NEXCOM International Co., Ltd.

IoT Automation Solutions Business Group
Fan-less Computer
NISE 4200
User Manual

www.nexcom.com

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PREFACE

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Acknowledgements

NISE 4200 is a trademark of NEXCOM International Co., Ltd. All other product names mentioned herein are registered trademarks of their respective owners.

Regulatory Compliance Statements

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

Declaration of Conformity

FCC

This equipment has been tested and verified to comply with the limits for a Class A digital device, pursuant to Part 15 of FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. Operation of this equipment in a residential area (domestic environment) is likely to cause harmful interference, in which case the user will be required to correct the interference (take adequate measures) at their own expense.

CE

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

RoHS Compliance

NEXCOM RoHS Environmental Policy and Status Update

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

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

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

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

How to recognize NEXCOM RoHS Products?

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

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

Warranty and RMA

NEXCOM Warranty Period

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

NEXCOM Return Merchandise Authorization (RMA)

- Customers shall enclose the "NEXCOM RMA Service Form" with the returned packages.

- Customers must collect all the information about the problems encountered and note anything abnormal or, print out any on-screen messages, and describe the problems on the "NEXCOM RMA Service Form" for the RMA number apply process.

- Customers can send back the faulty products with or without accessories (manuals, cable, etc.) and any components from the card, such as CPU and RAM. If the components were suspected as part of the problems, please note clearly which components are included. Otherwise, NEXCOM is not responsible for the devices/parts.

- Customers are responsible for the safe packaging of defective products, making sure it is durable enough to be resistant against further damage and deterioration during transportation. In case of damages occurred during transportation, the repair is treated as "Out of Warranty."

- Any products returned by NEXCOM to other locations besides the customers' site will bear an extra charge and will be billed to the customer.

Repair Service Charges for Out-of-Warranty Products

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

System Level

- Component fee: NEXCOM will only charge for main components such as SMD chip, BGA chip, etc. Passive components will be repaired for free, ex: resistor, capacitor.

- Items will be replaced with NEXCOM products if the original one cannot be repaired. Ex: motherboard, power supply, etc.

- Replace with 3rd party products if needed.

- If RMA goods can not be repaired, NEXCOM will return it to the customer without any charge.

Board Level

- Component fee: NEXCOM will only charge for main components, such as SMD chip, BGA chip, etc. Passive components will be repaired for free, ex: resistors, capacitors.

- If RMA goods can not be repaired, NEXCOM will return it to the customer without any charge.

Warnings

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

Cautions

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

Safety Information

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

- Read all instructions carefully.

- Do not place the unit on an unstable surface, cart, or stand.

- Follow all warnings and cautions in this manual.

- When replacing parts, ensure that your service technician uses parts specified by the manufacturer.

- Avoid using the system near water, in direct sunlight, or near a heating device.

- The load of the system unit does not solely rely for support from the rackmounts located on the sides. Firm support from the bottom is highly necessary in order to provide balance stability.

- The computer is provided with a battery-powered real-time clock circuit. There is a danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Discard used batteries according to the manufacturer's instructions.

CAUTION! 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.

Installation Recommendations

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

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

- A Philips screwdriver

- A flat-tipped screwdriver

- A grounding strap

- An anti-static pad

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

Safety Precautions

1. Read these safety instructions carefully.

2. Keep this User Manual for later reference.

3. Disconnect this equipment from any AC outlet before cleaning. Use a damp cloth. Do not use liquid or spray detergents for cleaning.

4. For plug-in equipment, the power outlet socket must be located near the equipment and must be easily accessible.

5. Keep this equipment away from humidity.

6. Put this equipment on a stable surface during installation. Dropping it or letting it fall may cause damage.

7. The openings on the enclosure are for air convection to protect the equipment from overheating. DO NOT COVER THE OPENINGS.

8. Make sure the voltage of the power source is correct before connecting the equipment to the power outlet.

9. Place the power cord in a way so that people will not step on it. Do not place anything on top of the power cord. Use a power cord that has been approved for use with the product and that it matches the voltage and current marked on the product's electrical range label. The voltage and current rating of the cord must be greater than the voltage and current rating marked on the product.

10. All cautions and warnings on the equipment should be noted.

11. If the equipment is not used for a long time, disconnect it from the power source to avoid damage by transient overvoltage.

12. Never pour any liquid into an opening. This may cause fire or electrical shock.

13. Never open the equipment. For safety reasons, the equipment should be opened only by qualified skilled person.

14. If one of the following situations arises, get the equipment checked by service personnel:
    a. The power cord or plug is damaged.
    b. Liquid has penetrated into the equipment.
    c. The equipment has been exposed to moisture.
    d. The equipment does not work well, or you cannot get it to work according to the user's manual.
    e. The equipment has been dropped and damaged.
    f. The equipment has obvious signs of breakage.

15. Do not place heavy objects on the equipment.

16. The unit uses a three-wire ground cable which is equipped with a third pin to ground the unit and prevent electric shock. Do not defeat the purpose of this pin. If your outlet does not support this kind of plug, contact your electrician to replace your obsolete outlet.

17. This equipment is not suitable for use in locations where children are likely to be present.

18. CAUTION: DANGER OF EXPLOSION IF BATTERY IS INCORRECTLY REPLACED. REPLACE ONLY WITH THE SAME OR EQUIVALENT TYPE RECOMMENDED BY THE MANUFACTURER. DISCARD USED BATTERIES ACCORDING TO THE MANUFACTURER'S INSTRUCTIONS.

Technical Support and Assistance

1. For the most updated information of NEXCOM products, visit NEXCOM's website at www.nexcom.com.

2. For technical issues that require contacting our technical support team or sales representative, please have the following information ready before calling:
   – Product name and serial number
   – Detailed information of the peripheral devices
   – Detailed information of the installed software (operating system, version, application software, etc.)
   – A complete description of the problem
   – The exact wordings of the error messages

Warning!
1. Handling the unit: carry the unit with both hands and handle it with care.

2. Maintenance: to keep the unit clean, use only approved cleaning products or clean with a dry cloth.

Conventions Used in this Manual

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

Caution:
Information to avoid damaging components or losing data.

Note:
Provides additional information to complete a task easily.

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Package Contents

Before continuing, verify that the NISE 4200 package that you received is complete. Your package should have all the items listed in the following table.

Item	Part Number	Description	Qty
1	60177A0711X00	NISE 4200 Series Quick Reference Guide VER:A	1
2	602DCD1609X00	NISE 4200 DVD Driver VER:1.0	1
3	50311F0326X00	Screws for HDD (Flat Head Screw Long Fei:F3x5)	4
4	50311F0329X00	Screws for Mini-PCIe Card (Round Head Screw Long Fei:P2.5x3)	4
5	50311F0330X00	Screws for Half Mini-PCIe Card (Round Head Screw Long Fei:P2x3)	4
6	50311F0593X00	Screws for Mini-PCIe Bracket (F Head Screw Long Fei F2.5x4)	4
7	50344C0034X00	Copper Standoff for M.2 (Copper Post Long Fei:6.5x5xM3)	1
8	5044440090X00	Thermal Pad for CPU	1
9	5060900226X00	Mini-PCIe Bracket	2
10	4NCPF00316X00	Terminal Blocks 3P Phoenix Contact	1

Ordering Information

The following information below provides ordering information for NISE 4200.

NISE 4200Q-6442EQ System (P/N: 10J00420002X0)
6th generation Intel® Core™ i5 fanless system with iAMT supported

NISE 4200Q-6102E System (P/N: 10J00420004X0)
6th generation Intel® Core™ i3 fanless system w/o iAMT supported

• **24V, 120W AC to DC power adapter w/o power cord (P/N: TBD)**

CHAPTER 1: PRODUCT INTRODUCTION

Overview

Front View

Rear View

Key Features

- Support 6th generation Intel® Core™ i5/i3 BGA type embedded processor

- Intel® QM170 PCH

- Support 1 x 2.5" SATA HDD or SSD

- 1 x DVI-D, 2 x DP with independent display support

- 2 x Intel® GbE LAN ports; support WoL, iAMT (For NISE 4200Q-6442EQ SKU)

- 1 x M.2 socket and 1 x SIM card socket

- 4 x USB 3.0, 2 x USB 2.0, 2 x RS232/422/485 with auto flow control, 4 x RS232

- 2 x Internal mini-PCIe sockets support optional Wi-Fi/3.5G/LTE/mSATA

- Support 24V +/- 20% DC input; ATX power mode

Hardware Specifications

CPU Support

- Support 6th generation Intel® Core™ i5/i3 BGA type embedded processor
  - Intel® Core™ i5-6442EQ, Quad Core, 1.9GHz, 6M Cache
  - Intel® Core™ i3-6102E, Dual Core, 1.9GHz, 4M Cache
- Turbo-boost disabled by default

Main Memory

- 2 x DDR4 2400 SO-DIMM sockets, support up to 32GB with un-buffered and non-ECC

Display Option

- Three independent display
  - DP + DP + DVI-D
- Dual independent display
  - DP + DVI-D

Front I/O Interface Status LEDs

- 2 x LAN active LEDs
- 2 x GPO status/COM1/2 TX/RX LEDs
- 1 x HDD access LEDs

Front I/O Interface

- 1 x ATX power on/off switch
- 2 x DP 1.2
- 1 x Line-out
- 1 x DB9 for COM1
  COM1: RS232/422/485 (BIOS selectable)
- 4 x USB 3.0 ports (900mA per each)
- 2 x USB 2.0 ports (500mA per each)

- 24V +/- 20% DC input
- LAN1: Intel® I210-IT GbE LAN ports; support WoL and PXE
- LAN2: 1 x Intel® I219-LM GbE LAN, support Intel® AMT 11 (NISE 4200Q-6442EQ)

Rear I/O Interface

- 5 x DB9 for COM2 & COM3~6
  - COM2: RS232/422/485 auto flow control
  - COM3: RS232
  - COM4: RS232
  - COM5: RS232
  - COM6: RS232
- 1 x DVI-D port

Internal I/O

- 1 x USB 2.0 type A connector
- 1 x USB 2.0 box header
- 16CH GPIO: internal pin header, support 8x GPO and 8x GPI, TTL 5V level
- Onboard TPM2.0 (SLB9665) for data encryption purposes

Storage Device

- 1 x mSATA (SATA 3.0)
- 1 x 2.5" HDD (SATA 3.0)

Expansion Slot

- 2 x Internal mini-PCIe sockets support optional Wi-Fi/3.5G/mSATA
- 1 x 2280 or 2240 B+M Key M.2 slot

Power Requirements

▪ AT/ATX power mode (default: ATX power mode)
▪ Power input: 24V +/- 20% DC input
▪ Power adapter: optional AC to DC power adapter (24V DC, 120W)

Dimensions

▪ 269 mm (W) x 157mm (D) x 56mm (H) without wall mount bracket

Construction

▪ Aluminum chassis with fanless design

Environment

▪ Operating temperature:
  Ambient with air flow: -20°C to 70°C
  (according to IEC60068-2-1, IEC60068-2-2, IEC60068-2-14)
▪ Storage temperature: -20°C to 80°C
▪ Relative humidity: 10% to 93% (non-condensing)
▪ Shock protection:
  – HDD: 20G, half sine, 11ms, IEC60068-2-27
  – M.2: 50G, half sine, 11ms, IEC60068-2-27
▪ Vibration protection with HDD condition:
  – Random: 0.5Grms @ 5~500 Hz, IEC60068-2-64
  – Sinusoidal: 0.5Grms @ 5~500 Hz, IEC60068-2-6
▪ 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-EN55032/EN55024
▪ FCC Class A

OS Support List

▪ Windows 7 32-bit and 64-bit
▪ Windows 10 64-bit

Weight Information

▪ Gross weight: 2.8kg
▪ Net weight: 2.1kg

Knowing Your NISE 4200

Front Panel

DC Input

Line-out

COM1

DisplayPort1 & DisplayPort2

USB 3.0

USB 2.0

LAN1 & LAN2

LED Indicators

Power Switch
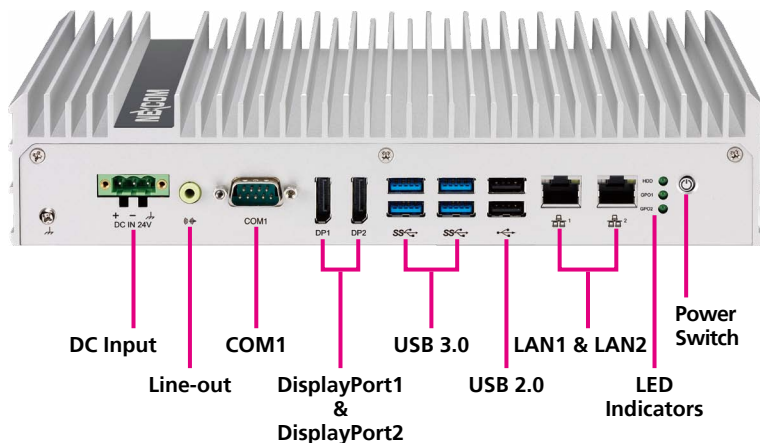
DC Input
Used to plug a DC power cord.

Line-out
Used to connect a headphone or a speaker.

COM1
DB9 port used to connect RS232/422/485 compatible devices.

DisplayPort1 and DisplayPort2
Used to connect DisplayPort interface displays.

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

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

LAN1 and LAN2
Used to connect the system to a local area network.

LED Indicators
Indicates the storage activity and GPO activity of the system.

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

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Rear Panel
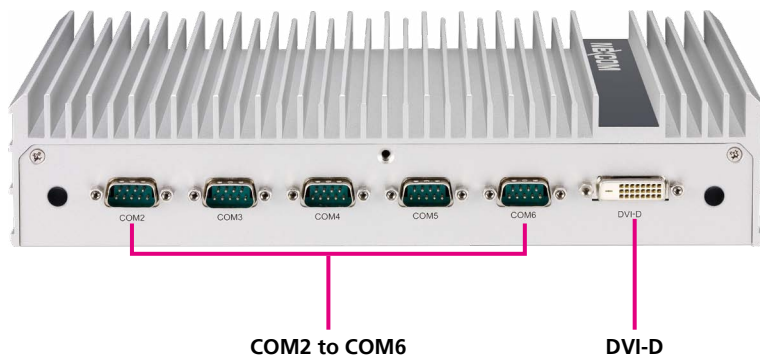
COM2 to COM6   **DVI-D**

COM2 to COM6

Five DB9 ports used to connect serial devices.
- COM2: RS232/422/485 auto flow control
- COM3: RS232
- COM4: RS232
- COM5: RS232
- COM6: RS232

DVI-D

Used to connect a DVI-D interface monitor.

Mechanical Dimensions
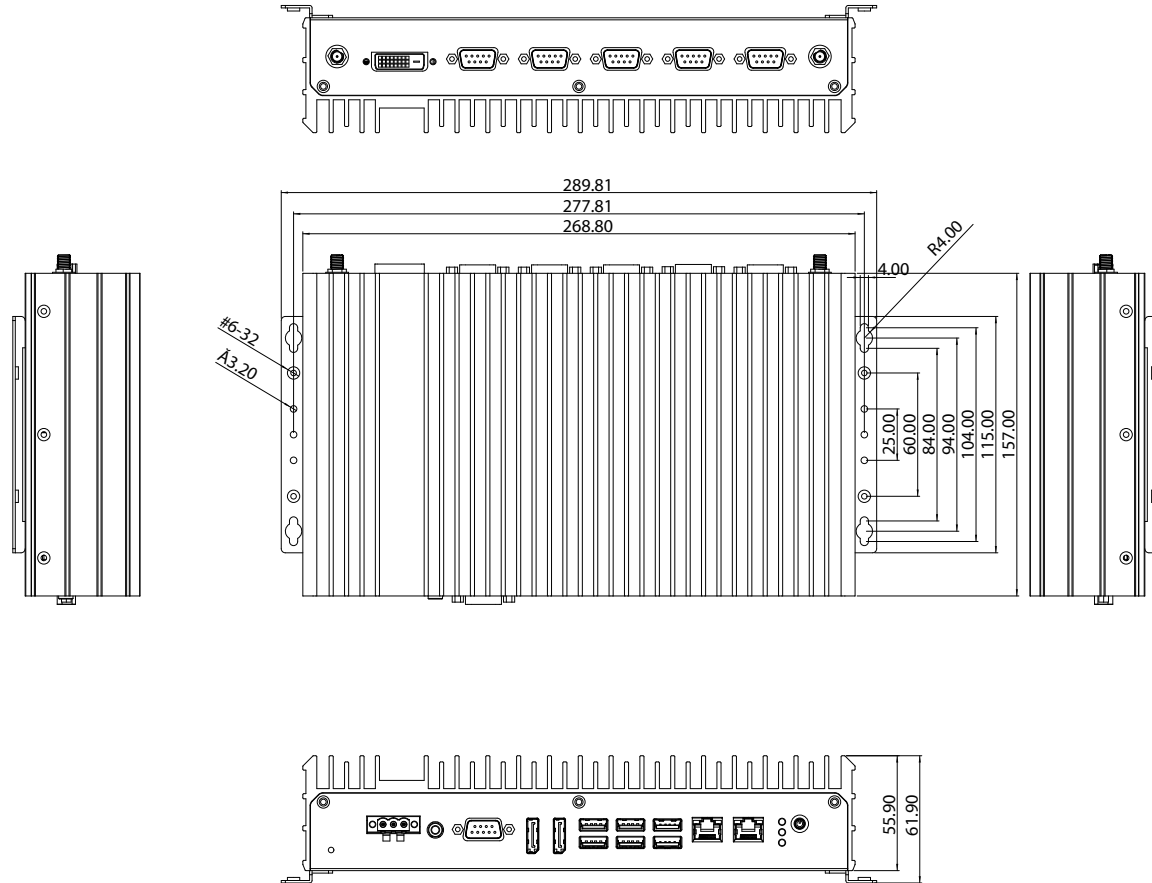
CHAPTER 2: JUMPERS AND CONNECTORS

This chapter describes how to set the jumpers and connectors on the NISE 4200 motherboard.

Before You Begin

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

▪ Adequate lighting and proper tools can prevent you from accidentally damaging the internal components. Most of the procedures that follow require only a few simple tools, including the following:
  – A Philips screwdriver
  – A flat-tipped screwdriver
  – A set of jewelers screwdrivers
  – A grounding strap
  – An anti-static pad

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

▪ Before working on internal components, make sure that the power is off. Ground yourself before touching any internal components, by touching a metal object. Static electricity can damage many of the electronic components. Humid environments tend to have less static electricity than dry environments. A grounding strap is warranted whenever danger of static electricity exists.

Precautions

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

Follow the guidelines below to avoid damage to your computer or yourself:
▪ Always disconnect the unit from the power outlet whenever you are working inside the case.

▪ If possible, wear a grounded wrist strap when you are working inside the computer case. Alternatively, discharge any static electricity by touching the bare metal chassis of the unit case, or the bare metal body of any other grounded appliance.

▪ Hold electronic circuit boards by the edges only. Do not touch the components on the board unless it is necessary to do so. Don't flex or stress the circuit board.

▪ Leave all components inside the static-proof packaging that they shipped with until they are ready for installation.

▪ Use correct screws and do not over tighten screws.

Jumper Settings

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

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

Two-Pin Jumpers: Open (Left) and Short (Right)
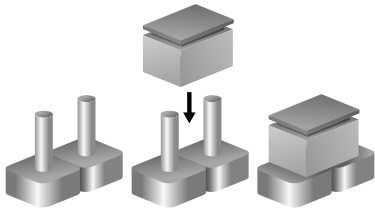
Three-Pin Jumpers: Pins 1 and 2 are Short
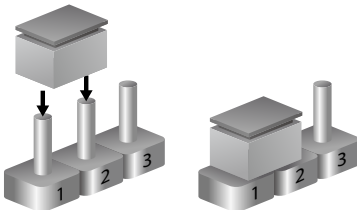
Locations of the Jumpers and Connectors for NISB 4200

NISB 4200

The following figures are the top and bottom view of the NISB 4200 main board which is the main board used in NISE 4200. It shows the locations of the jumpers and connectors.
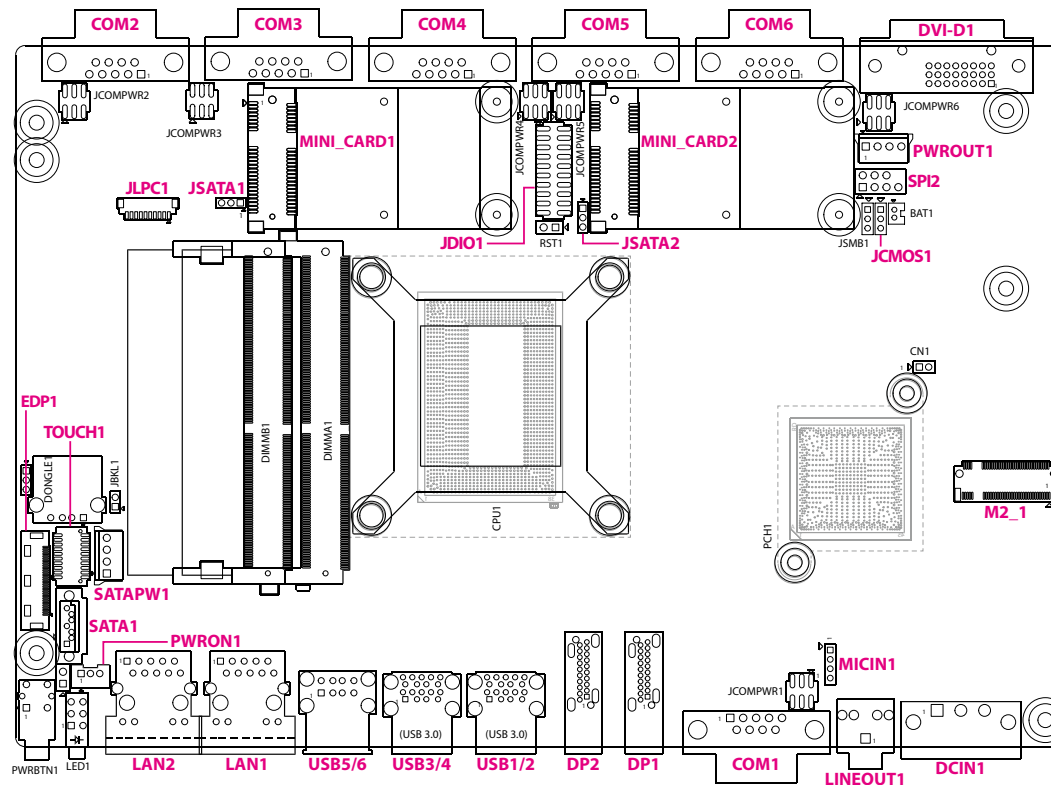
Jumpers

Clear CMOS

Connector type: 1x3 3-pin header
Connector location: JCMOS1

1 ☐ ○ ○ 3
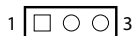
Pin	Function
1-2*	Normal
2-3	Clear CMOS

1-2 On: default

Pin	Definition
1	NC
2	RTCRST
3	GND

Mini Card PCIe/SATA Select

Connector type: 1x3 3-pin header
Connector location: JSATA1 and JSATA2

1 ☐ ○ ○ 3
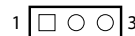
Pin	Function
1-2*	Auto
2-3	mSATA

1-2 On: default

Pin	Definition
1	MSATA
2	PCIE_SATA
3	GND

Connector Pin Definitions

External I/O Interfaces - Front Panel

DC Power Input

Connector type: 3-pin terminal block
Connector location: DCIN1

Line-out Connector

Connector type: 1x 3.5mm TRS
Connector location: LINEOUT1
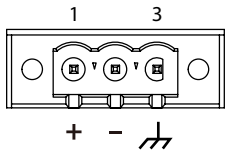
Pin	Definition
1	DCIN+
2	DCIN-
3	H4_GND
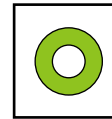
Pin	Definition	Pin	Definition
1	AGND	2	LINEOL
3	detect	4	AGND
5	LINEOR		

DisplayPort

Connector type: DisplayPort
Connector location: DP1 and DP2

USB 3.0 Ports (USB1/2 and USB3/4)

Connector type: Dual USB 3.0 ports
Connector location: USB1/2 and USB3/4
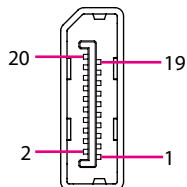
Pin	Definition	Pin	Definition
1	DP0	2	GND
3	DN0	4	DP1
5	GND	6	DN1
7	DP2	8	GND
9	DN2	10	DP3
11	GND	12	DN3
13	DP/HDMI detect	14	GND
15	AUXP	16	GND
17	AUXN	18	HPD
19	GND	20	3.3V
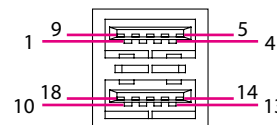
Pin	Definition	Pin	Definition
1	VBUS1	2	USB1-
3	USB1+	4	GND
5	USB3_RX_N1	6	USB3_RX_P1
7	GND	8	USB3_TX_N1
9	USB3_TX_P1	10	VBUS2
11	USB2-	12	USB2+
13	GND	14	USB3_RX_N2
15	USB3_RX_P2	16	GND
17	USB3_TX_N2	18	USB3_TX_P2

USB 2.0 Ports (USB5/6)

Connector type: Dual USB 2.0 ports
Connector location: USB5/6

LAN1 and LAN2 Ports

Connector type: RJ45 port
Connector location: LAN1 and LAN2
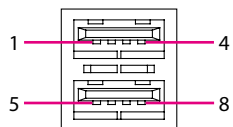
Pin	Definition	Pin	Definition
1	VBUS1	2	USB1-
3	USB1+	4	GND
5	VBUS2	6	USB2-
7	USB2+	8	GND
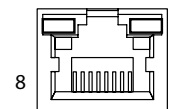
Pin	Definition	Pin	Definition
1	CTAP	2	MDI0+
3	MDI0-	4	MDI1+
5	MDI1-	6	MDI2+
7	MDI2-	8	MDI3+
9	MDI3-	10	GND
L1	speed led+/-	L2	speed led+/-
L3	3.3V_LAN	L4	active led
H1	NC	H2	NC
H3	GND_R	H4	GND_R

External I/O Interfaces - Rear Panel

DVI-D Connector

Connector type: 24-pin D-Sub, 2.0mm-M-180 (DVI)
Connector location: DVI-D1
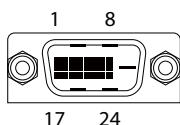
Pin	Definition	Pin	Definition
1	DN2	2	DP2
3	GND	4	NC
5	NC	6	DDCCLK
7	DDCDAT	8	NC
9	DN1	10	DP1
11	GND	12	NC
13	NC	14	VCC
15	GND	16	HPD
17	DN0	18	DP0
19	GND	20	NC
21	NC	22	GND
23	CKP	24	CKN

COM1 to COM6 Ports (RS232)

Connector type: DB-9 port, 9-pin D-Sub
Connector location: COM1 to COM6
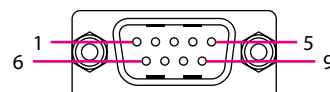
Pin	Definition	Pin	Definition
1	DCD	2	RX
3	TX	4	DTR
5	GND_COM1	6	DSR
7	RTS	8	CTS
9	RI / Power select		

All 6 COM ports share a maximum 5W power under 5V power input.
All 6 COM ports share a maximum 12W power under 12V power input.

COM1 to COM2 Ports (Full RS485/RS422)

Connector type: DB-9 port, 9-pin D-Sub
Connector location: COM1 and COM2
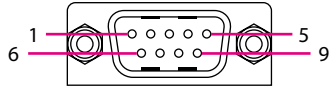
Pin	Definition	Pin	Definition
1	TX-	2	TX+
3	RX+	4	RX-
5	GND_COM1	6	NC
7	NC	8	NC
9	NC		

Internal Connectors

TOUCH1 Header

Connector type: 2x10 20-pin header
Connector location: TOUCH1
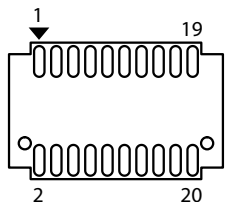
Pin	Definition	Pin	Definition
1	D+	2	Ground
3	D-	4	OC
5	Ground	6	GPIO1
7	D+	8	GPIO2
9	D-	10	Ground
11	Ground	12	Ground
13	+3.3V	14	+3.3VSB
15	+5V	16	+3.3VSB
17	+12V	18	+5VSB
19	+12V	20	+5VSB

SATA Connector

Connector type: Standard Serial ATA 7P (1.27mm, SATA-M-180)
Connector location: SATA1
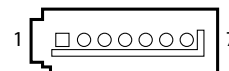
Pin	Definition	Pin	Definition
1	GND	2	TXP
3	TXN	4	GND
5	RXN	6	RXP
7	GND		

Mic-in Connector

Connector type: 1x4 4-pin header
Connector location: MICIN1

1 □ ○ ○ ○ 4
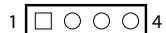
Pin	Definition
1	L
2	AGND
3	JD
4	R

SATA Power Connector

Connector type: 1x4 4-pin header
Connector location: SATAPW1

1 □ ○ ○ ○ 4
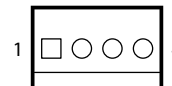
Pin	Definition
1	+5V
2	GND
3	GND
4	+12V

Power Out Connector

Connector type: 1x4 4-pin header
Connector location: PWROUT1

1 □ ○ ○ ○ 4
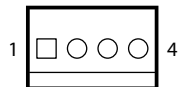
Pin	Definition
1	+12V
2	GND
3	GND
4	+5V

Port 80 Connector

Connector type: 1x10 10-pin header
Connector location: JLPC1

1 □ ○ ○ ○ ○ ○ ○ ○ ○ ○ 10

Pin	Definition	Pin	Definition
1	GND	2	PLTRST
3	CLK24M	4	LPC_FRAME#
5	LPC_AD3	6	LPC_AD2
7	LPC_AD1	8	LPC_AD0
9	SERIRQ	10	+3.3V

SPI Header

Connector type: 2x4 8-pin header
Connector location: SPI2
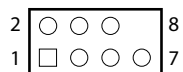
Pin	Definition	Pin	Definition
1	VCC3	2	GND
3	SPI_CS#	4	SPI_CLK
5	SPI_MISO	6	SPI_MOSI
7	HOLD#	8	Key

GPIO Header

Connector type: 2x10 20-pin header
Connector location: JDIO1
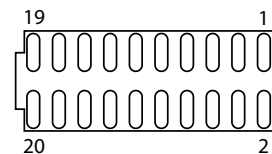
Pin	Definition	Pin	Definition
1	+5VSB	2	GND
3	GPI0	4	GPI1
5	GPI2	6	GPI3
7	GPI4	8	GPI5
9	GPI6	10	GPI7
11	GPO0	12	GPO1
13	GPO2	14	GPO3
15	GPO4	16	GPO5
17	GPO6	18	GPO7
19	NC	20	NC

PWRON1 Connector

Connector type: 1x3 3-pin header
Connector location: PWRON1
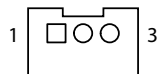
Pin	Definition
1	PWRBTN
2	GND
3	SLP_S3#

EDP1 Data Connector

Connector type: 1x30 30-pin header
Connector location: EDP1
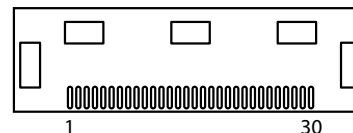
Pin	Definition	Pin	Definition
1	EDP_DN1	2	EDP_DP1
3	GND	4	EDP_DN0
5	EDP_DP0	6	GND
7	EDP_AUXP	8	EDP_AUXN
9	GND	10	SMB_CLK
11	SMB_DATA	12	GND
13	HPD	14	BRIGHT
15	BL_EN	16	PLTRST
17	+3.3V	18	+3.3V
19	+3.3V	20	GND
21	GND	22	+5V
23	+5V	24	+5V
25	GND	26	GND
27	+12V	28	+12V
29	+12V	30	GND

Mini-PCIe Slots

Connector location: MINI_CARD1 and MINI_CARD2
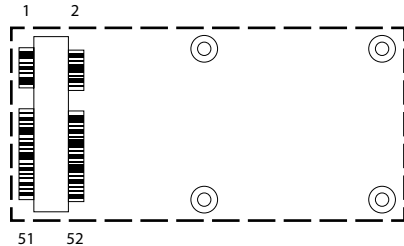
Pin	Definition	Pin	Definition
1	WAKE	2	+3.3VSB
3	Reserved	4	GND
5	Reserved	6	1.5V
7	CLKREQ	8	SIM_PWR
9	GND	10	SIM_DATA
11	CLK_N	12	SIM_CLK
13	CLK_P	14	SIM_RESET
15	GND	16	SIM_VPP
17	Reserved	18	GND
19	Reserved	20	Reserved
21	GND	22	PLTRST
23	B+	24	+3.3VSB
25	B-	26	GND

Pin	Definition	Pin	Definition
27	GND	28	1.5V
29	GND	30	SMB_CLK
31	A-	32	SMB_DATA
33	A+	34	GND
35	GND	36	USB_-
37	GND	38	USB_+
39	+3.3VSB	40	GND
41	+3.3VSB	42	Reserved
43	GND	44	Reserved
45	Reserved	46	Reserved
47	Reserved	48	1.5V
49	Reserved	50	GND
51	Presence Detection	52	+3.3VSB

M.2 Key Connector

Connector location: M2_1
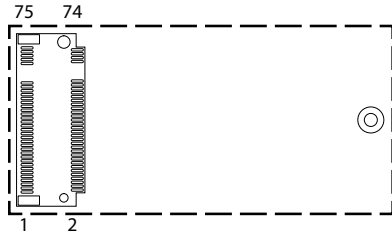
Pin	Definition	Pin	Definition
1	GND	2	+3.3V
3	GND	4	+3.3V
5	PERN3	6	NC
7	PERP3	8	NC
9	GND	10	M2_LED#
11	PETN3	12	+3.3V
13	PETP3	14	+3.3V
15	GND	16	+3.3V
17	PERN2	18	+3.3V
19	PERP2	20	NC
21	GND	22	NC
23	PETN2	24	NC
25	PETP2	26	NC
27	GND	28	NC
29	PERN1	30	NC
31	PERP1	32	NC
33	GND	34	NC
35	PETN1	36	NC
37	PETP1	38	SSD_SATA_DEVSLP

Pin	Definition	Pin	Definition
39	GND	40	NC
41	SATA_RX(+)	42	NC
43	SATA_RX(-)	44	NC
45	GND	46	NC
47	SATA_TX(-)	48	NC
49	SATA_TX(+)	50	PLTRST#_M2
51	GND	52	M2_CLK_REQ#
53	CLK(-)	54	PCIE_WAKE#
55	CLK(+)	56	NC
57	GND	58	NC
59-65	Key	60-66	Key
67	NC	68	PCH_SUSCLK
69	SATA_PCIE_DET	70	+3.3V
71	GND	72	+3.3V
73	GND	74	+3.3V
75	GND		

CHAPTER 3: SYSTEM SETUP

Removing the Chassis Bottom Cover

CAUTION! 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 eight mounting screws from the bottom cover.
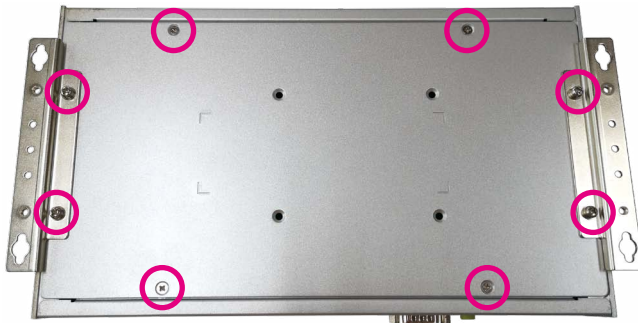
2. With the screws removed, lift up the cover and remove it from the chassis.

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NISE 4200 User Manual

Installing a SO-DIMM Memory Module

Remove the bottom cover before installing a SO-DIMM.

1. Locate the SO-DIMM socket.
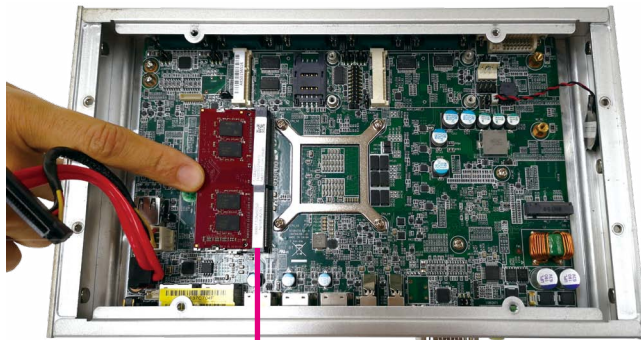
SO-DIMM Socket

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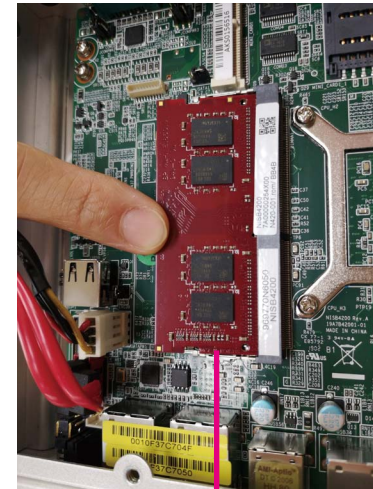
Memory Module

Installing an M.2 Storage Module (M Key 2240 & 2280)

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

M.2 M Key Slot

2. Remove the screw on the board and replace it with a copper standoff. Store the screw in a safe place for later use.
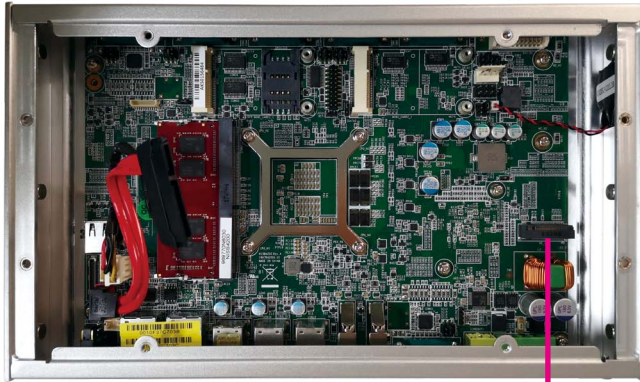
M.2 2240
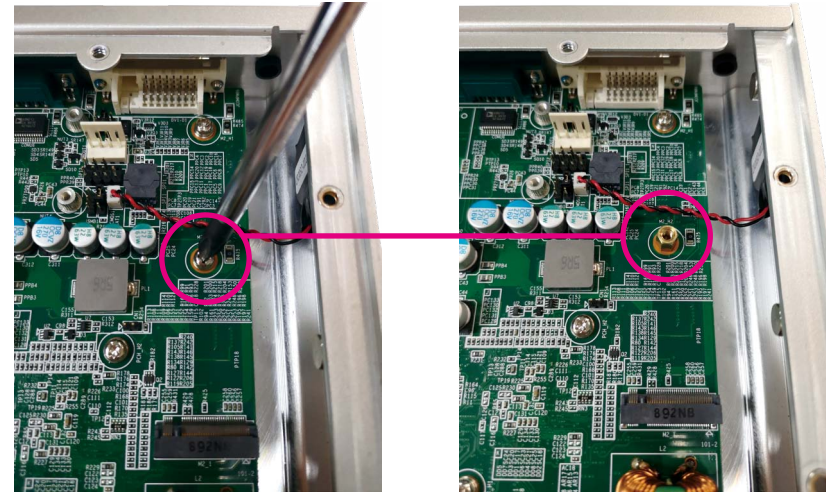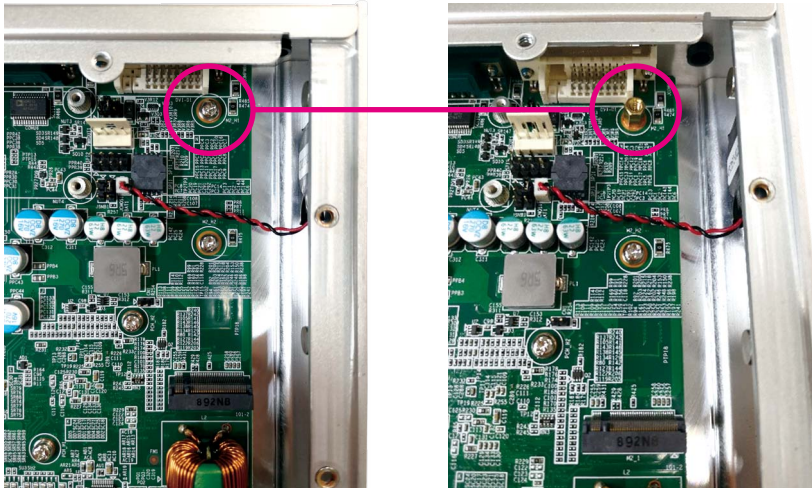
M.2 2280

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

M.2 2240

M.2 2280

4. Push the module down and secure it with the screw removed in step 2.

M.2 2240

M.2 2280

5. When installing an M.2 storage, it is recommended that a dedicated thermal pad is placed on top of the chipset of the M.2 module for better heat dissipation.

Installing a Mini-PCIe Storage/Wi-Fi/LTE Module (Full-Size)

1. Locate the mini-PCIe slot on the board.
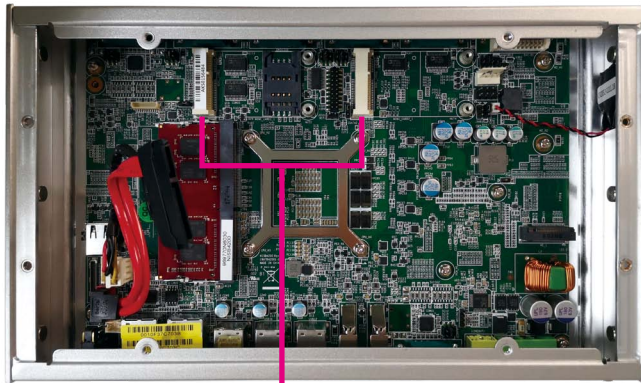
Mini-PCIe Slot

2. Insert the mini-PCIe module into the mini-PCIe slot at a 45 degree angle until the gold-plated connector on the edge of the module completely disappears inside the slot.
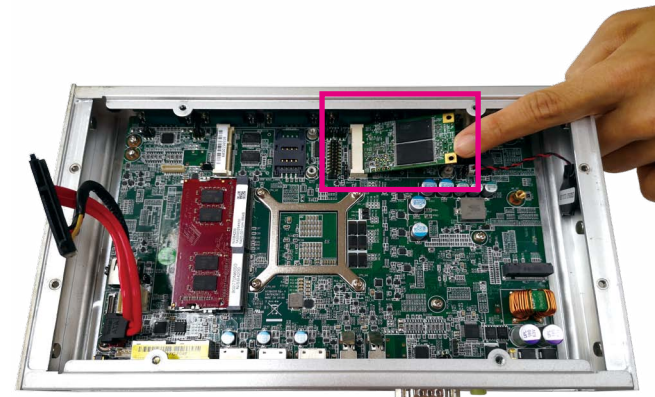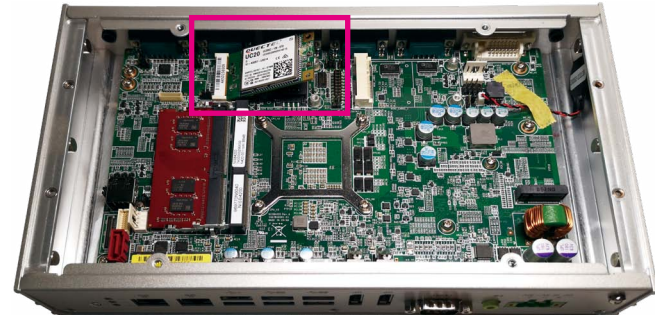
3. Push the module down and then secure it with mounting screws.
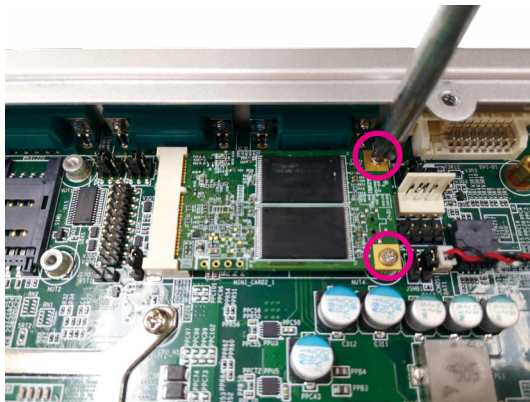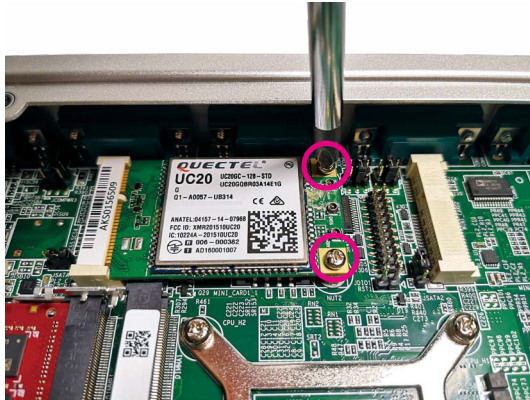
Installing a Mini-PCIe Module (Half-size)

1. Locate the mini-PCIe slot on the board.
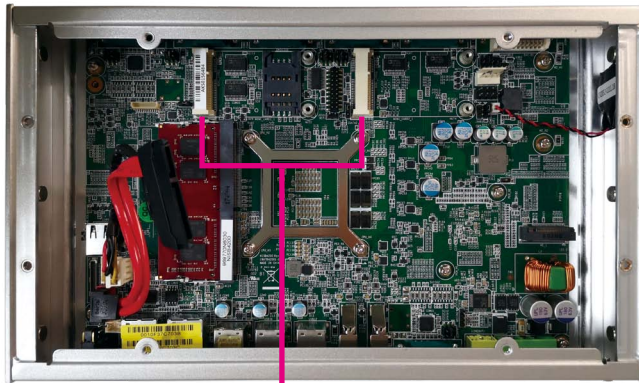
Mini-PCIe Slot

2. Align the mini-PCIe module to the module bracket and secure both together with screws.
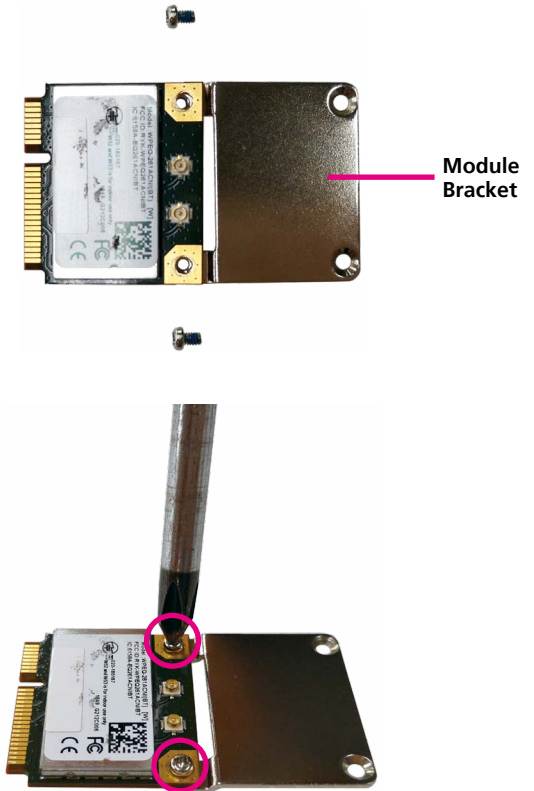
Module Bracket

3. Insert the mini-PCIe module into the mini-PCIe 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 then secure it with mounting screws.
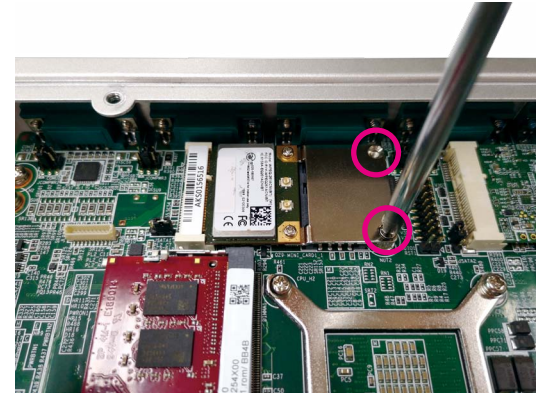
Installing a SIM Card

1. Locate the SIM card holder and release the cover.
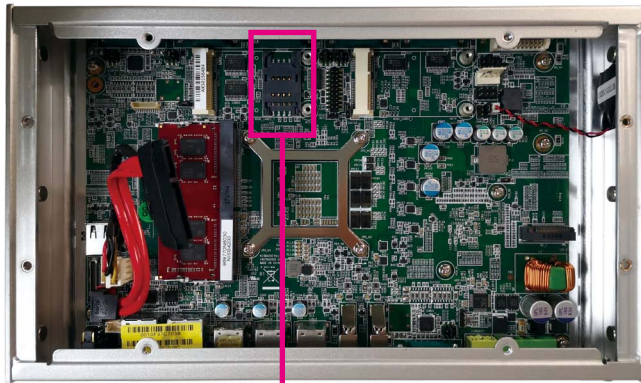
2. Place the SIM card into the holder.

SIM Card Cover
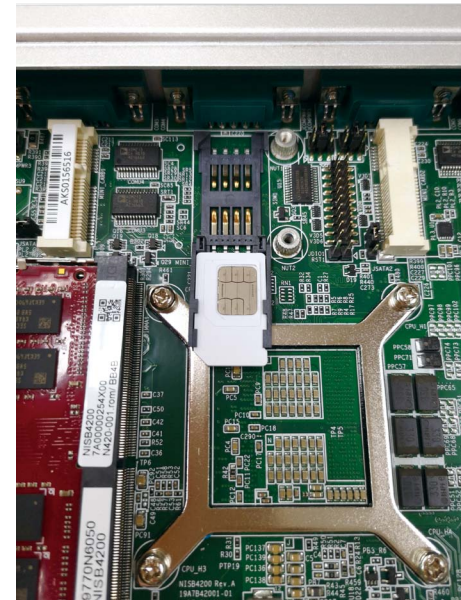
3. Close the cover and secure it to the original position.
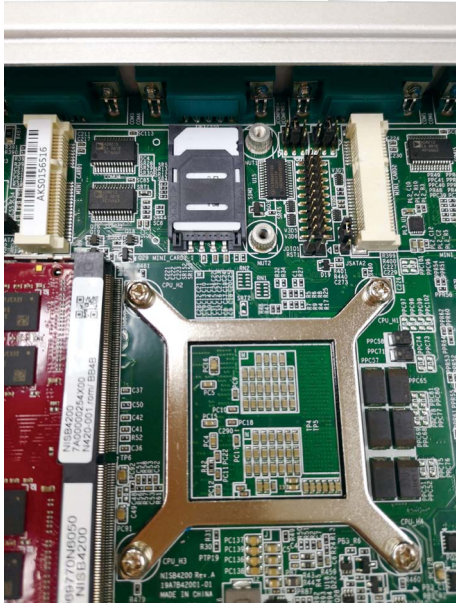
Installing a Storage Drive

1. With the bottom side of the chassis facing up, unscrew the eight mounting screws from the bottom cover.
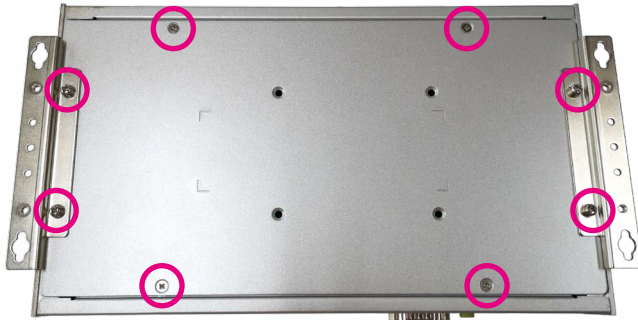
2. With the screws removed, lift up the cover and remove it from the chassis.

3. Turn the cover to the other side. This will be the internal side of the cover. Make sure the direction of the storage drive and bottom cover is in the correct direction.

Gold-plated Connector
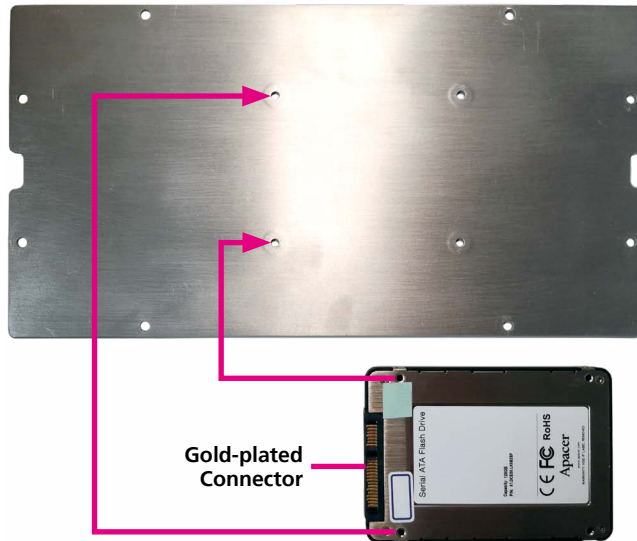
4. On the internal side of the cover, align the mounting holes of the storage drive with the mounting holes on the cover.

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5. While supporting the storage drive, turn the cover to the other side. This will be the outer side of the cover. From outside of the bottom cover, use the provided screws to secure the drive in place.
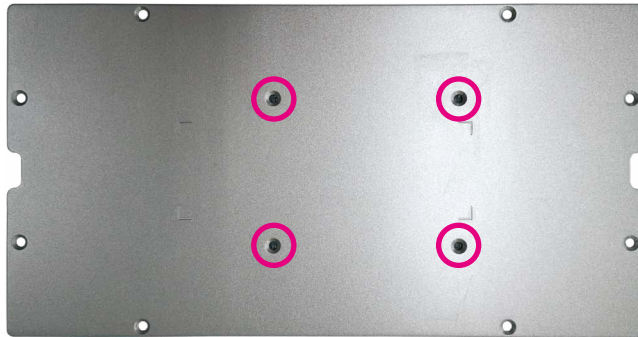
6. Connect the SATA data and power cables to the storage drive.

7. Secure the bottom cover with the storage drive to the chassis with the
   eight screws.

![NEXCOM logo]
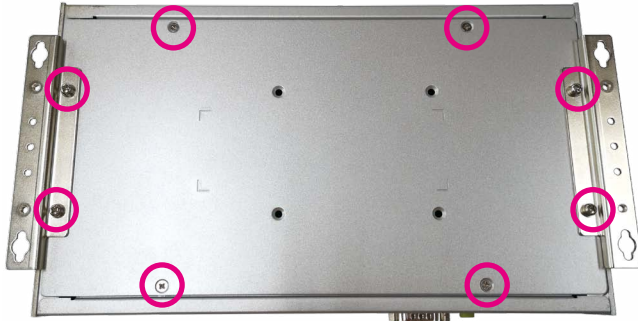
Wall Mounting Instructions

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.

Wall Mount 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.

Fasten screws to mount the system to the wall
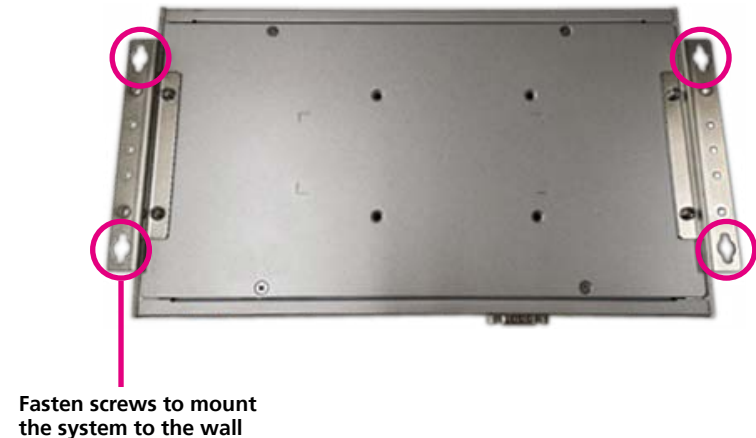
Specification of the wall mount screw:
Round Head Screw Long Fei:P6#32TX8L_w/Spring+Flat Washer

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CHAPTER 4: BIOS SETUP

This chapter describes how to use the BIOS setup program for NISE 4200. The BIOS screens provided in this chapter are for reference only and may change if the BIOS is updated in the future.

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

About BIOS Setup

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

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

With easy-to-use pull down menus, you can configure such items as:
- Hard drives, diskette drives, and peripherals
- Video display type and display options
- Password protection from unauthorized use
- Power management features

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

When to Configure the BIOS

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

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

Default Configuration

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

Entering Setup

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

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

- If the error occurs after the display device is initialized, the screen will display the error message.

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

Press the Del key to enter Setup:

Legends

Key	Function
← →	Moves the highlight left or right to select a menu.
↑ ↓	Moves the highlight up or down between sub-menus or fields.
Esc	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.
Tab	Selects a field.
F1	Displays General Help.
F2	Load previous values.
F3	Load optimized default values.
F4	Saves and exits the Setup program.
Enter	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
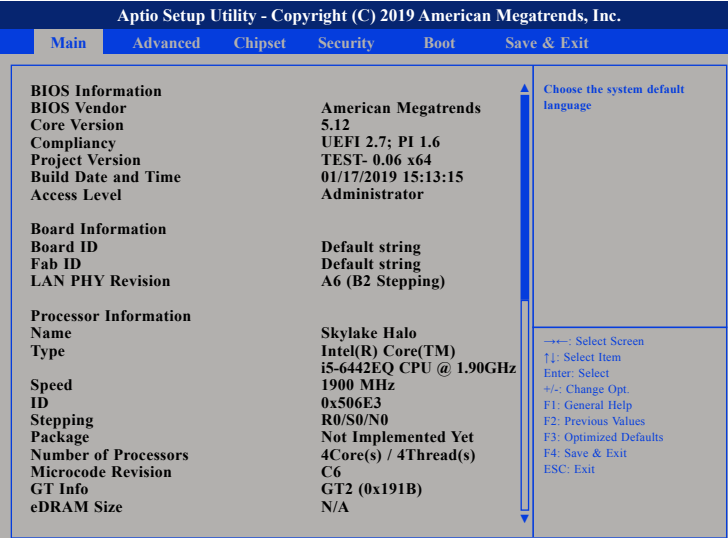
When "▶" appears on the left of a particular field, it indicates that a submenu which contains additional options are available for that field. To display the submenu, move the highlight to that field and press Enter, .

BIOS Setup Utility

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

Main

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

```
          Aptio Setup Utility - Copyright (C) 2019 American Megatrends, Inc.
   Main      Advanced    Chipset    Security     Boot     Save & Exit

  BIOS Information                                        Choose the system default
  BIOS Vendor              American Megatrends            language
  Core Version             5.12
  Compliancy               UEFI 2.7; PI 1.6
  Project Version          TEST- 0.06 x64
  Build Date and Time      01/17/2019 15:13:15
  Access Level             Administrator

  Board Information
  Board ID                 Default string
  Fab ID                   Default string
  LAN PHY Revision         A6 (B2 Stepping)

  Processor Information
  Name                     Skylake Halo                   →←: Select Screen
  Type                     Intel(R) Core(TM)              ↑↓: Select Item
                           i5-6442EQ CPU @ 1.90GHz        Enter: Select
  Speed                    1900 MHz                       +/-: Change Opt.
  ID                       0x506E3                        F1: General Help
  Stepping                 R0/S0/N0                       F2: Previous Values
  Package                  Not Implemented Yet            F3: Optimized Defaults
  Number of Processors     4Core(s) / 4Thread(s)          F4: Save & Exit
  Microcode Revision       C6                             ESC: Exit
  GT Info                  GT2 (0x191B)
  eDRAM Size               N/A

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```

System Language
Selects the language of the system.

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 1999 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.

⚠️ Setting incorrect field values may cause the system to malfunction.

```
        Aptio Setup Utility - Copyright (C) 2019 American Megatrends, Inc.
    Main      Advanced    Chipset     Security      Boot     Save & Exit

 ▶ CPU Configuration                             CPU Configuration Parameters
 ▶ Power & Performance
 ▶ Trusted Computing
 ▶ NCT6106D Super IO Configuration
 ▶ NCT6106D HW Monitor
 ▶ Network Stack Configuration
 ▶ CSM Configuration
 ▶ USB Configuration




                                                →←: 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 Configuration

This section is used to configure the CPU.

```
        Aptio Setup Utility - Copyright (C) 2019 American Megatrends, Inc.
    Advanced

 CPU Configuration                                    When enabled, a VMM can
                                                      utilize the additional
 Type                       Intel(R) Core(TM)         hardware capabilities provided
                            i5-6442EQ CPU @ 1.90GHz   by Vanderpool Technology.
 ID                         0x506E3
 Speed                      1900 MHz
 L1 Data Cache              32 KB x 4
 L1 Instruction Cache       32 KB x 4
 L2 Cache                   256 KB x 4
 L3 Cache                   6  MB
 L4 Cache                   N/A
 VMX                        Supported
 SMX/TXT                    Supported                 →←: Select Screen
                                                      ↑↓: Select Item
 Intel (VMX) Virtualization [Enabled]                 Enter: Select
 Technology                                           +/-: Change Opt.
 Active Processor Cores     [All]                     F1: General Help
 Hyper-Threading            [Enabled]                 F2: Previous Values
                                                      F3: Optimized Defaults
                                                      F4: Save & Exit
                                                      ESC: Exit



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```

Intel® (VMX) Virtualization Technology
Enables or disables Intel Virtualization technology.

Active Processors Cores
Select the number of cores to enable in each processor package.

Hyper-Threading
Enables or disables hyper-threading technology.

Power & Performance

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

```
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  Advanced

  CPU - Power Management Control                    Allows more than two frequency
                                                    ranges to be supported.
  Intel(R) SpeedStep(tm)           [Disabled]
  C states                         [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™
Enables or disables Intel SpeedStep technology.

C states
Enables or disables CPU C states support for power saving.

Trusted Computing

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

```
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  Advanced

  TPM20 Device Found                                Enables or Disables BIOS
  Firmware Version:                0.0              support for security device. O.S.
  Vendor:                                           will not show Security Device.
                                                    TCG EFI protocol and INT1A
                                                    interface will not be available.
  Security Device Support          [Enable]
  Active PCR banks                 SHA-1
  Available PCR banks              SHA-1

  SHA-1 PCR Bank                   [Disabled]
  SHA256 PCR Bank                  [Disabled]

  Pending operation                [None]
  Platform Hierarchy               [Enabled]
  Storage Hierarchy                [Enabled]         →←: Select Screen
  Endorsement Hierarchy            [Enabled]         ↑↓: Select Item
  TPM2.0 UEFI Spec Version         [TCG_2]           Enter: Select
  Physical Presence Spec Version   [1.3]             +/-: Change Opt.
  TPM 20 InterfaceType             [CRB]             F1: General Help
  Device Select                    [Auto]            F2: Previous Values
                                                     F3: Optimized Defaults
                                                     F4: Save & Exit
                                                     ESC: Exit



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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.

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.

NCT6106D Super IO Configuration

This section is used to configure the serial ports.
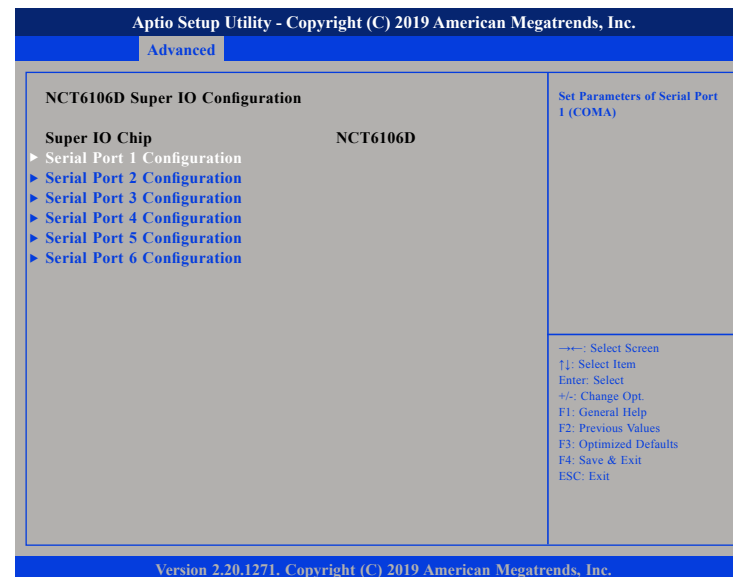
Super IO Chip
Displays the Super I/O chip used on the board.

Serial Port 1 Configuration

This section is used to configure serial port 1.

```
Aptio Setup Utility - Copyright (C) 2019 American Megatrends, Inc.
  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


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```

Serial Port
Enables or disables the serial port.

Onboard Serial Port Mode
Configures the serial port mode.

Serial Port 3 Configuration

This section is used to configure serial port 3.

```
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  Advanced

  Serial Port 3 Configuration                              Enable or Disable Serial Port
                                                           (COM)
  Serial Port                      [Enabled]
  Device Settings                  IO=3E8h; IRQ=7;




                                                           →←: 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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```
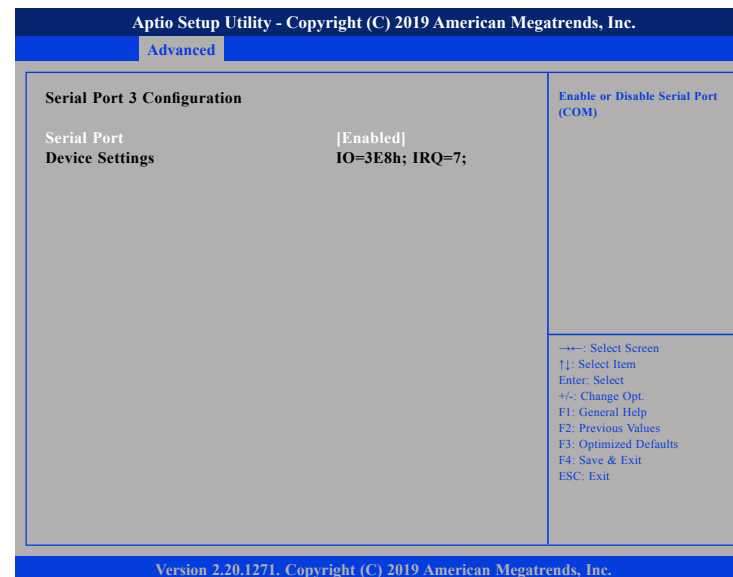
Serial Port
Enables or disables the serial port.

NCT6106D HW Monitor

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

```
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   Advanced

   Pc Health Status

   System temperature           : +31.5 °c
   CPU Temperature              : +36.0 °c
   VCORE                        : +0.880 V
   +12V                         : +12.288 V
   +5V                          : +5.056 V
   +5VSB                        : +5.056 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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```

System temperature
Detects and displays the current system temperature.

CPU Temperature
Detects and displays the current CPU temperature.

VCORE
Detects and displays the VCORE CPU voltage.

+12V
Detects and displays 12V voltage.

+5V
Detects and displays 5V voltage.

+5VSB
Detects and displays 5VSB voltage.

Network Stack Configuration

This section is used to configure the network stack settings.

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Advanced		
Network Stack	[Disabled]	Enable/Disable UEFI Network Stack
		→←: Select Screen ↑↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
Version 2.20.1271. Copyright (C) 2019 American Megatrends, Inc.		
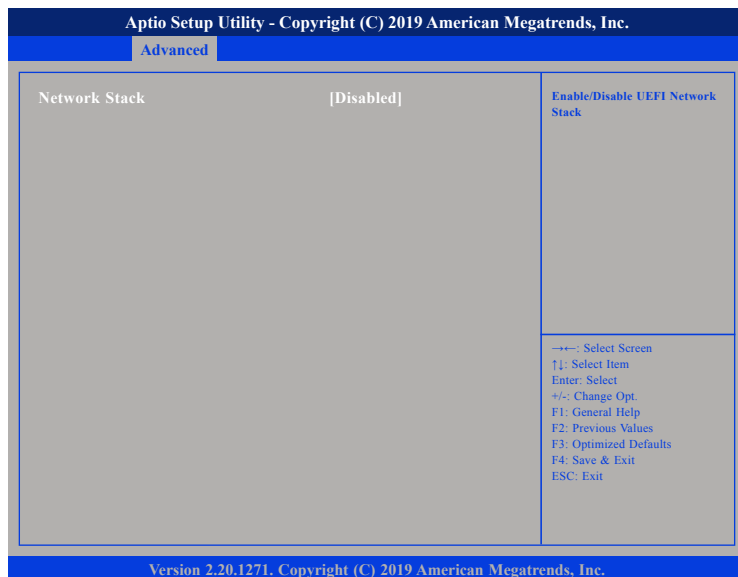
Network Stack
Enables or disables UEFI network stack.

CSM Configuration

This section is used to configure the compatibility support module features.

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Advanced		
Compatibility Support Module Configuration		Enable/Disable CSM Support.
CSM Support	[Enabled]	
CSM16 Module Version	07.81	
GateA20 Active	[Upon Request]	
Option ROM Messages	[Force BIOS]	
INT19 Trap Response	[Immediate]	
Boot option filter	[UEFI and Legacy]	
Option ROM execution		
Network	[Do not launch]	→←: Select Screen ↑↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
Storage	[Legacy]	
Video	[Legacy]	
Other PCI devices	[Legacy]	
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CSM Support
This field is used to enable or disable CSM support, if Auto option is selected, based on OS, CSM will be enabled or disabled automatically.

GateA20 Active
Upon Request   GA20 can be disabled using BIOS services.
Always   Do not allow disabling GA20; this option is useful when any RT code is executed above 1MB.

Option ROM Messages

This field is used to set display mode for Option ROM. The options are Force BIOS and Keep Current.

INT19 Trap Response

Allows Option ROMs to trap Interrupt 19 when enabled.

Immediate   Execute the trap right away.
Postponed   Execute the trap during legacy boot.

Boot Option Filter

Configures which drives the system can boot from.

Network

Enables or disables the boot option for legacy network devices.

Storage

Enables or disables the boot option for legacy storage devices.

Video

Enables or disables the boot option for legacy video devices.

Other PCI Devices

Enables or disables the boot option for legacy PCI devices.

USB Configuration

This section is used to configure the USB.

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Advanced

USB Configuration		Enables Legacy USB support. AUTO option disables legacy support if no USB devices are connected. DISABLE option will keep USB devices available only for EFI applications.
USB Module Version	19	
USB Controllers: 1 XHCI		
USB Devices: 1 Keyboard		
Legacy USB Support	[Enabled]	
XHCI Hand-off	[Enabled]	
USB hardware delays and time-outs:		→←: Select Screen ↑↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
Device reset time-out	[20 sec]	

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Legacy USB Support

Enabled   Enables Legacy USB.
Auto   Disables support for Legacy when no USB devices are connected.
Disabled   Keeps USB devices available only for EFI applications.

XHCI Hand-off

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

Device reset time-out

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

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.

```
             Aptio Setup Utility - Copyright (C) 2019 American Megatrends, Inc.
   Main      Advanced    Chipset    Security     Boot     Save & Exit

► System Agent (SA) Configuration                        System Agent (SA) Parameters
► PCH-IO Configuration




                                                         →←: 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 Agent (SA) Configuration
System Agent (SA) parameters.

PCH-IO Configuration
PCH-IO parameters.

System Agent (SA) Configuration

This section is used to configure the System Agent (SA) configuration.

```
             Aptio Setup Utility - Copyright (C) 2019 American Megatrends, Inc.
                              Chipset

System Agent (SA) Configuration                          Graphics Configuration

SA PCIe Code Version              3.6.2.0
VT-d                              Supported

► Graphics Configuration

VT-d                              [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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```

VT-d
Enables or disables VT-d function on MCH.

Graphics Configuration

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Chipset	

```
Graphics Configuration                          Select DVMT5.0 Total Graphic
                                                Memory size used by the
DVMT Total Gfx Mem              [256M]          Internal Graphics Device.




                                                →←: 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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DVMT Total Gfx Mem
Selects the DVMT5.0 Total Graphic Memory size used by the Internal Graphics Device.

PCH-IO Configuration

This section is used to configure PCH-IO configuration.

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Chipset	

```
PCH-IO Configuration                            SATA Device Options Settings

► SATA And RST Configuration
► Security Configuration
► HD Audio Configuration

PCH LAN Controller              [Enabled]
State After G3                  [S0 State]
USB2.0 Power State in Standby   [Power Off]
USB3.0 Power State in Standby   [Power On]

LAN1                            [Enabled]
MINI_CARD1                      [Enabled]       →←: Select Screen
MINI_CARD2                      [Enabled]       ↑↓: Select Item
                                                Enter: Select
                                                +/-: Change Opt.
                                                F1: General Help
                                                F2: Previous Values
                                                F3: Optimized Defaults
                                                F4: Save & Exit
                                                ESC: Exit
```

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PCH LAN Controller
Enables or disables onboard NIC.

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

USB2.0 Power State in Standby
Configures the USB 2.0 power state in standby mode.

USB3.0 Power State in Standby
Configures the USB 3.0 power state in standby mode.

LAN1

Enables or disables LAN1 controller.

MINI_CARD1 and MINI_CARD2

Enables or disables the the MINI_CARD1 and MINI_CARD2 slots.

SATA And RST Configuration

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Chipset

SATA And RST Configuration		Enable/Disable SATA Device.
SATA Controller(s)	[Enabled]	
SATA Mode Selection	[AHCI]	
M2_1	Empty	
SATA1	Empty	
		→←: 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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SATA Controller(s)

Enables or disables SATA device.

SATA Mode Selection

Configures the SATA as AHCI mode.

AHCI   This option configures the Serial ATA drives to use AHCI (Advanced Host Controller Interface). AHCI allows the storage driver to enable the advanced Serial ATA features which will increase storage performance.

Security Configuration

Chipset

Security Configuration

RTC Lock   [Enabled]

Enable will lock bytes 38h-3Fh
in the lower/upper 128-byte
bank of RTC RAM

→←: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F2: Previous Values
F3: Optimized Defaults
F4: Save & Exit
ESC: Exit

RTC Lock

Enables or disables bytes 38h-3Fh in the upper and lower 128-byte bank of RTC RAM.

HD Audio Configuration

Chipset

HD Audio Subsystem Configuration Settings

HD Audio   [Enabled]

Control Detection of the
HD-Audio device.
Disabled = HDA will be
unconditionally disabled
Enabled = HDA will be
unconditionally enabled
Auto = HDA will be enabled if
present, disabled otherwise.

→←: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F2: Previous Values
F3: Optimized Defaults
F4: Save & Exit
ESC: Exit

HD Audio

Control detection of the HD audio device.

Disabled	HD audio will be unconditionally disabled.
Enabled	HD audio will be unconditionally enabled.
Auto	HD audio will be enabled if present, disabled otherwise.

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Security

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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.
If ONLY the User's password is set, then this
is a power on password and must be entered to
boot or enter Setup. In Setup the User will
have Administrator rights.
The password length must be
in the following range:
Minimum length                3
Maximum length                20
                                                  →←: Select Screen
                                                  ↑↓: Select Item
Administrator Password                            Enter: Select
User Password                                     +/-: Change Opt.
                                                  F1: General Help
                                                  F2: Previous Values
                                                  F3: Optimized Defaults
                                                  F4: Save & Exit
                                                  ESC: Exit
```

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

User Password
Select this to reconfigure the user's password.

Boot

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Main	**Advanced**	**Chipset**	**Security**	**Boot**	**Save & Exit**

```
Boot Configuration                                Number of seconds to wait for
Setup Prompt Timeout             1                setup activation key.
Bootup NumLock State             [On]             65535(0xFFFF) means indefinite
Quiet Boot                       [Disabled]       waiting.

Boot Option Priorities
Boot Option #1                   [UEFI: Built-in EFI
                                 Shell]
Fast Boot                        [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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Setup Prompt Timeout
Selects the number of seconds to wait for the setup activation key. 65535(0xFFFF) denotes indefinite waiting.

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

Quiet Boot

|	
Enabled	Displays OEM logo instead of the POST messages.
Disabled	Displays normal POST messages.

Boot Option Priorities

Adjusts 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

Enables or disables fast boot technology to speed up the system boot time. This is achieved by skipping specific tests during BIOS POST routine.

Save & Exit

```
Aptio Setup Utility - Copyright (C) 2019 American Megatrends, Inc.
  Main      Advanced    Chipset    Security    Boot    Save & Exit

  Save Options                                            Exit system setup after saving
  Save Changes and Exit                                   the changes.
  Discard Changes and Exit

  Save Changes and Reset
  Discard Changes and Reset

  Save Changes
  Discard Changes

  Default Options
  Restore Defaults
  Save as User Defaults                                 →←: Select Screen
  Restore User Defaults                                 ↑↓: Select Item
                                                        Enter: Select
  Boot Override                                         +/-: Change Opt.
  UEFI: Built-in EFI Shell                              F1: General Help
  Launch EFI Shell from filesystem device               F2: Previous Values
                                                        F3: Optimized Defaults
                                                        F4: Save & Exit
                                                        ESC: Exit

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```

Save Changes and Exit

To save the changes and exit the Setup utility, 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 Exit

To exit the Setup utility 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 and Reset

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

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

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

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

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

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

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

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

Launch EFI Shell from filesystem device
To launch EFI shell from a filesystem device, select this field and press <Enter>.