



NEXCOM International Co., Ltd.

IoT Automation Solutions

Fan-less Computer

NISE 3720E Series

User Manual

CONTENTS

Preface

Copyright	iv
Disclaimer	iv
Acknowledgements	iv
Regulatory Compliance Statements	iv
Declaration of Conformity	iv
RoHS Compliance	v
Warranty and RMA	vi
Safety Information	viii
Installation Recommendations	viii
Safety Precautions	ix
Technical Support and Assistance	x
Conventions Used in this Manual	x
Global Service Contact Information	xi
Package Contents	xiii
Ordering Information	xiv

Chapter 1: Product Introduction

Overview	1
Hardware Specifications	2
Knowing Your NISE 3720E Series	4
Front Panel	4
Rear Panel	5
Mechanical Dimensions	6

Chapter 2: Jumpers and Connectors

Before You Begin	8
Precautions	8
Jumper Settings	9
Locations of the Jumpers and Connectors for NISB 3720	10
NISB 3720	10
Jumpers	12
CMOS Clear Select	12
AT/ATX Power Select	12
COM2 RI Power Select	13
SATA/PCIe	13
Connector Pin Definitions	14
External I/O Interfaces - Front Panel	14
USB 2.0 Ports	14
SIM Card Connector	14
CFast	15
LED Indicators	15
External I/O Interfaces - Rear Panel	16
24V DC Power Input	16
USB 3.0 Ports	16
COM 1 and COM 2 Ports	17
LAN1 and LAN2 Ports	18
DVI-D Connector	19
DVI-I Connector	19
Audio Connectors	20

Internal Connectors	21
Smart Fan1 and Fan2 Connectors.....	21
LED Pin Header	21
Debug Connector	22
RS232 Box Header (COM1)	22
RS232 Box Header (COM2)	23
SMBus	23
S3 Connector	24
USB 2.0 Connector	24
Speaker-out Pin Header.....	25
Line-in Pin Header	25
Mini-PCIe/mSATA Connector.....	26
WLAN/GSM Connector	27
GPS JST Connector.....	28
GPIO Pin Header	28
Reset Connector	29
Power Connector	29
SATA Power Connectors.....	30
SATA1 Connector.....	30
SATA2 Connector.....	31
PCIe x8 Slot.....	32

Chapter 3: System Setup

Removing the Top Cover	33
Removing the Bottom Cover.....	34
Installing a mSATA Module	35
Installing a SO-DIMM Memory Module	37
Installing a 3G/GSM Module	38
Installing a SIM Card	39
Installing a CFast Card	40
Installing a SATA Hard Drive	41
Installing a PCIe/PCI Expansion Card.....	43

Chapter 4: BIOS Setup

About BIOS Setup	45
When to Configure the BIOS.....	45
Default Configuration	46
Entering Setup	46
Legends	46
BIOS Setup Utility.....	48
Main	48
Advanced	49
Chipset.....	57
Boot.....	64
Security	65
Save & Exit	65

Appendix A: Power Consumption.....67

Appendix B: GPI/O Programming Guide.....69

Appendix C: Watchdog Timer Setting.....71

PREFACE

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Disclaimer

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Acknowledgements

NISE 3720E series is a trademark of NEXCOM International Co., Ltd. All other product names mentioned herein are registered trademarks of their respective owners.

Regulatory Compliance Statements

This section provides the FCC compliance statement for Class B 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 B 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.

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.



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

Installation Recommendations

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

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

- A Philips screwdriver
- A flat-tipped screwdriver
- A grounding strap
- An anti-static pad

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

Safety Precautions

1. Read these safety instructions carefully.
2. Keep this User Manual for later reference.
3. Disconnect this equipment from any AC outlet before cleaning. Use a damp cloth. Do not use liquid or spray detergents for cleaning.
4. For plug-in equipment, the power outlet socket must be located near the equipment and must be easily accessible.
5. Keep this equipment away from humidity.
6. Put this equipment on a stable surface during installation. Dropping it or letting it fall may cause damage.
7. The openings on the enclosure are for air convection to protect the equipment from overheating. **DO NOT COVER THE OPENINGS.**
8. Make sure the voltage of the power source is correct before connecting the equipment to the power outlet.
9. Place the power cord in a way so that people will not step on it. Do not place anything on top of the power cord. Use a power cord that has been approved for use with the product and that it matches the voltage and current marked on the product's electrical range label. The voltage and current rating of the cord must be greater than the voltage and current rating marked on the product.
10. All cautions and warnings on the equipment should be noted.
11. If the equipment is not used for a long time, disconnect it from the power source to avoid damage by transient overvoltage.
12. Never pour any liquid into an opening. This may cause fire or electrical shock.
13. Never open the equipment. For safety reasons, the equipment should be opened only by qualified service personnel.
14. If one of the following situations arises, get the equipment checked by service personnel:
 - a. The power cord or plug is damaged.
 - b. Liquid has penetrated into the equipment.
 - c. The equipment has been exposed to moisture.
 - d. The equipment does not work well, or you cannot get it to work according to the user's manual.
 - e. The equipment has been dropped and damaged.
 - f. The equipment has obvious signs of breakage.
15. Do not place heavy objects on the equipment.
16. The unit uses a three-wire ground cable which is equipped with a third pin to ground the unit and prevent electric shock. Do not defeat the purpose of this pin. If your outlet does not support this kind of plug, contact your electrician to replace your obsolete outlet.
17. **CAUTION: DANGER OF EXPLOSION IF BATTERY IS INCORRECTLY REPLACED. REPLACE ONLY WITH THE SAME OR EQUIVALENT TYPE RECOMMENDED BY THE MANUFACTURER. DISCARD USED BATTERIES ACCORDING TO THE MANUFACTURER'S INSTRUCTIONS.**

Technical Support and Assistance

1. For the most updated information of NEXCOM products, visit NEXCOM's website at www.nexcom.com.
2. For technical issues that require contacting our technical support team or sales representative, please have the following information ready before calling:
 - Product name and serial number
 - Detailed information of the peripheral devices
 - Detailed information of the installed software (operating system, version, application software, etc.)
 - A complete description of the problem
 - The exact wordings of the error messages

Warning!

1. Handling the unit: carry the unit with both hands and handle it with care.
2. Maintenance: to keep the unit clean, use only approved cleaning products or clean with a dry cloth.
3. CompactFlash: Turn off the unit's power before inserting or removing a CompactFlash storage card.

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.



Safety Warning: This equipment is intended for installation in a Restricted Access Location only.

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Package Contents

Before continuing, verify that the NISE 3720E package that you received is complete. Your package should have all the items listed in the following table.

Item	Part Number	Description	Qty
1	60177A0351X00	(E)NISE 3720 Quick Reference Guide VER:A SIZE:A4	1
2	50311F0143X00	(H)Flat Head Screw LONG FEI:F#6-32x8	1
3	50311F0100X00	(H)Round Head Screw w/Spring+Flat Washer LONG FEI:P3x6L	2
4	4NCPM00302X00	(T)Terminal Blocks 3P Phoenix Contact:1777992	1
5	50311F0326X00	Flat Head Screw LONG FEI:F3x5 Nylok NI+Heat Treatment	4
6	50311F0294X00	I Head Screw LONG FEI:I2x4 Nylok NIGP	4
7	602DCD0800X00	NISE 3720 DVD Driver VER:1.0	1
8	6012200053X00	PE Zipper Bag #3	1
9	6012200052X00	PE Zipper Bag #8	1
10	50322P0002X00	Plastic Nut GIN LIAN:M6HW	2
11	50311P0001X00	Price For Plastic Screw	2
12	50311F0315X00	Round Head Screw LONG FEI:P6#32T T10 Nylok	1
13	4NCPM00203X00	Terminal Blocks 2P Phoenix Contact:1803578	1

Ordering Information

The following information below provides ordering information for NISE 3720E series.

- **Barebone**

NISE 3720E (P/N: 10J00372000X0)

- Haswell-U or Broadwell-U Intel® Core™ i7 Fanless System with one PCIe expansion

NISE 3720E2 (P/N: 10J00372001X0)

- Haswell-U or Broadwell-U Intel® Core™ i7 Fanless System with two PCIe expansions

NISE 3720P2 (P/N: 10J00372002X0)

- Haswell-U or Broadwell-U Intel® Core™ i7 Fanless System with two PCI expansions

NISE 3720P2E (P/N: 10J00372003X0)

- Haswell-U or Broadwell-U Intel® Core™ i7 Fanless System with one PCI expansion and one PCIe expansion

- 24V, 120W AC/DC power adapter w/o power core (P/N: 7400120015X00)



Optional Power Adapter: Please use an appropriate AC/DC power adapter compliant with CE or UL safety regulations.

CHAPTER 1: PRODUCT INTRODUCTION

Overview



NISE 3720E Front View



NISE 3720E Rear View



NISE 3720E2/P2/P2E Front View



NISE 3720E2/P2/P2E Rear View

Key Features

- Support both 4th & 5th Generation Intel® i7/i5/i3 processors with U Platform, dual core with HD graphical power
- 1x DVI-I , 1x DVI-D with three independent display support
- 2x Intel® GbE LAN ports; support WoL, teaming & PXE
- 2x USB 3.0 & 2x USB 2.0
- 2x RS232/422/485 with auto flow control
- 1x internal mini-PCIe socket support optional mSATA or fieldbus module (by jumper switch)
- 1x internal mini-PCIe socket support optional mSATA or fieldbus module
- 1x CFAST socket
- Support external RTC battery holder
- Support 24V DC Input

Hardware Specifications

CPU Support

- Onboard BGA type 4th generation Intel® Core™ i7/i3/i5 MCP processors
 - Core™ i7-4650U, Dual Core, 3.3GHz, 4M Cache (Onboard Default)
 - Core™ i5-4300U, Dual Core, 2.9GHz, 3M Cache
 - Core™ i3-4010U, Dual Core, 1.7GHz, 3M Cache
 - Celeron® 2980U, Dual Core, 1.6GHz, 2M Cache
- Onboard BGA type 5th generation Intel® Core™ i7/i3/i5 MCP processors
 - Core™ i7-5650U, Dual Core, 3.2GHz, 4M Cache
 - Core™ i5-5350U, Dual Core, 2.9GHz, 3M Cache
 - Core™ i3-5010U, Dual Core, 2.1GHz, 3M Cache

Main Memory

- 2x DDR3L SO-DIMM Socket, support up to 8GB DDR3L 1333/1600 RAM, un-buffered and non-ECC

Display Option

- Support Dual Independent Display
 - DVI-I (DVI-D + VGA)
 - DVI-D

I/O Interface-Front

- ATX power on/off switch
- 1x Power Status/1x HDD Access LEDs
- 2x LAN Status/1x CFast LEDs
- 3x Programmable GPO/1x Battery Low LEDs
- 2x USB 2.0 Ports (500mA per each)
- 1x External CFast socket
- 1x SIM Card holder

- 1x External RTC Li-ion Battery holder
- 2x Antenna Holes for Wi-Fi/GSM

I/O Interface-Rear

- 2x USB 3.0 ports (Blue Color, 900mA per each)
- 1x DVI-I
- 1x DVI-D
- 2x DB9 for 2x COM ports
 - COM1: RS232/422/485 with auto flow control
 - COM2: RS232/422/485 with auto flow control
 - COM1 supports 5V/12V/Ring function by jumper, default is Ring
- 1x Line-out and 1x Mic-in (Realtek HD ALC886)
- 2x Intel I210IT GbE LAN Ports
 - Support PXE (BIOS default: disable)
 - Support WoL & Teaming
 - Support Teaming

I/O Interface-Internal

- 4x GPI and 4x GPO (5V, TTL Type)
- 1x Pin Header for COM3 ~ COM6, RS232 only
- 1x USB 2.0 Internal Connector

Storage Device

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

Expansion Slot

- 2x Mini-PCIe sockets
 - 1x Mini-PCIe socket for Wi-Fi/3.5G
 - 1x Mini-PCIe socket for mSATA/Fieldbus
- NISE 3720E: One PCIe x4 Expansion Slot
 - Add-on card length: One 169mm max.
 - Power Consumption: 10W/ slot max.
- NISE 3720E2: One PCIe x4 and One PCIe x1 Expansion Slot
 - Add-on card length: One 169mm max. and One 240mm max.
 - Power Consumption: 10W/ slot max.
- NISE 3720P2: Two PCI Expansion Slots
 - Add-on card length: One 169mm max. and One 240mm max.
 - Power Consumption: 10W/ slot max.
- NISE 3720P2E: One PCIe x4 and One PCI Expansion Slot
 - Add-on card length: One 169mm max. and One 240mm max.
 - Power Consumption: 10W/ slot max.

*Onboard JP8 Jumper switch for One PCIe x1 and mSATA

Power Requirements

- AT/ATX Power Mode (ATX Power Mode, default with jumper switch)
- Power input: Typical +24Vdc +/-20%
- Power adapter: Optional AC to DC power adapter (+24Vdc, 120W)

Dimensions

- NISE 3720E:
 - 215mm (W) x 272mm (D) x 93mm (H) without wall mount bracket
- NISE 3720E2/P2/P2E:
 - 215mm (W) x 272mm(D) x 114mm(H) without wall mount bracket

Environment

- Operating temperature:
 - Ambient with air flow: -20°C to 60°C
(According to IEC60068-2-1, IEC60068-2-2, IEC60068-2-14)
- Storage Temperature: -40°C to 85°C
- Relative Humidity: 95% at 40°C
- Shock protection:
 - HDD: 20G, half sine, 11ms, IEC60068-2-27
 - CFast: 50G, half sine, 11ms, IEC60068-2-27
- Vibration Protection w/ HDD Condition:
 - Random: 0.5Grms @ 5 ~ 500Hz, IEC60068-2-64
 - Sinusoidal: 0.5Grms @ 5 ~ 500Hz, IEC60068-2-6

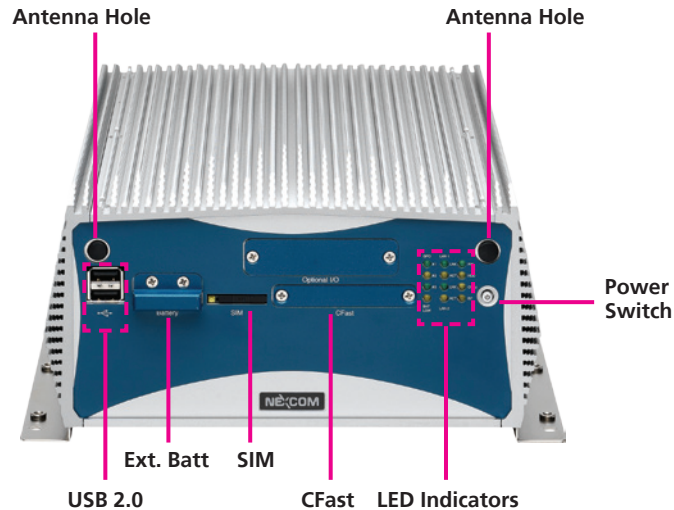
Certifications

- CE Approval
- FCC Class B
- LVD

OS Support Lists

- Windows 7 32-bit and 64-bit
- Windows 8.1 32-bit and 64-bit

Knowing Your NISE 3720E Series Front Panel



USB 2.0

Dual USB 2.0 ports to connect the system with USB 2.0 devices.

Antenna Hole

Used to install external antennas.

External Battery Holder

Used to hold an external battery.

SIM

Used to insert a SIM card.

CFast Socket

Used to insert a CFast card.

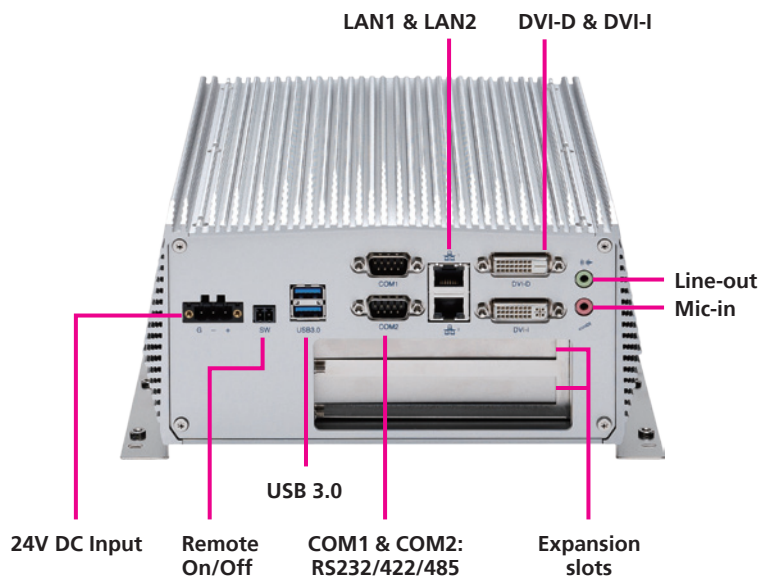
LED Indicators

Indicates the power status, hard drive, LAN, CFast, Wi-Fi and GPO activity of the system.

Power Switch

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

Rear Panel



24V DC Input

Used to plug a DC power cord.

Remote On/Off Switch

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

USB 3.0

Used to connect USB 3.0/2.0 devices.

COM1 & COM2

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

LAN1 & LAN2

Used to connect the system to a local area network.

DVI-D & DVI-I

Used to connect a digital LCD panel.

Line-out

Used to connect a headphone or a speaker.

Mic-in

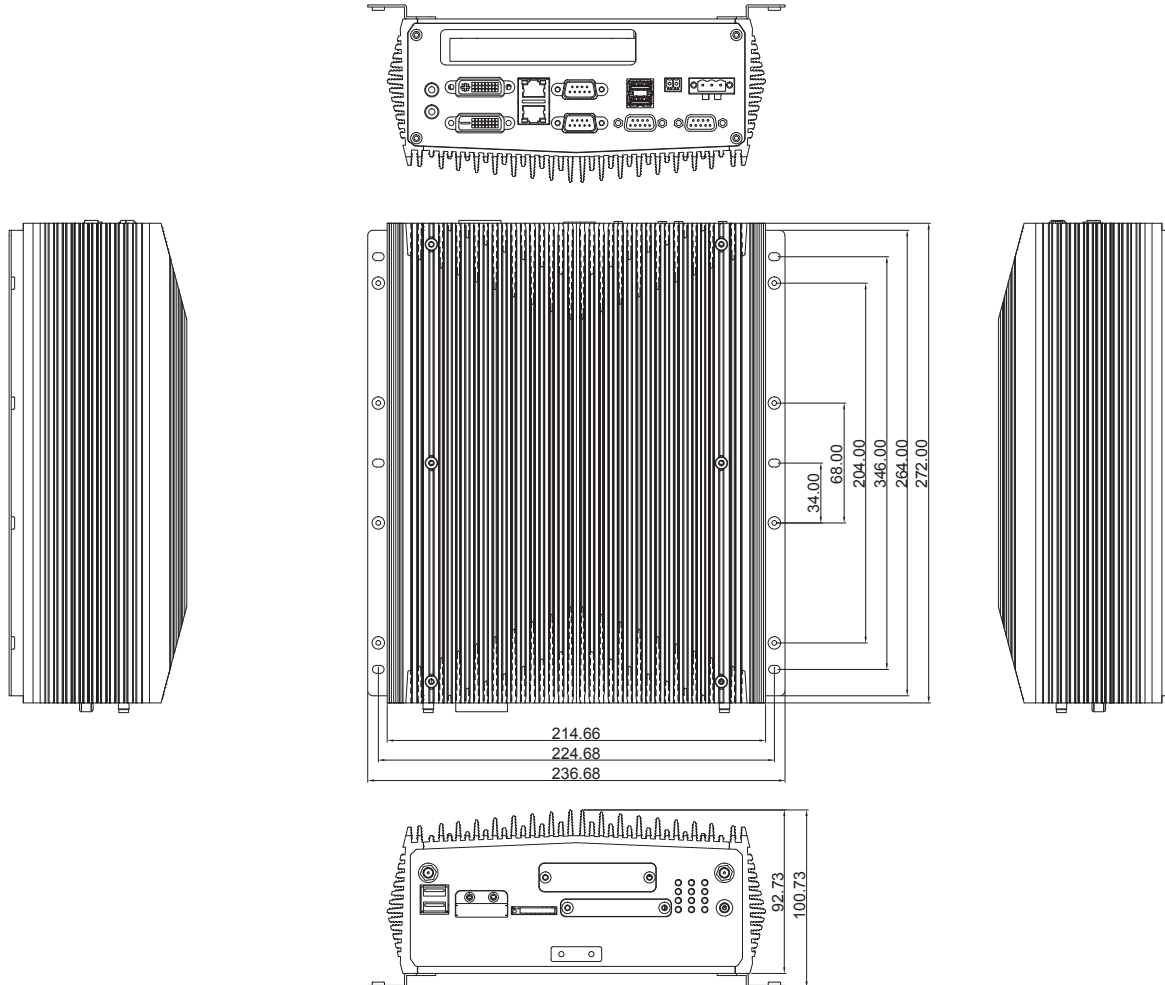
Used to connect an external microphone.

Expansion Slots

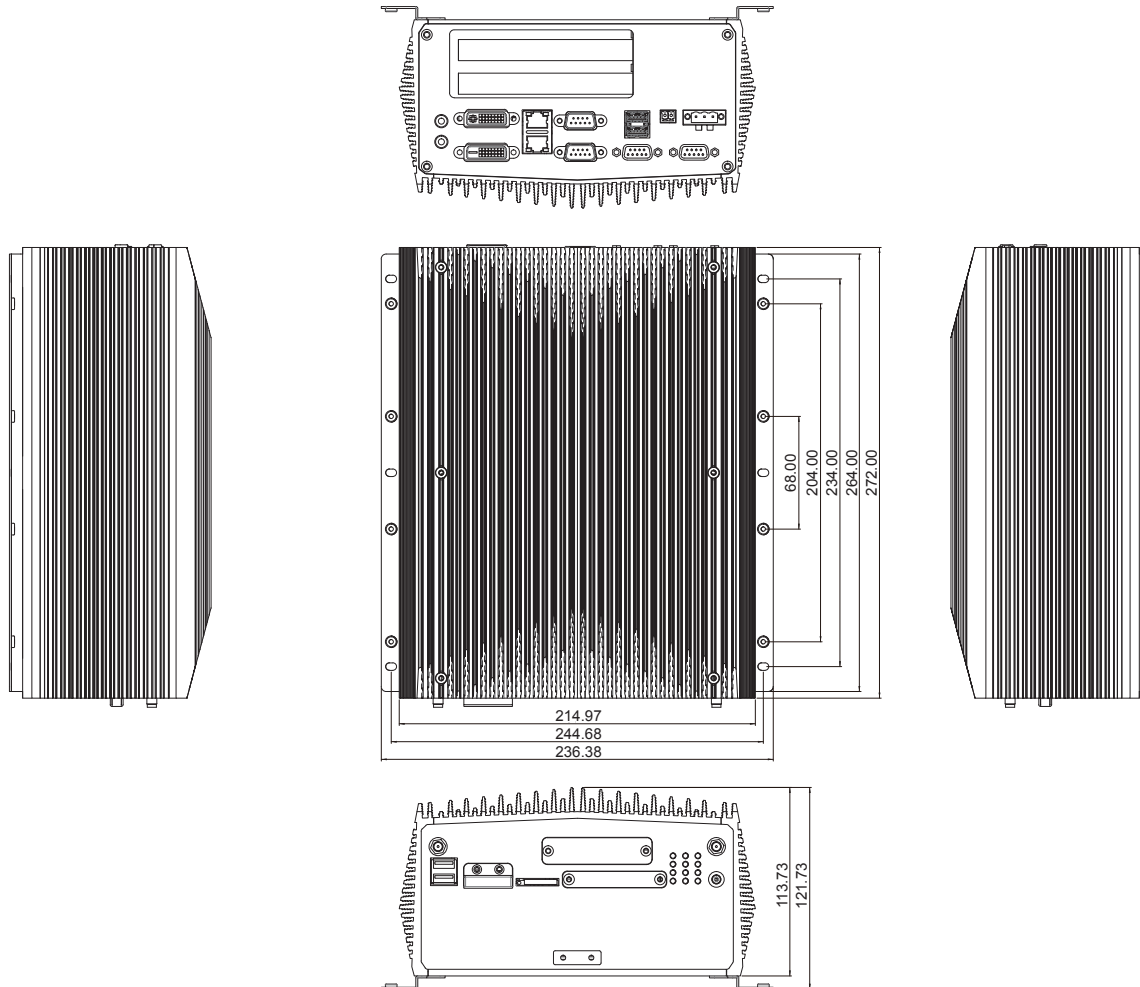
NISE 3720E: One PCIe x4 expansion slot
 NISE 3720E2: One PCIe x4 and one PCIe x1 expansion slot
 NISE 3720P2: Two PCI expansion slots
 NISE 3720P2E: One PCIe x4 and one PCI expansion slot

Mechanical Dimensions

NISE 3720E



NISE 3720E2/ NISE 3720P2/ NISE 3720P2E



CHAPTER 2: JUMPERS AND CONNECTORS

This chapter describes how to set the jumpers and connectors on the NISE 3720E series motherboard.

Before You Begin

- Ensure you have a stable, clean working environment. Dust and dirt can get into components and cause a malfunction. Use containers to keep small components separated.
- Adequate lighting and proper tools can prevent you from accidentally damaging the internal components. Most of the procedures that follow require only a few simple tools, including the following:
 - A Philips screwdriver
 - A flat-tipped screwdriver
 - A set of jewelers screwdrivers
 - A grounding strap
 - An anti-static pad
- Using your fingers can disconnect most of the connections. It is recommended that you do not use needle-nosed pliers to disconnect connections as these can damage the soft metal or plastic parts of the connectors.
- Before working on internal components, make sure that the power is off. Ground yourself before touching any internal components, by touching a metal object. Static electricity can damage many of the electronic components. Humid environments tend to have less static electricity than

dry environments. A grounding strap is warranted whenever danger of static electricity exists.

Precautions

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

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

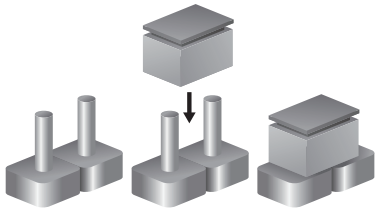
- Always disconnect the unit from the power outlet whenever you are working inside the case.
- If possible, wear a grounded wrist strap when you are working inside the computer case. Alternatively, discharge any static electricity by touching the bare metal chassis of the unit case, or the bare metal body of any other grounded appliance.
- Hold electronic circuit boards by the edges only. Do not touch the components on the board unless it is necessary to do so. Don't flex or stress the circuit board.
- Leave all components inside the static-proof packaging that they shipped with until they are ready for installation.
- Use correct screws and do not over tighten screws.

Jumper Settings

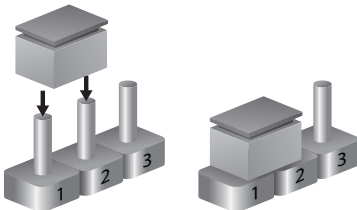
A jumper is the simplest kind of electric switch. It consists of two metal pins and a cap. When setting the jumpers, ensure that the jumper caps are placed on the correct pins. When the jumper cap is placed on both pins, the jumper is short. If you remove the jumper cap, or place the jumper cap on just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

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

Two-Pin Jumpers: Open (Left) and Short (Right)



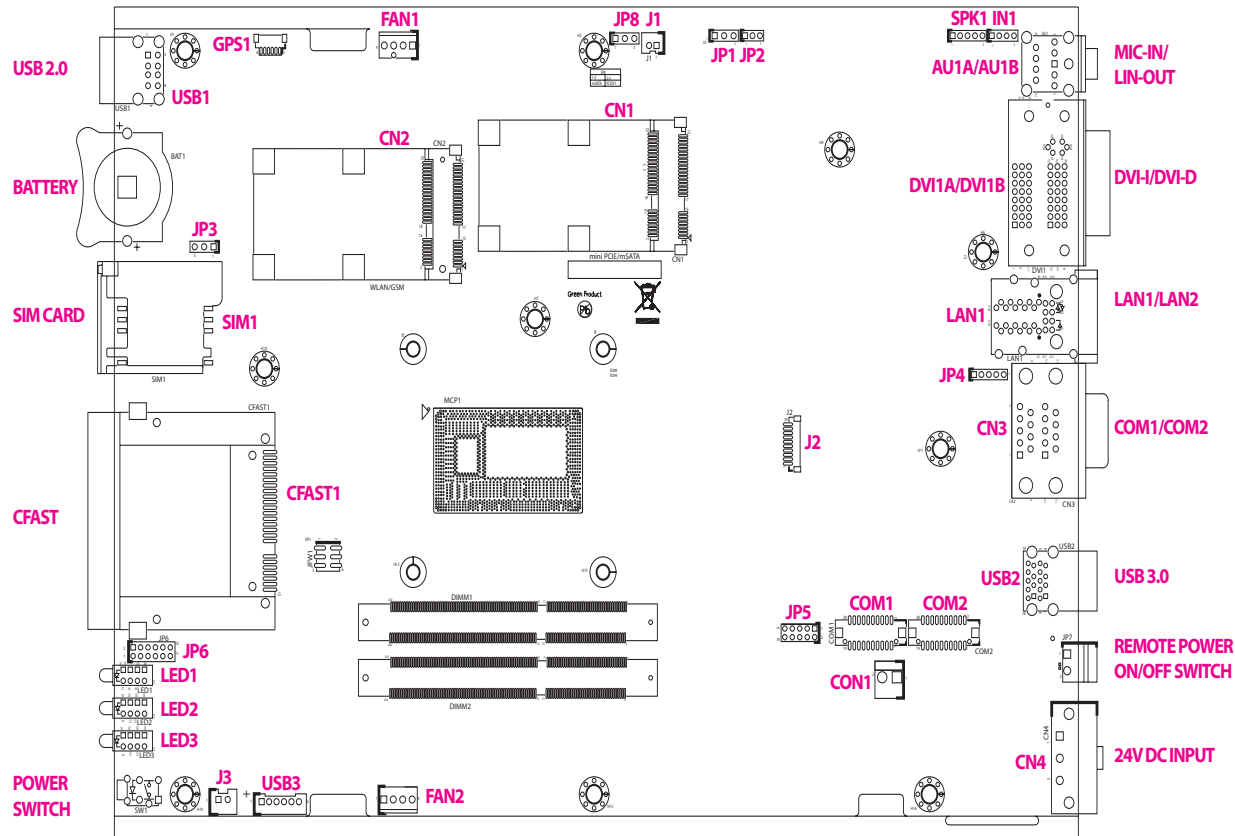
Three-Pin Jumpers: Pins 1 and 2 are Short



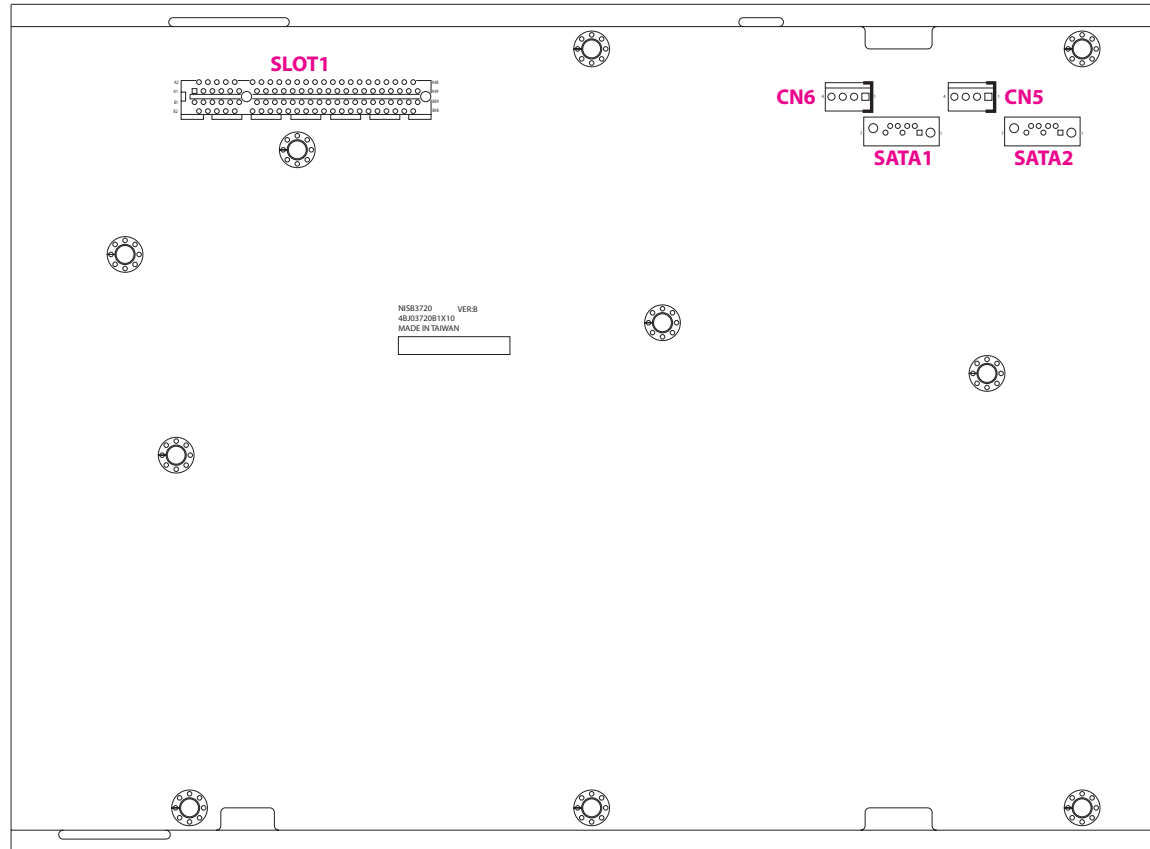
Locations of the Jumpers and Connectors for NISB 3720

NISB 3720

The figure below is the top view of the NISB 3720 main board which is the main board used in the NISE 3720E series. It shows the locations of the jumpers and connectors.



The figure below is the bottom view of the NISB 3720 main board.



Jumpers

CMOS Clear Select

Connector type: 1x3 3-pin header

Connector location: JP3



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

1-2 On: default

AT/ATX Power Select

Connector type: 1x3 3-pin header

Connector location: JP1



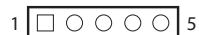
Pin	Settings
1-2 On	ATX Mode
2-3 On	AT Mode

1-2 On: default

COM2 RI Power Select

Connector type: 1x5 5-pin header

Connector location: JP4



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

4-5 On: default

SATA/PCIe

Connector type: 1x3 3-pin header

Connector location: JP8



Pin	Settings
1-2 On	mSATA
2-3 On	PCIe x1

1-2 On: default

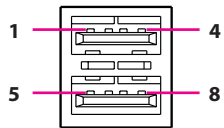
Connector Pin Definitions

External I/O Interfaces - Front Panel

USB 2.0 Ports

Connector type: Dual USB 2.0 ports

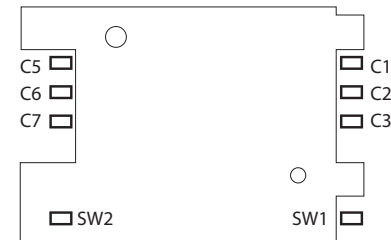
Connector location: USB1



Pin	Definition	Pin	Definition
1	P5V_USB_P23	2	USB2N2_C
3	USB2P2_C	4	GND
5	P5V_USB_P23	6	USB2N3_C
7	USB2P3_C	8	GND
MH1	Chasis_GND	MH2	Chasis_GND
MH3	Chasis_GND	MH4	Chasis_GND

SIM Card Connector

Connector location: SIM1

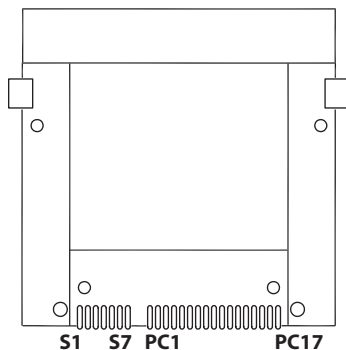


Pin	Definition	Pin	Definition
C1	UIM_PWR	C2	UIM_RESET
C3	UIM_CLK	C5	GND
C6	UIM_VPP	C7	UIM_DATA
SW1	GND	SW2	GND

CFast

Connector type: Standard CFast connector

Connector location: CFAST1



Pin	Definition	Pin	Definition
S1	GND	PC6	NC
S2	SATA_TXP3	PC7	GND
S3	SATA_TXN3	PC8	CFAST_LED1_C
S4	GND	PC9	CFAST_LED2_C
S5	SATA_RXN3	PC10	NC
S6	SATA_RXP3	PC11	NC
S7	GND	PC12	NC
PC1	CFAST_CDI	PC13	VCC3
PC2	GND	PC14	VCC3
PC3	NC	PC15	GND
PC4	NC	PC16	GND
PC5	NC	PC17	CFAST_CDO

LED Indicators

Connector location: LED1, LED2 and LED3

LED1	LED2	LED3
GPO1	LAN1 LNK	PW
GPO2	LAN1 ACT	HDD
GPO3	LAN2 LNK	CFast
BAT LOW	LAN2 ACT	RF

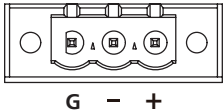
	Pin	Definition	Pin	Definition
LED1	A1	BAT_LOW	C1	GND
	A2	GPIO84	C2	GND
	A3	GPIO85	C3	GND
	A4	GPIO86	C4	GND
LED2	A1	VCC3	C1	LAN2_LED_ACT#
	A2	VCC3	C2	LAN2_LED_LINK#
	A3	VCC3	C3	LAN1_LED_ACT#
	A4	VCC3	C4	LAN1_LED_LINK#
LED3	A1	VCC3	C1	WLAN_DET
	A2	VCC3	C2	CFAST_DET
	A3	VCC3	C3	SATALED#
	A4	VCC3	C4	PWR_LED_N

External I/O Interfaces - Rear Panel

24V DC Power Input

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

Connector location: CN4

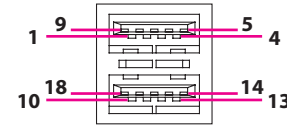


Pin	Definition
1	VIN_VCC
2	VIN_VSS
3	Chassis_GND

USB 3.0 Ports

Connector type: Dual USB 3.0 ports

Connector location: USB2



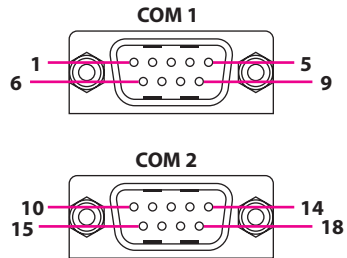
Pin	Definition	Pin	Definition
1	P5V_USB_P01	2	USB2N0_C
3	USB2P0_C	4	GND
5	USB3RN1_C	6	USB3RP1_C
7	GND	8	USB3TN1_C
9	USB3TP1_C	10	P5V_USB_P01
11	USB2N1_C	12	USB2P1_C
13	GND	14	USB3RN2_C
15	USB3RP2_C	16	GND
17	USB3TN2_C	18	USB3TP2_C
MH1	Chassis_GND	MH2	Chassis_GND
MH3	Chassis_GND	MH4	Chassis_GND

COM 1 and COM 2 Ports

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

2x10 20-pin header, 1.25mm pitch

Connector location: CN3

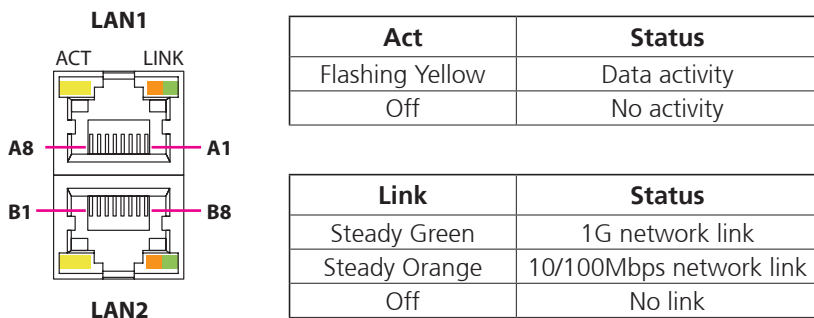


Pin	Definition	Pin	Definition
1	COM_DCD#1	2	COM_RXD1
3	COM_TXD1	4	COM_DTR#1
5	GND	6	COM_DSR#1
7	COM_RTS#1	8	COM_CTS#1
9	COM_RI#1_T	10	COM_DCD#2
11	COM_RXD2	12	COM_TXD2
13	COM_DTR#2	14	GND
15	COM_DSR#2	16	COM_RTS#2
17	COM_CTS#2	18	COM_RI#2
MH1	Chassis_GND	MH2	Chassis_GND
MH3	Chassis_GND	MH4	Chassis_GND

LAN1 and LAN2 Ports

Connector type: Dual RJ45 port with LEDs

Connector location: LAN1



Act	Status
Flashing Yellow	Data activity
Off	No activity

Link	Status
Steady Green	1G network link
Steady Orange	10/100Mbps network link
Off	No link

LAN1

Pin	Definition	Pin	Definition
A1	LAN1_MDI0P	A2	LAN1_MDI0N
A3	LAN1_MDI1P	A4	LAN1_MDI1N
A5	LAN1_MDI2P	A6	LAN1_MDI2N
A7	LAN1_MDI3P	A8	LAN1_MDI3N
A9	LAN1_VCC	A10	GND
A11	LAN1_ACTPW	A12	LAN1_LED_ACT#
A13	LINK100#_LED_LAN1	A14	LINK1G#_LED_LAN1
MH1	Chassis_GND	MH2	Chassis_GND
MH3	Chassis_GND		

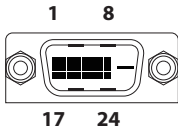
LAN2

Pin	Definition	Pin	Definition
B1	LAN2_MDI0P	B2	LAN2_MDI0N
B3	LAN2_MDI1P	B4	LAN2_MDI1N
B5	LAN2_MDI2P	B6	LAN2_MDI2N
B7	LAN2_MDI3P	B8	LAN2_MDI3N
B9	LAN2_VCC	B10	GND
B11	LAN2_ACTPW	B12	LAN2_LED_ACT#
B13	LINK100#_LED_LAN2	B14	LINK1G#_LED_LAN2
MH4	Chassis_GND	MH5	Chassis_GND
MH6	Chassis_GND		

DVI-D Connector

Connector type: 24-pin D-Sub, 2.0mm-M-180 (DVI)

Connector location: DVI1A

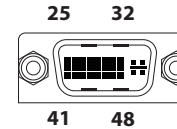


Pin	Definition	Pin	Definition
1	DVI1_DATA2_N_C	2	DVI1_DATA2_P_C
3	GND	4	NA
5	NA	6	DVI1_CTRL_CLK_C
7	DVI1_CTRL_DAT_C	8	NA
9	DVI1_DATA1_N_C	10	DVI1_DATA1_P_C
11	GND	12	NA
13	NA	14	DVI1_PWR_C
15	GND	16	DVI1_HPD
17	DVI1_DATA0_N_C	18	DVI1_DATA0_P_C
19	GND	20	NA
21	NA	22	NA
23	DVI1_CLK_P_C	24	DVI1_CLK_N_C

DVI-I Connector

Connector type: 24-pin D-Sub, 2.0mm-M-180 (DVI)

Connector location: DVI1B

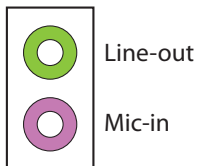


Pin	Definition	Pin	Definition
25	DVI2_DATA2_N_C	26	DVI2_DATA2_P_C
27	GND	28	NA
29	NA	30	DVI2_CTRL_CLK_C
31	DVI2_CTRL_DAT_C	32	VS_VGA
33	DVI2_DATA1_N_C	34	DVI2_DATA1_P_C
35	GND	36	NA
37	NA	38	DVI2_PWR_C
39	GND	40	DVI2_HPD
41	DVI2_DATA0_N_C	42	DVI2_DATA0_P_C
43	GND	44	VGA_CLK_C
45	VGA_DAT_C	46	NA
47	DVI2_CLK_P_C	48	DVI2_CLK_N_C
B1	RED_VGA	B2	GREEN_VGA
B3	BLUE_VGA	B4	HS_VGA
B5A	VGA_GND	B5B	VGA_GND
MH1	Chassis_GND	MH2	Chassis_GND
MH3	Chassis_GND	MH4	Chassis_GND

Audio Connectors

Connector type: 2x 3.5mm TRS

Connector location: AU1A (Mic-in) and AU1B (Line-out)



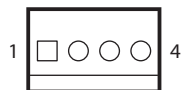
Pin	Definition	Pin	Definition
1	AGND	2	MIC_OUT-L
3	AGND	4	MIC_JD
5	MIC_OUT-R	MH1	Chassis_GND
MH2	Chassis_GND	MH3	Chassis_GND
MH4	Chassis_GND	NH1	
22	LINE_OUT_LC	23	AGND
24	LINEOUT_JD	25	LINE_OUT_RC

Internal Connectors

Smart Fan1 and Fan2 Connectors

Connector type: 1x4 4-pin Wafer, 2.54mm pitch

Connector location: FAN1 and FAN2

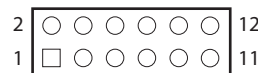


Pin	Definition
1	GND
2	+12V
3	FAN TAC
4	FAN CTL

LED Pin Header

Connector type: 2x6 12-pin header, 2.0mm pitch

Connector location: JP6



Pin	Definition	Pin	Definition
1	PWR_LED_N	2	PWR_LED_P
3	SATALED#	4	SATALED#_P
5	LAN1_LED_LINK#	6	LAN1_LED_LINK#_P
7	LAN1_LED_ACT#	8	LAN1_LED_ACT#_P
9	LAN2_LED_LINK#	10	LAN2_LED_LINK#_P
11	LAN2_LED_ACT#	12	LAN2_LED_ACT#_P

Debug Connector

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

Connector location: J2

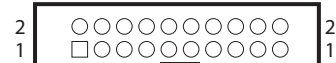


Pin	Definition	Pin	Definition
1	GND	2	PLTRST#
3	CLK_PCI_P80	4	LPC_FRAME#
5	LPC_AD3	6	LPC_AD2
7	LPC_AD1	8	LPC_ADO
9	VCC3	10	VCC3
MH1	GND	MH2	GND

RS232 Box Header (COM1)

Connector type: 2x10 20-pin header, 1.25mm pitch

Connector location: COM1



Pin	Definition	Pin	Definition
1	COM_DCD#3	2	COM_DCD#4
3	COM_TXD3	4	COM_TXD4
5	COM_RTS#3	6	COM_RTS#4
7	COM_RI#3	8	COM_RI#4
9	GND	10	GND
11	COM_RXD3	12	COM_RXD4
13	COM_DTR#3	14	COM_DTR#4
15	COM_DSR#3	16	COM_DSR#4
17	COM_CTS#3	18	COM_CTS#4
19	GND	20	GND
MH1	GND	MH2	GND

RS232 Box Header (COM2)

Connector type: 2x10 20-pin header, 1.25mm pitch

Connector location: COM2



Pin	Definition	Pin	Definition
1	COM_DCD#5	2	COM_DCD#6
3	COM_TXD5	4	COM_TXD6
5	COM_RTS#5	6	COM_RTS#6
7	COM_RI#5	8	COM_RI#6
9	GND	10	GND
11	COM_RXD5	12	COM_RXD6
13	COM_DTR#5	14	COM_DTR#6
15	COM_DSR#5	16	COM_DSR#6
17	COM_CTS#5	18	COM_CTS#6
19	GND	20	GND
MH1	GND	MH2	GND

SMBus

Connector type: 1x3 3-pin header, 2.00mm pitch

Connector location: JP2



Pin	Definition
1	SMB_CLK
2	SMB_DATA
3	GND

S3 Connector

Connector type: 1x2 2-pin header, 2.0mm pitch

Connector location: J1



Pin	Definition
1	SLP_S3#
2	GND

USB 2.0 Connector

Connector type: 1x6 6-pin header, 2.00mm pitch

Connector location: USB3

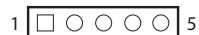


Pin	Definition	Pin	Definition
1	P5V_USB_P67	2	USB2N6_C
3	USB2P6_C	4	USB2N7_C
5	USB2P7_C	6	GND

Speaker-out Pin Header

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

Connector location: SPK1

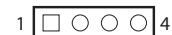


Pin	Definition	Pin	Definition
1	OUT-LR+_C	2	OUT-LR-_C
3	AGND	4	OUT-RR+_C
5	OUT-RR-_C		

Line-in Pin Header

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

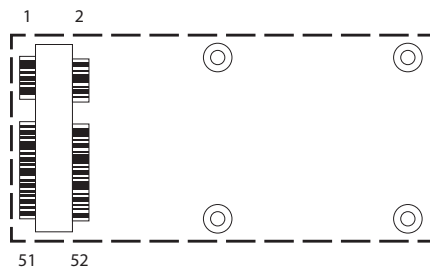
Connector location: IN1



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

Mini-PCIe/mSATA Connector

Connector location: CN1

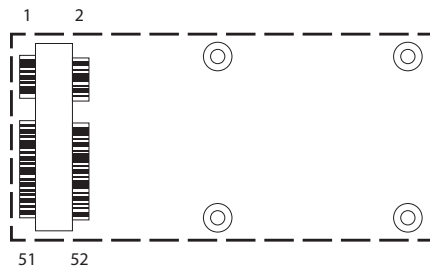


Pin	Definition	Pin	Definition
1	PCIE_WAKE#	2	3VSB_MINI1
3	NC	4	GND
5	NC	6	1V5_MINI1
7	MINICARD1CLKREQ#	8	NC
9	GND	10	NC
11	REFCLK-	12	NC
13	REFCLK+	14	NC
15	GND	16	NC
17	NC	18	GND
19	NC	20	MINICARD1DIS#
21	GND	22	PLTRST#
23	PCIE_mSATA_RXP_C	24	3VSB_MINI1
25	PCIE_mSATA_RXN_C	26	GND

Pin	Definition	Pin	Definition
27	GND	28	1V5_MINI1
29	GND	30	SMB_CLK
31	PCIE_mSATA_TXN_C	32	SMB_DATA
33	PCIE_mSATA_TXP_C	34	GND
35	GND	36	USB2N4_C
37	GND	38	USB2P4_C
39	3VSB_MINI1	40	GND
41	3VSB_MINI1	42	NC
43	GND	44	NC
45	NC	46	NC
47	NC	48	1V5_MINI1
49	NC	50	GND
51	PCIE_mSATA_SEL_51	52	3VSB_MINI1

WLAN/GSM Connector

Connector location: CN2



Pin	Definition	Pin	Definition
1	PCIE_WAKE#	2	3VSB_MINI1
3	NC	4	GND
5	NC	6	1V5_MINI1
7	MINICARD1CLKREQ#	8	UIM_PWR
9	GND	10	UIM_DATA
11	CLK_WIFI_N_C	12	UIM_CLK
13	CLK_WIFI_P_C	14	UIM_RESET
15	GND	16	UIM_VPP
17	NC	18	GND
19	NC	20	MINICARD1DIS#
21	GND	22	PLTRST#
23	PCIE_RN3_WIFI_C	24	3VSB_MINI2
25	PCIE_RP3_WIFI_C	26	GND

Pin	Definition	Pin	Definition
27	GND	28	1V5_MINI2
29	GND	30	SMB_CLK
31	PCIE_TN3_WIFI	32	SMB_DATA
33	PCIE_TR3_WIFI	34	GND
35	GND	36	USB2N5_C
37	GND	38	USB2P5_C
39	3VSB_MINI2	40	GND
41	3VSB_MINI2	42	LED_WLAN#
43	GND	44	LED_WLAN#
45	H_C_CLK	46	NC
47	H_C_DAT	48	1V5_MINI2
49	H_C_RST#	50	GND
51	NC	52	3VSB_MINI2

GPS JST Connector

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

Connector location: GPS1

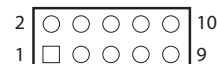


Pin	Definition	Pin	Definition
1	GPS_BAT	2	GPS_LED
3	UART_TXD6	4	UART_RXD6
5	GND	6	VCC3
MH1	GND	MH1	GND

GPIO Pin Header

Connector type: 2x5 10-pin header, 2.0mm pitch

Connector location: JP5



Pin	Definition	Pin	Definition
1	VCC5	2	GND
3	GPIO80	4	GPIO84
5	GPIO81	6	GPIO85
7	GPIO82	8	GPIO86
9	GPIO83	10	GPIO87

Reset Connector

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

Connector location: J3

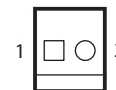


Pin	Definition
1	PM_RESET#_J
2	GND

Power Connector

Connector type: 1x2 2-pin header, 3.96mm pitch

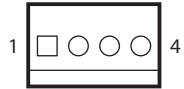
Connector location: CON1



Pin	Definition
1	VIN_R
2	GND

SATA Power Connectors

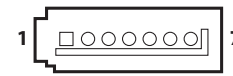
Connector type: 1x4 4-pin Wafer, 2.54mm pitch
Connector location: CN5 and CN6



Pin	Definition
1	+12V
2	GND
3	VCC5
4	GND

SATA1 Connector

Connector type: Standard Serial ATA 7P (1.27mm, SATA-M-180)
Connector location: SATA1

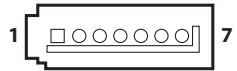


Pin	Definition	Pin	Definition
1	GND	2	SATA_TP1_C
3	SATA_TN1_C	4	GND
5	SATA_RN1_C	6	SATA_RP1_C
7	GND		

SATA2 Connector

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

Connector location: SATA2

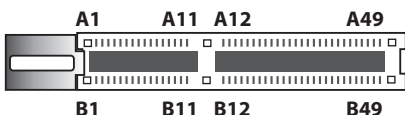


Pin	Definition	Pin	Definition
1	GND	2	SATA_TP0_C
3	SATA_TN0_C	4	GND
5	SATA_RN0_C	6	SATA_RP0_C
7	GND		

PCIe x8 Slot

Connector type: PCIe x8 Slot

Connector location: SLOT1



Pin	Definition	Pin	Definition
A1	PCIE_PRSENT1	B1	+12V
A2	+12V	B2	+12V
A3	+12V	B3	+12V
A4	GND	B4	GND
A5	NA	B5	PCIE_SMCLK
A6	NA	B6	PCIE_SMDAT
A7	NA	B7	GND
A8	NA	B8	VCC3
A9	VCC3	B9	NC
A10	VCC3	B10	3VSB
A11	PLTRST#	B11	PCIE_SLOT_WAKE#
A12	GND	B12	NC
A13	CLK_PCIE_P	B13	GND
A14	CLK_PCIE_N	B14	PCIE_TP5_L0
A15	GND	B15	PCIE_TN5_L0
A16	PCIE_RP5_L0_C	B16	GND
A17	PCIE_RN5_L0_C	B17	VCC3
A18	GND	B18	GND
A19	NC	B19	PCIE_TP5_L1
A20	GND	B20	PCIE_TN5_L1
A21	PCIE_RP5_L1_C	B21	GND

Pin	Definition	Pin	Definition
A22	PCIE_RN5_L1_C	B22	GND
A23	GND	B23	PCIE_TP5_L2
A24	GND	B24	PCIE_TN5_L2
A25	PCIE_RP5_L2_C	B25	GND
A26	PCIE_RN5_L2_C	B26	GND
A27	GND	B27	PCIE_TP5_L3
A28	GND	B28	PCIE_TN5_L3
A29	PCIE_RP5_L3_C	B29	GND
A30	PCIE_RN5_L3_C	B30	NC
A31	GND	B31	VCC3
A32	NC	B32	GND
A33	NC	B33	PCIE_TP3_X1
A34	GND	B34	PCIE_TN3_X1
A35	PCIE_RP3_C	B35	GND
A36	PCIE_RN3_C	B36	GND
A37	GND	B37	NC
A38	GND	B38	NC
A39	NC	B39	GND
A40	NC	B40	GND
A41	GND	B41	NC
A42	GND	B42	NC
A43	NC	B43	GND
A44	NC	B44	GND
A45	GND	B45	NC
A46	GND	B46	NC
A47	NC	B47	GND
A48	GND	B48	VCC3
A49	GND	B49	GND

CHAPTER 3: SYSTEM SETUP

Removing the Top Cover

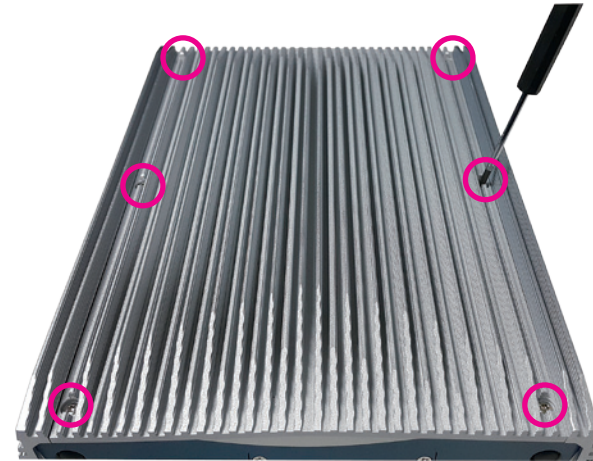


Prior to removing the chassis cover, make sure the unit's power is off and disconnected from the power sources to prevent electric shock or system damage.

1. Locate the 6 screws on the top cover.



2. Remove the screws then lift up the cover and remove it from the chassis.

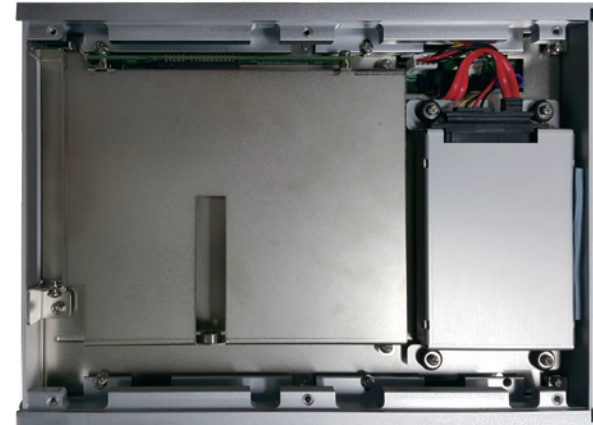


Removing the Bottom Cover

1. Locate the 6 screws on the bottom cover.



2. Remove the screws then lift up the bottom cover and remove it from the chassis.



Installing a mSATA Module

1. Locate the mSATA slot on the board.

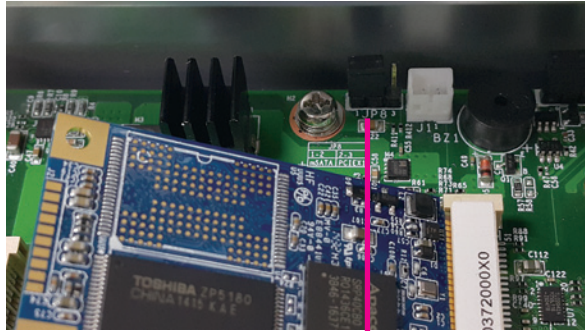


mSATA slot

2. Insert the mSATA module into the slot.

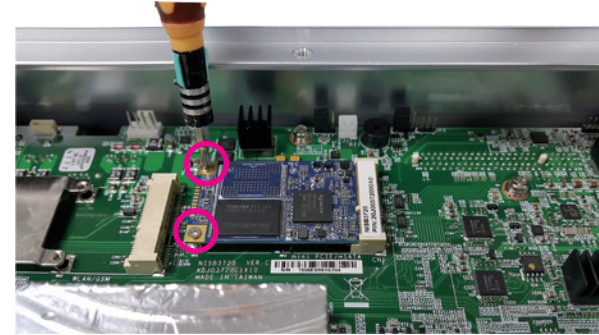


3. Locate the JP8 jumper and set it on pin 1 and pin 2 for mSATA mode.



JP8 jumper

4. Fix the mSATA module with screws



Installing a SO-DIMM Memory Module



Remove the top cover before installing a SO-DIMM module.

1. Locate the SO-DIMM sockets and release the locks.



SO-DIMM
sockets

2. Insert the SO-DIMM modules into the sockets and apply even pressure to both ends of each module until they are locked.



Installing a 3G/GSM Module

1. Locate the antenna hole cover on the front panel and remove it.



2. Install the antenna jack through the hole, and fix the cable with rings.



3. Insert the 3G module into the 3G/GSM slot and secure it with screws. Attach the RF cable onto the module.



RF cable

Installing a SIM Card

1. Locate the SIM card holder on the front panel and release it by pushing the yellow button.



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



2. Place the SIM card into the holder.



Installing a CFast Card

1. Locate the CFast socket at the front and remove its cover.

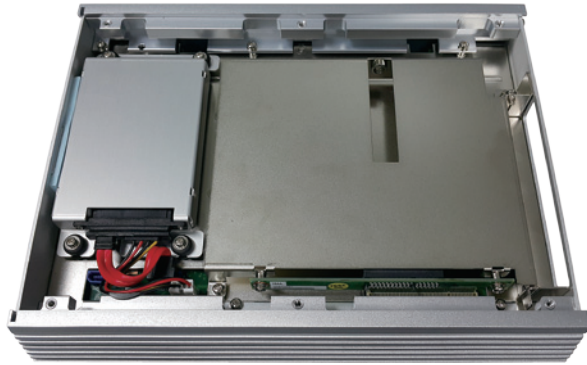


2. Insert the CFast card into the slot, then secure the cover back to its original location.

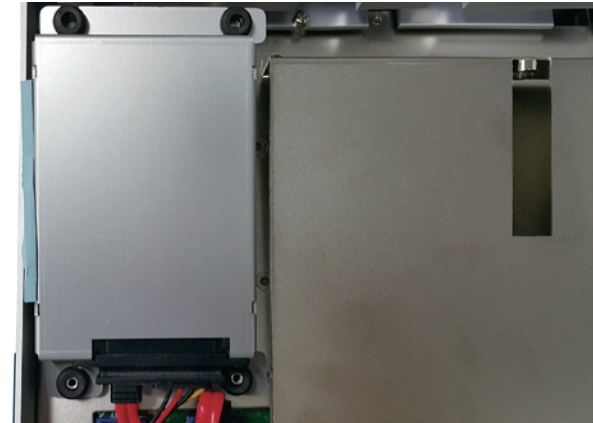


Installing a SATA Hard Drive

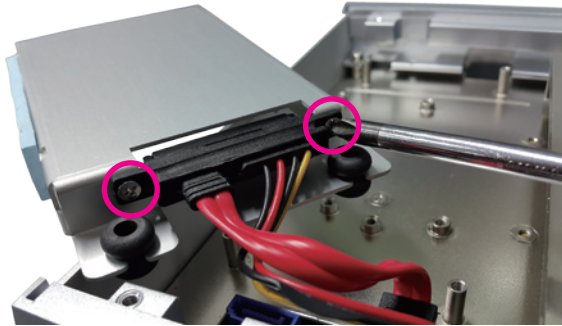
1. Remove the bottom cover of the chassis.



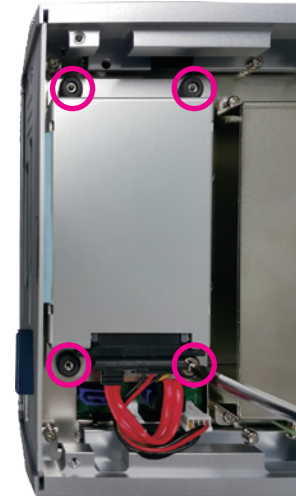
2. Unscrew the HDD bracket and lift it up.



3. Unscrew the SATA connector.



5. Connect the the SATA connector to the HDD and secure the HDD bracket back to its original location.



4. Place the HDD into the HDD bracket and secure the HDD with screws.



Installing a PCIe/PCI Expansion Card

Note:

NISE 3720E is equipped with one PCIe x4 expansion slot.

NISE 3720E2 is equipped with one PCIe x4 expansion slot and one PCIe x1 expansion slot.

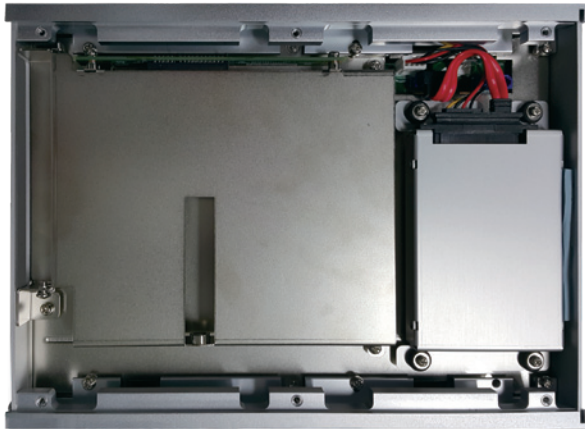
NISE 3720P2 is equipped with two PCI expansion slots.

NISE 3720P2E is equipped with one PCIe x4 expansion slot and one PCI expansion slot.

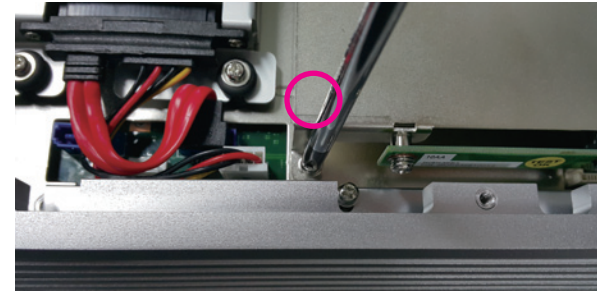


The example shown in the following instructions is NISE 3720E

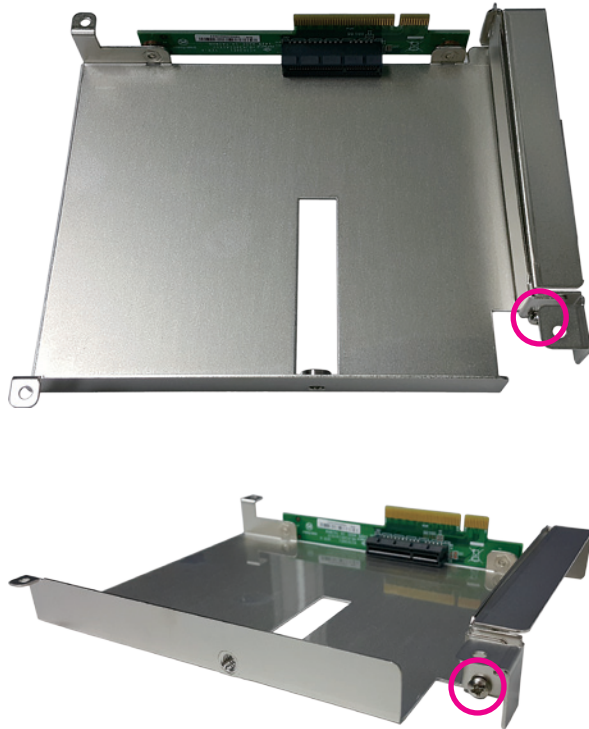
1. Remove the chassis bottom cover.



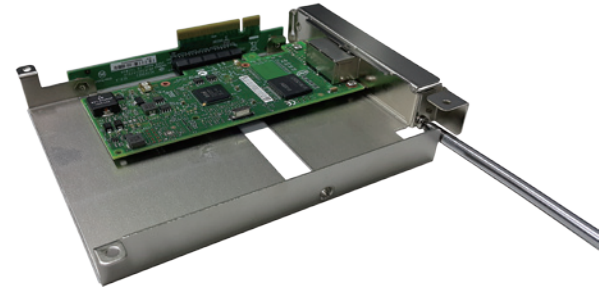
2. Remove the screws on the riser bracket.



3. Remove the screw on the expansion cover.



4. Insert the PCIe/PCI expansion card and fasten the screw to secure the card in place.



CHAPTER 4: BIOS SETUP

This chapter describes how to use the BIOS setup program for the NISE 3720E series. The BIOS screens provided in this chapter are for reference only and may change if the BIOS is updated in the future.

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

About BIOS Setup

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

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

With easy-to-use pull down menus, you can configure such items as:

- Hard drives, diskette drives, and peripherals
- Video display type and display options
- Password protection from unauthorized use
- Power management features

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

When to Configure the BIOS

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

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

Default Configuration


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

Entering Setup












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

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

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

Press the  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.
	Exits the BIOS Setup Utility.
	Scrolls forward through the values or options of the highlighted field.
	Scrolls backward through the values or options of the highlighted field.
	Selects a field.
	Displays General Help.
	Load previous values.
	Load optimized default values.
	Saves and exits the Setup program.
	Press <Enter> to enter the highlighted sub-menu


Scroll Bar

When a scroll bar appears to the right of the setup screen, it indicates that there are more available fields not shown on the screen. Use the up and down arrow keys to scroll through all the available fields.

Submenu

When “▶” appears on the left of a particular field, it indicates that a submenu which contains additional options are available for that field. To display the submenu, move the highlight to that field and press  .

BIOS Setup Utility

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

Main

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



Aptio Setup Utility - Copyright (C) 2012 American Megatrends, Inc.					
Main	Advanced	Chipset	Boot	Security	Save & Exit
Memory RC Version	1.5.0.0				
Total Memory	2048 MB (DDR3)				
Memory Frequency	1600 Mhz				
PCH Information					
Name	LynxPoint-LP				
PCH SKU	Premium SKU				
Stepping	04/C1				
LAN PHY Revision	N/A				
ME FW Version	9.5.3.1520				
ME Firmware SKU	1.5MB				
SPI Clock Frequency	Supported				
DOFR Support					
Read Status Clock Frequency	50 MHz				
Write Status Clock Frequency	50 MHz				
Fast Read Status Clock Frequency	50 MHz				
System Language	[English]				
System Date	[Wed 02/25/2015]				
System Time	[16:53:23]				
Access Level	Administrator				

Set the Time. Use Tab to switch between Time elements.

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

Version 2.15.1236. Copyright (C) 2012 American Megatrends, Inc.

System Language

Selects the language of the system.

System Date

The date format is <day>, <month>, <date>, <year>. Day displays a day, from Monday to Sunday. Month displays the month, from January to December. Date displays the date, from 1 to 31. Year displays the year, from 1999 to 2099.

System Time

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

Access Level

Displays the access level of the current user in the BIOS.

Advanced

The Advanced menu allows you to configure your system for basic operation. Some entries are defaults required by the system board, while others, if enabled, will improve the performance of your system or let you set some features according to your preference.

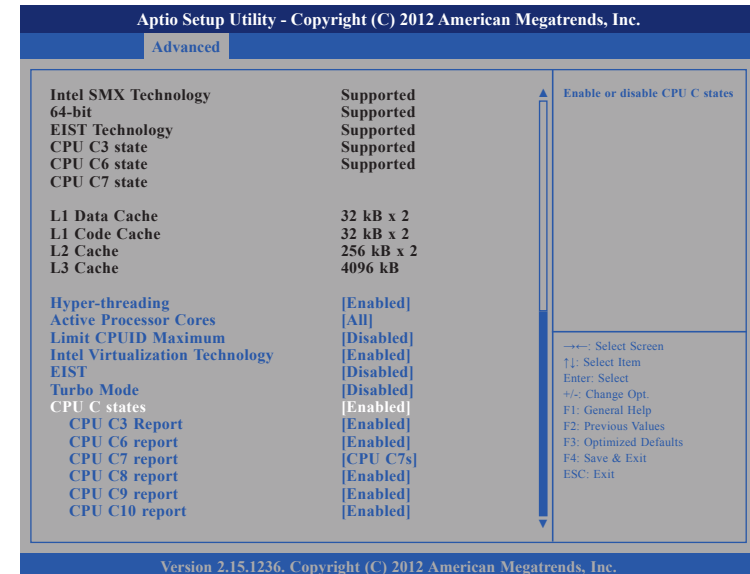


Setting incorrect field values may cause the system to malfunction.



CPU Configuration

This section is used to configure the CPU.



Hyper-threading

Enables or disables hyper-threading technology.

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.

Intel® Virtualization Technology

Enables or disables Intel Virtualization Technology.

EIST

Enables or disables Intel® SpeedStep.

Turbo Mode

Enables or disables turbo mode.

CPU C States

Enable CPU C States Support for power saving. It is recommended to keep C3, C6 and C7 all enabled for better power saving.

CPU C3 Report

Enables or disables C3 report to the operating system.

CPU C6 Report

Enables or disables C6 report to the operating system.

CPU C7 Report

Enables or disables C7 report to the operating system.

CPU C8 Report

Enables or disables C8 report to the operating system.

CPU C9 Report

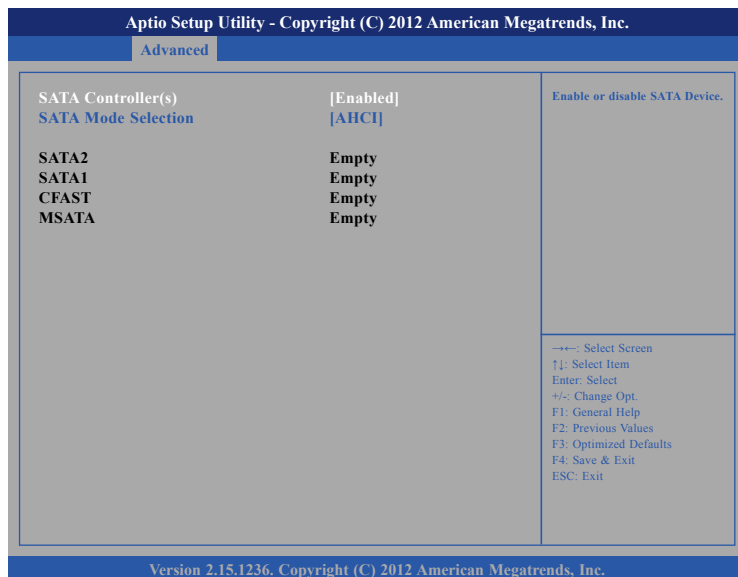
Enables or disables C9 report to the operating system.

CPU C10 Report

Enables or disables C10 report to the operating system.

SATA Configuration

This section is used to configure the SATA drives.



SATA Controller(s)

Enables or disables SATA device.

SATA Mode Selection

Configures the SATA as AHCI or RAID mode.

- RAID This option allows you to create RAID or Intel Matrix Storage configuration on Serial ATA devices.
- 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.

SATA2 to MSATA

Displays information on the devices connected to these interfaces.

USB Configuration

This section is used to configure the USB.



Legacy USB Support

Enable Enables Legacy USB.

Auto Disables support for Legacy when no USB devices are connected.

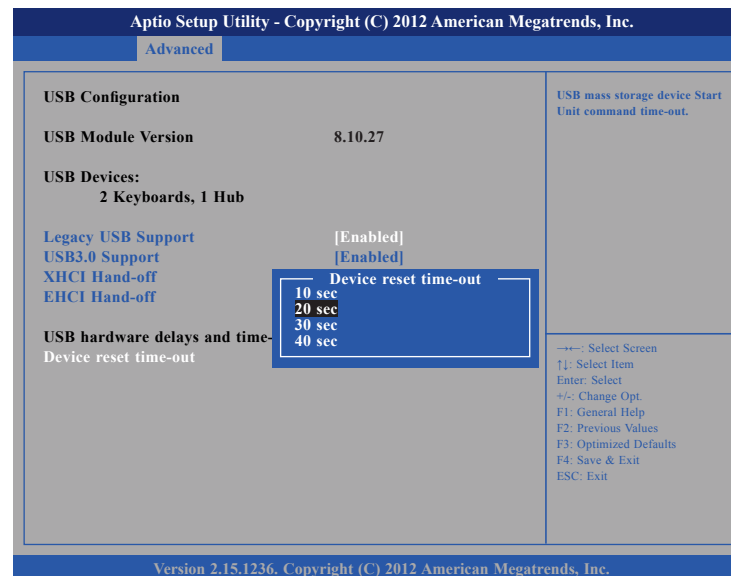
Disable Keeps USB devices available only for EFI applications.

USB3.0 Support

Enables or disables USB 3.0 controller support.

XHCI Hand-off and EHCI Hand-off

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

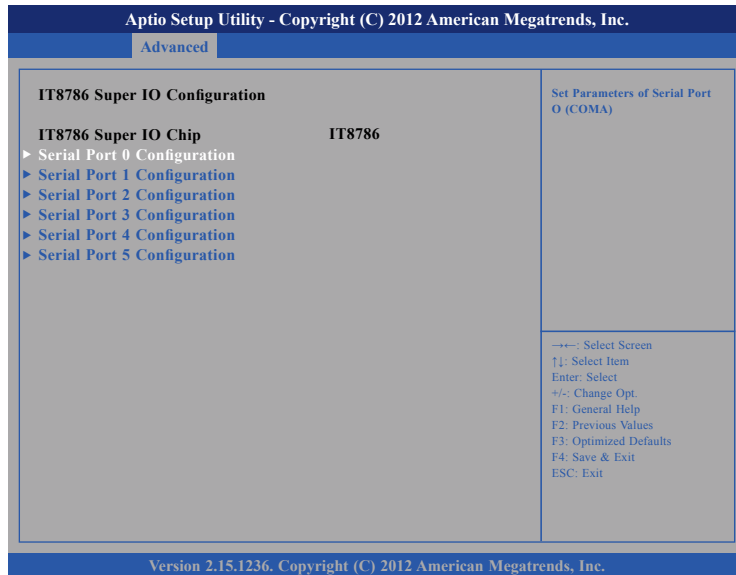


Device reset time-out

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

IT8786 Super IO Configuration

This section is used to configure the serial ports.

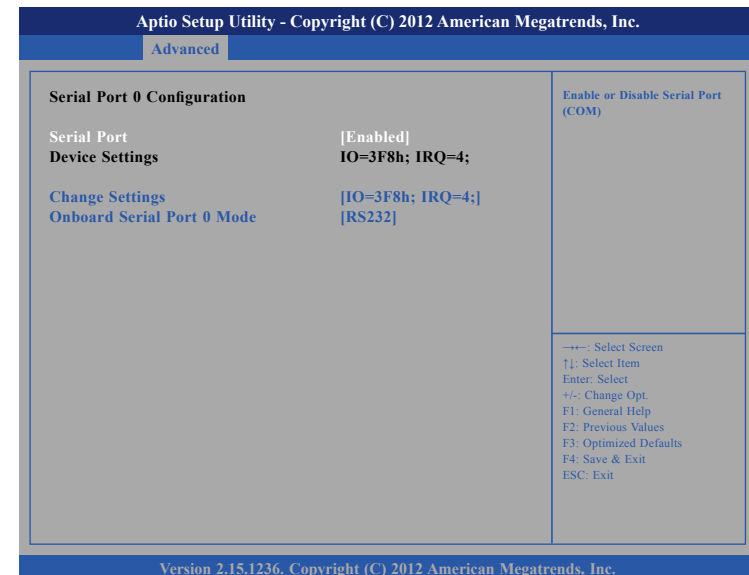


Super IO Chip

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

Serial Port 0 Configuration

This section is used to configure serial port 0.



Serial Port

Enables or disables the serial port.

Change Settings

Selects an optimal setting for the Super IO device.

Onboard Serial Port 0 Mode

Configures the serial port mode to RS232, RS422, RS485 or RS485 Auto.

Serial Port 1 Configuration

This section is used to configure serial port 1.



Serial Port

Enables or disables the serial port.

Change Settings

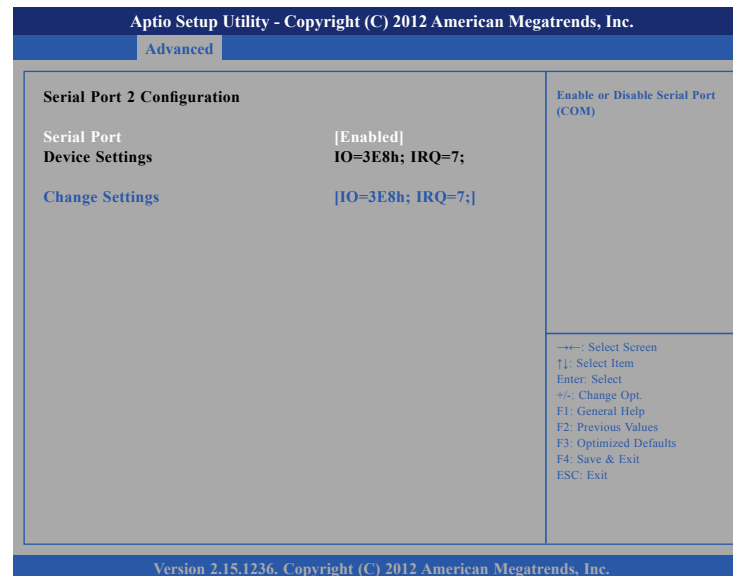
Selects an optimal setting for the Super IO device.

Onboard Serial Port 1 Mode

Configures the serial port mode to RS232, RS422, RS485 or RS485 Auto.

Serial Port 2 Configuration

This section is used to configure serial port 2.



Serial Port

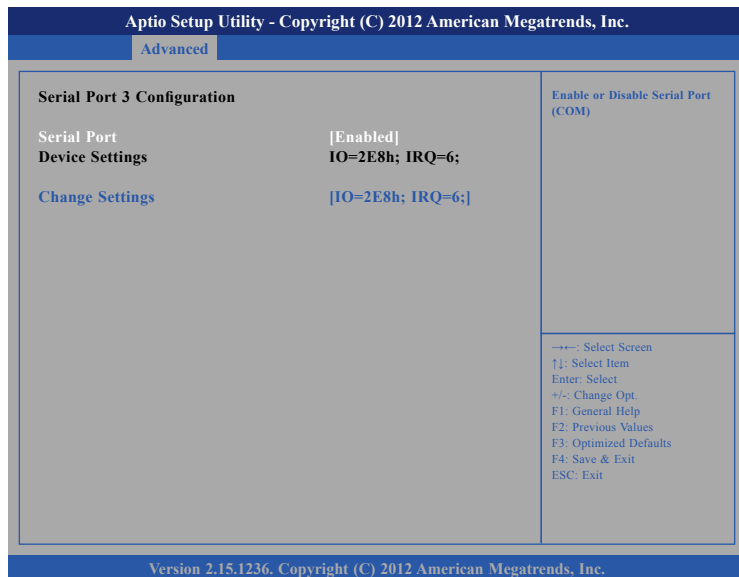
Enables or disables the serial port.

Change Settings

Selects an optimal setting for the Super IO device.

Serial Port 3 Configuration

This section is used to configure serial port 3.



Serial Port

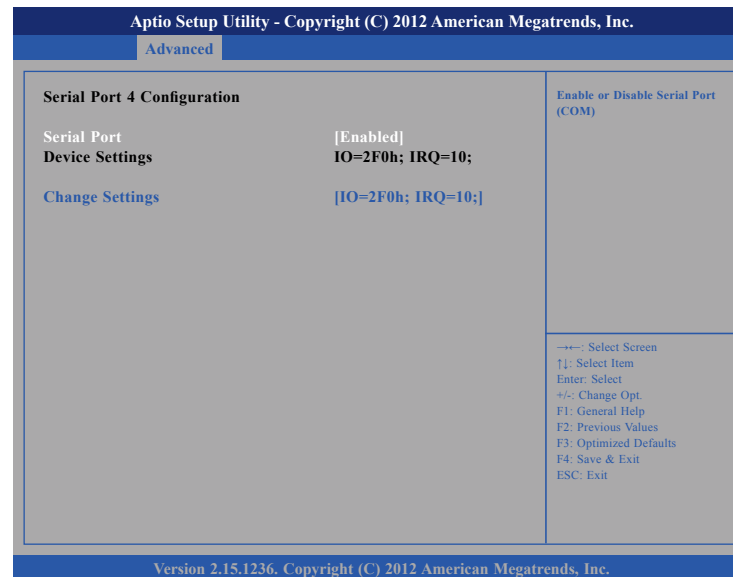
Enables or disables the serial port.

Change Settings

Selects an optimal setting for the Super IO device.

Serial Port 4 Configuration

This section is used to configure serial port 4.



Serial Port

Enables or disables the serial port.

Change Settings

Selects an optimal setting for the Super IO device.

Serial Port 5 Configuration

This section is used to configure serial port 5.



Serial Port

Enables or disables the serial port.

Change Settings

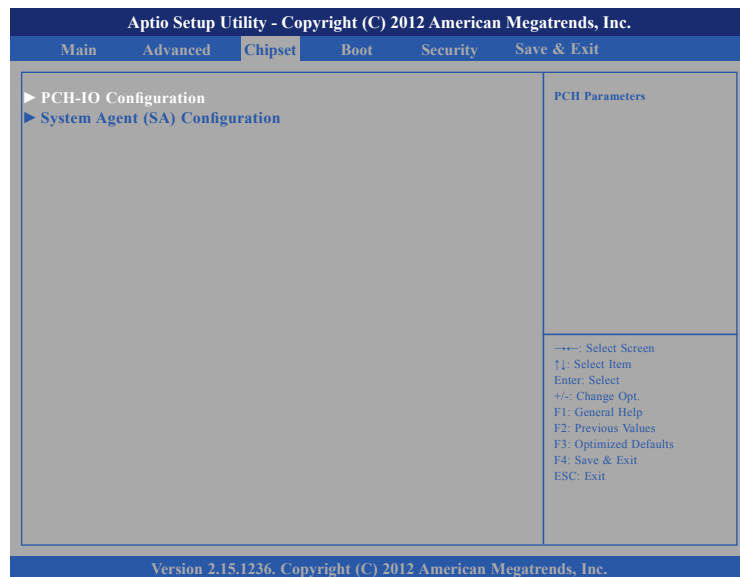
Selects an optimal setting for the Super IO device.

Onboard Serial Port 6 Mode

Configures the serial port mode to RS232.

Chipset

This section gives you functions to configure the system based on the specific features of the chipset. The chipset manages bus speeds and access to system memory resources.



PCH-IO Configuration

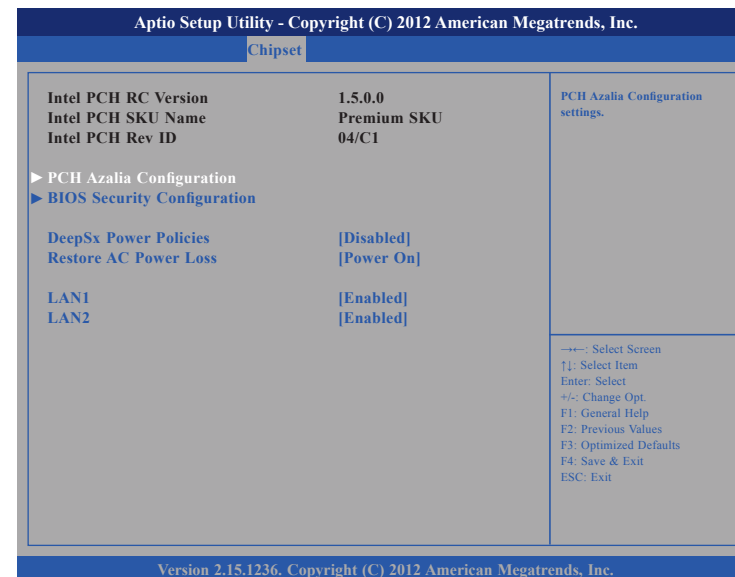
PCH-IO parameters.

System Agent (SA) Configuration

System Agent (SA) parameters.

PCH-IO Configuration

This section is used to configure PCH-IO configuration.



LAN1 and LAN2

Enables or disables LAN1 and LAN2 controllers.

PCH Azalia Configuration



Azalia

Control Detection of the Azalia device.

- Disabled Azalia will be unconditionally disabled.
- Enabled Azalia will be unconditionally disabled.
- Auto Azalia will be enabled if present, disabled otherwise.

BIOS Security Configuration



RTC RAM Lock

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

DeepSx Power Policies



Enables or disables DeepSx mode. The options are Disabled, Enabled in S5 and Enabled in S4-S5.

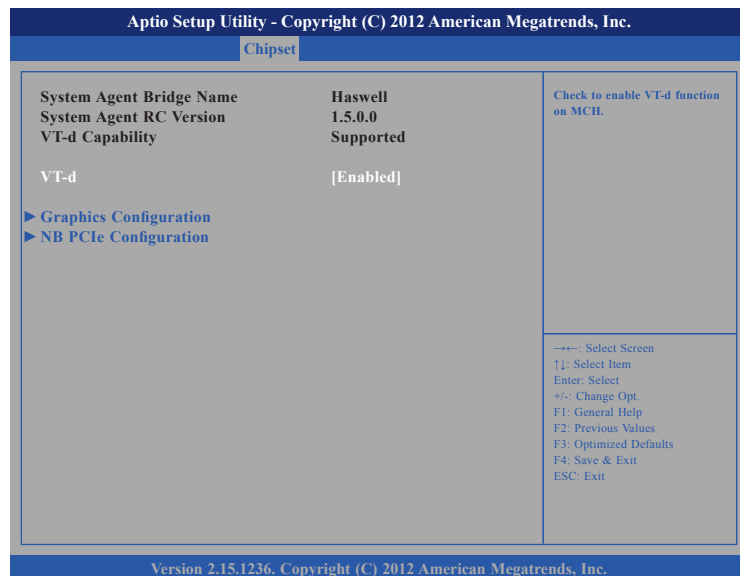
Restore AC Power Loss



Selects the AC power state when power is re-applied after a power failure.

System Agent (SA) Configuration

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



VT-d

Enables or disables VT-d function on MCH.

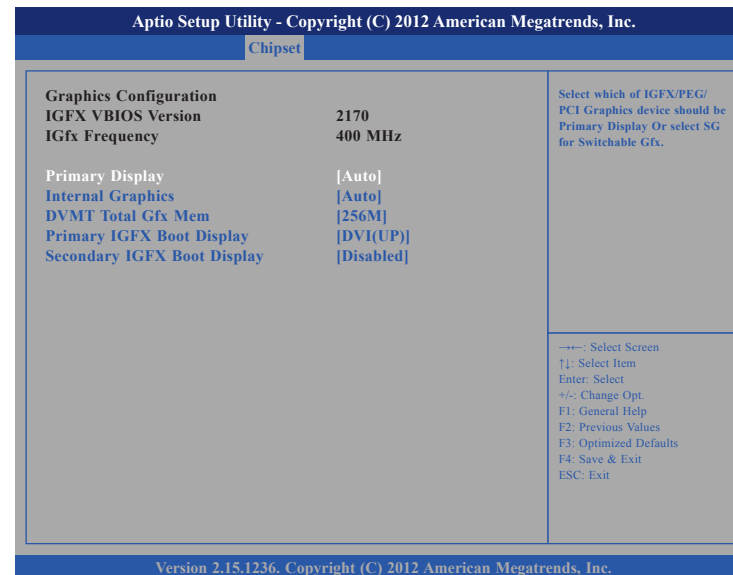
Graphics Configuration

Configures the graphics chip settings.

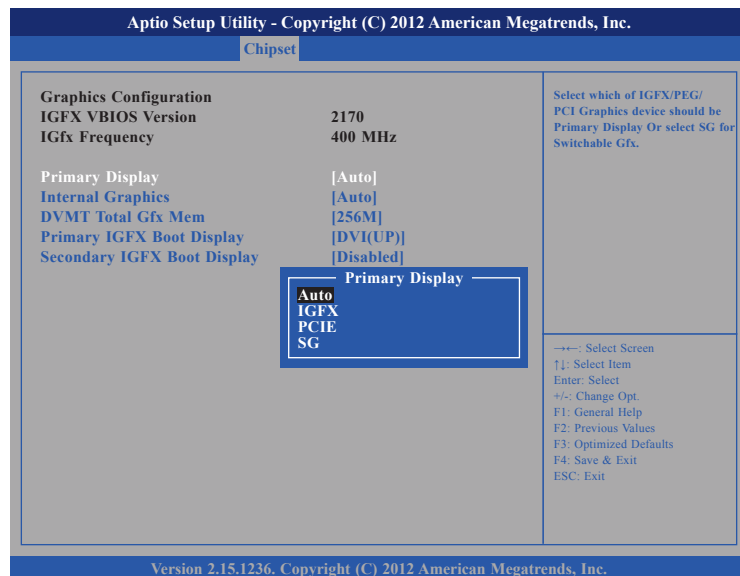
NB PCIe Configuration

Configures the NB PCI Express settings.

Graphics Configuration

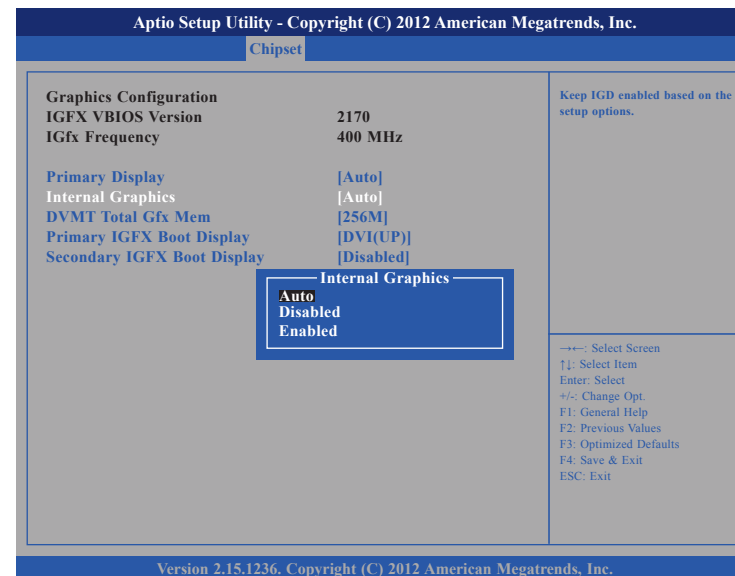


Primary Display



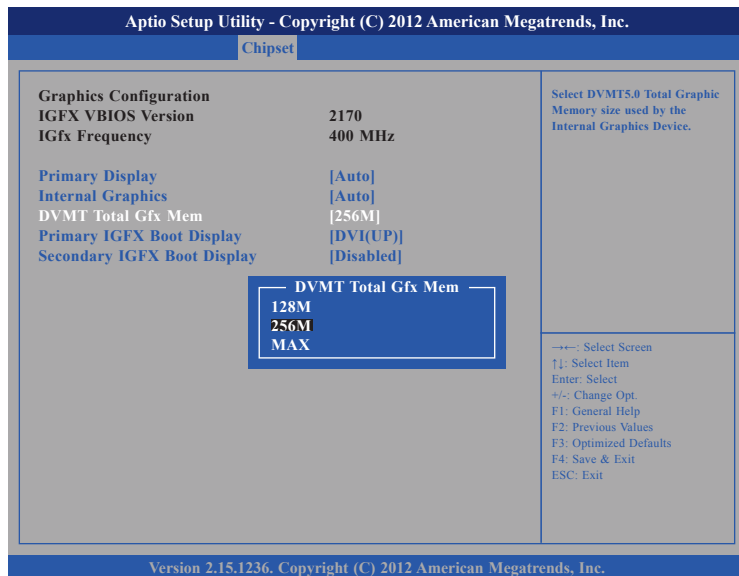
Selects which of IGFX/PEG/PCI graphics device should be primary display or select SG for switchable Gfx.

Internal Graphics



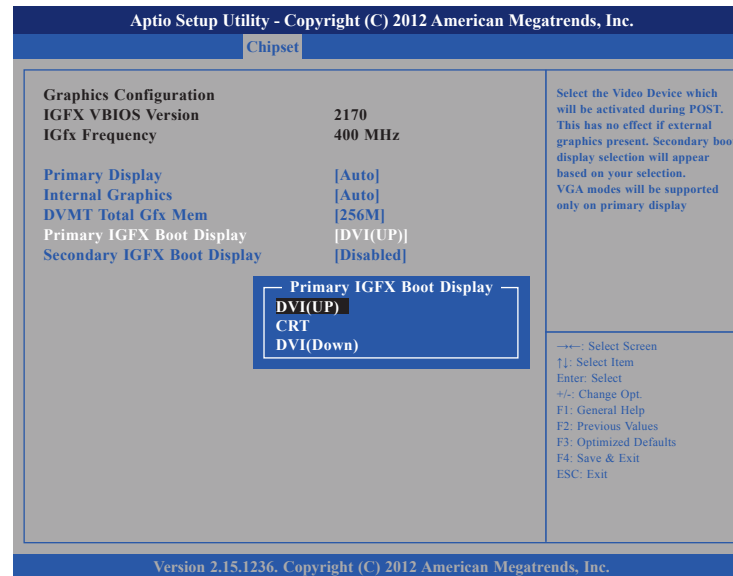
Keeps IGD enabled based on the setup options.

DVMT Total Gfx Mem



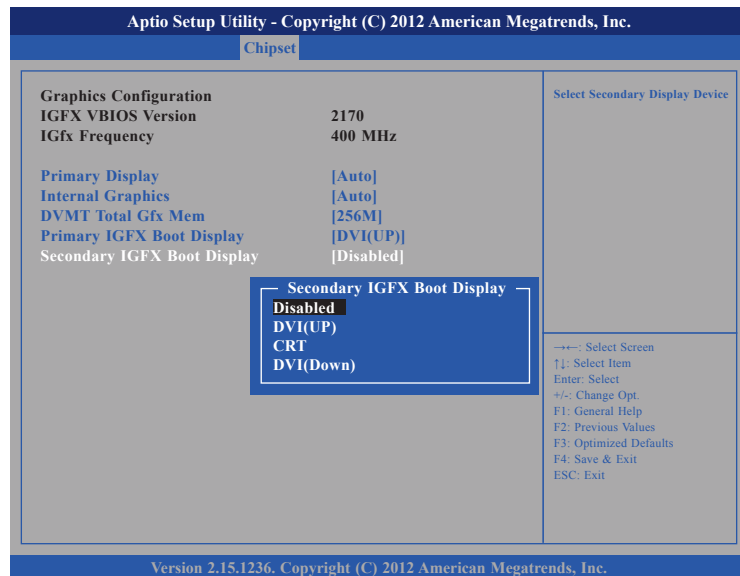
Selects DVMT5.0 Total Graphic Memory size used by the Internal Graphics Device.

Primary IGFX Boot Display



Selects the video device which will be activated during POST. This has no effect if external graphics is present. Secondary boot display selection will appear based on your selection. VGA modes will be supported only on primary display.

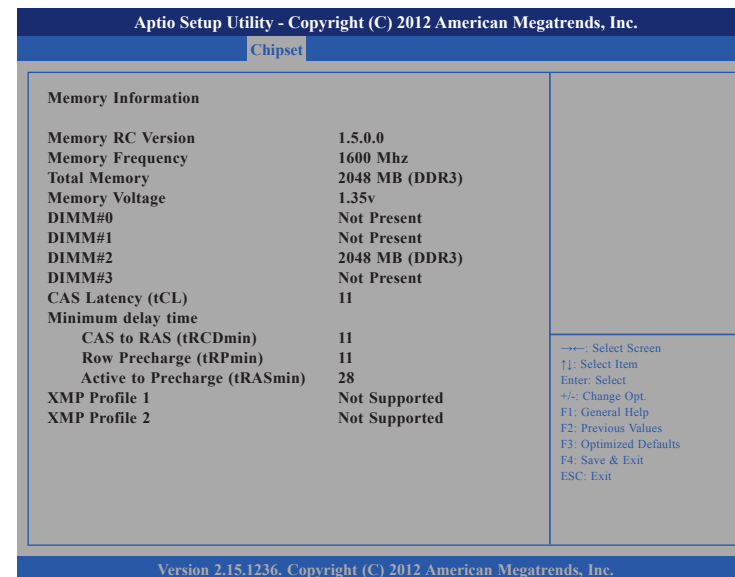
Secondary IGFX Boot Display



Selects the secondary display device.

Memory Configuration

Detects and displays information on the memory installed in the system.



Boot

This section is used to configure the boot features.



Setup Prompt Timeout

Selects the number of seconds to wait for the setup activation key. 65535(0xFFFF) denotes indefinite waiting.

Bootup NumLock State

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

Quiet Boot

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

Fast Boot

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

Launch PXE OpROM Policy

Controls the execution of UEFI and legacy PXE OpROM.

Onboard LAN PXE

Enables or disables onboard LAN PXE ROM.

Boot Option Priorities

Adjusts the boot sequence of the system. Boot Option #1 is the first boot device that the system will boot from, next will be #2 and so forth.

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.

Save Changes

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

Discard Changes

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

Restore Defaults

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

Save as User Defaults

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

Restore User Defaults

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

Boot Override

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

Launch EFI Shell from filesystem device

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

APPENDIX A: POWER CONSUMPTION

Test Configuration

System Configuration	Sys#1
Chassis	Chassis NISE 3720 VER:A
CPU	Intel® Core™ i5-4288U Processor (3M Cache, up to 3.10 GHz)
Memory	Transcend 4GB DDR3 1600MHz SO-DIMM (TS512MSK64W6H-I) x2
Motherboard	NISB 3720 REV:B
HDD	HDD 2.5" SATA automotive Hitachi: HEJ421080G9SA00 (-30°C to 85°C)
Mini-PCIe	1. Transcend mSATA 16GB (TS16GMSA630) 2. Sierra MC8705
CFast	Apacer CFast 32GB (81.3ER20.3T000BA)
Power Supply	Chroma 62006p-100-25
CPU Cooler	NISE 3640 CPU heatsink SHYUNG SHUHN
System FAN	Intel 2-port LAN PCIe x4 card
Keyboard	Microsoft Wired Keyboard 600
Mouse	Microsoft Basic Optical Mouse
Monitor	ASUS VS228

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

PROVA CM-07 AC/DC CLAMP METER

Device Under Test

DUT: sys#1/

Test Procedure

1. Power up the DUT, boot into Windows 7 x64 Ultimate.
2. Entering standby mode (HDD power down).
3. Measure the power consumption and record it.
4. Run Burn-in test program to apply 100% full loading.
5. Measure the power consumption and record it.

Test Data

	Sys #1 (Disabled Turbo Boot)
	+24V
Full-Loading Mode	2.02A
Total	48.48W
Standby S3 Mode	0.09A
Total	2.16W

APPENDIX B: GPIO PROGRAMMING GUIDE

GPIO (General Purpose Input/Output) pins are provided for custom system design. This appendix provides definitions and its default setting for the ten GPIO pins in the NISE 3720E series. The pin definition is shown in the following table:

Pin	GPIO Mode	PowerOn Default	Address	Pin	GPIO Mode	PowerOn Default	Address
1	VCC	-	-	2	GND	-	-
3	GPI	High	A07h (Bit0)	4	GPO	Low	A07h (Bit4)
5	GPI	High	A07h (Bit1)	6	GPO	Low	A07h (Bit5)
7	GPI	High	A07h (Bit2)	8	GPO	Low	A07h (Bit6)
9	GPI	High	A07h (Bit3)	10	GPO	Low	A07h (Bit7)

JP5 – GPIO Connector

Pin	GPIO Mode	PowerOn Default	Address
A4	GPO	Low	A01h (Bit3)
A3	GPO	Low	A02h (Bit6)
A2	GPO	Low	A02h (Bit7)

LED1 – GPIO Connector

Control the GPO pin (4/6/8/10) level from I/O port A07h bit (4/5/6/7).
Control the GPO pin (A4) level from I/O port A01h bit (3).
Control the GPO pin (A3/A2) level from I/O port A02h bit (6/7).
The bit is Set/Clear indicated output High/Low.

GPIO programming sample code

```
#define GPIO_PORT      0xA00

#define GPO4_HI        outportb(GPIO_PORT+7, 0x10)
#define GPO4_LO        outportb(GPIO_PORT+7, 0x00)
#define GPO6_HI        outportb(GPIO_PORT+7, 0x20)
#define GPO6_LO        outportb(GPIO_PORT+7, 0x00)
#define GPO8_HI        outportb(GPIO_PORT+7, 0x40)
#define GPO8_LO        outportb(GPIO_PORT+7, 0x00)
#define GPO10_HI       outportb(GPIO_PORT+7, 0x80)
#define GPO10_LO       outportb(GPIO_PORT+7, 0x00)
#define GPOA4_HI       outportb(GPIO_PORT+1, 0x08)
#define GPOA4_LO       outportb(GPIO_PORT+1, 0x00)
#define GPOA3_HI       outportb(GPIO_PORT+2, 0x40)
#define GPOA3_LO       outportb(GPIO_PORT+2, 0x00)
#define GPOA2_HI       outportb(GPIO_PORT+2, 0x80)
#define GPOA2_LO       outportb(GPIO_PORT+2, 0x00)

void main(void)
{
    GPO4_HI;
    GPO6_LO;
    GPO8_HI;
    GPO10_LO;
    GPOA4_HI;
    GPOA3_LO;
    GPOA2_HI;
}
```

APPENDIX C: WATCHDOG TIMER SETTING

ITE8786 WatchDog Programming Guide

```
#define Superio_Port    0x2E
#define Superio_LDN    0x07
```

```
/*Enter the MB PnP mode with 0x87, 0x01, 0x55, 0x55
```

```
outportb(Superio_Port, 0x87);
outportb(Superio_Port, 0x01);
outportb(Superio_Port, 0x55);
outportb(Superio_Port, 0x55);
```

```
/*Set LDN=0x07 point to the WDT function
```

```
outportb(Superio_Port, Superio_LDN);
outportb(Superio_Port+1, 0x07);
```

```
/*Setup configuration register 0x72, if set 90h is second, set 10h is minute(WDT output through PWRGD)
```

```
outportb(Superio_Port, 0x72);
outportb(Superio_Port+1, 0x90);
```

```
/*Setup WDT time-out value. this demo code is used to program the time-out value with 4 sec.
```

```
outportb(Superio_Port, 0x73);
outportb(Superio_Port+1, 0x04);
```

```
/*Exit the MB PnP Mode
```

```
outportb(Superio_Port, 0x02);
outportb(Superio_Port+1, 0x02);
```