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PREFACE

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Acknowledgements

NISE 107 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. HCP series products (Blade Server) which are manufactured by NEXCOM are covered by a three year warranty period.

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.

Repair Service Charges for Out-of-Warranty Products

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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 service personnel.

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

15. Do not place heavy objects on the equipment.

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

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

Technical Support and Assistance

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

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

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

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

Conventions Used in this Manual

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

Caution:
Information to avoid damaging components or losing data.

Note:
Provides additional information to complete a task easily.

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Package Contents

Before continuing, verify that the NISE 107 package that you received is complete. Your package should have all the items listed in the following table.

Item	Part Number	Name	Description	Qty
1	4NCPF00309X00	Terminal Blocks 3P Phoenix Contact:1827716	3.81mm Female DIP Green	1
2	4NCPM00302X00	Terminal Blocks 3P Phoenix Contact:1777992	5.08mm Male DIP Green	1
3	50311F0295X00	Flat Head Screw Long Fei:F2x4 NYLOK NIGP	F2x4 NIGP NYLOK	1
4	50311F0326X00	Flat Head Screw Long Fei:F3x5 NYLOK NI+Heat Treatment	F3x5 NYLOK NI+Heat Treatment	4
5	50311F0330X00	Round Head Screw Long Fei:P2x3 ISO+NYLON	P2x3 NI NYLOK	2
6	50311F0141X00	I Head Screw Long Fei: I M2.5*3L ISO NI	I M2.5x3L Head:DIA 5.5 ISO NI	1
7	5060900226X00	Mini PCIe Bracket CHYUAN-JYH	29x30x2.1mm SPCC t=1.0mm NI	1
8	6012200052X00	PE Zipper Bag #8	170x240mm, w/China RoHS Symbol	1
9	6012200053X00	PE Zipper Bag #3	100x70mm, w/China RoHS Symbol	2
10	60177A0616X00	NISE 107 Quick Reference Guide VER:A SIZE:A4	KRAMER	1
11	602DCD1533X00	NISE 107 DVD Driver VER:1.0	JCL	1

Ordering Information

The following information below provides ordering information for NISE 107.

NISE 107 (P/N: 10J00010701X0)
Intel Atom® x5-E3930 Dual Core, 1.80GHz Fanless System

NISE 107-E3940 (P/N: 10J00010700X0)
Intel Atom® x5-E3940 Quad Core, 1.80GHz Fanless System

NISE 107-POE (P/N: 10J00010702X0)
Intel Atom® x5-E3940 Quad Core, 1.80GHz fanless system

- **24V, 60W AC/DC power adapter w/o power cord (P/N: 7400060033X00)**

CHAPTER 1: PRODUCT INTRODUCTION

NISE 107/NISE 107-E3940 Overview

NISE 107/NISE 107-E3940 Front View

NISE 107/NISE 107-E3940 Rear View

Key Features

- Onboard Intel Atom® x5-E3930 Dual Core Processor, 1.80 GHz (NISE 107)

- Onboard Intel Atom® x5-E3940 Quad Core Processor, 1.80 GHz (NISE 107-E3940)

- 2 x Display output, 1 x DVI-D and 1 x DisplayPort port

- 2 x Intel® I210IT GbE LAN ports; support WoL, teaming and PXE

- Support both 2.5" HDD and M.2 (front access)

- 1 x mini-PCIe slot support Wi-Fi/LTE wireless module

- 4 x USB 3.0

- 2 x DB9 for RS232/422/485

- 2 x optional DB9 for RS232 by request

- Support -20°C~70 degree C extended operating temperature (NISE 107)

- Support -5~55 degree C operating operating temperature (NISE 107-E3940)

- Support 9~30V DC input; support ATX power mode

NISE 107-POE Overview

NISE 107-POE Front View

NISE 107-POE Rear View

Key Features

- Onboard Intel Atom® x5-E3940 Quad Core processor, 1.80 GHz

- 2 x Display output, 1 x DVI-D and 1 x DP port

- 2 x Intel® I210IT GbE LAN ports; support WoL, teaming and PXE, LAN1 with PoE function (802.3af compliance)

- Support both 2.5" HDD and M.2 (front access)

- 1 x mini-PCIe slot support Wi-Fi/LTE wireless module

- 4 x USB 3.0

- 2 x DB9 for RS232/422/485

- 2 x DB9 for RS232

- Support -5~55 degree C operating temperature

- Support 9~30V DC input; support ATX power mode

Hardware Specifications

CPU Support

- **NISE 107:** Onboard Intel Atom® x5-E3930 dual core processor, 1.80 GHz, 2M Cache
- **NISE 107-E3940:** Onboard Intel Atom® x5-E3940 quad core processor, 1.80 GHz, 2M Cache
- **NISE 107-POE:** Onboard Intel Atom® x5-E3940 quad core processor, 1.80 GHz, 2M Cache

Main Memory

- 1 x DDR3L SO-DIMM socket, support DDR3L 1866 4GB RAM max., un-buffered and non-ECC

Display Option

- Dual independent display: DVI-D + DP

I/O Interface - Front

- ATX power on/off switch
- LED indicator: power status, HDD access, RTC battery low, Tx/Rx, GPO programmable LEDs
- 2 x DB9 for RS232/422/485 with auto flow control
- 2 x DB9 for RS232 **(NISE 107-POE)**
- 1 x External M.2 socket support B, B+M key module
- 1 x SIM card holder
- 1 x Optional I/F opening for optional function output or module interface use

I/O Interface - Rear

- 1 x DisplayPort
- 1 x DVI-D port

- 4 x USB 3.0 ports (900mA per each)
- 2 x Intel® I210IT GbE LAN ports; support WoL, teaming and PXE
- 1 x Line-out and 1 x Mic-in
- 2 x Antenna holes for optional Wi-Fi/3.5G antenna
- 1 x 3-pin DC input, support +9 to 30VDC input
- 1 x 3-pin Remote power on/off switch

I/O Interface - Internal

- 4 x GPI and 4 x GPO (5V, TTL type)

Storage Device

- 1 x 2.5" HDD (SATA 3.0)
- 1 x M.2, support B, B+M key module

Expansion Slot

- 1 x mini-PCIe socket support optional Wi-Fi/4G LTE/3.5G modules

Power Requirements

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

Dimensions

- **NISE 107:**
  185mm (W) x 131mm (D) x 54mm (H) without wall-mount bracket
- **NISE 107-E3940:**
  185mm (W) x 131mm (D) x 54mm (H) without wall-mount bracket
- **NISE 107-POE:**
  185mm (W) x 131mm (D) x 69mm (H) without wall-mount bracket

Construction

▪ Aluminum chassis with fanless design

Environment

▪ Operating temperature:
Ambient with air flow: -20°C to 70°C **(NISE 107)**
Ambient with air flow: -5°C to 55°C **(NISE 107-E3940 & NISE 107-POE)**
(According to IEC60068-2-1, IEC60068-2-2, IEC60068-2-14)
▪ Storage temperature: -20°C to 80°C
▪ Relative humidity: 95% at 40 degree C
▪ Shock protection:
  – HDD: 20G @ wall mount, half sine, 11ms (operation), IEC60068 2-27
  – M.2: 50G @ wall mount, half sine, 11ms (operation), IEC60068 2-27
▪ Vibration protection w/ HDD condition:
  – Random: 0.5Grms @ 5~500 Hz, IEC60068-2-64
  – Sinusoidal: 0.5Grms @ 5~500 Hz, IEC60068-2-6
▪ Vibration protection w/ M.2 & SSD condition:
  – Random: 2Grms @ 5~500 Hz, IEC60068-2-64
  – Sinusoidal: 2Grms @ 5~500 Hz, IEC60068-2-6

Certifications

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

OS Support List

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

Knowing Your NISE 107 Series

Front Panel

NISE 107/NISE 107-E3940
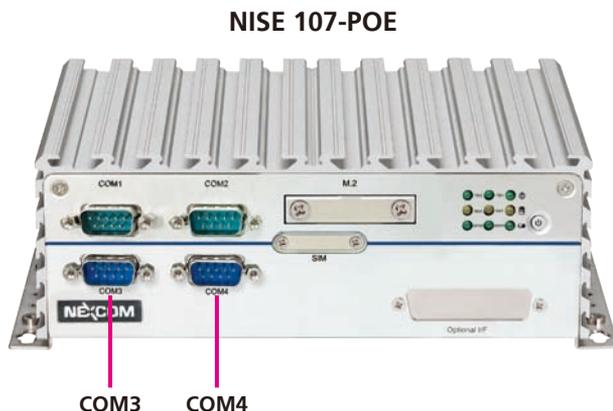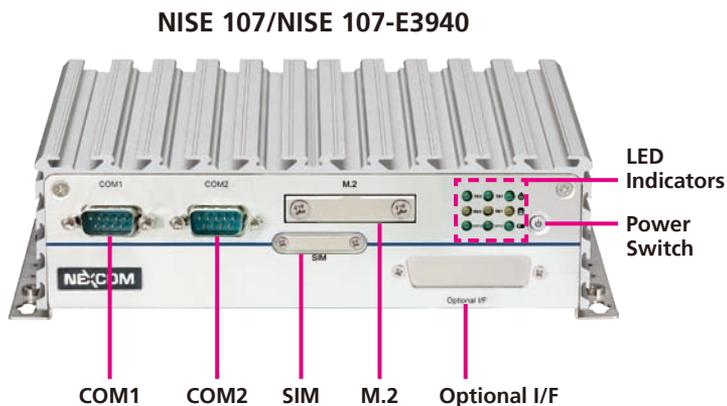
NISE 107-POE

COM1 & COM2

Two DB9 ports used to connect RS232/422/485 compatible devices.

COM3 & COM4 (NISE 107-POE)

Two DB9 ports used to connect RS232 compatible devices.

M.2 and SIM Card Slot

Used to install an M.2 and a SIM card.

Optional I/F

Expansion slot for optional function output or module interface use.

LED Indicators

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

Power Switch

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

Rear Panel

NISE 107/NISE 107-E3940
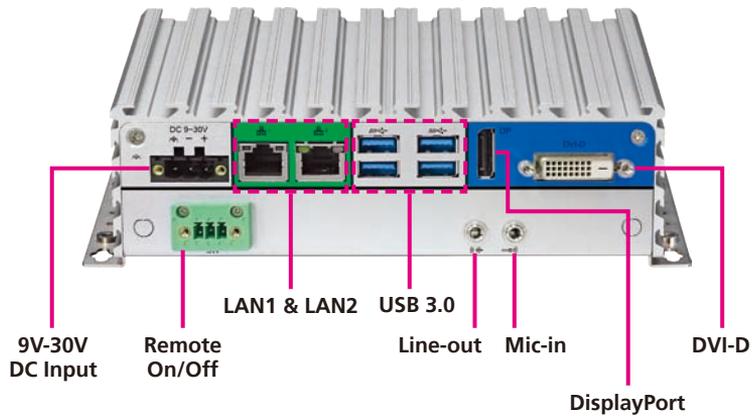
9V-30V DC Input
Used to plug a DC power cord.

Remote On/Off Switch
Used to connect a remote to power on/off the system.

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

USB 3.0
Used to connect USB 3.0/2.0 devices.

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

Mic-in
Used to connect an external microphone.

DisplayPort
Used to connect a DisplayPort interface monitor.

DVI-D
Used to connect a DVI-D interface monitor.

NISE 107-POE

Mechanical Dimensions

NISE 107 & NISE 107-E3940

optional specification by request
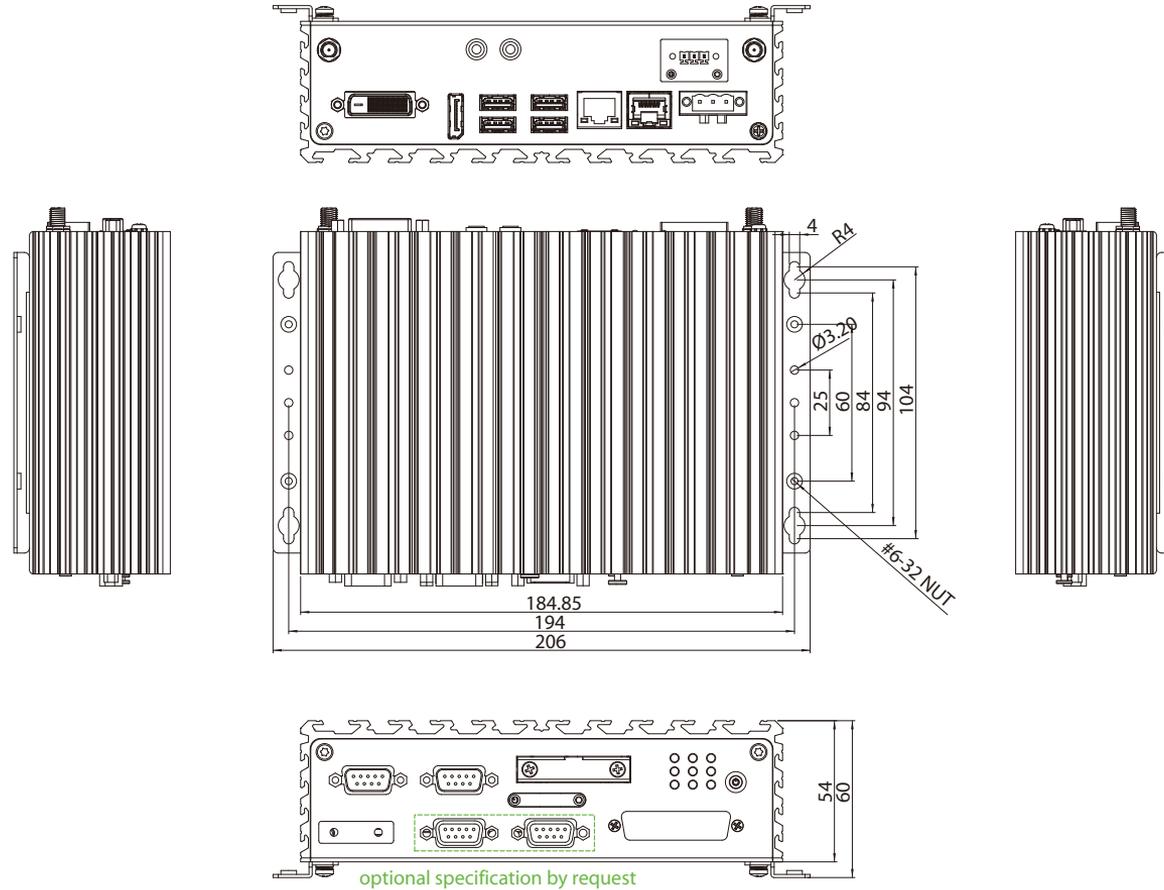
NISE 107-POE
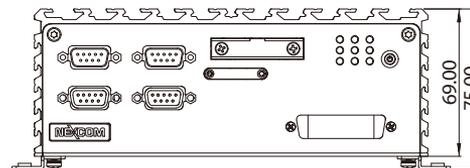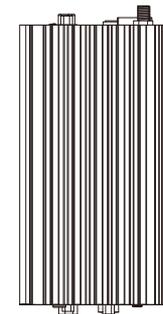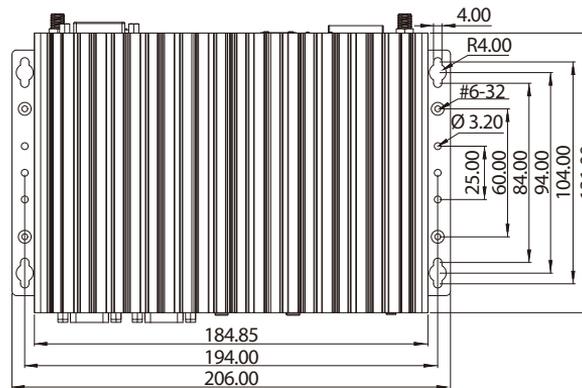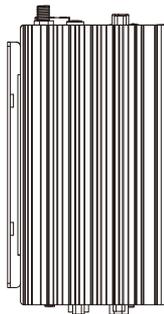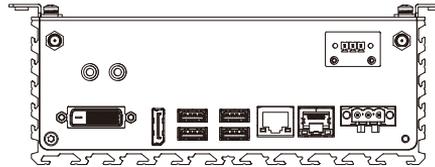
CHAPTER 2: JUMPERS AND CONNECTORS

This chapter describes how to set the jumpers and connectors on the NISE 107 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.

9 NISE 107 User Manual

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)
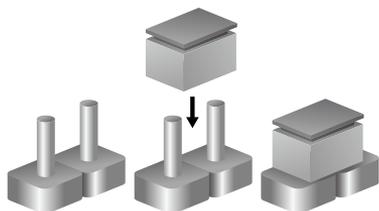
Three-Pin Jumpers: Pins 1 and 2 are Short
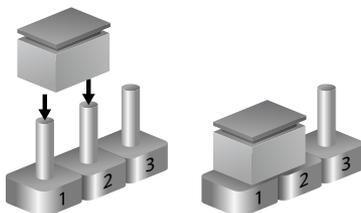
Locations of the Jumpers and Connectors for NISB 107

NISB 107

The following figures are the top and bottom view of the NISB 107 main board which is the main board used in NISE 107. It shows the locations of the jumpers and connectors.

Top View
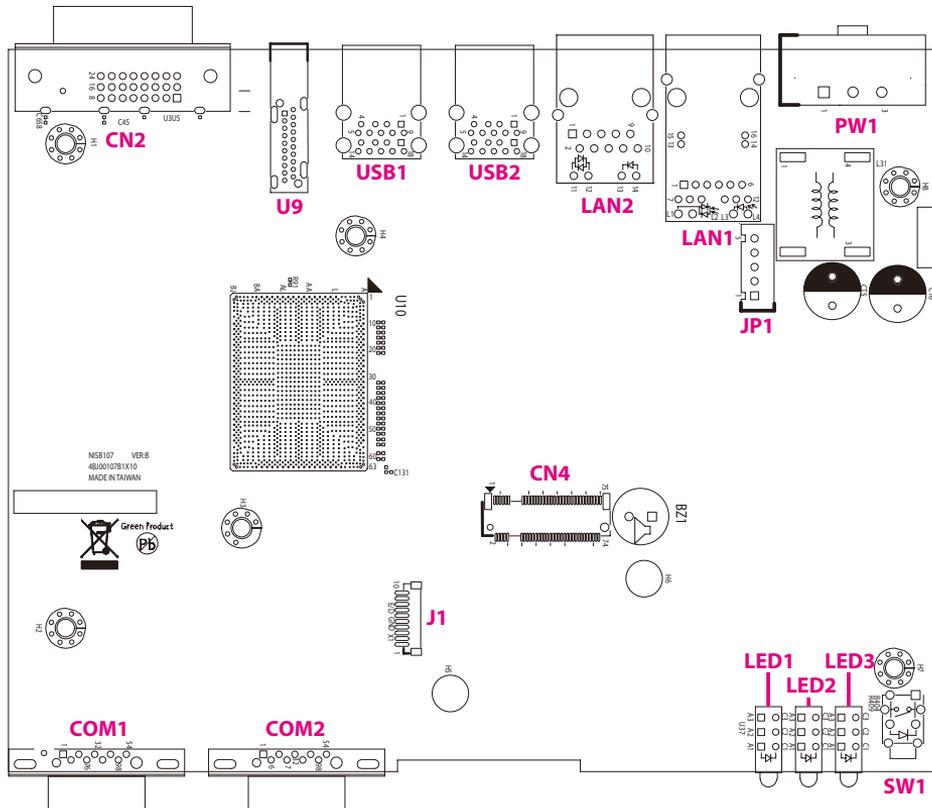
Bottom View
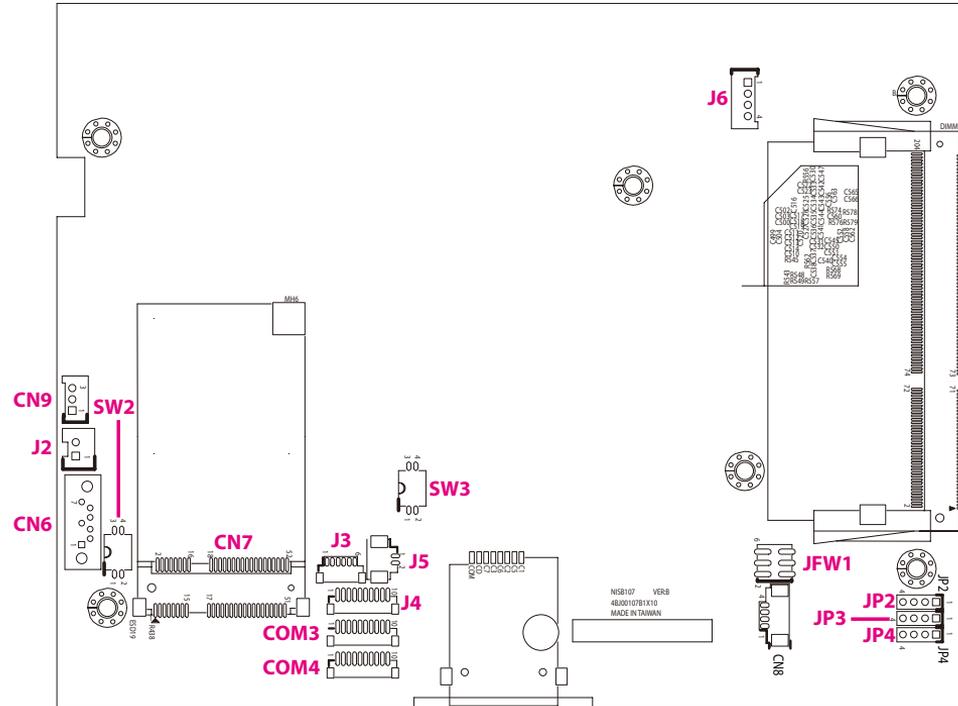
Jumpers and DIP Switches

AT/ATX Power Select

Connector type: 2x2 DIP switch
Connector location: SW2
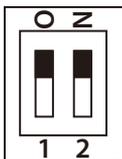
Pin	Settings
1 ON, 2 OFF	AT Mode
1 OFF, 2 ON	ATX Mode

Pin	Definition
1	AT_PWRBT#
2	PBT_TR1
3	GND
4	PWRBTN#

RTC RTEST Switch (RTC Clear)

Connector type: 2x2 DIP switch
Connector location: SW3
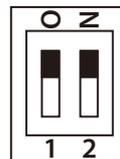
Pin	Settings
1 OFF, 2 OFF	Normal (Default)

Pin	Definition
1	RTEST#
2	SRTCRST#
3	GND
4	GND

Connector Pin Definitions

External I/O Interfaces - Front Panel
Power Button
Connector location: SW1

LED Indicators
Connector location: LED1, LED2 and LED3

LED1 TX2 **LED2** TX1 **LED3**

RX2 RX1

GPO2 GPO1

Pin	Definition	Pin	Definition
1	GND	2	GND
3	GND	4	GND
A1	PWRLED_N	C1	PWRLED_P
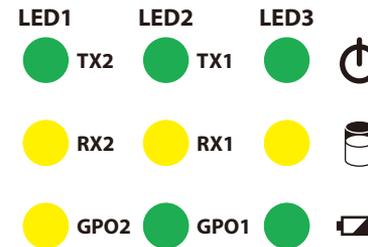
	Pin	Definition	Pin	Definition
LED1	A1	GPO_PR2LED	C1	GPO_PR2
	A2	COM2_TXLEDP	C2	COM2_TXLEDN
	A3	COM2_RXLEDP	C3	COM2_RXLEDN
LED2	A1	GPO_PR1LED	C1	GPO_PR1
	A2	COM1_RXLEDP	C2	COM1_RXLEDN
	A3	COM1_TXLEDP	C3	COM1_TXLEDN
LED3	A1	3VSB	C1	BATTERY_LED
	A2	VCC3	C2	SATA_LED_N
	A3	VCC3	C3	PWR_LED_N

COM 2 Port

Connector type: DB-9 port, 9-pin D-Sub
Connector location: COM2

COM 2
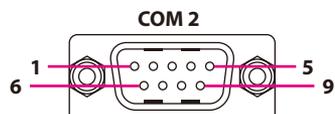
Pin	Definition	Pin	Definition
1	SP2_DCD	2	SP2_RXD
3	SP2_TXD	4	SP2_DTR
5	GND	6	SP2_DSR
7	SP2_RTS	8	SP2_CTS
9	SP2_RI		

COM 1 Port

Connector type: DB-9 port, 9-pin D-Sub
Connector location: COM1

COM 1
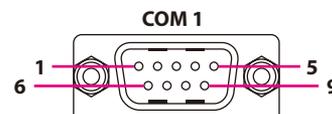
Pin	Definition	Pin	Definition
1	SP1_DCD	2	SP1_RXD
3	SP1_TXD	4	SP1_DTR
5	GND	6	SP1_DSR
7	SP1_RTS	8	SP1_CTS
9	SP1_RI		

External I/O Interfaces - Rear Panel

9V - 30V DC Power Input

Connector type: Phoenix Contact 1x3 3-pin terminal block
Connector location: PW1

LAN1 Port

Connector type: RJ45 port
Connector location: LAN1
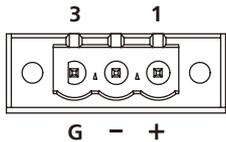
Pin	Definition
1	VIN_1
2	VIN_VSS
3	Chassis1_GND
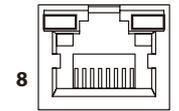
Pin	Definition	Pin	Definition
1	NC	2	LAN_MDI2N_1
3	LAN_MDI2P_1	4	LAN_MDI1P_1
5	LAN_MDI1N_1	6	NC
7	NC	8	LAN_MDI3P_1
9	LAN_MDI3N_1	10	LAN_MDI0N_1
11	LAN_MDI0P_1	12	NC
13	VPORT_POS_ALT_A	14	VPORT_NEG_ALT_A
15	NC	16	NC
L1	LAN_LED_LINK1G#	L2	LAN_LINK
L3	LAN_LED_ACT#	L4	LAN_ACTPW
NH1	NC	NH2	NC
MH1	CH_GND_FRONT	MH2	CH_GND_FRONT

LAN2 Port

Connector type: RJ45 port
Connector location: LAN2
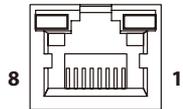
Pin	Definition	Pin	Definition
1	LAN2_MDI0P	2	LAN2_MDI0N
3	LAN2_MDI1P	4	LAN2_MDI1N
5	LAN2TCT	6	LAN1TCTG
7	LAN2_MDI2P	8	LAN2_MDI2N
9	LAN2_MDI3P	10	LAN2_MDI3N
11	LAN2_LED_LINK1G#	12	LAN2_LINK
13	LAN2_LED_ACT#	14	LAN2_ACTPW
NH1	NC	NH2	NC
MH1	CH_GND_FRONT	MH2	CH_GND_FRONT

USB 3.0 Ports

Connector type: Dual USB 3.0 port
Connector location: USB2
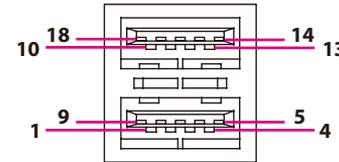
Pin	Definition	Pin	Definition
1	P5V_USB_P1	2	USB2_N1_C
3	USB2_P1_C	4	GND
5	USB3_RX0N_C	6	USB3_RX0P_C
7	GND	8	USB3_TX0N_C
9	USB3_TX0P_C	10	P5V_USB_P1
11	USB2_N2_C	12	USB2_P2_C
13	GND	14	USB3_RX1N_C
15	USB3_RX1P_C	16	GND
17	USB3_TX1N_C	18	USB3_TX1P_C
MH1	CH_GND_FRONT	MH2	CH_GND_FRONT
MH3	CH_GND_FRONT	MH4	CH_GND_FRONT

USB 3.0 Ports

Connector type: Dual USB 3.0 port
Connector location: USB1
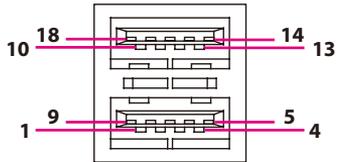
Pin	Definition	Pin	Definition
1	P5V_USB_P3	2	USB2_N3_C
3	USB2_P3_C	4	GND
5	USB3_RX2N_C	6	USB3_RX2P_C
7	GND	8	USB3_TX2N_C
9	USB3_TX2P_C	10	P5V_USB_P3
11	USB2_N4_C	12	USB2_P4_C
13	GND	14	USB3_RX3N_C
15	USB3_RX3P_C	16	GND
17	USB3_TX3N_C	18	USB3_TX3P_C
MH1	CH_GND_FRONT	MH2	CH_GND_FRONT
MH3	CH_GND_FRONT	MH4	CH_GND_FRONT

DisplayPort

Connector type: DisplayPort
Connector location: U9
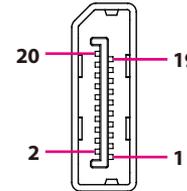
Pin	Definition	Pin	Definition
1	DP_DATA0_P_C	2	GND
3	DP_DATA0_N_C	4	DP_DATA1_P_C
5	GND	6	DP_DATA1_N_C
7	DP_DATA2_P_C	8	GND
9	DP_DATA2_N_C	10	DP_DATA3_P_C
11	GND	12	DP_DATA3_N_C
13	DPC_CONFIG1	14	DPC_CONFIG2
15	DPC_AUXP_C	16	GND
17	DPC_AUXN_C	18	DDI0HPD0
19	GND	20	DP_PWR
NH1	NC	NH2	NC
MH1	CH_GND_FRONT	MH2	CH_GND_FRONT
MH3	CH_GND_FRONT	MH4	CH_GND_FRONT

DVI-D Connector

Connector type: 24-pin D-Sub, 2.0mm-M-180 (DVI)
Connector location: CN2
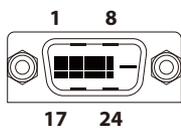
Pin	Definition	Pin	Definition
1	DVI_DATA2_N_C	2	DVI_DATA2_P_C
3	GND	4	NC
5	NC	6	DVI_CTRL_CLK
7	DVI_CTRL_DAT	8	NC
9	DVI_DATA1_N_C	10	DVI_DATA1_P_C
11	GND	12	NC
13	NC	14	DVI_PWR
15	GND	16	DDI1HPD0
17	DVI_DATA0_N_C	18	DVI_DATA0_P_C
19	DVI_DATA1_N_C	20	NC
21	NC	22	GND
23	DVI_CLK_P_C	24	DVI_CLK_N_C

Internal Connectors

FW BIOS Connector

Connector type: 2x3 6-pin header, 2.0mm pitch
Connector location: JFW1
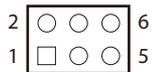
Pin	Definition	Pin	Definition
1	VSPI	2	GND
3	VSPI	4	BIOS_SPI_CLK
5	BIOS_SPI_SO	6	BIOS_SPI_SI

USB 2.0 Connector

Connector type: 1x4 4-pin header JST, 2.0mm pitch
Connector location: J6
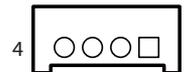
Pin	Definition
1	P5V_USB_P2
2	USB2_N7_C
3	USB2_P7_C
4	GND

Port 80 Connector

Connector type: 1x10 10-pin header, 1.0mm pitch
Connector location: J1

Pin	Definition	Pin	Definition
1	GND	2	PLTRST_N
3	LPC_CLK0_DEBUG	4	LPC_FRAME#
5	LPC_AD3	6	LPC_AD2
7	LPC_AD1	8	LPC_AD0
9	INT_SERIRQ_C	10	VCC3

COM Port 3 Connector

Connector type: 1x10 10-pin header, 1.0mm pitch
Connector location: COM3

Pin	Definition	Pin	Definition
1	SP3_DCD#_R	2	SP3_RXD_R
3	SP3_TXD_R	4	SP3_DTR#_R
5	GND	6	SP3_DSR#_R
7	SP3_RTS#_R	8	SP3_CTS#_R
9	SP3_RI#_R	10	GND

COM Port 4 Connector

Connector type: 1x10 10-pin header, 1.0mm pitch
Connector location: COM4

10 ☐ ○○○○○○○○○☐ 1

Pin	Definition	Pin	Definition
1	SP4_DCD#_R	2	SP4_RXD_R
3	SP4_TXD_R	4	SP4_DTR#_R
5	GND	6	SP4_DSR#_R
7	SP4_RTS#_R	8	SP4_CTS#_R
9	SP4_RI#_R	10	GND

GPS Connector

Connector type: 1x6 6-pin header JST, 1.0mm pitch
Connector location: J3

1 ☐○○○○○ 6
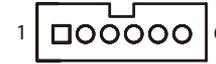
Pin	Definition	Pin	Definition
1	GPS_BAT	2	NC
3	COM3_TXD	4	COM3_RXD
5	GND	6	VCC3
MH1	GND	MH2	GND

SATA Connector

Connector type: Standard Serial ATA 7P (1.27mm, SATA-M-180)
Connector location: CN6
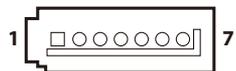
Pin	Definition	Pin	Definition
1	GND	2	SATA_TXP1_C
3	SATA_TXN1_C	4	GND
5	SATA_RXN1_C	6	SATA_RXP1_C
7	GND		

SATA Power Connector

Connector type: 1x2 2-pin header, 2.5mm pitch
Connector location: J2

Pin	Definition
1	GND
2	VCC5

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Remote Button/S3 Connector

Connector type: 1x3 3-pin header JST, 2.0mm pitch
Connector location: CN9

RTC Connector

Connector type: 1x2 2-pin header, 1.25mm pitch
Connector location: J5
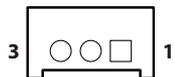
Pin	Definition
1	REMOTE_S3
2	GND
3	PBT_TR_C

Pin	Definition
1	GND
2	BATIN

GPIO Connector

Connector type: 1x10 10-pin header, 1.0mm pitch
Connector location: J4

10 ○○○○○○○○○□ 1

Pin	Definition	Pin	Definition
1	VCC5	2	GND
3	ICH_GPO0_OUT	4	ICH_GPI0_IN
5	ICH_GPO1_OUT	6	ICH_GPI1_IN
7	ICH_GPO2_OUT	8	ICH_GPI2_IN
9	ICH_GPO3_OUT	10	ICH_GPI3_IN

Mic-in Connector

Connector type: 1x4 4-pin header, 2.0mm pitch
Connector location: JP2

1 □○○○ 4

Pin	Definition
1	MIC1_L3
2	GND
3	MIC_JD
4	MIC1_R3

Line-out Connector

Connector type: 1x4 4-pin header, 2.0mm pitch
Connector location: JP4

1 □ ○ ○ ○ 4

Pin	Definition
1	LOUT_L3
2	GND
3	LINE_OUT_JD
4	LOUT_R3

Line-in Connector

Connector type: 1x4 4-pin header, 2.0mm pitch
Connector location: JP3

1 □ ○ ○ ○ 4

Pin	Definition
1	FLIN_L
2	GND
3	LIN_JD
4	FLIN_R

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PoE Connector

Connector type: 1x5 5-pin header, 2.5mm pitch
Connector location: JP1
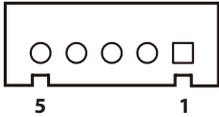
Pin	Definition	Pin	Definition
1	VIN	2	GND
3	3VSB	4	VPORT_POS_ALT_A
5	VPORT_NEG_ALT_A		

Mini-PCIe Connector

Connector location: CN7
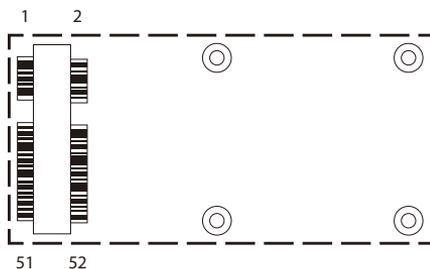
Pin	Definition	Pin	Definition
1	3P3_WAKE0#	2	3VSB_MINI1
3	NC	4	GND
5	NC	6	VCC1_5#1
7	PCIE_CLKREQ2#	8	UIM_PWR
9	GND	10	UIM_DATA
11	PCIE_CLKOUT2N	12	UIM_CLK
13	PCIE_CLKOUT2P	14	UIM_RESET
15	GND	16	UIM_VPP
17	NC	18	GND
19	NC	20	MINICARD1DIS#
21	GND	22	RST_MINIPCIE1
23	RXN2_R	24	3VSB_MINI1
25	RXP2_R	26	GND

Pin	Definition	Pin	Definition
27	GND	28	VCC1_5#1
29	GND	30	SMB_CLK_3P3
31	TXN2_R	32	SMB_DATA_3P3
33	TXP2_R	34	GND
35	GND	36	USB2_N5C
37	GND	38	USB2_P5C
39	3VSB_MINI1	40	GND
41	3VSB_MINI1	42	NC
43	GND	44	NC
45	CL_CLK_C	46	NC
47	CL_DAT_C	48	VCC1_5#1
49	CL_RST#_C	50	GND
51	NC	52	3VSB_MINI1

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M.2 Connector

Connector location: CN4

Pin	Definition	Pin	Definition
1	GND	2	3VSB
3	GND	4	3VSB
5	GND	6	
7	USB2_P6_C	8	N44177869
9	USB2_N6_C	10	
11	GND	12	
17		18	
19		20	
21		22	
23		24	
25		26	
27	GND	28	UIM_VPP1
29		30	UIM_RESET1
31		32	UIM_CLK1
33	GND	34	UIM_DATA1
35		36	UIM_PWR1
37		38	
39	GND	40	

Pin	Definition	Pin	Definition
41	PCIE_mSATA_RXP	42	
43	PCIE_mSATA_RXN	44	
45	GND	46	
47	PCIE_mSATA_TXN	48	
49	PCIE_mSATA_TXP	50	R CN4_PLTRST_C
51	GND	52	PCIE_CLKREQ3#
53	PCIE_CLKOUT3N	54	3P3_WAKE0#
55	PCIE_CLKOUT3P	56	
57	GND	58	
59		60	
61		62	
65		66	
67	M.2_RESET	68	SUS_CLK
69	PCIE_mSATA_SEL	70	3VSB
71	GND	72	3VSB
73	GND	74	3VSB
75	USB3_OTHER_SEL		

CHAPTER 3: SYSTEM SETUP

Removing the Chassis 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. Locate the 6 screws on the bottom side of the chassis cover.
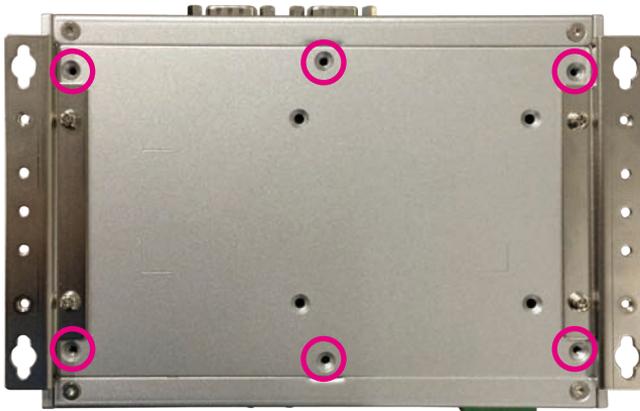
2. Remove the 6 screws on the bottom side of the chassis cover.
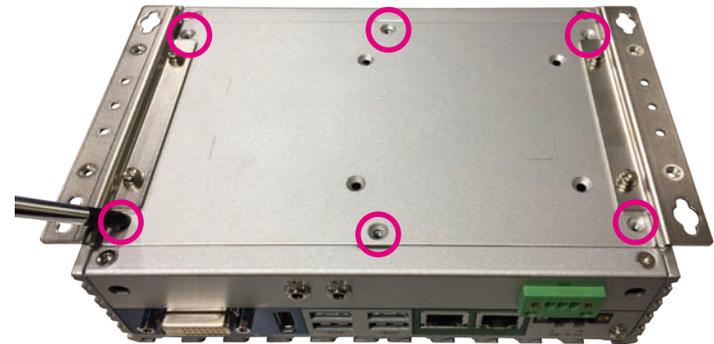
3. Remove the chassis cover.

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 a Wireless LAN Module (Half-size)

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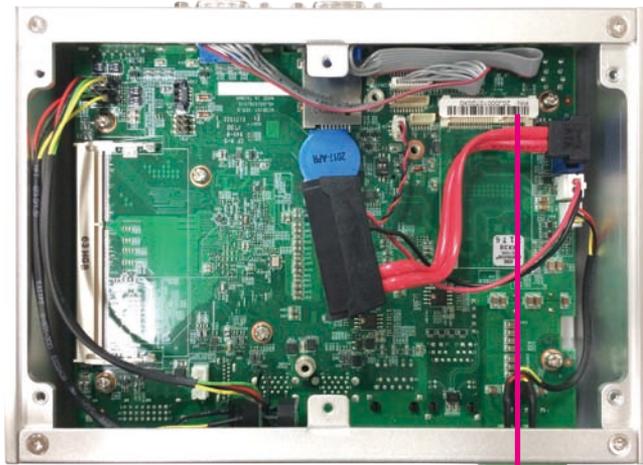
Mini-PCIe Slot

2. Install the mini-PCIe bracket to the mini-PCIe module.
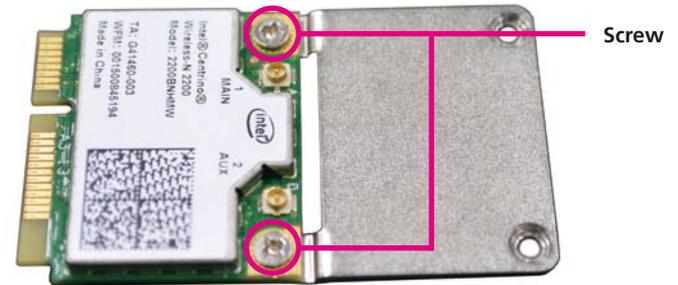
Screw

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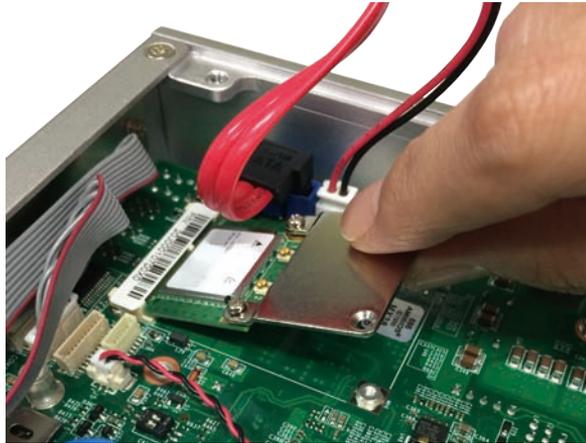
4. Push the module down and secure it with a screw.

Installing a SIM Card

1. Release the SIM card cover.

2. Insert the SIM card into the slot.

3. Close the cover and secure it to the original position.

Installing a SATA Storage Drive

1. The inner side of the bottom cover is where you will install the SATA drive. Align the mounting holes of the SATA drive with the mounting holes on the cover.

2. While supporting the SATA drive, turn the cover to the other side. This will be the outer side of the cover. Use the provided screws to secure the drive in place.
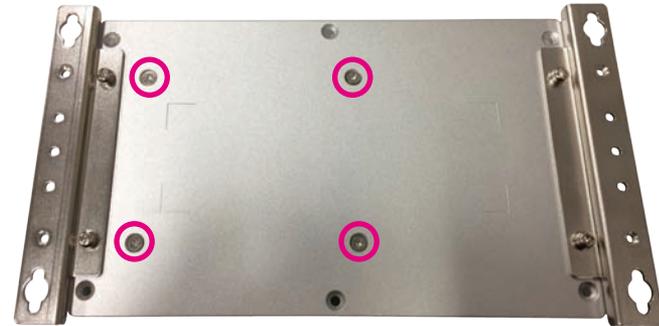
3. Connect the SATA data/power cable to the SATA drive.

4. Connect the SATA data/power cable to connectors CN6 and J2 on the motherboard respectively.

Installing an M.2 Card

1. Locate the M.2 tray at the front and remove the screws on it.

2. Remove the tray of the M.2 socket.

3. Insert the M.2 module into the tray.

4. Secure the module with a screw.

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

Six-Pin ———————— **Five-Pin**
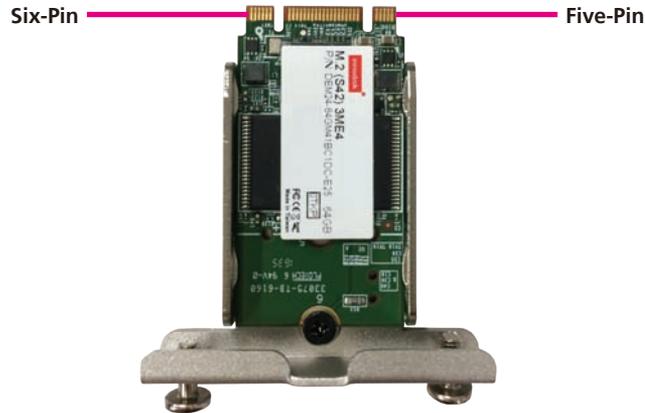
6. Insert the M.2 module and fasten the cover.

CHAPTER 4: BIOS SETUP

This chapter describes how to use the BIOS setup program for NISE 107. The BIOS screens provided in this chapter are for reference only and may change if the BIOS is updated in the future.

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

About BIOS Setup

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

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

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

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

When to Configure the BIOS

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

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

Default Configuration

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

Entering Setup

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

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

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

Powering on the computer and immediately pressing <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.

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

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

```
           Aptio Setup Utility - Copyright (C) 2017 American Megatrends, Inc.
   Main      Advanced    Chipset    Security     Boot     Save & Exit

   BIOS Information                                       Set the Date. Use Tab to
   BIOS Vendor            American Megatrends             switch between Date elements.
   Core Version           5.12                            Default Ranges:
   Compliancy             UEFI 2.5; PI 1.4                Year: 2005-2099
   Project Version        N107T002 x64                    Months: 1-12
   Build Date and Time    06/29/2017 15:32:50             Days: dependent on month
   Access Level           Administrator

   Platform firmware Information
   BXT SOC                B1
   TXE FW                 3.0.13.1144
   GOP                    10.0.1036

   Memory Information                                     →←: Select Screen
   Total Memory           2048 MB                         ↑↓: Select Item
   Memory Speed           1866 MHz                        Enter: Select
                                                          +/-: Change Opt.
   System Date            [Wed 03/27/2013]                F1: General Help
   System Time            [23:40:30]                      F2: Previous Values
                                                          F3: Optimized Defaults
                                                          F4: Save & Exit
                                                          ESC: Exit


           Version 2.18.1263. Copyright (C) 2017 American Megatrends, Inc.
```

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) 2017 American Megatrends, Inc.	
Main　**Advanced**　**Chipset**　**Security**　**Boot**　**Save & Exit**	
► **ACPI Settings**	Trusted Computing Settings
► **IT8786E Super IO Configuration**	
► **Hardware Monitor**	
► **CPU Configuration**	
► **Network Stack Configuration**	
► **Trusted Computing**	
► **USB Configuration**	
	→←: Select Screen
	↑↓: Select Item
	Enter: Select
	+/-: Change Opt.
	F1: General Help
	F2: Previous Values
	F3: Optimized Defaults
	F4: Save & Exit
	ESC: Exit
Version 2.18.1263. Copyright (C) 2017 American Megatrends, Inc.	

ACPI Settings

This section is used to configure ACPI settings.

Aptio Setup Utility - Copyright (C) 2017 American Megatrends, Inc.	
Advanced	
ACPI Settings	Enables or Disables System ability to Hibernate (OS/S4 Sleep State). This option may be not effective with some OS.
Enable Hibernation　　　　[Enabled]	
ACPI Sleep State　　　　　[S3 (Suspend to RAM)]	
	→←: Select Screen
	↑↓: Select Item
	Enter: Select
	+/-: Change Opt.
	F1: General Help
	F2: Previous Values
	F3: Optimized Defaults
	F4: Save & Exit
	ESC: Exit
Version 2.18.1263. Copyright (C) 2017 American Megatrends, Inc.	

Enable Hibernation
Enables or disables system ability to hibernate (OS/S4 Sleep State). This option may not be effective with some OS.

ACPI Sleep State
Select the highest ACPI sleep state the system will enter when the suspend button is pressed. The options are Suspend Disabled and S3 (Suspend to RAM).

IT8786E Super IO Configuration

This section is used to configure the I/O functions supported by the onboard Super I/O chip.

```
            Aptio Setup Utility - Copyright (C) 2017 American Megatrends, Inc.
    Advanced

    IT8786E Super IO Configuration                          Set Parameters of Serial Port
                                                            1 (COMA)
    Super IO Chip                   IT8786E
  ▶ Serial Port 1 Configuration
  ▶ Serial Port 2 Configuration
  ▶ Serial Port 3 Configuration
  ▶ Serial Port 4 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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```

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) 2017 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]
    Terminal resistor               [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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```

Serial Port
Enables or disables the serial port.

Onboard Serial Port Mode
Select this to change the serial port mode to RS232, RS422 or RS485.

Terminal Resistor
Enables or disables the terminal resistor.

Serial Port 2 Configuration

This section is used to configure serial port 2.

```
                Aptio Setup Utility - Copyright (C) 2017 American Megatrends, Inc.
                Advanced

        Serial Port 2 Configuration                                   Enable or Disable Serial Port
                                                                      (COM)
        Serial Port                          [Enabled]
        Device Settings                      IO=2F8h; IRQ=5;
        Onboard Serial Port Mode             [RS232]
        Terminal resistor                    [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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```

Serial Port
Enables or disables the serial port.

Onboard Serial Port Mode
Select this to change the serial port mode to RS232, RS422 or RS485.

Terminal Resistor
Enables or disables the terminal resistor.

Serial Port 3 Configuration

This section is used to configure serial port 3.

```
                Aptio Setup Utility - Copyright (C) 2017 American Megatrends, Inc.
                Advanced

        Serial Port 3 Configuration                                   Enable or Disable Serial Port
                                                                      (COM)
        Serial Port                          [Enabled]
        Device Settings                      IO=3E8h; IRQ=11;
        GPS                                  [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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```

Serial Port
Enables or disables the serial port.

GPS
Enables or disables GPS.

Serial Port 4 Configuration

This section is used to configure serial port 4.

```
Aptio Setup Utility - Copyright (C) 2017 American Megatrends, Inc.
  Advanced

  Serial Port 4 Configuration                              Enable or Disable Serial Port
                                                           (COM)
  Serial Port                        [Enabled]
  Device Settings                    IO=2E8h; IRQ=10;




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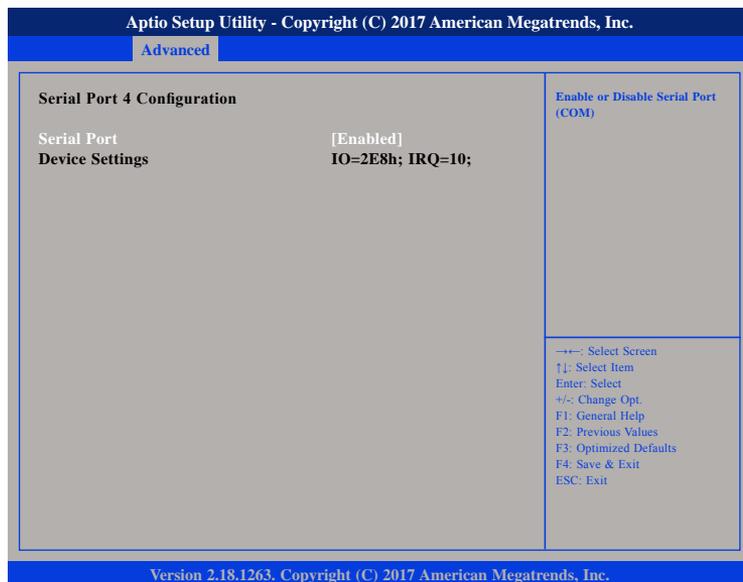
Serial Port
Enables or disables the serial port.

Hardware Monitor

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

```
Aptio Setup Utility - Copyright (C) 2017 American Megatrends, Inc.
    Advanced

  Pc Health Status

  CPU temperature(DTS)            : +42 °c
  System temperature             : +34 °c
  VCore                          : +0.912 V
  VDDQ                           : +1.356 V
  VCC5                           : +4.980 V
  VCC3                           : +3.326 V


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


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```

CPU temperature(DTS)
Detects and displays the current CPU temperature.

System temperature
Detects and displays the current system temperature.

VCore to VCC3
Detects and displays the output voltages.

CPU Configuration

This section is used to configure the CPU.

```
          Aptio Setup Utility - Copyright (C) 2017 American Megatrends, Inc.
  Advanced

  CPU Configuration                                    Socket specific CPU Information

► Socket 0 CPU Information

  Speed                        1600 MHz
  64-bit                       Supported

► CPU Power Management
  Active Processor Cores       [Disabled]
  Intel Virtualization Technology  [Disabled]
  VT-d                         [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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```

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

Core 1
Enables or disables CPU core 1.

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

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

Socket 0 CPU Information

Display information on the CPU installed on socket 0.

```
          Aptio Setup Utility - Copyright (C) 2017 American Megatrends, Inc.
  Advanced

  Socket 0 CPU Information

  Intel(R) Atom(TM) Processor E3950 @ 1.60GHz
  CPU Signature                506C9
  Microcode Patch              28
  Max CPU Speed                1600 MHz
  Min CPU Speed                800 MHz
  Processor Cores              4
  Intel HT Technology          Not Supported
  Intel VT-x Technology        Supported

  L1 Data Cache                24 kB x 4
  L1 Code Cache                32 kB x 4
  L2 Cache                     1024 kB x 2
  L3 Cache                     Not Present

                                                     →←: 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 Power Management

Aptio Setup Utility - Copyright (C) 2017 American Megatrends, Inc.	
Advanced	
CPU Power Management Configuration	Enable/Disable Intel SpeedStep
EIST [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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EIST
Enables or disables Intel® SpeedStep.

Network Stack

This section is used to configure the network stack.

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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
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Network Stack
Enables or disables UEFI network stack.

Trusted Computing

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

```
                Aptio Setup Utility - Copyright (C) 2017 American Megatrends, Inc.
        Advanced

    Configuration                                              Enables or Disables BIOS
    Security Device Support            [Enable]                support for security device.
       NO Security Device Found                                O.S. will not show Security
                                                               Device. TCG EFI protocol and
                                                               INT1A interface will not be
                                                               available.



                                                               →←: 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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```

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.

USB Configuration

This section is used to configure the USB.

```
             Aptio Setup Utility - Copyright (C) 2017 American Megatrends, Inc.
      Advanced

   USB Configuration                                      Enables Legacy USB support.
                                                          AUTO option disables legacy
   USB Module Version            17                       support if no USB devices are
                                                          connected. DISABLE option will
   USB Controllers:                                       keep USB devices available
        1 XHCI                                            only for EFI applications.
   USB Devices:
        1 Keyboard

   Legacy USB Support            [Disabled]
   XHCI Hand-off                 [Enabled]
   USB Mass Storage Driver Support  [Enabled]

   USB hardware delays and time-outs:                     →←: Select Screen
   USB transfer time-out         [20 sec]                 ↑↓: Select Item
   Device reset time-out         [20 sec]                 Enter: Select
   Device power-up delay         [Auto]                   +/-: Change Opt.
                                                          F1: General Help
                                                          F2: Previous Values
                                                          F3: Optimized Defaults
                                                          F4: Save & Exit
                                                          ESC: Exit



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```

Legacy USB Support

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

XHCI Hand-off

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

USB Mass Storage Driver Support

Enables or disables USB mass storage driver support.

USB Transfer Time-out

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

Device Reset Time-out

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

Device Power-up Delay

Maximum time the value will take before it properly reports itself to the Host Controller. "Auto" uses default value: for a Root port it is 100 ms, for a Hub port the delay is taken from Hub descriptor.

Chipset

This section is used to configure the system based on the specific features of the chipset.

Aptio Setup Utility - Copyright (C) 2017 American Megatrends, Inc.

Main	Advanced	Chipset	Security	Boot	Save & Exit

► South Bridge
► **South Cluster 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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⚠ Setting incorrect field values may cause the system to malfunction.

South Bridge

Aptio Setup Utility - Copyright (C) 2017 American Megatrends, Inc.

Chipset

SMBus Support	[Enabled]	Enable/Disable SMBus Support

→←: 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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SMBus Support
Enables or disables SMBus support.

South Cluster Configuration

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Chipset

► HD-Audio Configuration	HD-Audio Configuration Settings
► SATA Drives	
► USB Configuration	
► Miscellaneous 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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HD-Audio Configuration

Aptio Setup Utility - Copyright (C) 2017 American Megatrends, Inc.

Chipset

HD-Audio Configuration		Enable/Disable HD-Audio Support
HD-Audio Support	[Enable]	
		→←: Select Screen
		↑↓: Select Item
		Enter: Select
		+/-: Change Opt.
		F1: General Help
		F2: Previous Values
		F3: Optimized Defaults
		F4: Save & Exit
		ESC: Exit

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HD-Audio Support
Enables or disables HD Audio support.

SATA Drives

Aptio Setup Utility - Copyright (C) 2017 American Megatrends, Inc.	
Chipset	

SATA Drives

Chipset-SATA Controller Configuration
Chipset SATA   [Enable]

 SATA Port 0   [Not Installed]
 Port 0   **[Enabled]**

 SATA Port 1   [Not Installed]
 Port 1   **[Enabled]**

Enables or Disables the Chipset SATA Controller. The Chipset SATA controller supports the 2 black internal SATA ports (up to 3Gb/s supported per port).

→←: 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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Chipset SATA
Enables or disables the SATA controller chipset. The SATA controller chipset supports the 2 black internal SATA ports (up to 3Gb/s supported per port).

Port 0
Enables or disables SATA port 0.

Port 1
Enables or disables SATA port 1.

USB Configuration

Aptio Setup Utility - Copyright (C) 2017 American Megatrends, Inc.	
Chipset	

xHCI Mode   [Enable]

Once disabled, XHCI controller would be function disabled, none of the USB devices are detectable and usable during boot up and in OS. Do not disable it unless for debug purposes.

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

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xHCI Mode
Enables or disables XHCI mode. Once disabled, XHCI controller function will be disabled and all the USB devices will not be detectable and usable during boot up and in OS. Please do not disable it unless for debugging purposes.

Miscellaneous Configuration

Aptio Setup Utility - Copyright (C) 2017 American Megatrends, Inc.	
Chipset	

Miscellaneous Configuration		Enable or Disable the High
High Precision Timer	**[Enable]**	Precision Event Timer
State After G3	**[S0 State]**	
USB Power State in S5	**[ON]**	
		→←: 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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High Precision Timer
Enables or disables high precision event timer.

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

USB Power State in S5
Configures the USB power state in S5.

Security

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

Password Description	Set Setup 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
Setup 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

Aptio Setup Utility - Copyright (C) 2017 American Megatrends, Inc.					
Main	**Advanced**	**Chipset**	**Security**	**Boot**	**Save & Exit**

```
Boot Configuration                                              Select the keyboard NumLock
Bootup NumLock State              [On]                          state
Quiet Boot                        [Disabled]

Boot Option Priorities
Boot Option #1                    [UEFI: Built-in EFI . . .]
Fast Boot                         [Disable]




                                                               →←: 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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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

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

Enables or disables boot with initialization of a minimal set of devices required to launch active boot option. Has no effect for BBS boot options.

Save & Exit

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

Save Options
Save Changes and Reset
Discard Changes and Reset

Default Options
Restore Defaults

Reset the system after saving the changes.

→←: 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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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 reboot the system without saving the changes, select this field then press <Enter>. You may be prompted to confirm again before exiting.

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