NEXCOM International Co., Ltd.

IoT Automation Solutions

PC-based Factory Automation System

NIFE 100/101

User Manual

NEXCOM International Co., Ltd.
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PREFACE

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Acknowledgements

NIFE 100 and NIFE 101 are trademarks of NEXCOM International Co., Ltd. All other product names mentioned herein are registered trademarks of their respective owners.

Regulatory Compliance Statements

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

Declaration of Conformity

FCC

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

CE

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

RoHS Compliance

NEXCOM RoHS Environmental Policy and Status Update

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

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

In order to meet the RoHS compliant directives, NEXCOM has established an engineering and manufacturing task force to implement the introduction of green products. The task force will ensure that we follow the standard NEXCOM development procedure and that all the new RoHS components and new manufacturing processes maintain the highest industry quality levels for which NEXCOM are renowned.

The model selection criteria will be based on market demand. Vendors and suppliers will ensure that all designed components will be RoHS compliant.

How to recognize NEXCOM RoHS Products?

For existing products where there are non-RoHS and RoHS versions, the suffix "(LF)" will be added to the compliant product name.

All new product models launched after January 2013 will be RoHS compliant. They will use the usual NEXCOM naming convention.

Warranty and RMA

NEXCOM Warranty Period

NEXCOM manufactures products that are new or equivalent to new in accordance with industry standard. NEXCOM warrants that products will be free from defect in material and workmanship for 2 years, beginning on the date of invoice by NEXCOM. HCP series products (Blade Server) which are manufactured by NEXCOM are covered by a three year warranty period.

NEXCOM Return Merchandise Authorization (RMA)

- Customers shall enclose the "NEXCOM RMA Service Form" with the returned packages.
- Customers must collect all the information about the problems encountered and note anything abnormal or, print out any on-screen messages, and describe the problems on the "NEXCOM RMA Service Form" for the RMA number apply process.
- Customers can send back the faulty products with or without accessories (manuals, cable, etc.) and any components from the card, such as CPU and RAM. If the components were suspected as part of the problems, please note clearly which components are included. Otherwise, NEXCOM is not responsible for the devices/parts.
- Customers are responsible for the safe packaging of defective products, making sure it is durable enough to be resistant against further damage and deterioration during transportation. In case of damages occurred during transportation, the repair is treated as "Out of Warranty."
- Any products returned by NEXCOM to other locations besides the customers' site will bear an extra charge and will be billed to the customer.

Repair Service Charges for Out-of-Warranty Products

NEXCOM will charge for out-of-warranty products in two categories, one is basic diagnostic fee and another is component (product) fee.

Repair Service Charges for Out-of-Warranty Products

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

Conventions Used in this Manual

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

Caution:
Information to avoid damaging components or losing data.

Note:
Provides additional information to complete a task easily.

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

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Package Contents

Before continuing, verify that the NIFE 100/101 package that you received is complete. Your package should have all the items listed in the following table.

Item	Part Number	Description	Qty
1	4NCPM00203X00	Terminal Blocks 2P Phoenix Contact:1803578	1
2	4NCPM00302X00	(T)Terminal Blocks 3P Phoenix Contact:1777992	1
3	50311F0326X00	Flat Head Screw LONG FEI:F3x5 Nylok NI+Heat Treatment	4
4	50311F0330X00	Round Head Screw LONG FEI:P2x3 ISO+NYLON	2
5	6012200052X00	PE Zipper Bag #8	1
6	6012200053X00	PE Zipper Bag #3	1
7	60177A0360X00	(E)NIFE 100 Quick Reference Guide Ver:A SIZE:A4	1
8	602DCD0863X00	NISE 105 DVD Driver VER:2.0	1
9	7800000078X00	DVI-I to VGA Adapter for NISE 104 ST:ADDH27B	1

Ordering Information

The following information below provides ordering information for NIFE 100/101.

NIFE 100 (P/N: 10J70010000X0)
Intel® Atom™ processor E3826 dual dore fanless system

NIFE 101 (P/N: 10J70010100X0)
Intel® Atom™ processor E3826 dual core fanless system

- 24V, 60W AC/DC power adapter w/o power cord (P/N: 7400060024X00)

Optional Wi-Fi/GSM Module

88J70010100X0	NIFE 101 3.5G Module Kit SIERRA: MC8705	-
88J70010101X0	NIFE 101 Wi-Fi Module Kit INTEL: 7260.HMWWB.R	Dual Band Wireless-AC 7260, 2x2 AC+BT, HMC
88J70010102X0	NIFE 101 Wi-Fi Module Kit INTEL: 7260.HMWBNWB.R	WLAN+ BLUETOOTH COMBO MODULE

Optional DIN Rail Kit

88J70010000X0	NIFE 100/101 Series DIN Rail kit	@Shock 20G

Optional Fieldbus Kit (NIFE 100 only)

88J50090E05X0	DeviceNet Master Module Kit (w/15 cm Cable)	FBI 90E-DNM KIT
88J50090E06X0	EtherCAT Master Module Kit(w/15 cm Cable)	FBI 90E-ECM KIT
88J50090E07X0	Ethernet IP Master Module Kit (w/15 cm Cable)	FBI 90E-EP KIT
88J50090E08X0	PROFIBUS Master Module Kit (w/15 cm Cable)	FBI 90E-PBM KIT
88J50090E09X0	PROFINET Master Module Kit (w/15 cm Cable)	FBI 90E-PNM KIT
88J50090E14X0	SERCOSIII Master Module Kit (w/15 cm Cable)	FBI 90E-S3M KIT
88J50090E16X0	CANopen Master Module Kit (w/15 cm Cable)	FBI 90E-COM KIT

Chapter 1: Product Introduction

Overview

NIFE 100

NIFE 101

Key Features

- Onboard Intel® Atom™ processor E3826 Dual Core 1.46GHz
- 1x DVI display output or 1x VGA converted from DVI-I
- 2x Intel® I210IT GbE LAN ports support WoL, Teaming and PXE
- 1x USB 2.0 & 1 x USB 3.0
- 2x RS232/422/485 with 2.5KV isolation protection
- 1x Mini-PCIe socket for optional Wi-Fi/3.5G/4G LTE modules, optional fieldbus modules available for NIFE 100.
- Front access CFast socket and RTC battery
- Support NVRAM 1Mb
- Support -20°C ~ 70°C extended operating temperature
- Typical 24V DC input with +/-20% range

Hardware Specifications

CPU Support

- Onboard Intel® Atom™ processor E3826 dual core 1.46GHz
- Support Intel® Atom™ E3800 processor family from single core E3815, dual core E3825/E3826/E3827 to quad core E3845 with different SKUs

Main Memory

- 1x DDR3L SO-DIMM socket, support DDR3L 1066/1333 4GB RAM max., un-buffered and non-ECC

Display Option

- 1x DVI display output
- 1x VGA display output (converted from DVI-I to VGA adapter)

I/O Interface - Front

- ATX power on/off switch
- LEDs for power status, HDD access, battery low, 2x programming LEDs, 4x Tx/Rx LEDs
- 1x External CFast socket
- 1x SIM card holder
- 2x Intel® I210IT GbE LAN ports, support WoL, Teaming and PXE
- 1x DVI-I display output
- 1x USB 3.0 (900mA per each)
- 1x USB 2.0 (500mA per each)
- 2x RS232/422/485 with 2.5KV isolation protection, support auto flow control
  - Jumper-free setting on RS232/422/485
  - Support RI function on COM2
- 1x 2-pin remote power On/Off switch
- 1x 3-pin DC input, typical 24V DC input with +/-20% range

Storage Device

- 1x CFast (SATA 2.0)
- 1x 2.5" SSD (SATA 2.0)

Expansion Slot

- 1x Mini-PCIe socket for optional Wi-Fi/3.5G/4G LTE modules, optional fieldbus modules available for NIFE 100

Power Requirements

- Typical 24V DC input with +/-20% range
- 1x optional 24V, 60W power adapter

Dimensions

- NIFE 100: 92mm (W) x 135.5mm (D) x 192.5mm (H)
- NIFE 101: 58mm (W) x 135.5mm (D) x 192.5mm (H)

Construction

- Aluminum and metal chassis with fanless design

Environment

- Operating temperature:
  Ambient with air flow: -20°C to 70°C with industrial grade device
  (According to IEC60068-2-1, IEC60068-2-2, IEC60068-2-14)
- Storage temperature: -30°C to 85°C
- Relative humidity: 10% to 95% (non-condensing)
- Shock protection:
  - SSD: 20G, half sine, 11ms, IEC60068-2-27
  - CFast: 50G, half sine, 11ms, IEC60068-2-27

- Vibration protection w/CFast & SSD condition:
  - Random: 2Grms @ 5~500 Hz, IEC60068-2-64
  - Sinusoidal: 2Grms @ 5~500 Hz, IEC60068-2-6

Certifications

- CE
- FCC Class A

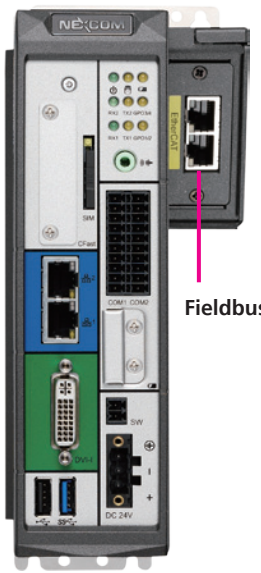
Support OS

- Windows 8, 32-bit/64-bit
- Windows Embedded Standard 8, 32-bit/64-bit
- Windows 7, 32-bit/64-bit
- Windows Embedded Standard 7, 32-bit/64-bit
- Linux Kernel version 3.8.0
- Moon Island

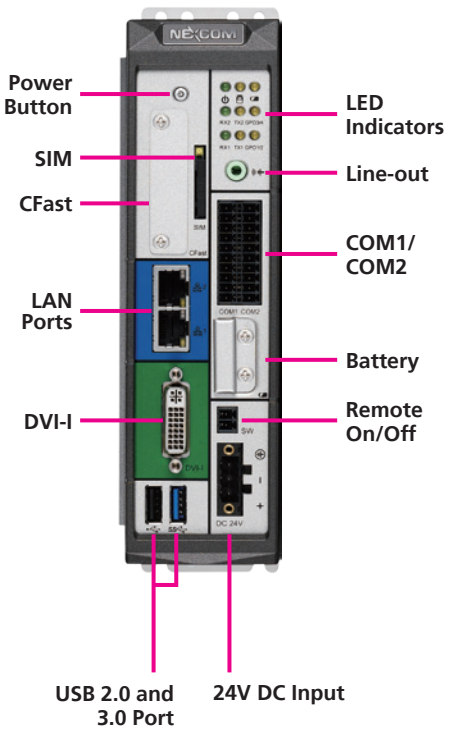
Knowing Your NIFE 100/101

NIFE 100 has the same front panel connectors as NIFE 101, with additional fieldbus expansion.

NIFE 100



NIFE 101



USB 2.0 and USB 3.0 Port
USB 2.0 and USB 3.0 port to connect the system with USB devices.

DVI-I
Used to connect a digital LCD panel.

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

CFast Slot
Used to insert a CFast card.

SIM Slot
Used to insert a SIM card.

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

24V DC Input
Used to plug a DC power cord.

Remote On/Off Switch
Used to connect a remote to power on/off the system.

Battery
Used to hold an external battery.

COM1 and COM2
Two DB9 ports used to connect RS232/422/485 compatible devices.

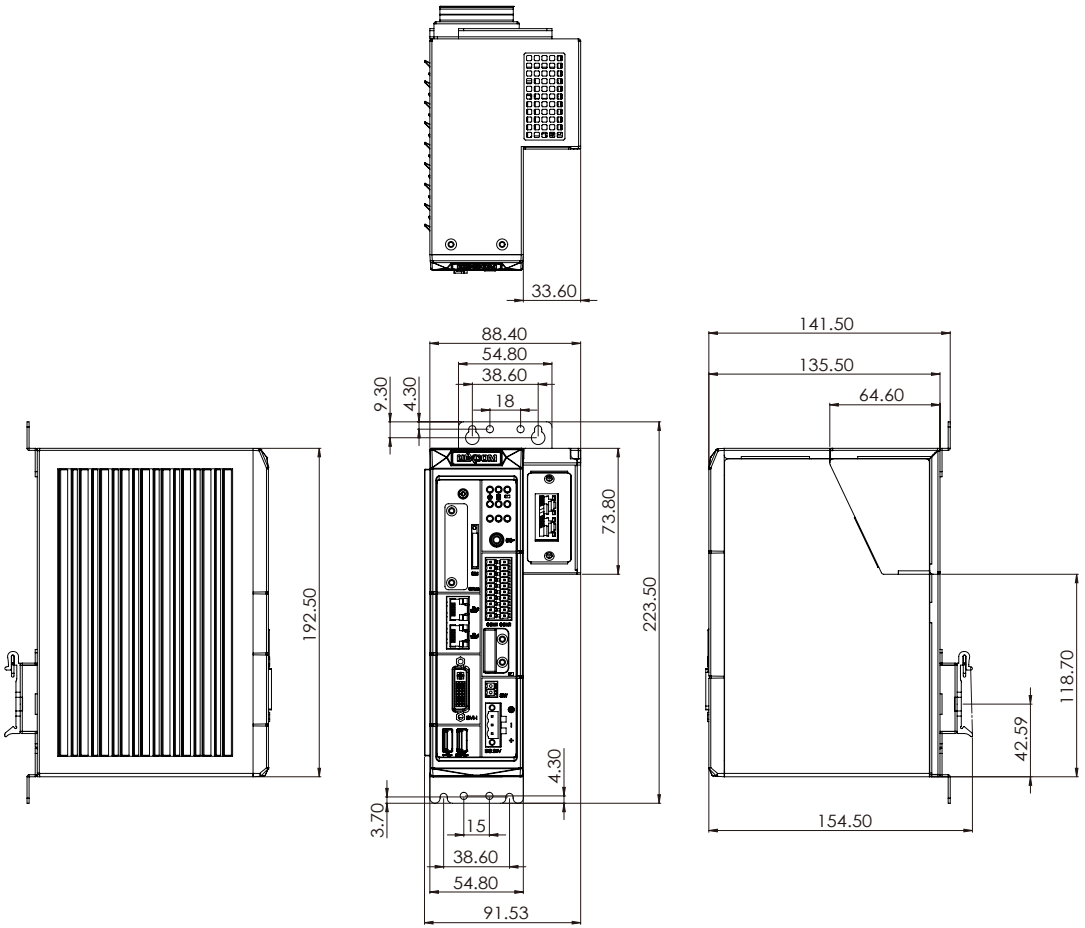
Line-out
Used to connect a headphone or a speaker.

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

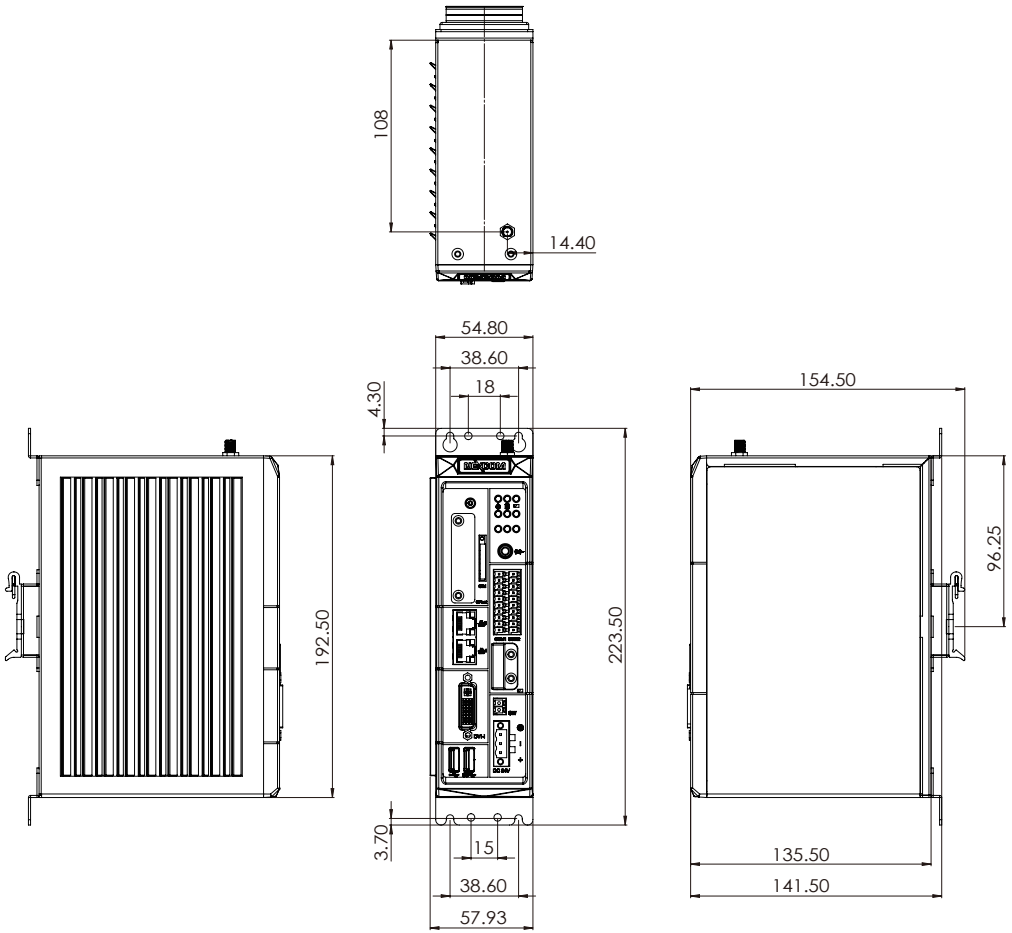
Fieldbus (NIFE 100)
Expansion slot for add-on fieldbus mini-PCIe modules.

Mechanical Dimensions

NIFE 100



NIFE 101



Chapter 2: Jumpers and Connectors

This chapter describes how to set the jumpers and connectors on the NIFE 100 and 101 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:

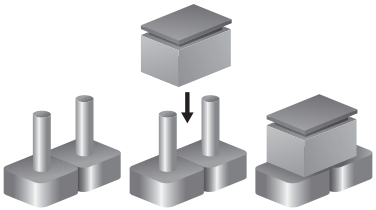
- Always disconnect the unit from the power outlet whenever you are working inside the case.
- If possible, wear a grounded wrist strap when you are working inside the computer case. Alternatively, discharge any static electricity by touching the bare metal chassis of the unit case, or the bare metal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

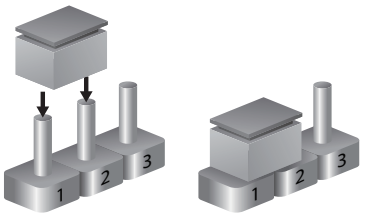
A jumper is the simplest kind of electric switch. It consists of two metal pins and a cap. When setting the jumpers, ensure that the jumper caps are placed on the correct pins. When the jumper cap is placed on both pins, the jumper is short. If you remove the jumper cap, or place the jumper cap on just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

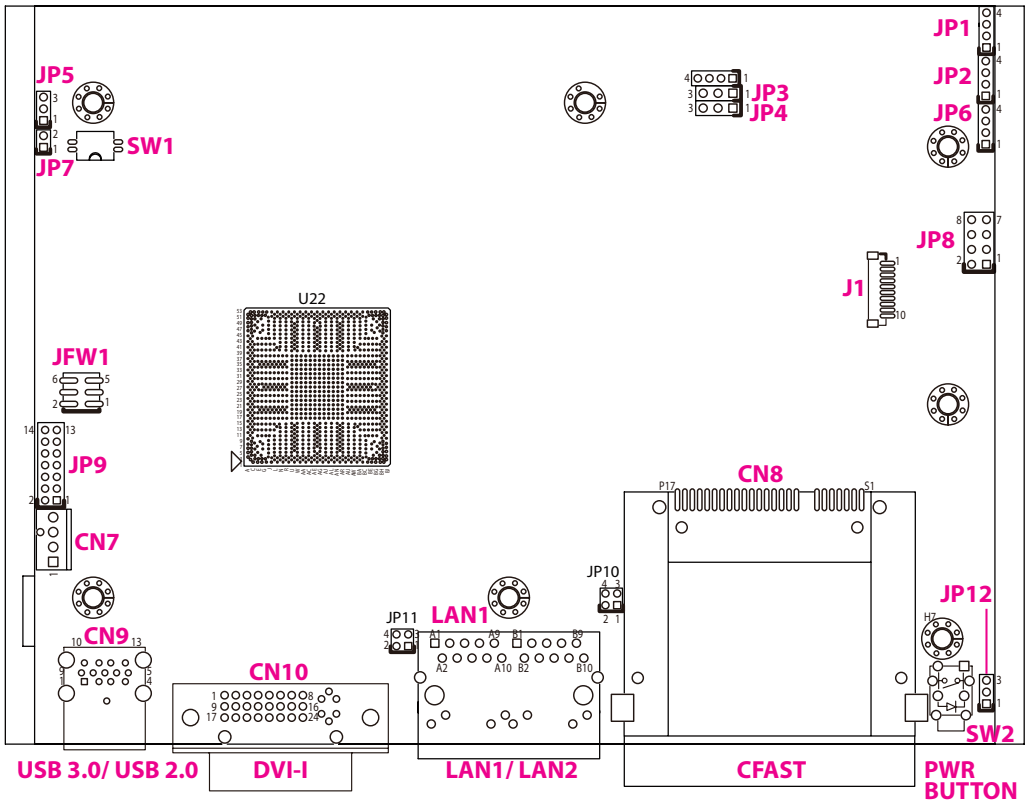


NIFE 100 and NIFE 101 System Components

The NIFE 100 and NIFE 101 system are made up of a NIFB 105 motherboard and an I/O daughterboard. This chapter lists the location and pinout assignment of the jumpers and connectors on each component.

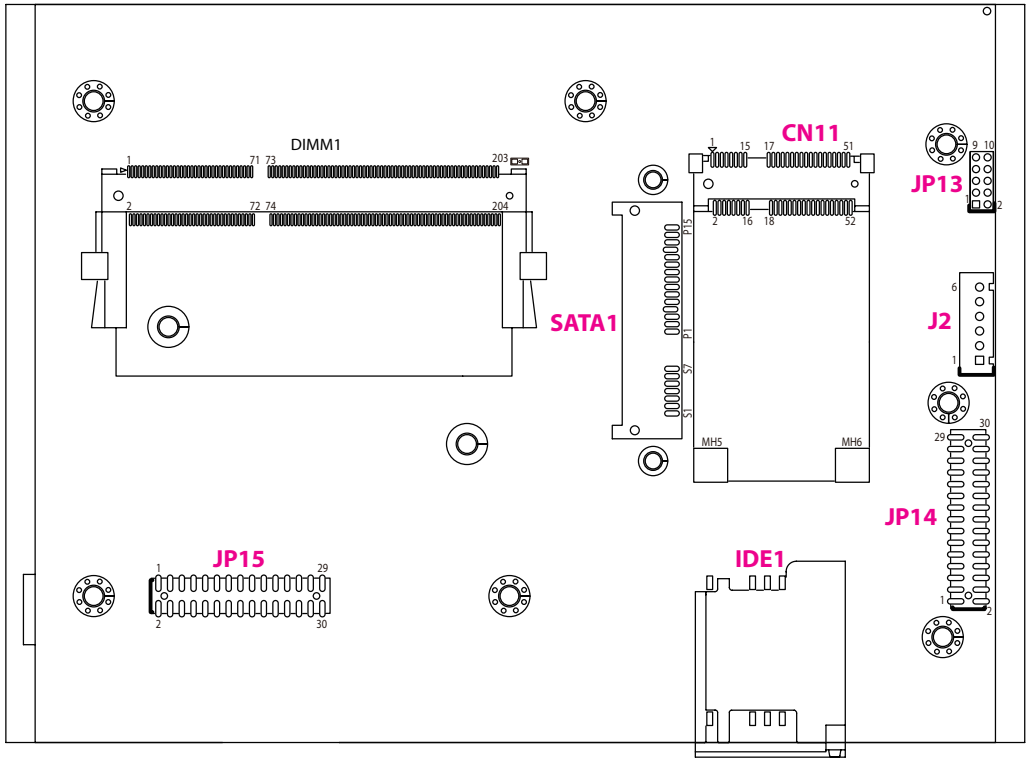
Locations of the Jumpers and Connectors for NIFB 105

Top View



The figure below is the bottom view of the NIFB 105 main board.

Bottom View



Jumpers

AT/ATX Pin Header

Connector type: 1x3 3-pin header, 2.0mm pitch
Connector location: JP5

Pin	Function
1-2	AT
2-3*	ATX

2-3 On: default

ATX or Reset On/Off

Connector type: 1x3 3-pin header, 2.0mm pitch
Connector location: JP12

Pin	Function
1-2*	Push Button Type
2-3	Reset Button Type

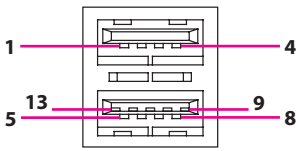
1-2 On: default

Connector Pin Definitions

External I/O Interfaces - Front Panel

USB 3.0 and USB 2.0 Port

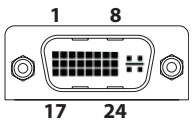
Connector type: USB 3.0 and USB 2.0 port
Connector location: CN9



Pin	Definition	Pin	Definition
1	P5V_OC01_C	2	USB_0N_C
3	USB_0P_C	4	GND
5	USB3_RX0_N_C	6	USB3_RX0_P_C
7	GND	8	USB3_TX0_N_C
9	USB3_TX0_P_C	10	P5V_OC01_C
11	USB_1N_C	12	USB_1P_C
13	GND	MH1	CHASSIS_GND
MH2	CHASSIS_GND	MH3	CHASSIS_GND
MH4	CHASSIS_GND		

DVI-I Connector

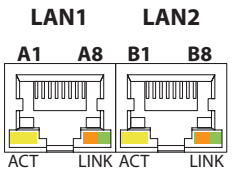
Connector type: 24-pin D-Sub, 2.0mm-M-180 (DVI)
Connector location: CN10



Pin	Definition	Pin	Definition
1	TX2-	2	TX2+
3	GND	4	NC
5	NC	6	DDC_CLK
7	DDC_DATA	8	VSYNC_VGA
9	TX1-	10	TX1+
11	GND	12	NC
13	NC	14	DVI_VCC(+5V)
15	GND	16	HotPlugDet
17	TX0-	18	TX0+
19	GND	20	DDCCLK_VGA
21	DDCDATA_VGA	22	GND
23	TXCLK+	24	TXCLK-
C1	RED	C2	GREEN
C3	BLUE	C4	HSYNC_VGA
C5A	VGADET	C5B	GND
MH1	CHASSIS_GND	MH2	CHASSIS_GND

LAN1 and LAN2 Ports

Connector type: Dual RJ45 port with LEDs
Connector location: LAN1A (LAN1) and LAN1B (LAN2)



Act	Status
Flashing Yellow	Data activity
Off	No activity

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

LAN1

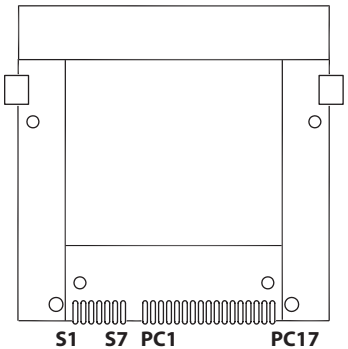
Pin	Definition	Pin	Definition
A1	LAN1_MDI0P	A2	LAN1_MDI0N
A3	LAN1_MDI1P	A4	LAN1_MDI1N
A5	LAN1_MDI2P	A6	LAN1_MDI2N
A7	LAN1_MDI3P	A8	LAN1_MDI3N
A9	V1P5_LAN	A10	GND
A11	LAN1_LINK100#	A12	LAN1_LINK1G#
A13	LAN1_LED_ACT#	A14	3VSB
MH1	CHASSIS_GND		

LAN2

Pin	Definition	Pin	Definition
B1	LAN2_MDI0P	B2	LAN2_MDI0N
B3	LAN2_MDI1P	B4	LAN2_MDI1N
B5	LAN2_MDI2P	B6	LAN2_MDI2N
B7	LAN2_MDI3P	B8	LAN2_MDI3N
B9	V1P5_LAN2	B10	GND
B11	LAN2_LINK100#	B12	LAN2_LINK1G#
B13	LAN2_LED_ACT#	B14	3VSB
MH2	CHASSIS_GND		

CFast

Connector type: Standard CFast connector
Connector location: CN8



Pin	Definition	Pin	Definition
S1	GND	S2	SATA_TXP1
S3	SATA_TXN1	S4	GND
S5	SATA_RXN1	S6	SATA_RXP1
S7	GND	PC1	CFAST_CDI
PC2	GND	PC3	NC
PC4	NC	PC5	NC
PC6	NC	PC7	GND
PC8	NC	PC9	VCC3
PC10	NC	PC11	NC
PC12	NC	PC13	VCC3
PC14	VCC3	PC15	GND
PC16	GND	PC17	CFAST_CDO
MH1	CHASSIS_GND	MH2	CHASSIS_GND

Power Switch

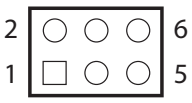
Connector location: SW2

Pin	Definition	Pin	Definition
1	GND	2	3VSB
3	3VSB	4	GND
A1	PWRLED_N	C1	PWRLED_P
MH1	NC	MH2	NC

Internal Connectors

BIOS Pin Header

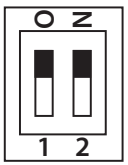
Connector type: 2x3 6-pin header, 2.0mm pitch
Connector location: JFW1



Pin	Definition	Pin	Definition
1	VCC	2	GND
3	CS#0	4	CLK
5	SO	6	SI

RTC Switch

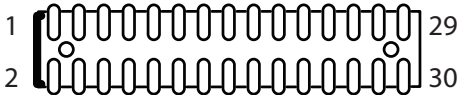
Connector type: 2-pin DIP switch
Connector location: SW1



Pin	Definition
1	SRTC_TEST#
2	RTC_TEST#
3	GND
4	GND

Power Pin Header

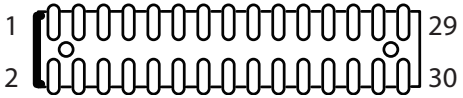
Connector type: 2x15 30-pin header, 2.0mm pitch
Connector location: JP14



Pin	Definition	Pin	Definition
1	12VSB	2	GND
3	12VSB	4	GND
5	12VSB	6	GND
7	12VSB	8	GND
9	12VSB	10	GND
11	12VSB	12	GND
13	12VSB	14	GND
15	12VSB	16	GND
17	12VSB	18	GND
19	12VSB	20	GND
21	12VSB	22	GND
23	12VSB	24	GND
25	GPIO_LED1_N	26	GND
27	BAT_C	28	GND
29	VCC12	30	GND

Signal Pin Header

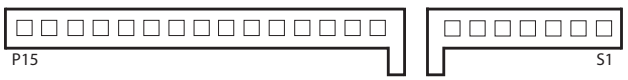
Connector type: 2x15 30-pin header, 2.0mm pitch
Connector location: JP15



Pin	Definition	Pin	Definition
1	COM2_DCD#	2	COM1_DCD#
3	COM2_RXD	4	COM1_RXD
5	COM2_TXD	6	COM1_TXD
7	COM2_DTR#	8	COM1_DTR#
9	COM2_DSR#	10	COM1_DSR#
11	COM2_RTS#	12	COM1_RTS#
13	COM2_CTS#	14	COM1_CTS#
15	COM2_RI#	16	COM1_RI#
17	COM2_232_EN#	18	COM1_232_EN#
19	COM2_485_EN#	20	COM1_485_EN#
21	COM2_422_EN#	22	COM1_422_EN#
23	PBT_PU	24	PCIE_WAKE#
25	HDD_LED_N	26	PWR_LED_N
27	BAT_LED_N	28	GPIO_LED_N
29	VCC5	30	VCC3

SATA Connector (7-pin and 15-pin)

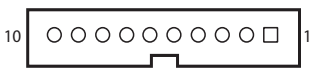
Connector type: Standard Serial ATA 7P and 15P
Connector location: SATA1



Pin	Definition	Pin	Definition
S1	GND	S2	SATA_TXP0
S3	SATA_TXN0	S4	GND
S5	SATA_RXN0	S6	SATA_RXP0
S7	GND	P1	VCC3
P2	VCC3	P3	VCC3
P4	GND	P5	GND
P6	GND	P7	VCC5
P8	VCC5	P9	VCC5
P10	GND	P11	NC
P12	GND	P13	VCC12
P14	VCC12	P15	VCC12
NH1	NC	NH2	NC

Port 80 Connector

Connector type: 1x10 10-pin header, 1.0mm pitch
Connector location: J1



Pin	Definition	Pin	Definition
1	GND	2	PLTRST_3P3#
3	LPC_CLK0_DEBUG	4	LPC_FRAME#
5	LPC_AD3	6	LPC_AD2
7	LPC_AD1	8	LPC_AD0
9	VCC3	10	VCC3
MH1	GND	MH2	GND

Mic-in Pin Header

Connector type: 1x4 4-pin header, 2.0mm pitch
Connector location: JP2

Pin	Definition
1	MIC1_L3
2	NC
3	MIC_GND
4	MIC1_R3

Line-out Pin Header

Connector type: 1x4 4-pin header, 2.0mm pitch
Connector location: JP1

Pin	Definition
1	OUT_L
2	NC
3	AGND
4	OUT_R

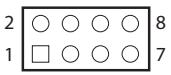
Line-in Pin Header

Connector type: 1x4 4-pin header, 2.0mm pitch
Connector location: JP6

Pin	Definition
1	FLIN_L
2	NC
3	LIN_GND
4	FLIN_R

PS2 KB/MS Pin Header

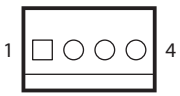
Connector type: 2x4 8-pin header, 2.54mm pitch
Connector location: JP8



Pin	Definition	Pin	Definition
1	VCC5	2	VCC5
3	KDAT_R	4	MDAT_R
5	KCLK_R	6	MCLK_R
7	GND	8	GND

FAN Connector

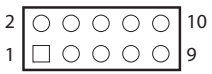
Connector type: 1x4 4-pin Wafer, 2.54mm pitch
Connector location: CN7



Pin	Definition
1	GND
2	VCC12
3	CPUFANIN
4	CPUFANOUT

GPIO Pin Header

Connector type: 2x5 10-pin header, 2.0mm pitch
Connector location: JP13



Pin	Definition	Pin	Definition
1	VCC5	2	GND
3	ICH_GPO0_OUT	4	ICH_GPI0_IN
5	ICH_GPO1_OUT	6	ICH_GPI1_IN
7	ICH_GPO2_OUT	8	ICH_GPI2_IN
9	ICH_GPO3_OUT	10	ICH_GPI3_IN

LAN1A LED Pin Header

Connector type: 2x2 4-pin header, 2.0mm pitch
Connector location: JP11

Pin	Definition
1	LAN1_ACT_CON
2	LAN1_LED_ACT#
3	LAN1_LINK1G#
4	LAN1_100#_CON

LAN1B LED Pin Header

Connector type: 2x2 4-pin header, 2.0mm pitch
Connector location: JP10

Pin	Definition
1	LAN2_ACT_CON
2	LAN2_LED_ACT#
3	LAN2_LINK1G#
4	LAN2_100#_CON

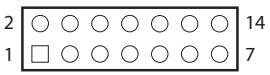
Reset Pin Header

Connector type: 1x2 2-pin header, 2.0mm pitch
Connector location: JP7

Pin	Definition
1	PM_RESET#_J
2	GND

PWR_LED/HDD_LED/SMB_BUS/S3/SW_ON/RESET

Connector type: 2x7 14-pin header, 2.0mm pitch
Connector location: JP9



Pin	Definition	Pin	Definition
1	PWR_LED_N	2	POWER_LED_PWR
3	HDD_LED_N	4	HDD_LED_PWR
5	SMB_CLK	6	SMB_DATA
7	3VSB	8	GND
9	SLP_S3#	10	PSON
11	PBT_SW	12	GND
13	PM_RESET#_J	14	GND

3.5G Line-out Pin Header

Connector type: 1x3 3-pin header, 2.54mm pitch
Connector location: JP3

Pin	Definition
1	LOUT_RL
2	LOUT_RR
3	ANGND

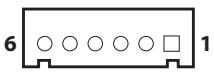
3.5G Mic Pin Header

Connector type: 1x3 3-pin header, 2.54mm pitch
Connector location: JP4

Pin	Definition
1	MIC_RL
2	MIC_RR
3	ANGND

Power Pin Header

Connector type: 1x6 JST, 6-pin header, 2.5mm pitch
Connector location: J2



Pin	Definition	Pin	Definition
1	12VSB	2	12VSB
3	12VSB	4	GND
5	GND	6	POWER_STATUS

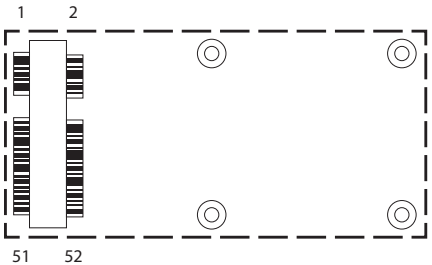
SIM Card Connector

Connector location: IDE1

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

Mini-PCIe Connector

Connector location: CN11

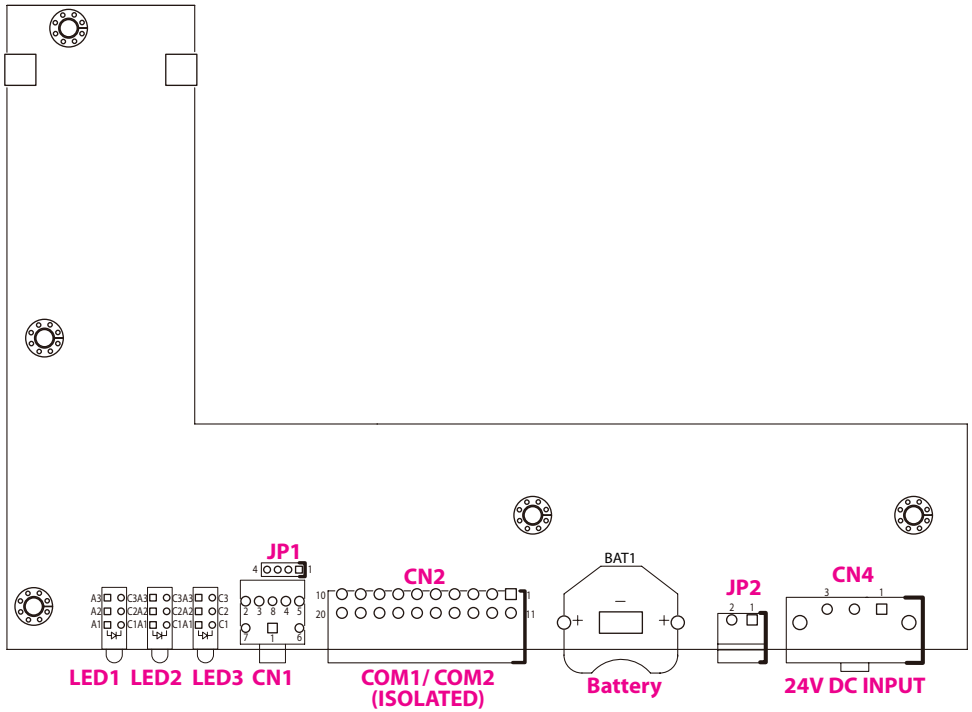


Pin	Definition	Pin	Definition
1	PCIEWAKE#	2	+3VSB
3	N/A	4	GND
5	N/A	6	+1.5V
7	CLKREQ#	8	N/A
9	GND	10	N/A
11	REF CLK-	12	N/A
13	REF CLK+	14	N/A
15	GND	16	N/A
17	N/A	18	GND
19	N/A	20	Disable#
21	GND	22	RST#
23	PCIERX0-	24	+3VSB
25	PCIERX0+	26	GND

Pin	Definition	Pin	Definition
27	GND	28	+1.5V
29	GND	30	SMBCLK
31	PCIETX0-	32	SMBDATA
33	PCIETX0+	34	GND
35	GND	36	USB_D-
37	GND	38	USB_D+
39	+3VSB	40	GND
41	+3VSB	42	N/A
43	GND	44	N/A
45	N/A	46	N/A
47	N/A	48	+1.5V
49	N/A	50	GND
51	N/A	52	+3VSB

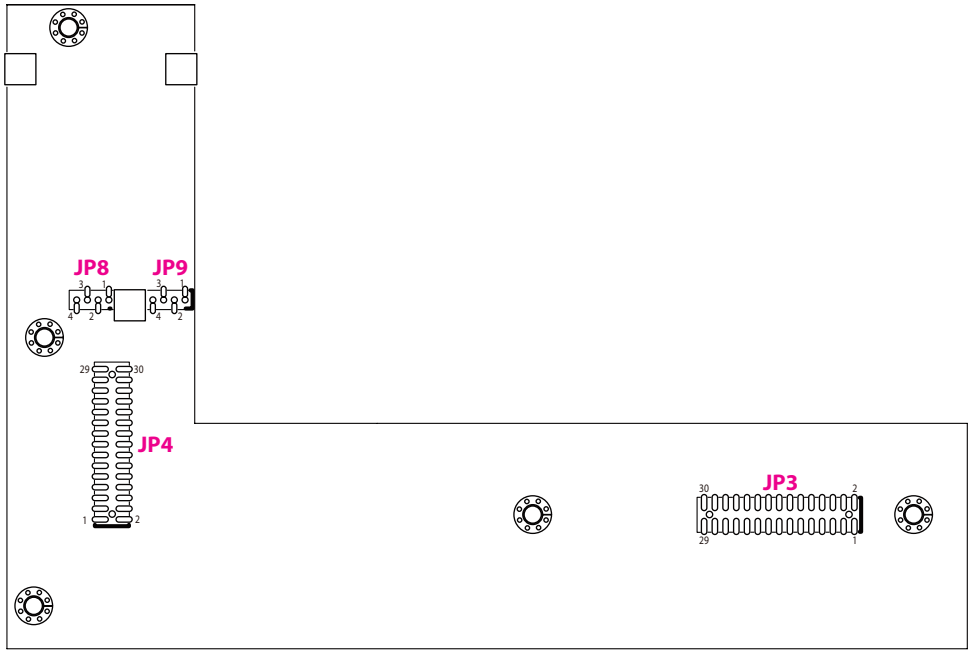
Locations of the Jumpers and Connectors for the I/O Daughterboard

Top View



The figure below is the bottom view of the I/O daughterboard.

Bottom View

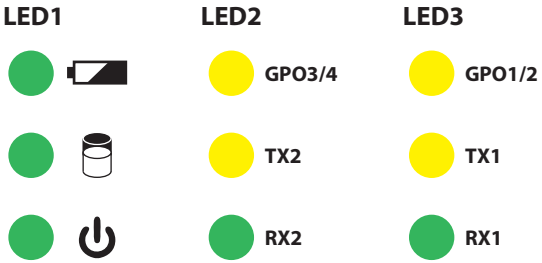


Connector Pin Definitions

External I/O Interfaces - Front Panel

LED Indicators

Connector location: LED1, LED2 and LED3



	Pin	Definition	Pin	Definition
LED1	A1	POWER_LED_PWR	C1	PWR_LED_N
	A2	VCC5	C2	HDD_LED_N
	A3	BAT_LED	C3	GND
LED2	A1	VCC5	C1	COM2_RXLEDN
	A2	VCC5	C2	COM2_TXLEDN
	A3	VCC5	C3	GPIO_LED1_N
LED3	A1	VCC5	C1	COM1_RXLEDN
	A2	VCC5	C2	COM1_TXLEDN
	A3	VCC5	C3	GPIO_LED_N

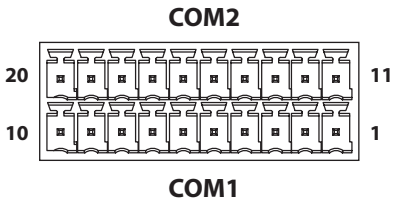
Line-out Connector

Connector type: 3.5mm audio jack
Connector location: CN1

Pin	Definition	Pin	Definition
1	AGND	2	OUT_R
3	NC	4	NC
5	OUT_L		

Isolated COM1 and COM2 Connector

Connector type: 2x10 20-pin terminal block
Connector location: CN2



COM1

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	ISO_GND	5	ISO_GND	5	ISO_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-
10	NC	10	NC	10	NC

COM2

RS232		RS485		RS422	
Pin	Definition	Pin	Definition	Pin	Definition
11	SP2_DCD	11	SP2_DATA-	11	SP2_TX-
12	SP2_RXD	12	SP2_DATA+	12	SP2_TX+
13	SP2_TXD	13	NC	13	SP2_RX+
14	SP2_DTR	14	NC	14	SP2_RX-
15	ISO_GND	15	ISO_GND	15	ISO_GND
16	SP2_DSR	16	NC	16	SP2_RTS-
17	SP2_RTS	17	NC	17	SP2_RTS+
18	SP2_CTS	18	NC	18	SP2_CTS+
19	SP2_RI	19	NC	19	SP2_CTS-
20	NC	20	NC	20	NC

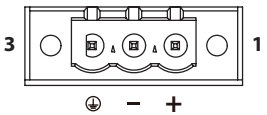
Remote Power On/Off Switch

Connector type: 1x2 2-pin terminal block
Connector location: JP2

Pin	Definition
1	PBT_PU
2	GND

24V DC Power Input

Connector type: Phoenix Contact 1x3 3-pin terminal block
Connector location: CN4



Pin	Definition
1	VIN_M
2	VIN_VSS
3	Chassis_GND

Internal Connectors

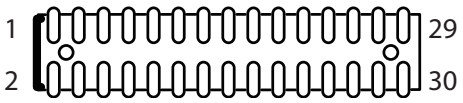
Line-out Pin Header

Connector type: 1x4 4-pin header, 2.0mm pitch
Connector location: JP1

Pin	Definition
1	OUT_L
2	NC
3	AGND
4	OUT_R

Power Pin Header

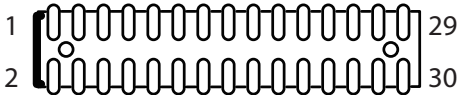
Connector type: 2x15 30-pin header, 2.0mm pitch
Connector location: JP4



Pin	Definition	Pin	Definition
1	GND	2	12VSB
3	GND	4	12VSB
5	GND	6	12VSB
7	GND	8	12VSB
9	GND	10	12VSB
11	GND	12	12VSB
13	GND	14	12VSB
15	GND	16	12VSB
17	GND	18	12VSB
19	GND	20	12VSB
21	GND	22	12VSB
23	GND	24	12VSB
25	GPIO_LED1_N	26	GPIO_LED1_N
27	BAT_C	28	BAT_C
29	GND	30	VCC12

Signal Pin Header

Connector type: 2x15 30-pin header, 2.0mm pitch
Connector location: JP3



Pin	Definition	Pin	Definition
1	COM1_DCD#	2	COM2_DCD#
3	COM1_RXD	4	COM2_RXD
5	COM1_TXD	6	COM2_TXD
7	COM1_DTR#	8	COM2_DTR#
9	COM1_DSR#	10	COM2_DSR#
11	COM1_RTS#	12	COM2_RTS#
13	COM1_CTS#	14	COM2_CTS#
15	COM1_RI#	16	COM2_RI#
17	COM1_232_EN#	18	COM2_232_EN#
19	COM1_485_EN#	20	COM2_485_EN#
21	COM1_422_EN#	22	COM2_422_EN#
23	PCIE_WAKE#	24	PBT_PU
25	PWR_LED_N	26	HDD_LED_N
27	GPIO_LED_N	28	BAT_LED_N
29	VCC3	30	VCC5

SR Power-Output Power

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

Pin	Definition
1	12VSB
2	12VSB
3	12VSB
4	12VSB

SR Power-Output GND

Connector type: 1x4 4-pin header, 2.0mm pitch
Connector location: JP9

Pin	Definition
1	GND
2	GND
3	GND
4	GND

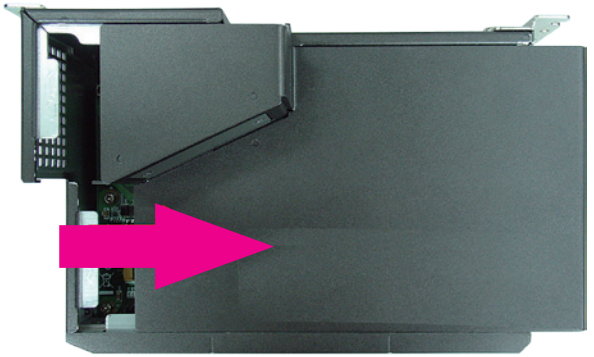
Chapter 3: System Setup

Removing the Chassis Cover

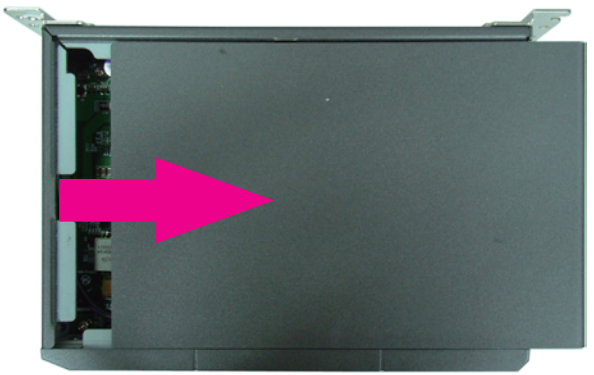
Prior to removing the chassis cover, make sure the unit's power is off and disconnected from the power sources to prevent electric shock or system damage.

1. Locate the 2 screws on the bottom of the chassis.

2. Remove the screws then slide the cover away from the chassis.



NIFE 100

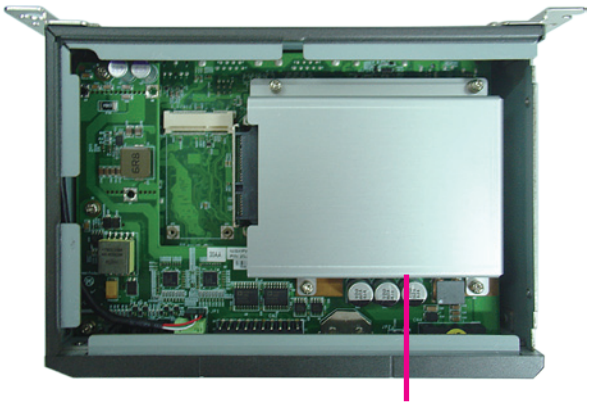


NIFE 101

Installing a SO-DIMM Memory Module

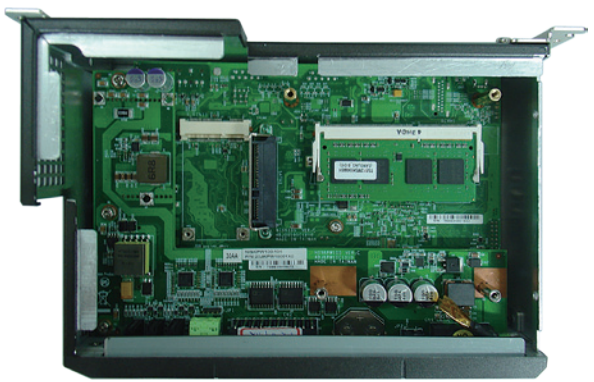
Remove the bottom cover before installing a SO-DIMM module.

1. Remove the HDD bracket to access the SO-DIMM socket beneath.



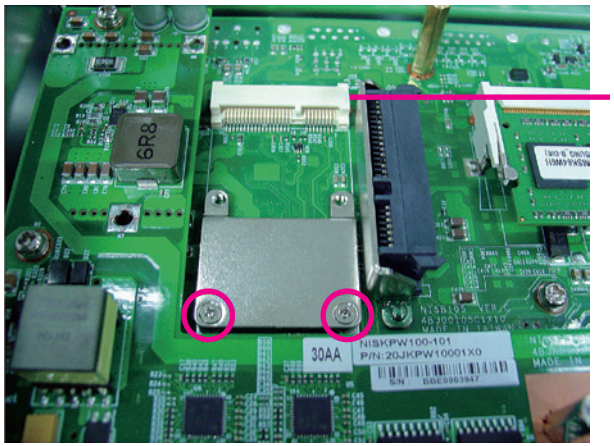
2. Insert the SO-DIMM module into the socket at an approximately 30 degrees angle.

3. Push the module down until it slips into the socket and a clicking sound is heard.

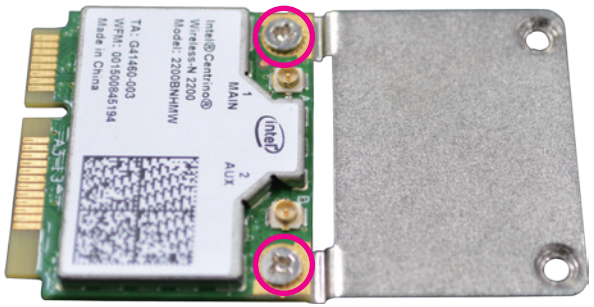


Installing a Mini-PCIe Module (Half-Size)

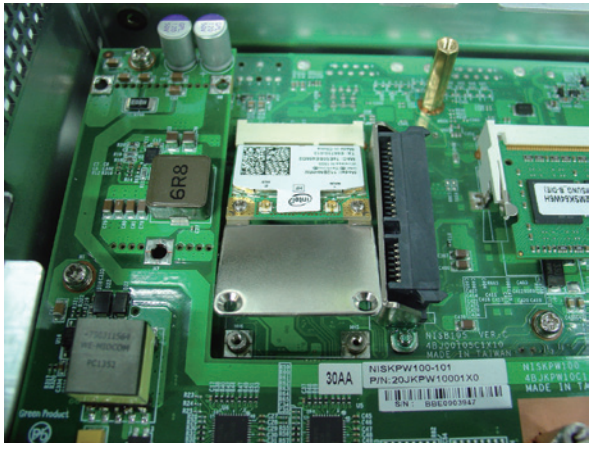
1. Locate the mini-PCIe slot on the board and remove the mini-PCIe bracket.



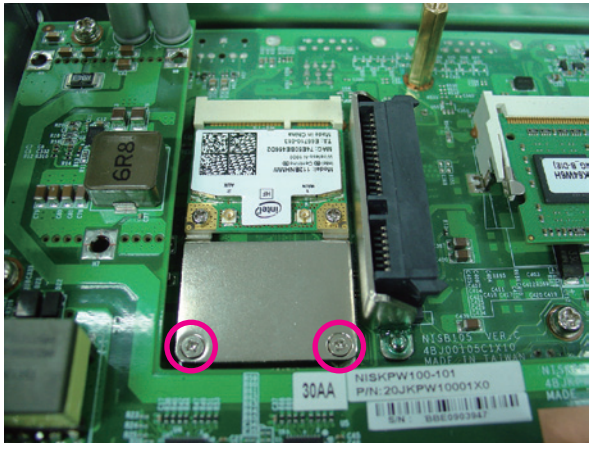
2. Screw the mini-PCIe bracket to the mini-PCIe module.



3. Insert the mini-PCIe module into the mini-PCIe slot at 45 degree angle until the gold-plated connector on the edge of the module completely disappears into the slot.

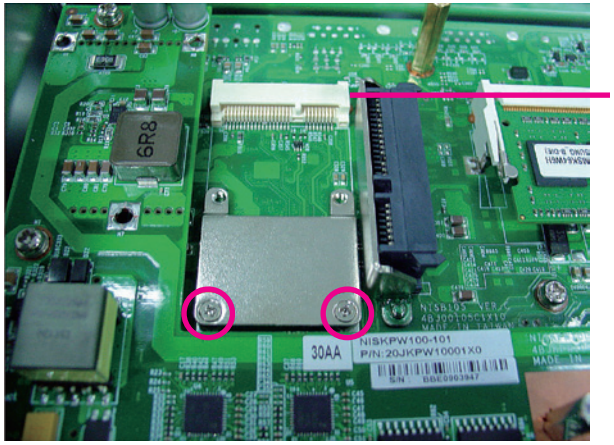


4. Push the module down and secure it with screws.



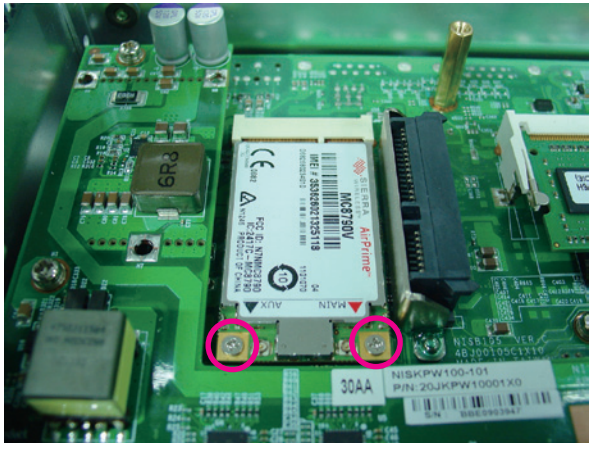
Installing a Mini-PCIe Module (Full-Size)

1. Locate the mini-PCIe slot on the board and remove the mini-PCIe bracket.



2. Insert the mini-PCIe module into the mini-PCIe slot at 45 degree angle until the gold-plated connector on the edge of the module completely disappears into the slot.

3. Push the module down and secure it with screws.



Installing a SIM Card

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

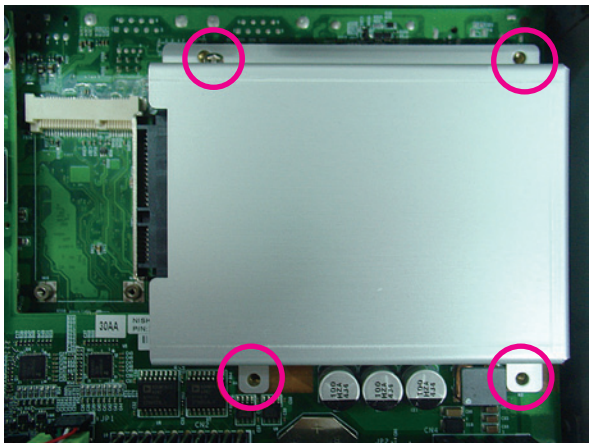
2. Place the SIM card into the holder.

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

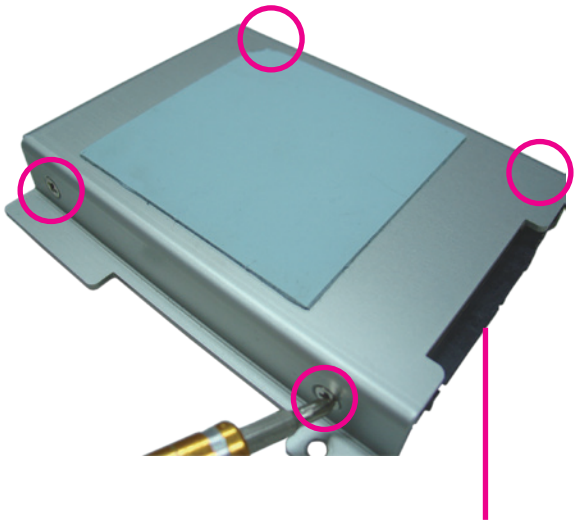
Installing a 2.5" SATA Hard Drive

Remove the bottom cover before installing a SATA HDD.

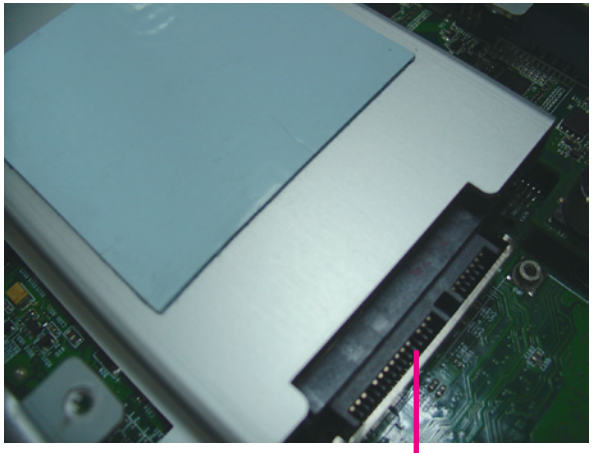
1. Locate the internal HDD bracket and remove all the screws on the bracket.



2. Place the 2.5" HDD into the HDD bracket with the connectors facing towards the opening, then use the screws to secure the drive in place.

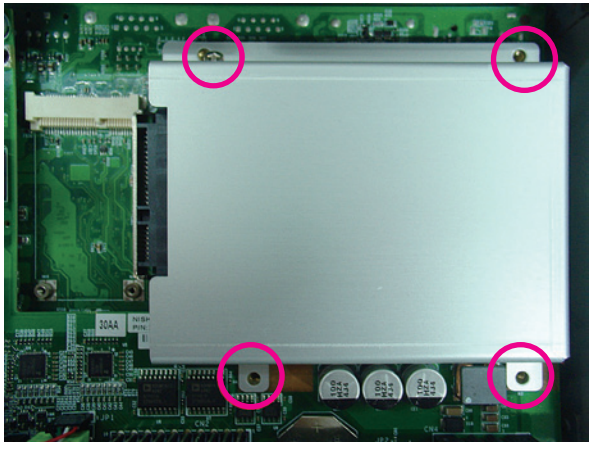


3. Place the HDD bracket back to its original position with the connectors plugged into the SATA connector on the board.



SATA Connector

4. Secure the HDD bracket with screws.



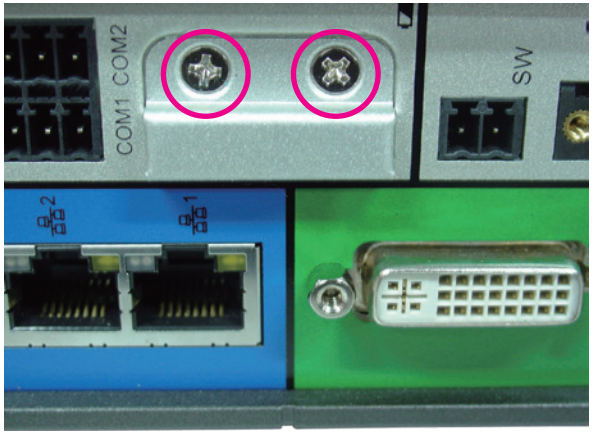
Installing a CFast Card

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

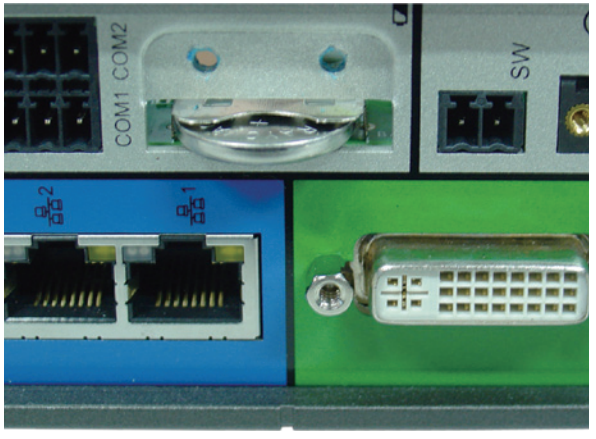
2. Insert the CFast card into the slot, then secure the cover back to its original location.

Installing a Battery

1. Locate the battery slot at the front and remove its cover.



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



Chapter 4: BIOS Setup

This chapter describes how to use the BIOS setup program for NIFE 100/101. The BIOS screens provided in this chapter are for reference only and may change if the BIOS is updated in the future.

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

About BIOS Setup

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

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

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

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

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

When to Configure the BIOS

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

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

Default Configuration

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

Entering Setup

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

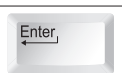
- If the error occurs before the display device is initialized, a series of beeps will be transmitted.
- If the error occurs after the display device is initialized, the screen will display the error message.

Powering on the computer and immediately pressing <Del> 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 

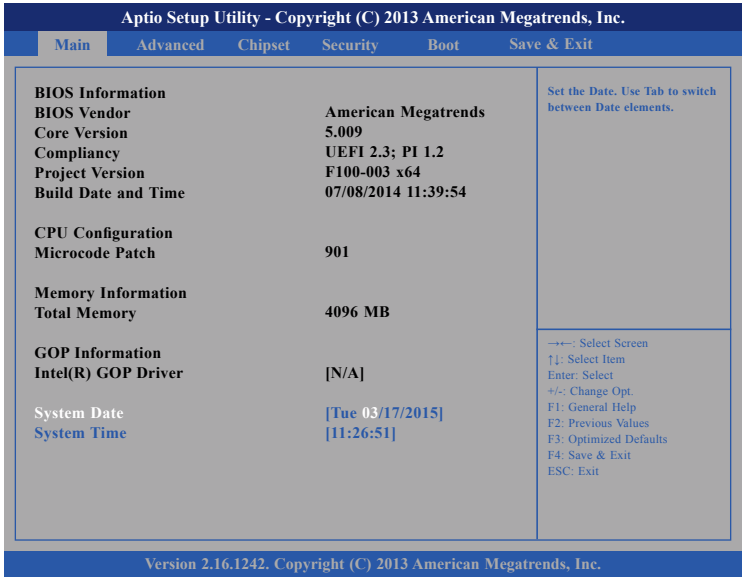
.

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 Enter to accept or enter the submenu.

Main

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



System Date

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

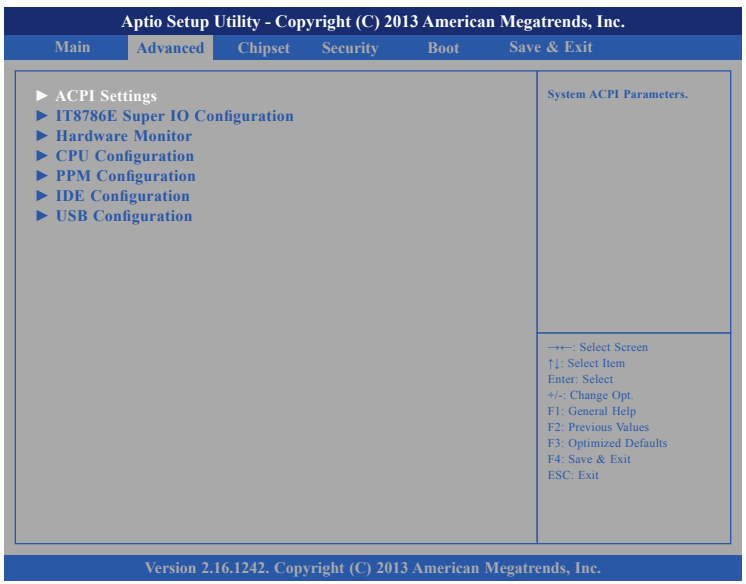
System Time

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

Advanced

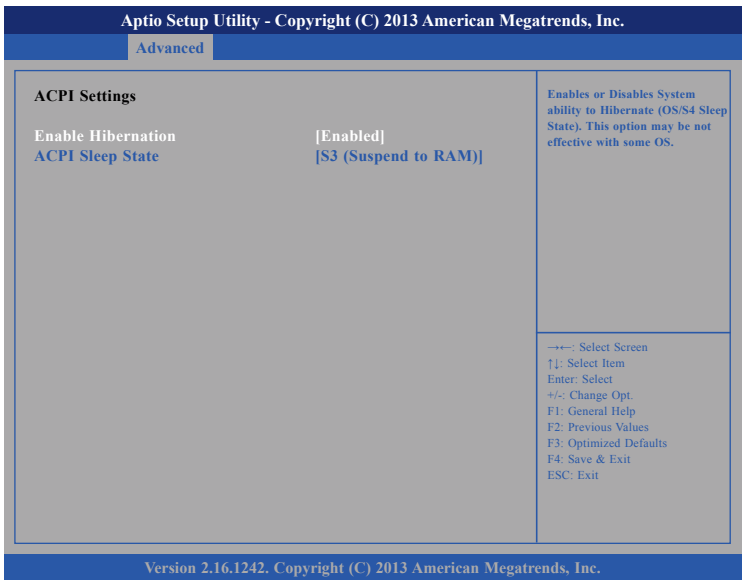
The Advanced menu allows you to configure your system for basic operation. Some entries are defaults required by the system board, while others, if enabled, will improve the performance of your system or let you set some features according to your preference.

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).

IT8786E 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.

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.

Serial Port 2 Configuration

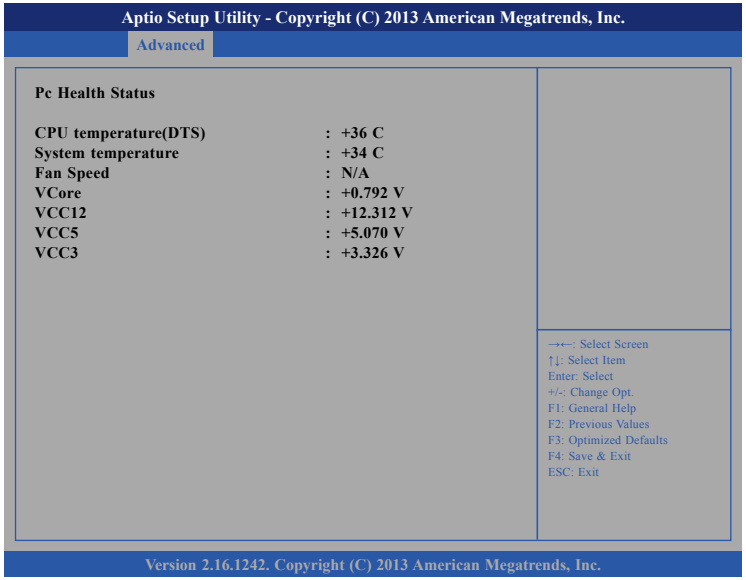
This section is used to configure serial port 2.

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.

H/W 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.

Fan Speed
Detects and displays the fan speed.

VCore
Detects and displays the Vcore CPU voltage.

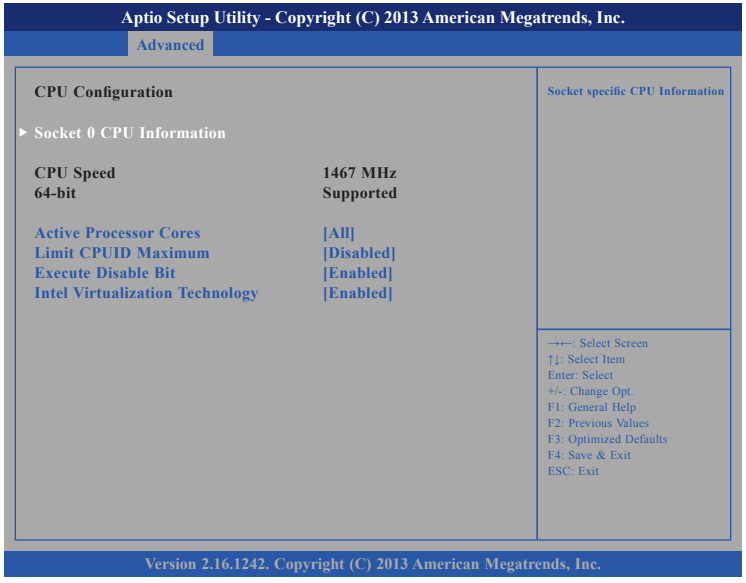
VCC12
Detects and displays 12V voltage.

VCC5
Detects and displays 5V voltage.

VCC3
Detects and displays 3.3V voltage.

CPU Configuration

This section is used to configure the CPU.



Active Processor Cores

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

Limit CPUID Maximum

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

Execute Disable Bit

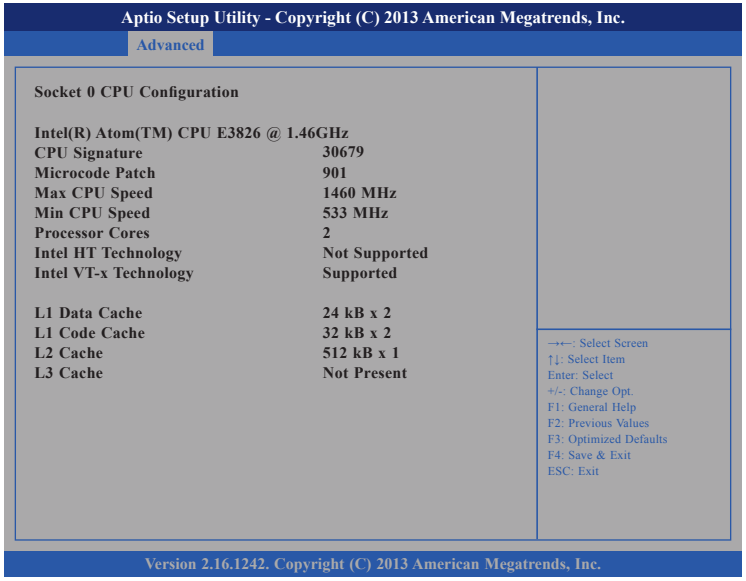
When this field is set to Disabled, it will force the XD feature flag to always return to 0. XD can prevent certain classes of malicious buffer overflow attacks when combined with a supporting OS (Windows Server 2003 SP1, Windows XP SP2, SuSE Linux 9.2, RedHat Enterprise 3 Update 3).

Intel® Virtualization Technology

Enables or disables Intel® Virtualization technology.

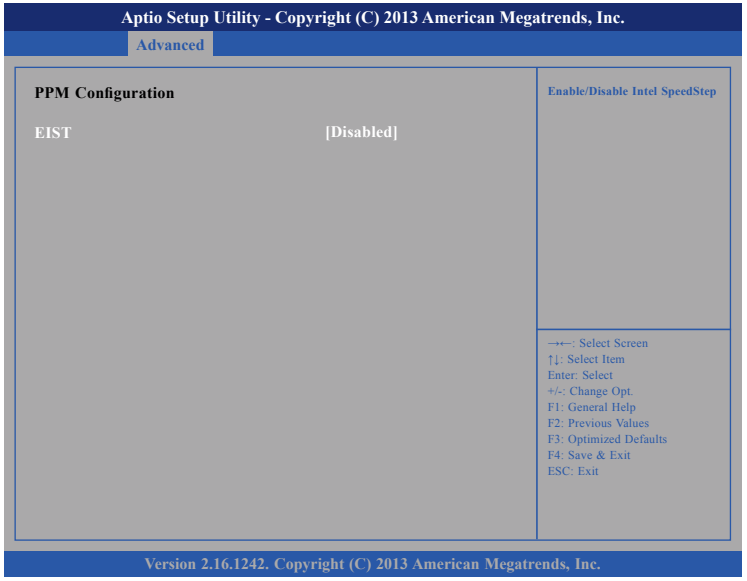
Socket 0 CPU Information

This section displays the information of the CPU installed in Socket 0.



PPM Configuration

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

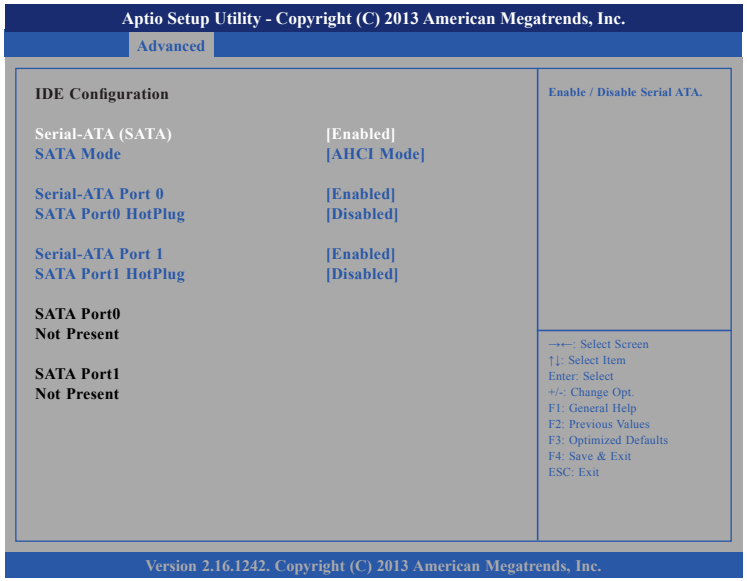


EIST

Enables or disables Intel® SpeedStep.

IDE Configuration

This section is used to configure the SATA drives.



Serial-ATA (SATA)
Enables or disables SATA device.

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

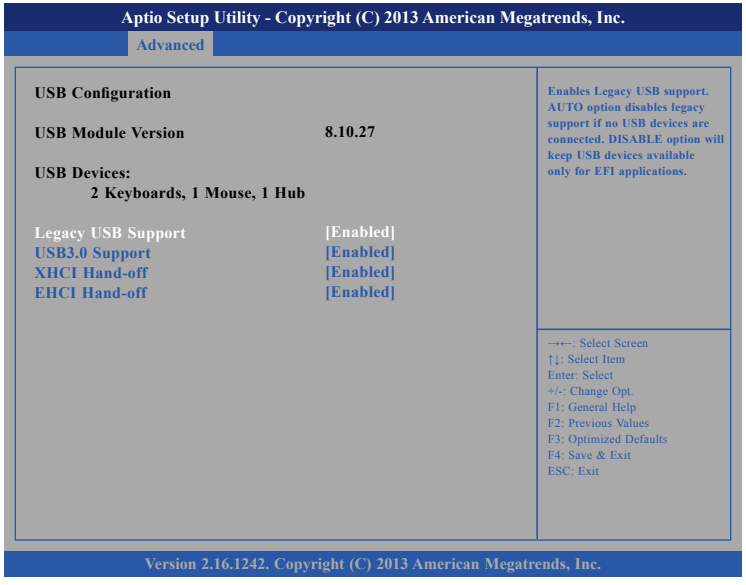
SATA Port1 Hotplug and SATA Port2 Hotplug
Enables or disables hotplug support on SATA port 1 and SATA port 2.

SATA Mode
Configures the SATA as IDE or AHCI mode.

IDE	This option configures the Serial ATA drives as Parallel ATA physical storage device.
AHCI	This option configures the Serial ATA drives to use AHCI (Advanced Host Controller Interface). AHCI allows the storage driver to enable the advanced Serial ATA features which will increase storage performance.

USB Configuration

This section is used to configure the USB.



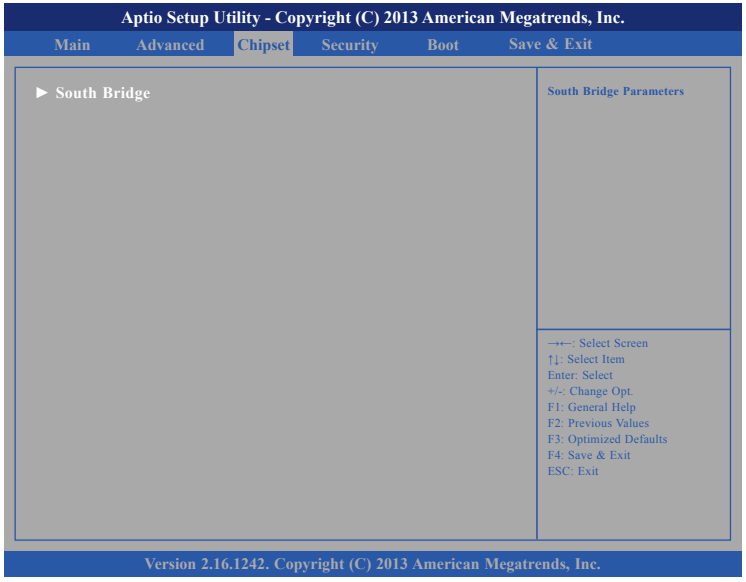
Legacy USB Support
Enable Enables Legacy USB.
Auto Disables support for Legacy when no USB devices are connected.
Disable Keeps USB devices available only for EFI applications.

USB3.0 Support
Enables or disables USB 3.0 controller support.

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

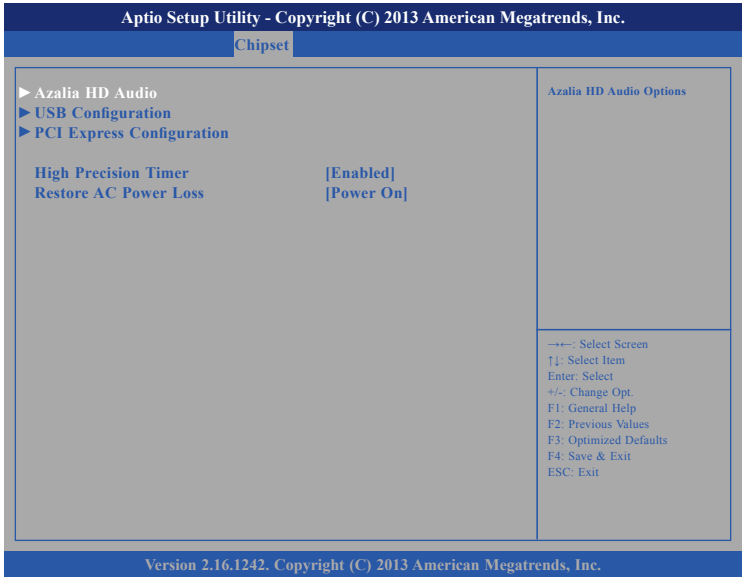
Chipset

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.



South Bridge

This section is used to configure the south bridge features.



High Precision Timer

Enables or disables the high precision event timer.

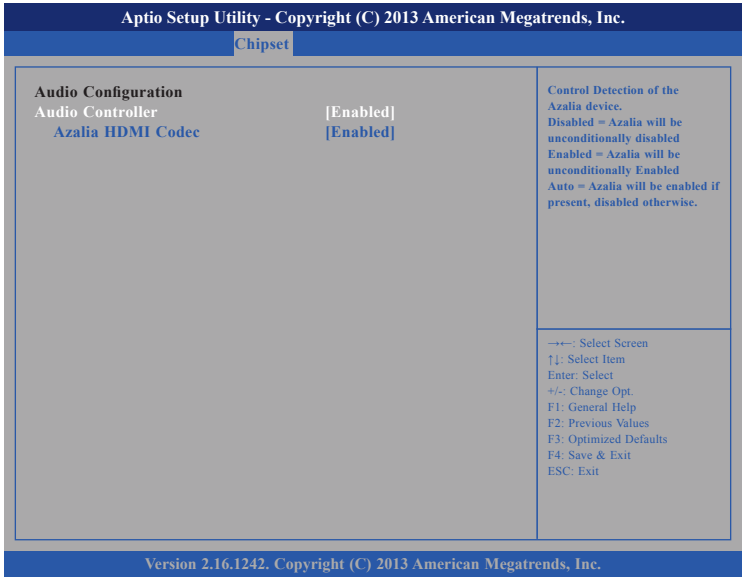
Restore AC Power Loss

Power Off — When power returns after an AC power failure, the system's power is off. You must press the power button to power-on the system.

Power On — When power returns after an AC power failure, the system will automatically power-on.

Last State — When power returns after an AC power failure, the system will return to the state where you left off before power failure occurs. If the system's power is off when AC power failure occurs, it will remain off when power returns. If the system's power is on when AC power failure occurs, the system will power-on when power returns.

Azalia HD Audio



Azalia

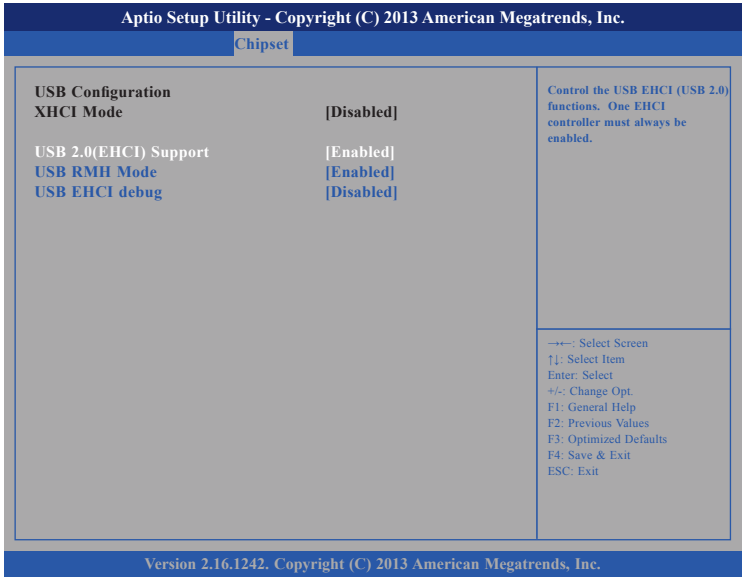
Control detection of the Azalia device.

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

Azalia HDMI Codec

Enables or disables internal HDMI codec for Azalia.

USB Configuration



USB 2.0(EHCI) Support

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

USB RMH Mode

Enables or disables PCH USB rate matching hubs mode.

USB EHCI Debug

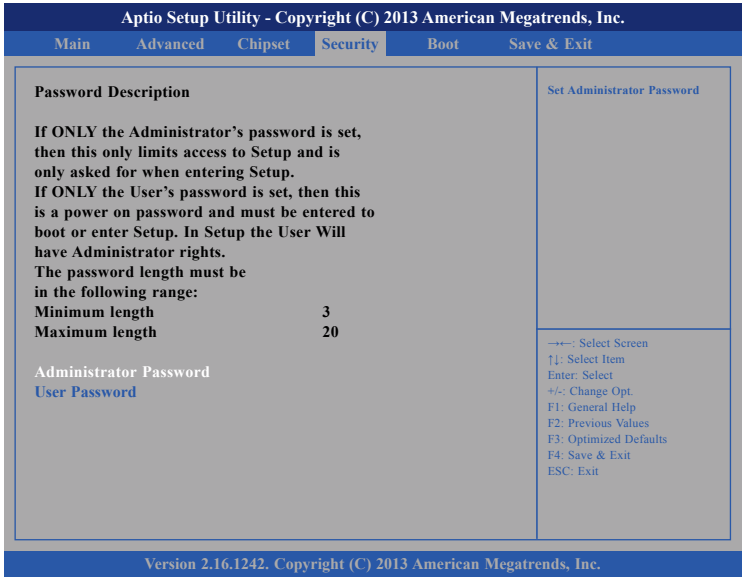
Enables or disables PCH EHCI debug capability.

PCI Express Configuration

PCI Express Port 0 to PCI Express Port 2

Enables or disables the PCI Express ports 0 to 2 on the chipset.

Security



Administrator Password

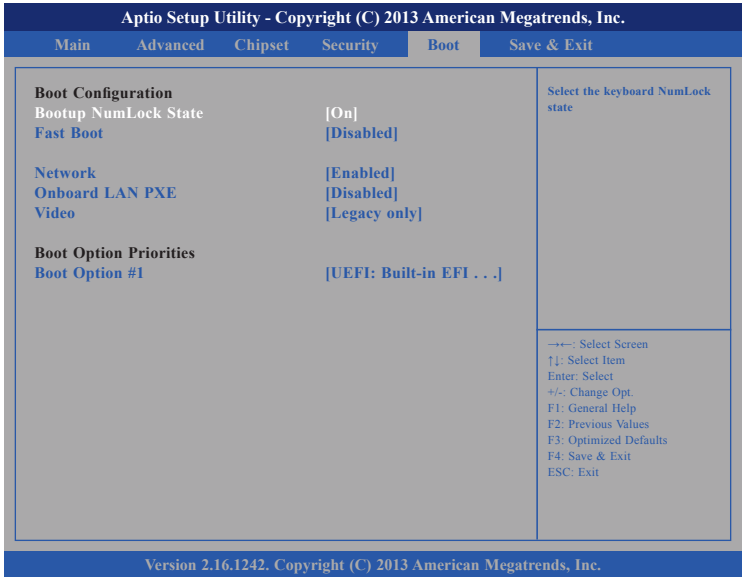
Select this to reconfigure the administrator's password.

User Password

Select this to reconfigure the user's password.

Boot

This section is used to configure the boot features.



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

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

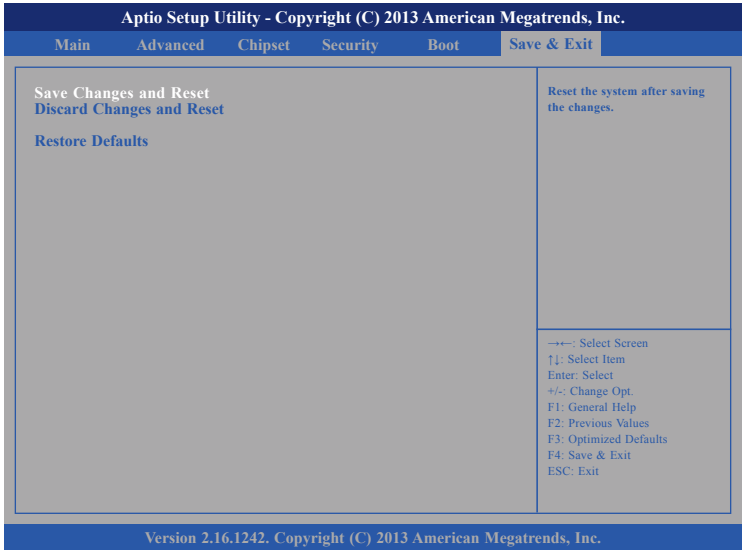
Network
Controls the execution of UEFI and legacy PXE OpROM.

Onboard LAN PXE
Options to disable onboard LAN PXE ROM or enable it for LAN1 or LAN2 .

Video
Controls the execution of UEFI and legacy video OpROM.

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.

Save & Exit



Save Changes and Reset

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

Discard Changes and Reset

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

Restore Defaults

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

Appendix A: Power Consumption

Test Configuration

System Configuration	Sys#1
Chassis	Chassis NIFE 100 VER:A
CPU	Intel® Atom™ processor E3826 dual core, 1.46 GHz
Memory	Transcend 4GB DDR3 1600MHz SO-DIMM (TS512MSK64W6H-I)
HDD	TS64GSSD630I 64GB MLC SSD
FDD	N/A
CD-ROM	N/A
CFast	N/A
Power Supply	Laboratory DC power supply GWINSTEK GPC-60300
Add-on Card	Mini-PCIe card for fieldbus Hilscher:CIFX 90E
CPU Cooler	NISE 105 CPU heatsink SHYUNG SHUHN
System FAN	N/A
Keyboard	Microsoft Wired Keyboard 600
Mouse	Microsoft Basic Optical Mouse

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 8 x32 Pro.
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	Sys #1
	+12V	+24V
Full-Loading Mode	2.03A	1.11A
Total	24.36W	26.64W
Standby S3 Mode	0.93A	0.49A
Total	11.16W	11.76W

Appendix B: GPI/O Programming Guide

GPI/O (General Purpose Input/Output) pins are provided for custom system design. This appendix provides definitions and its default setting for the ten GPI/O pins in the NIFE 100/101 series. The pin definition is shown in the following table:

Pin	GPI/O Mode	PowerOn Default	Address	Pin	GPI/O Mode	PowerOn Default	Address
1	VCC	-	-	2	GND	-	-
3	GPO0	Low	A03h (Bit6)	4	GPI0	High	A03h (Bit1)
5	GPO1	Low	A02h (Bit5)	6	GPI1	High	A05h (Bit5)
7	GPO2	Low	A07h (Bit0)	8	GPI2	High	A05h (Bit4)
9	GPO3	Low	A07h (Bit1)	10	GPI3	High	A00h (Bit1)

Control the GPO 0/1/2/3 level from I/O port A03h bit 6/ A02h bit 5 A07h bit 0/ A07h bit 1.
The bit is Set/Clear indicated output High/Low.

GPIO programming sample code

```
#define GPO0                    (0x01 << 6)
#define GPO1                    (0x01 << 5)
#define GPO2                    (0x01 << 0)
#define GPO3                    (0x01 << 1)

#define GPO0_HI                 outportb(0xA03, GPO0)
#define GPO0_LO                 outportb(0xA03, 0x00)
#define GPO1_HI                 outportb(0xA02, GPO1)
#define GPO1_LO                 outportb(0xA02, 0x00)
#define GPO2_HI                 outportb(0xA07, GPO2)
#define GPO2_LO                 outportb(0xA07, 0x00)
#define GPO3_HI                 outportb(0xA07, GPO3)
#define GPO3_LO                 outportb(0xA07, 0x00)

void main(void)
{
   GPO0_HI;
   GPO1_LO;
   GPO2_HI;
   GPO3_LO;
}
```

Appendix C: Watchdog Timer Setting

ITE8786 WatchDog Programming Guide

```
#define SUPERIO_PORT    0x2E
#define WDT_SET         0x72
#define WDT_VALUE       0x73

void main(void)
{
        #Enter SuperIO Configuration
        outportb(SUPERIO_PORT, 0x87);
        outportb(SUPERIO_PORT, 0x01);
        outportb(SUPERIO_PORT, 0x55);
        outportb(SUPERIO_PORT, 0x55);

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

        # Set WDT setting
        outportb(SUPERIO_PORT, WDT_SET);
        outportb(SUPERIO_PORT+1, 0x90);         # Use the second
                                                # Use the minute, change value to 0x10
        # Set WDT sec/min
        outportb(SUPERIO_PORT, WDT_VALUE);
        outportb(SUPERIO_PORT+1, 0x05);         #Set 5 seconds
}
```