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PREFACE

Copyright

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Acknowledgements

NISE 50 and NISE 50W are trademarks of NEXCOM International Co., Ltd. All other product names mentioned herein are registered trademarks of their respective owners.

Regulatory Compliance Statements

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

Declaration of Conformity

FCC

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

CE

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

RoHS Compliance

NEXCOM RoHS Environmental Policy and Status Update

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

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

In order to meet the RoHS compliant directives, NEXCOM has established an engineering and manufacturing task force 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

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.

Installation Recommendations

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

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

- A Philips screwdriver

- A flat-tipped screwdriver

- A grounding strap

- An anti-static pad

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

Safety Information

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

- Read all instructions carefully.

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

- Follow all warnings and cautions in this manual.

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

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

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

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

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.

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

CAUTION! This product is intended to be supplied by a Listed Power Adapter, rated 24Vdc, 5A minimum, Tma = 55 degrees C, and the altitude of operation = 2000m.
(2000m for general requirement, 5000m for collocation with Adapter: FSP Group Inc. / FSP060-DAAN2.)
If need further assistance with purchasing the power source, please contact to NEXCOM (mfr.) for further information.

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NISE 50 and NISE 50W User Manual

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.

Global Service Contact Information

Headquarters
NEXCOM International Co., Ltd.

9F, No. 920, Chung-Cheng Rd.,
ZhongHe District, New Taipei City, 23586,
Taiwan, R.O.C.
Tel: +886-2-8226-7786
Fax: +886-2-8226-7782
www.nexcom.com

America
USA
NEXCOM USA

2883 Bayview Drive,
Fremont CA 94538, USA
Tel: +1-510-656-2248
Fax: +1-510-656-2158
Email: sales@nexcom.com
www.nexcom.com

Asia
Taiwan
NEXCOM Intelligent Systems

Taipei Office
13F, No.920, Chung-Cheng Rd.,
ZhongHe District,
New Taipei City, 23586, Taiwan, R.O.C.
Tel: +886-2-8226-7796
Fax: +886-2-8226-7792
Email: sales@nexcom.com.tw
www.nexcom.com.tw

NEXCOM Intelligent Systems
Taichung Office

16F, No.250, Sec. 2, Chongde Rd.,
Beitun Dist.,
Taichung City 406, R.O.C.
Tel: +886-4-2249-1179
Fax: +886-4-2249-1172
Email: sales@nexcom.com.tw
www.nexcom.com.tw

Japan
NEXCOM Japan

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

China
NEXCOM China

1F & 2F, Block A, No. 16 Yonyou Software Park,
No. 68 Beiqing Road, Haidian District,
Beijing, 100094, China
Tel: +86-10-5704-2680
Fax: +86-10-5704-2681
Email: sales@nexcom.cn
www.nexcom.cn

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NEXCOM Shanghai

Room 603/604, Huiyinmingzun Plaza Bldg., 1,
No.609, Yunlin East Rd.,
Shanghai, 200333, China
Tel: +86-21-5278-5868
Fax: +86-21-3251-6358
Email: sales@nexcom.cn
www.nexcom.cn

NEXCOM Surveillance Technology

Room 209, Floor 2 East, No.2,
Science & Technology industrial park of
privately owned enterprises,
Xili, Nanshan Dist.,
Shenzhen, 518055, China
Tel: +86-755-8364-7768
Fax: +86-755-8364-7738
Email: steveyang@nexcom.com.tw
www.nexcom.cn

NEXCOM United System Service

Hui Yin Ming Zun Building Room 1108,
Building No. 11, 599 Yunling Road, Putuo District,
Shanghai, 200062, China
Tel: +86-21-6125-8282
Fax: +86-21-6125-8281
Email: frankyang@nexcom.cn
www.nexcom.cn

Europe
United Kingdom
NEXCOM EUROPE

10 Vincent Avenue,
Crownhill Business Centre,
Milton Keynes, Buckinghamshire
MK8 0AB, United Kingdom
Tel: +44-1908-267121
Fax: +44-1908-262042
Email: sales.uk@nexcom.eu
www.nexcom.eu

Italy
NEXCOM ITALIA S.r.l

Via Lanino 42,
21047 Saronno (VA), Italia
Tel: +39 02 9628 0333
Fax: +39 02 9625 570
Email: nexcomitalia@nexcom.eu
www.nexcomitalia.it

Package Contents

Before continuing, verify that the package that you received is complete. Your NISE 50/NISE 50W package should have all the items listed in the following tables.

NISE 50

Item	Part Number	Description	Qty
1	6012200052X00	PE Zipper Bag #8 170x240mm	1
2	60177A0433X00	NISE 50 Quick Reference Guide VER: A Size: A4	1
3	6012200053X00	PE Zipper Bag #3 100x70mm	2
4	50311F0330X00	Round Head Screw P2x3 NI Nylok	6
5	4NCPM00302X00	Terminal Blocks 3P Male DIP Green	1
6	5060900226X00	Mini PCIe Bracket 29x30x2.1mm SPCC t= 1.0mm NI	1
7	50311F0295X00	Flat Head Screw F2x4 NIGP Nylok	2
8	602DCD1143X00	NISE 50 DVD Driver VER: 1.0	1

NISE 50W

Item	Part Number	Description	Qty
1	6012200052X00	PE Zipper Bag #8 170x240mm	1
2	60177A0433X00	Quick Reference Guide VER:A SIZE:A4	1
3	6012200053X00	PE Zipper Bag #3 100x70mm	2
4	50311F0330X00	Round Head Screw P2x3 NI NYLOK	6
5	4NCPM00302X00	Terminal Blocks 3P Male DIP Green	1
6	5060900226X00	Mini PCIe Bracket 29x30x2.1mm SPCC t=1.0mm NI	1
7	50311F0295X00	Flat Head Screw F2x4 NIGP Nylok	2
8	602DCD1143X00	DVD Driver VER: 1.0	1
9	6012200126X00	Chain Bag #6 170x120mm	1
10	4BJK0100A1X10	PCB For HDD Tray 100x94mm Thickness:1.6mm	1
11	50311F0144X00	I Head Screw: M3x4mm	8

Ordering Information

The following information below provides ordering information for NISE 50 and NISE 50W.

- **Barebone**

NISE 50 (P/N: 10J00005000X0)
- Intel® Atom™ processor E3826 dual core fanless system, with onboard 16GB EMMC and 2GB DDR3L RAM

NISE 50W (P/N:10J00005011X0)
- Intel® Atom™ processor E3826 dual core fanless system, with onboard 16GB EMMC and 2G DDR3L RAM

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

CHAPTER 1: PRODUCT INTRODUCTION

Overview

NISE 50

NISE 50W

Key Features

- Onboard Intel® Atom™ processor E3826 dual core, 1.46GHz

- 1x HDMI display

- 2x Intel® I120AT GbE LAN ports; support WoL, Teaming and PXE

- 4x USB 2.0

- 3x mini-PCIe sockets for optional Wi-Fi/3.5G/LTE modules

- 1x RS232, 1x RS232 (only Tx/Rx/GND), 1x RS422/485 with auto flow control

- Support -5 ~ 55 degree C operating temperature

- Support 24V DC input

- 1x 2.5" Front Accessible HDD Tray (NISE 50W only)

Hardware Specifications

CPU Support

- Default: Onboard Intel® Atom™ processor E3826 Dual Core, 1.46GHz
- Optional: Support Intel® Atom™ processor E3845 Quad Core,1.91GHz (by request)

Main Memory

- Onboard 2GB DDR3L 1066/1333 RAM
  - Un-buffered and non-ECC
  - Max up to 4GB for option

Display Option

- 1x HDMI display

I/O Interface - Front

- ATX power on/off switch
- 1x Storage/2x GPO programmable LED
- 1x SIM card holder
- 2x Intel® I210AT GbE LAN ports; support WoL, Teaming and PXE
- 1x HDMI Display Output
- 4x USB 2.0 (500mA per each)
- 2x Antenna holes for optional Wi-Fi/3.5G antenna

I/O Interface - Rear

- 3x DB9 for COM1 & COM2 & COM3
  - COM1: Full RS232 signal
  - COM2: RS232, only supports Tx/Rx/GND
  - COM3: RS422/485 auto flow control
- 1x Line-out
- Support 24V DC INPUT

I/O Interface - Internal

- 4x GPI and 4x GPO (Programmable to GPI or GPO)
- 1x DB9, only supports RS232, Tx/Rx/GND single

Storage Device

- Onboard 16GB EMMC
- Optional mSATA module
- Optional 2.5" HDD/SSD in 7mm thickness (NISE 50W only)

Expansion Slot

- 3x Mini-PCIe sockets for optional Wi-Fi/3.5G modules

Mini-PCIe	Size	USB	PCIe	mSATA	3.5G/4G
CN5	Full	✓	N/A	Support	Support
CN6	Full	✓	✓	N/A	Support
CN7	Half	✓	✓	N/A	N/A

Power Requirements

- Power input: 24V DC +/-20%
- 1x optional 24V, 60W power adapter

Support OS

Model Name		NISE 50		NISE 50-4G-32G		NISE 50W
Storage		eMMC 16GB	mSATA	eMMC 32GB	mSATA	SSD
Memory		2GB		4GB		2GB
OS	**Android 4.4**	64-bit		64-bit		
	Windows 10 IoT Enterprise			64-bit	64-bit	
	WES8	32-bit	32-bit	64-bit	64-bit	32-bit
	Windows 7 Professional		32-bit		64-bit	32-bit
	WES7E		32-bit		64-bit	32-bit
	WEC7		32-bit		32-bit	32-bit

* Note: Only one LAN can be active under Android 4.4.

Dimensions

- NISE 50: 162mm(W) x 26mm(H) x 150mm(D) without wall-mount bracket
- NISE 50W: 261mm(W) x 26mm(H) x 150mm(D) without wall-mount bracket

Construction

- Metal chassis with fanless design

Environment

- Operating Temperature:
  Ambient with air flow: -5°C to 55°C
  (According to IEC60068-2-1, IEC60068-2-2, IEC60068-2-14)
- Storage Temperature: -20°C to 75°C
- Relative Humidity: 10% to 95% (non-condensing)
  NISE 50:
  - Shock Protection:
    - mSATA / EMMC: 50G, half sine, 11ms, IEC60068-27
  - Vibration protection w/mSATA or EMMC condition:
    - Random: 2Grms @ 5~500 Hz, IEC60068-2-64
    - Sinusoidal: 2Grms @ 5~500 Hz, IEC60068-2-6
  NISE 50W:
  - Shock Protection:
    - HDD: 20G, half sine, 11ms, IEC60068-27
    - SSD / mSATA: 50G, half sine, 11ms, IEC60068-27
  - 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/SSD or mSATA condition:
    - Random: 2Grms @ 5~500 Hz, IEC60068-2-64
    - Sinusoidal: 2Grms @ 5~500 Hz, IEC60068-2-6

Certifications

- CE
- FCC Class A
- UL/cUL

Knowing Your NISE 50 and NISE 50W

Front Panel

NISE 50

Antenna Hole   **LEDs**   **Antenna Hole**

Power **SIM** **HDMI** **USB 2.0** **LAN**
Switch

NISE 50W

Antenna Hole   **LEDs**   **Antenna Hole**

HDD/SSD **Power** **SIM** **HDMI** **USB 2.0** **LAN**
Drive Bay **Switch**
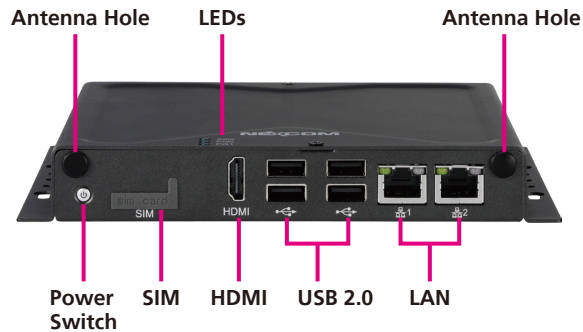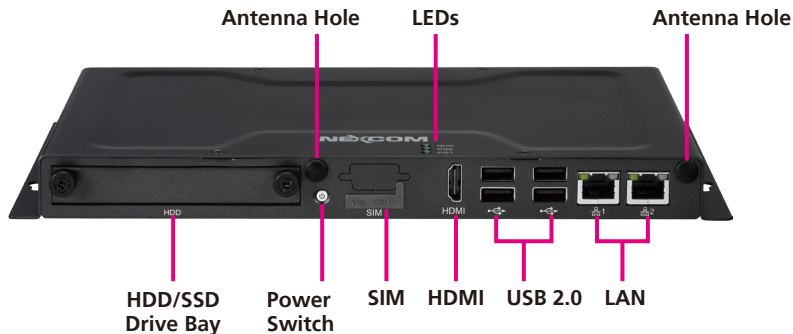
HDD/SSD Drive Bay
Used to install a 2.5" HDD/SSD.

Antenna Hole
Used to install external antennas.

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

SIM
Used to insert a SIM card.

LED Indicators
Indicates the hard drive and GPIO (programmable) activity of the system.

HDMI
Used to connect a high-definition display.

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

LAN
Used to connect the system to a local area network.

Rear Panel

NISE 50

DC Input   **COM1/2/3**   **Line-out**

NISE 50W

DC Input   **COM1/2/3**   **Line-out**
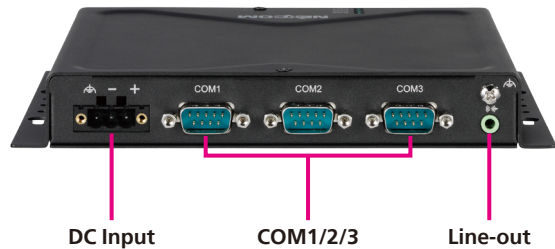
DC Input
Used to plug a DC power cord.

COM1 to COM3
Three DB9 ports used to connect serial devices.
– COM1: Full RS232 signal
– COM2: RS232, only supports Tx/Rx/GND
– COM3: RS422/485 auto flow control

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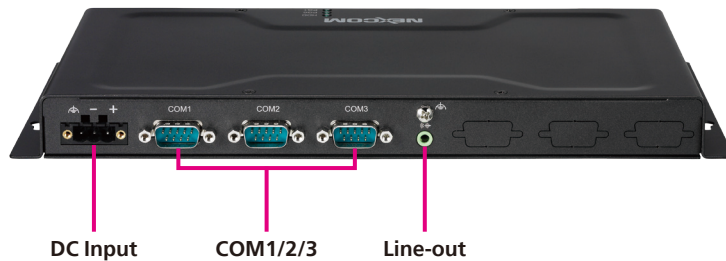
Mechanical Dimensions

NISE 50

4.00
Ø8.00
Ø 3.70
25.00
70.00
150.00
174.00
186.00
162.00
26.00

sim card
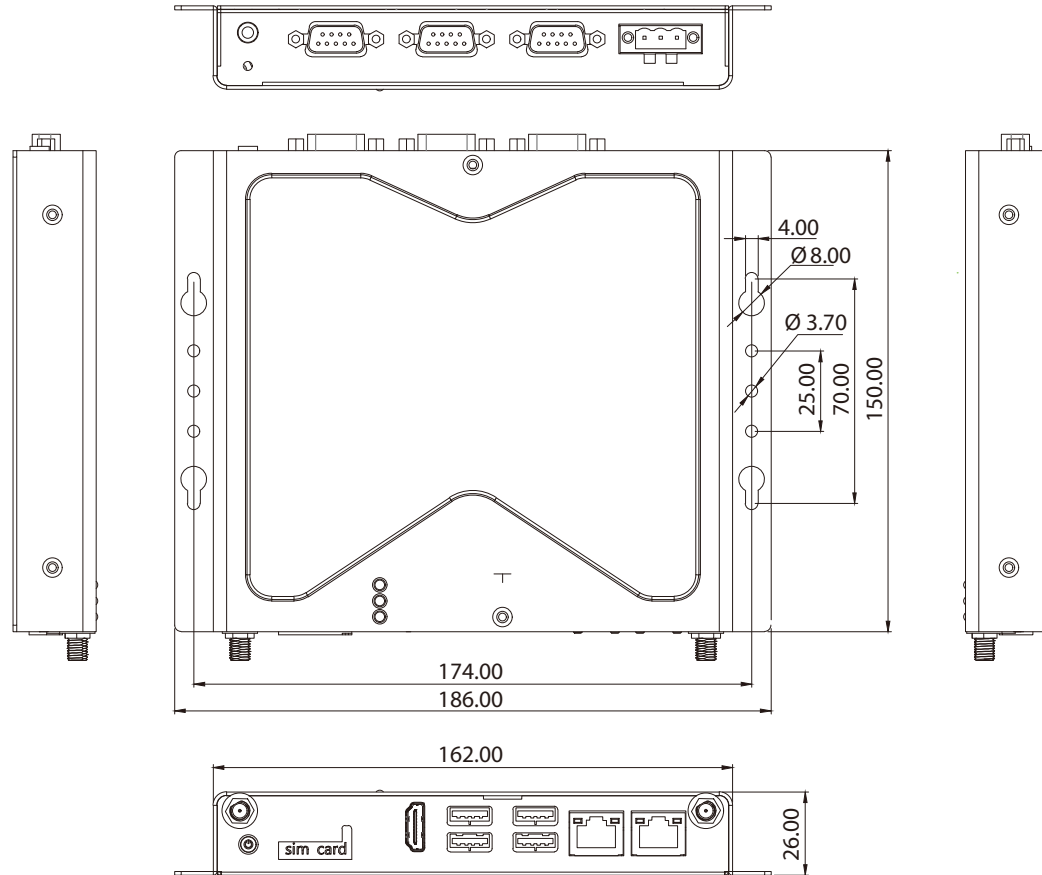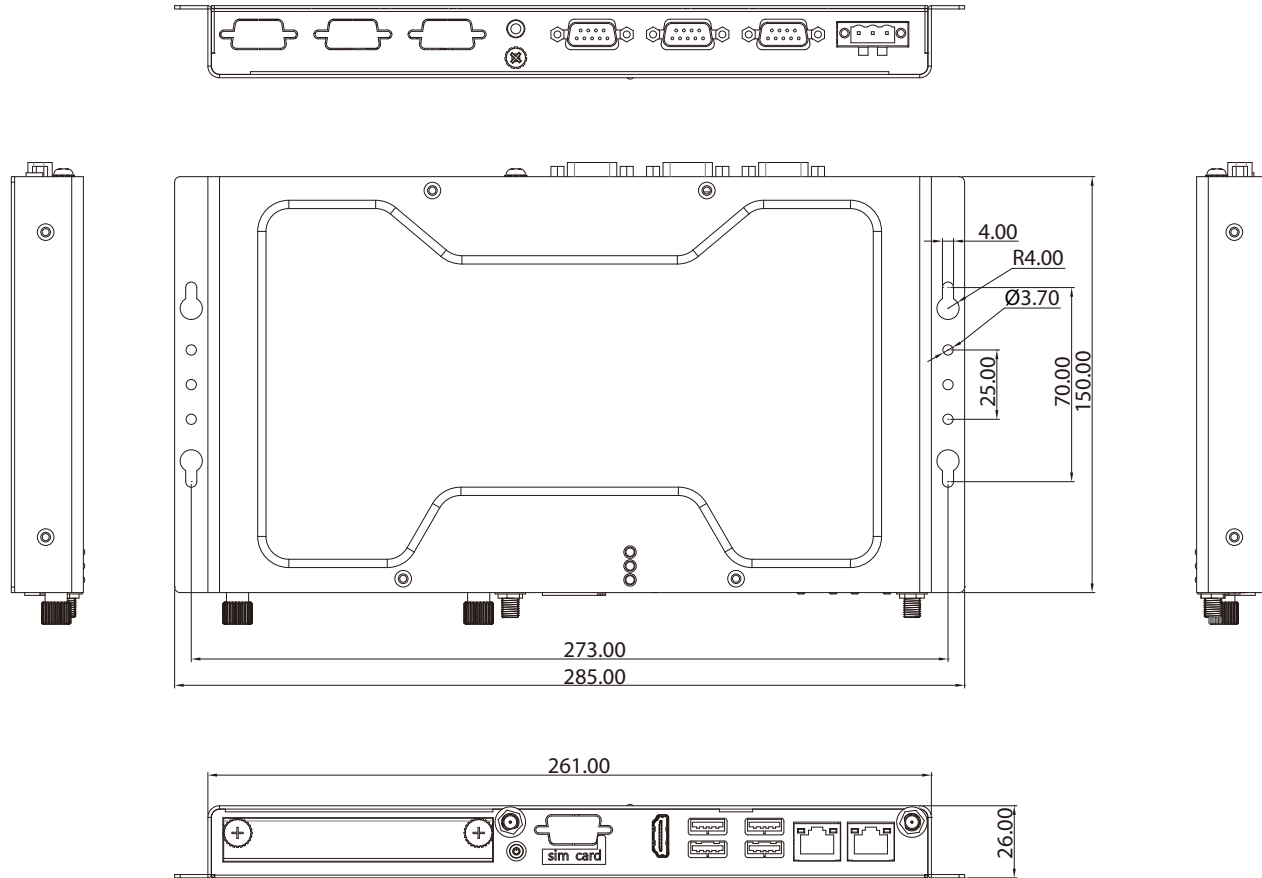
NISE 50W

CHAPTER 2: JUMPERS AND CONNECTORS

This chapter describes how to set the jumpers and connectors on the NISE 50 and NISE 50W 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.

8 NISE 50 and NISE 50W 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)
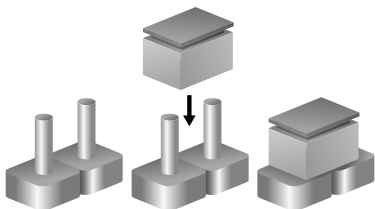
Three-Pin Jumpers: Pins 1 and 2 are Short
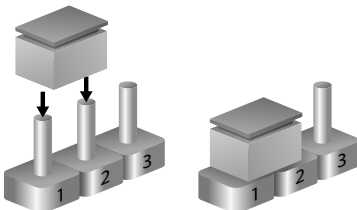
Locations of the Jumpers and Connectors for NISB 50

NISB 50

The figure below is the top view of the NISB 50 main board which is the main board used in NISE 50 and NISE 50W. It shows the locations of the jumpers and connectors.
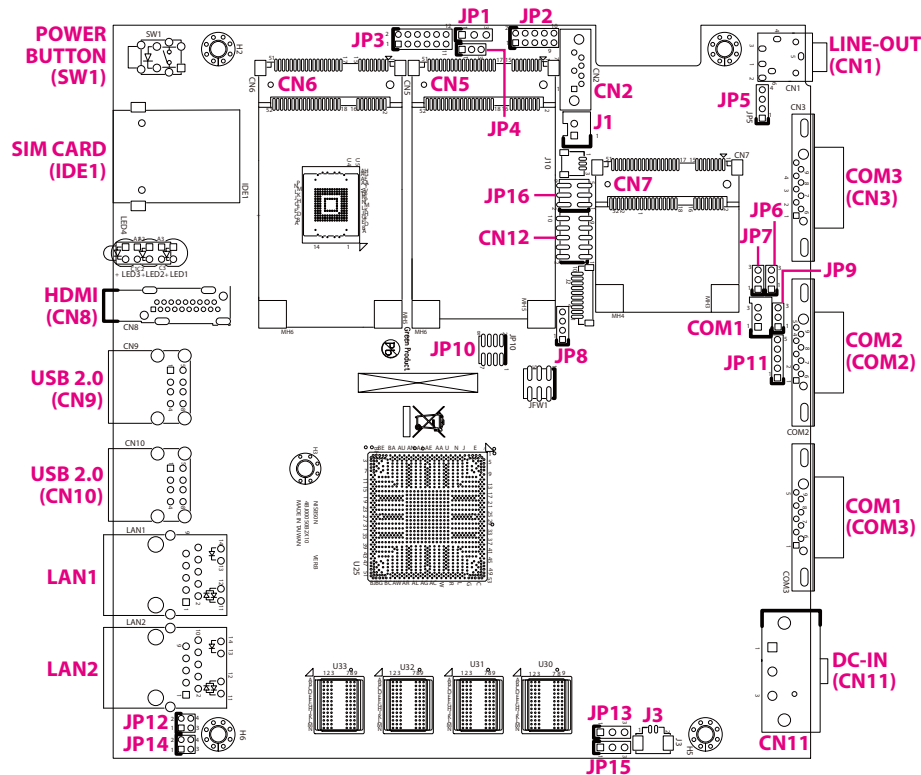
Jumpers

AT/ATX Power Select

Connector type: 1x3 3-pin header, 2.54mm pitch
Connector location: JP1

1 □ ○ ○ 3

Pin	Settings
1-2 On	ATX Mode
2-3 On	AT Mode

1-2 On: default

Pin	Definition
1	3VSB
2	AT_ATX_SELECT
3	GND

CMOS Clear Select

Connector type: 1x3 3-pin header, 2.54mm pitch
Connector location: JP13

1 □ ○ ○ 3

Pin	Settings
1-2 On	Normal
2-3 On	Clear CMOS

1-2 On: default

Pin	Definition
1	NC
2	RTC_TEST#
3	GND

ME Clear Select

Connector type: 1x3 3-pin header, 2.54mm pitch
Connector location: JP15

1 ▢ ○ ○ 3

Pin	Settings
1-2 On	Normal
2-3 On	Clear ME

1-2 On: default

Pin	Definition
1	NC
2	SRTC_TEST#
3	GND

COM3 RS422/485 Select

Connector type: 1x3 3-pin header, 2.0mm pitch
Connector location: JP9

1 ▢ ○ ○ 3

Pin	Settings
1-2 On	RS422
2-3 On	RS485

2-3 On: default

Pin	Definition
1	VCC5
2	RS485_OE
3	RS485_OE_RTS

SIM Card Power Select

Connector type: 1x3 3-pin header, 2.0mm pitch
Connector location: JP4

1 ▢ ○ ○ 3

Pin	Settings
1-2 On	3G/mSATA (CN5)
2-3 On	3G/Wi-Fi (CN6)

1-2 On: default

Pin	Definition
1	UIM_PWR1
2	UIM_PWR
3	UIM_PWR2

COM1 5V/12V/RI Select

Connector type: 1x5 5-pin header, 2.0mm pitch
Connector location: JP11

1 ▢ ○ ○ ○ ○ 5

Pin	Settings
1-2 On	+5V
2-3 On	+12V
4-5 On	Ring

4-5 On: default

Pin	Definition
1	VCC5
2	COM1_RI#_T
3	VCC12
4	COM1_RI#_T
5	COM1_RI#

COM3 TX Terminal Pin header

Connector type: 1x3 3-pin header, 2.0mm pitch
Connector location: JP6

1 ▢ ○ ○ 3

Pin	Definition
1	TX+
2	TX-
3	GND

Note:
No need to have jumper on if it is 1.2M with CAT.6 cable based on NEXCOM's testing. If have signal concern for long distance, please change the jumper on pin 1-2.

COM3 RX Terminal Pin header

Connector type: 1x3 3-pin header, 2.0mm pitch
Connector location: JP7

1 ▢ ○ ○ 3

Pin	Definition
1	RX+_DATA+
2	RX-_DATA-
3	GND

Note:
No need to have jumper on if it is 1.2M with CAT.6 cable based on NEXCOM's testing. If have signal concern for long distance, please change the jumper on pin 1-2.

Connector Pin Definitions

External I/O Interfaces - Front Panel

Power Button

Connector location: SW1

SIM Card Slot

Connector location: IDE1

Pin	Definition	Pin	Definition
1	GND	2	EC_PWRBT#
3	EC_PWRBT#	4	GND
A1	PWR_SW_P	C1	PWR_SW_N
MH1	GND	MH2	GND
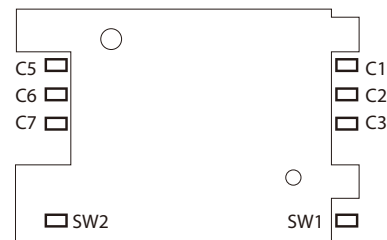
Pin	Definition	Pin	Definition
C1	UIM_PWR	C2	UIM_RESET
C3	UIM_CLK	C5	GND
C6	UIM_VPP	C7	UIM_DATA

HDMI

Connector type: HDMI port
Connector location: CN8
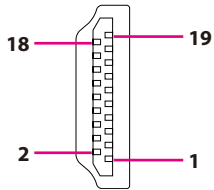
Pin	Definition	Pin	Definition
1	HDMI_DATA2_P_C	2	GND
3	HDMI_DATA2_N_C	4	HDMI_DATA1_P_C
5	GND	6	HDMI_DATA1_N_C
7	HDMI_DATA0_P_C	8	GND
9	HDMI_DATA0_N_C	10	HDMI_CLK_P_C
11	GND	12	HDMI_CLK_N_C
13	HDMI_CEC	14	NC
15	HDMI_CTRL_CLK_C	16	HDMI_CTRL_DAT_C
17	GND	18	HDMI_PWR
19	HDMI_HPD_R		
MH1	CHASSIS_GND	MH2	GND
MH3	CHASSIS_GND	MH4	GND

USB1/2 Ports (USB 2.0)

Connector type: USB 3.0 port
Connector location: CN10
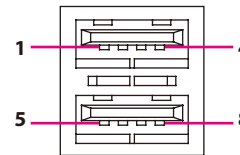
Pin	Definition	Pin	Definition
1	4USBV1	2	DN1_C
3	DP1_C	4	GND
5	4USBV1	6	DN2_C
7	DP2_C	8	GND
MH1	CHASSIS_GND	MH2	CHASSIS_GND
MH3	CHASSIS_GND	MH4	CHASSIS_GND

USB3/4 Ports (USB 2.0)

Connector type: USB 3.0 port
Connector location: CN9
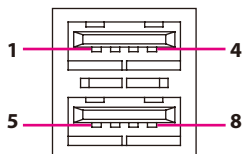
Pin	Definition	Pin	Definition
1	4USBV2	2	DN3_C
3	DP3_C	4	GND
5	4USBV2	6	DN4_C
7	DP4_C	8	GND
MH1	CHASSIS_GND	MH2	CHASSIS_GND
MH3	CHASSIS_GND	MH4	CHASSIS_GND

LAN 1 Port

Connector type: RJ45 with LEDs
Connector location: LAN1
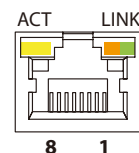
Pin	Definition	Pin	Definition
1	LAN_MDI0P_1	2	LAN_MDI0N_1
3	LAN_MDI1P_1	4	LAN_MDI1N_1
5	LAN1TCT	6	GND
7	LAN_MDI2P_1	8	LAN_MDI2N_1
9	LAN_MDI3P_1	10	LAN_MDI3N_1
11	LAN_LED_LINK1G#	12	LAN_LINK
13	LAN_LED_ACT#	14	LAN_ACTPW
MH1	CHASSIS_GND	MH2	CHASSIS_GND

LAN 2 Port

Connector type: RJ45 with LEDs
Connector location: LAN2
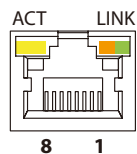
Pin	Definition	Pin	Definition
1	LAN2_MDI0P	2	LAN2_MDI0N
3	LAN2_MDI1P	4	LAN2_MDI1N
5	LAN2_TCT	6	GND
7	LAN2_MDI2P	8	LAN2_MDI2N
9	LAN2_MDI3P	10	LAN2_MDI3N
11	LAN2_LED_LINK1G#	12	LAN2_LINK
13	LAN2_LED_ACT#	14	LAN2_ACTPW
MH1	CHASSIS_GND	MH2	CHASSIS_GND

External I/O Interfaces - Rear Panel

24V DC Power Input

Connector location: CN11
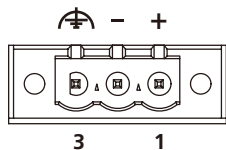
Pin	Definition
1	VIN_1
2	VIN_VSS
3	R_GND

COM 1 Port (RS232)

Connector type: DB-9 port, 9-pin D-Sub
Connector location: COM3
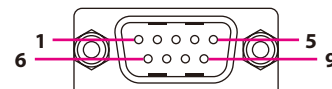
Pin	Definition	Pin	Definition
1	COM1_DCD#_R	2	COM1_RXD_R
3	COM1_TXD_R	4	COM1_DTR#_R
5	GND	6	COM1_DSR#_R
7	COM1_RTS#_R	8	COM1_CTS#_R
9	COM1_RI#_T		
MH1	CHASIS_GNDR2	MH2	CHASIS_GNDR1

COM 2 Port (RS232)

Connector type: DB-9 port, 9-pin D-Sub
Connector location: COM2
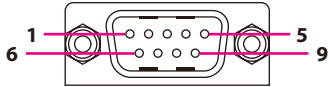
Pin	Definition	Pin	Definition
1	N/A	2	SP2_RXD_R
3	SP2_TXD_R	4	N/A
5	GND	6	N/A
7	SP2_RTS#_R	8	SP2_CTS#_R
9	N/A		
MH1	CHASIS_GNDR3	MH2	CHASIS_GNDR2

COM 3 Port (RS422/485 Only)

Connector type: DB-9 port, 9-pin D-Sub
Connector location: CN3
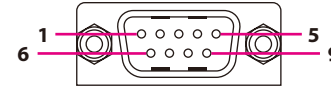
	RS485		RS422	
Pin	Definition	Pin	Definition
1	DATA-	1	TX-
2	DATA+	2	TX+
3	NC	3	RX+
4	NC	4	RX-
5	GND	5	GND
6	NC	6	RTS-
7	NC	7	RTS+
8	NC	8	CTS+
9	NC	9	CTS-
MH1	CHASIS_GNDR4	MH1	CHASIS_GNDR4
MH2	CHASIS_GNDR3	MH2	CHASIS_GNDR3
NH1	NA	NH1	NA
NH2	NA	NH2	NA

Line-out Connector

Connector type: 1x 3.5mm TRS
Connector location: CN1

Pin	Definition	Pin	Definition
1	LOUT_L3	2	LINE_OUT_JD
3	AGND	4	LOUT_R3
5	AGND	6	AGND

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Internal Connectors

LAN1 LED Signal Pin Header

Connector type: 2x2 4-pin header, 2.0mm pitch
Connector location: JP12

```
4 ○ ○ 3
2 ○ □ 1
```
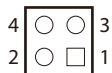
Pin	Definition	Pin	Definition
1	LAN_ACTPW	2	LAN_LED_ACT#
3	LAN_LED_LINK1G#	4	LAN_LED_LINK#

LAN2 LED Signal Pin Header

Connector type: 2x2 4-pin header, 2.0mm pitch
Connector location: JP14

```
4 ○ ○ 3
2 ○ □ 1
```
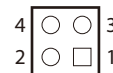
Pin	Definition	Pin	Definition
1	LAN2_ACTPW	2	LAN2_LED_ACT#
3	LAN2_LED_LINK1G#	4	LAN2_LED_LINK#

SATA Connector

Connector type: Standard Serial ATA 7P (1.27mm, SATA-M-180)
Connector location: CN2

SATA Power Connector

Connector type: 1x2 2-pin header, 2.0mm pitch
Connector location: J1
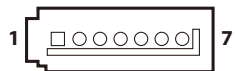
Pin	Definition	Pin	Definition
1	GND	2	SATA_TXP0_C
3	SATA_TXN0_C	4	GND
5	SATA_RXN0_C	6	SATA_RXP0_C
7	GND		

Pin	Definition
1	GND
2	VCC5

GPIO Pin Header

Connector type: 2x5 10-pin header, 2.0mm pitch
Connector location: JP2
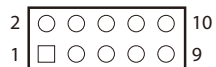
Pin	Definition	Pin	Definition
1	VCC5	2	GND
3	ICH_GPO0_OUT	4	ICH_GPI0_IN
5	ICH_GPO1_OUT	6	ICH_GPI1_IN
7	ICH_GPO2_OUT	8	ICH_GPI2_IN
9	ICH_GPO3_OUT	10	ICH_GPI3_IN

Mic-in Pin Header

Connector type: 1x4 4-pin header, 2.0mm pitch
Connector location: JP5

Pin	Definition	Pin	Definition
1	MIC1_L3	2	AGND
3	MIC_JD	4	MIC1_R3

COM 4 Pin Header (RS232)

Connector type: 1x3 3-pin header, 2.0mm pitch
Connector location: COM1
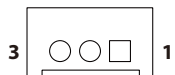
Pin	Definition
1	GND
2	SP4_RXD_R
3	SP4_TXD_R

Power & HDD LEDs/Power & Reset Switches

Connector type: 2x6 12-pin header, 2.0mm pitch
Connector location: JP3
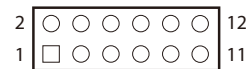
Pin	Definition	Pin	Definition
1	PWR_LED_N	2	VCC5
3	SATA_LED#	4	VCC5
5	3VSB	6	GND
7	SLP_S3#	8	PS_ON#
9	EC_PWRBT#	10	GND
11	PM_RESET#_J	12	GND

RTC Connector

Connector type: 1x2 2-pin header, 1.25mm pitch
Connector location: J3

Pin	Definition
1	GND
2	VBAT_L

SMBUS Pin Header

Connector type: 1x4 4-pin header, 2.0mm pitch
Connector location: JP8

Pin	Definition	Pin	Definition
1	VCC3	2	SMB_CLK
3	SMB_DATA	4	GND

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SPI and I2C Pin Header

Connector type: 2x4 8-pin header, 1.27mm pitch
Connector location: JP10

GPIO Pin Header

Connector type: 2x5 10-pin header, 2.0mm pitch
Connector location: CN12
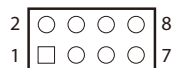
Pin	Definition	Pin	Definition
1	3VSB	2	GND
3	3V3_SPI_CS	4	3V3_SPI_MISO
5	3V3_SPI_MOSI	6	3V3_SPI_CLK
7	3P3_I2C_CLK	8	3P3_I2C_DATA
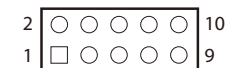
Pin	Definition	Pin	Definition
1	3VSB	2	GND
3	3V3_GPIO_IN1	4	3V3_GPIO_OUT1
5	3V3_GPIO_IN2	6	3V3_GPIO_OUT2
7	3V3_GPIO_IN3	8	3V3_GPIO_OUT3
9	3V3_GPIO_IN4	10	3V3_GPIO_OUT4

UART Pin Header (Signal from CPU)

Connector type: 2x3 6-pin header, 2.0mm pitch
Connector location: JP16

```
2 | ○ ○ ○ | 6
1 | □ ○ ○ | 5
```
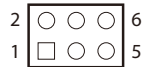
Pin	Definition	Pin	Definition
1	3VSB	2	GND
3	3V3_UART_RXD	4	3V3_UART_TXD
5	3V3_UART_RTS	6	3V3_UART_CTS

Mini-PCIe Connector (3G/4G/mSATA)

Connector location: CN5
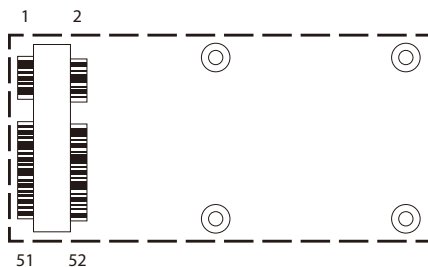
Pin	Definition	Pin	Definition
1	N/A	2	3VSB_MINI1
3	N/A	4	GND
5	N/A	6	V1P5S_1
7	N/A	8	UIM_PWR1
9	GND	10	UIM_DATA
11	N/A	12	UIM_CLK
13	N/A	14	UIM_RESET
15	GND	16	UIM_VPP
17	N/A	18	GND
19	N/A	20	MINICARD2DIS#
21	GND	22	N/A
23	SATA_RXP1_C	24	3VSB_MINI1
25	SATA_RXN1_C	26	GND

Pin	Definition	Pin	Definition
27	GND	28	V1P5S_1
29	GND	30	EC_SMBCLK
31	SATA_TXN1_C	32	EC_SMBDATA
33	SATA_TXP1_C	34	GND
35	GND	36	MINI1USBN
37	GND	38	MINI1USBP
39	3VSB_MINI1	40	GND
41	3VSB_MINI1	42	N/A
43	GND	44	N/A
45	N/A	46	N/A
47	N/A	48	V1P5S_1
49	N/A	50	GND
51	3VSB_MINI1	52	3VSB_MINI1

Mini-PCIe Connector (3G/4G/Wi-Fi)

Connector location: CN6
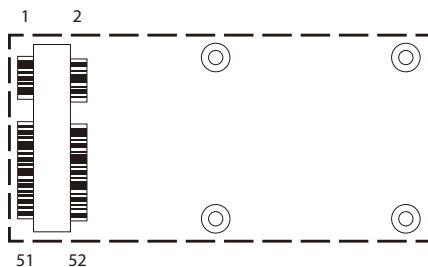
Pin	Definition	Pin	Definition
1	PCIEWAKE#	2	3VSB_MINI2
3	N/A	4	GND
5	N/A	6	V1P5S_2
7	MINICARD2CLKREQ#	8	UIM_PWR2
9	GND	10	UIM_DATA
11	PCIE_CLKN0	12	UIM_CLK
13	PCIE_CLKP0	14	UIM_RESET
15	GND	16	UIM_VPP
17	N/A	18	GND
19	N/A	20	MINICARD2DIS#
21	GND	22	EC_PLTRST#
23	RXN0_R	24	3VSB_MINI2
25	RXP0_R	26	GND

Pin	Definition	Pin	Definition
27	GND	28	V1P5S_2
29	GND	30	EC_SMBCLK
31	TXN0_R	32	EC_SMBDATA
33	TXP0_R	34	GND
35	GND	36	MINI2USBN
37	GND	38	MINI2USBP
39	3VSB_MINI2	40	GND
41	3VSB_MINI2	42	N/A
43	GND	44	N/A
45	N/A	46	N/A
47	N/A	48	V1P5S_2
49	N/A	50	GND
51	N/A	52	3VSB_MINI2

Half-size Mini-PCIe Connector (Wi-Fi)

Connector location: CN7
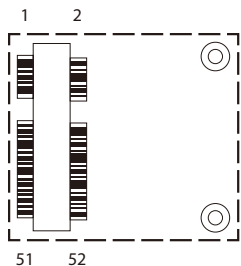
Pin	Definition	Pin	Definition
1	PCIE_WAKE#	2	3VSB_MINI3
3	N/A	4	GND
5	N/A	6	V1P5S_3
7	MINICARD1CLKREQ#	8	N/A
9	GND	10	N/A
11	PCIE_CLKN3	12	N/A
13	PCIE_CLKP3	14	N/A
15	GND	16	N/A
17	N/A	18	GND
19	N/A	20	MINICARD3DIS#
21	GND	22	EC_PLTRST#
23	RXN3_R	24	3VSB_MINI3
25	RXP3_R	26	GND

Pin	Definition	Pin	Definition
27	GND	28	V1P5S_3
29	GND	30	EC_SMBCLK
31	TXN3_R	32	EC_SMBDATA
33	TXP3_R	34	GND
35	GND	36	MINI3USBN
37	GND	38	MINI3USBP
39	3VSB_MINI3	40	GND
41	3VSB_MINI3	42	N/A
43	GND	44	N/A
45	N/A	46	N/A
47	N/A	48	V1P5S_3
49	N/A	50	GND
51	N/A	52	3VSB_MINI3

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. Remove the six mounting screws around the chassis cover. There are two screws each on the top and on the sides.

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

Screws on the sides

Installing a Wi-Fi/BT Mini-PCIe Module (Half-size)

1. Locate the mini-PCI Express slot (CN7) on the board.

2. Insert the Wi-Fi module into the mini-PCI Express 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.
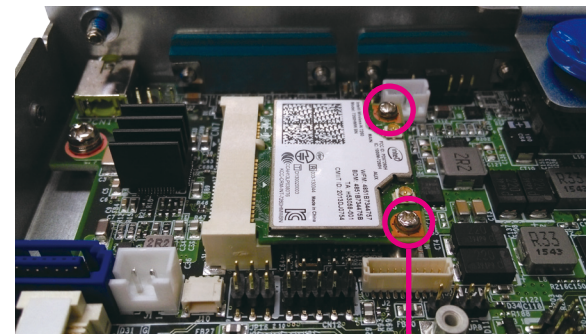
Mounting screw

Installing a Mini-PCIe Module (Full-size)

1. Locate the mini-PCI Express slot (CN5) on the board.

2. Insert the Wi-Fi module into the mini-PCI Express 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.
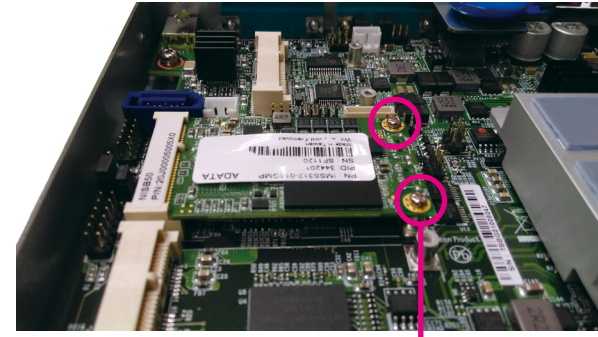
Mounting screw

Installing a 3G Mini-PCIe Module (Half-size)

1. Align the 3G module to the module bracket and secure both together with screws.

3G module   **Module bracket**
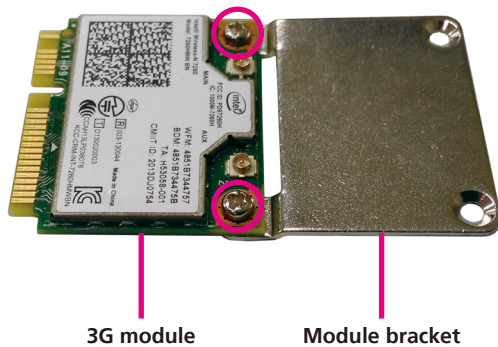
2. Insert the wireless LAN module into the mini-PCI Express slot (CN6) at a 45 degree angle until the gold-plated connector on the edge of the module completely disappears inside the slot. Push the module down and then secure it with mounting screws.

Mounting screw
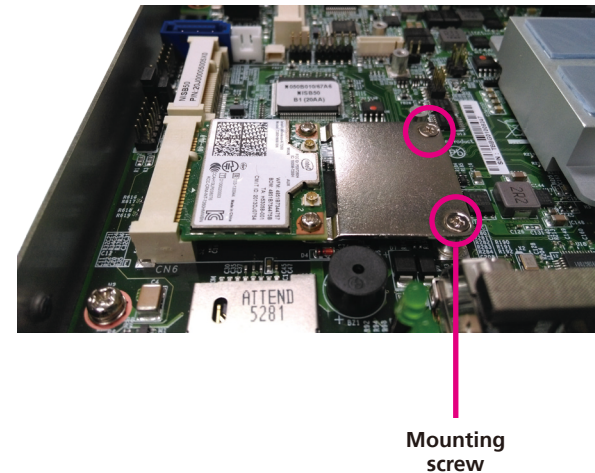
Installing a SIM Card

1. Locate the SIM card slot on the front panel and remove the slot cover.

2. Insert the SIM card into the slot.
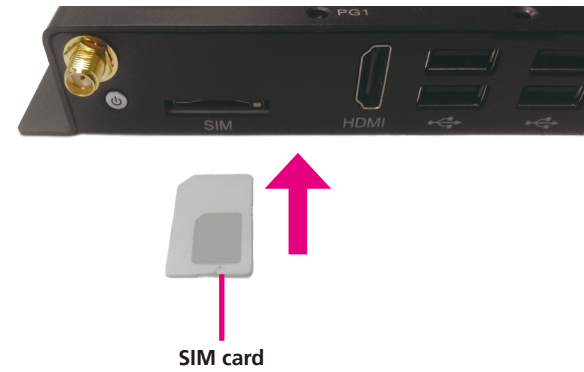
SIM cover

SIM card

3. Insert the SIM card cover back to its original position.

SIM cover

Installing an Antenna

Note: Please remove the gaskets (ring 1 and ring 2) on the SMA antenna jack first.

Ring 2
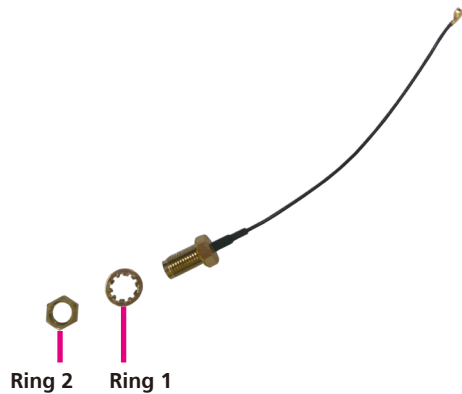
Ring 1

Ring 2   **Ring 1**

1. Remove the antenna hole cover located on the front panel.

2. Insert the SMA antenna jack end of the cable through the antenna hole, and insert the 2 rings (ring 1 and ring 2) back to the antenna jack.

3. Attach the RF cable onto the module.
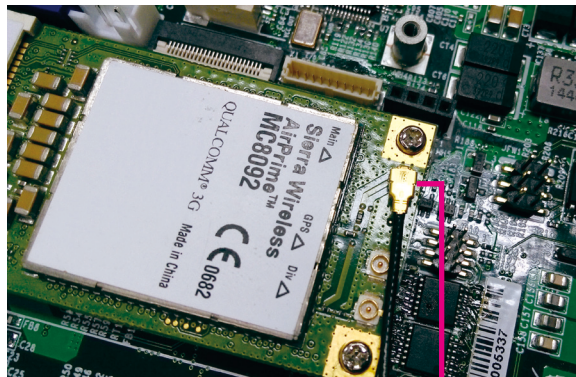
RF cable

4. Connect the external antenna to the antenna jack.

Installing a 2.5" SSD/HDD Storage (For NISE 50W Only)

1. Remove the HDD bracket located at the front panel by loosening the two thumb screws on the bracket cover.

2. Gently pull the HDD bracket out.

Screw

3. Prepare the mounting plate and its four screws. The mounting plate is used to secure the HDD to the bracket.

Screw

Mounting plate

HDD

4. Secure the HDD onto the mounting plate with the four screws. Make sure the HDD connector is facing towards the cutout on the plate.
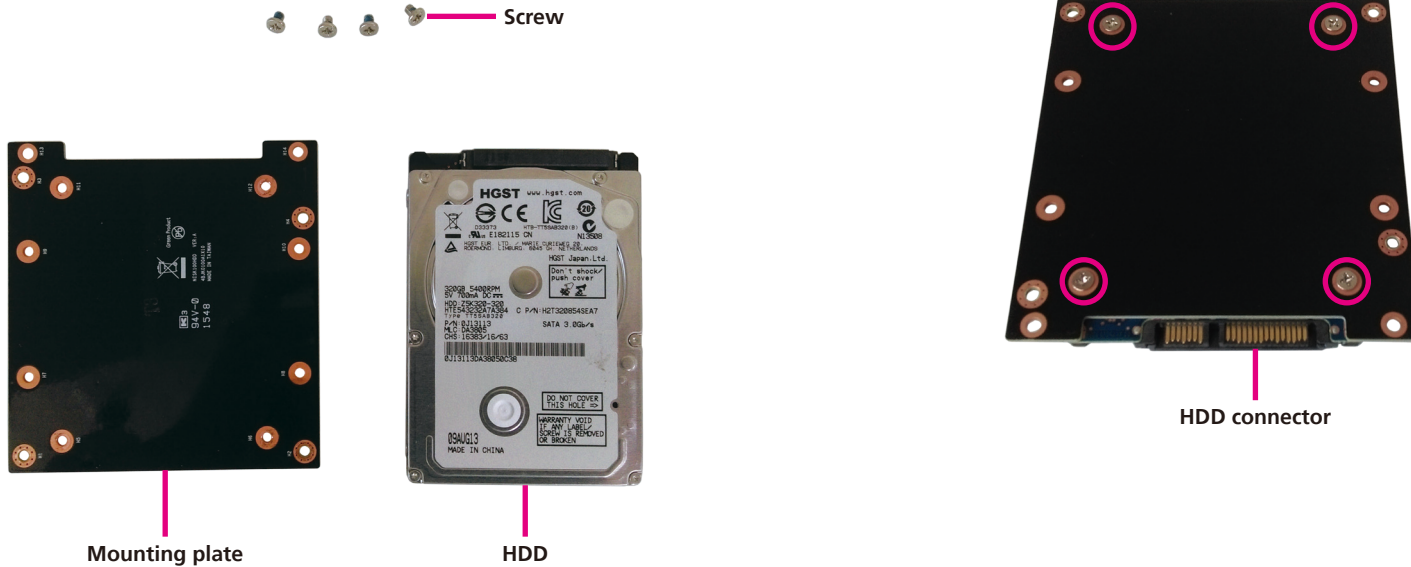
HDD connector

5. Place the HDD onto the HDD bracket with the connector facing towards the rear end of the bracket cover.

6. Insert the HDD bracket back into the external slot, then tighten the screws to secure it.

Note:
Please use a 2.5" SSD/HDD with a height no greater than 7mm.

Wallmount Installation

1. Align the M4 mounting holes on the chassis cover to the desired installation location.

2. Mount the system by fastening 4 screws through the mounting holes.

Mounting holes

DIN Rail Clip Installation

1. Align the DIN rail clips to the mounting holes on the chassis cover.

2. Secure the DIN rail clips with screws.
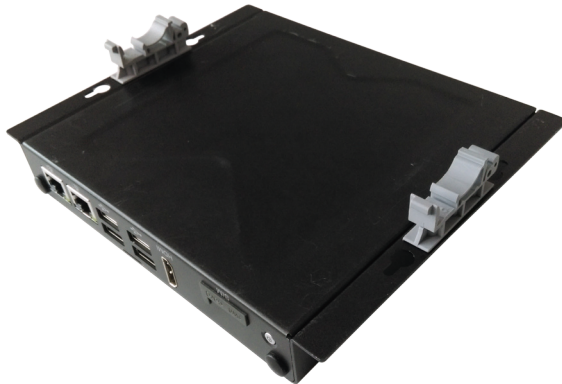
Mounting holes

Aluminum DIN Rail Clip Installation

1. Align the aluminum DIN rail clip to the mounting holes on the chassis cover.

Mounting holes

2. Secure the aluminum DIN rail clip with screws.
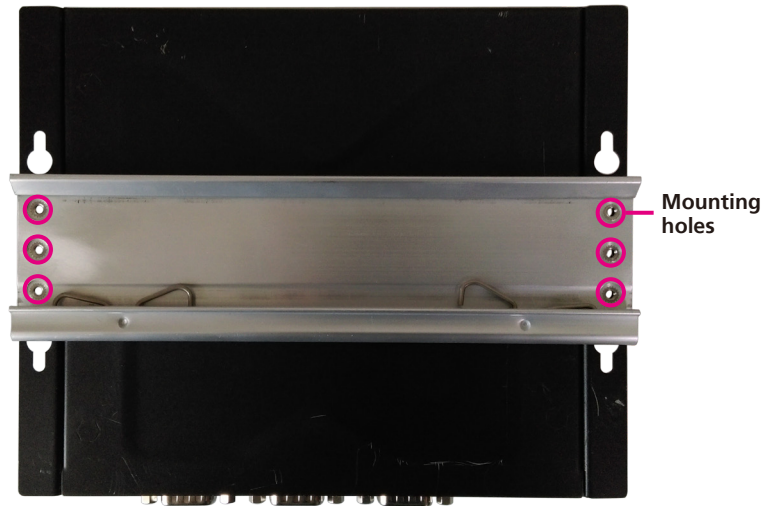
Packing (NISE 50)

NISE 50 EPE reference.

Top View of Packing

Bottom View of Packing
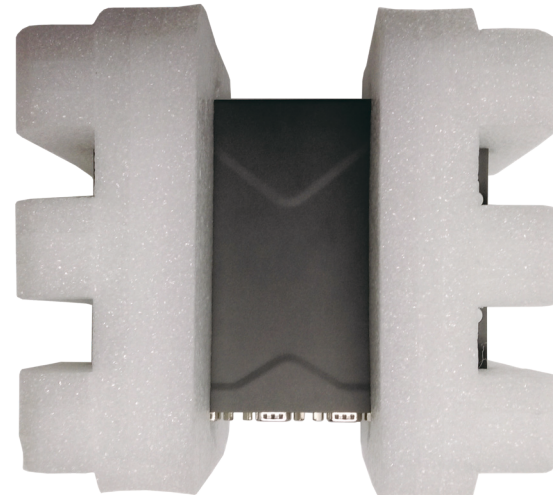
Front View of Packing

Rear View of Packing
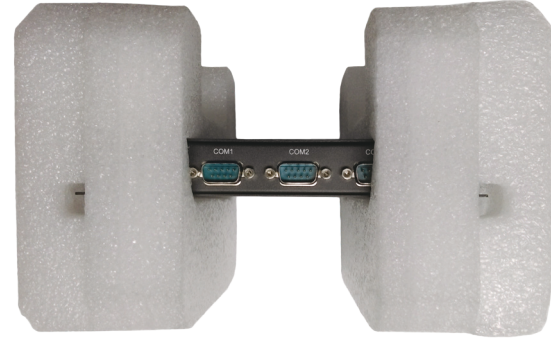
Packing (NISE 50W)

NISE 50W EPE reference.

Top View of Packing
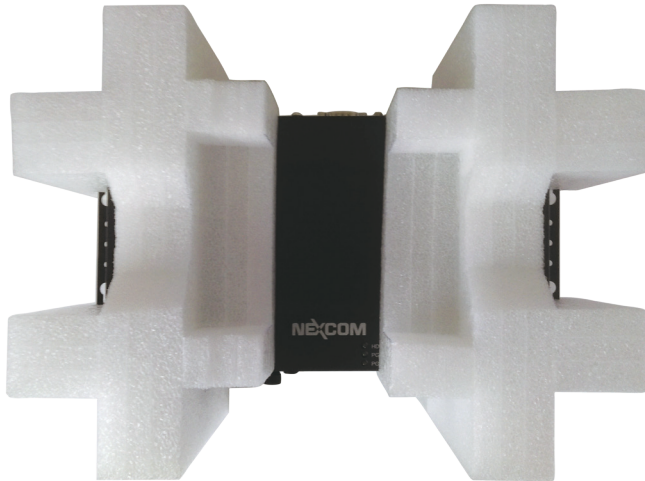
Bottom View of Packing
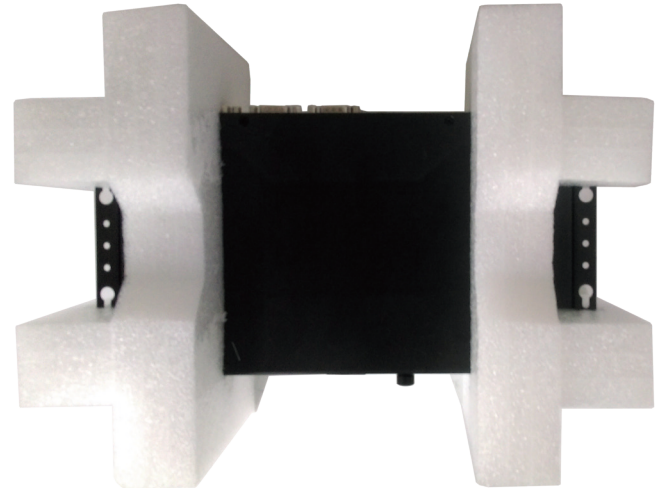
Front View of Packing

Rear View of Packing
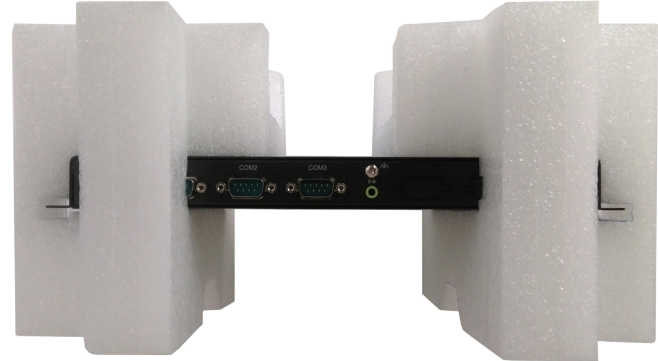
CHAPTER 4: BIOS SETUP

This chapter describes how to use the BIOS setup program for NISE 50 and NISE 50W. 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 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.

```
          Aptio Setup Utility - Copyright (C) 2013 American Megatrends, Inc.
    Main      Advanced    Chipset    Security      Boot     Save & Exit

   BIOS Information                                         Set the Time. Use Tab to switch
   BIOS Vendor              American Megatrends             between Time elements.
   Core Version             5.009
   Compliancy              UEFI 2.3; PI 1.2
   Project Version         N050B015 x64
   Build Date and Time     02/23/2016 17:20:24
   EC Version              C 00 3

   CPU Configuration
   Microcode Patch          901

   Memory Information
   Total Memory            2048 MB
                                                           →←: Select Screen
   GDP Information                                         ↑↓: Select Item
   Intel(R) GOP Driver      [N/A]                          Enter: Select
                                                           +/-: Change Opt.
                                                           F1: General Help
   System Date             [Thu 03/03/2016]               F2: Previous Values
   System Time             [17:18:36]                     F3: Optimized Defaults
                                                           F4: Save & Exit
                                                           ESC: Exit


          Version 2.16.1242. Copyright (C) 2013 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) 2013 American Megatrends, Inc.
   Main      Advanced     Chipset     Security      Boot      Save & Exit

▶ ACPI Settings                                  System ACPI Parameters.
▶ F81216SEC Super IO Configuration
▶ IT8528 H/W Monitor
▶ Serial Port Console Redirection
▶ CPU Configuration
▶ PPM Configuration
▶ IDE Configuration
▶ Miscellaneous Configuration
▶ LPSS & SCC Configuration
▶ CSM 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 2.16.1242. Copyright (C) 2013 American Megatrends, Inc.
```

ACPI Settings

This section is used to configure ACPI Settings.

```
        Aptio Setup Utility - Copyright (C) 2013 American Megatrends, Inc.
                   Advanced

   ACPI Settings                                      Enables or Disables System
                                                      ability to Hibernate (OS/S4 Sleep
   Enable Hibernation              [Enabled]          State). This option may be not
   ACPI Sleep State                [S3 (Suspend to RAM)]   effective with some OS.


                              ┌─ Enable Hibernation ─┐
                              │ Disabled             │
                              │ Enabled              │
                              └──────────────────────┘
                                                      →←: Select Screen
                                                      ↑↓: Select Item
                                                      Enter: Select
                                                      +/-: Change Opt.
                                                      F1: General Help
                                                      F2: Previous Values
                                                      F3: Optimized Defaults
                                                      F4: Save & Exit
                                                      ESC: Exit

        Version 2.16.1242. Copyright (C) 2013 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

```
          Aptio Setup Utility - Copyright (C) 2013 American Megatrends, Inc.
   Advanced

   ACPI Settings                                        Select the highest ACPI sleep
                                                        state the system will enter when
   Enable Hibernation              [Enabled]            the SUSPEND button is pressed.
   ACPI Sleep State                [S3 (Suspend to RAM)]



                        ┌─────────────────────────────┐
                        │      ACPI Sleep State        │
                        │      Suspend Disabled        │
                        │      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


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```

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).

F81216SEC Super IO Configuration

This section is used to configure the serial ports of the F81216SEC Super IO.

```
          Aptio Setup Utility - Copyright (C) 2013 American Megatrends, Inc.
   Advanced

   F81216SEC Super IO Configuration                     Set Parameters of Serial Port
                                                        1 (COMA)
   Super IO Chip                   F81216SEC
 ► 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


          Version 2.16.1242. Copyright (C) 2013 American Megatrends, Inc.
```

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) 2013 American Megatrends, Inc.
  Advanced

  Serial Port 1 Configuration                                   Enable or Disable Serial Port
                                                                (COM)
  Serial Port                        [Enabled]
  Device Settings                    IO=3E8h; IRQ=11;




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


             Version 2.16.1242. Copyright (C) 2013 American Megatrends, Inc.
```

Serial Port
Enables or disables the serial port.

IT8528 H/W Monitor

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

```
                Aptio Setup Utility - Copyright (C) 2013 American Megatrends, Inc.
     Advanced

  PC Health Status

  CPU temperature(DTS)               : +44 C
  System temperature                 : +33 C
  VCore                              : +0.78 V
  VCC12                              : +11.99 V
  VCC3                               : +3.24 V
  VCC5                               : +4.95 V



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

             Version 2.16.1242. Copyright (C) 2013 American Megatrends, Inc.
```

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

System Temperature
Detects and displays the current system temperature.

VCore to VCC5
Detects and displays the output voltages.

Serial Port Console Redirection

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

```
          Aptio Setup Utility - Copyright (C) 2013 American Megatrends, Inc.
          Advanced

                                                        Console Redirection Enable or
   COM0                                                 Disable.
   Console Redirection              [Disabled]
 ► Console Redirection Settings

   Serial Port for Out-of-Band Management/
   Windows Emergency Management Services (EMS)
   Console Redirection              [Disabled]
 ► Console Redirection Settings

                                                        →←: 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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```

Console Redirection

Enables or disables the console redirection. When enabled, Console Redirection Settings will be available.

Console Redirection (Serial Port for Out-of-Band Management)

Enables or disables the console redirection. When enabled, Console Redirection Settings will be available.

CPU Configuration

This section is used to configure the CPU.

```
          Aptio Setup Utility - Copyright (C) 2013 American Megatrends, Inc.
          Advanced

   CPU Configuration                                    Socket specific CPU Information

 ► Socket 0 CPU Information

   CPU Speed                        1467 MHz
   64-bit                           Supported

   Active Processor Cores           [All]
   Limit CPUID Maximum              [Disabled]
   Execute Disable Bit              [Enabled]
   Intel Virtualization Technology  [Enabled]

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

          Version 2.16.1242. Copyright (C) 2013 American Megatrends, Inc.
```

Active Processors Cores

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

Limit CPUID Maximum

The CPUID instruction of some newer CPUs will return a value greater than 3. The default is Disabled because this problem does not exist in the Windows series operating systems. If you are using an operating system other than Windows, this problem may occur. To avoid this problem, enable this field to limit the return value to 3 or lesser than 3.

Execute Disable Bit

When this field is set to Disabled, it will force the XD feature flag to always return to 0. XD can prevent certain classes of malicious buffer overflow attacks when combined with a supporting OS (Windows Server 2003 SP1, Windows XP SP2, SuSE Linux 9.2, RedHat Enterprise 3 Update 3).

Intel® Virtualization Technology

Enables or disables Intel Virtualization technology.

Socket 0 CPU Information

Display information on the CPU installed on socket 0.

```
        Aptio Setup Utility - Copyright (C) 2013 American Megatrends, Inc.
   Advanced

   Socket 0 CPU Information

   Intel(R) Atom(TM) CPU E3826 @ 1.46GHz
   CPU Signature                    30679
   Microcode Patch                  901
   Max CPU Speed                    1460 MHz
   Min CPU Speed                    533 MHz
   Processor Cores                  2
   Intel HT Technology              Not Supported
   Intel VT-x Technology            Supported

   L1 Data Cache                    24 kB x 2
   L1 Code Cache                    32 kB x 2          →←: Select Screen
   L2 Cache                         1024 kB x 1        ↑↓: Select Item
   L3 Cache                         Not Present        Enter: Select
                                                       +/-: Change Opt.
                                                       F1: General Help
                                                       F2: Previous Values
                                                       F3: Optimized Defaults
                                                       F4: Save & Exit
                                                       ESC: Exit

         Version 2.16.1242. Copyright (C) 2013 American Megatrends, Inc.
```

PPM Configuration

This section is used to configure the Processor Power Management (PPM) configuration.

```
        Aptio Setup Utility - Copyright (C) 2013 American Megatrends, Inc.
   Advanced

   PPM 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

         Version 2.16.1242. Copyright (C) 2013 American Megatrends, Inc.
```

EIST

Enables or disables Intel® SpeedStep.

IDE Configuration

This section is used to configure the SATA drives.

```
           Aptio Setup Utility - Copyright (C) 2013 American Megatrends, Inc.
      Advanced

    IDE Configuration                                     Enable / Disable Serial ATA

    Serial-ATA (SATA)              [Enabled]
    SATA Mode                      [AHCI Mode]

    Serial-ATA Port 0              [Enabled]
    SATA Port0 HotPlug             [Disabled]

    Serial-ATA Port 1              [Enabled]
    SATA Port1 HotPlug             [Disabled]

    SATA Port0
    Not Present                                           →←: Select Screen
                                                          ↑↓: Select Item
    SATA Port1                                            Enter: Select
    Not Present                                           +/-: Change Opt.
                                                          F1: General Help
                                                          F2: Previous Values
                                                          F3: Optimized Defaults
                                                          F4: Save & Exit
                                                          ESC: Exit


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```

Serial-ATA (SATA)
Enables or disables the SATA controller.

SATA Mode
Configures the SATA as IDE or AHCI mode.

IDE   This option configures the Serial ATA drives as Parallel ATA physical storage device.

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.

Serial-ATA Port 0 and Serial-ATA Port 1
Enables or disables SATA port 0 or port 1.

SATA Port0 HotPlug and SATA Port1 HotPlug
Enables or disables hot pluggable support on SATA port 0 or port 1.

Miscellaneous Configuration

This section is used to configure other miscellaneous settings.

Aptio Setup Utility - Copyright (C) 2013 American Megatrends, Inc.	
Advanced	
Miscellaneous Configuration OS Selection [Windows]	OS Selection →←: Select Screen ↑↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
Version 2.16.1242. Copyright (C) 2013 American Megatrends, Inc.	

OS Selection
Selects the operating system as Windows or Android.

LPSS & SCC Configuration

This section is used to configure LPSS and SCC settings.

Aptio Setup Utility - Copyright (C) 2013 American Megatrends, Inc.	
Advanced	
LPSS & SCC Devices Mode [PCI mode] SCC Configuration SCC eMMC Support [eMMC AUTO MODE] SCC eMMC 4.5 DDR50 Support [Enabled] SCC eMMC 4.5 HS200 Support [Disabled]	LPSS & SCC Devices Mode Settings →←: Select Screen ↑↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
Version 2.16.1242. Copyright (C) 2013 American Megatrends, Inc.	

LPSS & SCC Devices Mode
Selects the LPSS and SCC device mode as ACPI mode or PCI mode.

SCC eMMC Support
Enables or disables SCC eMMC support.

SCC eMMC 4.5 DDR50 Support
Enables or disables SCC eMMC 4.5 DDR50 support.

SCC eMMC 4.5 HS200 Support
Enables or disables SCC eMMC 4.5 HS200 support.

CSM Configuration

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

```
               Aptio Setup Utility - Copyright (C) 2013 American Megatrends, Inc.
        Advanced

   Compatibility Support Module Configuration            Enable/Disable CSM Support.

   CSM Support                      [Enabled]

   CSM16 Module Version             07.74

   Option ROM execution

   Network                         [Enabled]
   Onboard LAN PXE                 [Disabled]
   Storage                         [Legacy]
   Video                           [Legacy]
   Other PCI devices               [Legacy]
                                                         →←: 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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```

CSM Support
Enables or disables CSM support.

Network
Controls the execution of UEFI and legacy PXE OpROM.

Onboard LAN PXE
Enables or disables onboard LAN PXE ROM.

Storage
Controls the execution of UEFI and legacy storage OpROM.

Video
Controls the execution of UEFI and legacy video OpROM.

Other PCI Devices
Determines OpROM execution policy for devices other than network, storage or video.

USB Configuration

This section is used to configure the USB.

```
           Aptio Setup Utility - Copyright (C) 2013 American Megatrends, Inc.
           Advanced

   USB Configuration                                Enables Legacy USB support.
                                                    AUTO option disables legacy
   USB Module Version            8.11.01            support if no USB devices are
                                                    connected. DISABLE option will
   USB Devices:                                     keep USB devices available
           1 Keyboard, 1 Mouse, 2 Hubs             only for EFI applications.

   Legacy USB Support            [Enabled]
   XHCI Legacy Support           [Enabled]
   XHCI Hand-off                 [Enabled]
   EHCI 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



           Version 2.16.1242. Copyright (C) 2013 American Megatrends, Inc.
```

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 Legacy Support

Enables or disables XHCI controller legacy support.

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.

EHCI Hand-off

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

Trusted Computing

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

```
Aptio Setup Utility - Copyright (C) 2013 American Megatrends, Inc.
  Advanced

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




                                                 →←: 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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```
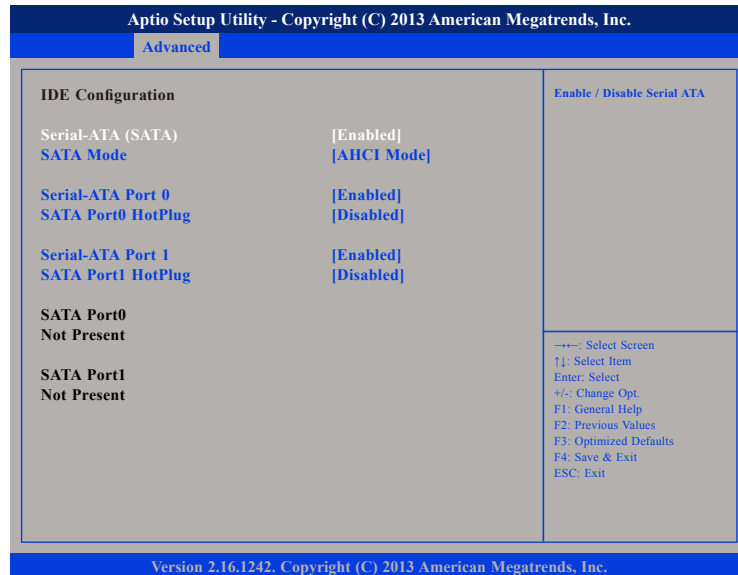
Security Device Support

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.

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) 2013 American Megatrends, Inc.
    Main       Advanced      Chipset      Security      Boot      Save & Exit

 ► South Bridge                                South Bridge Parameters




                                               →←: 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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```

South Bridge
Enters the South Bridge submenu.

South Bridge

```
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                                   Chipset

 ► Azalia HD Audio                             Azalia HD Audio Options
 ► USB Configuration
 ► PCI Express Configuration

   High Precision Timer          [Enabled]
   Restore AC Power Loss         [Power 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.

Restore AC Power Loss
Select the AC power state when power is re-applied after a power failure.

PCH Azalia Configuration

```
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        Chipset

Audio Configuration                              Control Detection of the Azalia
Audio Controller            [Enabled]            device.
Azalia HDMI Codec           [Enabled]            Disabled = Azalia will be
                                                 unconditionally disabled
                                                 Enabled = Azalia will be
                                                 unconditionally Enabled
                                                 Auto = Azalia 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

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```

Azalia
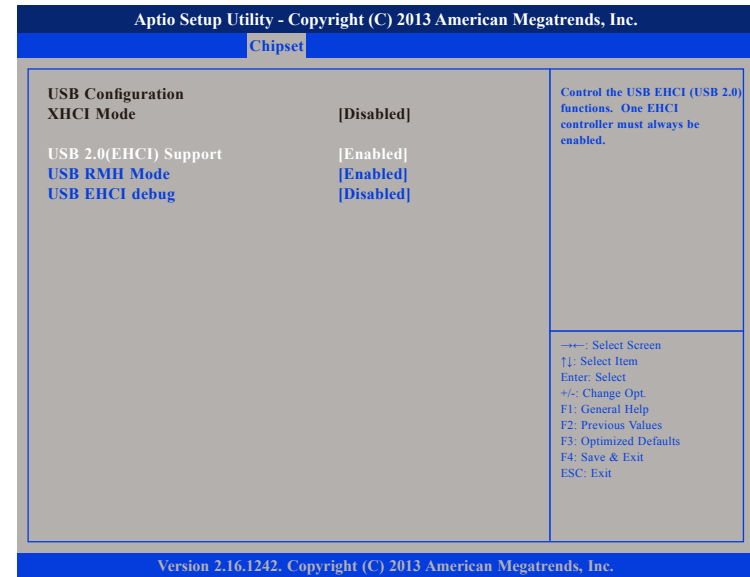Control detection of the Azalia device.

Disabled   Azalia will be unconditionally disabled.
Enabled   Azalia will be unconditionally enabled.

Azalia HDMI Codec
Enables or disables internal HDMI codec for Azalia.

USB Configuration

```
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        Chipset

USB Configuration                                Control the USB EHCI (USB 2.0)
XHCI Mode                   [Disabled]           functions.  One EHCI
                                                 controller must always be
USB 2.0(EHCI) Support       [Enabled]            enabled.
USB RMH Mode                [Enabled]
USB EHCI debug              [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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```

USB 2.0(EHCI) Support
Enables or disables the Enhanced Host Controller Interface (USB 2.0), one EHCI controller must always be enabled.

USB RMH Mode
Enables or disables PCH USB rate matching hubs mode.

USB EHCI Debug
Enables or disables PCH EHCI debug capability.

PCI Express Configuration

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Chipset	
PCI Express Configuration	Enable or Disable the PCI
PCI Express Port 0 [Enabled]	Express Port 0 in the Chipset.
PCI Express Port 1 [Enabled]	
PCI Express Port 2 [Enabled]	
PCI Express Port 3 [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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PCI Express Port 0 to PCI Express Port 3
Enables or disables the PCI Express ports 0 to 3 on the chipset.

Security

Aptio Setup Utility - Copyright (C) 2013 American Megatrends, Inc.	
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
Administrator Password	↑↓: Select Item
User Password	Enter: Select
	+/-: 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

This section is used to configure the boot features.

```
                Aptio Setup Utility - Copyright (C) 2013 American Megatrends, Inc.
    Main       Advanced     Chipset     Security       Boot      Save & Exit

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


    Boot Option Priorities
    Boot Option #1                [MMC - eMMC ]
    Boot Option #2                [UEFI: MMC - eMMC]
    Boot Option #3                [UEFI: MMC - eMMC]
    Boot Option #4                [UEFI: Built-in EFI . . .]

    Hard Drive BBS Priorities

                                                               →←: 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.

Fast Boot

When enabled, the BIOS will shorten or skip some check items during POST. This will decrease the time needed to boot the system.
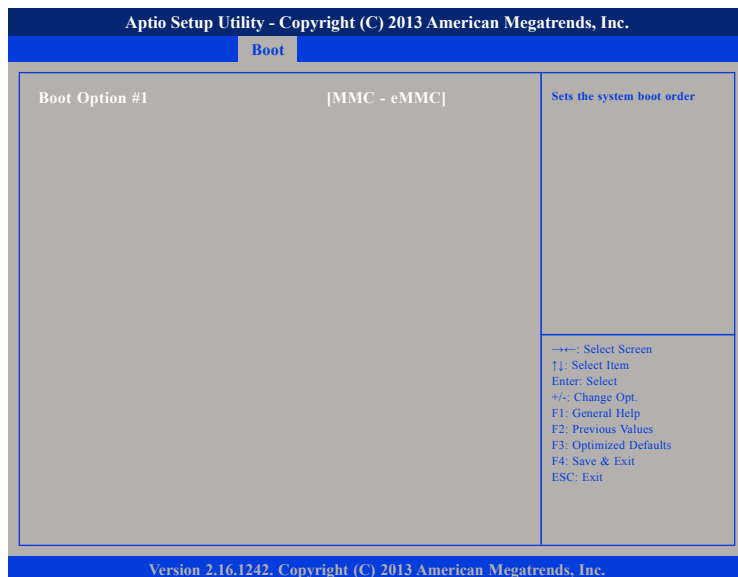
Boot Option Priorities

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.

Hard Drive BBS Priorities

Sets the order of the legacy devices in this group.

Hard Drive BBS Priorities
Boot Option #1

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Boot

Boot Option #1   [MMC - eMMC]   Sets the system boot order

→←: 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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Sets the first legacy device to boot from.

Save & Exit

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Main	Advanced	Chipset	Security	Boot	Save & Exit

Save Changes and Reset   Reset the system after saving
Discard Changes and Reset   the changes.

Restore Defaults

→←: 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 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.

APPENDIX A: POWER CONSUMPTION

Power Consumption Management

Purpose

The purpose of the power consumption test is to verify the power dissipation of system, and the loading of power supply.

Test Equipment

1. 19" LCD Monitor.
2. DC power supply.
3. Operating System OS: Windows 8.1 (32-bit)
4. Burn In Test Ver7.1
5. Intel® Thermal Analysis Tool software version: 5.0.1019
6. Direct3D Play Test Program
7. Network test program.
8. USB 2.0 (5V, 0.5A (Cement Resistor)) *4.

Device Under Test

DUT: SYS#1

Test Procedure

1. Make sure mechanical structure and electrical functionality are normal before testing.
2. Install all I/O load devices and according as system input voltage specifications to setup DC power supply voltage.
3. Measure system maximum power consumption as below mode:
   - Standby mode.
   - BIOS mode.
   - 100% Full loading mode (include USB load fixture)
4. Measure and record system maximum power consumption value.

Test Result

System Mode		24Vdc	
		Imax.	Wmax.
CPU: Intel® Atom™ CPU E3826 @ 1.46 GHz System model: NISE 50 / Revision: B BIOS: American Megatrends Inc. / Revision: N050B013 X64 EC Revision: C 00 2 Operating System OS: Windows 8.1 (32-bit)	Standby mode. (S3)	0.10A	2.4W
	BIOS mode	0.36A	8.64W
	100% Full loading mode.	0.8A	19.2W

APPENDIX B: GPIO CONTROL COMMANDS

This command set is used to control GPIO. The system retrieves a HW pin number from the dynamic control table and sends it to EC. The EC will then use this code to control the real pin. Read/write/set direction/set internal pull up/down GPIO functions are available to the system. Only GPIO-type device id in the dynamic control table can be a controller, the EC does not allow the system to control other pins not defined in the table.

Command List

Command	Description
0x10	Write Pin number into index
0x11	According index, get GPIO pin status. 1-active, 0-unactive, 0xFF-fail
0x12	According index, change GPIO pin status. 1-active, 0-unactive
0x1D	According index, get GPIO input/output type. 1-output, 0-input, 0xFF-fail

Bit7 & Bit6	Bit5	Bit4	Bit3	Bit2	Bit1	Bit0
0x10 Input	✘	✘	✘	0x10Pull-up		✘
0x01 Output	✘	✘	✘	0x01Pull-dn		✘

Command	Description
0x1E	According index, change GPIO input/output type. 1-output, 0-input

Bit7 & Bit6	Bit5	Bit4	Bit3	Bit2	Bit1	Bit0
0x10 Input	✘	✘	✘	0x10Pull-up		✘
0x01 Output	✘	✘	✘	0x01Pull-dn		✘

GPIO Default Table

There are 8 alternate GPIOs in the COM specification. The system can use commands to control these pins. The system can also setup a default table to configure these GPIO behaviors when power resumes for the first time. This table can be stored into the EEPROM for first time use. The addresses in the ACPI RAM are as follows:

Default Table in ACPI RAM

GPIO0 start address: 0xD8	GPIO4 start address: 0xE4
GPIO1 start address: 0xDB	GPIO5 start address: 0xE7
GPIO2 start address: 0xDE	GPIO6 start address: 0xEA
GPIO3 start address: 0xE1	GPIO7 start address: 0xED

Offset	Name	Description
0x00	Pin	HW pin number. EC will setup this value.
0x01	Type control	Value type is same as command 0x1D.
0x02	Default control	Setup default pin behavior

Bit7	Bit6	Bit5	Bit4	Bit3	Bit2	Bit1	Bit0
✘	✘	✘	✘	✘	✘	✘	HiLow

HiLow – If type control is input type, 1-high active and 0-low active.

If type control is output type, 1-default output high and 0-default output low.

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Read GPIO Status Sequence

Step	Action	Description
0	Wait IBF clear	
1	Write 0x10 to 0x66	Send GPIO index command
2	Wait IBF clear	
3	Write PIN number to 0x62	Write pin number to index
4	Wait OBF set	
5	Read 0x62 port	If index setup successfully, EC will return pin number. If fail, EC will return 0xFF
6	Wait IBF clear	
7	Write 0x11 to 0x66	Send read GPIO status command
8	Wait OBF set	
9	Read 0x62 port	EC will return pin status according pin number which you set in index. 1-GPIO is high. 0-GPIO is low. 0xFF-fail.

Write GPIO Status Sequence

Step	Action	Description
0	Wait IBF clear	
1	Write 0x10 to 0x66	Send GPIO index command
2	Wait IBF clear	
3	Write PIN number to 0x62	Write pin number to index
4	Wait OBF set	
5	Read 0x62port	If index setup successfully, EC will return pin number. If fail, EC will return 0xFF
6	Wait IBF clear	
7	Write 0x12 to 0x66	Send write GPIO status command
8	Wait IBF clear	
9	Write pin status to 0x62 port	Write 0x01, GPIO pin will be set high. Write 0x00, GPIO pin will be set low.

Read GPIO Direction Sequence

Step	Action	Description
0	Wait IBF clear	
1	Write 0x10 to 0x66	Send GPIO index command
2	Wait IBF clear	
3	Write PIN number to 0x62	Write pin number to index
4	Wait OBF set	
5	Read 0x62 port	If index setup successfully, EC will return pin number. If fail, EC will return 0xFF
6	Wait IBF clear	
7	Write 0x1D to 0x66	Send read GPIO direction command
8	Wait OBF set	
9	Read 0x62 port	EC will return pin status according pin number which you set in index. 0x80-input, 0x40-output. 0xFF-fail

Write GPIO Direction Sequence

Step	Action	Description
0	Wait IBF clear	
1	Write 0x10 to 0x66	Send GPIO index command
2	Wait IBF clear	
3	Write PIN number to 0x62	Write pin number to index
4	Wait OBF set	
5	Read 0x62 port	If index setup successfully, EC will return pin number. If fail, EC will return 0xFF
6	Wait IBF clear	
7	Write 0x1E to 0x66	Send write GPIO direction command
8	Wait IBF clear	
9	Write pin status to 0x62 port	Write 0x40, GPIO pin will be set output. Write 0x80, GPIO pin will be set input.