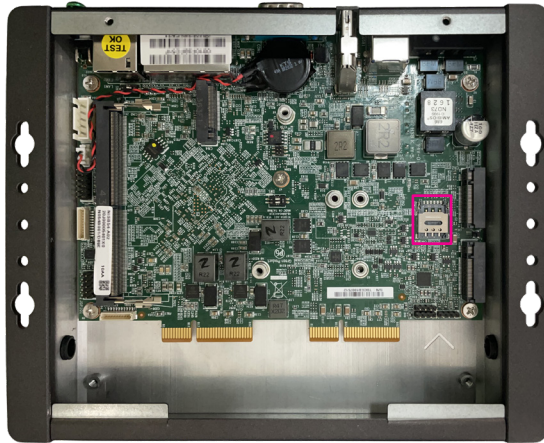


3. Peel off the protective film (if present) from the DRAM thermal pad and attach it to the top of the memory module.

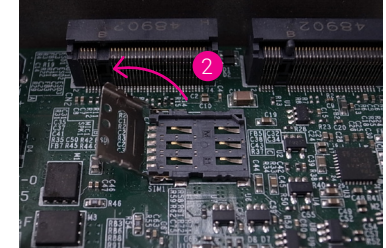
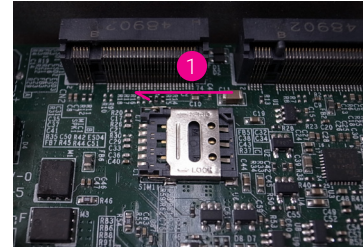


Installing a SIM Card

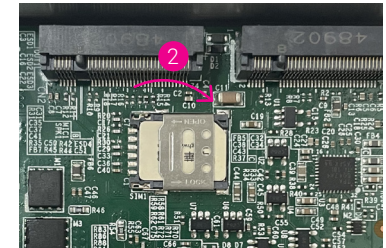
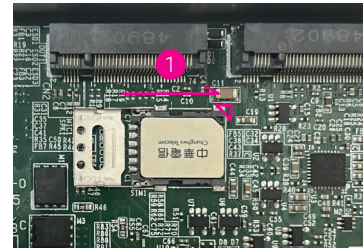
1. Locate the SIM card holder on the motherboard.



2. Follow the steps below to release the SIM card holder cover.

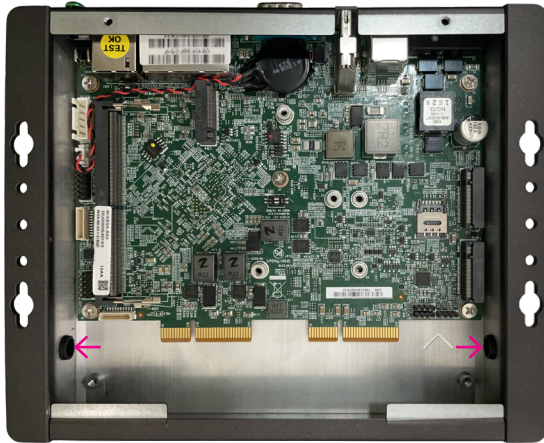


3. Insert the SIM card, making sure that the card's beveled corner aligns correctly with the SIM card holder. Once inserted, follow the previous steps in reverse order to lock the SIM card holder.



Installing the Antenna Cable

1. Locate the antenna holes marked below.



**NISE 50 A04-01,
ISE 50 A04-02**



NISE 50 A04-03



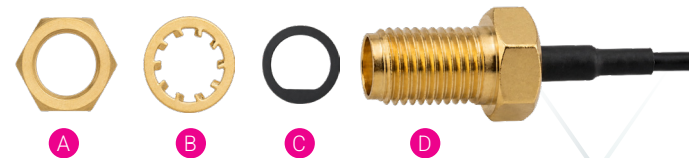
NISE 50 A04-04



2. Remove the antenna hole cover(s) as needed.

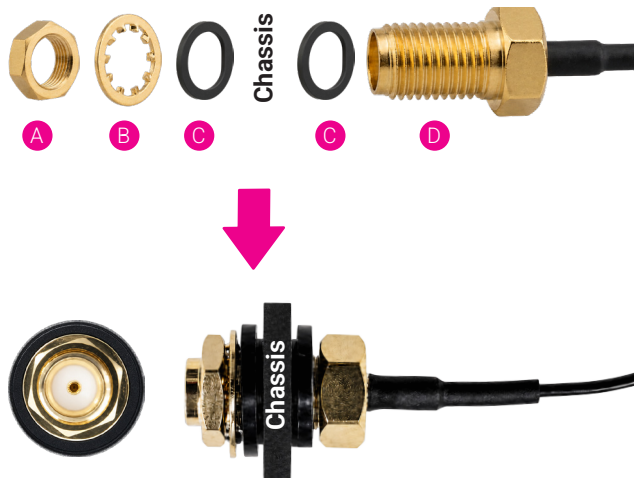


3. Check all the components before starting the next step.



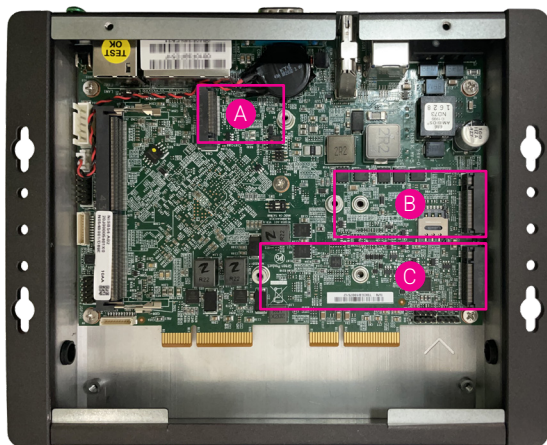
- A** Hex nut
- B** Star washer
- C** Rubber waterproof washer x2
- D** Antenna connector

- Follow the order shown below to install the antenna connector. Note that the rubber waterproof washers and chassis antenna holes feature a foolproof design.



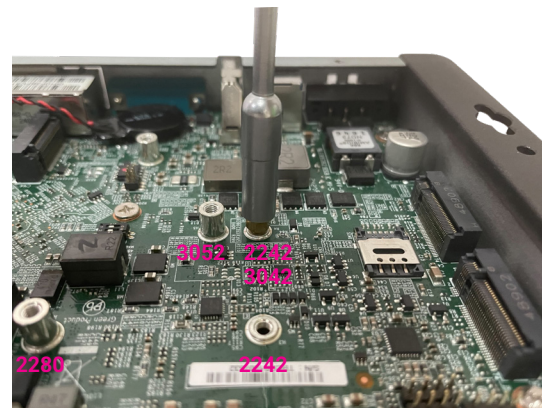
Installing M.2 Modules

1. This system supports multiple M.2 modules and form factors. Refer to the image below to locate these connectors.

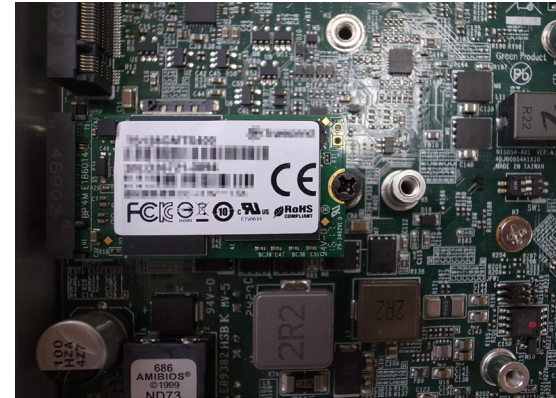


- A** M.2 Key A 2230
- B** M.2 Key B 2242/3042/3052
- C** M.2 Key B 2242/2280

2. Secure the screw based on the length of the M.2 module you installed.
(connector **B** and **C**)

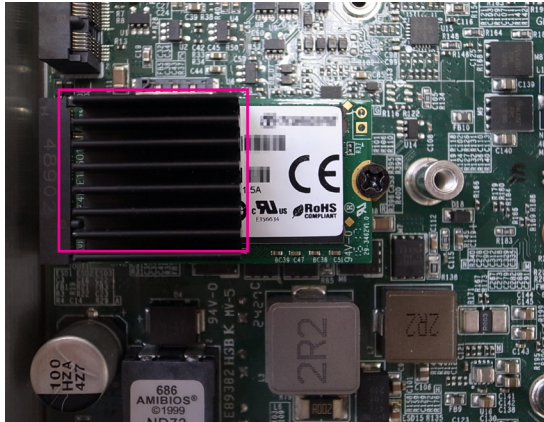


3. Insert the M.2 module into the M.2 slot at an 45-degree until the gold plated connectors on the edge of the module insert completely.
4. Push the module down and secure it with a screw.



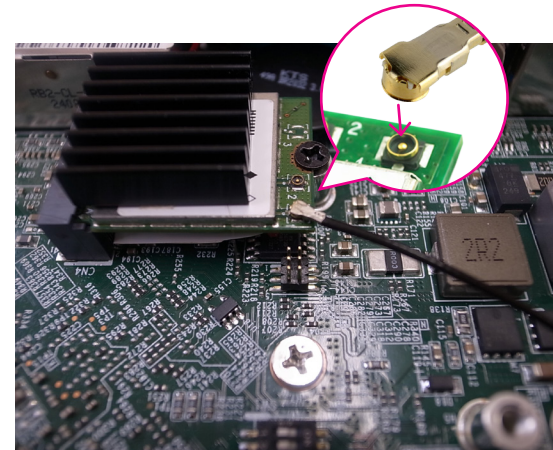
By default, the copper standoff is installed at the M.2 3052 position on the motherboard. For other M.2 module form factors, install the standoff included in the package. Package contents may vary depending on shipping requirements.

- Once the module(s) installation is complete, attach the heatsink to the module(s). For better cooling performance, it is strongly recommended to position the heatsink over the chipset die(s).



The image above shows an example using the module from the previous step. For other modules, attach the heatsink over the chipset die(s) in the same manner.

- If the installed module is a communication module, such as a Wi-Fi or cellular module, connect the antenna cable to the module, then route the other end of the cable to the antenna hole on the chassis. For detailed antenna installation instructions, refer to [Installing the Antenna](#) section.



Installing the Unit

- Align the M4 mounting holes on the chassis with the corresponding mounting holes on the unit. Then, tighten the screws through the mounting holes to secure the unit in place.



CHAPTER 4: BIOS SETUP

This chapter describes how to use the BIOS setup program for NISE 50 A04 Series. 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.

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 .

Legends

Key	Function
 	Moves the highlight left or right to select a menu.
 	Moves the highlight up or down between sub-menus 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

BIOS Setup Utility

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

Main

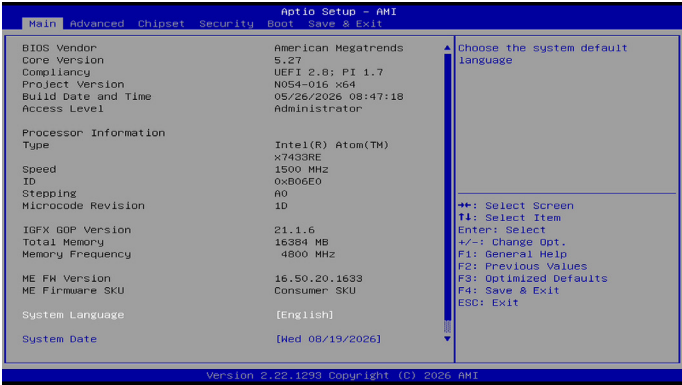
The Main menu is the first screen that you will see when you enter the BIOS Setup Utility.

System Date

The date format is <day>, <month>, <date>, <year>. Day displays a day, from Monday to Sunday. Month displays the month, from January to December. Date displays the date, from 1 to 31. Year displays the year, from 2005 to 2099.

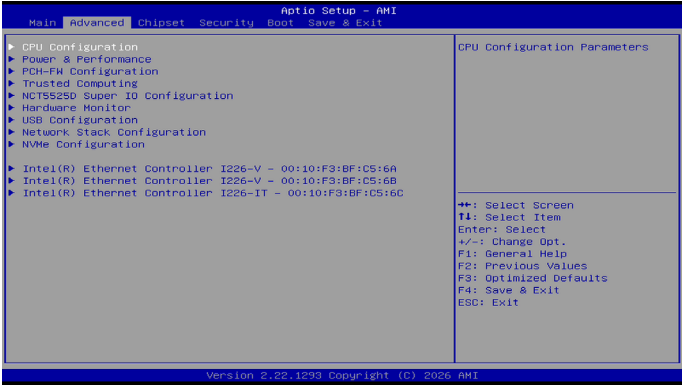
System Time

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.

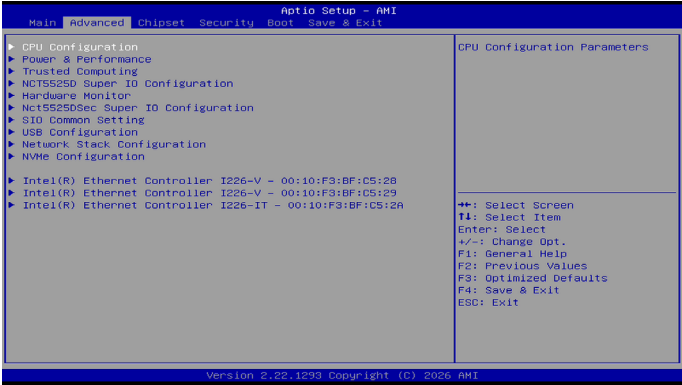


Advanced

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.



NISE 50 A04-01/-02/-04

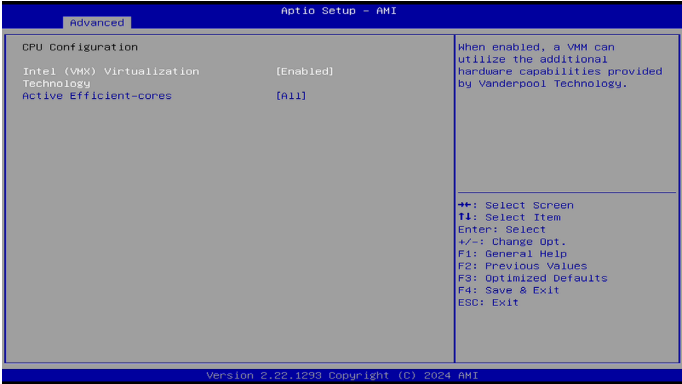


NISE 50 A04-03



Setting incorrect field values may cause the system to malfunction.

CPU Configuration



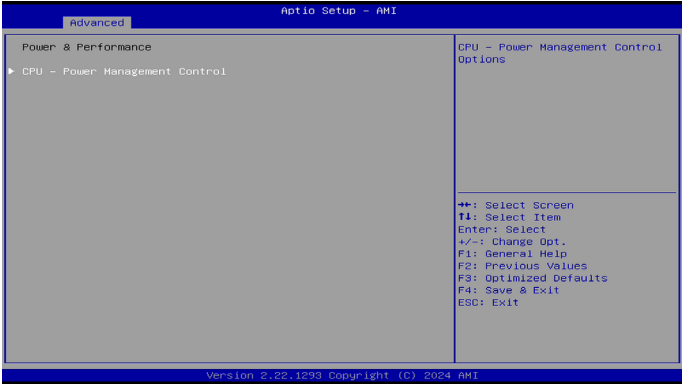
Intel (VMX) Virtualization Technology

When enabled, a VMM can utilize the additional hardware capabilities provided by Vanderpool Technology.

Active Efficient-cores

Number of E-cores (All, 1, or 0) to enable in each processor package. Note: Number of Cores and E-cores are looked at together. When both are {0,0}, Pcode will enable all cores.

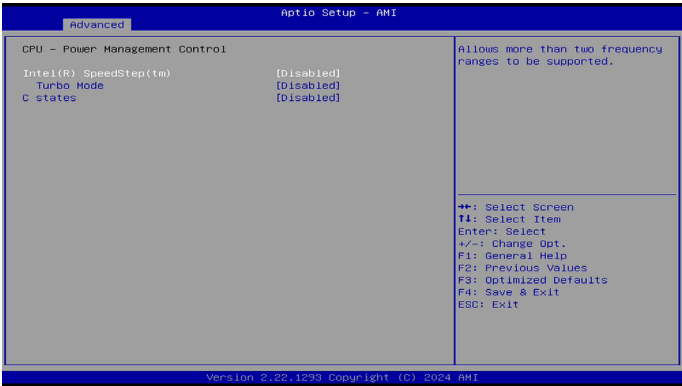
Power & Performance



CPU - Power Management Control

Press <Enter> to open the submenu.

Power & Performance > CPU - Power Management Control



Intel(R) SpeedStep(tm)

Allow more than two frequency ranges to be supported.

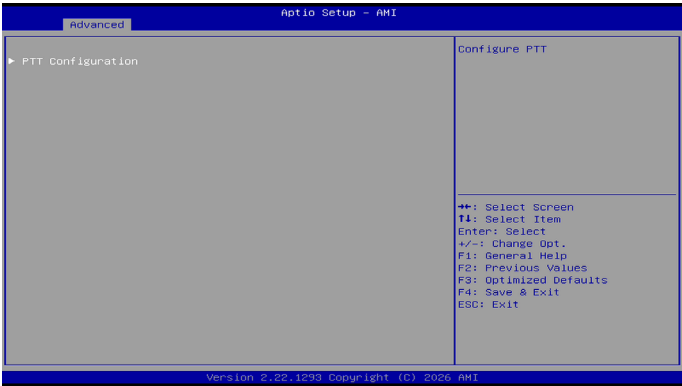
Turbo Mode

Enable or disable processor Turbo Mode (requires EMTTM enabled too).
Auto means enabled.

C states

Enable or disable CPU Power Management. Allow the CPU to go to C states when it's not 100% utilized.

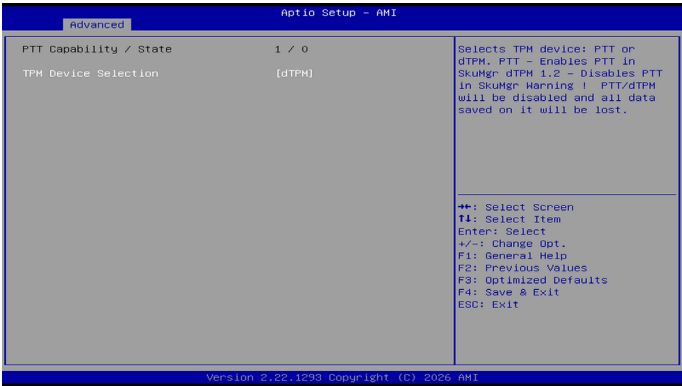
PCH-FW Configuration



PTT Configuration

Press <Enter> to open the submenu.

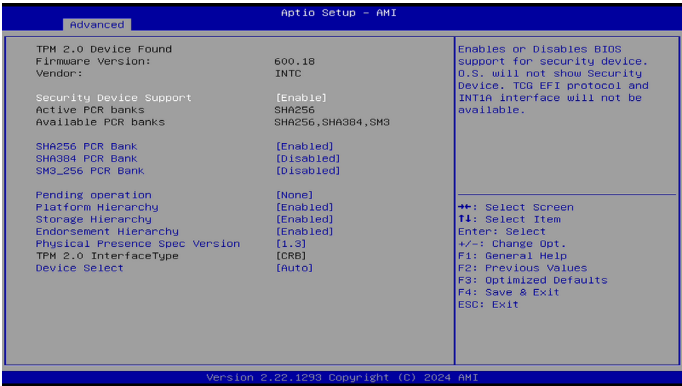
PCH-FW Configuration > PTT Configuration



TPM Device Selection

Select the TPM device to be used, either Intel® PTT (Platform Trust Technology) or a discrete TPM (dTPM).

Trusted Computing



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.

SM3_256 PCR Bank

Enable or disable SM3_256PCR Bank.

Pending operation

Schedule an operation (None or TPM Clear) for the security device. 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.

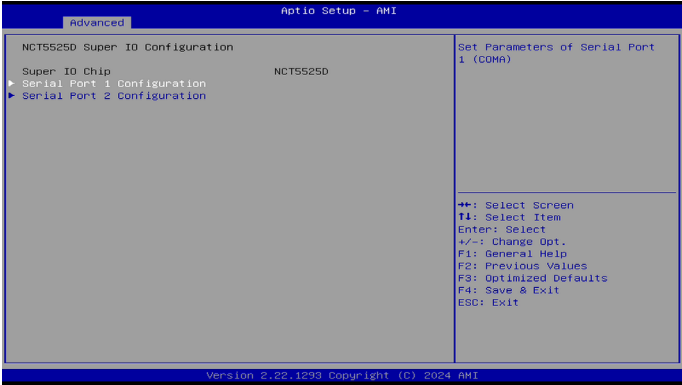
Physical Presence Spec Version

Configure 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

Configure 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.

NCT5525D Super IO Configuration (NISE 50 A04-01/-02/-04)



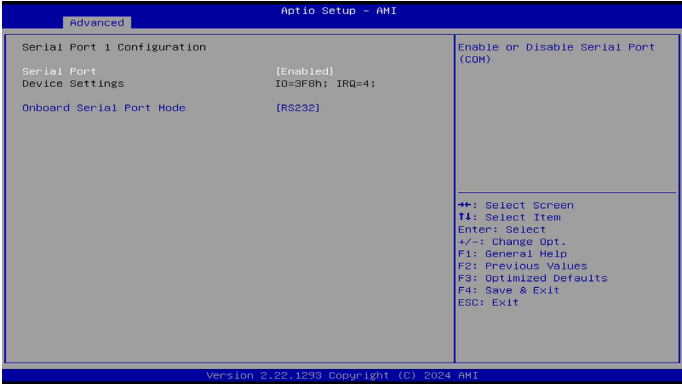
Super IO Chip

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

Serial Port 1 and Serial Port 2 Configuration

Configuration settings for serial port 1 and port 2.

NCT5525D Super IO Configuration > Serial Port 1 Configuration



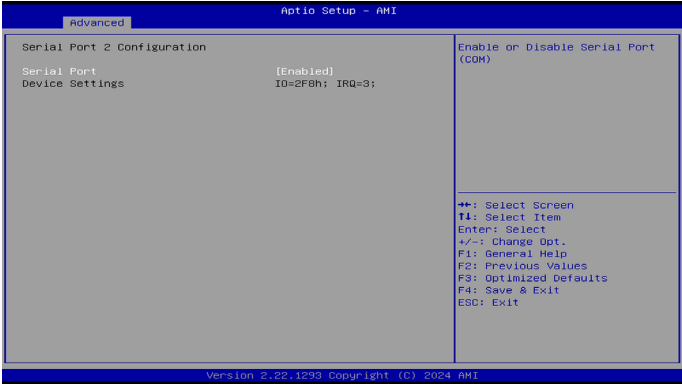
Serial Port

Enable or disable the serial port.

Onboard Serial Port Mode

Select this to change the serial port mode to RS-232, RS-422, or RS-485.

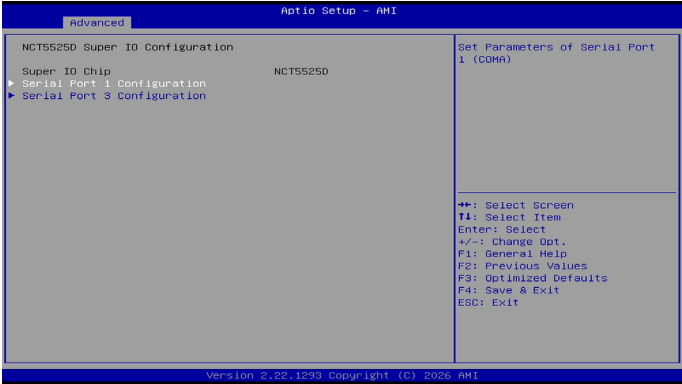
NCT5525D Super IO Configuration > Serial Port 2 Configuration



Serial Port

Enable or disable the serial port.

NCT5525D Super IO Configuration (NISE 50 A04-03)



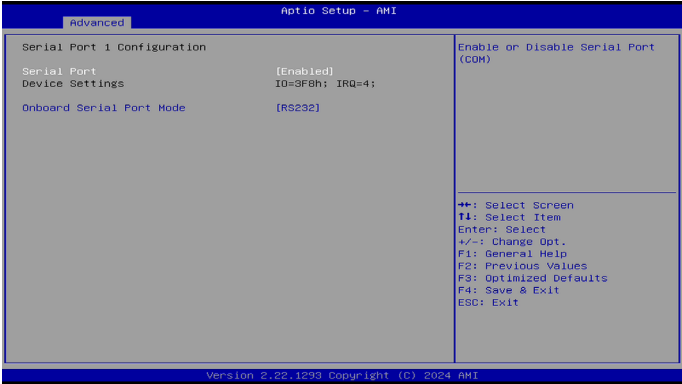
Super IO Chip

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

Serial Port 1 and Serial Port 3 Configuration

Configuration settings for serial port 1 and port 3.

NCT5525D Super IO Configuration > Serial Port 1 Configuration



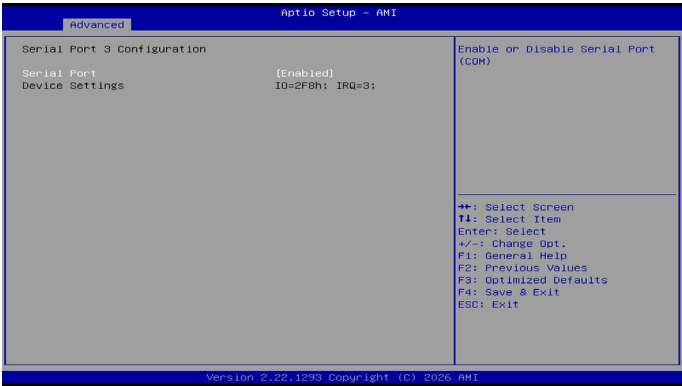
Serial Port

Enable or disable the serial port.

Onboard Serial Port Mode

Select this to change the serial port mode to RS-232, RS-422, or RS-485.

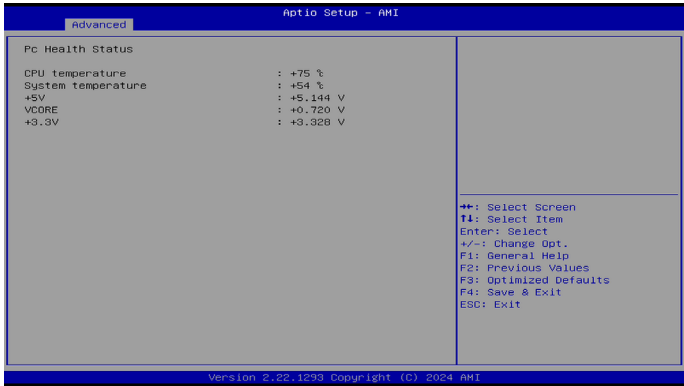
NCT5525D Super IO Configuration > Serial Port 3 Configuration



Serial Port

Enable or disable the serial port.

Hardware Monitor



CPU temperature

Detect and display the current CPU temperature.

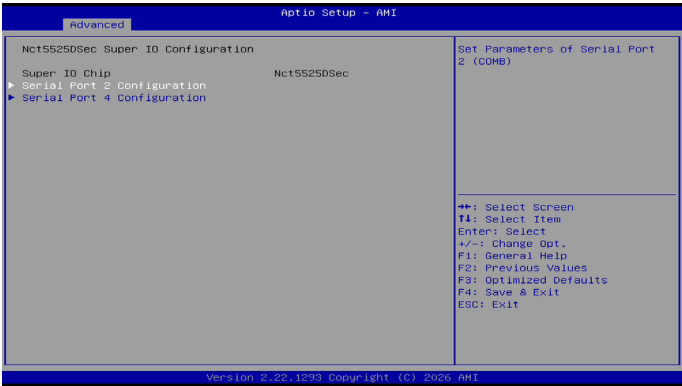
System temperature

Detect and display the current system temperature.

VCC5 to VCORE temperature

Detect and display the output voltages.

NCT5525D Sec Super IO Configuration (NISE 50 A04-03)



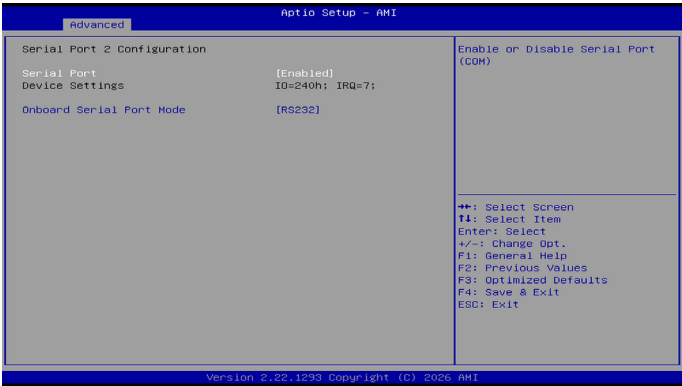
Super IO Chip

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

Serial Port 2 and Serial Port 4 Configuration

Configuration settings for serial port 2 and port 4.

NCT5525D Sec Super IO Configuration > Serial Port 2 Configuration



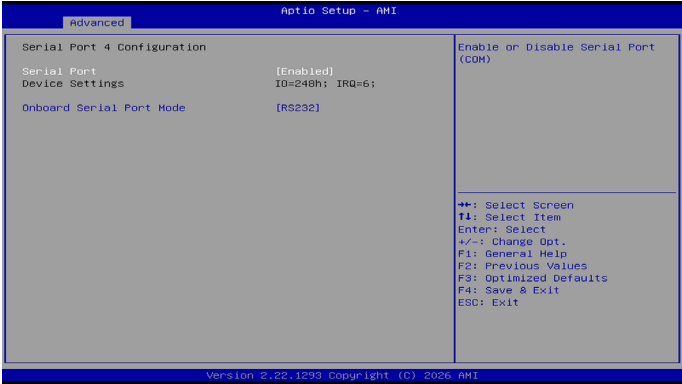
Serial Port

Enable or disable the serial port.

Onboard Serial Port Mode

Select this to change the serial port mode to RS-232, RS-422, or RS-485.

NCT5525D Sec Super IO Configuration > Serial Port 4 Configuration



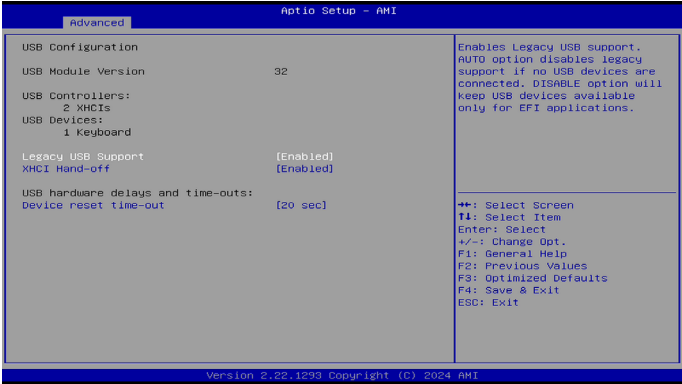
Serial Port

Enable or disable the serial port.

Onboard Serial Port Mode

Select this to change the serial port mode to RS-232, RS-422, or RS-485.

USB Configuration



Legacy USB Support

Enable legacy USB support.

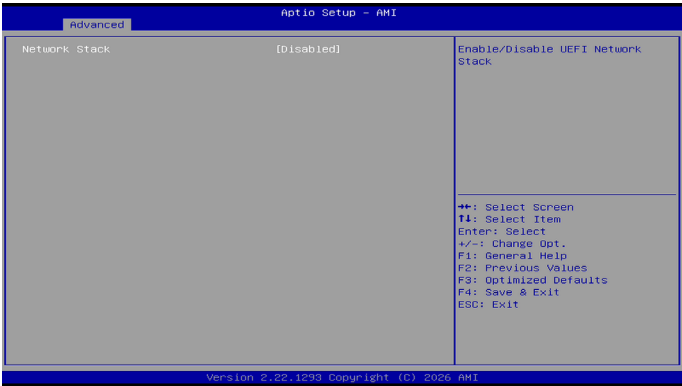
XHCI Hand-off

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

Device reset time-out

Select the USB mass storage device's start unit command timeout (10 / 20 / 30 / 40 secs).

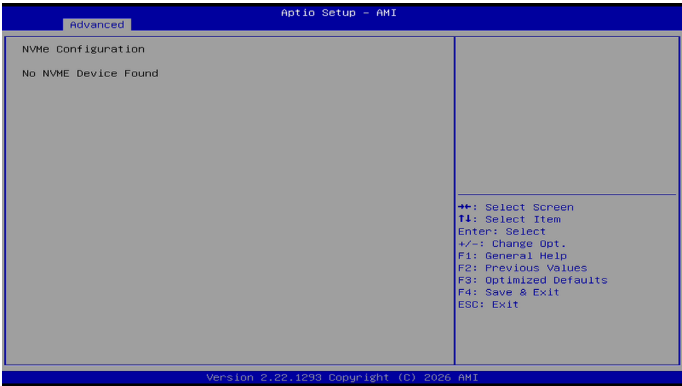
Network Stack Configuration



Network Stack

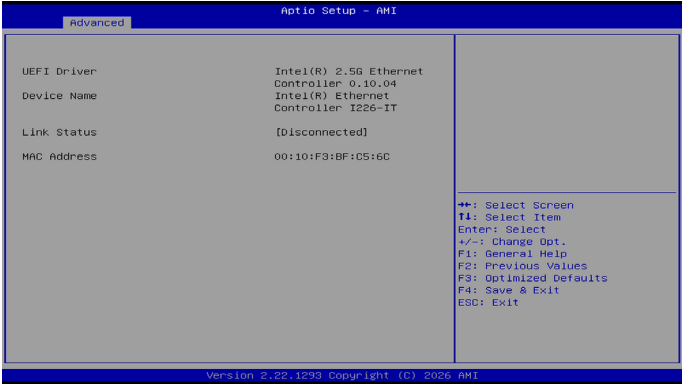
Enable or disable UEFI network stack.

NVMe Configuration



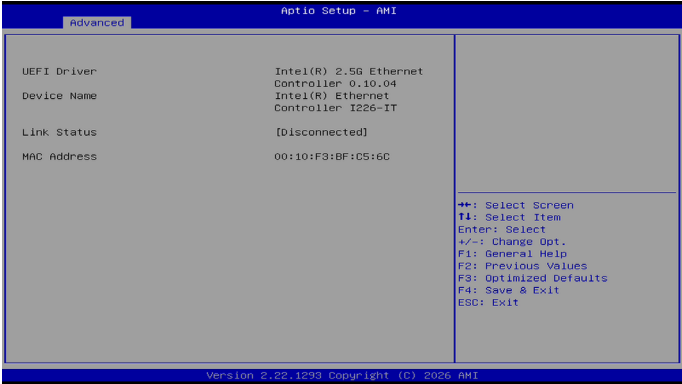
View detailed information about the installed NVMe device, if installed.

Intel(R) Ethernet Controller I226-IT



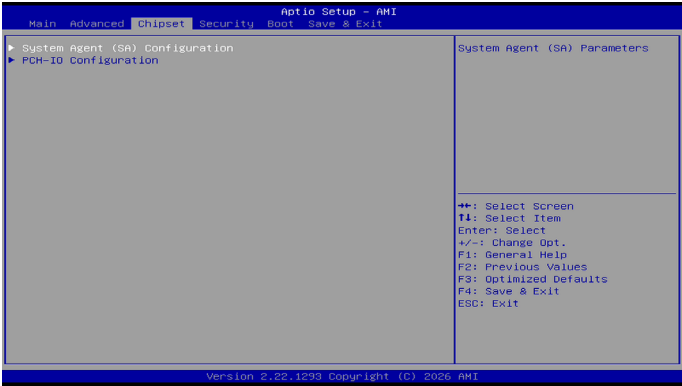
View detailed information about the bundled Ethernet controller.

Intel(R) Ethernet Controller I226-V



View detailed information about the bundled Ethernet controller.

Chipset



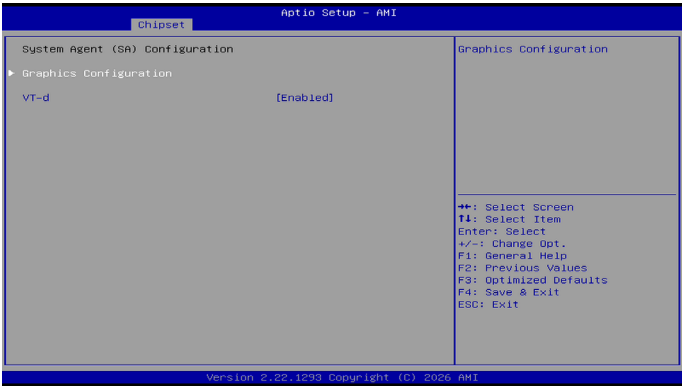
System Agent (SA) Configuration

Press <Enter> to open the submenu.

PCH-IO Configuration

Press <Enter> to open the submenu.

System Agent (SA) Configuration



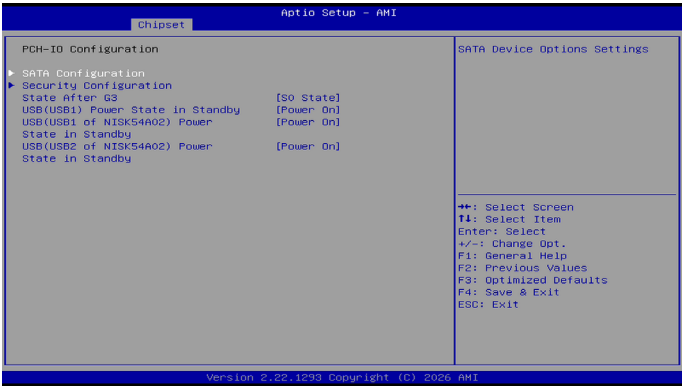
Graphics Configuration

Press <Enter> to open the submenu.

VT-d

Enable or disable the VT-d capability.

PCH-IO Configuration



SATA Configuration

Press <Enter> to open the submenu.

Security Configuration

Press <Enter> to open the submenu.

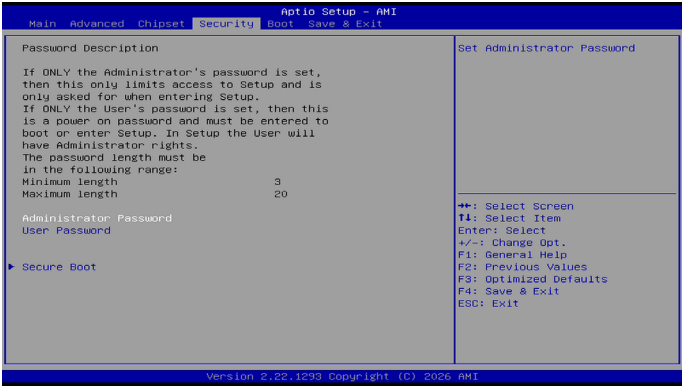
State After G3

Configure the power state (S0 or S5) when power is re-applied after a power failure (G3 state).

USB Power State in Standby

Configure the USB power state in Standby for USB (USB1, USB1 of NISK54A02 , USB2 of NISK54A02).

Security



Administrator Password

Select this to reconfigure the administrator's password.

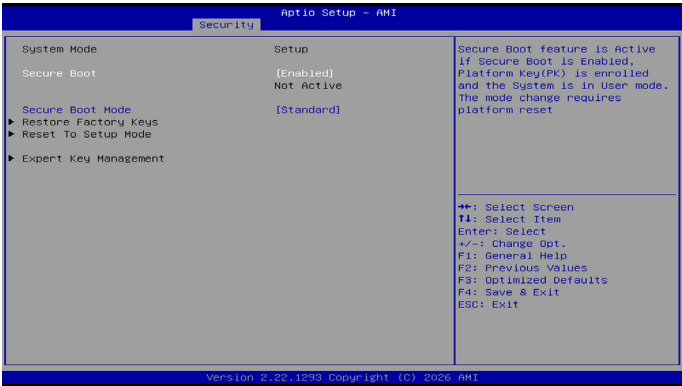
User Password

Select this to reconfigure the user's password.

Secure Boot

Press <Enter> to open the submenu.

Secure Boot



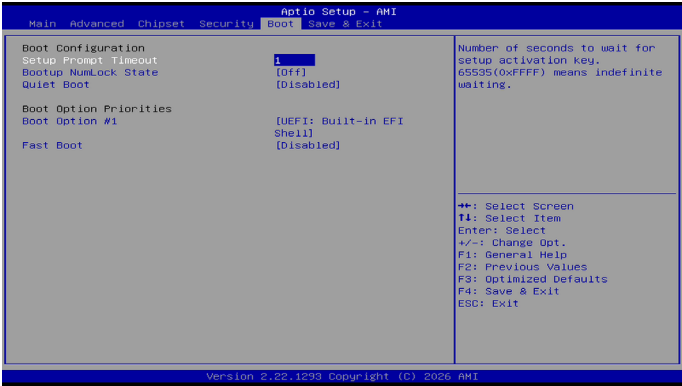
Secure Boot

Secure Boot feature is ctive when this feature is set to Enabled. Platform Key (PK) is enrolled, and the system is in user mode. To change the mode, resetting the platform is required.

Secure Boot Mode

Here are two options available - standard and custom modes. In the custom mode, the secure boot policy variables can be configured by a physically present user without full authentication.

Boot



Setup Prompt Timeout

Allow you to configure the number of seconds to wait for setup activation key. 65535 (0xFFFF) means 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

Enabled: Display OEM logo instead of the POST messages.
Disabled: Display normal POST messages.

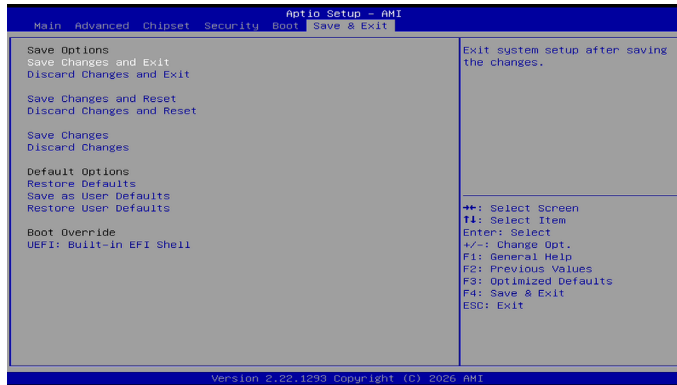
Boot Option Priorities

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.

Fast Boot

Enable or disable the fast boot feature.

Save & Exit



Save Changes and Exit

Exit the system setup without saving any changes.

Discard Changes and Exit

Exit the system setup with all the changes that have been done so far discarded.

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.

Save & Changes

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

Discard Changes

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

Restore Defaults

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

Save as User Defaults

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

Restore User Defaults

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