



NEXCOM International Co., Ltd.

IoT Automation Solutions Business Group

Fan-less Computer

NISE 3700E 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 3700E 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 3700	10
NISB 3700	10
Jumpers	12
CMOS Clear Select	12
AT/ATX Power Select	12
COM3 RI Power Select	13
Connector Pin Definitions	14
External I/O Interfaces - Front Panel	14
Audio Connectors	14
USB 3.0 Ports	14
SIM Card Connector	15
LED Indicators	15
External I/O Interfaces - Rear Panel	16
9V - 30V DC Power Input	16
Remote Power On/Off Switch	16
COM 3 Port	17
COM 1 and COM 2 Ports	17
LAN1 and USB 2.0 Ports	18
LAN2 and USB 2.0 Ports	18
LAN3 and USB 3.0 Ports	19
DVI-D Connector	20

- DVI-I Connector 20
- Internal Connectors 21
 - System Fan Connector 21
 - LED Pin Header 21
 - Debug Connector 22
 - SMBus 22
 - S3 Connector 23
 - COM 4 Connector 23
 - USB 2.0 JST Connector 24
 - USB 2.0 Connector 24
 - Speaker-out Pin Header 25
 - Line-in Pin Header 25
 - SATA Power Connectors 26
 - SATA1 Connector 26
 - SATA2 Connector 27
 - GPS Connector 27
 - GPIO Pin Header 28
 - Reset Connector 28
 - 4-Pin Power Connector 29
 - Mini-PCIe/mSATA Connector 30
 - WLAN/GSM Connector 31
 - PCIe x16 Slot 32

Chapter 3: System Setup

- Removing the Top Cover 34
- Removing the Bottom Cover 35
- Installing a mSATA Module 36
- Installing a SO-DIMM Memory Module 37
- Installing a 3G/GSM Module 38
- Installing a SIM Card 40
- Installing a CFast Card 41
- Installing a SATA Hard Drive 42

- Installing a PCIe/PCI Expansion Card 44
 - PCI Volts Configuration on NISE 3700 Riser Cards 45
- Installing a CPU on NISE 3700 46

Chapter 4: BIOS Setup

- About BIOS Setup 51
- When to Configure the BIOS 51
- Default Configuration 52
- Entering Setup 52
- Legends 52
- BIOS Setup Utility 54
 - Main 54
 - Advanced 55
 - Chipset 65
 - Boot 75
 - Security 76
 - Save & Exit 76

Appendix A: Power Consumption77

Appendix B: GPI/O Programming Guide79

Appendix C: LED Programming Guide81

Appendix D: Watchdog Timer Setting83

PREFACE

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Disclaimer

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Acknowledgements

NISE 3700E, NISE 3700E2, NISE 3700P2 and NISE 3700P2E 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.

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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.

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

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 NISE 3700E package that you received is complete. Your package should have all the items listed in the following table.

Item	Part Number	Description	Qty
1	4NCPM00203X00	Terminal Blocks 2P Phoenix Contact:1803578	1
2	4NCPM00302X00	(T)Terminal Blocks 3P Phoenix Contact:1777992	1
3	50311F0100X00	(H)Round Head Screw w/Spring+Flat Washer Long Fei:P3x6L	2
4	50311F0143X00	(H)Flat Head Screw Long Fei:F#6-32x8	1
5	50311F0315X00	Round Head Screw Long Fei:P6#32T T10 NYLOK	1
6	50311F0326X00	Flat Head Screw Long Fei:F3x5 Nylok NI+Heat Treatment	4
7	50311F0330X00	Round Head Screw Long Fei:P2x3 ISO+Nylon	2
8	50311P0001X00	Price for Plastic Screw	1
9	50322P0002X00	PLASTIC NUT GIN LIAN:M6HW	1
10	5044440090X00	(H)Thermal Pad APUS:3A2015001001500	1
11	5060200113X00	Thermal Pad APUS:290030003000200	1
12	6012200052X00	PE Zipper Bag #8	1
13	6012200053X00	PE Zipper Bag #3	4
14	60177A0450X00	(N)NISE 3700E Quick Reference Guide VER:A SIZE:A4	1
15	602DCD1014X00	(N)NISE 3700E DVD Driver VER:1.0	1

Ordering Information

The following information below provides ordering information for NISE 3700E series.

- **Barebone**

NISE 3700E (P/N: 10J00370000X0)

- 4th Generation Intel® Core™ i7/i5/i3 Fanless System with one PCIe x4 expansion

NISE 3700E2 (P/N: 10J00370001X0)

- 4th Generation Intel® Core™ i7/i5/i3 Fanless System with two PCIe x4 expansions

NISE 3700P2 (P/N: 10J00370002X0)

- 4th Generation Intel® Core™ i7/i5/i3 Fanless System with two PCI expansions

NISE 3700P2E (P/N: 10J00370003X0)

- 4th Generation Intel® Core™ i7/i5/i3 Fanless System with one PCI and one PCIe x4 expansion

- **24V, 120W AC to 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 3700E Front View



NISE 3700E Rear View



NISE 3700E2/P2/P2E Front View



NISE 3700E2/P2/P2E Rear View

Key Features

- Support 4th generation Intel® Core™ i7/i5/i3 LGA Socket Type Embedded Processor
- Intel® Q87 PCH
- Support 1x 2.5" SATA HDD
- 1x DVI-I, 1x DVI-D, and 1x HDMI with Independent Display Support
- Three Intel® GbE LAN ports; Support WoL, teaming and PXE
- 4x USB 3.0, 4x USB 2.0, 1x RS232 and 2x RS232/422/485 with auto flow control
- 2x internal Mini-PCIe socket support optional Wi-Fi/3.5G/mSATA/Fieldbus
- 1x External CFast socket and 1x SIM card socket
- Support +9V to 30VDC input; ATX power mode
- 1x PCIe x4 expansion (NISE 3700E)
- 2x PCI or PCIe x4 expansions (NISE 3700E2/3700P2/3700P2E)

Hardware Specifications

CPU Support

- Support 4th generation Intel® Core™ i7/i5/i3 LGA Socket Type Embedded Processor
 - Core™ i7-4770TE, Quad Core, 3.30GHz, 8M Cache
 - Core™ i5-4590T, Quad Core, 3.0GHz, 6M Cache
 - Core™ i3-4350T, Dual Core, 3.1GHz, 4M Cache
 - Pentium® G3320TE, Dual Core, 2.3GHz, 3M Cache
 - Celeron® G1820TE, Dual Core, 2.2GHz, 2M Cache

Main Memory

- 2x DDR3/DDR3L SO-DIMM Socket, support up to 8GB with un-buffered and non-ECC

Display Option

- Three Independent Display
 - HDMI + DVI-I + DVI-D
- Dual Independent Display
 - HDMI + DVI-I
 - HDMI + DVI-D
 - DVI-I + DVI-D

Front I/O Interface Status LEDs

- 3x LAN Active LEDs/1x CFast access LEDs
- 3x GPO Status/COM1/2 TX/RX LEDs
- 1x HDD Access LEDs

Front I/O Interface

- 1x ATX power on/off switch
- 1x HDMI

- 2x USB 3.0 Ports (900mA per each)
- 1x Line-out and 1x Mic-in
- 2x Antenna Holes
- 1x External CFast socket
- 1x SIM Card holder

Rear I/O Interface

- 3x DB9 for COM1 & COM2 & COM3
 - COM1: RS232/422/485 auto flow control
 - COM2: RS232/422/485 auto flow control
 - COM3: RS232
- 2x USB 3.0 Ports (900mA per each)
- 4x USB 2.0 Ports (500mA per each)
- 1x DVI-D port
- 1x DVI-I port
- 3x Intel® I210AT GbE LAN Ports; Support WoL, teaming, and PXE
- 1x 2-pin Remote Power on/off switch
- +9V to 30V DC input

Storage Device

- 1x CFast (SATA 3.0)
- 1x 2.5" HDD (SATA 3.0)
- 1x mSATA (internal mini-PCIe socket)

Expansion Slot

- NISE 3700E: One PCIe x4 Expansion Slot
 - Add-on card length: 169mm max.
 - Power Consumption: 10W/slot max.

- NISE 3700E2: Two PCIe x4 Expansion Slots
 - Add-on card length: One 169mm max, and one 240mm max.
 - Power Consumption: 10W/slot max.
- NISE 3700P2: Two PCI Expansion Slots
 - Add-on card length: One 169mm max, and one 240mm max.
 - Power Consumption: 10W/slot max.
- NISE 3700P2E: One PCIe x4 and one PCI Expansion Slot
 - Add-on card length: One 169mm max. for PCIe x4, and one 240mm max. for PCI.
 - Power Consumption: 10W/slot max.
- 2x internal Mini-PCIe socket support optional Wi-Fi/3.5G/mSATA/Fieldbus

Power Requirement

- AT/ATX Power Mode (default: ATX power mode)
- Power input: +9 to +30V DC
- Power adapter: Optional AC to DC power adapter (24V DC, 120W)

Dimensions

- NISE 3700E: 215mm (W) x 272mm (D) x 93mm (H)
without wall mount bracket (8.5" x 10.7" x 3.7")
- NISE 3700E2/3700P2/3700P2E: 215mm (W) x 272mm (D) x 114mm (H)
without wall mount bracket (8.5" x 10.7" x 4.5")

Construction

- Aluminum and 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 85°C
- Relative Humidity: 10% to 93% (Non-Condensing)
- Shock Protection:
 - HDD: 20G, half sine, 11ms, IEC60068-27
 - CFast: 50G, half sine, 11ms, IEC60068-27
- Vibration Protection with HDD Condition:
 - Random: 0.5Grms @ 5~500 Hz, IEC60068-2-64
 - Sinusoidal: 0.5Grms @ 5~500 Hz, IEC60068-2-6

Certifications

- CE Approval
- FCC Class A

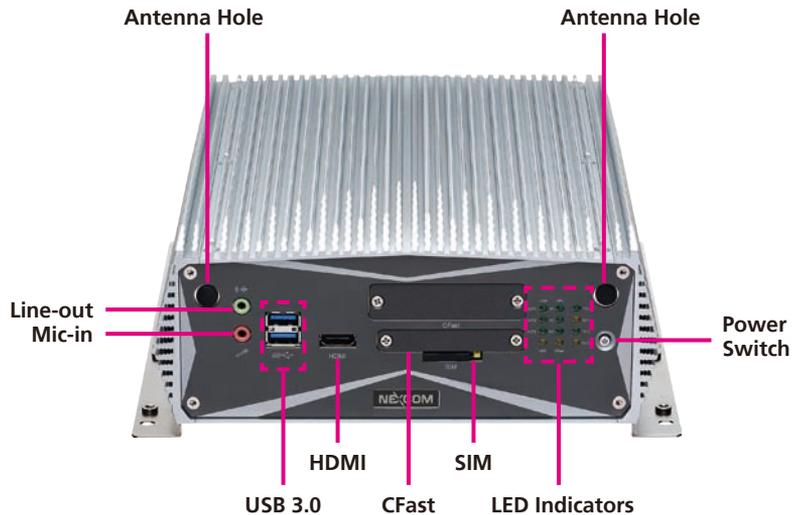
OS Support List

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

Weight Information

- NISE 3700E:
 - Gross Weight: 5.9kg
 - Net Weight: 4.5kg
- NISE 3700E2/3700P2/3700P2E:
 - Gross Weight: 6.4kg
 - Net Weight: 5.0kg

Knowing Your NISE 3700E Series Front Panel



Line-out

Used to connect a headphone or a speaker.

Mic-in

Used to connect an external microphone.

Antenna Hole

Used to install external antennas.

USB 3.0

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

HDMI

Used to connect a high-definition display.

CFast Socket

Used to insert a CFast card.

SIM

Used to insert a SIM card.

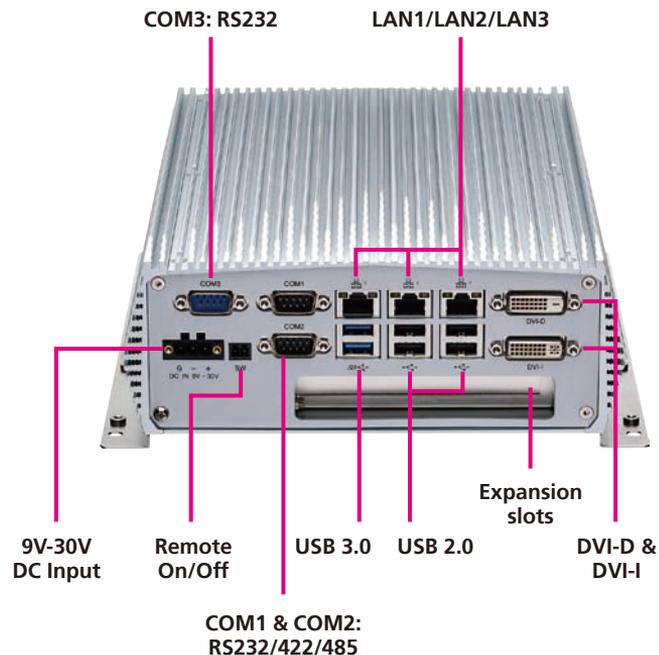
LED Indicators

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



9V-30V DC Input

Used to plug a DC power cord.

Remote On/Off Switch

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

COM1 & COM2

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

COM3

DB9 port used to connect RS232 compatible devices.

LAN1/LAN2/LAN3

Used to connect the system to a local area network.

USB 3.0

Used to connect USB 3.0/2.0 devices.

USB 2.0

Used to connect USB 2.0/1.1 devices.

DVI-D & DVI-I

Used to connect a digital LCD panel.

Expansion Slots

NISE 3700E: One PCIe x4 expansion slot

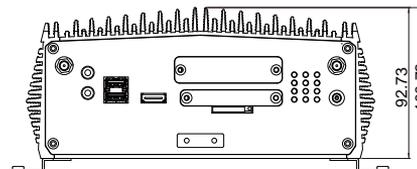
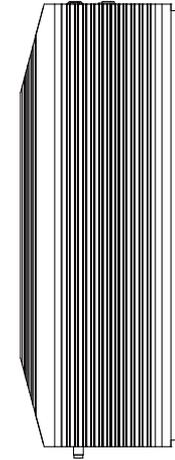
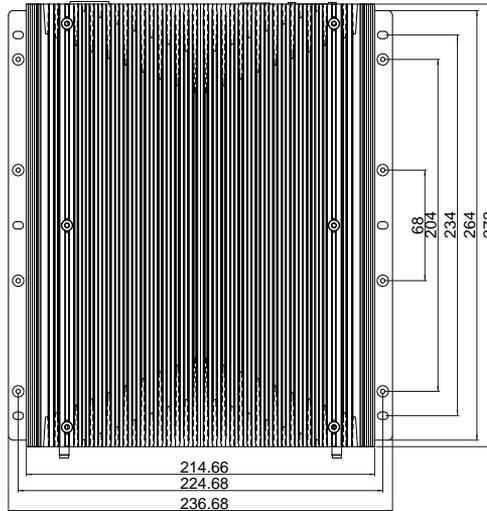
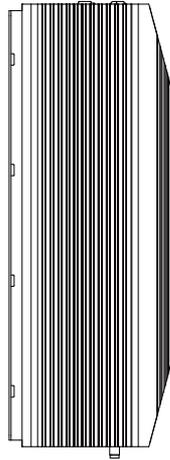
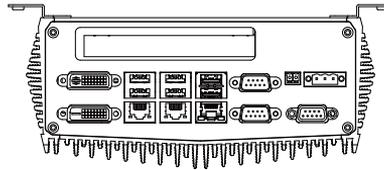
NISE 3700E2: Two PCIe x4 expansion slots

NISE 3700P2: Two PCI expansion slots

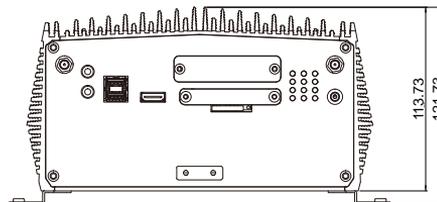
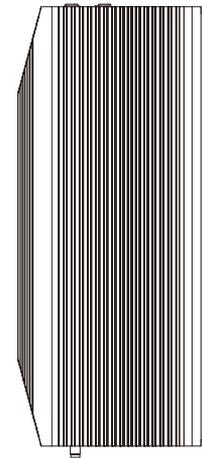
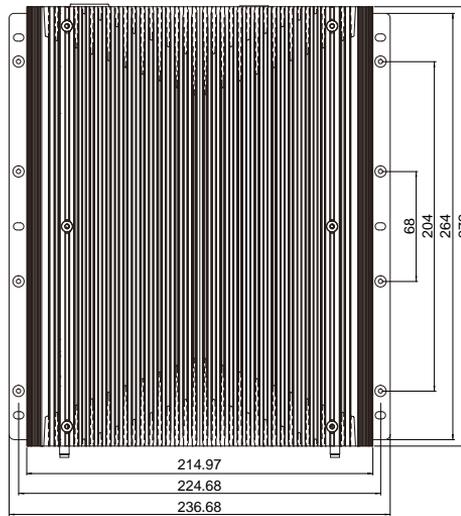
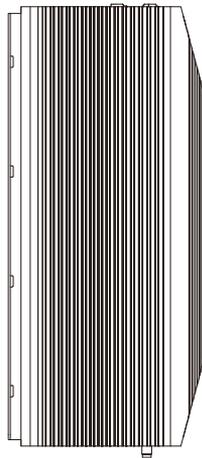
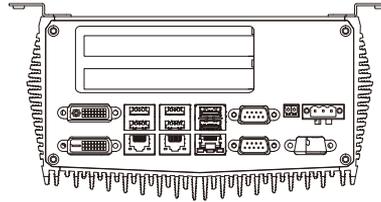
NISE 3700P2E: One PCIe x4 and one PCI expansion slot

Mechanical Dimensions

NISE 3700E



NISE 3700E2/ NISE 3700P2/ NISE 3700P2E



CHAPTER 2: JUMPERS AND CONNECTORS

This chapter describes how to set the jumpers and connectors on the NISE 3700E 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:

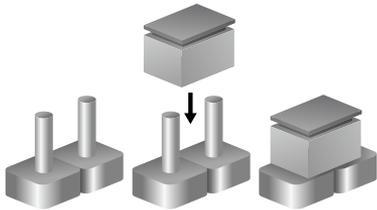
- Always disconnect the unit from the power outlet whenever you are working inside the case.
- If possible, wear a grounded wrist strap when you are working inside the computer case. Alternatively, discharge any static electricity by touching the bare metal chassis of the unit case, or the bare metal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

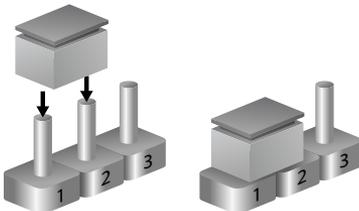
A jumper is the simplest kind of electric switch. It consists of two metal pins and a cap. When setting the jumpers, ensure that the jumper caps are placed on the correct pins. When the jumper cap is placed on both pins, the jumper is short. If you remove the jumper cap, or place the jumper cap on just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



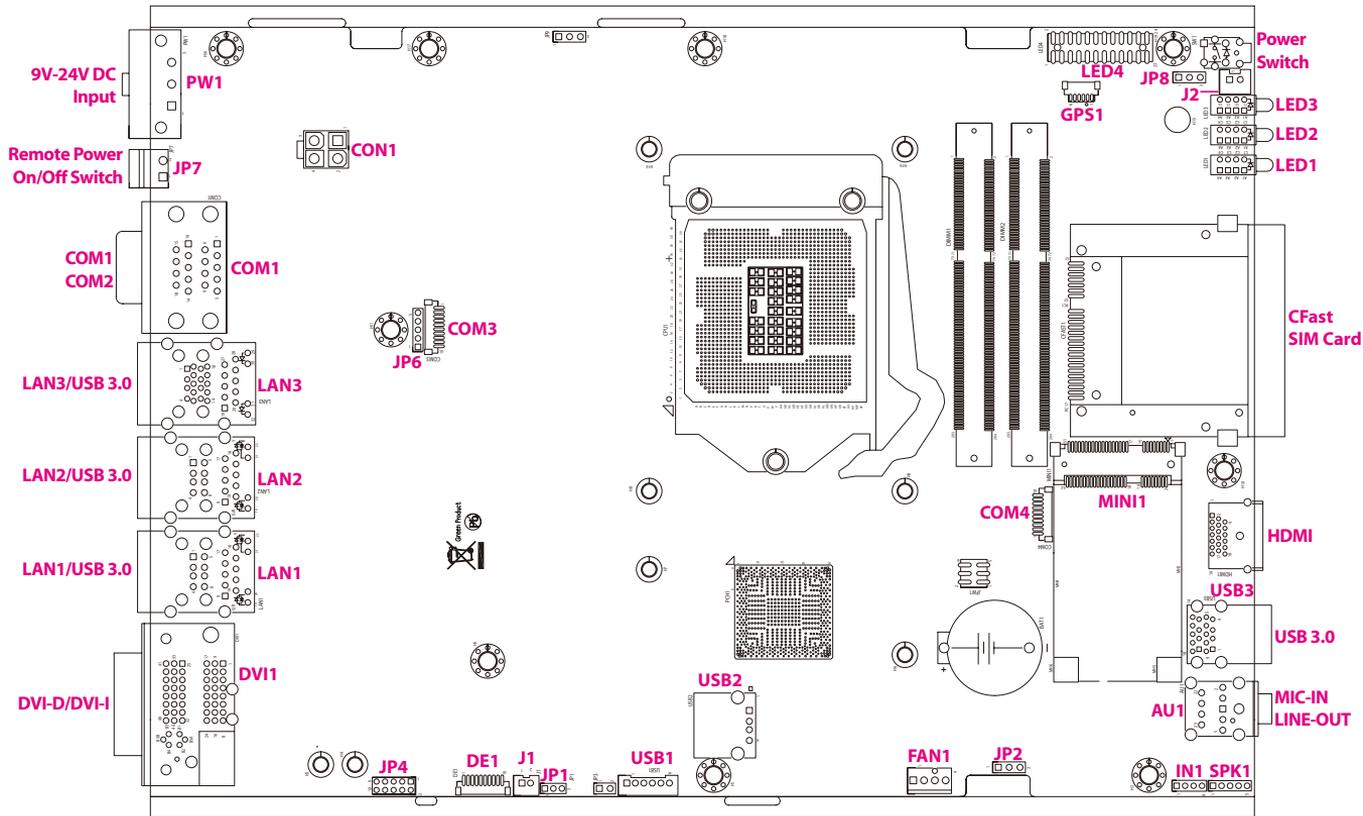
Three-Pin Jumpers: Pins 1 and 2 are Short



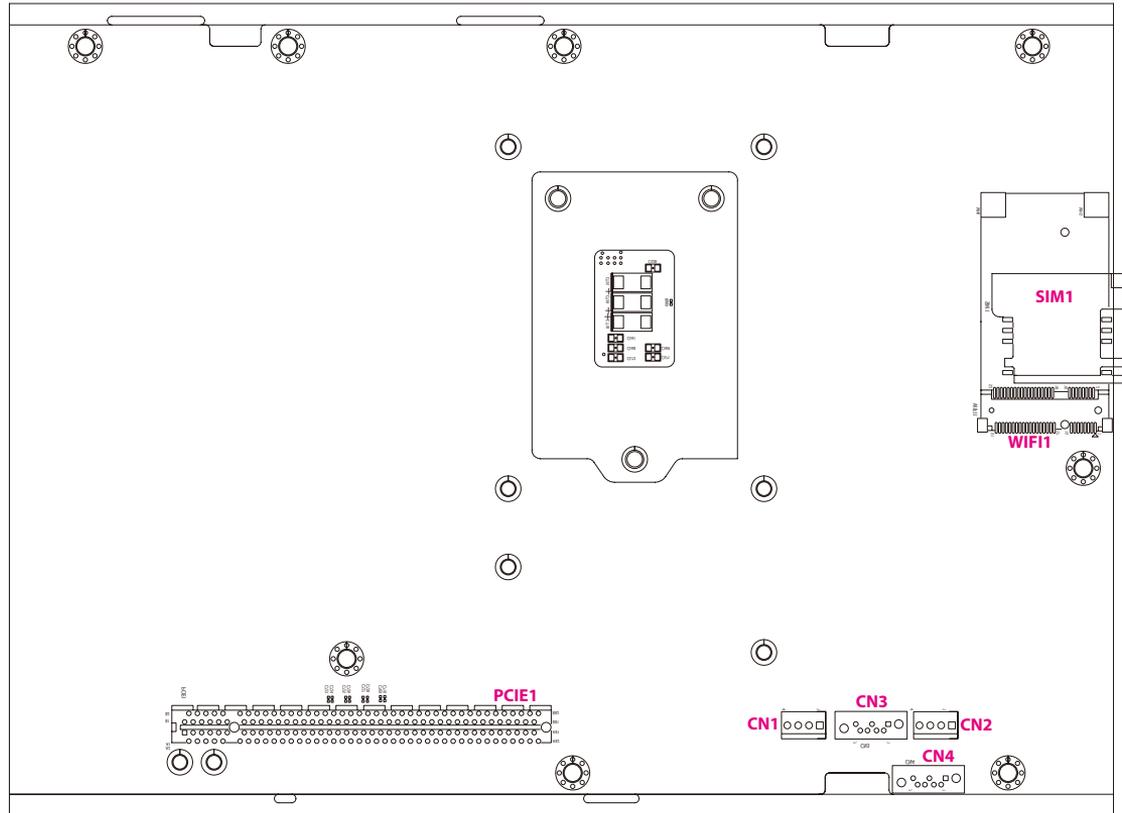
Locations of the Jumpers and Connectors for NISB 3700

NISB 3700

The figure below is the top view of the NISB 3700 main board which is the main board used in the NISE 3700E series. It shows the locations of the jumpers and connectors.



The figure below is the bottom view of the NISB 3700 main board.



Jumpers

CMOS Clear Select

Connector type: 1x3 3-pin header

Connector location: JP2



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

1-2 On: default

AT/ATX Power Select

Connector type: 1x3 3-pin header

Connector location: JP8



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

1-2 On: default

COM3 RI Power Select

Connector type: 1x5 5-pin header
Connector location: JP6



Pin	Settings
1-2 On	VCC5
2-3 On	VCC12
4-5 On	Ring

4-5 On: default

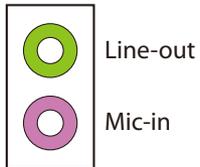
Connector Pin Definitions

External I/O Interfaces - Front Panel

Audio Connectors

Connector type: 2x 3.5mm TRS

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

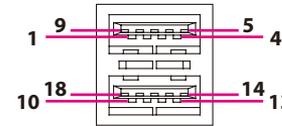


Pin	Definition	Pin	Definition
1	AGND	2	MIC_OUT-L
3	AGND	4	MIC_JD
5	MIC_OUT-R	MH1	Chassis_GND
MH2	Chassis_GND	MH3	Chassis_GND
MH4	Chassis_GND	NH1	
22	LINE_OUT_LC	23	AGND
24	LINEOUT_JD	25	LINE_OUT_RC

USB 3.0 Ports

Connector type: Dual USB 3.0 ports

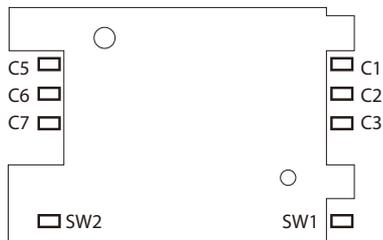
Connector location: USB3



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

SIM Card Connector

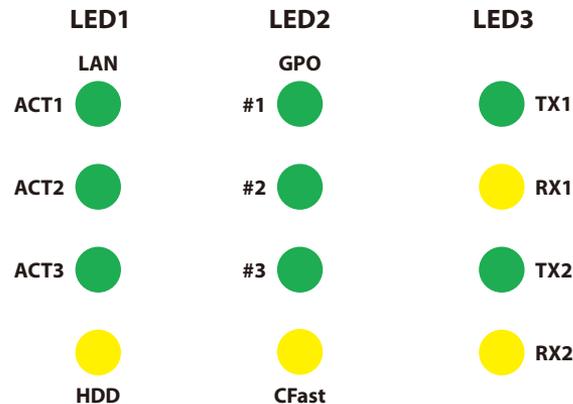
Connector location: SIM1



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

LED Indicators

Connector location: LED1, LED2 and LED3



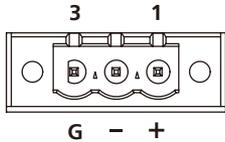
	Pin	Definition	Pin	Definition
LED1	A1	CFAST_DET_P	C1	SATALED#
	A2	LAN3_ACT#_LED_P	C2	LAN3_ACT#_LED
	A3	LAN2_ACT#_LED_P	C3	LAN2_ACT#_LED
	A4	LAN1_ACT#_LED_P	C4	LAN1_ACT#_LED
LED2	A1	SATALED#_P	C1	CFAST_DET
	A2	SIO_GP54_64_P	C2	SIO_GP54_64
	A3	SIO_GP55_65_P	C3	SIO_GP55_65
	A4	SIO_GP56_66_P	C4	SIO_GP56_66
LED3	A1	RX2_P	C1	COM2_RXLEDN
	A2	TX2_P	C2	COM2_TXLEDN
	A3	RX1_P	C3	COM1_RXLEDN
	A4	TX1_P	C4	COM1_TXLEDN

External I/O Interfaces - Rear Panel

9V - 30V DC Power Input

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

Connector location: PW1



Pin	Definition
1	VIN_VCC
2	VIN_VSS
3	Chassis_GND

Remote Power On/Off Switch

Connector type: 2-pin switch

Connector location: JP7



Pin	Definition
1	GND
2	PBT_PU_C

COM 3 Port

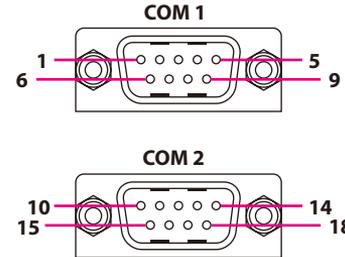
Connector type: DB-9 port, 9-pin D-Sub
 1x10 10-pin header
 Connector location: COM3



Pin	Definition	Pin	Definition
1	COM_DCD#3	2	COM_RXD3
3	COM_TXD3	4	COM_DTR#3
5	GND	6	COM_DSR#3
7	COM_RTS#3	8	COM_CTS#3
9	COM_RI#3_T	10	GND
MH1	GND	MH2	GND

COM 1 and COM 2 Ports

Connector type: DB-9 port, 9-pin D-Sub
 Connector location: COM1A (COM1) and COM1B (COM2)



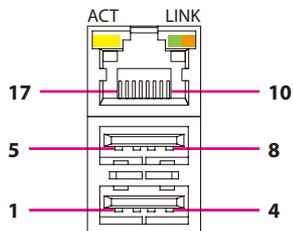
Pin	Definition	Pin	Definition
1	COM_ISODCD#1	2	COM_ISORXD1
3	COM_ISOTXD1	4	COM_ISODTR#1
5	ISO_GND	6	COM_ISODSR#1
7	COM_ISORTS#1	8	COM_ISOCTS#1
9	COM_ISORI#1	10	COM_ISODCD#2
11	COM_ISORXD2	12	COM_ISOTXD2
13	COM_ISODTR#2	14	ISO_GND
15	COM_ISODSR#2	16	COM_ISORTS#2
17	COM_ISOCTS#2	18	COM_ISORI#2
MH1	Chassis_GND	MH2	Chassis_GND
MH3	Chassis_GND	MH4	Chassis_GND

LAN1 and USB 2.0 Ports

Connector type: RJ45 port with LEDs

Dual USB 2.0 ports, Type A

Connector location: LAN1A (USB) and LAN1B (LAN)



Act	Status
Flashing Yellow	Data activity
Off	No activity

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

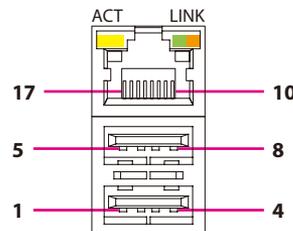
Pin	Definition	Pin	Definition
1	P5V_USB_P45	2	USB2P4_C
3	USB2N4_C	4	GND
5	P5V_USB_P45	6	USB2N5_C
7	USB2P5_C	8	GND
9	LAN1_VCC	10	LAN1_MDI0P
11	LAN1_MDI0N	12	LAN1_MDI1P
13	LAN1_MDI1N	14	LAN1_MDI2P
15	LAN1_MDI2N	16	LAN1_MDI3P
17	LAN1_MDI3N	18	GND
19	LAN1_LINK	20	LAN1_LINK100#_LED
21	LAN1_ACT#_LED	22	LAN1_ACTPW
MH5	Chassis_GND	MH6	Chassis_GND
MH7	Chassis_GND	MH8	Chassis_GND

LAN2 and USB 2.0 Ports

Connector type: RJ45 port with LEDs

Dual USB 2.0 ports, Type A

Connector location: LAN2A (USB) and LAN2B (LAN)



Act	Status
Flashing Yellow	Data activity
Off	No activity

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

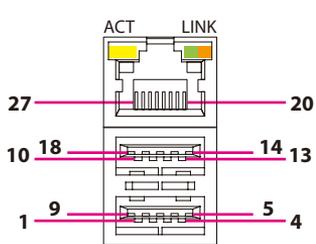
Pin	Definition	Pin	Definition
1	P5V_USB_P45	2	USB2P4_C
3	USB2N4_C	4	GND
5	P5V_USB_P45	6	USB2N5_C
7	USB2P5_C	8	GND
9	LAN2_VCC	10	LAN2_MDI0P
11	LAN2_MDI0N	12	LAN2_MDI1P
13	LAN2_MDI1N	14	LAN2_MDI2P
15	LAN2_MDI2N	16	LAN2_MDI3P
17	LAN2_MDI3N	18	GND
19	LAN2_LINK	20	LAN2_LINK100#_LED
21	LAN2_ACT#_LED	22	LAN2_ACTPW
MH5	Chassis_GND	MH6	Chassis_GND
MH7	Chassis_GND	MH8	Chassis_GND

LAN3 and USB 3.0 Ports

Connector type: RJ45 port with LEDs

Dual USB 3.0 ports, Type A

Connector location: LAN3A (USB) and LAN3B (LAN)



Act	Status
Flashing Yellow	Data activity
Off	No activity

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

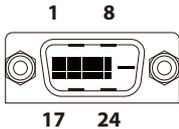
Pin	Definition	Pin	Definition
1	P5V_USB_P23	2	USB2N2_C
3	USB2P2_C	4	GND
5	USB3RN3_C	6	USB3RP3_C
7	GND	8	USB3TN3_C
9	USB3TP3_C	10	P5V_USB_P23
11	USB2N3_C	12	USB2P3_C
13	GND	14	USB3RN4_C
15	USB3RP4_C	16	GND

Pin	Definition	Pin	Definition
17	USB3TN4_C	18	USB3TP4_C
19	LAN3_VCC	20	LAN3_MDI0P
21	LAN3_MDI0N	22	LAN3_MDI1P
23	LAN3_MDI1N	24	LAN3_MDI2P
25	LAN3_MDI2N	26	LAN3_MDI3P
27	LAN3_MDI3N	28	GND
29	LAN3_LINK	30	LAN3_LINK100#_LED
31	LAN3_ACT#_LED	32	LAN3_ACTPW

DVI-D Connector

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

Connector location: DVI1A

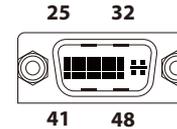


Pin	Definition	Pin	Definition
1	DVI1_DATA2_N_C	2	DVI1_DATA2_P_C
3	GND	4	NA
5	NA	6	DVI1_CTRL_CLK_C
7	DVI1_CTRL_DAT_C	8	NA
9	DVI1_DATA1_N_C	10	DVI1_DATA1_P_C
11	GND	12	NA
13	NA	14	DVI1_PWR_C
15	GND	16	DVI1_HPD
17	DVI1_DATA0_N_C	18	DVI1_DATA0_P_C
19	GND	20	NA
21	NA	22	NA
23	DVI1_CLK_P_C	24	DVI1_CLK_N_C

DVI-I Connector

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

Connector location: DVI1B



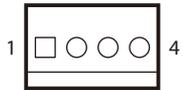
Pin	Definition	Pin	Definition
25	DVI2_DATA2_N_C	26	DVI2_DATA2_P_C
27	GND	28	NA
29	NA	30	DVI2_CTRL_CLK_C
31	DVI2_CTRL_DAT_C	32	VS_VGA
33	DVI2_DATA1_N_C	34	DVI2_DATA1_P_C
35	GND	36	NA
37	NA	38	DVI2_PWR_C
39	GND	40	DVI2_HPD
41	DVI2_DATA0_N_C	42	DVI2_DATA0_P_C
43	GND	44	VGA_CLK_C
45	VGA_DAT_C	46	NA
47	DVI2_CLK_P_C	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

Internal Connectors

System Fan Connector

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

Connector location: FAN1

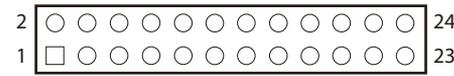


Pin	Definition
1	GND
2	+12V
3	FAN TAC
4	FAN CTL

LED Pin Header

Connector type: 2x12 24-pin header, 2.0mm pitch

Connector location: LED4



Pin	Definition	Pin	Definition
1	TX1_P	2	COM1_TXLEDN
3	RX1_P	4	COM1_RXLEDN
5	TX2_P	6	COM2_TXLEDN
7	RX2_P	8	COM2_RXLEDN
9	LAN1_ACT#_LED_P	10	LAN1_ACT#_LED
11	LAN2_ACT#_LED_P	12	LAN2_ACT#_LED
13	LAN3_ACT#_LED_P	14	LAN3_ACT#_LED
15	CFAST_DET_P	16	CFAST_DET
17	SIO_GP54_64_P	18	SIO_GP54_64
19	SIO_GP55_65_P	20	SIO_GP55_65
21	SIO_GP56_66_P	22	SIO_GP56_66
23	SATALED#_P	24	SATALED#

Debug Connector

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

Connector location: DE1



Pin	Definition	Pin	Definition
1	GND	2	RST_SIO_N
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

SMBus

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

Connector location: JP1



Pin	Definition
1	SMB_CLK
2	SMB_DAT
3	GND

S3 Connector

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

Connector location: J1

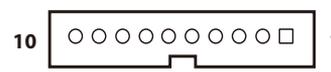


Pin	Definition
1	SLP_S3#
2	GND

COM 4 Connector

Connector type: 1x10 10-pin header

Connector location: COM4



Pin	Definition	Pin	Definition
1	COM_DCD#4	2	COM_RXD4
3	COM_TXD4	4	COM_DTR#4
5	GND	6	COM_DSR#4
7	COM_RTS#4	8	COM_CTS#4
9	COM_RI#4_T	10	GND
MH1	GND	MH2	GND

USB 2.0 JST Connector

Connector type: 1x6 6-pin header

Connector location: USB1

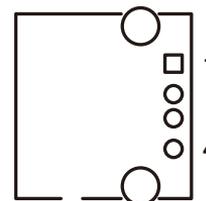


Pin	Definition	Pin	Definition
1	P5V_USB_P10	2	USB2N10_C
3	USB2P10_C	4	NA
5	NA	6	GND

USB 2.0 Connector

Connector type: 1x4 4-pin header

Connector location: USB2



Pin	Definition	Pin	Definition
1	P5V_USB_P11	2	USB2N11_C
3	USB2P11_C	4	GND
MH1	GND	MH2	GND

Speaker-out Pin Header

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

Connector location: SPK1

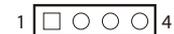


Pin	Definition	Pin	Definition
1	OUT-LR+_C	2	OUT-LR-_C
3	AGND	4	OUT-RR+_C
5	OUT-RR-_C		

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

SATA Power Connectors

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

Connector location: CN1 and CN2

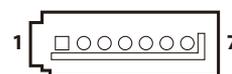


Pin	Definition
1	VCC12
2	GND
3	VCC5
4	GND

SATA1 Connector

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

Connector location: CN3

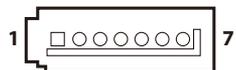


Pin	Definition	Pin	Definition
1	GND	2	SATA_TXP0_C
3	SATA_TXN0_C	4	GND
5	SATA_RXN0_C	6	SATA_RXP0_C
7	GND		

SATA2 Connector

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

Connector location: CN4

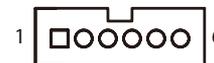


Pin	Definition	Pin	Definition
1	GND	2	SATA_TXP1_C
3	SATA_TXN1_C	4	GND
5	SATA_RXN1_C	6	SATA_RXP1_C
7	GND		

GPS Connector

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

Connector location: GPS1

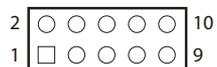


Pin	Definition	Pin	Definition
1	GPS_BAT	2	GPS_LED
3	UART_TXD4	4	UART_RXD4
5	GND	6	VCC3
MH1	GND	MH2	GND

GPIO Pin Header

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

Connector location: JP4



Pin	Definition	Pin	Definition
1	VCC5	2	GND
3	GPIO60	4	GPIO64
5	GPIO61	6	GPIO65
7	GPIO62	8	GPIO66
9	GPIO63	10	GPIO67

Reset Connector

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

Connector location: J2

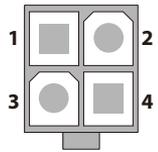


Pin	Definition
1	PM_RESET#_J
2	GND

4-Pin Power Connector

Connector type: 2x2 4-pin header

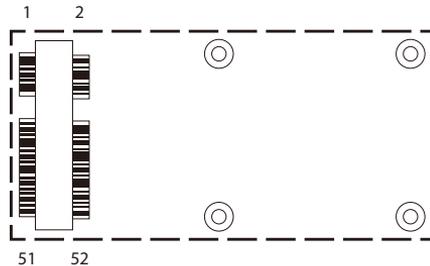
Connector location: CON1



Pin	Definition
1	GND
2	GND
3	VIN_3
4	VIN_3

Mini-PCIe/mSATA Connector

Connector location: MINI1

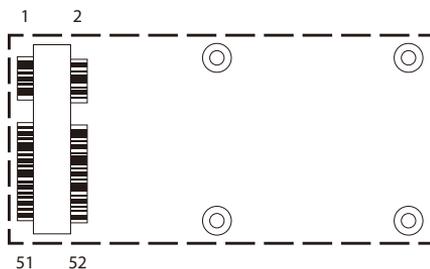


Pin	Definition	Pin	Definition
1	WAKE_N	2	3VSB_MINI2
3	NC	4	GND
5	NC	6	1V5_MINI2
7	MINICARD2CLKREQ#	8	NC
9	GND	10	NC
11	CLK_MINI_N_C	12	NC
13	CLK_MINI_P_C	14	NC
15	GND	16	NC
17	NC	18	GND
19	NC	20	MINICARD2DIS#
21	GND	22	RST_MINIPCI2
23	PCIE_mSATA_RXP_C_C	24	3VSB_MINI2
25	PCIE_mSATA_RXN_C	26	GND

Pin	Definition	Pin	Definition
27	GND	28	1V5_MINI2
29	GND	30	SMB_CLK
31	PCIE_mSATA_TXN_C	32	SMB_DAT
33	PCIE_mSATA_TXP_C	34	GND
35	GND	36	USB2N9_C
37	GND	38	USB2P9_C
39	3VSB_MINI2	40	GND
41	3VSB_MINI2	42	NC
43	GND	44	NC
45	NC	46	NC
47	NC	48	1V5_MINI2
49	NC	50	GND
51	PCIE_mSATA_SEL_51	52	3VSB_MINI2

WLAN/GSM Connector

Connector location: WIFI1



Pin	Definition	Pin	Definition
1	WAKE_N	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	RST_MINIPCIE1
23	PCIE_RN3_WIFI_C	24	3VSB_MINI1
25	PCIE_RP3_WIFI_C	26	GND

Pin	Definition	Pin	Definition
27	GND	28	1V5_MINI1
29	GND	30	SMB_CLK
31	PCH_WIFI_TXN4	32	SMB_DAT
33	PCH_WIFI_TXP4	34	GND
35	GND	36	USB2N8_C
37	GND	38	USB2P8_C
39	3VSB_MINI1	40	GND
41	3VSB_MINI1	42	NA
43	GND	44	NA
45	CL_CLK_C	46	NC
47	CL_DAT_C	48	1V5_MINI1
49	CL_RST#_C	50	GND
51	NC	52	3VSB_MINI2

PCIe x16 Slot

Connector type: PCIe x16 Slot

Connector location: PCIE1



Pin	Definition	Pin	Definition
A1	PCIE_PRSNT1	B1	VCC12
A2	VCC12	B2	VCC12
A3	VCC12	B3	VCC12
A4	GND	B4	GND
A5	PCIEX16_TCK	B5	PCIE_SMCLK
A6	PCIEX16_TDI	B6	PCIE_SMDAT
A7	NC	B7	GND
A8	PCIEX16_TMS	B8	VCC3
A9	VCC3	B9	PCIEX16_TRST#
A10	VCC3	B10	3VSB
A11	RST_PCIEX16	B11	3VSB
A12	GND	B12	NC
A13	CLK_PEG_A_P	B13	GND
A14	CLK_PEG_A_N	B14	PEG_TXP0_C
A15	GND	B15	PEG_TXN0_C
A16	PEG_RXP0	B16	GND
A17	PEG_RXN0	B17	PRSNT2#_1_C
A18	GND	B18	GND

Pin	Definition	Pin	Definition
A19	NC	B19	PEG_TXP1_C
A20	GND	B20	PEG_TXN1_C
A21	PEG_RXP1	B21	GND
A22	PEG_RXN1	B22	GND
A23	GND	B23	PEG_TXP2_C
A24	GND	B24	PEG_TXN2_C
A25	PEG_RXP2	B25	GND
A26	PEG_RXN2	B26	GND
A27	GND	B27	PEG_TXP3_C
A28	GND	B28	PEG_TXN3_C
A29	PEG_RXP3	B29	GND
A30	PEG_RXN3	B30	NC
A31	GND	B31	NC
A32	NC	B32	GND
A33	NC	B33	PEG_TXP4_C
A34	GND	B34	PEG_TXN4_C
A35	PEG_RXP4	B35	GND
A36	PEG_RXN4	B36	GND

Pin	Definition	Pin	Definition
A37	GND	B37	PEG_TXP5_C
A38	GND	B38	PEG_TXN5_C
A39	PEG_RXP5	B39	GND
A40	PEG_RXN5	B40	GND
A41	GND	B41	PEG_TXP6_C
A42	GND	B42	PEG_TXN6_C
A43	PEG_RXP6	B43	GND
A44	PEG_RXN6	B44	GND
A45	GND	B45	PEG_TXP7_C
A46	GND	B46	PEG_TXN7_C
A47	PEG_RXP7	B47	GND
A48	PEG_RXN7	B48	NC
A49	GND	B49	GND
A50	NC	B50	PEG_TXP8_C
A51	GND	B51	PEG_TXN8_C
A52	PEG_RXP8	B52	GND
A53	PEG_RXN8	B53	GND
A54	GND	B54	PEG_TXP9_C
A55	GND	B55	PEG_TXN9_C
A56	PEG_RXP9	B56	GND
A57	PEG_RXN9	B57	GND
A58	GND	B58	PEG_TXP10_C
A59	GND	B59	PEG_TXN10_C

Pin	Definition	Pin	Definition
A60	PEG_RXP10	B60	GND
A61	PEG_RXN10	B61	GND
A62	GND	B62	PEG_TXP11_C
A63	GND	B63	PEG_TXN11_C
A64	PEG_RXP11	B64	GND
A65	PEG_RXN11	B65	GND
A66	GND	B66	PEG_TXP12_C
A67	GND	B67	PEG_TXN12_C
A68	PEG_RXP12	B68	GND
A69	PEG_RXN12	B69	GND
A70	GND	B70	PEG_TXP13_C
A71	GND	B71	PEG_TXN13_C
A72	PEG_RXP13	B72	GND
A73	PEG_RXN13	B73	GND
A74	GND	B74	PEG_TXP14_C
A75	GND	B75	PEG_TXN14_C
A76	PEG_RXP14	B76	GND
A77	PEG_RXN14	B77	GND
A78	GND	B78	PEG_TXP15_C
A79	GND	B79	PEG_TXN15_C
A80	PEG_RXP15	B80	GND
A81	PEG_RXN15	B81	NC
A82	GND	B82	NC

CHAPTER 3: SYSTEM SETUP

Removing the Top Cover

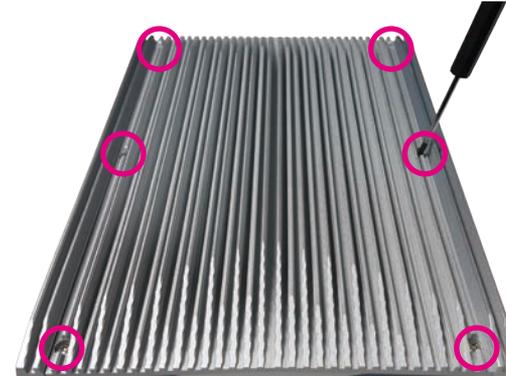


Prior to removing the chassis cover, make sure the unit's power is off and disconnected from the power sources to prevent electric shock or system damage.

1. Locate the 6 screws on the top cover.



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

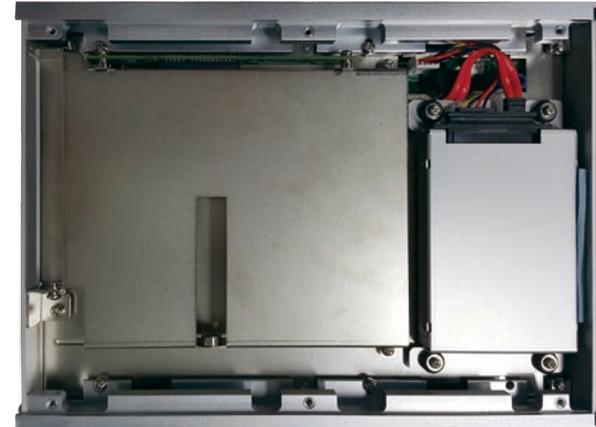


Removing the Bottom Cover

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

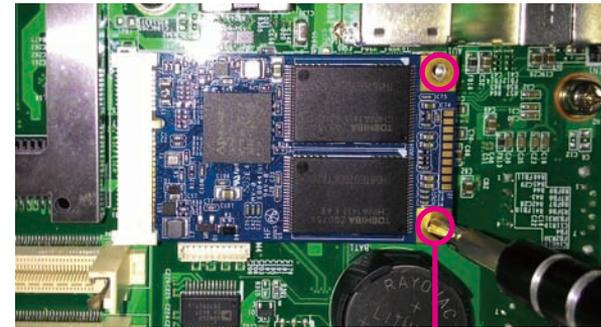
1. Locate the mSATA slot on the board and remove the bracket.



mSATA slot

Screws

2. Insert the mSATA module into the slot and secure it with screws.



Screws

Installing a SO-DIMM Memory Module



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

1. Locate the SO-DIMM sockets.



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 by the latches.



Installing a 3G/GSM Module

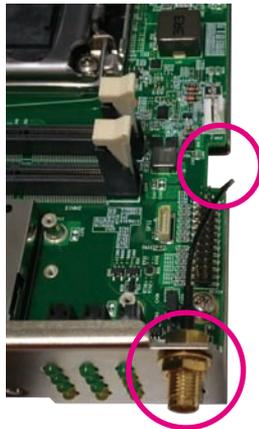


Remove the top cover before installing an antenna.

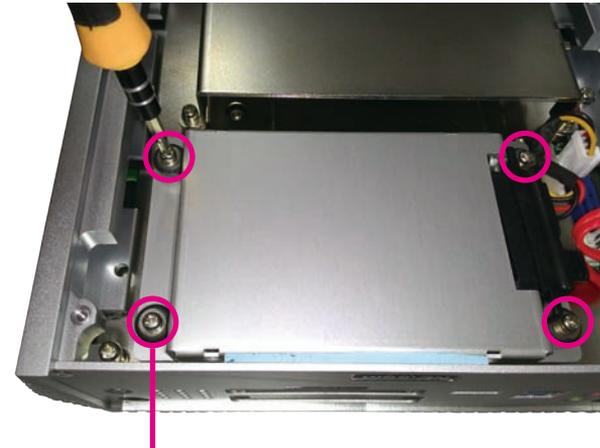
1. Locate the antenna hole cover on the front panel and remove it.



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



3. Unscrew the HDD bracket and lift it up.



Screw



4. Insert the 3G module into the 3G/GSM slot and fix the cable onto the 3G module.



Installing a SIM Card

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



3. Secure 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 on the front and remove its cover.

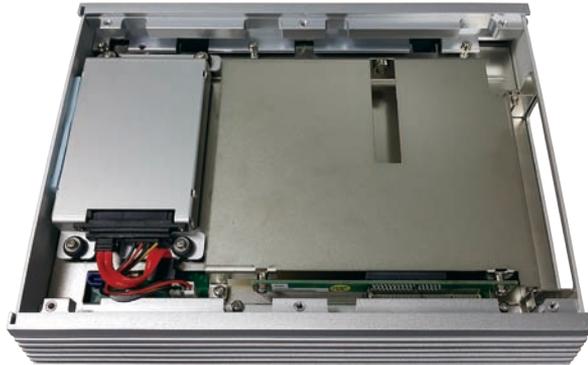


2. Insert the CFast card into the slot, then secure the cover back to its original location.

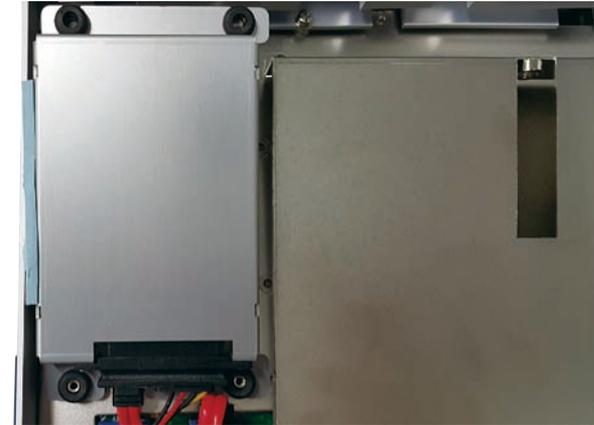


Installing a SATA Hard Drive

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 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 3700E is equipped with one PCIe x4 expansion slot.

NISE 3700E2 is equipped with two PCIe x4 expansion slots.

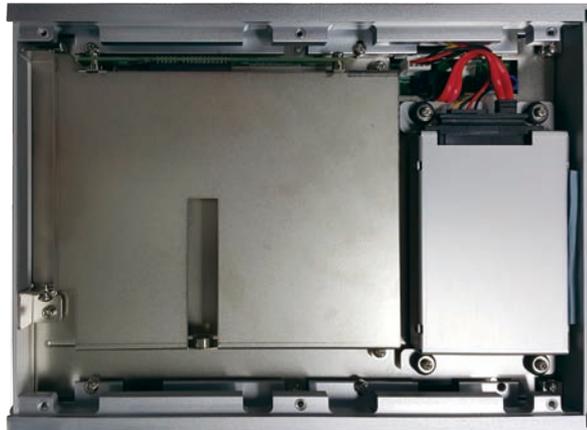
NISE 3700P2 is equipped with two PCI expansion slots.

NISE 3700P2E is equipped with one PCIe x4 expansion slot and one PCI expansion slot.

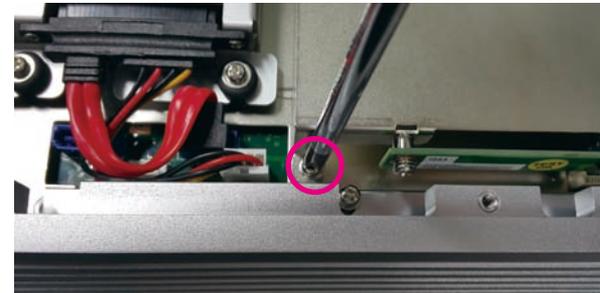


The example shown in the following instructions is NISE 3700E

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.



PCI Volts Configuration on NISE 3700 Riser Cards

The PCI Volts is configured to 5V as default on all NISE 3700 riser cards.

Model	Riser Configuration	Riser Jumper Location	Default Volts Setting
NISE 3700P2	2x PCI Slots	JP1 2-3 (5V), 1-2(3.3V)	2-3
NISE 3700P2E	1x PCI Slot and 1x PCIe Slot	JP3 2-3 (5V), 1-2(3.3V)	2-3

Installing a CPU on NISE 3700

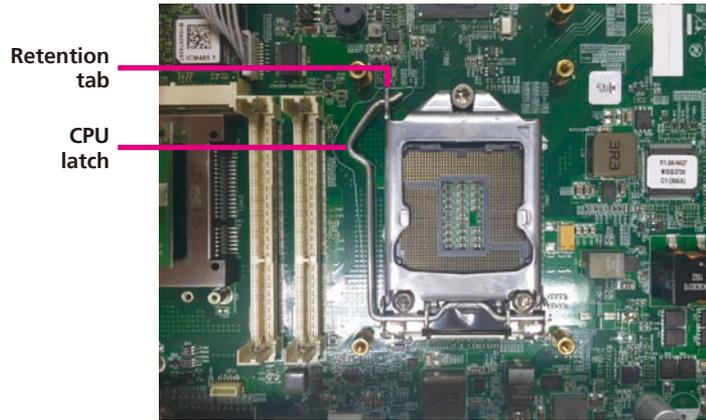
1. Remove the chassis cover by removing the 6 screws on the top cover.



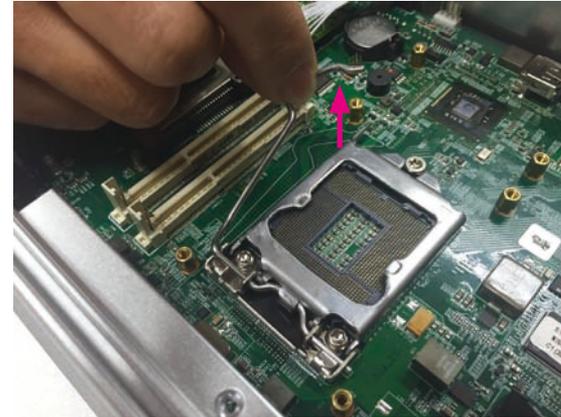
2. Locate the CPU heat sink and remove it.



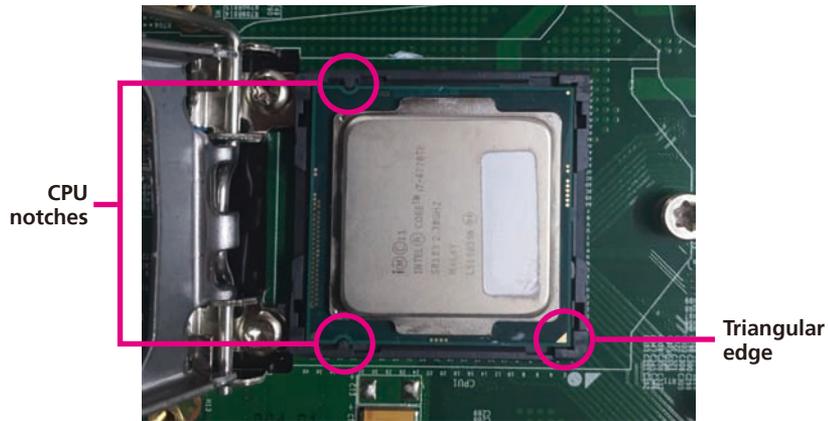
3. Locate the CPU latch and retention tab next to the CPU socket.



4. Unlock the socket by pushing the CPU latch down, moving it sideways until it is released from the retention tab; then lift the CPU latch up.



5. Insert the CPU into the socket. The triangular edge on the CPU must align with the corner of the CPU socket, while the two notches on the CPU must align with the alignment keys on the socket.



6. Close the load plate and then hook the CPU latch under the retention tab.



- Handle the CPU by its edges and avoid touching the pins.
- The CPU will fit in only one orientation and can easily be inserted without exerting any force.



Do not force the CPU into the socket. Forcing the CPU into the socket may bend the pins and damage the CPU.

7. Do a final check and ensure the CPU is locked properly into the socket.



8. Take out the thermal pad from the accessory bag and remove the release paper on the thermal pad. Place the thermal pad on the CPU.



9. Reinstall the heat sink and chassis cover.



CHAPTER 4: BIOS SETUP

This chapter describes how to use the BIOS setup program for the NISE 3700E 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

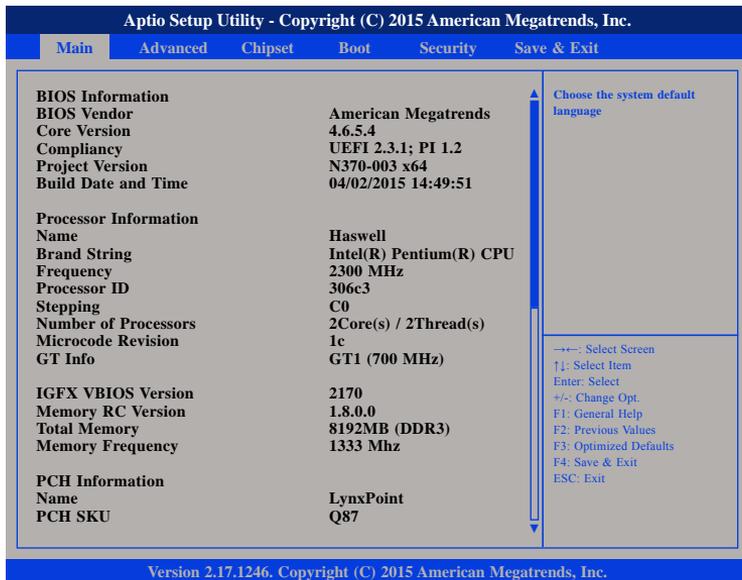
When “▶” appears on the left of a particular field, it indicates that a submenu which contains additional options are available for that field. To display the submenu, move the highlight to that field and press  .

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) 2015 American Megatrends, Inc.

Category	Item	Value
BIOS Information	BIOS Vendor	American Megatrends
	Core Version	4.6.5.4
	Compliance	UEFI 2.3.1; PI 1.2
	Project Version	N370-003 x64
	Build Date and Time	04/02/2015 14:49:51
Processor Information	Name	Haswell
	Brand String	Intel(R) Pentium(R) CPU
	Frequency	2300 MHz
	Processor ID	306c3
	Stepping	C0
	Number of Processors	2Core(s) / 2Thread(s)
	Microcode Revision	1c
	GT Info	GT1 (700 MHz)
IGFX VBIOS Version	IGFX VBIOS Version	2170
	Memory RC Version	1.8.0.0
	Total Memory	8192MB (DDR3)
	Memory Frequency	1333 Mhz
PCH Information	Name	LynxPoint
	PCH SKU	Q87

Choose the system default language

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

Version 2.17.1246. Copyright (C) 2015 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.

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.

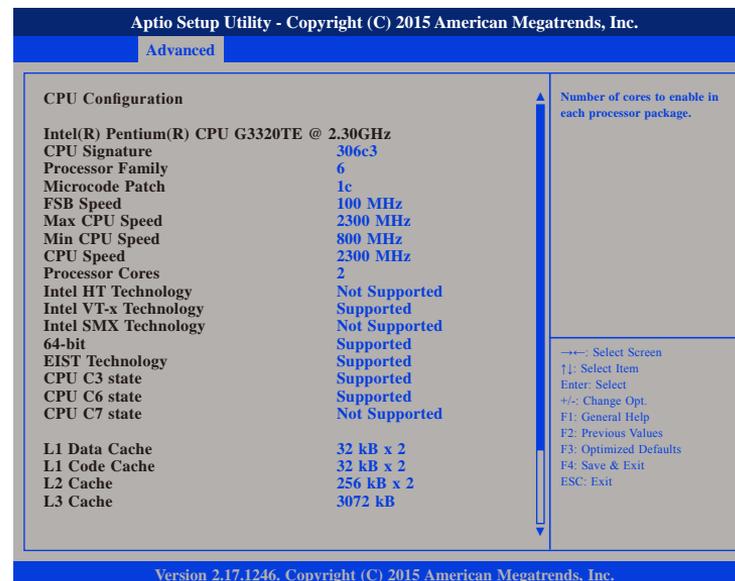


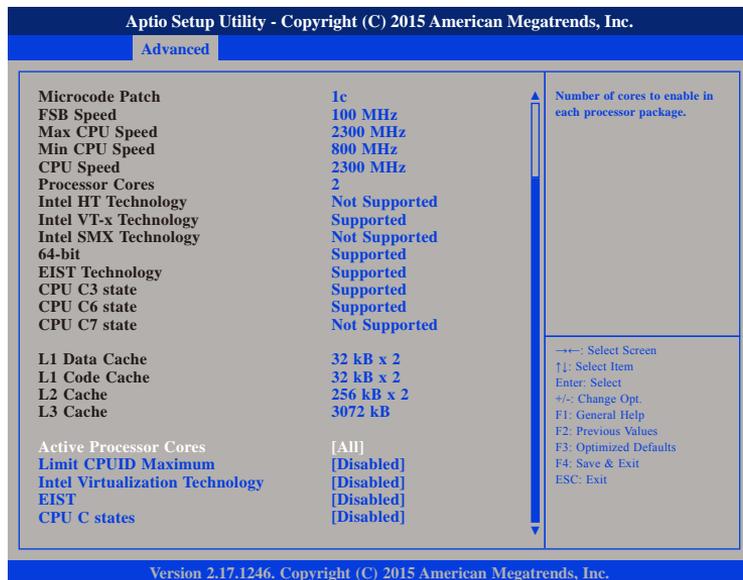
Setting incorrect field values may cause the system to malfunction.



CPU Configuration

This section is used to configure the CPU.





Intel® Virtualization Technology

Enables or disables Intel Virtualization technology.

EIST

Enables or disables Intel® SpeedStep.

CPU C States

Enables or disables CPU C States support for power saving.

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.

SATA Configuration

This section is used to configure the SATA drives.



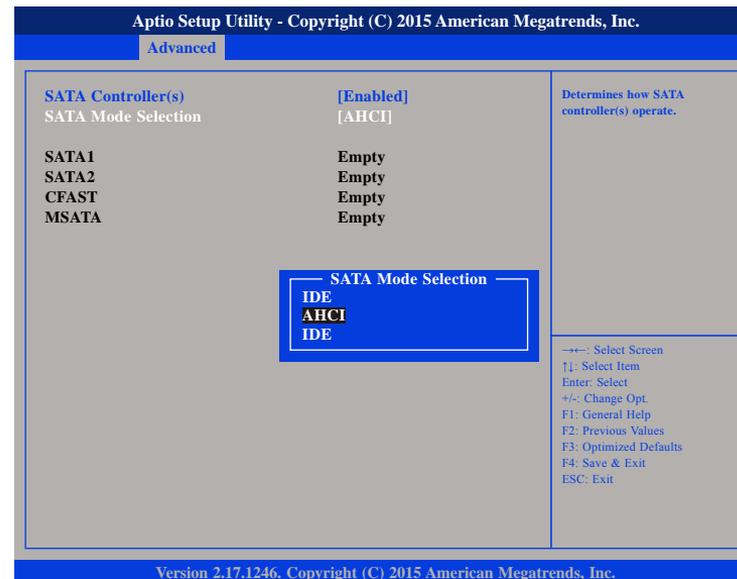
SATA Controller(s)

Enables or disables SATA device.

SATA1 to MSATA

Displays information on the devices connected to these interfaces.

SATA Mode Selection

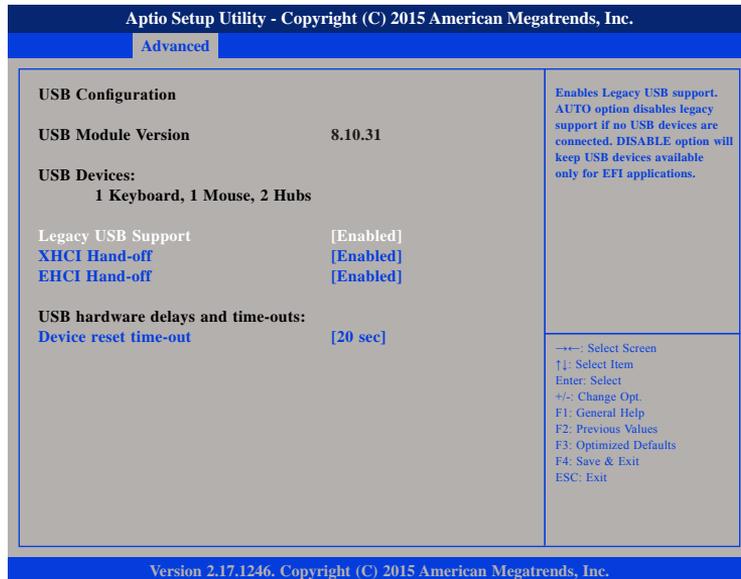


Configures the SATA as IDE, AHCI or RAID mode.

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

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.

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.

IT8783F Super IO Configuration

This section is used to configure the serial ports.



IT8783F 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.

Onboard Serial Port Max Baud Rate

Configures the max baud rate of the serial port.

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.

Onboard Serial Port Max Baud Rate

Configures the max baud rate of the serial port.

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.

RS485 Auto Direction

Enables or disables RS485 auto direction.

Onboard Serial Port Max Baud Rate

Configures the max baud rate of the serial port.

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.

Onboard Serial Port 3 Mode

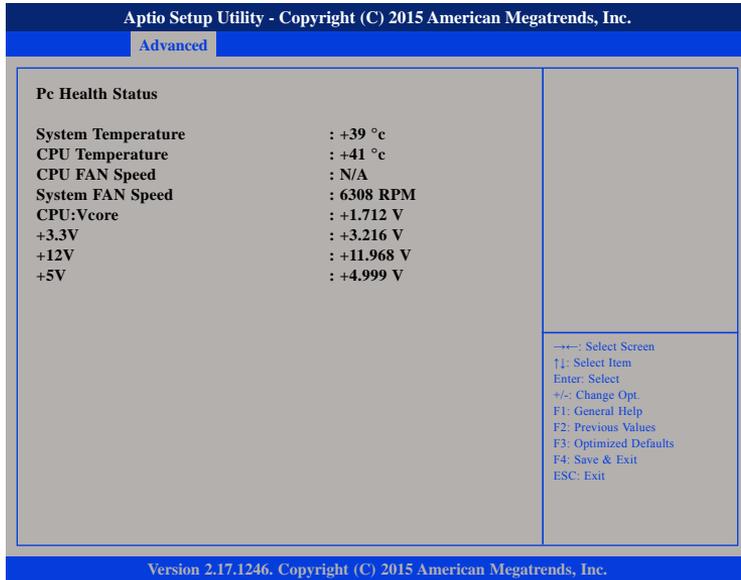
Configures the serial port mode.

Onboard Serial Port Max Baud Rate

Configures the max baud rate of the serial port.

IT8783F H/W Monitor

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



The screenshot shows the 'Advanced' tab of the Aptio Setup Utility. Under the 'Pc Health Status' section, the following data is displayed:

System Temperature	: +39 °c
CPU Temperature	: +41 °c
CPU FAN Speed	: N/A
System FAN Speed	: 6308 RPM
CPU:Vcore	: +1.712 V
+3.3V	: +3.216 V
+12V	: +11.968 V
+5V	: +4.999 V

Navigation instructions are listed at the bottom right of the screen:

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

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CPU:Vcore

Detects and displays the Vcore CPU voltage.

+3.3V

Detects and displays 3.3V voltage.

+12V

Detects and displays 12V voltage.

+5V

Detects and displays 5V voltage.

System Temperature

Detects and displays the current system temperature.

CPU Temperature

Detects and displays the current CPU temperature.

CPU FAN Speed and System FAN Speed

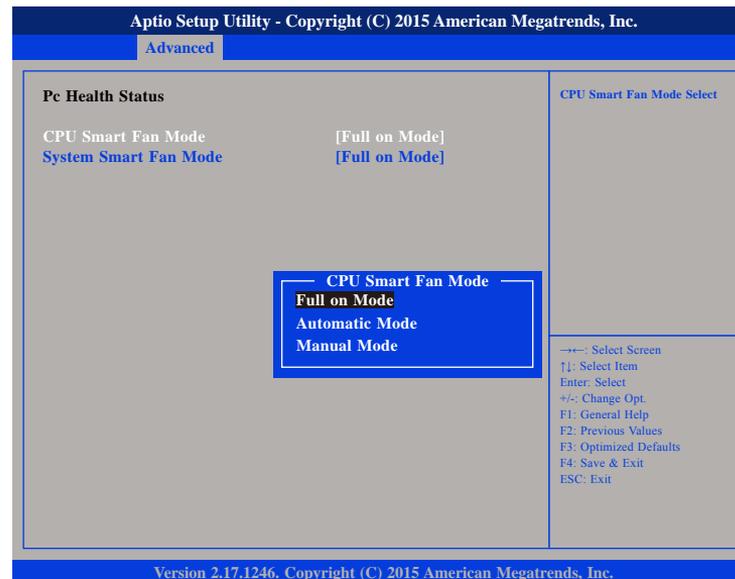
Detects and displays the current CPU fan and system fan speed.

Smart Fan Function

This section is used to configure the smart fan function.



CPU Smart Fan Mode



Configures the smart fan mode of the CPU fan, the options are Full on Mode, Automatic Mode and Disable Mode.

System Smart Fan Mode



Configures the smart fan mode of the system fan, the options are Full on Mode, Automatic Mode and Disable Mode.

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 to LAN3

Enables or disables LAN1 to LAN3 controllers.

WIFI1 and MINI1

Enables or disables the PCI Express root port for WLAN/GSM (WIFI1) and mini-PCIe/mSATA (MINI1).

Restore AC Power Loss



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

USB Configuration



XHCI Mode

Configures the operation mode of the XHCI controller. The options are Smart Auto, Auto, Enabled, Disabled and Manual.

PCH Azalia Configuration



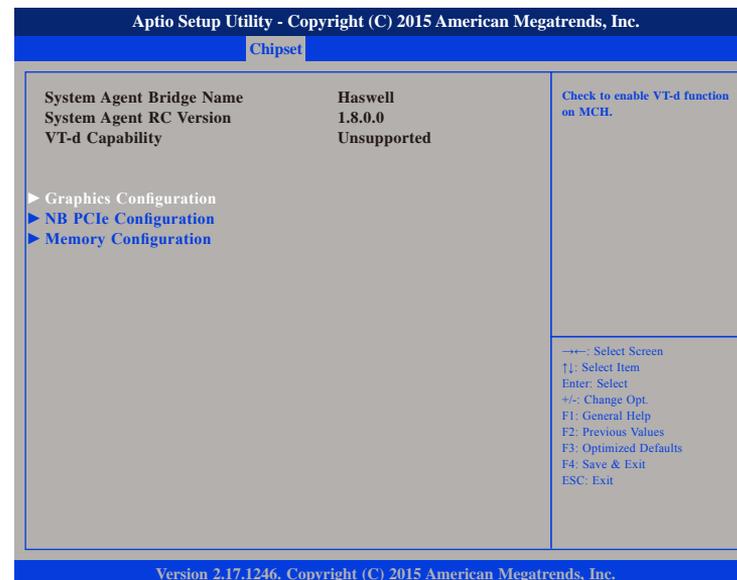
Azalia

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.

System Agent (SA) Configuration

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



Graphics Configuration

Configures the graphics chip settings.

NB PCIe Configuration

Configures the NB PCI Express settings.

Memory Configuration

Configures the memory settings.

Graphics Configuration



Primary Display



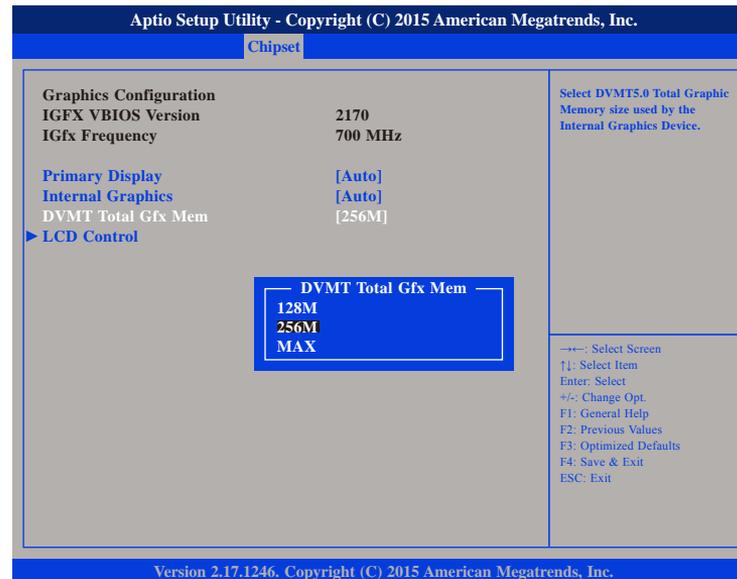
Selects which of Auto/IGFX/PEG/PCIE graphics device should be primary display.

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.

LCD Control



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.

NB PCIe Configuration

This section is used to configure Northbridge PCI Express settings.



PEG0 - Gen X



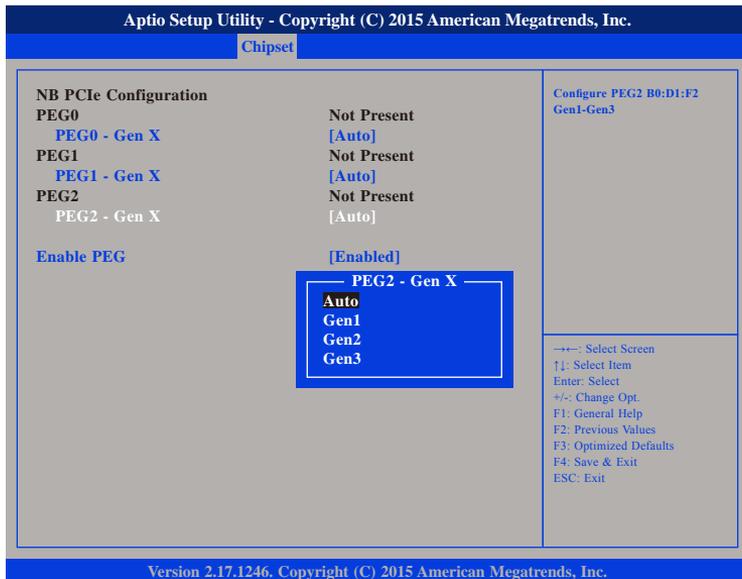
Configure PEG0 B0:D1:F0 Gen1-Gen3.

PEG1 - Gen X



Configure PEG1 B0:D1:F1 Gen1-Gen3.

PEG2 - Gen X



Configure PEG2 B0:D1:F2 Gen1-Gen3.

Enable PEG



Enables or disables the PEG slot.

Memory Configuration

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

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Chipset

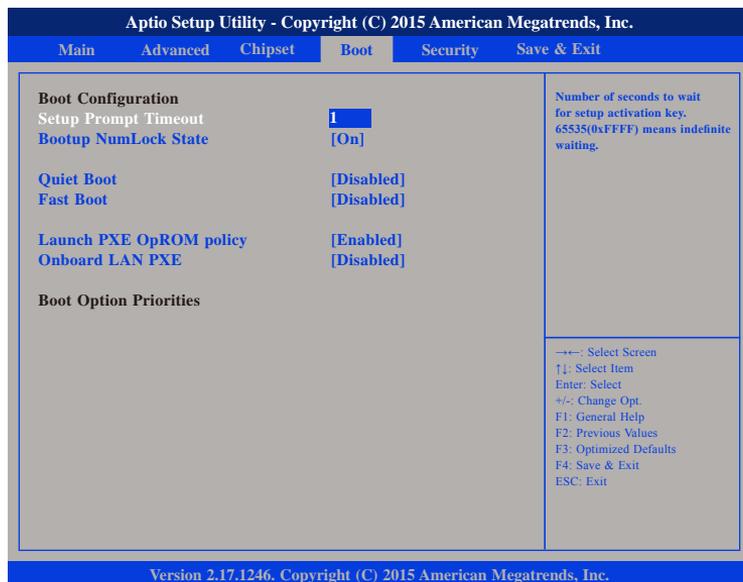
Memory Information	
Memory RC Version	1.8.0.0
Memory Frequency	1333 Mhz
Total Memory	8192 MB (DDR3)
Memory Voltage	1.50v
DIMM#0	Not Present
DIMM#1	Not Present
DIMM#2	8192 MB (DDR3)
DIMM#3	Not Present
CAS Latency (tCL)	9
Minimum delay time	
CAS to RAS (tRCDmin)	9
Row Precharge (tRPmin)	9
Active to Precharge (tRASmin)	24
XMP Profile 1	Not Supported
XMP Profile 2	Not Supported

--- 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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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.

Security

Aptio Setup Utility - Copyright (C) 2015 American Megatrends, Inc.						
Main	Advanced	Chipset	Boot	Security	Save & Exit	
<p>Password Description</p> <p>If ONLY the Administrator's password is set, then this only limits access to Setup and is only asked for when entering Setup.</p> <p>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.</p> <p>The password length must be in the following range:</p> <table> <tr> <td>Minimum length</td> <td>3</td> </tr> <tr> <td>Maximum length</td> <td>20</td> </tr> </table> <p>Administrator Password User Password</p>		Minimum length	3	Maximum length	20	<p>Set Administrator Password</p>
Minimum length	3					
Maximum length	20					
		<p>→←: Select Screen ↑↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit</p>				
Version 2.17.1246. Copyright (C) 2015 American Megatrends, Inc.						

Administrator Password

Select this to reconfigure the administrator's password.

User Password

Select this to reconfigure the user's password.

Save & Exit

Aptio Setup Utility - Copyright (C) 2015 American Megatrends, Inc.					
Main	Advanced	Chipset	Boot	Security	Save & Exit
<p>Save Changes and Reset Discard Changes and Reset Load Optimized Defaults</p>		<p>Set Administrator Password</p>			
		<p>→←: Select Screen ↑↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit</p>			
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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.

Load Optimized 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

Test Configuration

System Configuration	Sys#1
Chassis	NISE 3700E VER:B
CPU	Intel® Core™ i7-4770TE Processor, 2.3GHz, 45W (Turbo boost disabled)
CPU Cooler	CPU Heatsink for NISE 3700E VER:A SHYUNG SHUHN
Memory	2x Transcend DDR3-1600, 4GB, SO-DIMM ,TS512MSK64V6H
Motherboard	NISB3700 REV:B
HDD	Hitachi HDD HEJ421080G9SA00
CFast	ADATA ISC3E-032GT
Power Supply	FSP FSP120-ACB 120W
Riser Card	NISK37E1 VER:A
NVRAM Module	NISK-NVRAM VER:A

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. GWInstek PSW 80-40.5 DC power supply.
2. Windows 7 x32 Pro Operating System
3. Burn In Test Ver7.1
4. Kpower Software.
5. Network test program.
6. USB 2.0 (5V, 0.5A(Cement Resistor))*4.
7. USB 3.0 (5V, 1.0A(Cement Resistor))*4.

Device Under Test

DUT: sys#1/

Test Procedure

1. Use Device Manager to examine devices.
2. Use DC power supply to measure the power consumption.
3. Measure system maximum power consumption in the modes below:
 - S3 mode.
 - Idle mode.
 - Full loading mode (Include USB load fixture).
4. Record the power usage (in watts).

Test Data

	Sys #1 (Disabled Turbo Boost)
	+24V
Full-Loading Mode	2.98A
Total	71.52W
Standby S3 Mode	0.063A
Total	1.51W

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 3700E 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	Low	A05h (Bit0)	4	GPO	Low	A05h (Bit4)
5	GPI	Low	A05h (Bit1)	6	GPO	Low	A05h (Bit5)
7	GPI	Low	A05h (Bit2)	8	GPO	Low	A05h (Bit6)
9	GPI	Low	A05h (Bit3)	10	GPO	Low	A05h (Bit7)

JP4 – GPIO Connector

Control the GPO pin (4/6/8/10) level from I/O port A05h bit (4/5/6/7).
The bit is Set/Clear indicated output High/Low.

GPIO programming sample code

```
#define GPIO_PORT      0xA00

#define GPO4_HI        outputb(GPIO_PORT+5, 0x10)
#define GPO4_LO        outputb(GPIO_PORT+5, 0x00)
#define GPO6_HI        outputb(GPIO_PORT+5, 0x20)
#define GPO6_LO        outputb(GPIO_PORT+5, 0x00)
#define GPO8_HI        outputb(GPIO_PORT+5, 0x40)
#define GPO8_LO        outputb(GPIO_PORT+5, 0x00)
#define GPO10_HI       outputb(GPIO_PORT+5, 0x80)
#define GPO10_LO       outputb(GPIO_PORT+5, 0x00)

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

APPENDIX C: LED PROGRAMMING GUIDE

LEDs are provided for custom system design. This appendix provides definitions and its default setting for the LEDs in the NISE 3700E series.

The LED definition is shown in the following table:

Pin	PowerOn Default	Address
A4	Low	A04h (Bit6)
A3	Low	A04h (Bit5)
A2	Low	A04h (Bit4)

Control the GPO (A2/A3/A4) level from I/O port A04h bit (4/5/6).
The bit is Set/Clear indicated output High/Low.

GPIO programming sample code

```
#define GPIO_PORT      0xA00

#define GPO4_HI        outputb(GPIO_PORT+5, 0x10)
#define GPO4_LO        outputb(GPIO_PORT+5, 0x00)
#define GPO6_HI        outputb(GPIO_PORT+5, 0x20)
#define GPO6_LO        outputb(GPIO_PORT+5, 0x00)
#define GPO8_HI        outputb(GPIO_PORT+5, 0x40)
#define GPO8_LO        outputb(GPIO_PORT+5, 0x00)
#define GPO10_HI       outputb(GPIO_PORT+5, 0x80)
#define GPO10_LO       outputb(GPIO_PORT+5, 0x00)

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

APPENDIX D: WATCHDOG TIMER SETTING

ITE8783E WDT 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 PWROK1)
```

```
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);
```