

**NexAIoT Co., Ltd.**

**IoT Automation Solutions Business Group**

**Fan-less Computer**

**NISE 3600C**

User Manual



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# PREFACE

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## Acknowledgements

NISE 3600C is a trademark of NexAloT 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



### NexAloT RoHS Environmental Policy and Status Update

NexAloT 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, NexAloT 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 NexAloT development procedure and that all the new RoHS components and new manufacturing processes maintain the highest industry quality levels for which NexAloT 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 NexAloT 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 NexAloT naming convention.

## Warranty and RMA

### NexAloT Warranty Period

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

### NexAloT Return Merchandise Authorization (RMA)

- Customers shall enclose the “NexAloT 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 “NexAloT 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, NexAloT 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 NexAloT 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

NexAloT 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: NexAloT 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 NexAloT 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, NexAloT will return it to the customer without any charge.

#### Board Level

- Component fee: NexAloT 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, NexAloT will return it to the customer without any charge.

## Warnings

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

## Cautions

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

## Installation Recommendations

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

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

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

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

## Safety Information

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

- Read all instructions carefully.
- Do not place the unit on an unstable surface, cart, or stand.
- Follow all warnings and cautions in this manual.
- When replacing parts, ensure that your service technician uses parts specified by the manufacturer.
- Avoid using the system near water, in direct sunlight, or near a heating device.
- The load of the system unit does not solely rely for support from the rackmounts located on the sides. Firm support from the bottom is highly necessary in order to provide balance stability.
- The computer is provided with a battery-powered real-time clock circuit. There is a danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Discard used batteries according to the manufacturer's instructions.
- This product is intended to be supplied by an approved power adapter, rated 12Vdc, 5A or 24Vdc, 2.5A minimum and Tma 55 degree Celsius. If further assistance is needed, please contact NexAloT for further information.



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.



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

## 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. This equipment is not suitable for use in locations where children are likely to be present.
14. Ensure to connect the power cord to a socket-outlet with earthing connection.
15. Never open the equipment. For safety reasons, the equipment should be opened only by qualified service personnel.
16. 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.
17. Do not place heavy objects on the equipment.
18. 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.
19. 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 NexAloT products, visit NexAloT's website at [www.nexaiot.com](http://www.nexaiot.com).
2. For technical issues that require contacting our technical support team or sales representative, please have the following information ready before calling:
  - Product name and serial number
  - Detailed information of the peripheral devices
  - Detailed information of the installed software (operating system, version, application software, etc.)
  - A complete description of the problem
  - The exact wordings of the error messages

### Warning!

1. Handling the unit: carry the unit with both hands and handle it with care.
2. Maintenance: to keep the unit clean, use only approved cleaning products or clean with a dry cloth.

## Conventions Used in this Manual



### Warning:

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



### Caution:

Information to avoid damaging components or losing data.



### Note:

Provides additional information to complete a task easily.

## Global Service Contact Information

### Headquarters

#### **NEXCOM International Co., Ltd.**

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

### Asia

#### **Taiwan**

#### **NexAIoT Headquarters**

#### **Industry 4.0 and Cloud Services**

12F, No.922, Zhongzheng Rd.,  
Zhonghe District, New Taipei City,  
23586, Taiwan, R.O.C.  
Tel: +886-2-8226-7796  
Fax: +886-2-8226-7926  
Email: sales@nexaiot.com  
www.nexaiot.com

#### **NexAIoT Co., Ltd.**

#### **Taichung Office**

16F, No.250, Sec.2, Chongde Rd.,  
Beitun District,  
Taichung City, 406, Taiwan, R.O.C.  
Tel: +886-4-2249-1179  
Fax: +886-4-2249-1172  
Email: jacobhuang@nexaiot.com  
www.nexaiot.com

#### **NexCOBOT Taiwan Co., Ltd.**

13F, No.916, Zhongzheng Rd.,  
Zhonghe District,  
New Taipei City, 23586, Taiwan, R.O.C.  
Tel: +886-2-8226-7786  
Fax: +886-2-8226-7926  
Email: jennyshern@nexcobot.com  
www.nexcobot.com

#### **GreenBase Technology Corp.**

13F, No.922, Zhongzheng Rd.,  
Zhonghe District,  
New Taipei City, 23586, Taiwan, R.O.C.  
Tel: +886-2-8226-7786  
Fax: +886-2-8226-7900  
Email: vivianlin@nexcom.com.tw  
www.nexcom.com.tw

#### **DivioTec Inc.**

19F-1A, No.97, Sec.4, ChongXin Rd.,  
Sanchong District,  
New Taipei City, 24161, Taiwan, R.O.C.  
Tel: +886-2-8976-3077  
Email: sales@diviotec.com  
www.diviotec.com

#### **AIoT Cloud Corp.**

13F, No.922, Zhongzheng Rd.,  
Zhonghe District,  
New Taipei City, 23586, Taiwan, R.O.C.  
Tel: +886-2-8226-7786  
Fax: +886-2-8226-7782  
Email: alantsai@aiotcloud.net  
www.aiotcloud.dev

#### **EMBUX TECHNOLOGY CO., LTD.**

13F, No.916, Zhongzheng Rd.,  
Zhonghe District,  
New Taipei City, 23586, Taiwan, R.O.C.  
Tel: +886-2-8226-7786  
Fax: +886-2-8226-7782  
Email: info@embux.com  
www.embux.com

#### **TMR TECHNOLOGIES CO., LTD.**

13F, No.916, Zhongzheng Rd.,  
Zhonghe District,  
New Taipei City, 23586, Taiwan, R.O.C.  
Tel: +886-2-8226-7786  
Fax: +886-2-8226-7782  
Email: services@tmrtek.com  
www.tmrtek.com

## **China NEXSEC Incorporated**

201, Floor 2, Unit 2, Building 15, Yard 3,  
Gaolizhang Road, Haidian District,  
Beijing, 100094, China  
Tel: +86-10-5704-2680  
Fax: +86-10-5704-2681  
Email: marketing@nexsec.cn  
www.nexsec.cn

## **NEXCOM Shanghai**

Room 406-407, Building C, No 154, Lane 953,  
Jianchuan Road, Minhang District,  
Shanghai, 201108, China  
Tel: +86-21-5278-5868  
Fax: +86-21-3251-6358  
Email: sales@nexcom.cn  
www.nexcom.cn

## **NEXCOM Surveillance Technology Corp.**

Floor 8, Building B3, Xiufeng Industrial Zone,  
GanKeng Community, Buji Street,  
LongGang District,  
ShenZhen, 518112, China  
Tel: +86-755-8364-7768  
Fax: +86-755-8364-7738  
Email: steveyang@nexcom.com.tw  
www.nexcom.cn

## **NEXGOL Chongqing**

1st Building No.999,  
Star Boulevard, Yongchuan Dist,  
Chongqing City, 402160, China  
Tel: +86-23-4960-9080  
Fax: +86-23-4966-5855  
Email: sales@nexgol.com.cn  
www.nexcom.cn

## **Beijing NexGemo Technology Co.,Ltd.**

Room 205, No.1, Fazhan Rd.,  
Beijing International Information Industry Base,  
Changping District,  
Beijing, 102206, China  
Tel: +86-10-8072-2025  
Fax: +86-10-8072-2022  
Email: sales@nexgemo.cn  
www.nexgemo.com

## **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

## **America**

### **USA NEXCOM USA**

46665 Fremont Blvd.,  
Fremont CA 94538, USA  
Tel: +1-510-656-2248  
Fax: +1-510-656-2158  
Email: sales@nexcom.com  
www.nexcomusa.com





# Package Contents

Before continuing, verify that the package that you received is complete. Your NISE 3600C package should have all the items listed in the following table.

| Item | Part Number   | Description                                             | Qty |
|------|---------------|---------------------------------------------------------|-----|
| 1    | 50311F0326X00 | Flat Head Screw Long Fei:F3x5 NYLOK NI+Heat Treatment   | 4   |
| 2    | 50311F0315X00 | Round Head Screw Long Fei:P6#32T T10 NYLOK              | 1   |
| 3    | 50311F0100X00 | (H)Round Head Screw W/Spring+Flat Washer Long Fei:P3x6L | 2   |
| 4    | 4NCPM00203X00 | Terminal Blocks 2P Phoenix Contact:1803578              | 2   |
| 5    | 5044440090X00 | (H)Thermal Pad APUS:3A2015001001500                     | 1   |
| 6    | 50311F0329X00 | Round Head Screw Long Fei:P2.5x3 ISO+NYLON              | 3   |
| 7    | 50311F0143X00 | (H)Flat Head Screw Long Fei:F#6-32x8                    | 1   |
| 8    | 50322P0002X00 | Plastic Nut GIN LIAN:M6HW                               | 1   |
| 9    | 50311P0001X00 | Price For Plastic Screw                                 | 1   |
| 10   | 6029900037X00 | DOW CORNING 340 Silcone Heat Sink Compound(3g)          | 1   |
| 11   | 60233POW33X00 | DC Cord EDI:281040051051-RS                             | 1   |
| 12   | 6023344361X00 | Cable EDI:231441090251-RS                               | 1   |



## Ordering Information

The following information below provides ordering information for NISE 3600C.

### Barebone

#### **NISE 3600CE (P/N: 10J03600C01XE)**

- 6/7/8/9th Gen Intel® Core™ i7/i5/i3 fanless system with one PCIe x4 expansion
- **Power adapter (P/N: 7400120031X00)**  
**24V, 120W AC to DC power adapter w/o power cord**

#### **NISE 3600CE2 (P/N: 10J03600C03XE)**

- 6/7/8/9th Gen Intel® Core™ i7/i5/i3 fanless system with two PCIe x4 expansion (Only PCIe x1 signal)

#### **NISE 3600CP2 (P/N: 10J03600C02XE)**

- 6/7/8/9th Gen Intel® Core™ i7/i5/i3 fanless system with two PCI expansion

#### **NISE 3600CP2E (P/N: 10J03600C04XE)**

- 6/7/8/9th Gen Intel® Core™ i7/i5/i3 fanless system with one PCI and one PCIe x4 (only PCIe x1 signal) expansion
- **Power adapter (P/N: 7400120031X00)**  
**24V, 120W AC to DC power adapter w/o power cord**

# CHAPTER 1: PRODUCT INTRODUCTION

## Overview: NISE 3600CE



### Key Features

- Support 6/7/8/9th Gen Intel® Core™ i7/i5/i3 socket type processor
- Intel® H310C PCH
- Support 1 x 2.5" SATA HDD/SSD
- 1 x VGA, 1 x HDMI® and 2 x display port with independent display support
- Dual Intel® GbE LAN ports; support WoL, teaming and PXE
- 4 x USB 3.0, 2 x USB 2.0, 5 x RS232 and 1 x RS232/422/485
- 2 x Internal mini-PCIe socket support optional Wi-Fi or 4G module
- 1 x External M.2 3042 Key B & 2 x mSATA
- 1 x SIM card socket
- Support +12V to 30VDC input; support ATX power mode
- One PCIe x4 expansion

# Hardware Specifications:

## NISE 3600CE

### CPU Support

- Support 6/7/8/9th Gen Intel® Core™ i7/i5/i3 socket type processor

### Main Memory

- 2 x DDR4 2133/2400/2666 SO-DIMM socket, support up to 16GB

### Display Option

- Dual independent display
  - VGA and HDMI®
  - Display port and VGA
  - Display port and HDMI®
  - Display port and display port

### I/O Interface - Front

- ATX power on/off switch
- HDD access/power status LEDs
- 2 x USB 3.0 ports
- 2 x Display port (can be converted to DVI-D or HDMI via active cables)
- 4 x Antenna holes
- 1 x External M.2 3042 Key B (PCIe x1, USB2.0)
- 1 x SIM card socket (for Mini card 2)

### I/O Interface - Rear

- 1 x DB44 serial port for 4 x COM ports
  - COM1/3/4 (RS232)
  - COM2 (RS232/422/485)
- 2 x DB9 for COM5 (RS232) & COM6 (RS232)
- 2 x USB 3.0 ports (900mA per port)
- 2 x USB 2.0 ports (500mA per port)
- 1 x VGA port
- 1 x HDMI® port
- 2 x Intel® I210AT GbE LAN ports; support WoL, teaming and PXE
- 1 x MIC-in and 1 x Line-out
- 1 x 4-pin remote power on/off switch
- +12V to 30V DC input

### Expansion Slot

- One PCIe x4 expansion slot
  - Add-on card length: 169mm max.
  - Power consumption: 10W/slot max
- 2x Internal mini-PCIe socket support optional Wi-Fi/4G LTE

## Power Requirements

- AT/ATX power mode (default: ATX power mode)
- Power input: +12 to +30V DC
- Power adapter: optional AC to DC power adapter (24V DC, 120W)

## Dimensions

- 215 mm(W) x 272mm (D) x 93mm (H) without wall mount bracket (8.5" x 10.7" x 3.66")

## Construction

- Aluminum and metal chassis with fanless design

## Environment

- Operating temperature:  
Ambient with air flow: -5°C to 60°C (according to IEC60068-2-1, IEC60068-2-2, IEC60068-2-14)\*
- Storage temperature: -20°C to 80°C
- Relative humidity: 10% to 95% (non-condensing)
- Shock protection:
  - HDD: 20G, half sine, 11ms, IEC60068-2-2
  - M.2: 50G, half sine, 11ms, IEC60068-2-27
- Vibration protection with HDD condition:
  - Random: 0.5Grms@5~500 Hz, IEC60068-2-64
  - Sinusoidal: 0.5Grms@5~500 Hz, IEC60068-2-6
- Vibration protection with SSD&M.2 condition:
  - Random: 2Grms@5~500 Hz, IEC60068-2-64
  - Sinusoidal: 2Grms@5~500 Hz, IEC60068-2-6

\*Industrial grade memory, storage, and peripherals are required under 60°C operating temp.

## Certifications

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

## OS Support

- Windows 11 IoT Enterprise
- Windows 10, 64-bit
- Windows 7

## Overview: NISE 3600CE2/P2



### Key Features

- Support 6/7/8/9th Gen Intel® Core™ i7/i5/i3 socket type processor
- Intel® H310C PCH
- Support 1 x 2.5" SATA HDD/SSD
- 1 x VGA, 1 x HDMI® and 2 x display port with independent display support
- Dual Intel® GbE LAN ports; support WoL, teaming and PXE
- 4 x USB 3.0, 2 x USB 2.0, 5 x RS232 and 1 x RS232/422/485
- 2 x Internal mini-PCIe socket support optional Wi-Fi or 4G module
- 1 x External M.2 3042 Key B & 2 x mSATA
- 1 x SIM card socket
- Support +12V to 30VDC input; support ATX power mode
- Two PCI or PCIe x4 expansion (Only support PCIe x1 signal) expansion

## Hardware Specifications:

### NISE 3600CE2/P2

#### CPU Support

- Support 6/7/8/9th Gen Intel® Core™ i7/i5/i3 socket type processor

#### Main Memory

- 2 x DDR4 2133/2400/2666 SO-DIMM socket, support up to 16GB

#### Display Option

- Dual independent display
  - VGA and HDMI®
  - Display port and VGA
  - Display port and HDMI®
  - Display port and display port

#### I/O Interface - Front

- ATX power on/off switch
- HDD access/power status LEDs
- 2 x USB 3.0 ports
- 2 x Display port (can be converted to DVI-D or HDMI via active cables)
- 4 x Antenna holes
- 1 x External M.2 3042 Key B (PCIe x1, USB2.0)
- 1 x SIM card socket (for Mini card 2)

#### I/O Interface - Rear

- 1 x DB44 serial port for 4 x COM ports
  - COM1/3/4 (RS232)
  - COM2 (RS232/422/485)
- 2 x DB9 for COM5 (RS232) & COM6 (RS232)
- 2 x USB 3.0 ports (900mA per port)
- 2 x USB 2.0 ports (500mA per port)
- 1 x VGA port
- 1 x HDMI port
- 2 x Intel® I210AT GbE LAN ports; support WoL, teaming and PXE
- 1 x MIC-in and 1 x Line-out
- 1 x 4-pin remote power on/off switch
- +12V to 30V DC input

#### Expansion Slot

- 2 x Internal mini-PCIe socket support optional Wi-Fi/4G LTE
- NISE 3600CE2: two PCIe x4 expansion slot (Only support PCIe x1 signal)
  - Add-on card length: 169mm max. and one 240mm max.
  - Power consumption: 10W/slot max
- NISE 3600CP2: two PCI expansion slot
  - Add-on card length: 169mm max. and one 240mm max.
  - Power consumption: 10W/slot max

## Power Requirements

- AT/ATX power mode (default: ATX power mode)
- Power input: +12 to +30V DC
- Power adapter: optional AC to DC power adapter (24V DC, 120W)

## Dimensions

- 215 mm(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 60°C (according to IEC60068-2-1, IEC60068-2-2, IEC60068-2-14)\*
- Storage temperature: -20°C to 80°C
- Relative humidity: 10% to 95% (non-condensing)
- Shock protection:- HDD: 20G, half sine, 11ms, IEC60068-2-27- M.2: 50G, half sine, 11ms, IEC60068-2-27
- Vibration protection with HDD condition:
  - Random: 0.5Grms@5~500 Hz, IEC60068-2-64
  - Sinusoidal: 0.5Grms@5~500 Hz, IEC60068-2-6
- Vibration protection with SSD&M.2 condition:
  - Random: 2Grms@5~500 Hz, IEC60068-2-64
  - Sinusoidal: 2Grms@5~500 Hz, IEC60068-2-6

\*Industrial grade memory, storage, and peripherals are required under 60°C operating temp.

## Certifications

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

## OS Support

- Windows 11 IoT Enterprise
- Windows 10, 64-bit
- Windows 7

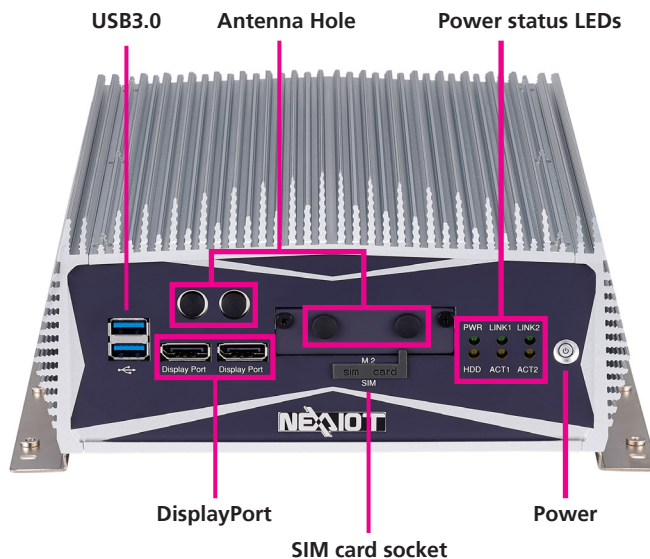
## Weight Information

- Gross weight: 6.54kg
- Net weight: 5kg



# Knowing Your NISE 3600CE

## Front Panel



### Power Switch

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

### System status LED

Indicates the power status, link, activity and HDD access of the system.

### Antenna Hole

Used to install external antennas.

### SIM card socket

Used to install a SIM card.

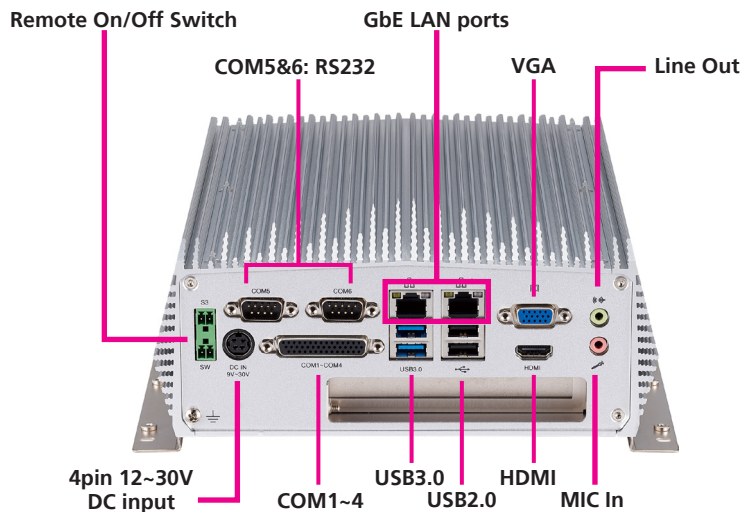
### DisplayPort

A DisplayPort port used to connect DisplayPort interface displays.

### USB 3.0

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

## Rear Panel



### Mic-In/Line-Out

Mic-In: Used to connect an external microphone

Line-Out: Used to connect a headphone or a speaker.

### VGA

VGA port used to connect VGA interface display.

### HDMI

HDMI port used to connect HDMI interface display.

### LAN

Two I210AT GbE LAN ports, support WoL, teaming and PXE.

### USB 2.0

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

### USB 3.0

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

### COM

- COM1/3/4 (DB44): RS232
- COM2 (DB44): RS232/422/485
- COM5&6 (DB9): RS232

### DC Input

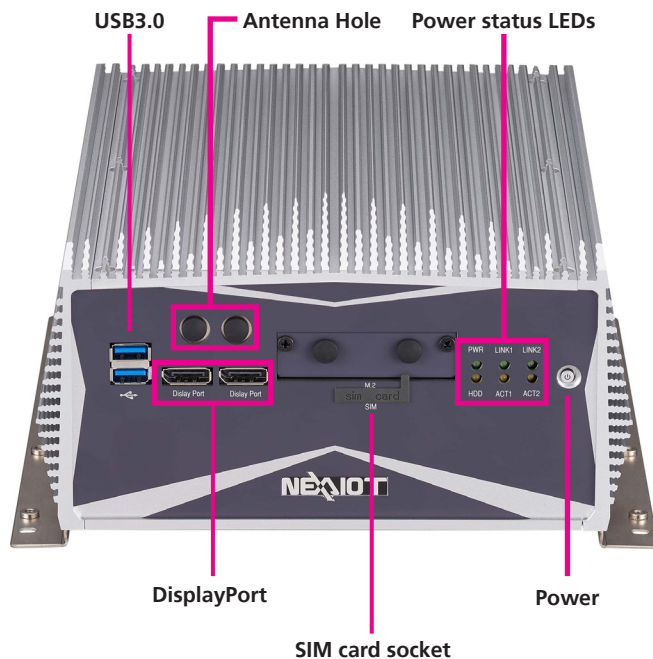
Used to plug a DC power cord.

### Remote On/Off Switch

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

# Knowing Your NISE 3600CE2/P2

## Front Panel



### Power Switch

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

### System status LED

Indicates the power status, link, activity and HDD access of the system.

### SIM card socket

Used to install a SIM card.

### Antenna Hole

Used to install external antennas.

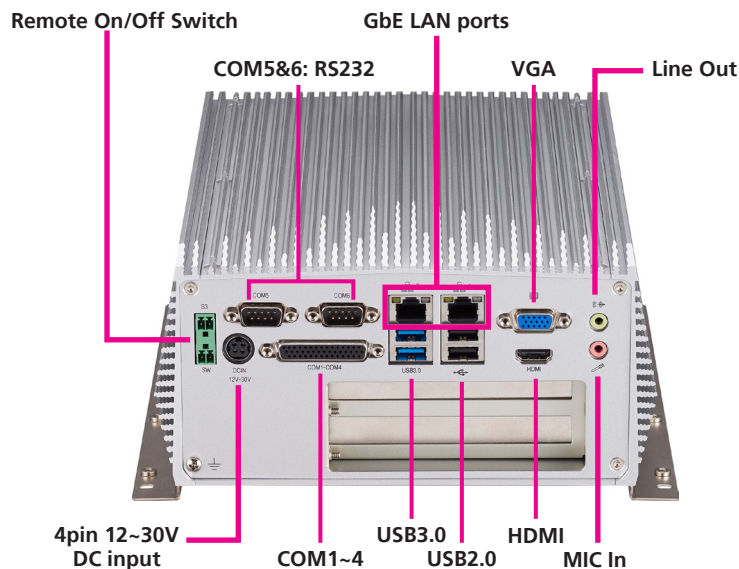
### DisplayPort

A DisplayPort port used to connect DisplayPort interface displays.

### USB 3.0

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

## Rear Panel



### Mic-In/Line-Out

Mic-In: Used to connect an external microphone

Line-Out: Used to connect a headphone or a speaker.

### VGA

VGA port used to connect VGA interface display.

### HDMI

HDMI port used to connect HDMI interface display.

### LAN

Two I210T GbE LAN ports, support WoL, teaming and PXE.

### USB 2.0

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

### USB 3.0

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

### COM

- COM1/3/4 (DB44): RS232
- COM2 (DB44): RS232/422/485
- COM5&6 (DB9): RS232

### DC Input

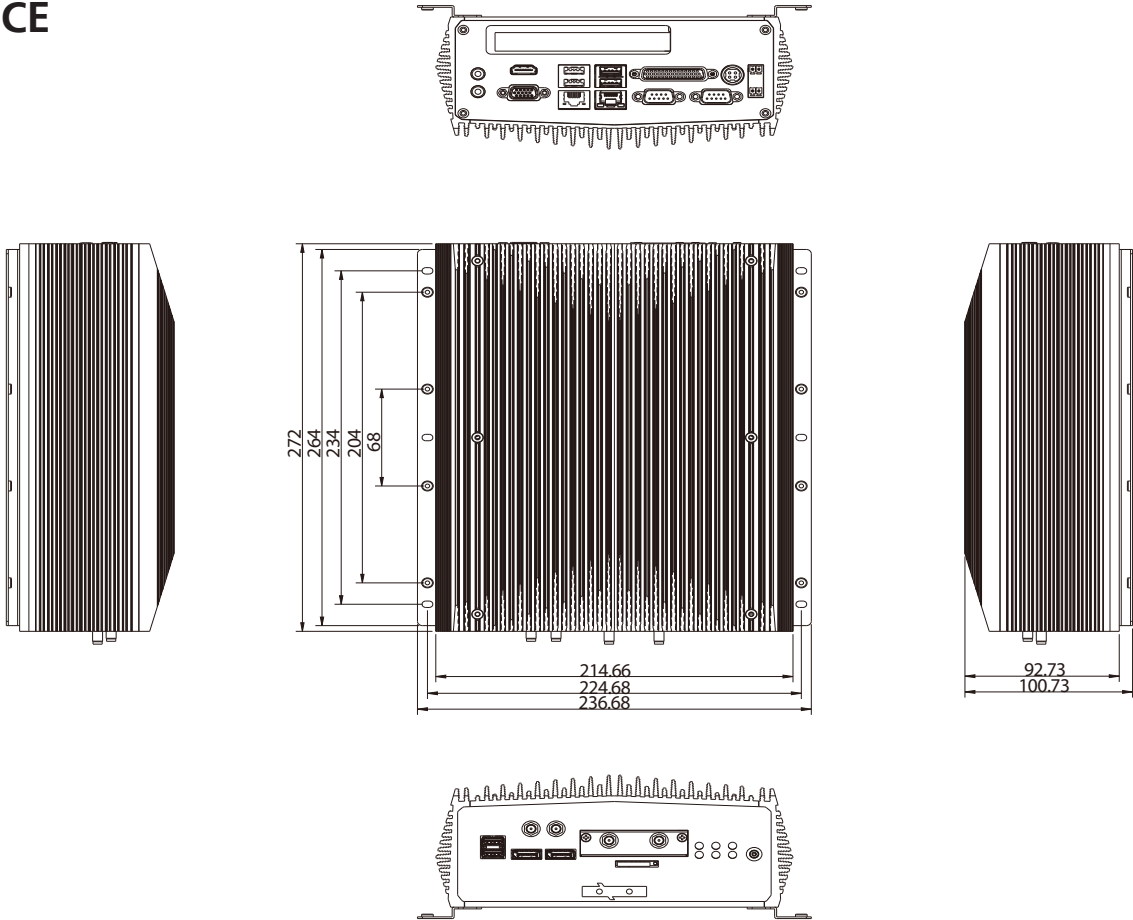
Used to plug a DC power cord.

### Remote On/Off Switch

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

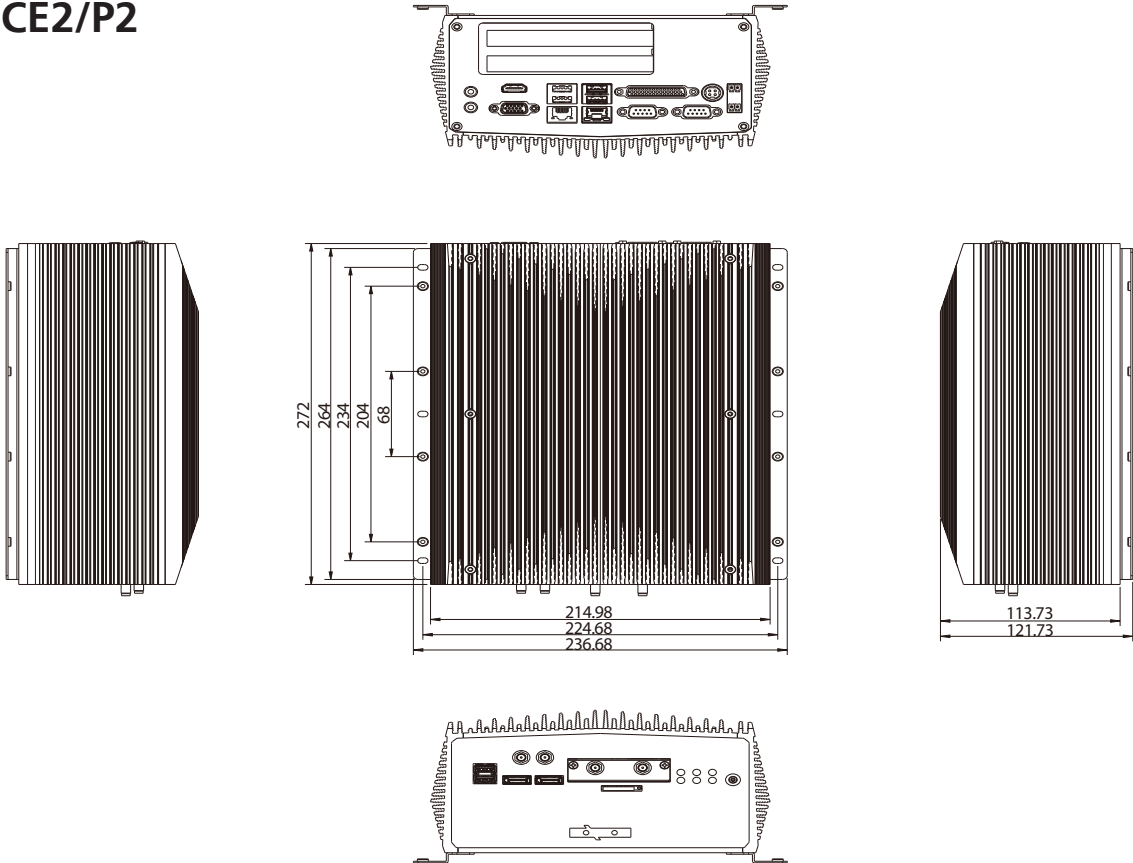
# Mechanical Dimensions

## NISE 3600CE



# Mechanical Dimensions

## NISE 3600CE2/P2



## CHAPTER 2: JUMPERS AND CONNECTORS

This chapter describes how to set the jumpers and connectors on the NISE 3600C 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:

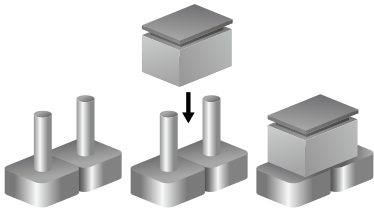
- Always disconnect the unit from the power outlet whenever you are working inside the case.
- If possible, wear a grounded wrist strap when you are working inside the computer case. Alternatively, discharge any static electricity by touching the bare metal chassis of the unit case, or the bare metal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

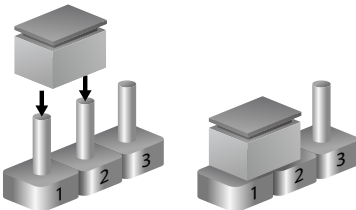
A jumper is the simplest kind of electric switch. It consists of two metal pins and a cap. When setting the jumpers, ensure that the jumper caps are placed on the correct pins. When the jumper cap is placed on both pins, the jumper is short. If you remove the jumper cap, or place the jumper cap on just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



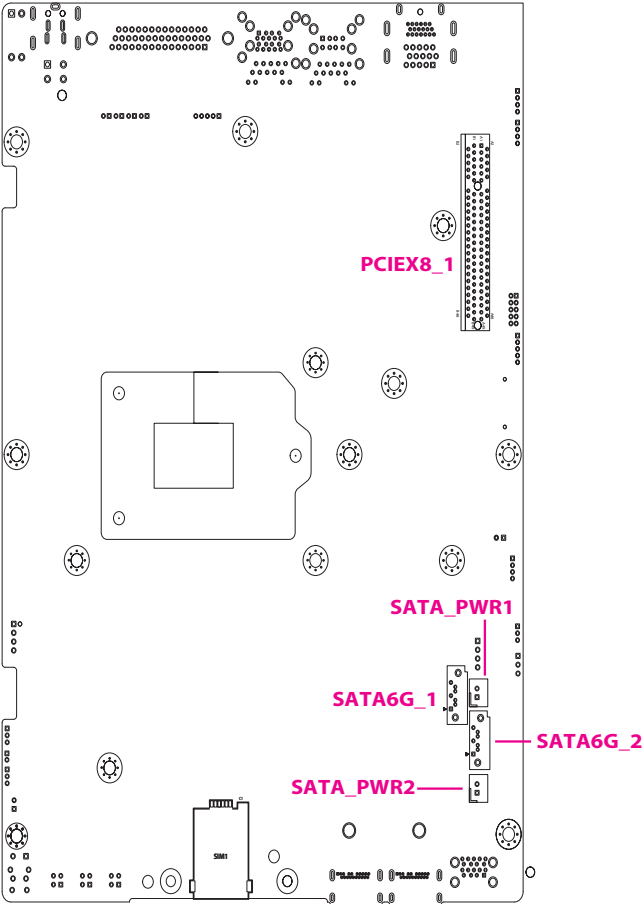
Three-Pin Jumpers: Pins 1 and 2 are Short







Bottom View





# DIP Switches

## ATX\_AT1

Connector location: ATX\_AT1



|          |               |
|----------|---------------|
| ATX mode | 2-3 (Default) |
| AT mode  | 1-2           |

## CLRTC1

Connector location: CLRTC1



|           |               |
|-----------|---------------|
| Normal    | 1-2 (Default) |
| Clear RTC | 2-3           |





COM4\_V1

Connector location: COM4\_V1



|      |               |
|------|---------------|
| +5V  | 1-2           |
| +12V | 2-3           |
| Ring | 4-5 (Default) |

COM5\_V1

Connector location: COM5\_V1



|      |               |
|------|---------------|
| +5V  | 1-2           |
| +12V | 2-3           |
| Ring | 4-5 (Default) |



# Connector Pin Definitions

## External I/O Interfaces

### POWER\_IN1

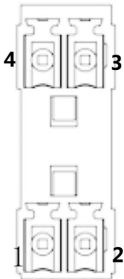
Connector location: POWER\_IN1



| Pin | Definition | Pin | Definition |
|-----|------------|-----|------------|
| 1   | +          | 2   | +          |
| 3   | -          | 4   | -          |

### Remote Connector

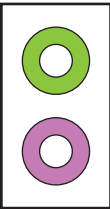
Connector location: REMOTE\_CON1



| Pin | Definition | Pin | Definition |
|-----|------------|-----|------------|
| 1   | GND        | 2   | PWRBTN#_R  |
| 3   | SLP_S3#_R  | 4   | GND        |

EAR Phone Jack

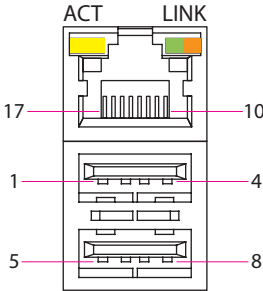
Connector location: EAR PHONE JACK



| Pin | Definition | Pin | Definition |
|-----|------------|-----|------------|
| 1   | GND        | 22  | FRONT_L    |
| 2   | MIC_L      | 23  | GND        |
| 3   | GND        | 24  | NC         |
| 4   | NC         | 25  | FRONT_R    |
| 5   | MIC_R      | NH1 | NC         |
| MH1 | GND_CHASIS | MH2 | GND_CHASIS |
| MH3 | GND_CHASIS | MH4 | GND_CHASIS |

LAN2 and USB 2.0

Connector location: LAN2 and USB 2.0 Ports

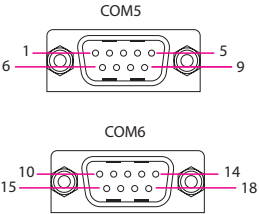


| Pin | Definition | Pin | Definition       |
|-----|------------|-----|------------------|
| 1   | VCC5(+5V)  | 9   | V1P5_LAN2(+1.5V) |
| 2   | USB2N_1    | 10  | LAN2_MDI0P       |
| 3   | USB2P_1    | 11  | LAN2_MDI0N       |
| 4   | GND        | 12  | LAN2_MDI1P       |
| 5   | VCC5(+5V)  | 13  | LAN2_MDI1N       |
| 6   | USB2N_2    | 14  | LAN2_MDI2P       |
| 7   | USB2P_2    | 15  | LAN2_MDI2N       |
| 8   | GND        | 16  | LAN2_MDI3P       |
| MH1 | GND_CHASIS | 17  | LAN2_MDI3N       |
| MH2 | GND_CHASIS | 18  | GND              |
| MH3 | GND_CHASIS | 19  | LAN2_LINK1G#     |
| MH4 | GND_CHASIS | 20  | LAN2_LINK100#    |
| MH5 | GND_CHASIS | 21  | LAN2_LED_ACT#    |
| MH6 | GND_CHASIS | 22  | V3P3_LAN2(+3.3V) |
| MH7 | GND_CHASIS | MH8 | GND_CHASIS       |



## COM5 & COM6

Connector location: COM5 (DB9) & COM6 (DB9)



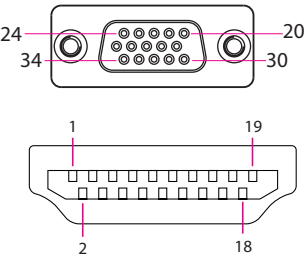
| Pin | Definition | Pin | Definition |
|-----|------------|-----|------------|
| 1   | COM5_DCD   | 10  | COM6_DCD   |
| 2   | COM5_RXD   | 11  | COM6_RXD   |
| 3   | COM5_TXD   | 12  | COM6_TXD   |
| 4   | COM5_DTR   | 13  | COM6_DTR   |
| 5   | GND        | 14  | GND        |
| 6   | COM5_DSR   | 15  | COM6_DSR   |
| 7   | COM5_RTS   | 16  | COM6_RTS   |
| 8   | COM5_CTS   | 17  | COM6_CTS   |
| 9   | COM5_RI    | 18  | COM6_RI    |





## VGA and HDMI

Connector location:VGA+HDMI



| Pin | Definition | Pin | Definition   |
|-----|------------|-----|--------------|
| 1   | HDMI_D2_P  | 16  | HDMI_SDA     |
| 2   | GND        | 17  | GND          |
| 3   | HDMI_D2_N  | 18  | HDMIPWR(+5V) |
| 4   | HDMI_D1_P  | 19  | HDMI_HPD     |
| 5   | GND        | 20  | VGA_RED      |
| 6   | HDMI_D1_N  | 21  | VGA_GREEN    |
| 7   | HDMI_D0_P  | 22  | VGA_BLUE     |
| 8   | GND        | 23  | NC           |
| 9   | HDMI_D0_N  | 24  | GND          |
| 10  | HDMI_CK_P  | 25  | GND          |
| 11  | GND        | 26  | GND          |
| 12  | HDMI_CK_N  | 27  | GND          |
| 13  | HDMI_CEC   | 28  | VGAPWR(+5V)  |
| 14  | NC         | 29  | GND          |
| 15  | HDMI_SCL   | 30  | NC           |

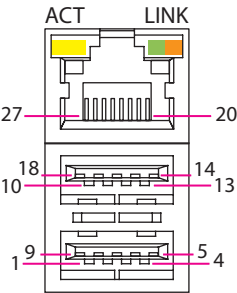
| Pin | Definition  | Pin | Definition |
|-----|-------------|-----|------------|
| 31  | VGA_DDCDATA | MH3 | GND_CHASIS |
| 32  | VGA_HSYNC   | MH4 | GND_CHASIS |
| 33  | VGA_VSYNC   | MH5 | GND_CHASIS |
| 34  | VGA_DDCCLK  | MH6 | GND_CHASIS |
| NH1 | NC          |     |            |
| MH1 | GND_CHASIS  |     |            |
| MH2 | GND_CHASIS  |     |            |





## LAN1 and USB 3.0 Ports

Connector location:LAN1 and USB 3.0 Ports



| Pin | Definition | Pin | Definition       |
|-----|------------|-----|------------------|
| 1   | VCC5(+5V)  | 16  | GND              |
| 2   | USB2N_0    | 17  | USB31_TXN1       |
| 3   | USB2P_0    | 18  | USB31_TXP1       |
| 4   | GND        | 19  | V1P5_LAN1(+1.5V) |
| 5   | USB31_RXN0 | 20  | LAN1_MDI0P       |
| 6   | USB31_RXP0 | 21  | LAN1_MDI0N       |
| 7   | GND        | 22  | LAN1_MDI1P       |
| 8   | USB31_TXN0 | 23  | LAN1_MDI1N       |
| 9   | USB31_TXP0 | 24  | LAN1_MDI2P       |
| 10  | VCC5(+5V)  | 25  | LAN1_MDI2N       |
| 11  | USB2N_1    | 26  | LAN1_MDI3P       |
| 12  | USB2P_1    | 27  | LAN1_MDI3N       |
| 13  | GND        | 28  | GND              |
| 14  | USB31_RXN1 | 29  | V3P3_LAN1(+3.3V) |
| 15  | USB31_RXP1 | 30  | LAN1_LED_ACT#    |

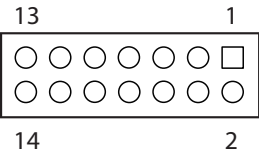
| Pin | Definition    | Pin | Definition |
|-----|---------------|-----|------------|
| 31  | LAN1_LINK100# | MH6 | GND_CHASIS |
| 32  | LAN1_LINK1G#  | MH7 | GND_CHASIS |
| MH1 | GND_CHASIS    | MH8 | GND_CHASIS |
| MH2 | GND_CHASIS    |     |            |
| MH3 | GND_CHASIS    |     |            |
| MH4 | GND_CHASIS    |     |            |
| MH5 | GND_CHASIS    |     |            |



Internal Connectors

Status LED Connector

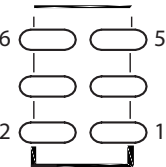
Connector type: 2x7, 14-pin header  
Connector location: STATUS\_LED\_CON



| Pin | Definition | Pin | Definition |
|-----|------------|-----|------------|
| 1   | LAN3_LINKN | 2   | LAN3_LINKP |
| 3   | L3_ACTLEDN | 4   | L3_ACTLEDP |
| 5   | LAN2_LINKN | 6   | LAN2_LINKP |
| 7   | L2_ACTLEDN | 8   | L2_ACTLEDP |
| 9   | PLED+      | 10  | PLED-      |
| 11  | HDLED+     | 12  | HDLED_D-   |
| 13  | BAT_LOW_P  | 14  | BAT_LOW_N  |

GPIO Connector

Connector type: 2x3, 10-pin header  
Connector location: GPIO\_CON



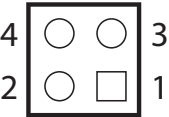
| Pin | Definition    | Pin | Definition |
|-----|---------------|-----|------------|
| 1   | +3V           | 2   | GND        |
| 3   | SIO_GP02LED_P | 4   | SIO_GP02   |
| 5   | SIO_GP01LED_P | 6   | SIO_GP01   |





Power In2

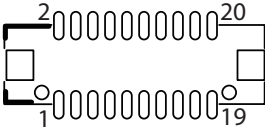
Connector type: 2x2, 4-pin header  
Connector location: POWER\_IN2



| Pin | Definition | Pin | Definition |
|-----|------------|-----|------------|
| 1   | GND        | 2   | GND        |
| 3   | VIN        | 4   | VIN        |

COM

Connector location: COM56



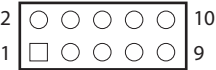
| Pin | Definition | Pin | Definition |
|-----|------------|-----|------------|
| 1   | DDCD7      | 2   | DDCD8      |
| 3   | DTXD7      | 4   | DTXD8      |
| 5   | DRTS7      | 6   | DRTS8      |
| 7   | RI2_F_VCC  | 8   | RI8        |
| 9   | GND        | 10  | GND        |
| 11  | DRXD7      | 12  | DRXD8      |
| 13  | DDTR7      | 14  | DDTR8      |
| 15  | DDSR7      | 16  | DDSR8      |
| 17  | DCTS7      | 18  | DCTS8      |
| 19  | GND        | 20  | GND        |





DIO

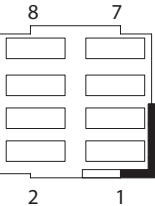
Connector type: 2x5, 10-pin header  
Connector location: DIO



| Pin | Definition | Pin | Definition |
|-----|------------|-----|------------|
| 1   | +5V        | 2   | GND        |
| 3   | GPO1#      | 4   | GPI1#      |
| 5   | GPO2#      | 6   | GPI2#      |
| 7   | GPO3#      | 8   | GPI3#      |
| 9   | GPO4#      | 10  | GPI4#      |

SPI\_1

Connector type: 2x4, 8-pin header  
Connector location: SPI\_1



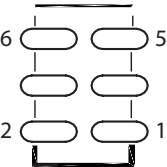
| Pin | Definition  | Pin | Definition  |
|-----|-------------|-----|-------------|
| 1   | +3V_SPI     | 2   | GND         |
| 3   | S_BIOS_CS0# | 4   | S_BIOS_CLK  |
| 5   | S_BIOS_MISO | 6   | S_BIOS_MOSI |
| 7   | (NC)        | 8   | (NC)        |





SPI\_NXM

Connector type: 2x3, 6-pin header  
Connector location: SPI\_NXM



| Pin | Definition  | Pin | Definition  |
|-----|-------------|-----|-------------|
| 1   | +3V_SPI     | 2   | GND         |
| 3   | S_BIOS_CS0# | 4   | S_BIOS_CLK  |
| 5   | S_BIOS_MISO | 6   | S_BIOS_MOSI |

PWR\_CON1

Connector type: 1x2, 2-pin header  
Connector location: PWR\_CON1



| Pin | Definition |
|-----|------------|
| 1   | PWRBTN#    |
| 2   | GND        |





RST\_CON1

Connector type: 1x2, 2-pin header  
Connector location: RST\_CON1



| Pin | Definition |
|-----|------------|
| 1   | RESET#     |
| 2   | GND        |

SMBUS1

Connector type: 1x3, 3-pin header  
Connector location: SMBUS1



| Pin | Definition |
|-----|------------|
| 1   | SMBCLK     |
| 2   | SMBDATA    |
| 3   | GND        |





USB6

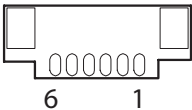
Connector type: 1x4, 4-pin header  
Connector location: USB6



| Pin | Definition | Pin | Definition |
|-----|------------|-----|------------|
| 1   | +5V        | 2   | USB_DN     |
| 3   | USB_DP     | 4   | GND        |

GPS1

Connector location: GPS1

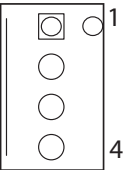


| Pin | Definition | Pin | Definition |
|-----|------------|-----|------------|
| 1   | GPS_BAT    | 2   | GPS_LED    |
| 3   | UART_TXD   | 4   | UART_RXD   |
| 5   | GND        | 6   | +3V        |



CPU\_FAN1/CHA\_FAN1

Connector type: 1x4, 4-pin header  
Connector location: CPU\_FAN1/CHA\_FAN1



| Pin | Definition | Pin | Definition |
|-----|------------|-----|------------|
| 1   | PWM        | 2   | SENSE      |
| 3   | VCC        | 4   | GND        |

LINEIN1/LINEIN2

Connector location: LINEIN1/LINEIN2



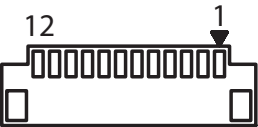
| Pin | Definition | Pin | Definition |
|-----|------------|-----|------------|
| 1   | LINEIN-L   | 2   | GND        |
| 3   | JD         | 4   | LINEIN-R   |





DEBUG

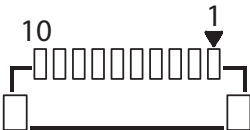
Connector location: DEBUG



| Pin | Definition        | Pin | Definition |
|-----|-------------------|-----|------------|
| 1   | F_LAD0            | 2   | F_LAD1     |
| 3   | F_LAD2            | 4   | F_LAD3     |
| 5   | +3V               | 6   | F_FRAME#   |
| 7   | PLTRST#           | 8   | GND        |
| 9   | PCH_24M_2_R_DEBUG | 10  | S_LDRQ1#   |
| 11  | S_LDRQ#           | 12  | F_SERIRQ   |

DEBUG\_NXM

Connector location: DEBUG\_NXM

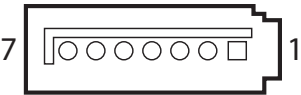


| Pin | Definition | Pin | Definition        |
|-----|------------|-----|-------------------|
| 1   | +3V        | 2   | F_SERIRQ          |
| 3   | F_LAD0     | 4   | F_LAD1            |
| 5   | F_LAD2     | 6   | F_LAD3            |
| 7   | F_FRAME    | 8   | PCH_24M_2_R_DEBUG |
| 9   | PLTRST     | 10  | GND               |



SATA6G\_1/SATA6G\_2

Connector location: SATA6G\_1/SATA6G\_2



| Pin | Definition | Pin | Definition |
|-----|------------|-----|------------|
| 1   | GND        | 2   | SATA_TX1+  |
| 3   | SATA_TX-   | 4   | GND        |
| 5   | SATA_RX-   | 6   | SATA_RX+   |
| 7   | GND        |     |            |

SATA\_PWR1/SATA\_PWR2

Connector location: SATA\_PWR1/SATA\_PWR2



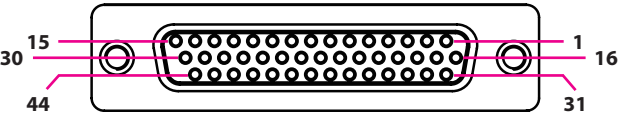
| Pin | Definition |
|-----|------------|
| 1   | +5V        |
| 2   | GND        |





CN2

Connector location: CN2



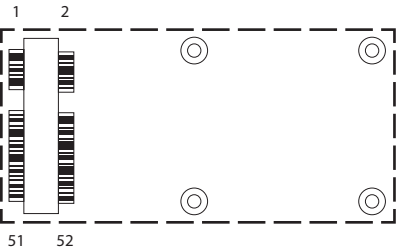
| Pin | Definition | Pin | Definition |
|-----|------------|-----|------------|
| 1   | COM1_DCD   | 2   | COM1_RXD   |
| 3   | COM1_TXD   | 4   | COM1_DTR   |
| 5   | GND        | 6   | COM1_DSR   |
| 7   | COM1_RTS   | 8   | COM1_CTS   |
| 9   | DRI1       | 10  | GND        |
| 11  | COM2_DCD   | 12  | COM2_RXD   |
| 13  | COM2_TXD   | 14  | COM2_DTR   |
| 15  | GND        | 16  | COM2_DSR   |
| 17  | COM2_RTS   | 18  | COM2_CTS   |
| 19  | DRI2       | 20  | GND        |
| 21  | DDCD5      | 22  | DRXD5      |
| 23  | DTXD5      | 24  | DDTR5      |
| 25  | GND        | 26  | DDSR5      |
| 27  | DRTS5      | 28  | DCTS5      |
| 29  | DRI5       | 30  | GND        |
| 31  | DDCD6      | 32  | DDXD6      |

| Pin | Definition | Pin | Definition |
|-----|------------|-----|------------|
| 33  | DTXD6      | 34  | DDTR6      |
| 35  | GND        | 36  | DDSR6      |
| 37  | DRTS6      | 38  | DCTS6      |
| 39  | COM4_RI    | 40  | GND        |
| 41  | NC         | 42  | NC         |
| 43  | NC         | 44  | NC         |



Mini Card1

Connector location: MINI Card1

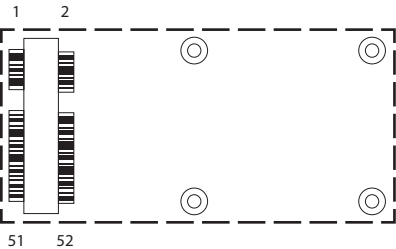


| Pin | Definition     | Pin | Definition   |
|-----|----------------|-----|--------------|
| 1   | X_WAKE#        | 2   | 3VSUS        |
| 3   | NC             | 4   | GND          |
| 5   | NC             | 6   | 1.5V         |
| 7   | MINI_CLKREQ#_1 | 8   | NC           |
| 9   | GND            | 10  | NC           |
| 11  | MINI_CLKN_1    | 12  | NC           |
| 13  | MINI_CLKP_1    | 14  | NC           |
| 15  | GND            | 16  | NC           |
| 17  | NC             | 18  | GND          |
| 19  | NC             | 20  | WLAN_DIS_R#  |
| 21  | GND            | 22  | MINI_RESET#  |
| 23  | NC             | 24  | 3VSUS        |
| 25  | NC             | 26  | GND          |
| 27  | GND            | 28  | 1.5V         |
| 29  | GND            | 30  | SM_CLK_SLOT  |
| 31  | NC             | 32  | SM_DATA_SLOT |

| Pin | Definition     | Pin | Definition |
|-----|----------------|-----|------------|
| 33  | NC             | 34  | GND        |
| 35  | GND            | 36  | S_USB2DN7  |
| 37  | GND            | 38  | S_USB2DP7  |
| 39  | 3VSUS          | 40  | GND        |
| 41  | 3VSUS          | 42  | NC         |
| 43  | NC             | 44  | NC         |
| 45  | NC             | 46  | NC         |
| 47  | NC             | 48  | 1.5V_W1    |
| 49  | NC             | 50  | NC         |
| 51  | MINI_CARD_DET1 | 52  | 3VSUS      |
| 53  | GND            | 54  | GND        |
| 55  | NC             | 56  | NC         |

Mini Card2

Connector location: MINI Card2



| Pin | Definition     | Pin | Definition     |
|-----|----------------|-----|----------------|
| 1   | X_WAKE#        | 2   | 3VSUS          |
| 3   | NC             | 4   | GND            |
| 5   | NC             | 6   | 1.5V           |
| 7   | MINI_CLKREQ#_2 | 8   | MINI_UIM_PWR   |
| 9   | GND            | 10  | MINI_UIM_DATA  |
| 11  | MINI_CLKN_2    | 12  | MINI_UIM_CLK   |
| 13  | MINI_CLKP_2    | 14  | MINI_UIM_RESET |
| 15  | GND            | 16  | MINI_UIM_VPP   |
| 17  | NC             | 18  | GND            |
| 19  | NC             | 20  | WLAN_DIS_R#2   |
| 21  | GND            | 22  | MINI_RESET#2   |
| 23  | NC             | 24  | 3VSUS          |
| 25  | NC             | 26  | GND            |
| 27  | GND            | 28  | 1.5V           |
| 29  | GND            | 30  | SM_CLK_SLOT_2  |
| 31  | NC             | 32  | SM_DATA_SLOT_2 |

| Pin | Definition     | Pin | Definition |
|-----|----------------|-----|------------|
| 33  | NC             | 34  | GND        |
| 35  | GND            | 36  | S_USB2DN9  |
| 37  | GND            | 38  | S_USB2DP9  |
| 39  | 3VSUS          | 40  | GND        |
| 41  | 3VSUS          | 42  | NC         |
| 43  | NC             | 44  | NC         |
| 45  | NC             | 46  | NC         |
| 47  | NC             | 48  | 1.5V_W2    |
| 49  | NC             | 50  | NC         |
| 51  | MINI_CARD_DET2 | 52  | 3VSUS      |
| 53  | GND            | 54  | GND        |
| 55  | NC             | 56  | NC         |



M.2

Connector location: M.2



| Pin | Definition | Pin | Definition     |
|-----|------------|-----|----------------|
| 1   | GND        | 2   | 3VSUS          |
| 3   | GND        | 4   | 3VSUS          |
| 5   | GND        | 6   | M2_CARD_PWR    |
| 7   | S_USB_PP8  | 8   | M.2_WWAN_KILL# |
| 9   | S_USB_PN8  | 10  | WLAN_LED1      |
| 11  | GND        | 12  | NC             |
| 13  | NC         | 14  | NC             |
| 15  | NC         | 16  | NC             |
| 17  | NC         | 18  | NC             |
| 19  | NC         | 20  | NC             |
| 21  | NC         | 22  | NC             |
| 23  | NC         | 24  | NC             |
| 25  | NC         | 26  | NC             |
| 27  | GND        | 28  | UIM_VPP        |
| 29  | NC         | 30  | UIM_RESET      |
| 31  | NC         | 32  | UIM_CLK        |

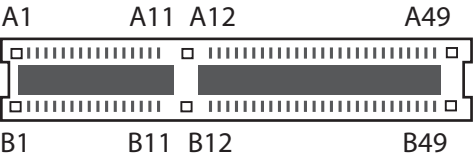
| Pin | Definition  | Pin | Definition         |
|-----|-------------|-----|--------------------|
| 33  | GND         | 34  | UIM_DATA           |
| 35  | NC          | 36  | UIM_PWR            |
| 37  | NC          | 38  | NC                 |
| 39  | GND         | 40  | NC                 |
| 41  | M2_B_RXN    | 42  | NC                 |
| 43  | M2_B_RXP    | 44  | NC                 |
| 45  | GND         | 46  | NC                 |
| 47  | M2_B_TXN    | 48  | NC                 |
| 49  | M2_B_TXP    | 50  | O_PCIEX1_RST#      |
| 51  | GND         | 52  | CLK_REQ1_M.2_WLAN# |
| 53  | C_PCIE_M2B# | 54  | X_WAKE#            |
| 55  | C_PCIE_M2B  | 56  | NC                 |
| 57  | GND         | 58  | NC                 |
| 59  | NC          | 60  | NC                 |
| 61  | NC          | 62  | NC                 |
| 63  | NC          | 64  | NC                 |
| 65  | NC          | 66  | NC                 |
| 67  | NC          | 68  | PCH_SUSCLK         |
| 69  | NC          | 70  | 3VSUS              |
| 71  | GND         | 72  | 3VSUS              |
| 73  | GND         | 74  | 3VSUS              |
| 75  | NC          | 76  | NC                 |
| 77  | NC          | 78  | NC                 |
| 79  | GND         |     |                    |





PCIe x8 Slot

Connector type: PCIe x8 Slot  
Connector location: PCIe x 8



| Pin | Definition    | Pin | Definition     |
|-----|---------------|-----|----------------|
| A1  | GND           | B1  | 12V            |
| A2  | 12V           | B2  | 12V            |
| A3  | 12V           | B3  | 12V            |
| A4  | GND           | B4  | GND            |
| A5  | NC            | B5  | S_SMBCLK_SLOT  |
| A6  | NC            | B6  | S_SMBDATA_SLOT |
| A7  | NC            | B7  | GND            |
| A8  | NC            | B8  | 3V             |
| A9  | 3.3V          | B9  | NC             |
| A10 | 3.3V          | B10 | 3VSUS          |
| A11 | O_PCIEX1_RST# | B11 | X_WAKE#        |
| A12 | GND           | B12 | NC             |
| A13 | C_PCIEX8_1    | B13 | GND            |
| A14 | C_PCIEX8#_1   | B14 | X_1X8_TXP0     |
| A15 | GND           | B15 | X_1X8_TXN0     |
| A16 | X_1X8_RXP0    | B16 | GND            |

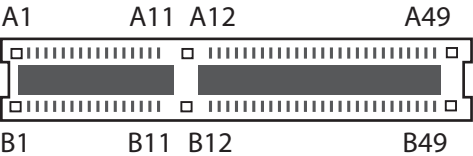
| Pin | Definition | Pin | Definition |
|-----|------------|-----|------------|
| A17 | X_1X8_RXN0 | B17 | GND        |
| A18 | GND        | B18 | GND        |
| A19 | NC         | B19 | X_1X8_TXP1 |
| A20 | GND        | B20 | X_1X8_TXN1 |
| A21 | X_1X8_RXP1 | B21 | GND        |
| A22 | X_1X8_RXN1 | B22 | GND        |
| A23 | GND        | B23 | X_1X8_TXP2 |
| A24 | GND        | B24 | X_1X8_TXN2 |
| A25 | X_1X8_RXP2 | B25 | GND        |
| A26 | X_1X8_RXN2 | B26 | GND        |
| A27 | GND        | B27 | X_1X8_TXP3 |
| A28 | GND        | B28 | X_1X8_TXN3 |
| A29 | X_1X8_RXP3 | B29 | GND        |
| A30 | X_1X8_RXN3 | B30 | NC         |
| A31 | GND        | B31 | GND        |
| A32 | NC         | B32 | GND        |
| A33 | NC         | B33 | X_1X8_TXP4 |
| A34 | GND        | B34 | X_1X8_TXN4 |
| A35 | X_1X8_RXP4 | B35 | GND        |
| A36 | X_1X8_RXN4 | B36 | GND        |
| A37 | GND        | B37 | X_1X8_TXP5 |
| A38 | GND        | B38 | X_1X8_TXN5 |
| A39 | X_1X8_RXP5 | B39 | GND        |
| A40 | X_1X8_RXN5 | B40 | GND        |
| A41 | GND        | B41 | X_1X8_TXP6 |
| A42 | GND        | B42 | X_1X8_TXN6 |
| A43 | X_1X8_RXP6 | B43 | GND        |
| A44 | X_1X8_RXN6 | B44 | GND        |





PCIe x 8 (Cont.)

Connector location: PCIe x 8



| Pin | Definition | Pin | Definition |
|-----|------------|-----|------------|
| A45 | GND        | B45 | X_1X8_TXP7 |
| A46 | GND        | B46 | X_1X8_TXN7 |
| A47 | X_1X8_RXP7 | B47 | GND        |
| A48 | X_1X8_RXN7 | B48 | GND        |
| A49 | GND        | B49 | GND        |





## CHAPTER 3: SYSTEM SETUP

### Removing the Chassis Cover

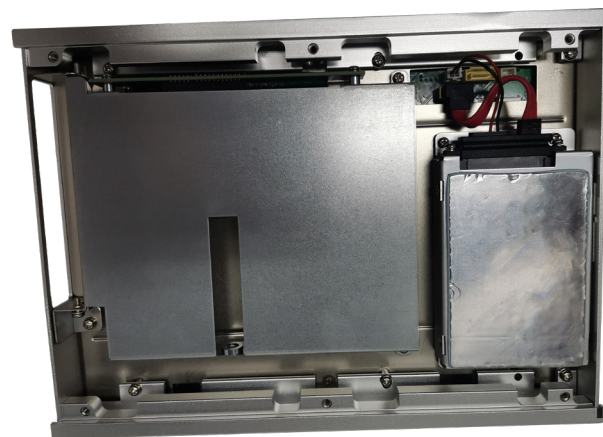


Prior to removing the chassis cover, make sure the unit's power is off and disconnected from the power sources to prevent electric shock or system damage.

1. Remove the six mounting screws from the bottom cover.



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



## Removing the top cover

1. Locate the 6 screws on the top cover.



2. Remove the 6 screws on the top.



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

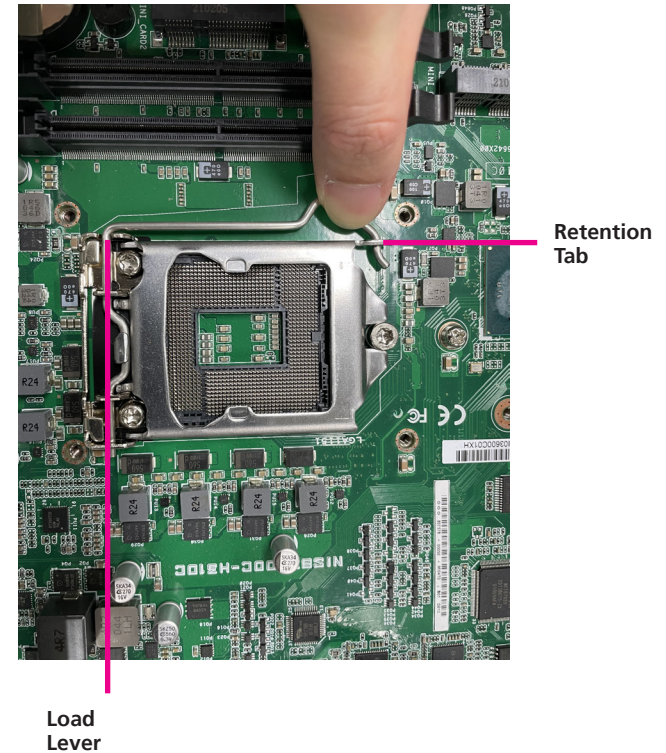


## Installing a CPU

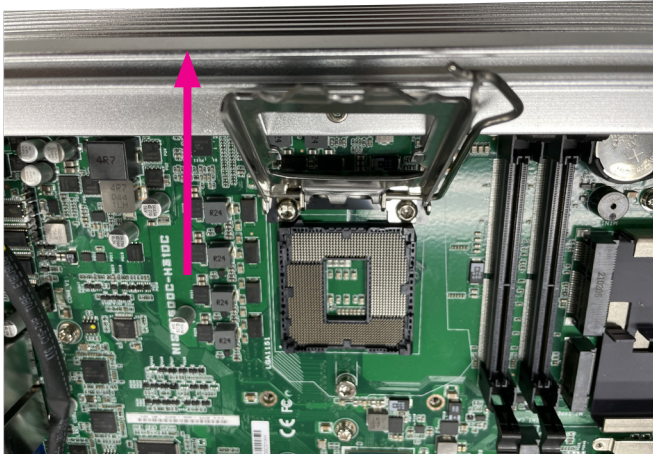
1. Remove the CPU heatsink.



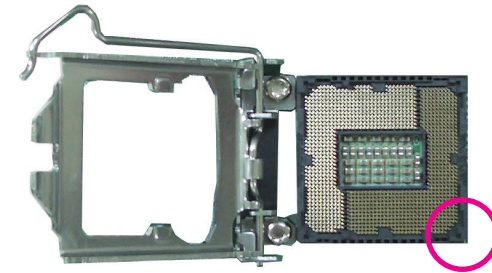
2. Locate the CPU socket on the board. Unlock the socket by pushing the load lever down, moving it sideways until it is released from the retention tab.



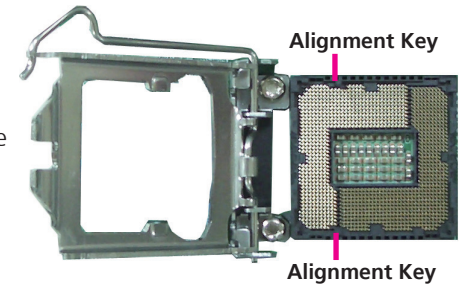
3. Lift the load lever up to open the CPU retention bracket.



4. Insert the CPU into the socket. The triangular edge on the CPU must align with the corner of the CPU socket shown on the photo.

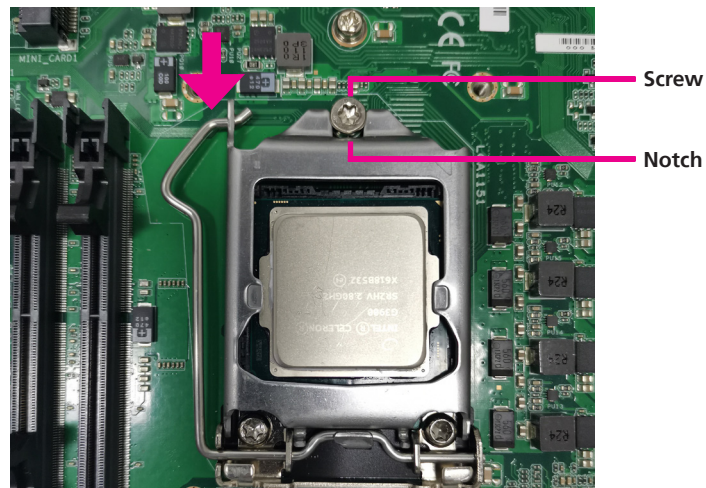
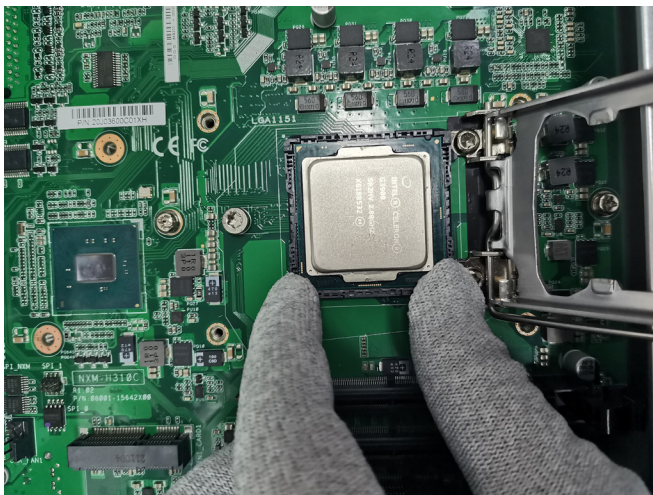


The CPU's notch will at the same time fit into the socket's alignment key.





5. With the CPU installed, close the retention bracket and then hook the load lever under the retention tab. Ensure that the notch on the retention bracket is slid under the screw before lowering the load lever as shown below.



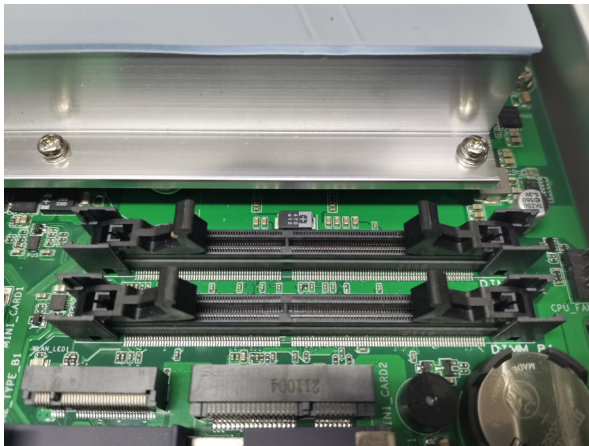
- Handle the CPU by its edges and avoid touching the pins.
- The CPU will fit in only one orientation and can easily be inserted without exerting any force.



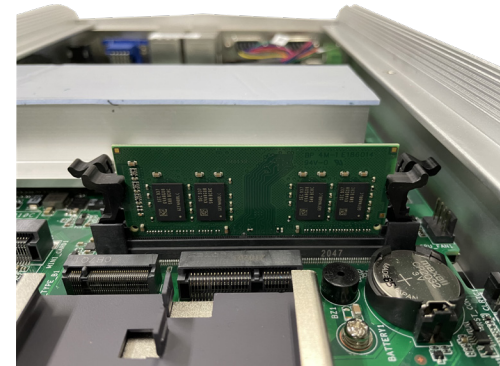
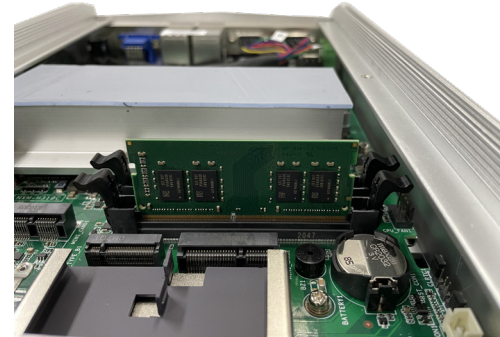
Do not force the CPU into the socket. Forcing the CPU into the socket may bend the pins and damage the CPU.

## Installing a SO-DIMM Memory Module

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



2. Insert the SO-DIMM module into the socket and apply even pressure to both ends of the module until it slips into the socket. While pushing the module into position, the locks will close automatically.



## Installing a Mini-PCle (Internal)

1. Locate the mini-PCle slot on the board.



Mini-PCle  
Slot

2. Insert the module into the mini-PCle slot at a 30-degree angle.



3. Push the module down and then secure it with a mounting screw.





## Installing a Mini-PCle and M.2 (External)

1. Locate the M.2 bracket cover on the front panel and unscrew the screws securing it. Then remove the bracket from the system.



2. Slide the M.2 module or min-PCle module to the mounting plate on the bracket and secure it with a screw.



3. Install the M.2 bracket back to its original position. Make sure the connector on the edge of the module is plugged firmly into the connector on the board.



## Installing a SIM Card

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

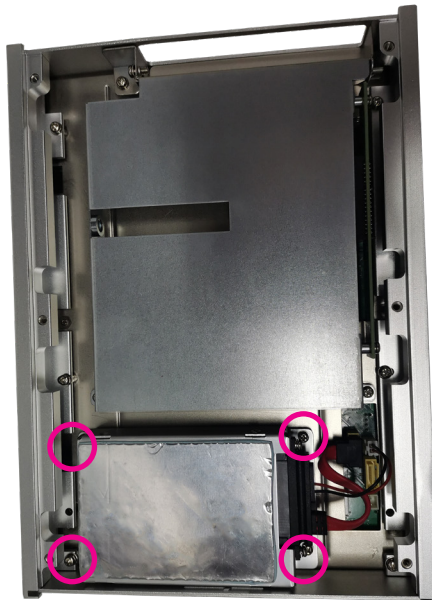


2. Insert the SIM card into the slot. Then insert the SIM card cover back to its original position.



## Installing an internal SATA Storage Drive

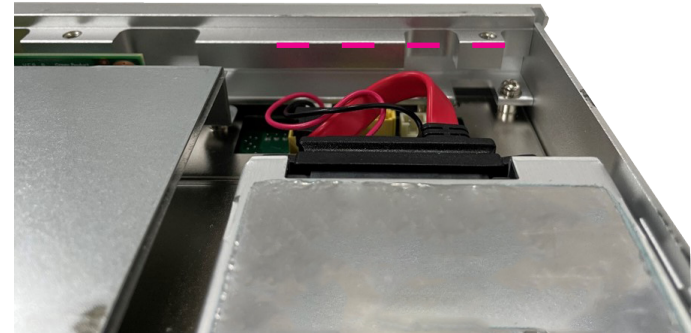
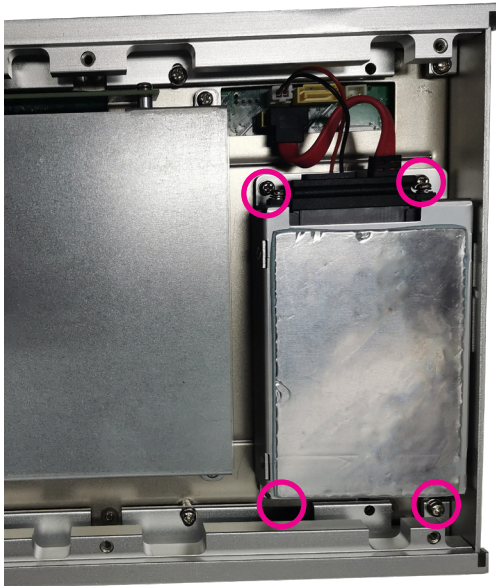
1. With the bottom cover of the chassis removed, unscrew the screws securing the storage bracket and lift it up.



2. Place the SSD into the HDD bracket and secure the SSD With screws.

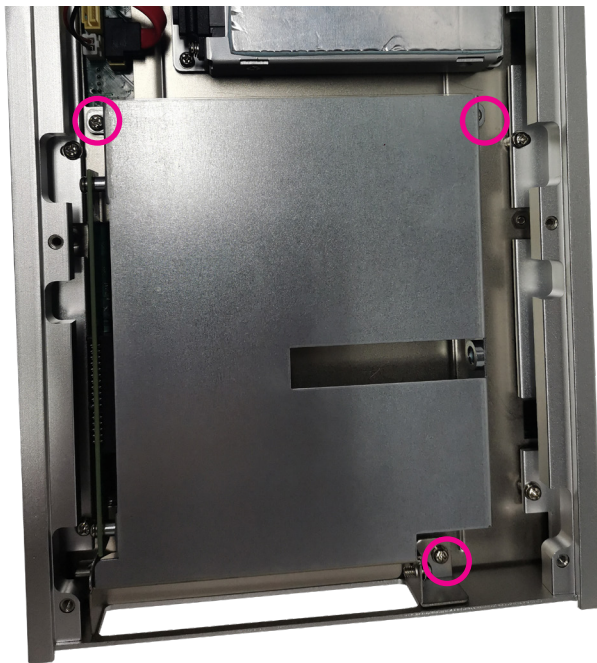


3. Connect the SATA connector to the SSD and secure the SSD bracket back to its original location.
4. Before reinstalling the bottom cover of the chassis, please rearrange the cables so that they are inside the chassis, as shown by the dotted line below.



## Installing a PCIe/PCI Expansion card

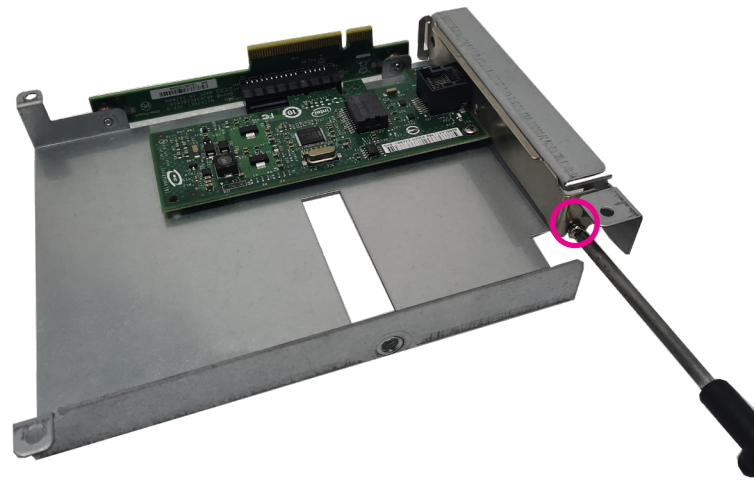
1. Remove the chassis bottom cover.



Note:

NISE3600CE is equipped with one PCIe x 4 expansion slot.  
NISE3600CE2 is equipped with two PCIe x 4 expansion slot.  
NISE3600CP2 is equipped with two PCI expansion slot.

2. Remove screw on the expansion cover.
3. Insert PCIe/PCI expansion card and fasten the screw.
4. Secure the riser bracket to its original position.



Note:

Example shown is NISE 3600CE

## CHAPTER 4: BIOS SETUP

This chapter describes how to use the BIOS setup program for NISE 3600C. 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 NexAIoT website at [www.nexaiot.com](http://www.nexaiot.com).

### 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 items such 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.

## Legends

| Key                                                                                                                                                                     | Function                                                                 |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------|
|   | Moves the highlight left or right to select a menu.                      |
|   | Moves the highlight up or down between sub-menu 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

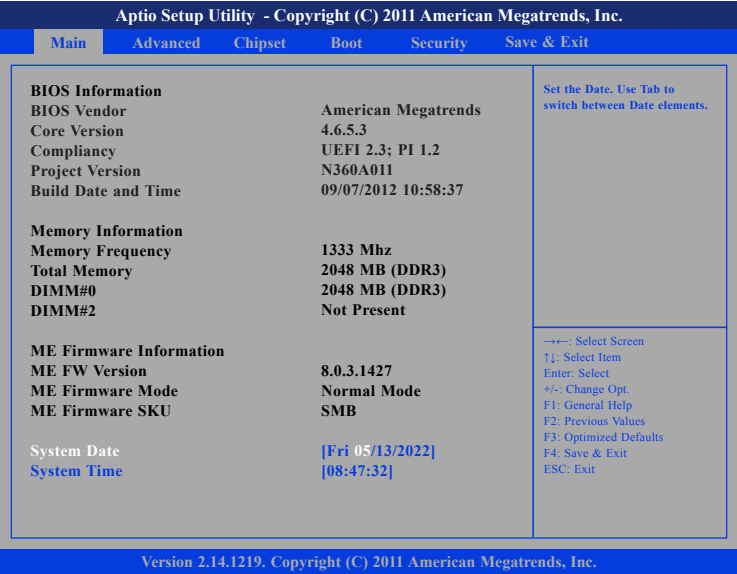
When “▶” appears on the left of a particular field, it indicates that a submenu which contains additional options are available for that field. To display the submenu, move the highlight to that field and press  .

# 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.



## System Date

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

## System Time

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



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.



ACPI Settings

This section is used to configure ACPI settings.



Enable Hibernation

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

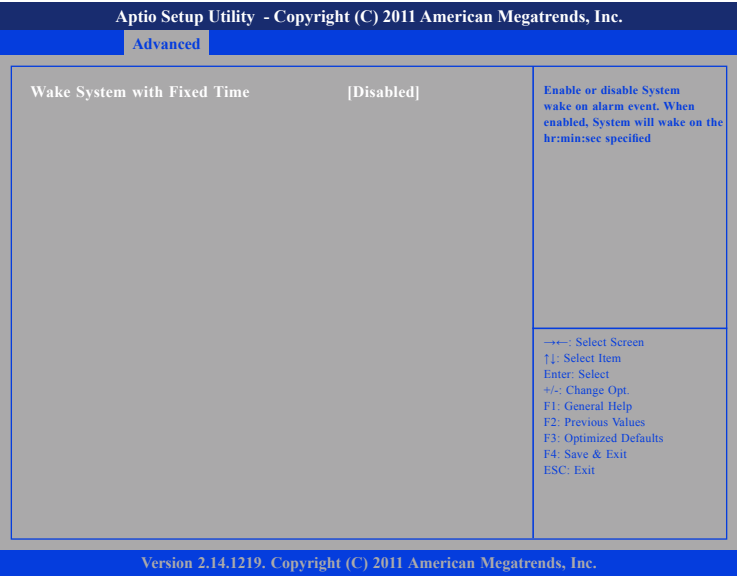
ACPI Sleep State

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



RTC Wake Settings

This section is used to configure RTC Wake settings.



Wake System with Fixed Time

Enables or disables system wake on alarm event. When enabled, system will wake on the hr::min::sec specified.

CPU Configuration

This section is used to configure the CPU.





SATA Configuration

This section is used to configure the SATA drives.



SATA Controller(s)

Enables or disables SATA device.

SATA Mode Selection

Determines how SATA controller(s) operate.

SATA Mode

IDE Mode      This option configures the Serial ATA drives as Parallel ATA storage devices.

AHCI Mode     This option allows the Serial ATA devices to use AHCI (Advanced Host Controller Interface).

Serial ATA Port 0 to Serial ATA Port 3

Displays information on the SATA devices detected.



AMT Configuration

This section is used to configure the AMT function.



Intel AMT

Enables or disables Intel (R) Active Management Technology BIOS Extension. Note: iAMT H/W is always enabled. This option just controls the BIOS extension execution. If enabled, this requires additional firmware in the SPI device.

BIOS Watchdog Timer

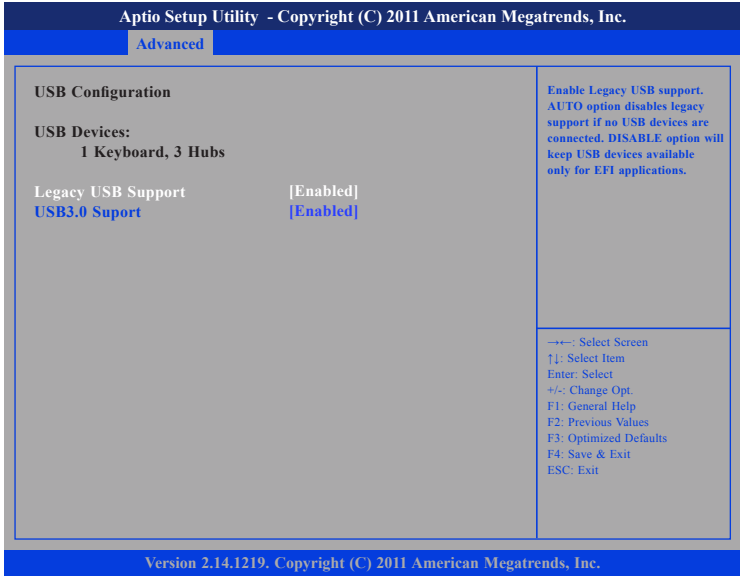
Selects the time interval of the BIOS Watchdog Timer.

MEBx Selection Screen

Enables or disables MEBx selection screen.

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

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 to Serial Port 5 Configuration

Configuration settings for serial port 0 to port 5.

Serial Port 0 Configuration

This section is used to configure serial port 0.



Serial Port

Enables or disables the serial port.

Change Settings

Select an optimal setting for Super IO device.

Onboard Serial Port Max Baud Rate

Change the Serial Port Max Baud Rate.  
Select 115200 bps or 921600 bps.



Serial Port 1 Configuration

This section is used to configure serial port 1.

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Advanced

Serial Port 1 Configuration

Serial Port

[Enabled]

Device Settings

I0=2F8h; IRQ=3;

Change Settings

[I0=2F8h; IRQ=3;]

Onboard Serial Port 1 Mode

[RS232]

Onboard Serial Port Max Baud Rate

[115200    bps]

Enable or Disable Serial Port (COM)

→←: Select Screen

↑↓: Select Item

Enter: Select

+/-: Change Opt.

F1: General Help

F2: Previous Values

F3: Optimized Defaults

F4: Save & Exit

ESC: Exit

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Serial Port

Enables or disables the serial port.

Change Settings

Select an optimal setting for Super IO device.

Onboard Serial Port Max Baud Rate

Change the Serial Port Max Baud Rate. Select 115200 bps or 921600 bps.

Serial Port 2 Configuration

This section is used to configure serial port 2.

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Advanced

Serial Port 2 Configuration

Serial Port

[Enabled]

Device Settings

I0=3E8h; IRQ=10;

Change Settings

[I0=3E8h; IRQ=10;]

Onboard Serial Port Max Baud Rate

[115200    bps]

Enable or Disable Serial Port (COM)

→←: Select Screen

↑↓: Select Item

Enter: Select

+/-: Change Opt.

F1: General Help

F2: Previous Values

F3: Optimized Defaults

F4: Save & Exit

ESC: Exit

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Serial Port

Enables or disables the serial port.

Change Settings

Select an optimal setting for Super IO device.

Onboard Serial Port 2 Mode

Change the Serial Port 2 mode.  
Select RS232 or RS422 or RS485.

Onboard Serial Port Max Baud Rate

Change the Serial Port Max Baud Rate.  
Select 115200 bps or 921600 bps.







Serial Port 3 Configuration

This section is used to configure serial port 3.

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Advanced

Serial Port 3 Configuration

Serial Port

[Enabled]

Device Settings

I0=2E8h; IRQ=11;

Change Settings

[I0=2E8h; IRQ=11;]

Onboard Serial Port Max Baud Rate

[115200    bps]

Enable or Disable Serial Port (COM)

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

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Serial Port

Enables or disables the serial port.

Change Settings

Select an optimal setting for Super IO device.

Onboard Serial Port Max Baud Rate

Change the Serial Port Max Baud Rate. Select 115200 bps or 921600 bps.

Serial Port 4 Configuration

This section is used to configure serial port 4.

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Advanced

Serial Port 4 Configuration

Serial Port

[Enabled]

Device Settings

I0=2F0h; IRQ=6;

Change Settings

[I0=2F0h; IRQ=6;]

Onboard Serial Port Max Baud Rate

[115200    bps]

Enable or Disable Serial Port (COM)

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

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Serial Port

Enables or disables the serial port.

Change Settings

Select an optimal setting for Super IO device.

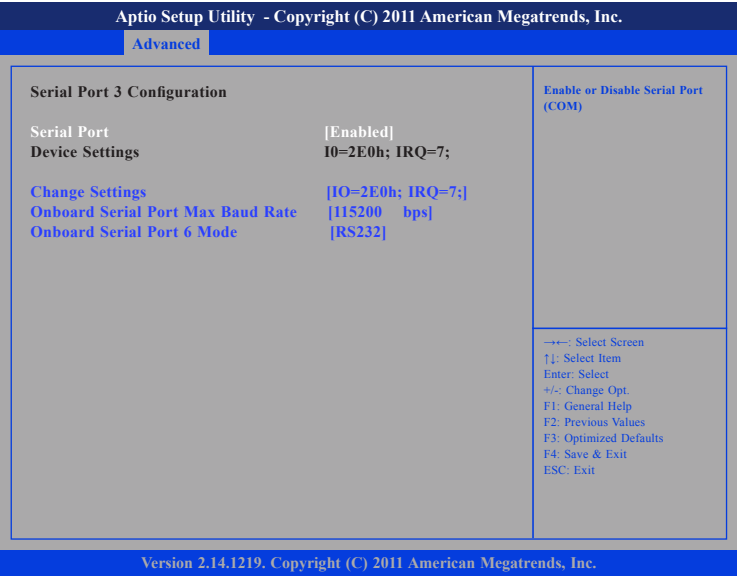
Onboard Serial Port Max Baud Rate

Change the Serial Port Max Baud Rate.  
Select 115200 bps or 921600 bps.



Serial Port 5 Configuration

This section is used to configure serial port 3.



Serial Port

Enables or disables the serial port.

Change Settings

Select an optimal setting for Super IO device.

Onboard Serial Port Max Baud Rate

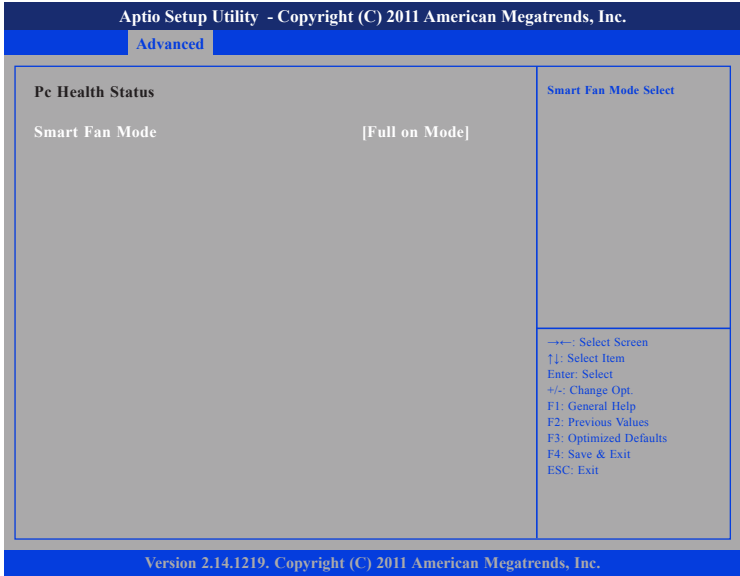
Change the Serial Port Max Baud Rate. Select 115200 bps or 921600 bps.

Onboard Serial Port 6 Mode

Change the Serial Port 6 mode. Select RS232 or GPS mode.

Smart Fan Function

This section is used to configure the fan's function

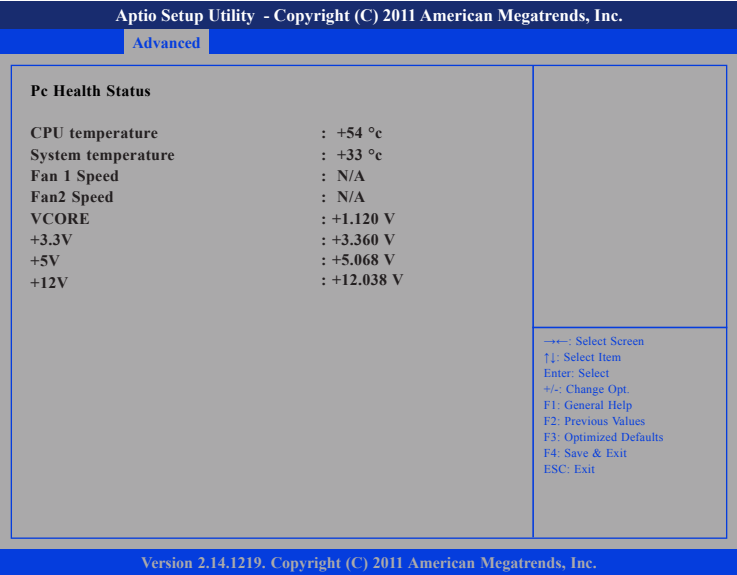


Smart Fan Mode

Selects the mode of the fan, the options are Full on Mode, Automatic Mode and Disable Mode.

Hardware Monitor

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



CPU temperature

Detects and displays the current CPU temperature.

System temperature

Detects and displays the current system temperature.

Fan1 and Fan2 Speed

Detects and displays the current fan1 and fan2 speed.

VCore

Detects and displays the Vcore CPU voltage.

+3.3V

Detects and displays 3.3V voltage.

+5V

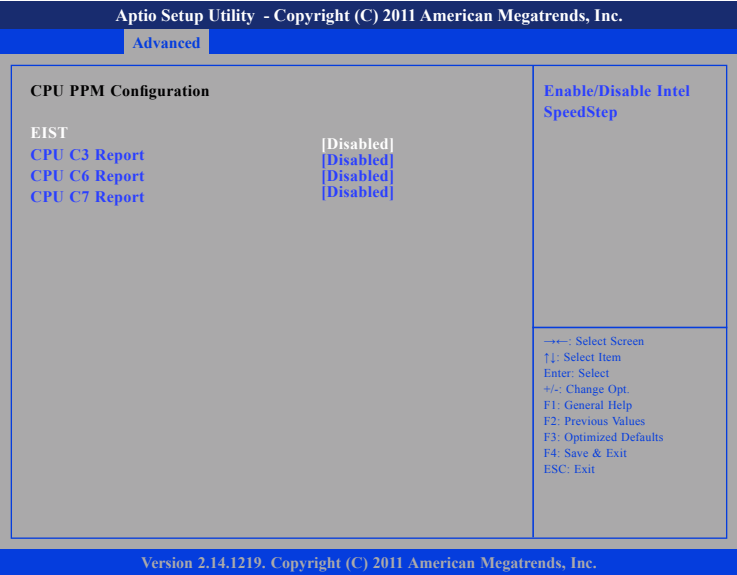
Detects and displays 5V voltage.

+12V

Detects and displays 12V voltage.

CPU PPM Configuration

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



EIST

Enables or disables Intel® SpeedStep.

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.



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

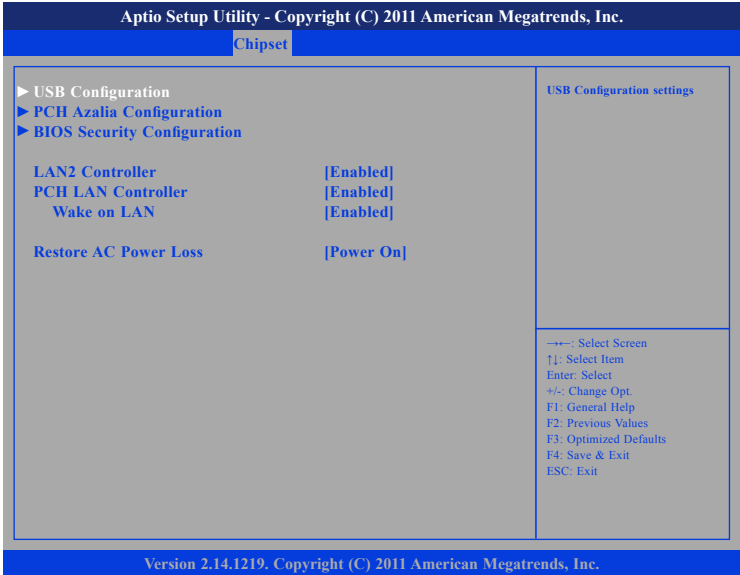
Enters the PCH-IO Configuration submenu.

System Agent (SA) Configuration

System Agent (SA) parameters.

PCH-IO Configuration

This section is used to configure PCH-IO configuration.



LAN2 Controller

Enables or disables the onboard controller for LAN2.

PCH LAN Controller

Enables or disables onboard NIC.

Wake on LAN

Enables or disables integrated LAN to wake the system.

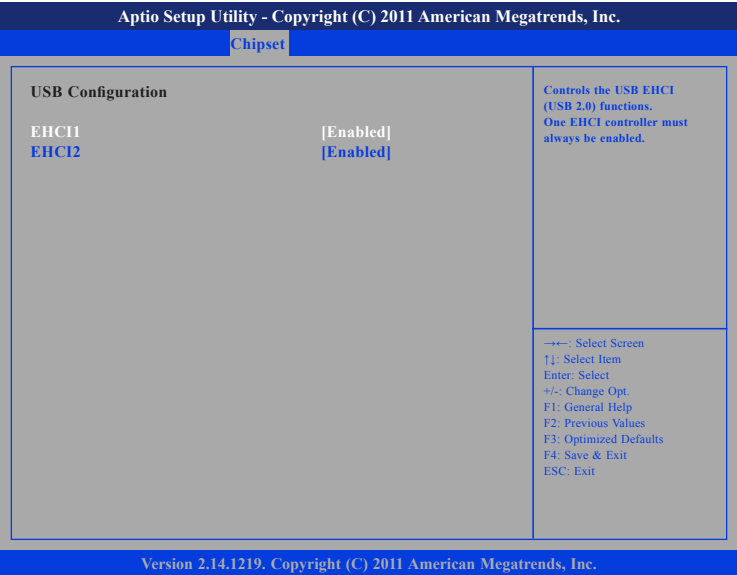
Restore AC Power Loss

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



USB Configuration

This section is used to configure USB devices.



**EHCI**  
Control the USB EHCI (USB 2.0) functions. One EHCI controller must always be enabled.

PCH Azalia Configuration



**Azalia**  
Control detection of the Azalia device.  
Disabled                      Azalia will be unconditionally disabled.  
Enabled                        Azalia will be unconditionally enabled.

BIOS Security Configuration

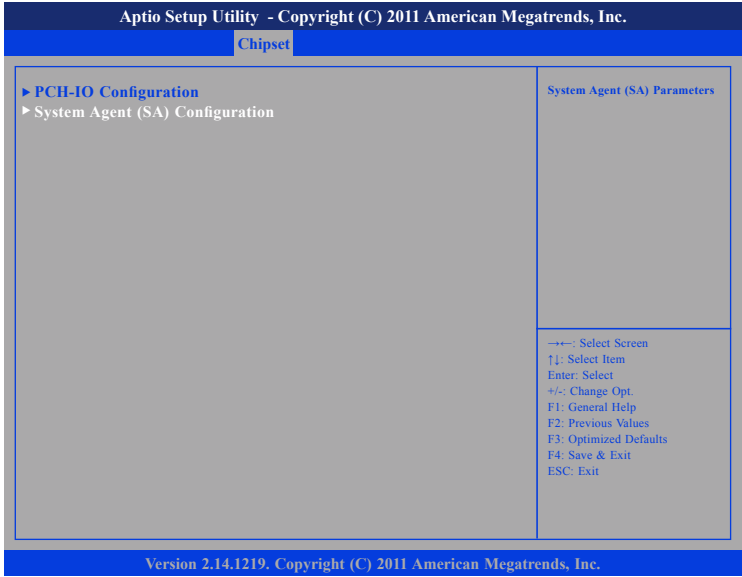


RTC RAM Lock

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

System Agent (SA) Configuration

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



PCH-IO Configuration

Enters the PCH-IO Configuration submenu.

System Agent (SA) Configuration

System Agent (SA) parameters.



Graphics Configuration

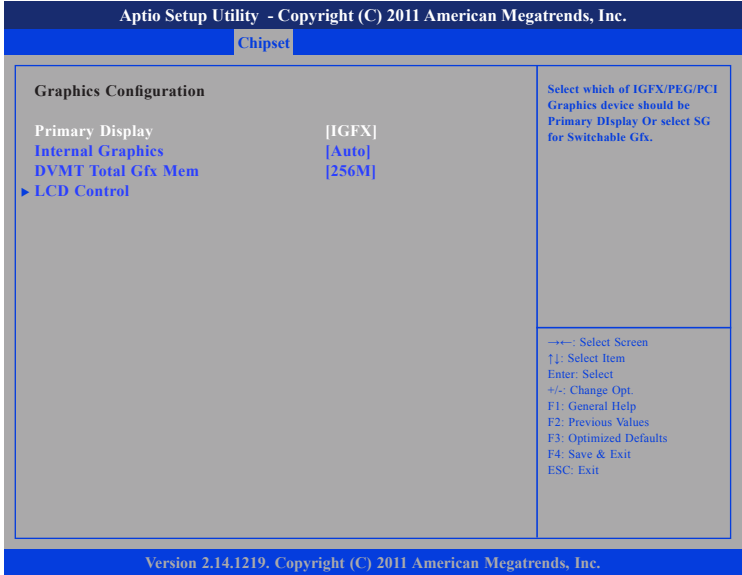


Graphics Configuration

Configures the graphics settings.

NB PCIe Configuration

Configures the NB PCI Express settings.



Primary Display

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

Internal Graphics

Keep IGD enabled based on the setup.

DVMT Total Gfx Mem

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





LCD Control

Select DVM5.0 Total Graphic Memory size used by the Internal Graphics Device. (128M, 256M or MAX)

LCD Control

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Chipset

LCD Control

Primary IGFX Boot Display

Secondary IGFX Boot Display

LCD Panel Type

Active LFP

Panel Color Depth

[CRT]

[Disabled]

[1024x768]

[No LVDS]

[18 Bit]

LVDS]

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

→←: 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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Primary IGFX Boot Display

Select the video device which will be activated during POST. 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

Select the secondary display



LCD Panel Type

Select LCD panel used by Internal Graphics Device by selecting the appropriate setup items.

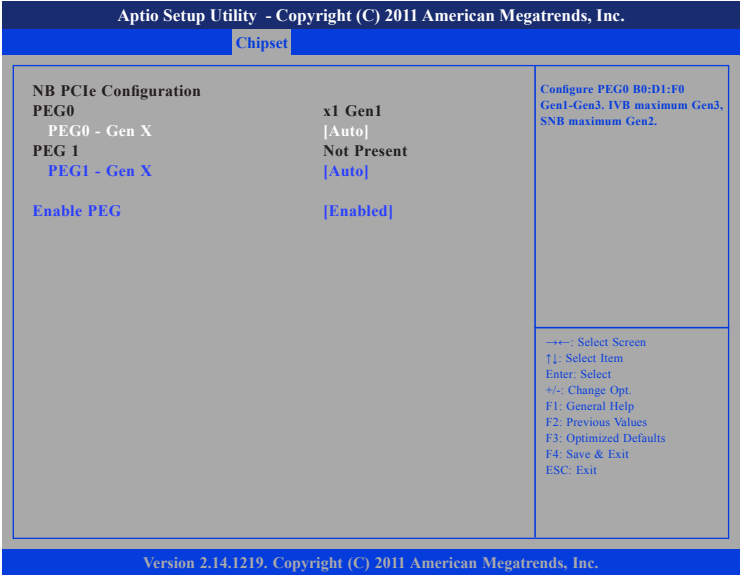
Active LFP

Select the Active LFP Configuration.  
No LCDS: VBIOS does not enable LVDS.  
Int-LVDS: VBIOS enables LVDS driver by Integrated encoder.  
SDVO LVDS: VBIOS enables LVDS driver by SDVO encoder.  
eDP Port-A: LFP Driven by Int-DisplayPort encoder from Port-A.

Panel Color Depth

Select the LFP panel color depth.

NB PCIe Configuration



PEG0 – Gen X

Configure PEG0 B0:D1:F0 Gen1-Gen3

PEG1– Gen X

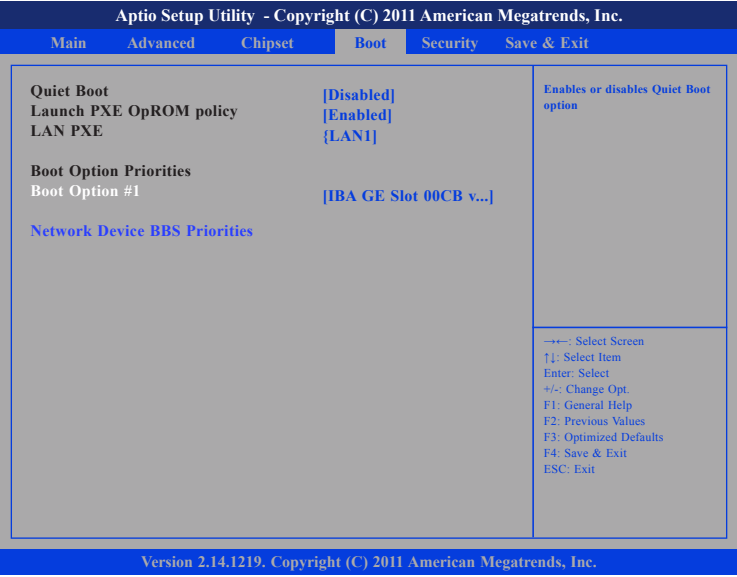
Configure PEG1 B0:D1:F1 Gen1-Gen3

Always Enable PEG

Enables or disables the PEG



Boot



Quiet Boot

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

Launch PXE OpROM Policy

Controls the execution of UEFI and legacy PXE OpROM.

Boot Option #1

Selects the boot sequence of the hard drives.

Security



Administrator Password

Sets the administrator password.

User Password

Sets the user password.



## Save & Exit



### 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 Changes and Reset

To save the changes and reset, select this field then press <Enter>. A dialog box will appear. Confirm by selecting Yes. You can also press <F4> to save and exit Setup.

### Discard Changes and Reset

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





# APPENDIX A: 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 NISE3600C series. The pin definition is shown in the following table:

First Set A00h to 0x06

| Pin No. | GPIO mode | PowerOn Default | Address     | Pin No. | GPIO mode | Address     |
|---------|-----------|-----------------|-------------|---------|-----------|-------------|
| 1       | VCC       | -               | -           | 2       | GND       | -           |
| 3       | GPO0      | Low             | A02h (Bit4) | 4       | GPIO      | A02h (Bit0) |
| 5       | GPO1      | Low             | A02h (Bit5) | 6       | GPIO1     | A02h (Bit1) |
| 7       | GPO2      | Low             | A02h (Bit6) | 8       | GPIO2     | A02h (Bit2) |
| 9       | GPO3      | Low             | A02h (Bit7) | 10      | GPIO3     | A02h (Bit3) |

DIO – GPIO Connector

First Set A00h to 0x00

| Pin No. | GPIO mode | PowerOn Default | Address     |
|---------|-----------|-----------------|-------------|
| LED1    | GPO       | High            | A02h (Bit2) |
| LED2    | GPO       | High            | A02h (Bit1) |

GPIO\_CON – GPO LED

The bit is Set/Clear indicated output High/Low



## APPENDIX B: WATCHDOG PROGRAMMING GUIDE

NISE 3600C features a watchdog timer that resets the CPU or generates an interrupt if the processor stops operating for any reason. This feature ensures system reliability in industrial standalone or unmanned environments.

### NISE3600C Watchdog Programming Guide

```
#define SUPERIO_PORT    0x2E
#define WDT_SET         0xF8
#define WDT_VALUE       0xF9

void main(void)
{
    # Enter SuperIO Configuration
    outportb(SUPERIO_PORT, 0x87);
    outportb(SUPERIO_PORT, 0x87);

    # Set LDN
    outportb(SUPERIO_PORT, 0x07);
    outportb(SUPERIO_PORT+1, 0x08);

    # Set WDT setting
    outportb(SUPERIO_PORT, WDT_SET);
    outportb(SUPERIO_PORT+1, 0x00);    # Use the second
                                       # Use the minute, change value to 0x08

    # Set WDT sec/min
    outportb(SUPERIO_PORT, WDT_VALUE);
    outportb(SUPERIO_PORT+1, 0x05);    # Set 5 seconds
}
```