



NEXCOM International Co., Ltd.

IoT Automation Solutions Business Group

PC-based Factory Automation System

NIFE 300 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 |
| Key Features | 1 |
| Hardware Specifications | 2 |
| Knowing Your NIFE 300 Series | 4 |
| Front View | 4 |
| Top View | 5 |
| Mechanical Dimensions | 6 |

| | |
|--|---|
| NIFE 300 | 6 |
| NIFE 300P2/NIFE 300P2E/NIFE 300E16 | 7 |
| NIFE 300P3 | 8 |

Chapter 2: Jumpers and Connectors

| | |
|--|----|
| Before You Begin | 9 |
| Precautions | 9 |
| Jumper Settings | 10 |
| Locations of the Jumpers and Connectors for NIFB 300 | 11 |
| Top View | 11 |
| Bottom View | 12 |
| Jumpers | 13 |
| AT/ATX Mode Select | 13 |
| CMOS Clear Select | 13 |
| COM3 RI Select | 14 |
| PCH Config Pin Header | 14 |
| PCIe Configuration Settings | 15 |
| Connector Pin Definitions | 16 |
| External I/O Interfaces - Front Panel | 16 |
| 24V DC Power Input | 16 |
| COM 1 Port (RS232/422/485) | 16 |
| COM 2 Port (RS232/422/485) | 17 |
| LAN3 and USB 2.0 Ports | 18 |
| LAN2 and USB 3.0 Ports | 19 |
| LAN1 and USB 3.0 Ports | 20 |
| DVI-D Connector | 21 |



| | |
|--|----|
| HDMI | 21 |
| Audio Connectors | 22 |
| LED Indicators | 22 |
| Internal Connectors | 23 |
| System Fan Connector | 23 |
| LED Pin Header | 23 |
| Debug Port | 24 |
| SMBus | 24 |
| Remote Power On/Off & S3 Connector | 25 |
| COM3 and COM4 Connector | 25 |
| USB 2.0 Connector | 26 |
| Line-in Pin Header | 26 |
| SATA Power Connectors | 27 |
| SATA Connectors | 27 |
| SIM Card Slot | 28 |
| GPIO Pin Header | 28 |
| Reset Connector | 29 |
| Power Connector | 29 |
| Power Button | 30 |
| EDP | 30 |
| CFast | 31 |
| PS2 KB/MS Pin Header | 31 |
| Mini-PCIe Connector (WLAN/GSM) | 32 |
| Mini-PCIe/mSATA Connector | 33 |
| PCIe x16 Slot | 34 |

Chapter 3: System Setup

| | |
|--|----|
| Installing a CPU | 36 |
| Installing a SO-DIMM Memory Module | 41 |
| Installing a SIM Card | 44 |
| Installing a CFast Card | 46 |
| Installing a 3G/GSM Module | 48 |

| | |
|---|----|
| Installing an mSATA Module (NIFE 300 Only) | 51 |
| Installing an mSATA Module (NIFE 300P2/P3/P2E/E16/E3) | 53 |
| Installing an External SATA Hard Drive | 55 |
| Installing an Internal SATA Hard Drive | 57 |
| Installing a PCI or PCIe Card | 59 |
| PCI Volts Configuration on NIFE 300 Riser Cards | 61 |
| Wallmount Mounting | 62 |

Chapter 4: BIOS Setup

| | |
|----------------------------------|----|
| About BIOS Setup | 63 |
| When to Configure the BIOS | 63 |
| Default Configuration | 64 |
| Entering Setup | 64 |
| Legends | 64 |
| BIOS Setup Utility | 66 |
| Main | 66 |
| Advanced | 67 |
| Chipset | 74 |
| Security | 78 |
| Boot | 78 |
| Save & Exit | 79 |

Appendix A: Power Consumption81

Appendix B: Watchdog Programming Guide.....82

Appendix C: GPI/O Programming Guide83

Appendix D: Riser Card 3.3V and 5V Jumper Configuration85

PREFACE

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Acknowledgements

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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.

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.

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.

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. CFast: Turn off the unit's power before inserting or removing a CFast storage card.

Conventions Used in this Manual



Warning:

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



Caution:

Information to avoid damaging components or losing data.



Note:

Provides additional information to complete a task easily.



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

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Package Contents

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

| Item | Part Number | Description | Specification | Qty |
|------|---------------|--|--------------------------------|-----|
| 1 | 4NCPF00310X00 | Terminal Blocks 3P | 3.81mm Female DIP Green | 1 |
| 2 | 4NCPF00316X00 | Terminal Blocks 3P | 5.08mm Female 180D DIP Green | 1 |
| 3 | 50311F0326X00 | Flat Head Screw | F3x5 Nylok NI+Heat Treatment | 8 |
| 4 | 50311F0330X00 | Round Head Screw | P2x3 NI Nylok | 4 |
| 5 | 5060600171X00 | 2.5 HDD Mylar E-LIN | 96.2x70x0.1mm | 1 |
| 6 | 5061500010X00 | HDD Pulling Tab for NISE 4000 | 100x35mm T=0.45mm Silicon | 1 |
| 7 | 6012200052X00 | PE Zipper Bag #8 | 170x240mm, w/China RoHS Symbol | 1 |
| 8 | 6012200053X00 | PE Zipper Bag #3 | 100x70mm, w/China RoHS Symbol | 2 |
| 9 | 60177A0489X00 | NIFE 300 Quick Reference Guide VER:A Size:A4 | Kramer | 1 |
| 10 | 6029900037X00 | DOW Corning 340 Silicone Heat Sink Compound (3g) | | 1 |
| 11 | 602DCD1113X00 | NIFE 300 DVD Driver VER:1.0 | JCL | 1 |

Ordering Information

The following information below provides ordering information for the NIFE 300 series.

- **NIFE 300 system (P/N: 10J70030000X0)**
- **NIFE 300P2 system (P/N: 10J70030001X0)**
- **NIFE 300P2E system (P/N: 10J70030002X0)**
- **NIFE 300P3 system (P/N: 10J70030003X0)**
- **NIFE 300E16 system (P/N: 10J70030004X0)**
- **24V, 120W AC to DC power adapter w/o power cord (P/N: 7400120029X00) For all above systems**
- **24V, 180W AC to DC power adapter w/o power cord (P/N: 7400180008X00) Compatible with NIFE 300E16**

CHAPTER 1: PRODUCT INTRODUCTION

Overview



NIFE 300



NIFE 300P2/P2E/E16



NIFE 300P3

Key Features

- Support 6th generation Intel® Core™ i7/i5/i3 LGA1151 socket type processors
- Intel® Q170 PCH
- 1 x DVI-D, and 1 x HDMI for dual independent display support
- 3 x Intel® GbE LAN ports; support WoL, teaming and PXE
- 4 x USB 3.0, 2 x USB 2.0 and 2 x RS232/422/485 auto
- 1 x front access 2.5" SATA HDD tray
- 2 x Mini-PCIe sockets support optional modules and mSATA device
- 1 x external CFast socket and 1 x SIM card socket
- Support +24VDC input; support ATX power mode
- PCI/PCIe expansions (NIFE 300P2/P2E/E16 and NIFE 300P3 only)

Hardware Specifications

CPU Support

- Support 6th generation Intel® Core™ i7/i5/i3 LGA socket type processors
 - Core™ i7-6700TE, quad core, 3.4GHz, 8M cache
 - Core™ i5-6500TE, quad core, 3.3GHz, 6M cache
 - Core™ i3-6100TE, dual core, 2.7GHz, 4M cache
 - Pentium® G4400TE, dual core, 2.9GHz, 3M cache
 - Celeron® G3900TE, dual core, 2.6GHz, 2M cache

Main Memory

- 2 x DDR4 2133 SO-DIMM sockets, support up to 16GB

Display Option

- Dual independent display
 - HDMI + DVI-D

Front I/O Interface Status LEDs

- 1 x Battery/ 1 x C-Fast LEDs
- 4 x GPO status/ 2 x TX/ RX LEDs
- 1 x Power/ 1 x HDD access LEDs

Front I/O Interface

- 1 x ATX power on/off switch
- 1 x HDMI and 1 x DVI-D
- 4 x USB 3.0 ports (900mA per each)
- 2 x USB 2.0 ports (500mA per each)
- 1 x Line-out and 1 x Mic-in
- 2 x Antenna holes for Wi-Fi/GSM
- 1 x Front access 2.5" HDD tray

- 1 x Mini-PCIe expansion supports optional modules
- 2 x RS232/422/485 auto with 2.5KV Isolation

Top I/O Interface

- 1 x 3-pin remote switch
- 1 x CFast expansion
- 1 x SIM card

Storage Device

- 1 x CFast (SATA 3.0)
- 1 x 2.5" HDD (external, SATA 3.0)
- 1 x 2.5" HDD (internal, SATA 3.0)
- 1 x mSATA (via internal Mini-PCIe socket)

Expansion Slot

- NIFE 300: No expansion
- NIFE 300P2: Two PCI expansion slots
 - Add-on card length: 180mm max
 - Power consumption: 10W/ slot max
- NIFE 300P2E: One PCI expansion slot, and one PCIe x8 expansion slot
 - Add-on card length: 180mm max
 - Power consumption: 10W/ slot max
- NIFE 300P3: Two PCI expansion slots and one PCIe x8 expansion slot
 - Add-on card length: 180mm max
 - Power consumption: 10W/ slot max
- NIFE 300E16: One PCIe x16 expansion slot
 - Add-on card length: 180mm
 - Power consumption: 30W/ slot max

Power Requirements

- AT/ATX power mode (default with ATX power mode)
- Power input: typical +24VDC +/- 20%
- Power adapter: optional AC to DC power adapter (+24Vdc, 120W)

Dimensions

- NIFE 300: 90 mm(W) x 185mm (D) x 251mm (H)
- NIFE 300P2: 155 mm(W) x 185mm (D) x 251mm (H)
- NIFE 300P2E: 155 mm(W) x 185mm (D) x 251mm (H)
- NIFE 300E16: 155 mm(W) x 185mm (D) x 251mm (H)
- NIFE 300P3: 175 mm(W) x 185mm (D) x 251mm (H)

Construction

- Aluminum and metal chassis with front access 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 w/HDD condition:
 - Random: 0.5Grms @ 5~500 Hz, IEC60068-2-64
 - Sinusoidal: 0.5Grms @ 5~500 Hz, IEC60068-2-6

Certifications

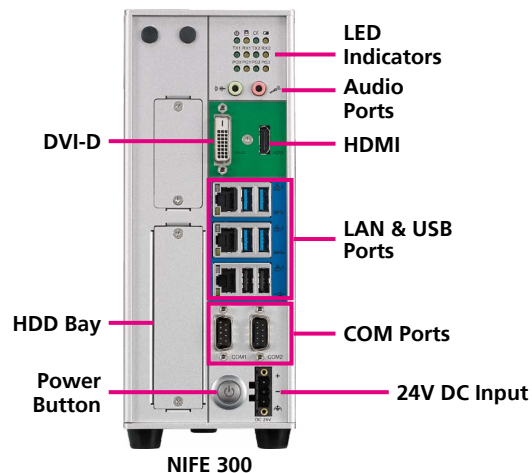
- CE Approval
 - EN61000-4-2
 - EN61000-4-4
- FCC Class A
- LVD

OS Support Lists

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

Knowing Your NIFE 300 Series

Front View



LED Indicators

Indicates the power, hard drive, CFast, battery, COM1/2 and GPO activity of the system.

Audio Ports

Line-out and mic-in ports to connect headphones, speakers or microphones.

DVI-D

Used to connect a digital LCD panel.

HDMI

Used to connect a high-definition display.

LAN Ports

Three LAN ports used to connect the system to a local area network.

USB Ports

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

HDD Bay

A hard drive bay used to install 2.5" HDDs.

COM1 and COM2

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

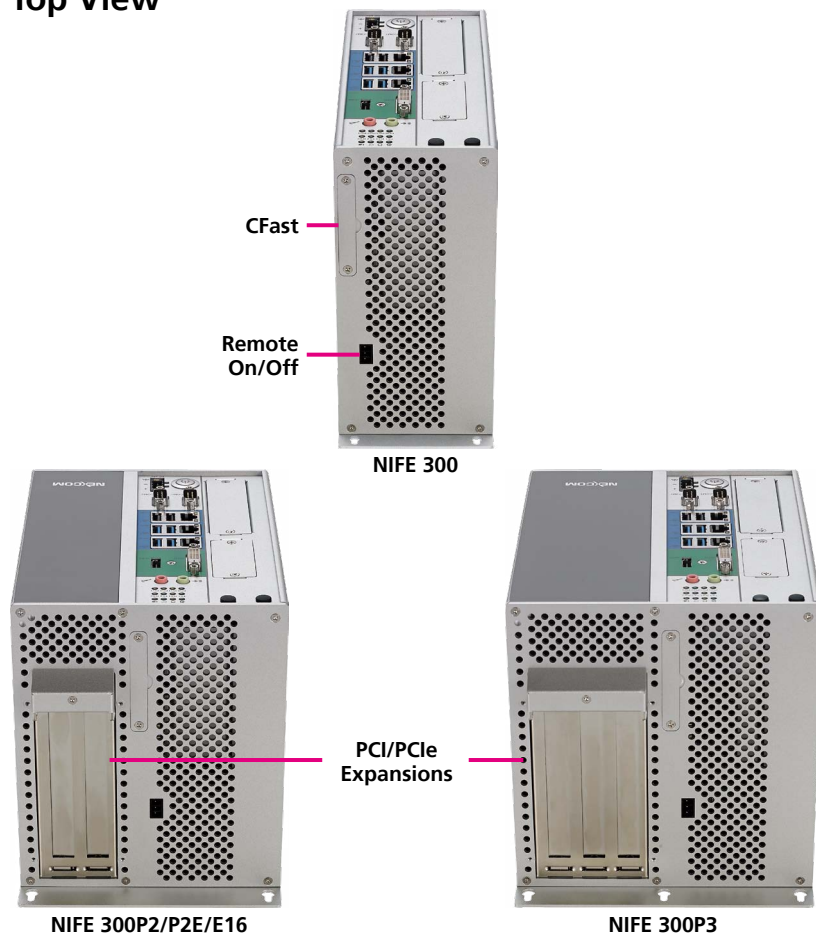
Power Button

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

24V DC Input

Used to plug a DC power cord.

Top View



PCI/PCIe Expansions

PCI/PCIe expansion slots for add-on cards.

NIFE 300: No expansion

NIFE 300P2: Two PCI expansion slots

NIFE 300P2E: One PCI expansion slot and one PCIe x8 expansion slot.

NIFE 300P3: Two PCI expansion slots and one PCIe x8 expansion slot.

NIFE 300E16: One PCIe x16 expansion slot.

Remote On/Off Switch

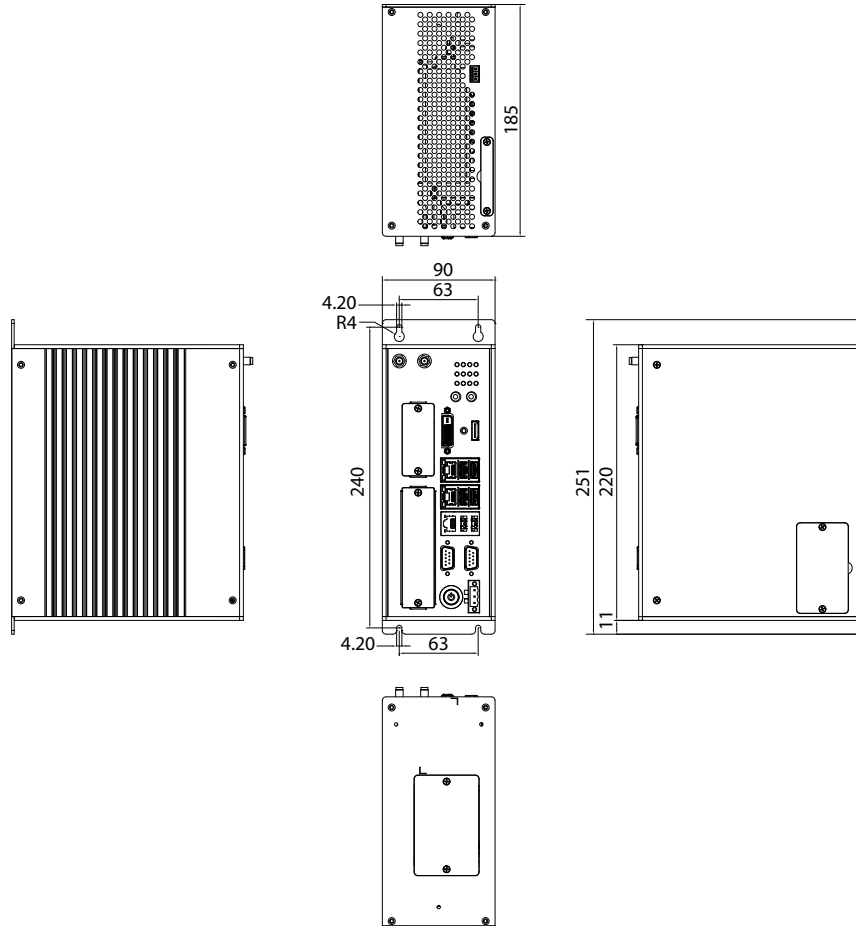
Used to connect a remote to power on/off the system.

CFast Slot

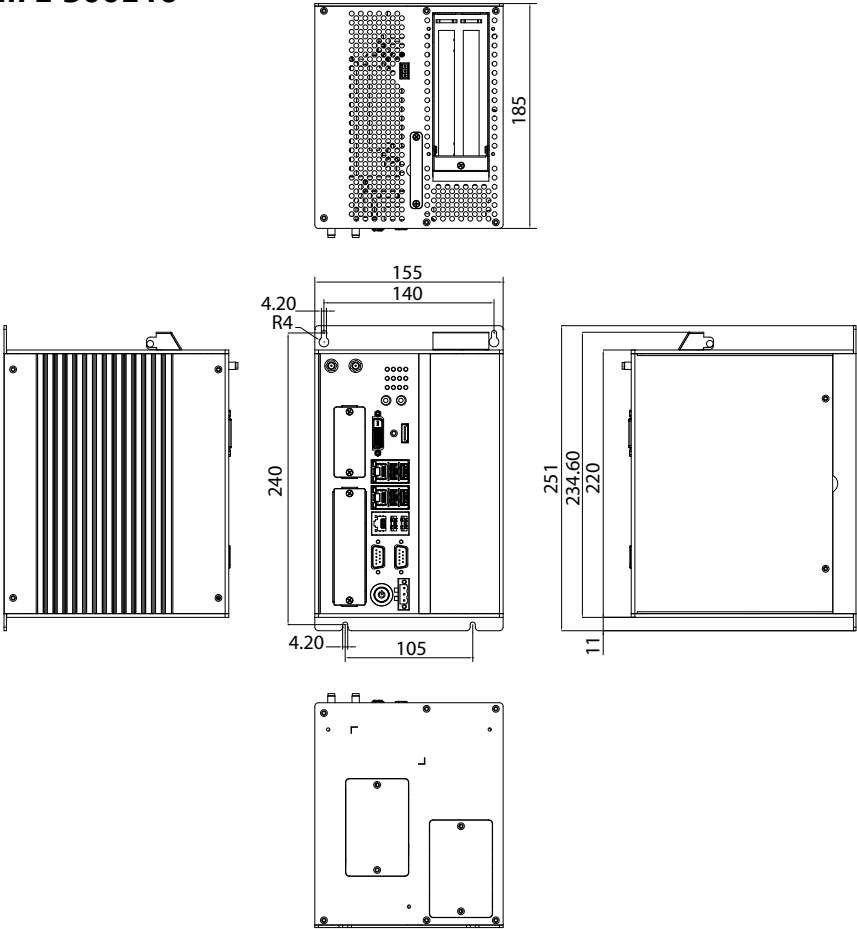
Used to insert a CFast card.

Mechanical Dimensions

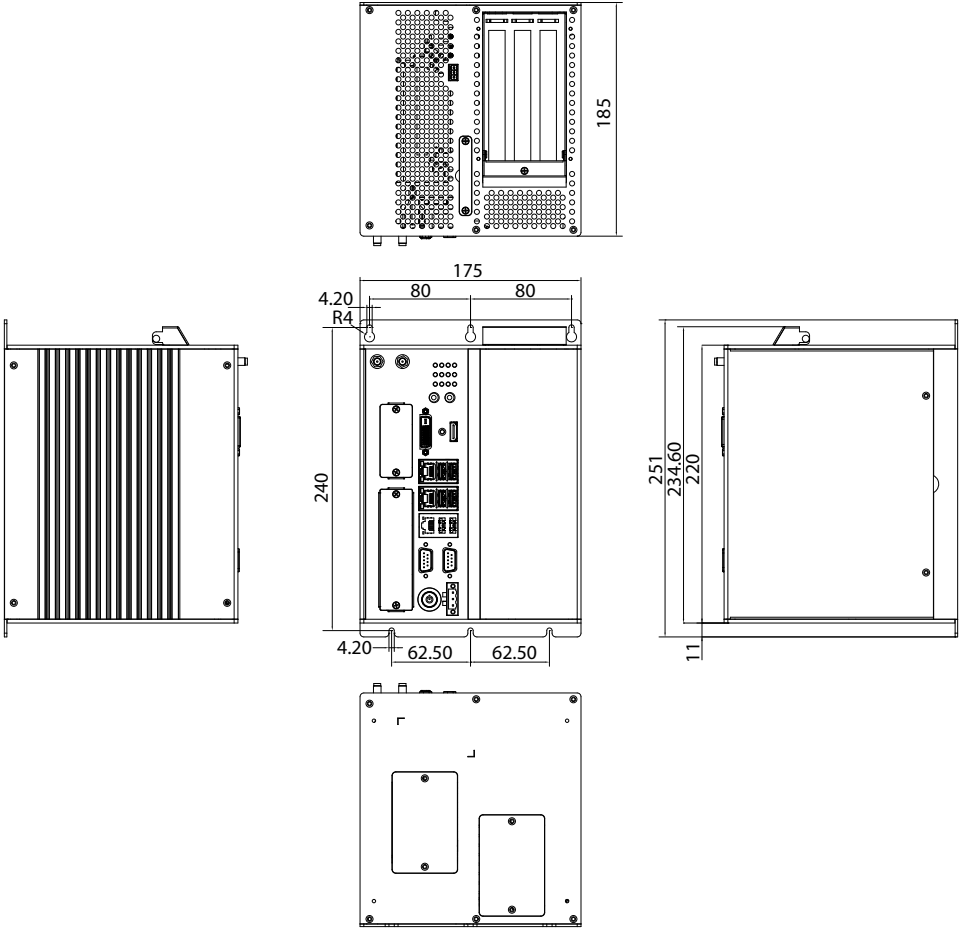
NIFE 300



NIFE 300P2/NIFE 300P2E/NIFE 300E16



NIFE 300P3



CHAPTER 2: JUMPERS AND CONNECTORS

This chapter describes how to set the jumpers and connectors on the NIFE 300 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:

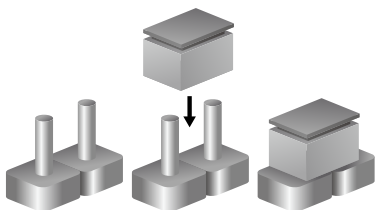
- Always disconnect the unit from the power outlet whenever you are working inside the case.
- If possible, wear a grounded wrist strap when you are working inside the computer case. Alternatively, discharge any static electricity by touching the bare metal chassis of the unit case, or the bare metal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

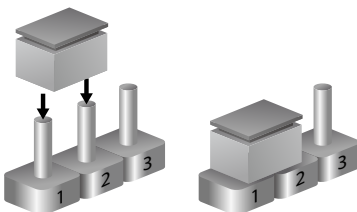
A jumper is the simplest kind of electric switch. It consists of two metal pins and a cap. When setting the jumpers, ensure that the jumper caps are placed on the correct pins. When the jumper cap is placed on both pins, the jumper is short. If you remove the jumper cap, or place the jumper cap on just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



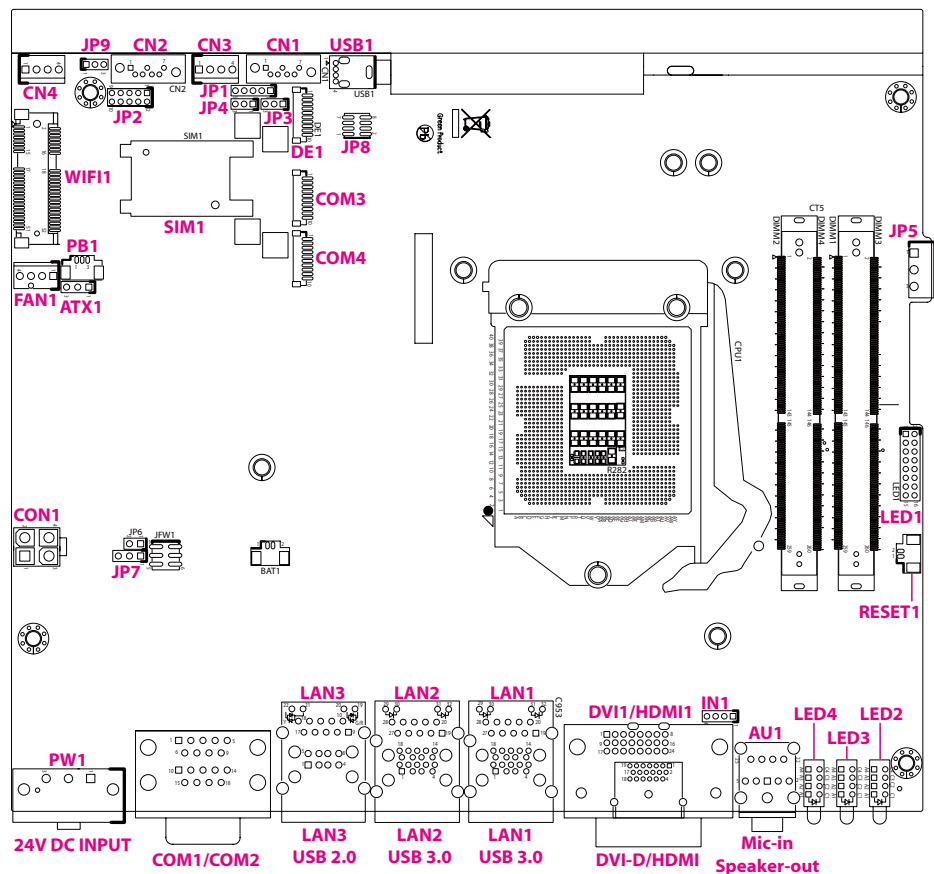
Three-Pin Jumpers: Pins 1 and 2 are Short



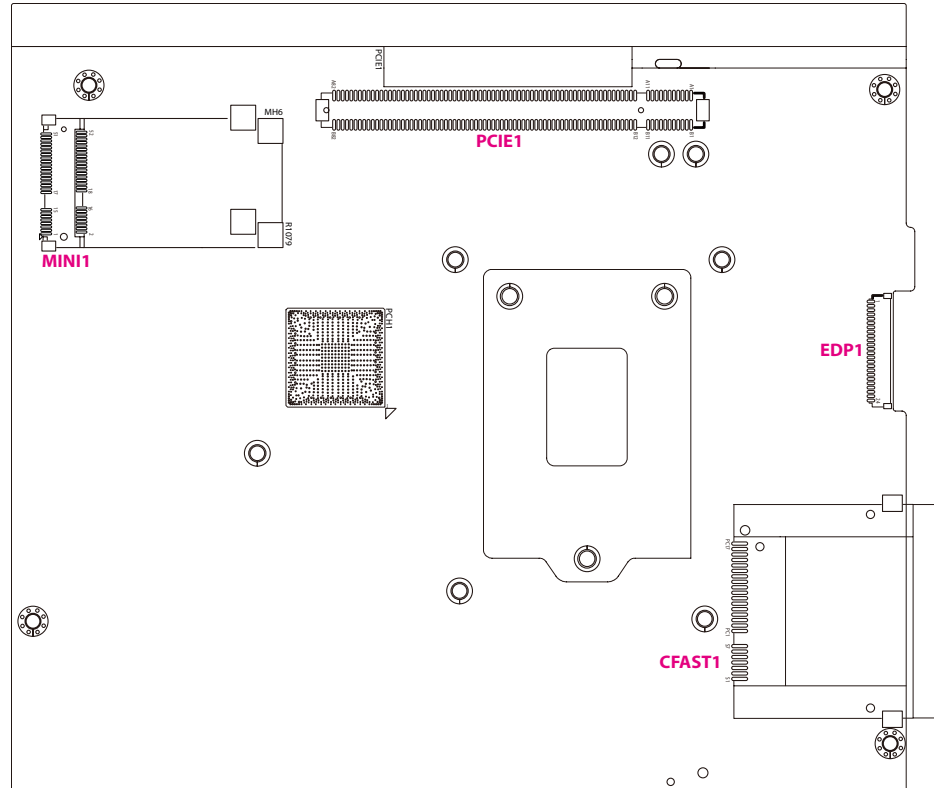
Locations of the Jumpers and Connectors for NIFB 300

The figure below is the top view of the NIFB 300 main board which is the main board used in NIFE 300 series. It shows the locations of the jumpers and connectors.

Top View



Bottom View





Jumpers

AT/ATX Mode Select

Connector type: 1x3 3-pin header
Connector location: ATX1



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

1-2 On: default

CMOS Clear Select

Connector type: 1x3 3-pin header
Connector location: JP7



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

1-2 On: default



COM3 RI Select

Connector type: 1x3 3-pin header
Connector location: JP1



| Pin | Settings |
|--------|----------|
| 1-2 On | VCC5 |
| 2-3 On | VCC12 |
| 4-5 On | RING |

4-5 On: default

PCH Config Pin Header

Connector type: 1x3 3-pin header
Connector location: JP3



| Pin | Settings |
|--------|-----------|
| 1-2 On | NORMAL |
| 2-3 On | CONFIGURE |
| 4-5 On | RECOVERY |

1-2 On: default





PCIe Configuration Settings

Connector type: 1x3 3-pin header
Connector location: JP9



| Pin | Settings |
|--------|-------------------|
| 1-2 On | PCIe x16 |
| 2-3 On | PCIe x8 + PCIe x8 |

1-2 On: default

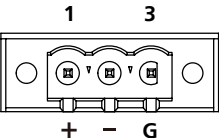


Connector Pin Definitions

External I/O Interfaces - Front Panel

24V DC Power Input

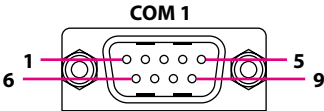
Connector type: Phoenix Contact 1x3 3-pin terminal block
Connector location: PW1



| Pin | Definition | Pin | Definition |
|-----|------------|-----|------------|
| 1 | VIN_1 | 2 | VIN_VSS |
| 3 | PWR_PIN3 | MH1 | NA |
| MH2 | NA | | |

COM 1 Port (RS232/422/485)

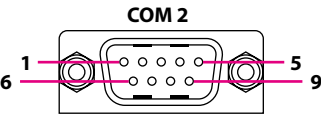
Connector type: DB-9 port, 9-pin D-Sub
Connector location: COM1/COM2



| RS232 | | RS485 | | RS422 | |
|-------|------------|-------|------------|-------|------------|
| Pin | Definition | Pin | Definition | Pin | Definition |
| 1 | SP1_DCD | 1 | SP1_DATA- | 1 | SP1_TX- |
| 2 | SP1_RXD | 2 | SP1_DATA+ | 2 | SP1_TX+ |
| 3 | SP1_TXD | 3 | NC | 3 | SP1_RX+ |
| 4 | SP1_DTR | 4 | NC | 4 | SP1_RX- |
| 5 | GND | 5 | GND | 5 | GND |
| 6 | SP1_DSR | 6 | NC | 6 | SP1_RTS- |
| 7 | SP1_RTS | 7 | NC | 7 | SP1_RTS+ |
| 8 | SP1_CTS | 8 | NC | 8 | SP1_CTS+ |
| 9 | SP1_RI | 9 | NC | 9 | SP1_CTS- |
| MH2 | REAR_GND | MH2 | REAR_GND | MH2 | REAR_GND |
| MH1 | REAR_GND | MH1 | REAR_GND | MH1 | REAR_GND |

COM 2 Port (RS232/422/485)

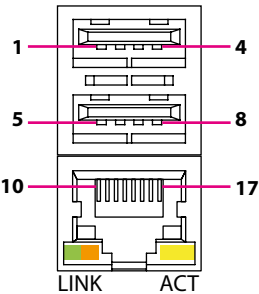
Connector type: DB-9 port, 9-pin D-Sub
Connector location: COM1/COM2



| RS232 | | RS485 | | RS422 | |
|-------|------------|-------|------------|-------|------------|
| Pin | Definition | Pin | Definition | Pin | Definition |
| 1 | SP2_DCD | 1 | SP2_DATA- | 1 | SP2_TX- |
| 2 | SP2_RXD | 2 | SP2_DATA+ | 2 | SP2_TX+ |
| 3 | SP2_TXD | 3 | NC | 3 | SP2_RX+ |
| 4 | SP2_DTR | 4 | NC | 4 | SP2_RX- |
| 5 | GND | 5 | GND | 5 | GND |
| 6 | SP2_DSR | 6 | NC | 6 | SP2_RTS- |
| 7 | SP2_RTS | 7 | NC | 7 | SP2_RTS+ |
| 8 | SP2_CTS | 8 | NC | 8 | SP2_CTS+ |
| 9 | SP2_RI | 9 | NC | 9 | SP2_CTS- |
| MH2 | REAR_GND | MH2 | REAR_GND | MH2 | REAR_GND |
| MH1 | REAR_GND | MH1 | REAR_GND | MH1 | REAR_GND |

LAN3 and USB 2.0 Ports

Connector type: RJ45 port with LEDs and dual USB 2.0 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 | 10Mbps or no link |

USB

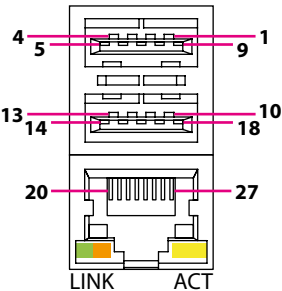
| Pin | Definition | Pin | Definition |
|-----|-------------|-----|------------|
| 1 | P5V_USB_P45 | 2 | USB2N4_C |
| 3 | USB2P4_C | 4 | GND |
| 5 | P5V_USB_P45 | 6 | USB2N5_C |
| 7 | USB2P5_C | 8 | GND |

LAN3

| Pin | Definition | Pin | Definition |
|-----|-------------------|-----|------------|
| 9 | LAN3_VCC | 10 | LAN3_MDI0P |
| 11 | LAN3_MDI0N | 12 | LAN3_MDI1P |
| 13 | LAN3_MDI1N | 14 | LAN3_MDI2P |
| 15 | LAN3_MDI2N | 16 | LAN3_MDI3P |
| 17 | LAN3_MDI3N | 18 | GND |
| 19 | LAN3_LINK100#_LED | 20 | LAN3_LINK |
| 21 | LAN3_ACT#_LED | 22 | LAN3_LED_P |

LAN2 and USB 3.0 Ports

Connector type: RJ45 port with LEDs and dual USB 3.0 ports, Type A
Connector location: LAN2A (USB) and LAN2B (LAN2)



| Act | Status |
|-----------------|---------------|
| Flashing Yellow | Data activity |
| Off | No activity |

| Link | Status |
|---------------|----------------------|
| Steady Green | 1G network link |
| Steady Orange | 100Mbps network link |
| Off | 10Mbps or no link |

USB

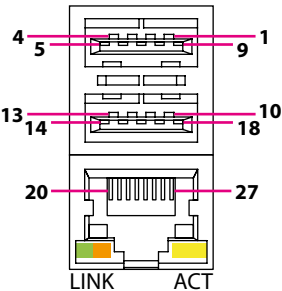
| Pin | Definition | Pin | Definition |
|-----|-------------|-----|-------------|
| 1 | P5V_USB_P01 | 2 | USB2N0_C |
| 3 | USB2P0_C | 4 | GND |
| 5 | USB3RN1_C | 6 | USB3RP1_C |
| 7 | GND | 8 | USB3TN1_C |
| 9 | USB3TP1_C | 10 | P5V_USB_P01 |
| 11 | USB2N1_C | 12 | USB2P1_C |
| 13 | GND | 14 | USB3RN2_C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

LAN2

| Pin | Definition | Pin | Definition |
|-----|-------------------|-----|------------|
| 19 | LAN2_VCC | 20 | LAN2_MDI0P |
| 21 | LAN2_MDI0N | 22 | LAN2_MDI1P |
| 23 | LAN2_MDI1N | 24 | LAN2_MDI2P |
| 25 | LAN2_MDI2N | 26 | LAN2_MDI3P |
| 27 | LAN2_MDI3N | 28 | GND |
| 29 | LAN2_LINK100#_LED | 30 | LAN2_LINK |
| 31 | LAN2_ACT#_LED | 32 | LAN2_ACTPW |

LAN1 and USB 3.0 Ports

Connector type: RJ45 port with LEDs and dual USB 3.0 ports, Type A
Connector location: LAN1A (USB) and LAN1B (LAN1)



| Act | Status |
|-----------------|---------------|
| Flashing Yellow | Data activity |
| Off | No activity |

| Link | Status |
|---------------|----------------------|
| Steady Green | 1G network link |
| Steady Orange | 100Mbps network link |
| Off | 10Mbps or no link |

USB

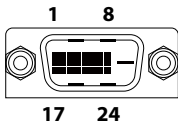
| Pin | Definition | Pin | Definition |
|-----|-------------|-----|-------------|
| 1 | P5V_USB_P01 | 2 | USB2N0_C |
| 3 | USB2P0_C | 4 | GND |
| 5 | USB3RN1_C | 6 | USB3RP1_C |
| 7 | GND | 8 | USB3TN1_C |
| 9 | USB3TP1_C | 10 | P5V_USB_P01 |
| 11 | USB2N1_C | 12 | USB2P1_C |
| 13 | GND | 14 | USB3RN2_C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

LAN1

| Pin | Definition | Pin | Definition |
|-----|-------------------|-----|------------|
| 19 | LAN1_VCC | 20 | LAN1_MDI0P |
| 21 | LAN1_MDI0N | 22 | LAN1_MDI1P |
| 23 | LAN1_MDI1N | 24 | LAN1_MDI2P |
| 25 | LAN1_MDI2N | 26 | LAN1_MDI3P |
| 27 | LAN1_MDI3N | 28 | GND |
| 29 | LAN1_LINK100#_LED | 30 | LAN1_LINK |
| 31 | LAN1_ACT#_LED | 32 | LAN1_ACTPW |

DVI-D Connector

Connector type: 24-pin D-Sub, 2.0mm-M-180 (DVI)
Connector location: DVI1



| 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 |
| MH1 | Chassis_GND | MH2 | Chassis_GND |
| MH3 | Chassis_GND | MH4 | Chassis_GND |

HDMI

Connector type: HDMI port
Connector location: HDMI1

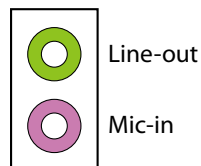


| Pin | Definition | Pin | Definition |
|-----|----------------|-----|----------------|
| 1 | HDMI_DATA2_P_C | 2 | GND |
| 3 | HDMI_DATA2_N_C | 4 | HDMI_DATA1_P_C |
| 5 | GND | 6 | HDMI_DATA1_N_C |
| 7 | HDMI_DATA0_P_C | 8 | GND |
| 9 | HDMI_DATA0_N_C | 10 | HDMI_CLK_P_C |
| 11 | GND | 12 | HDMI_CLK_N_C |
| 13 | NA | 14 | NA |
| 15 | HDMI_CLK | 16 | HDMI_DAT |
| 17 | GND | 18 | HDMI_PWR_C |
| 19 | HDMI_HPD_C | | |
| MH1 | Chassis_GND | MH1 | Chassis_GND |

Audio Connectors

Connector type: 2x 3.5mm TRS

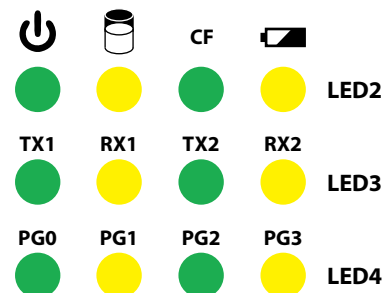
Connector location: AU1



| 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 |

LED Indicators

Connector location: LED2, LED3 and LED4

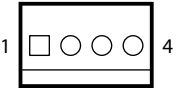


| | Pin | Definition | Pin | Definition |
|------|-----|---------------|-----|-------------|
| LED2 | A1 | BAT_LOW | C1 | GND |
| | A2 | CFAST_DET_P | C2 | CFAST_DET |
| | A3 | SATALED#_P | C3 | SATALED# |
| | A4 | PWR_LED_P | C4 | PWR_LED_N |
| LED3 | A1 | RX2_P | C1 | COM2_RXLEDN |
| | A2 | TX2_P | C2 | COM2_TXLEDN |
| | A3 | RX1_P | C3 | COM1_RXLEDN |
| | A4 | TX1_P | C4 | COM1_TXLEDN |
| LED4 | A1 | SIO_GP36_64_P | C1 | SIO_GP36_64 |
| | A2 | SIO_GP37_65_P | C2 | SIO_GP37_65 |
| | A3 | SIO_GP15_66_P | C3 | SIO_GP15_66 |
| | A4 | SIO_GP16_67_P | C4 | SIO_GP16_67 |

Internal Connectors

System Fan Connector

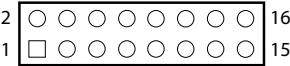
Connector type: 1x4 4-pin Wafer, 2.54mm pitch
Connector location: FAN1



| Pin | Definition | Pin | Definition |
|-----|------------|-----|------------|
| 1 | GND | 2 | VCC12 |
| 3 | FAN TAC | 4 | FAN CTL |

LED Pin Header

Connector type: 2x8 16-pin header, 2.0mm pitch
Connector location: LED1



| Pin | Definition | Pin | Definition |
|-----|------------|-----|----------------|
| 1 | PWR_LED_P | 2 | PWR_LED_N |
| 3 | SATALED#_P | 4 | SATALED# |
| 5 | VCC3 | 6 | LAN1_LED_LINK# |
| 7 | VCC3 | 8 | LAN2_LED_LINK# |
| 9 | VCC3 | 10 | LAN3_LED_LINK# |
| 11 | VCC3 | 12 | LAN1_ACT#_LED |
| 13 | VCC3 | 14 | LAN2_ACT#_LED |
| 15 | VCC3 | 16 | LAN3_ACT#_LED |

Debug Port

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, 2.0mm pitch
Connector location: JP4

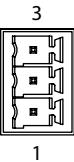


| Pin | Definition |
|-----|------------|
| 1 | SMB_CLK |
| 2 | SMB_DAT |
| 3 | GND |



Remote Power On/Off & S3 Connector

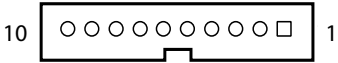
Connector type: 3-pin terminal block connector, 3.81mm pitch
Connector location: JP5



| Pin | Definition |
|-----|------------|
| 1 | PWRBTN#_J |
| 2 | GND |
| 3 | SLP_S3#_C |

COM3 and COM4 Connector

Connector type: 1x10 10-pin header
Connector location: COM3 and COM4



| 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 |

USB 2.0 Connector

Connector type: USB port
Connector location: USB1



| Pin | Definition | Pin | Definition |
|-----|------------|-----|------------|
| 1 | P5V_USB_P8 | 2 | USB2N8_C |
| 3 | USB2P8_C | 4 | GND |
| MH1 | GND | MH2 | GND |
| MH3 | GND | | |

Line-in Pin Header

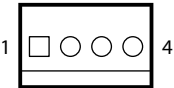
Connector type: 1x4 4-pin header, 2.0mm pitch
Connector location: IN1



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

SATA Power Connectors

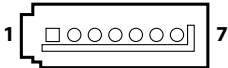
Connector type: 1x4 4-pin Wafer, 2.54mm pitch
Connector location: CN3 and CN4



| Pin | Definition | Pin | Definition |
|-----|------------|-----|------------|
| 1 | VCC12 | 2 | GND |
| 3 | GND | 4 | VCC5 |

SATA Connectors

Connector type: Standard Serial ATA 7P (1.27mm, SATA-M-180)
Connector location: CN1 and CN2



CN1

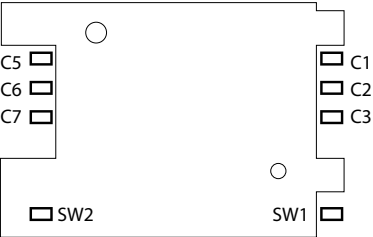
| Pin | Definition | Pin | Definition |
|-----|-------------|-----|-------------|
| 1 | GND | 2 | SATA_TXP0_C |
| 3 | SATA_TXN0_C | 4 | GND |
| 5 | SATA_RXN0_C | 6 | SATA_RXP0_C |
| 7 | GND | | |

CN2

| 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 | | |

SIM Card Slot

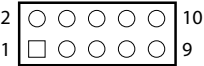
Connector location: SIM1



| Pin | Definition | Pin | Definition |
|-----|------------|-----|------------|
| C 1 | UIM_PWR | C 2 | UIM_RESET |
| C 3 | UIM_CLK | C 5 | GND |
| C 6 | UIM_VPP | C 7 | UIM_DATA |
| SW1 | GND | SW2 | GND |

GPIO Pin Header

Connector type: 2x5 10-pin header, 2.0mm pitch
Connector location: JP2

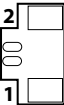


| Pin | Definition | Pin | Definition |
|-----|------------|-----|------------|
| 1 | GPIO_PWR | 2 | GND |
| 3 | GPIO80 | 4 | GPIO84 |
| 5 | GPIO81 | 6 | GPIO85 |
| 7 | GPIO82 | 8 | GPIO86 |
| 9 | GPIO83 | 10 | GPIO87 |



Reset Connector

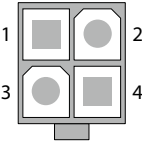
Connector type: 1x2 2-pin header, 1.25mm pitch
Connector location: RESET1



| Pin | Definition |
|-----|-------------|
| 1 | PM_RESET#_J |
| 2 | GND |

Power Connector

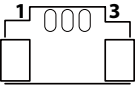
Connector type: 2x2 4-pin header
Connector location: CON1



| Pin | Definition | Pin | Definition |
|-----|------------|-----|------------|
| 1 | GND | 2 | GND |
| 3 | VIN_3 | 4 | VIN_3 |

Power Button

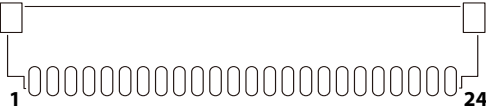
Connector type: 1x3 3-pin header
Connector location: PB1



| Pin | Definition |
|-----|------------|
| 1 | PWRBTN#_C |
| 2 | GND |
| 3 | PB_POWER |

EDP

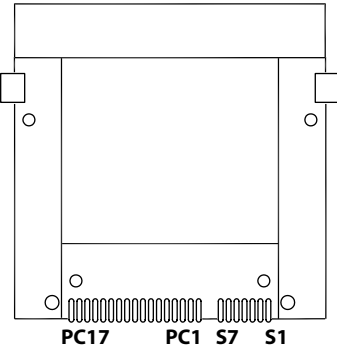
Connector type: 1x24 24-pin header, 1.0mm pitch
Connector location: EDP1



| Pin | Definition | Pin | Definition |
|-----|------------|-----|---------------|
| 1 | GND | 2 | GND |
| 3 | GND | 4 | EDP_DISP_UTIL |
| 5 | EDP_HPD | 6 | EDP_BKLTEN |
| 7 | EDP_VDDEN | 8 | EDP_BKLTCTL |
| 9 | EDP_AUXN | 10 | EDP_AUXP |
| 11 | EDP_TXN3 | 12 | EDP_TXP3 |
| 13 | EDP_TXN2 | 14 | EDP_TXP2 |
| 15 | EDP_TXN1 | 16 | EDP_TXP1 |
| 17 | EDP_TXN0 | 18 | EDP_TXP0 |
| 19 | GND | 20 | VCC12 |
| 21 | VCC12 | 22 | VCC12 |
| 23 | VCC3 | 24 | VCC3 |
| MH1 | GND | MH2 | GND |

CFast

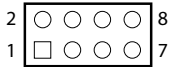
Connector type: CFAST Socket
Connector location: CFAST1



| Pin | Definition | Pin | Definition |
|-----|------------|------|--------------|
| S1 | GND | PC6 | NA |
| S2 | SATA_TP2_C | PC7 | GND |
| S3 | SATA_TN2_C | PC8 | CFAST_LED1_C |
| S4 | GND | PC9 | CFAST_LED2_C |
| S5 | SATA_RN2_C | PC10 | NA |
| S6 | SATA_RP2_C | PC11 | NA |
| S7 | GND | PC12 | NA |
| PC1 | CFAST_CDI | PC13 | VCC3 |
| PC2 | GND | PC14 | VCC3 |
| PC3 | NA | PC15 | GND |
| PC4 | NA | PC16 | GND |
| PC5 | NA | PC17 | CFAST_CDO_C |

PS2 KB/MS Pin Header

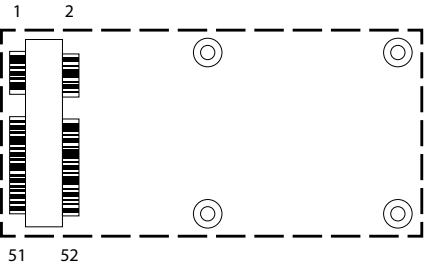
Connector type: 2x4 8-pin header, 1.27mm pitch
Connector location: JP8



| Pin | Definition | Pin | Definition |
|-----|------------|-----|------------|
| 1 | 5VSB_PS2 | 2 | 5VSB_PS2 |
| 3 | KDAT | 4 | MDAT |
| 5 | KCLK | 6 | MCLK |
| 7 | GND | 8 | GND |

Mini-PCle Connector (WLAN/GSM)

Connector location: WIFI1

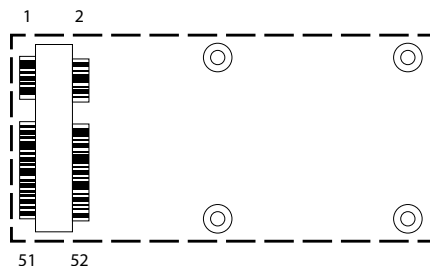


| Pin | Definition | Pin | Definition |
|-----|------------------|-----|---------------|
| 1 | WAKE_N | 2 | 3VSB_MINI1 |
| 3 | NC | 4 | GND |
| 5 | NC | 6 | 1V5_MINI1 |
| 7 | MINICARD1CLKREQ# | 8 | UIM_PWR |
| 9 | GND | 10 | UIM_DATA |
| 11 | CLK_WIFI_N_C | 12 | UIM_CLK |
| 13 | CLK_WIFI_P_C | 14 | UIM_RESET |
| 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 | USB2N6_C |
| 37 | GND | 38 | USB2P6_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 |

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_MINIPCIE2 |
| 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 | USB2N7_C |
| 37 | GND | 38 | USB2P7_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 |

PCIe x16 Slot

Connector type: PCIe x16 Slot

Connector location: PCIE1



| Pin | Definition | Pin | Definition |
|-----|--------------|-----|---------------|
| A1 | PCIE_PRSENT1 | B1 | VCC12 |
| A2 | VCC12 | B2 | VCC12 |
| A3 | VCC12 | B3 | VCC12 |
| A4 | GND | B4 | GND |
| A5 | PCIEX16_TCK | B5 | PCIEX16_SMCLK |
| A6 | PCIEX16_TDI | B6 | PCIEX16_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 | PRSENT2#_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

Installing a CPU

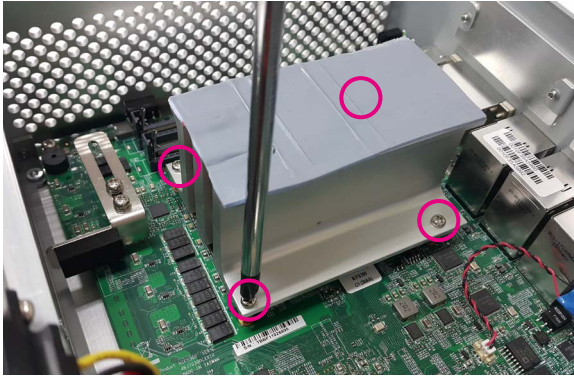
1. Remove the 4 flat screws on the top cover.



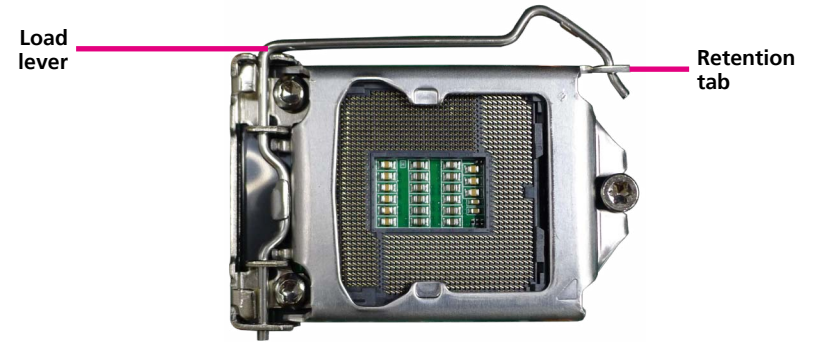
2. Lift up the cover and remove it from the chassis.



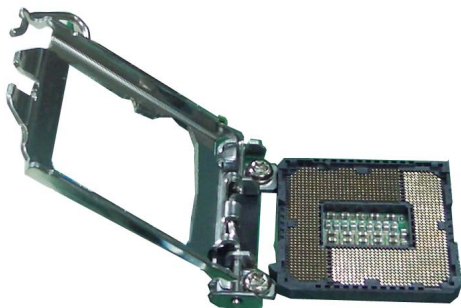
3. Remove the mounting screws that secure the heat sink to the chassis.



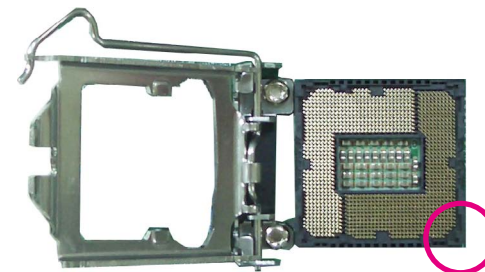
4. The CPU socket is readily accessible after you have removed the heat sink.



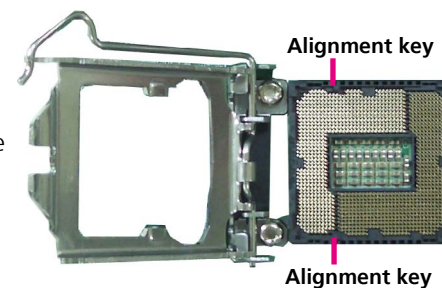
5. Unlock the socket by pushing the load lever down, moving it sideways until it is released from the retention tab; then lift the load lever up.



6. 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.



- 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.

7. Close the load plate and then hook the load lever under the retention tab.

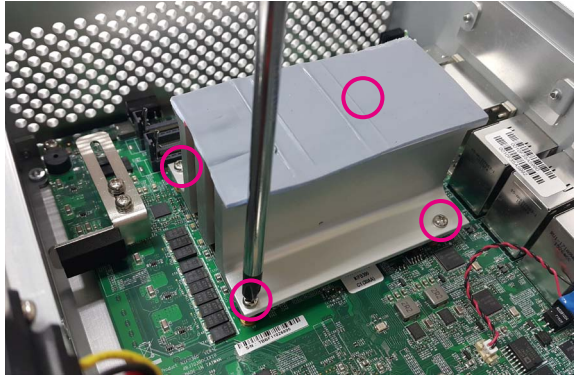


8. Apply thermal paste on top of the CPU.



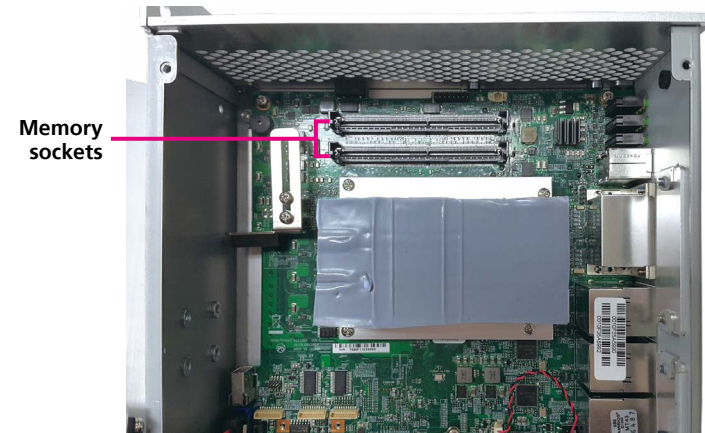
Do not force the CPU into the socket. Forcing the CPU into the socket may bend the pins and damage the CPU.

9. Tighten the screws to secure the heat sink in place.

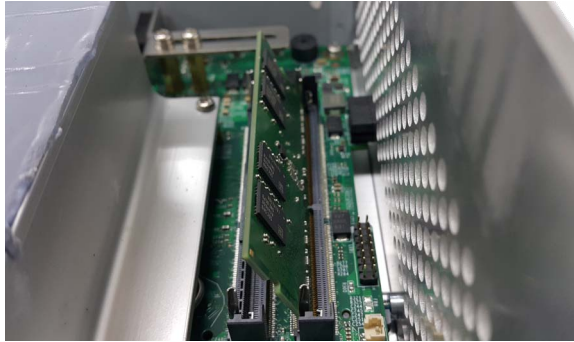


Installing a SO-DIMM Memory Module

1. Remove the chassis before installing a SO-DIMM module.
2. Locate the SO-DIMM memory sockets.



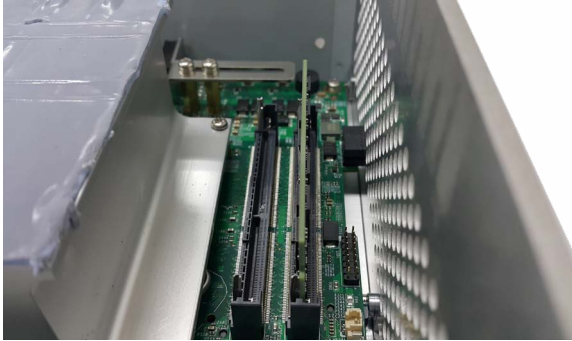
3. Insert the memory module into the socket.



4. Apply even pressure to both ends of the module until it is locked by the latches.



5. Ensure the memory module is installed straight.

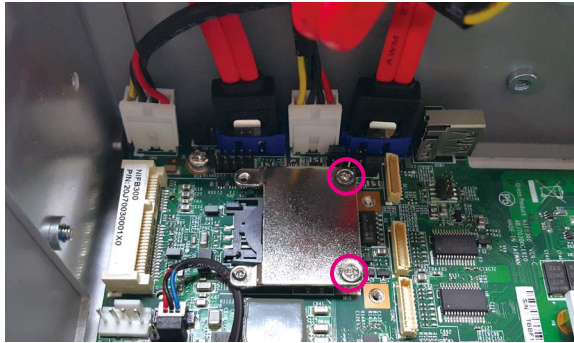


6. Insert another SO-DIMM module into the socket and apply even pressure to both ends of the module until it is locked by the latches.

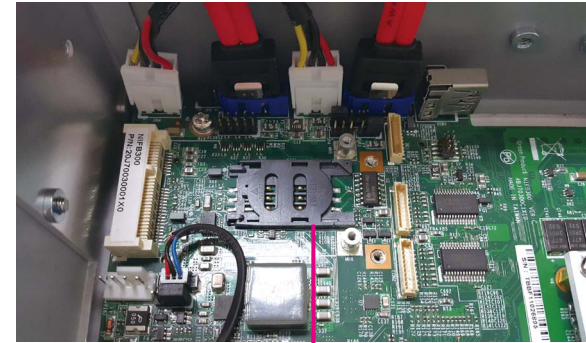


Installing a SIM Card

1. Locate the mini-PCle slot and remove the bracket first.

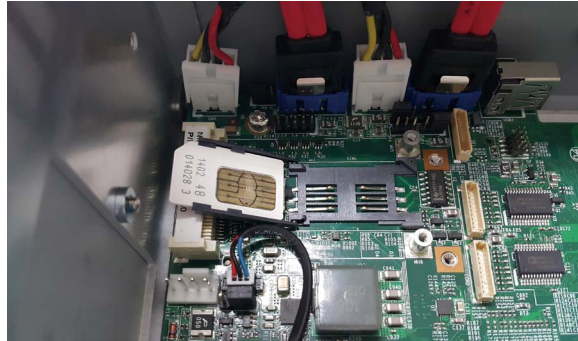


2. Locate the SIM card holder.

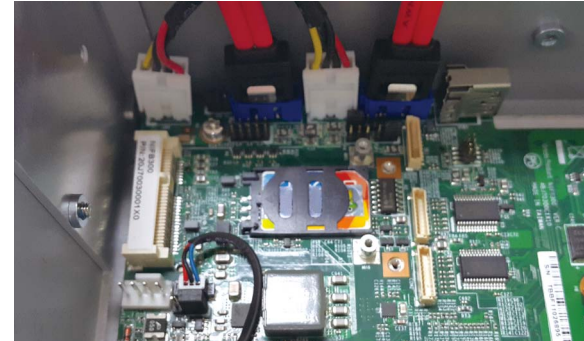


SIM card
holder

3. Release the SIM card cover and place the SIM card into the holder.



4. Close the cover and secure the SIM card into position.



Installing a CFast Card

1. Locate the CFast socket on the top cover.



2. Remove the cover of the CFast socket.



3. Insert the CFast card into the socket.

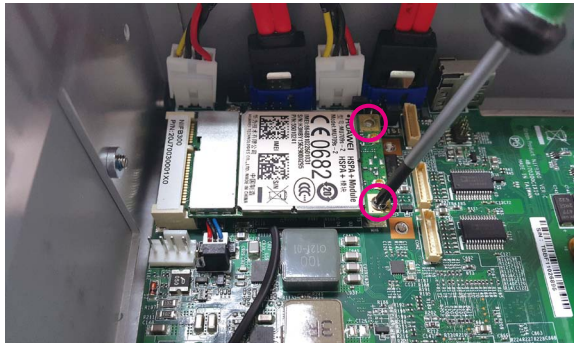


4. Ensure the CFast card is installed and engaged firmly with a click sound.

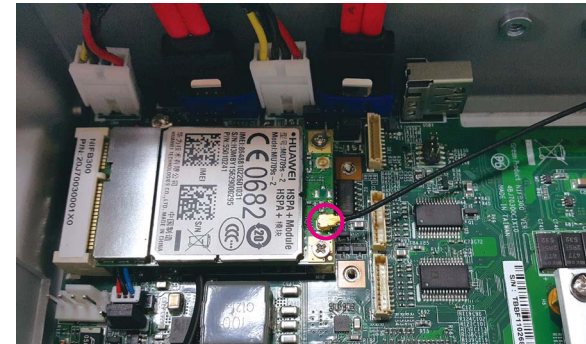


Installing a 3G/GSM Module

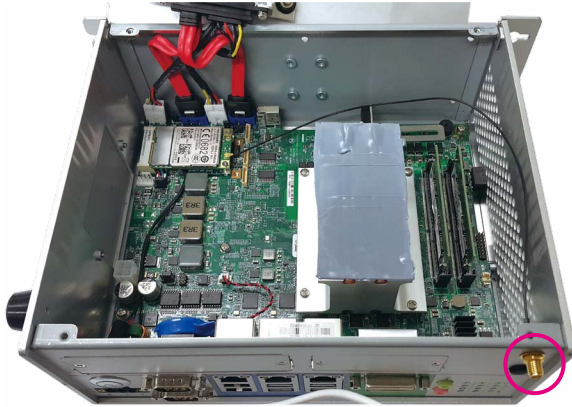
1. Install the 3G/GSM module into the 3G/GSM slot.



2. Fix the antenna cable to the 3G/GSM module.



3. Locate the antenna hole on the front panel, and insert the antenna jack through the hole.



4. Fix the antenna jack with rings.



5. Install the antenna.

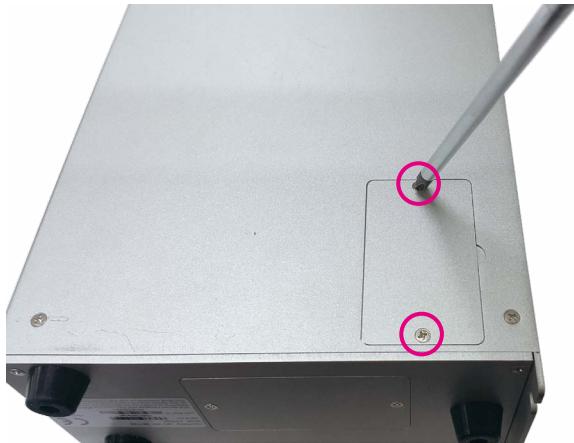


Installing an mSATA Module (NIFE 300 Only)

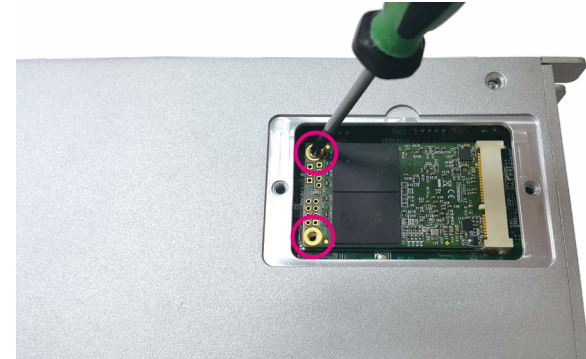


The following instructions apply to NIFE 300 only.

1. Remove the mini-PCIe cover on the side panel.



2. Locate the mini-PCIe socket, then install and fix the mSATA module into the socket.



3. Ensure both screws are fixed tightly to the socket.

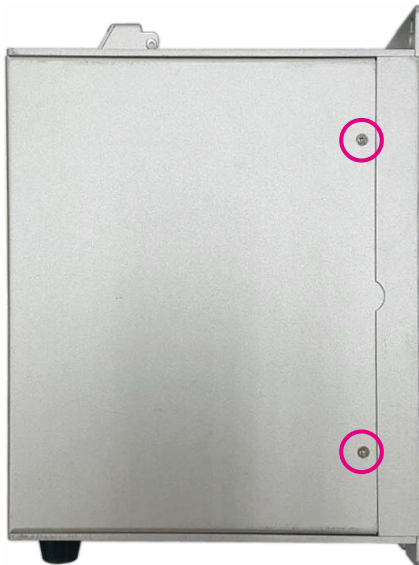


Installing an mSATA Module (NIFE 300P2/P3/P2E/E16/E3)

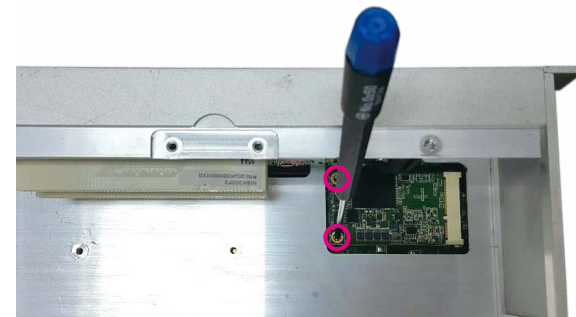


The following instructions apply to NIFE 300P2/P2E/E16/P3/E3.

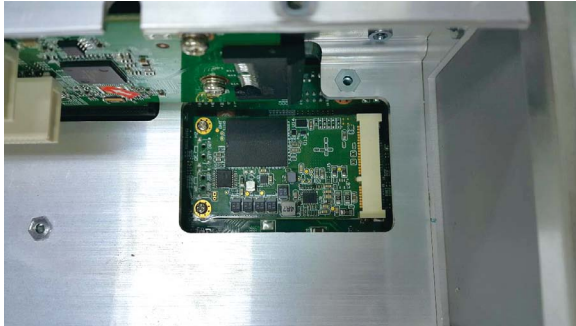
1. Remove the side panel.



2. Locate the mini-PCIe socket, then install and fix the mSATA module into the socket.

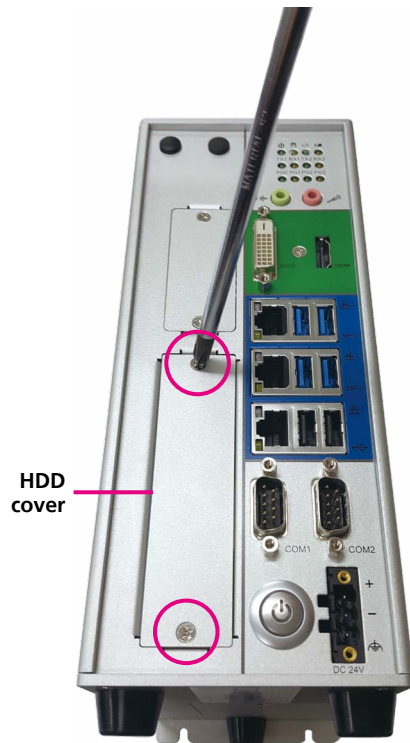


3. Ensure both screws are fixed tightly to the socket.



Installing an External SATA Hard Drive

1. Remove the external HDD cover.
2. Pull out the HDD bracket and place the HDD into the bracket.



3. Fix the HDD onto the HDD bracket from the bottom side using screws.



4. Install the HDD bracket into the external HDD drive bay, and secure the external HDD cover back to the drive bay.

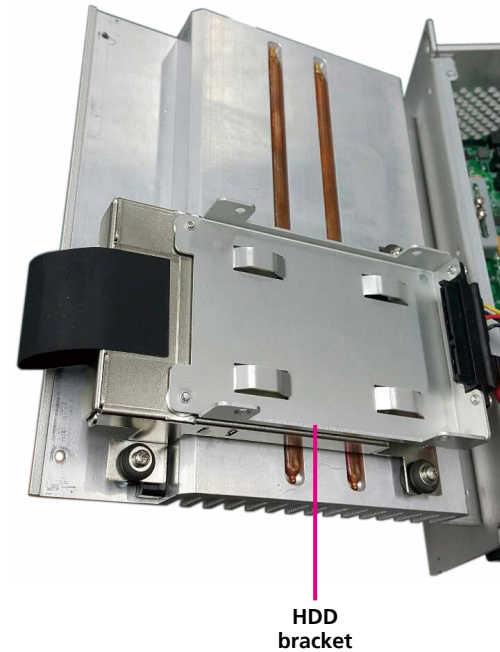


Installing an Internal SATA Hard Drive

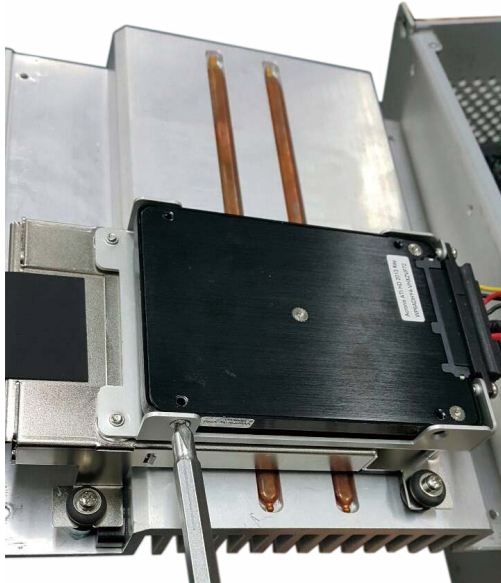
1. Remove the chassis cover.



2. Locate the internal HDD bracket.



3. Install and fix the HDD to the internal HDD bracket.

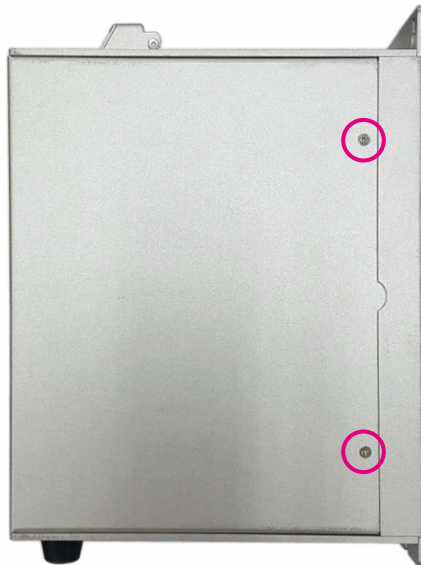


Installing a PCI or PCIe Card

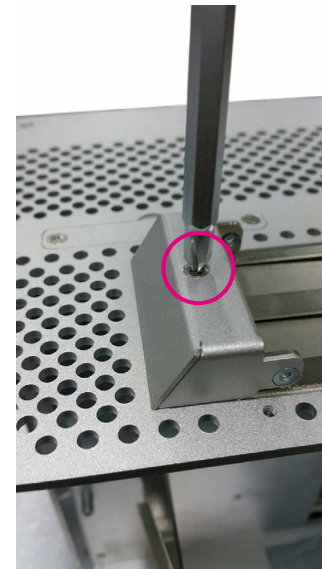


The following instructions apply to NIFE 300P2/P2E/E16/P3/E3, and does not apply to NIFE 300.

1. Remove the side panel.



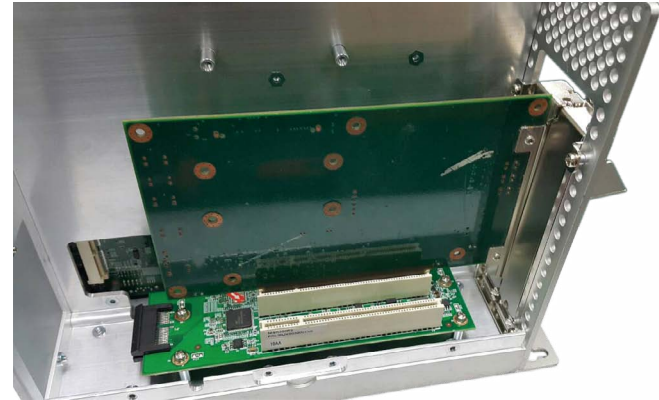
2. Locate and remove the screw on the PCI/PCIe bracket cover.



3. Remove the plastic screw holder if the height of the PCI/PCle card is sufficient.

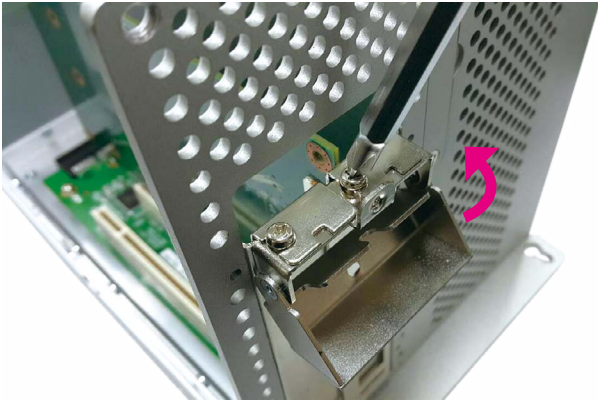


4. Install the PCI/PCle card into the slot.





5. Fix the screw on the PCI/PCIe cover, and close the bracket cover for the PCI/PCIe expansion.



PCI Volts Configuration on NIFE 300 Riser Cards

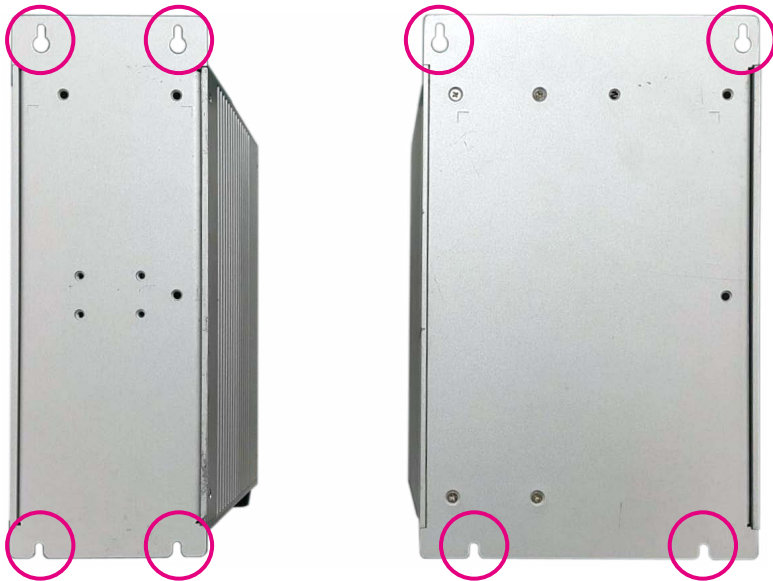
The PCI Volts is configured to 5V as default on all NIFE 300 riser cards.

| Model | Riser Configuration | Riser Jumper Location | Default Volts Setting |
|-------------|----------------------------------|---------------------------|-----------------------|
| NIFE 300P2 | 2x PCI Slots | JP3 2-3(5V), 1-1(3.3V) | 2-3 |
| NIFE 300P2E | 1x PCI Slot and 1x PCIe Slot | JP2 2-3(5V), 1-1(3.3V) | 2-3 |
| NIFE 300P3 | 2x PCI Slots and 1x PCIe Slot | JP3 2-3(5V), 1-1(3.3V) | 2-3 |

Wallmount Mounting



The main mounting method of the NIFE 300 series is wallmount. Please locate the wallmount fixing holes at the rear of the NIFE 300 series for wallmount mounting.



CHAPTER 4: BIOS SETUP

This chapter describes how to use the BIOS setup program for the NIFE 300 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 website at www.nexcom.com.tw.

About BIOS Setup

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

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

With easy-to-use pull down menus, you can configure 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.

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

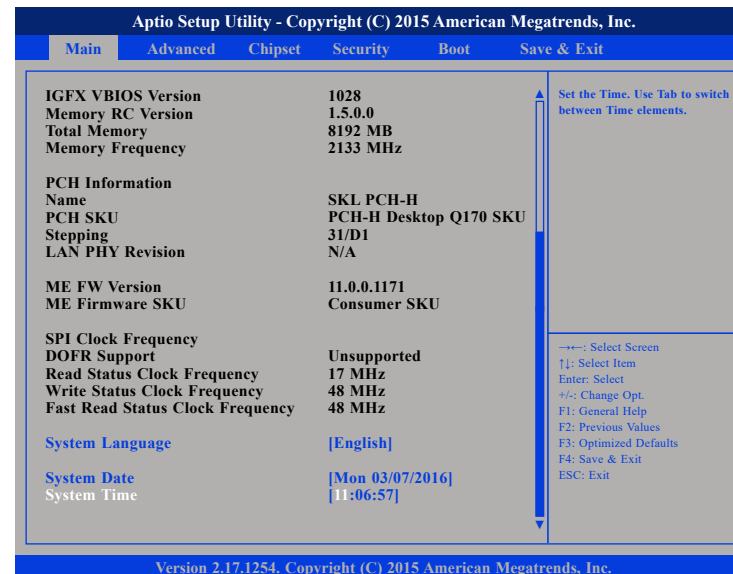
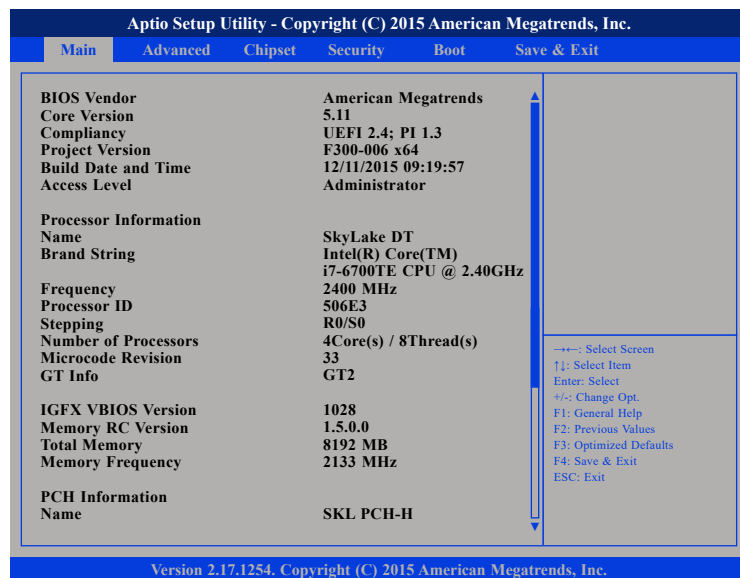
When “▶” appears on the left of a particular field, it indicates that a submenu which contains additional options are available for that field. To display the submenu, move the highlight to that field and press  .

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.



System Language

Configures the default 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.

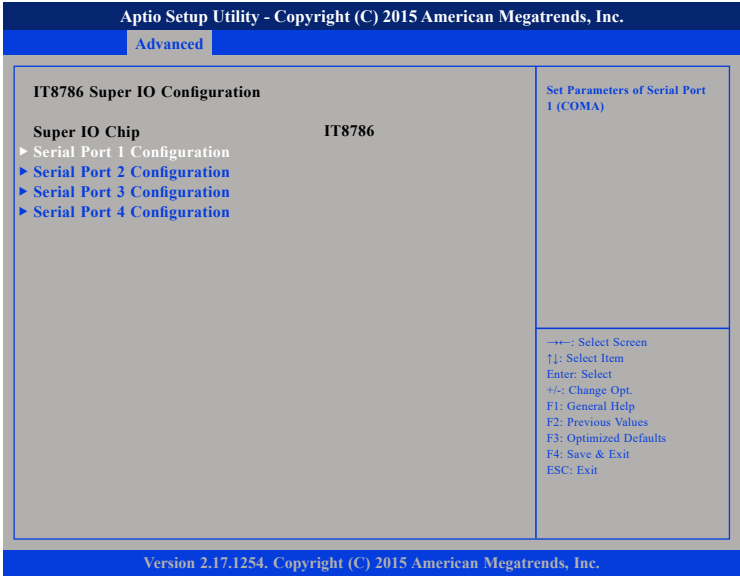


Setting incorrect field values may cause the system to malfunction.



IT8786 Super IO Configuration

This section is used to configure the serial ports.



Super IO Chip

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



Serial Port 1 Configuration

This section is used to configure serial port 1.

Aptio Setup Utility - Copyright (C) 2015 American Megatrends, Inc.

Advanced

Serial Port 1 Configuration

Serial Port

Device Settings

Onboard Serial Port Mode

Terminal resistor

[Enabled]

IO=3F8h; IRQ=4;

[RS232]

[Enabled]

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.

Onboard Serial Port Mode

Select this to change the serial port mode to RS232, RS422, RS485 or RS485 Auto.

Terminal Resistor

Enables or disables the terminal resistor.

Serial Port 2 Configuration

This section is used to configure serial port 2.

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Advanced

Serial Port 2 Configuration

Serial Port

Device Settings

Onboard Serial Port Mode

Terminal resistor

[Enabled]

IO=2F8h; IRQ=3;

[RS232]

[Enabled]

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.

Onboard Serial Port Mode

Select this to change the serial port mode to RS232, RS422, RS485 or RS485 Auto.

Terminal Resistor

Enables or disables the terminal resistor.





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 IO=3E8h; IRQ=6;

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.

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 IO=2E8h; IRQ=10;

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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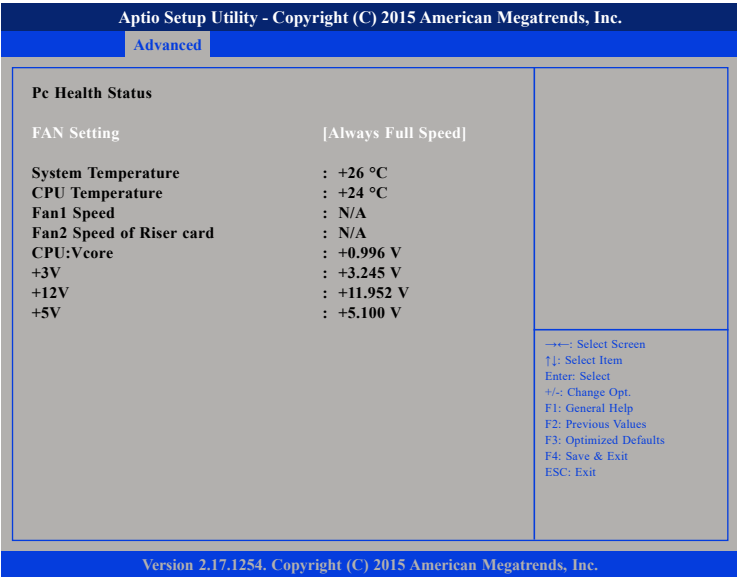
Serial Port

Enables or disables the serial port.



Hardware Monitor

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



FAN Setting

Configures the speed of the fan, the options are Always Full Speed, Enable Smart Fan and Disable.

System Temperature

Detects and displays the current system temperature.

CPU Temperature

Detects and displays the current CPU temperature.

Fan1 Speed

Detects and displays fan1 speed.

Fan2 Speed

Detects and displays fan2 speed of the riser card.

VCore

Detects and displays the Vcore CPU voltage.

+3V

Detects and displays 3.3V voltage.

+12V

Detects and displays 12V voltage.

+5V

Detects and displays 5V voltage.



CPU Configuration

This section is used to configure the CPU.

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Advanced

CPU Configuration

Intel(R) Core(TM) i7-6700TE CPU @ 2.40GHz

CPU Signature 506E3

Microcode Patch 33

Max CPU Speed 2400 MHz

Min CPU Speed 800 MHz

CPU Speed 2400 MHz

Processor Cores 4

Hyper Threading Technology Supported

Intel VT-x Technology Supported

Intel SMX Technology Supported

64-bit Supported

EIST Technology Supported

CPU C3 state Supported

CPU C6 state Supported

CPU C7 state Supported

L1 Data Cache 32 kB x 4

L1 Code Cache 32 kB x 4

L2 Cache 256 kB x 4

L3 Cache 8 MB

L4 Cache Not Present

Hyper-threading [Enabled]

Enabled for Windows XP and Linux (OS optimized for HyperThreading Technology) and Disabled for other OS (OS not optimized for Hyper-Threading Technology). When Disabled only one thread per enabled core is enabled.

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

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Hyper-threading

Enables or disables hyper-threading technology.

Active Processor Cores

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

Intel® Virtualization Technology

Enables or disables Intel Virtualization technology. When enabled, a VMM can utilize the additional hardware capabilities provided by Vanderpool Technology.

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Advanced

Microcode Patch 33

Max CPU Speed 2400 MHz

Min CPU Speed 800 MHz

CPU Speed 2400 MHz

Processor Cores 4

Hyper Threading Technology Supported

Intel VT-x Technology Supported

Intel SMX Technology Supported

64-bit Supported

EIST Technology Supported

CPU C3 state Supported

CPU C6 state Supported

CPU C7 state Supported

L1 Data Cache 32 kB x 4

L1 Code Cache 32 kB x 4

L2 Cache 256 kB x 4

L3 Cache 8 MB

L4 Cache Not Present

Hyper-threading [Enabled]

Active Processor Cores [All]

Intel Virtualization Technology [Enabled]

Intel(R) SpeedStep(tm) [Disabled]

CPU C states [Disabled]

Enable or disable CPU C states

→←: 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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Intel® SpeedStep™

Enables or disables Intel SpeedStep.

CPU C States

Enables or disables CPU C States support.



SATA Configuration

This section is used to configure the SATA drives.

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Advanced

| | | |
|---------------------|----------------------|--------------------------------|
| SATA Controller(s) | [Enabled] | Enable or disable SATA Device. |
| SATA Mode Selection | [AHCI] | |
| SATA (CN2) | TS64GSSD370 (64.0GB) | |
| SATA (CN1) | Empty | |
| CFAST | Empty | |
| MSATA (MINI1) | Empty | |

→←: 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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SATA Controller(s)

Enables or disables the SATA controller.

SATA Mode Selection

Configures the SATA mode.

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

CSM Configuration

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

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Advanced

| | | |
|--|-------------------|-----------------------------|
| Compatibility Support Module Configuration | | Enable/Disable CSM Support. |
| CSM Support | [Enabled] | |
| CSM16 Module Version | 07.78 | |
| Boot option filter | [UEFI and Legacy] | |
| Option ROM execution order | | |
| Network | [Enabled] | |
| Onboard LAN PXE | [Disabled] | |
| Storage | [UEFI] | |
| Video | [Legacy] | |
| Other PCI devices | [UEFI] | |

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

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CSM Support

Enables or disables CSM support.

Boot Option Filter

Configures which devices the system will boot from.

Network

Enables or disables the boot option for legacy network devices.

Onboard LAN PXE

Enables or disables onboard LAN PXE ROM.



Storage

Enables or disables the boot option for legacy storage devices.

Video

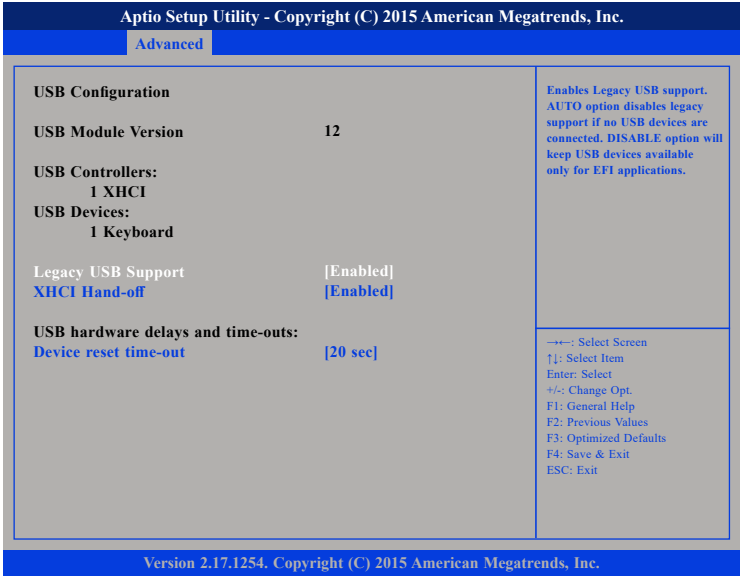
Enables or disables the boot option for legacy video devices.

Other PCI Devices

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

USB Configuration

This section is used to configure the USB.



Legacy USB Support

- Enabled Enables Legacy USB.
- Auto Disables support for Legacy when no USB devices are connected.
- Disabled Keeps USB devices available only for EFI applications.

XHCI Hand-off

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

Device reset time-out

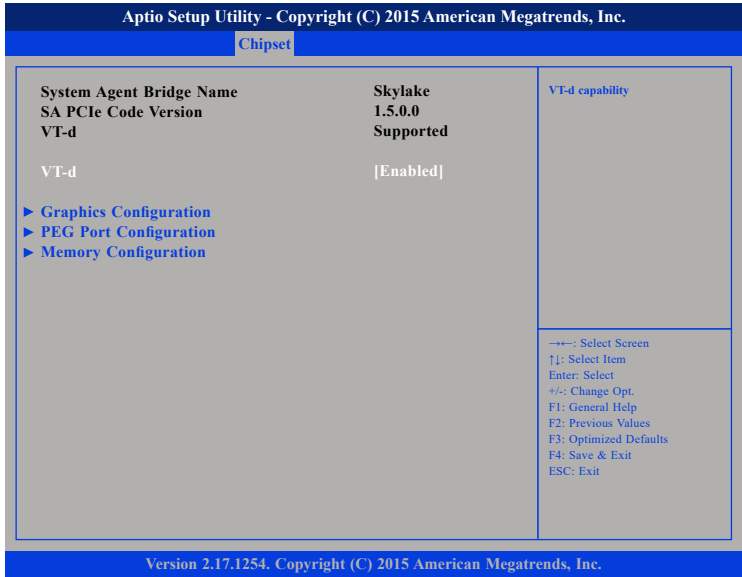
Selects the USB mass storage device start unit command timeout.

Chipset

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



System Agent (SA) Configuration



VT-d

Enables or disables VT-d function on MCH.

Graphics Configuration

Enters the graphics chip settings sub-menu.

PEG Port Configuration

Enters the PEG port settings sub-menu.

Memory Configuration

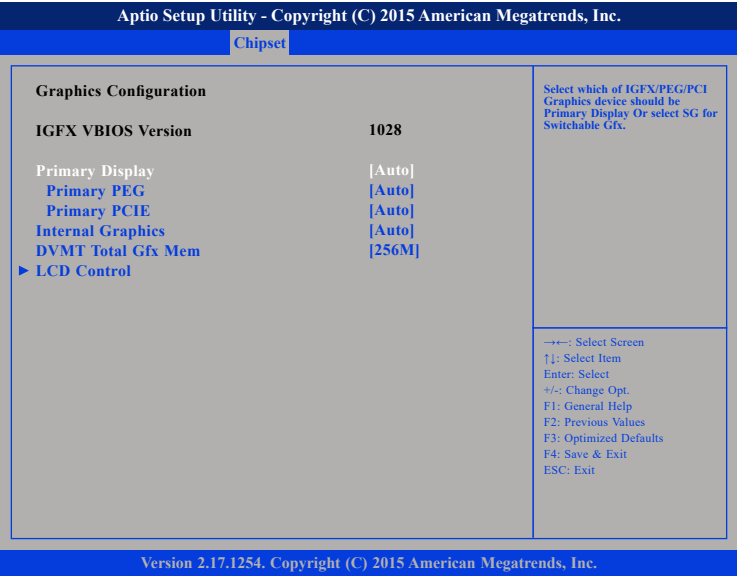
Enters the memory settings sub-menu.



Setting incorrect field values may cause the system to malfunction.



Graphics Configuration



Primary Display

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

Primary PEG

Select which PEG device should be the primary PEG.

Primary PCIE

Select which PCIE device should be the primary PCIE.

Internal Graphics

Keep IGD enabled based on the setup options.

DVMT Total Gfx Mem

Select DVMT5.0 Total Graphic Memory size used by the internal graphics device.



LCD Control



Primary IGFX Boot Display

Select 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

Select the secondary display device.

LCD Panel Type

Select the LCD panel used by the internal graphics device by selecting the appropriate setup item.

Panel Scaling

Select the LCD panel scaling option used by the internal graphics device.

Backlight Control

Select the backlight control mode.

BIA

The options are Auto, Disabled and Level 1 to Level 5.

Spread Spectrum Clock Chip

Select how the spread spectrum clock is controlled.

| | |
|----------|-------------------------|
| Hardware | Controlled by the chip. |
| Software | Controlled by the BIOS. |

Active LFP

Select the Active LFP configuration.

| | |
|------------|---|
| No LVDS | VBIOS does not enable LVDS. |
| eDP Port-A | LFP driven by Int-DisplayPort encoder from Port-A |

Panel Color Depth

Select the LFP panel color depth.





PEG Port Configuration

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Chipset

PEG Port Configuration

PEG 0:1:0

Not Present

Enable Root Port
[Enabled]

Max Link Speed
[Auto]

PEG 0:1:1

Not Present

Enable Root Port
[Enabled]

Max Link Speed
[Auto]

Enable or Disable the Root Port

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

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Enable Root Port

Enables or disables the root port.

Max Link Speed

Select the maximum link speed of the PEG device.

Memory Configuration

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Chipset

Memory Configuration

Memory RC Version

1.5.0.0

Memory Frequency

2133 MHz

Total Memory

8192 MB

VDD

1200

DIMM#1

4096 MB

DIMM#2

4096 MB

Memory Timings (tCL-tRCD-tRP-tRAS)

15-36

→←: 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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Memory Configuration

Displays the information on the memory installed.

Security

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MainAdvancedChipsetSecurityBootSave & Exit

Password Description

If ONLY the Administrator's password is set, then this only limits access to Setup and is only asked for when entering Setup.
If ONLY the User's password is set, then this is a power on password and must be entered to boot or enter Setup. In Setup the User Will have Administrator rights.
The password length must be in the following range:
Minimum length3
Maximum length20

Administrator Password
User Password

Set Administrator Password

→←: 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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Administrator Password

Select this to reconfigure the administrator's password.

User Password

Select this to reconfigure the user's password.

Boot

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MainAdvancedChipsetSecurityBootSave & Exit

Boot Configuration

Setup Prompt Timeout1
Bootup NumLock State[On]
Quiet Boot[Disabled]

Boot Option Priorities
Boot Option #1[P0: TS64GSSD370]
Fast Boot[Disabled]

Hard Drive BBS Priorities

Number of seconds to wait for setup activation key. 65535(0xFFFF) means indefinite waiting.

→←: 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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Setup Prompt Timeout

This section configures 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.

Boot Option Priorities

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

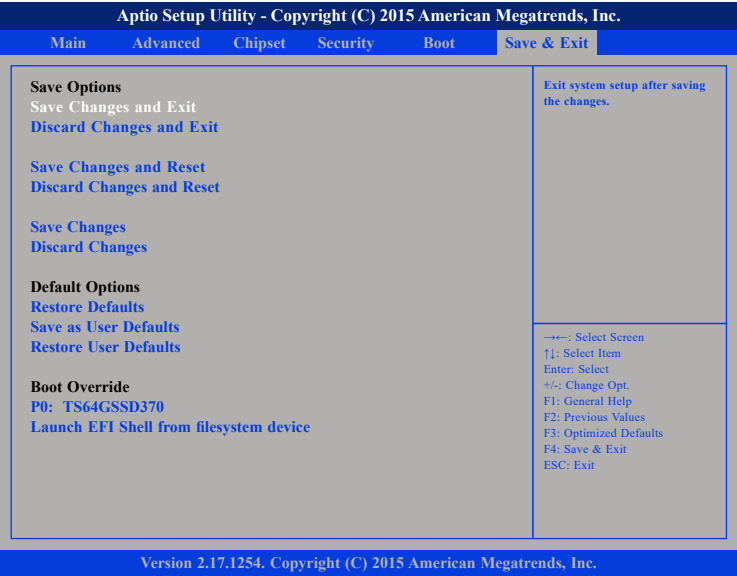
Fast Boot

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

Hard Drive BBS Priorities

Sets the order of the legacy devices in this group.

Save & Exit



Save Changes and Exit

To save the changes and exit the Setup utility, 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 Exit

To exit the Setup utility 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.

Save Changes and Reset

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

Discard Changes and Reset

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

Save Changes

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

Discard Changes

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

Restore Defaults

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

Save as User Defaults

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

Restore User Defaults

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

Boot Override

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

Launch EFI Shell From Filesystem Device

Launches the EFI shell.

APPENDIX A: POWER CONSUMPTION

Power Consumption Management

Purpose

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

Test Equipment

PROVA CM-07 AC/DC CLAMP METER

Device Under Test

DUT: sys#1/

Test Procedure

1. Power up the DUT, boot into Windows 7 x32 Professional.
2. Entering standby mode (HDD power down).
3. Measure the power consumption and record it.
4. Run Burn-in test program to apply 100% full loading.
5. Measure the power consumption and record it.

Test Data

| | Sys #1 |
|-------------------|--------|
| | +24V |
| Full-Loading Mode | 2.1A |
| Total | 50.4W |
| Standby S3 Mode | 0.4A |
| Total | 9.8W |

APPENDIX B: WATCHDOG PROGRAMMING GUIDE

ITE8786E WatchDog Programming Guide

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

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

```
outputb(Superio_Port, 0x87);
```

```
outputb(Superio_Port, 0x01);
```

```
outputb(Superio_Port, 0x55);
```

```
outputb(Superio_Port, 0x55);
```

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

```
outputb(Superio_Port, Superio_LDN);
```

```
outputb(Superio_Port+1, 0x07);
```

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

```
outputb(Superio_Port, 0x72);
```

```
outputb(Superio_Port+1, 0x90);
```

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

```
outputb(Superio_Port, 0x73);
```

```
outputb(Superio_Port+1, 0x04);
```

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

```
outputb(Superio_Port, 0x02);
```

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

APPENDIX C: 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 NIFE 300 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 | A07h (Bit0) | 4 | GPO | Low | A07h (Bit4) |
| 5 | GPI | Low | A07h (Bit1) | 6 | GPO | Low | A07h (Bit5) |
| 7 | GPI | Low | A07h (Bit2) | 8 | GPO | Low | A07h (Bit6) |
| 9 | GPI | Low | A07h (Bit3) | 10 | GPO | Low | A07h (Bit7) |

JP2 – GPIO Connector

| Pin | GPIO Mode | PowerOn Default | Address |
|-----|-----------|-----------------|-------------|
| A4 | GPO | Low | A00h (Bit6) |
| A3 | GPO | Low | A00h (Bit5) |
| A2 | GPO | Low | A02h (Bit7) |
| A1 | GPO | Low | A02h (Bit6) |

LED4 – GPO LED

Control the GPO pin (4/6/8/10) level from I/O port A07h bit (4/5/6/7).

Control the GPO pin (A3/A4) level from I/O port A00h bit (5/6).

Control the GPO pin (A1/A2) level from I/O port A02h bit (6/7).

The bit is Set/Clear indicated output High/Low

GPIO programming sample code

```
#define GPIO_PORT      0xA00

#define GPO4_HI        outportb(GPIO_PORT+7, 0x10)
#define GPO4_LO        outportb(GPIO_PORT+7, 0x00)
#define GPO6_HI        outportb(GPIO_PORT+7, 0x20)
#define GPO6_LO        outportb(GPIO_PORT+7, 0x00)
#define GPO8_HI        outportb(GPIO_PORT+7, 0x40)
#define GPO8_LO        outportb(GPIO_PORT+7, 0x00)
#define GPO10_HI       outportb(GPIO_PORT+7, 0x80)
#define GPO10_LO       outportb(GPIO_PORT+7, 0x00)
#define GPOA4_HI       outportb(GPIO_PORT, 0x40)
#define GPOA4_LO       outportb(GPIO_PORT, 0x00)
#define GPOA3_HI       outportb(GPIO_PORT, 0x20)
#define GPOA3_LO       outportb(GPIO_PORT, 0x00)
#define GPOA2_HI       outportb(GPIO_PORT+2, 0x80)
#define GPOA2_LO       outportb(GPIO_PORT+2, 0x00)
#define GPOA1_HI       outportb(GPIO_PORT+2, 0x40)
#define GPOA1_LO       outportb(GPIO_PORT+2, 0x00)

void main(void)
{
    GPO4_HI;
    GPO6_LO;
    GPO8_HI;
    GPO10_LO;
    GPOA4_HI;
    GPOA3_LO;
    GPOA2_HI;
    GPOA1_LO;
}
```

APPENDIX D: RISER CARD 3.3V AND 5V JUMPER CONFIGURATION

| Model | Riser Card | PCI/PCIe Combination | Riser Jumper Location and Setting |
|-------------|---------------|-------------------------|-----------------------------------|
| NIFE 300 | No Riser Card | N/A | N/A |
| NIFE 300E16 | NISK300E16 | 1x PCIe x16 | No Jumper |
| NIFE 300P2E | NISK300P1E1 | 1x PCIe x8 & 1x PCI | NISK300P1E1 Table |
| NIFE 300P2 | NISK300P2 | 2x PCI | NISK300P2 Table |
| NIFE 300P3 | NISK300P2E1 | 1x PCIe x8 & 2x PCI | NISK300P2E1 Table |
| NIFE 300E3 | NISK300E3 | 1x PCIe x8 & 2x PCIe x4 | No Jumper |

NISK300P1E1 Jumper Setting and Location

PCI_VIO (JP2)

| Pin | Status | Function Description |
|------------------|--------|----------------------|
| 1-2 On (Default) | Short | VCC3 |
| 2-3 On | Short | VCC5 |

ID Select (JP3)

| Pin | Status | Function Description |
|------------------|--------|----------------------|
| 1-2 On | Short | AD19 |
| 3-4 On | Short | AD18 |
| 5-6 On | Short | AD17 |
| 7-8 On (Default) | Short | AD16 |

INT Select (JP1)

| Pin | Status | Function Description |
|------------------|--------|----------------------|
| 1-2 On | Short | IRQ#D |
| 3-4 On | Short | IRQ#C |
| 5-6 On | Short | IRQ#B |
| 7-8 On (Default) | Short | IRQ#A |

NISK300P2 Jumper Setting and Location

PCI_VIO (JP3)

| Pin | Status | Function Description |
|------------------|--------|----------------------|
| 1-2 On (Default) | Short | VCC3 |
| 2-3 On | Short | VCC5 |

NISK300P2E1 Jumper Setting and Location

PCI_VIO (JP3)

| Pin | Status | Function Description |
|------------------|--------|----------------------|
| 1-2 On (Default) | Short | VCC3 |
| 2-3 On | Short | VCC5 |

INT Select for CN1 Connector (JP4)

| Pin | Status | Function Description |
|------------------|--------|----------------------|
| 1-2 On | Short | IRQ#D |
| 3-4 On | Short | IRQ#B |
| 5-6 On | Short | IRQ#A |
| 7-8 On (Default) | Short | IRQ#C |

INT Select for CN2 Connector (JP2)

| Pin | Status | Function Description |
|------------------|--------|----------------------|
| 1-2 On | Short | IRQ#D |
| 3-4 On | Short | IRQ#C |
| 5-6 On | Short | IRQ#A |
| 7-8 On (Default) | Short | IRQ#B |