NEXCOM International Co., Ltd.

IoT Automation Solutions Business Group
PC-based Factory Automation System
NIFE 200 Series
User Manual

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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.

18. This product is intended to be supplied by a Listed Power Adapter, suitable for use at Tma 55 degree C whose output meets SELV and rating is 24Vdc, 2.5A min.

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.

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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 Phoenix Contact:1803581	3.81mm Female DIP Green	1
2	4NCPM00302X00	(T)Terminal Blocks 3P Phoenix Contact:1777992	5.08mm Male DIP Green	1
3	50311F0295X00	Flat Head Screw Long Fei:F2x4 NYLOK NIGP	F2x4 NIGP NYLOK	2
4	50311F0326X00	Flat Head Screw Long Fei:F3x5 NYLOK NI+Heat Treatment	F3x5 NYLOK NI+Heat Treatment	4
5	50311F0330X00	Round Head Screw Long Fei:P2x3 ISO+NYLON	P2x3 NI NYLOK	4
6	50311P0001X00	Price for Plastic Screw	HS6-75P 75mm	2
7	50322P0002X00	Plastic Nut Gin Lian:M6HW	10mmx6mm	2
8	5060900226X00	Mini PCIe Bracket CHYUAN-JYH	29x30x2.1mm SPCC t=1.0mm NI	1
9	6012200052X00	PE Zipper Bag #8	170x240mm, w/China RoHS Symbol	1
10	6012200053X00	PE Zipper Bag #3	100x70mm, w/China RoHS Symbol	2
11	60177A0464X00	(E)NIFE 200 Quick Reference Guide VER:A SIZE:A4	KRAMER	1
12	602DCD1049X00	(E)NIFE 200 DVD Driver VER:1.0	JCL	1
13	7800000078X00	DVI-I to VGA Adapter for NISE 104 ST:ADDH27B	DVI-I (24+5) Pin Male to VGA 15-pin Female	1

Ordering Information

The following information below provides ordering information for
NIFE 200 series.

NIFE 200 (P/N: 10J70020000X0)
Intel® Atom™ processor J1900 Quad Cord 2.0GHz fanless system

NIFE 200P2 (P/N: 10J70020001X0)
Intel® Atom™ processor J1900 Quad Core 2.0GHz fanless system

24V, 60W AC/DC power adapter w/ o power cord (P/N: 7400060054X00)

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CHAPTER 1: PRODUCT INTRODUCTION

Overview

NIFE 200

NIFE 200P2

Key Features

- On-board Intel® Celeron® processor J1900 Quad Core 2.0GHz

- Dual independent display from DP and DVI-I

- 2 x Intel® I210AT GbE LAN ports support WoL, Teaming and PXE

- 3 x USB 2.0 & 1 x USB 3.0

- 2 x RS232/422/485

- 2 x Mini-PCIe socket for optional Wi-Fi/3.5G/4G LTE/Fieldbus modules

- Top access SD card socket

- Support -5 ~ 55 degree C operating temperature

- Typical 24V DC input with +/-20% range

Hardware Specifications

CPU Support

- On-board Intel® Celeron® processor J1900 Quad Core 2.0GHz
- Support Intel® Atom™ E3800 processor family from single core E3815, Dual Core E3825/E3826/E3827 and Quad Core E3845 with different SKUs

Main Memory

- 2 x DDR3L 1066/1333 SO-DIMM sockets, support 8GB

Display Option

- Dual independent display
  - DVI-I and DP

I/O Interface - Front

- ATX power on/off switch
- LEDs for HDD LED, Battery LEDs, Power LED, COM port TX/RX, 5 x programmable GPO LEDs
- 1 x External SD Card
- 1 x SIM card holder
- 2 x Intel® I210AT GbE LAN ports, support WoL, Teaming and PXE
- 1 x DP display output
- 1 x DVI-I display output
- 1 x USB 3.0 (900mA per each)
- 3 x USB 2.0 (500mA per each)
- 2 x RS232/422/485 support auto flow control
  - Jumper-free setting on RS232/422/485
  - Support 2.5KV isolation protection on COM1
- 1 x 3-pin DC input, Typical 24V DC input with +/-20% range

Storage Device

- 1 x 2.5" SSD/HDD (SATA 2.0) -- front accessible
- 1 x SD card (Data storage only)
- 1 x mSATA

Expansion Slot

- Two PCI Expansions (NIFE 200P2 only)
  - Add-on card length: 176mm max.
  - Power consumption: 10W/ slot max.
- 2 x Mini-PCIe sockets for optional Wi-Fi/3.5G/4G LTE/Fieldbus modules

Power Requirements

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

Dimensions

- NIFE 200: 85mm (W) x 157mm (D) x 214mm (H)
- NIFE 200P2: 151mm (W) x 157mm (D) x 230mm (H)

Construction

- Aluminum and metal chassis with fanless design

Environment

- Operating temperature:
  Ambient with air flow: -10°C to 60°C
  (According to IEC60068-2-1, IEC60068-2-2, IEC60068-2-14)
- Storage temperature: -20°C to 80°C
- Relative humidity: 10% to 95% (non-condensing)

- Shock protection:
  - HDD: 20G, half sine, 11ms, IEC60068-2-27
  - SSD: 50G, half sine, 11ms, IEC60068-2-27
- Vibration protection w/SSD condition:
  - Random: 2Grms @ 5 ~ 500Hz, IEC60068-2-64
  - Sinusoidal: 2Grms @ 5 ~ 500Hz, IEC60068-2-6

Certifications

- CE Approval
  - EN61000-6-2
  - EN61000-6-4
- FCC Class A
- LVD
- UL60950

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

Knowing Your NIFE 200/200P2

Front View

NIFE 200

NIFE 200P2

LED Indicators

DisplayPort

DVI-I

LAN & USB Ports

HDD Bay

COM Ports

Power Button

24V DC Input
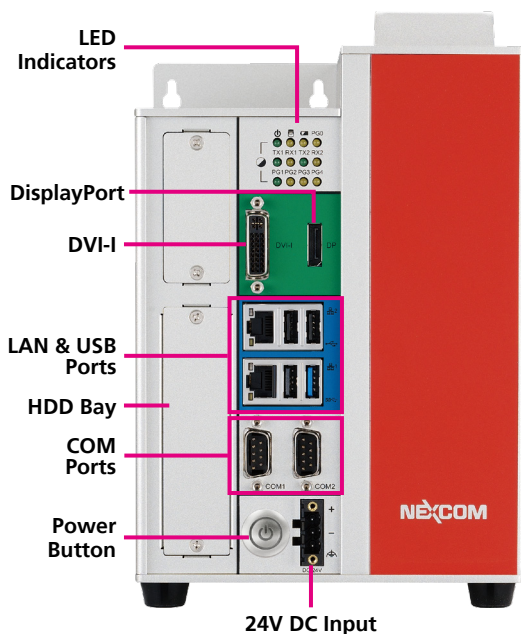
LED Indicators

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

DVI-I

Used to connect a digital LCD panel.

DisplayPort

Used to connect the system with display devices.

LAN Ports

Two 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

NIFE 200P2 has the same top panel connectors as NIFE 200, with two additional PCI expansions.

NIFE 200   **NIFE 200P2**

PCI   Remote   SD Card & SIM
             On/Off
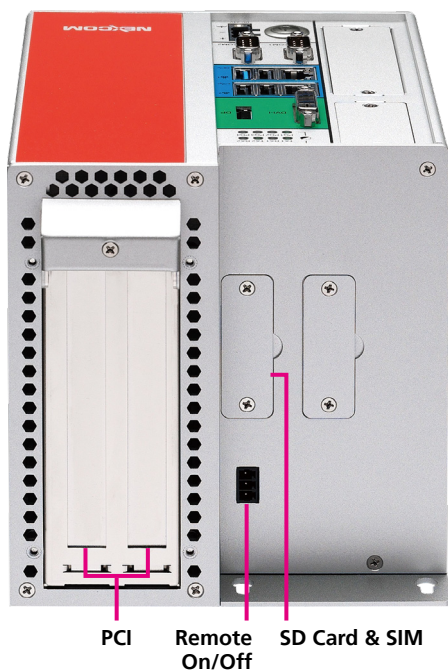
PCI Expansions

Two PCI expansion slots for add-on cards.

Remote On/Off Switch

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

SD Card Slot

Used to insert a SD card.

SIM Slot

Used to insert a SIM card.

Mechanical Dimensions

NIFE 200
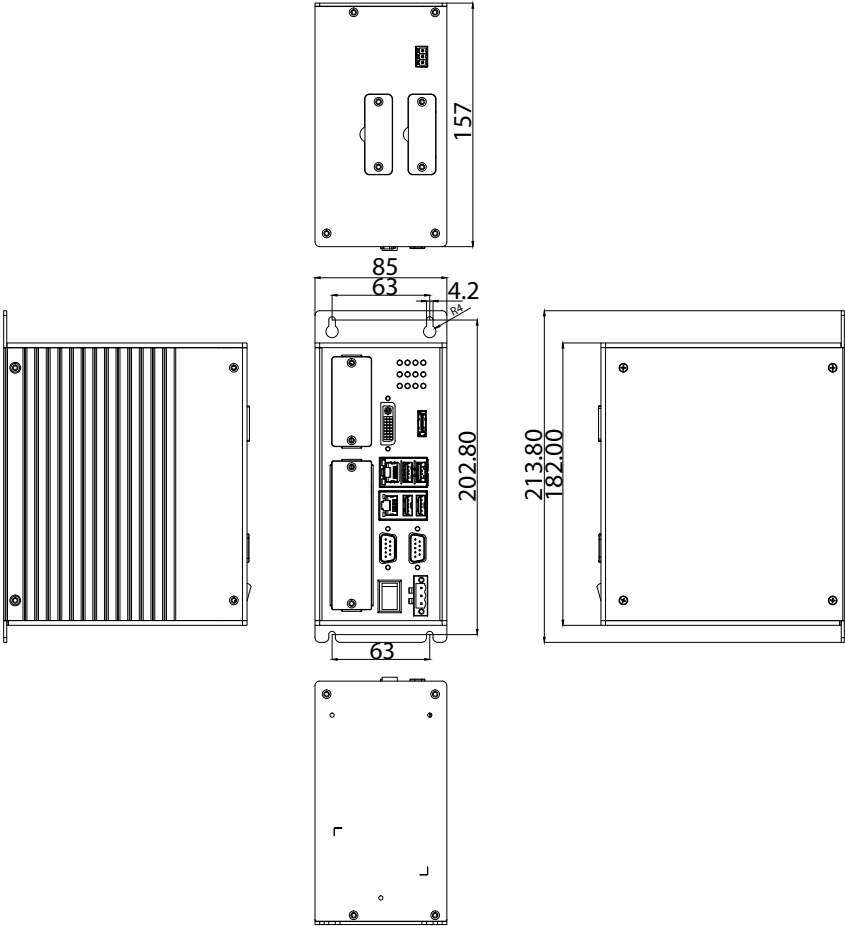
NIFE 200P2
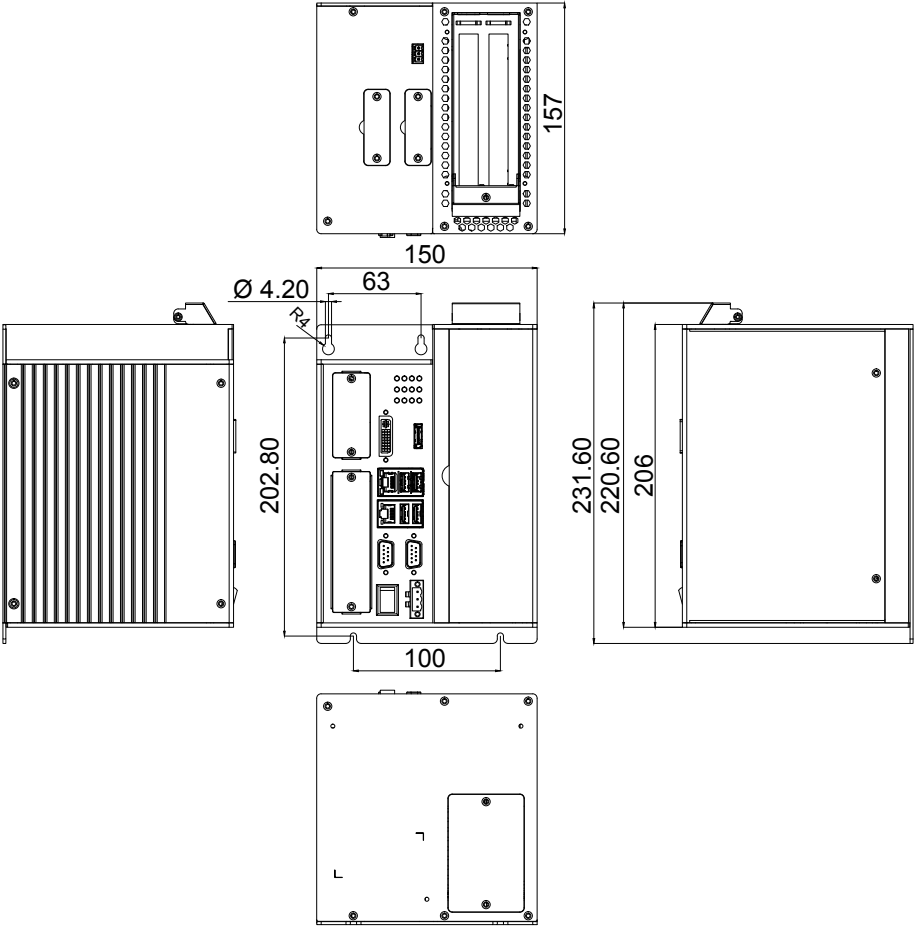
CHAPTER 2: JUMPERS AND CONNECTORS

This chapter describes how to set the jumpers and connectors on the NIFE 200 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.

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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)
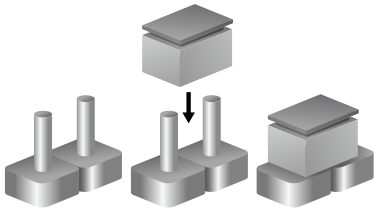
Three-Pin Jumpers: Pins 1 and 2 are Short

Locations of the Jumpers and Connectors for NIFB 200

The figure below is the top view of the NIFB 200 main board which is the main board used in NIFE 200 series. It shows the locations of the jumpers and connectors.
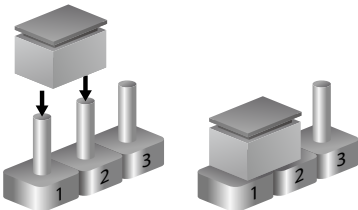
Jumpers

AT/ATX Mode Select

Connector type: 1x3 3-pin header, 2.0mm pitch
Connector location: JP3

1 ▢ ○ ○ 3

Pin	Definition
1	3VSB
2	AT/ATX_SEL
3	ATXBT_R

RTC Connector

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

1 ▢ ○ ○ 3

Pin	Definition
1	NC
2	RTC_TEST#
3	GND

Connector Pin Definitions

External I/O Interfaces - Front Panel

DVI-I Connector

Connector type: 24-pin D-Sub, 2.0mm-M-180 (DVI)
Connector location: CN5
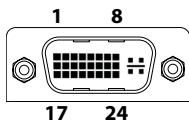
Pin	Definition	Pin	Definition
1	DVI1_DATA2_N_C	2	DVI1_DATA2_P_C
3	GND	4	NC
5	NC	6	DVI1_CTRL_CLK_C
7	DVI1_CTRL_DAT_C	8	VSYNC_VGA
9	DVI1_DATA1_N_C	10	DVI1_DATA1_P_C
11	GND	12	NC
13	NC	14	DVI1_PWR
15	GND	16	DVI1_HPD
17	DVI1_DATA0_N_C	18	DVI1_DATA0_P_C
19	GND	20	DDC_CLK_VGA_C
21	DDC_DATA_VGA_C	22	NC
23	DVI1_CLK_P_C	24	DVI1_CLK_N_C
C1	RED_VGA	C2	GREEN_VGA
C3	BLUE_VGA	C4	HSYNC_VGA
C5A	VGADET	C5B	GND

DisplayPort Connector

Connector type: DisplayPort
Connector location: J7
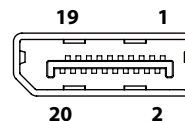
Pin	Definition	Pin	Definition
1	DP_DATA0_P_C	2	GND
3	DP_DATA0_N_C	4	DP_DATA1_P_C
5	GND	6	DP_DATA1_N_C
7	DP_DATA2_P_C	8	GND
9	DP_DATA2_N_C	10	DP_DATA3_P_C
11	GND	12	DP_DATA3_N_C
13	DPC_CONFIG1	14	DPC_CONFIG2
15	DPC_AUXP_C	16	GND
17	DPC_AUXN_C	18	DP_HPD_R
19	N21809347	20	HDMI_PWR

LAN1 and USB 3.0/USB 2.0 Ports

Connector type: RJ45 port with LEDs
USB 3.0 and USB 2.0 port, Type A
Connector location: CON1A (USB) and CON1B (LAN)
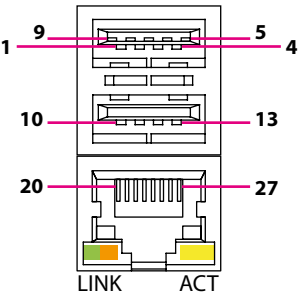
Act	Status
Flashing Yellow	Data activity
Off	No activity

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

USB

Pin	Definition	Pin	Definition
1	P5V_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	HUBUSB_DN4_C	12	HUBUSB_DP4_C
13	GND		

LAN

Pin	Definition	Pin	Definition
19	V1P5_LAN2	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_ACT_CON	30	LAN2_LED_ACT#
31	LAN2_100#_CON	32	LAN2_LINK1G#

LAN2 and USB 2.0 Ports

Connector type: RJ45 port with LEDs
USB 2.0 ports, Type A
Connector location: CON2A (USB) and CON2B (LAN)
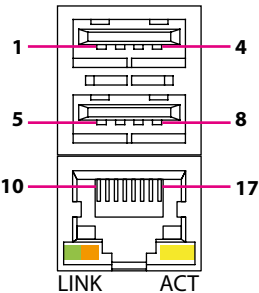
Act	Status
Flashing Yellow	Data activity
Off	No activity

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

USB

Pin	Definition	Pin	Definition
1	USB_OC12	2	DN1_C
3	DP1_C	4	GND
5	USB_OC12	6	DN2_C
7	DP2_C	8	GND

LAN

Pin	Definition	Pin	Definition
9	V1P5_LAN	10	LAN1_MDI0P
11	LAN1_MDI0N	12	LAN1_MDI1P
13	LAN1_MDI1N	14	LAN1_MDI2P
15	LAN1_MDI2N	16	LAN1_MDI3P
17	LAN1_MDI3N	18	GND
19	LAN1_LINK1G#	20	LAN1_100#_CON
21	LAN1_LED_ACT#	22	LAN1_ACT_CON

COM 1 Port (RS232/422/485)

Connector type: DB-9 port, 9-pin D-Sub
Connector location: COM1A

COM 1
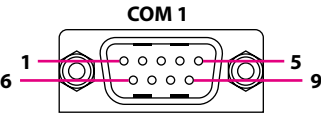
	RS232		RS485		RS422
Pin	**Definition**	**Pin**	**Definition**	**Pin**	**Definition**
1	SP1_DCD	1	SP1_DATA-	1	SP1_TX-
2	SP1_RXD	2	SP1_DATA+	2	SP1_TX+
3	SP1_TXD	3	NC	3	SP1_RX+
4	SP1_DTR	4	NC	4	SP1_RX-
5	GND	5	GND	5	GND
6	SP1_DSR	6	NC	6	SP1_RTS-
7	SP1_RTS	7	NC	7	SP1_RTS+
8	SP1_CTS	8	NC	8	SP1_CTS+
9	SP1_RI	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: COM1B

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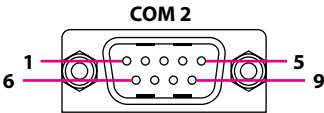
	RS232		RS485		RS422
Pin	**Definition**	**Pin**	**Definition**	**Pin**	**Definition**
1	SP2_DCD	1	SP2_DATA-	1	SP2_TX-
2	SP2_RXD	2	SP2_DATA+	2	SP2_TX+
3	SP2_TXD	3	NC	3	SP2_RX+
4	SP2_DTR	4	NC	4	SP2_RX-
5	GND	5	GND	5	GND
6	SP2_DSR	6	NC	6	SP2_RTS-
7	SP2_RTS	7	NC	7	SP2_RTS+
8	SP2_CTS	8	NC	8	SP2_CTS+
9	SP2_RI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

24V DC Power Input

Connector type: Phoenix Contact 1x3 3-pin terminal block
Connector location: PW1
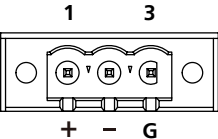
Pin	Definition
1	VIN_1
2	VIN_VSS
3	H3_GND

LED Indicators

Connector location: LED1, LED2 and LED3
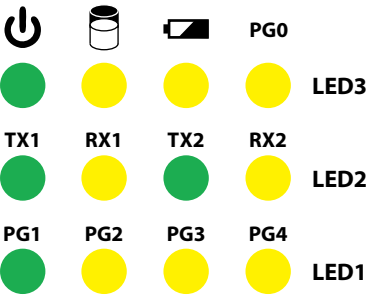
	Pin	Definition	Pin	Definition
LED1	A1	GPIO3_LED	C1	GPO_PR3
	A2	GPIO2_LED	C2	GPO_PR2
	A3	GPIO1_LED	C3	GPO_PR1
	A4	GPIO0_LED	C4	GPO_PR0
LED2	A1	COM2_RXLEDN	C1	COM2_RXLEDP
	A2	COM2_TXLEDN	C2	COM2_TXLEDP
	A3	COM1_RXLEDN	C3	COM1_RXLEDP
	A4	COM1_TXLEDN	C4	COM1_TXLEDP
LED3	A1	GPIO4_LED	C1	GPO_PR4
	A2	BAT_LED_N	C2	GND
	A3	HDD_LED_PWR	C3	HDD_LED_N
	A4	POWER_LED_PWR	C4	PWR_LED_N

Internal Connectors

SATA Connector

Connector type: Standard Serial ATA 7P (1.27mm, SATA-M-180)
Connector location: SATA1
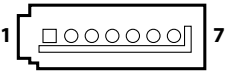
Pin	Definition	Pin	Definition
1	GND	2	S_TXP1
3	S_TXN1	4	GND
5	S_RXN1	6	S_RXP1
7	GND		

SATA Power Connector

Connector type: 1x4 4-pin header, 2.0mm pitch
Connector location: J1

Pin	Definition
1	VCC12
2	GND
3	GND
4	VCC5

Internal USB Dongle Connector

Connector type: USB port
Connector location: CN1

Pin	Definition
1	USB_OC3
2	DN3_C
3	DP3_C
4	GND

SD Card Slot

Connector location: CN4
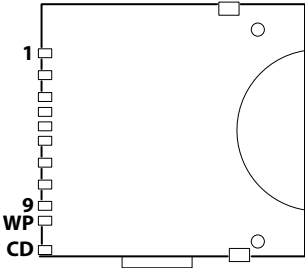
Pin	Definition	Pin	Definition
1	SD_D3	2	SD_CMD
3	GND	4	VSD
5	SD_CLK	6	GND
7	SD_D0	8	SD_D1
9	SD_D2	WP	SD_WP
CD	SD_DET		

Debug Card Connector

Connector type: 1x10 10-pin header, 1.0mm pitch
Connector location: J4

10 ▭ O O O O O O O O O ▯ 1

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

Line-out Pin Header

Connector type: 1x4 4-pin header, 2.0mm pitch
Connector location: JP4

1 ▯ O O O 4

Pin	Definition
1	FRONT_LCI
2	AGND
3	EXLINEOUT_JD
4	FRONT_RCI

Power Connector

Connector type: 1x2 2-pin header, 3.96mm pitch
Connector location: JP2
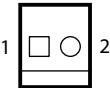
Pin	Definition
1	VCC12
2	GND

PS2 KB/MS Pin Header

Connector type: 2x4 8-pin header, 1.27mm pitch
Connector location: JP6
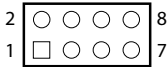
Pin	Definition	Pin	Definition
1	5VSB	2	5VSB
3	KDAT_R	4	MDAT_R
5	KCLK_R	6	MCLK_R
7	GND	8	GND

Remote Push Button Connector

Connector type: 1x3 3-pin terminal block, 3.81mm pitch
Connector location: JP5

System Reset Connector

Connector type: 1x2 2-pin header, 2.0mm pitch
Connector location: JP1
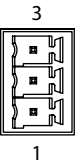
Pin	Definition
1	PBT_TR
2	GND
3	3VSB

Pin	Definition
1	PM_RESET#_J
2	GND

Battery Connector

Connector type: 1x2 2-pin header, 2.0mm pitch
Connector location: BAT1
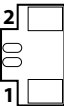
Pin	Definition
1	GND
2	VBAT

Internal COM3 Connector

Connector type: 1x10 10-pin header JST, 1.0mm pitch
Connector location: J2
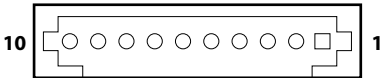
Pin	Definition	Pin	Definition
1	SP3_DCD	2	SP3_RXD
3	SP3_TXD	4	SP3_DTR
5	GND	6	SP3_DSR
7	SP3_RTS	8	SP3_CTS
9	SP3_RI	10	VCC5

Internal COM4 Connector

Connector type: 1x10 10-pin header JST, 1.0mm pitch
Connector location: J3
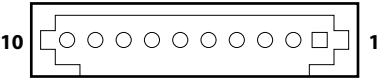
Pin	Definition	Pin	Definition
1	SP4_DCD	2	SP4_RXD
3	SP4_TXD	4	SP4_DTR
5	GND	6	SP4_DSR
7	SP4_RTS	8	SP4_CTS
9	SP4_RI	10	VCC12

Internal GPIO Pin Header

Connector type: 2x5 10-pin header, 2.0mm pitch
Connector location: JP8
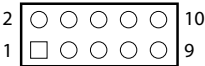
Pin	Definition	Pin	Definition
1	VCC5	2	GND
3	ICH_GPO0_OUT	4	ICH_GPI0_IN
5	ICH_GPO1_OUT	6	ICH_GPI1_IN
7	ICH_GPO2_OUT	8	ICH_GPI2_IN
9	ICH_GPO3_OUT	10	ICH_GPI3_IN

Mini-PCIe Connector

Connector location: CN3
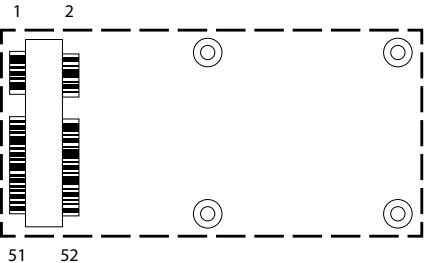
Pin	Definition	Pin	Definition
1	PCIE_WAKE#	2	3VSB_MINI2
3	NC	4	GND
5	NC	6	1V5
7	PCIE_CLKREQ2#	8	UIM_PWR
9	GND	10	UIM_DATA
11	PCIE_CLKN2	12	UIM_CLK
13	PCIE_CLKP2	14	UIM_RESET
15	GND	16	UIM_VCCP
17	NC	18	GND
19	NC	20	MINICARD2DIS#
21	GND	22	PLTRST_3P3#_CON
23	PCIE_RN2	24	3VSB_MINI2
25	PCIE_RP2	26	GND

Pin	Definition	Pin	Definition
27	GND	28	1V5
29	GND	30	SMB_CLK_CON
31	PCIE_TXN2	32	SMB_DATA_CON
33	PCIE_TXP2	34	GND
35	GND	36	MINI2USBN
37	GND	38	MINI2USBP
39	3VSB_MINI2	40	GND
41	3VSB_MINI2	42	NC
43	GND	44	NC
45	NC	46	NC
47	NC	48	1V5
49	NC	50	GND
51	NC	52	3VSB

Mini-PCIe Connector

Connector location: CN2
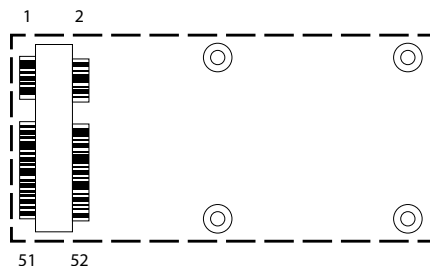
Pin	Definition	Pin	Definition
1	PCIE_WAKE#	2	3VSB_MINI1
3	NC	4	GND
5	NC	6	1V5
7	PCIE_CLKREQ3#	8	NC
9	GND	10	NC
11	HUB_CLKN3_R	12	NC
13	HUB_CLKP3_R	14	NC
15	GND	16	NC
17	NC	18	GND
19	NC	20	MINICARD1DIS#
21	GND	22	PLTRST_3P3#_CON
23	PCIE_mSATA_RXP_R	24	3VSB_MINI1
25	PCIE_mSATA_RXN_R	26	GND

Pin	Definition	Pin	Definition
27	GND	28	1V5_1
29	GND	30	SMB_CLK_CON
31	PCIE_mSATA_TXN_R	32	SMB_DATA_CON
33	PCIE_mSATA_TXP_R	34	GND
35	GND	36	DN2
37	GND	38	DP2
39	3VSB_MINI1	40	GND
41	3VSB_MINI1	42	NC
43	GND	44	NC
45	NC	46	NC
47	NC	48	1V5_1
49	NC	50	GND
51	NC	52	3VSB_MINI1

CHAPTER 3: SYSTEM SETUP

Installing a SO-DIMM Memory Module

1. Place the NIFE 200P2 system on a flat surface to prepare for installation.

2. Locate the four screws on the side of the chassis.

3. Remove the four screws and gently lift up the side cover.

4. Locate the memory module sockets.
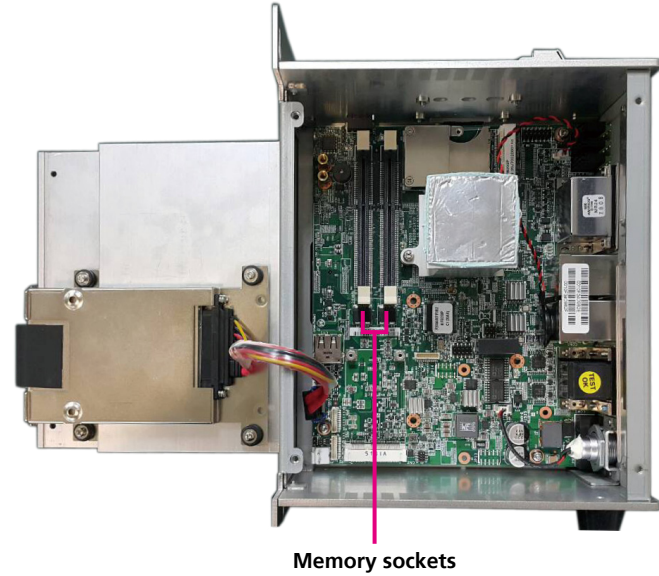
Memory sockets

5. Insert the memory module into the socket.
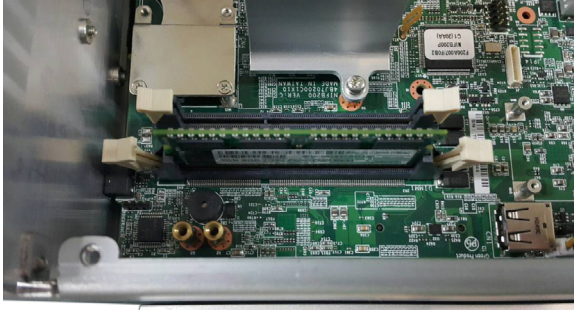
6. Ensure the memory module is secured properly into the socket.

Installing a 2.5" SATA HDD

1. Locate the HDD drive bay cover on the front panel.

HDD drive bay cover

2. Remove the screws on the HDD drive bay cover.

3. Pull out the HDD bracket by pulling the tape.

4. Install the 2.5" HDD into the bracket and secure it with screws.
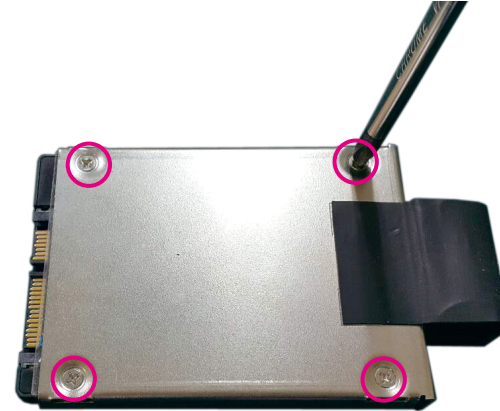
5. Place the HDD bracket back to its original location.

6. Secure the HDD drive bay cover with screws.

Installing a Mini-PCIe Module (Half-Size)

1. Locate the mini-PCIe slot on the board.
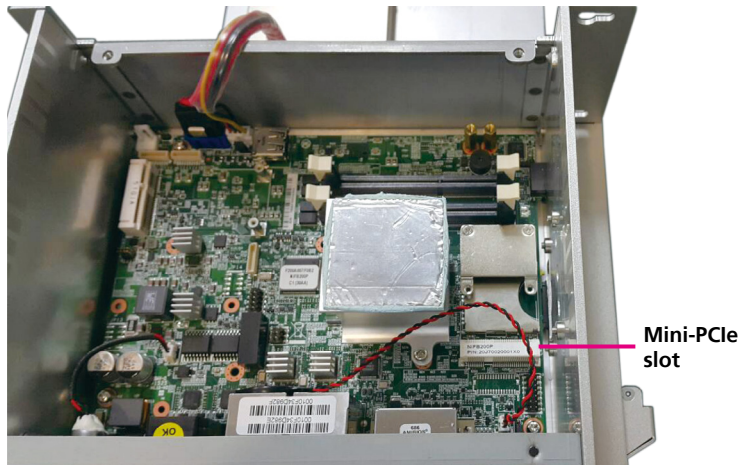
2. Remove the mini-PCIe bracket from the board.
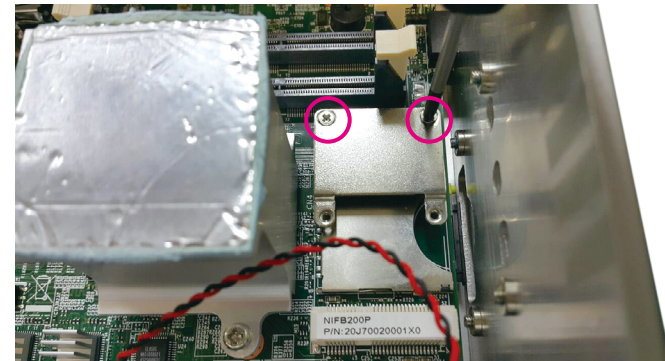
Mini-PCIe slot

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

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

5. Push the module down and secure it with screws.
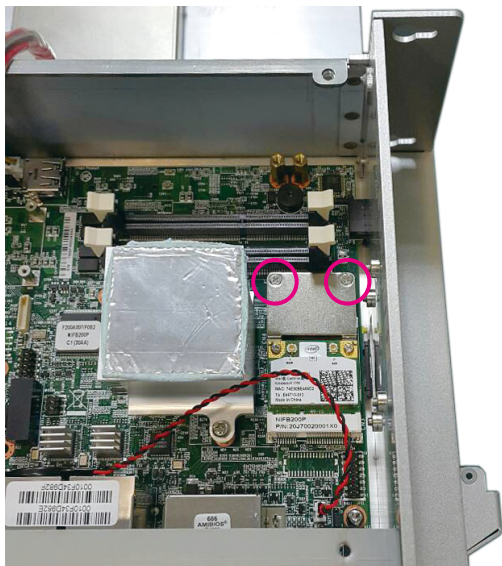
Installing a Mini-PCIe Module (Full-Size)

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

Mini-PCIe slot
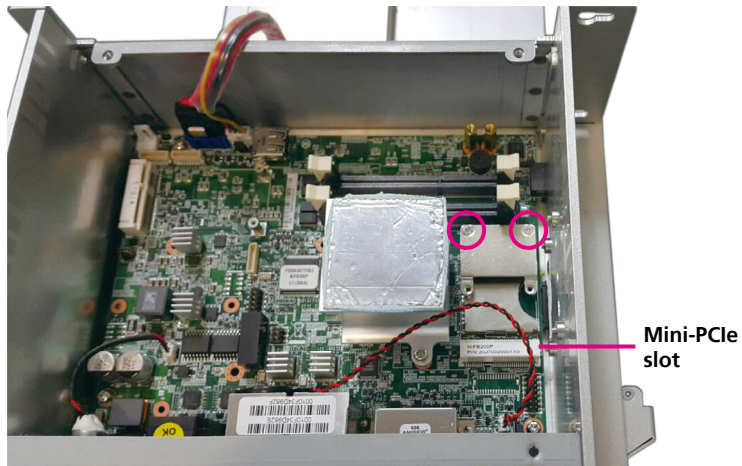
2-1. Insert the mini-PCIe module into the mini-PCIe slot at a 45 degree angle until the gold-plated connector on the edge of the module completely disappears into the slot.

2-2. Secure the module with screws.
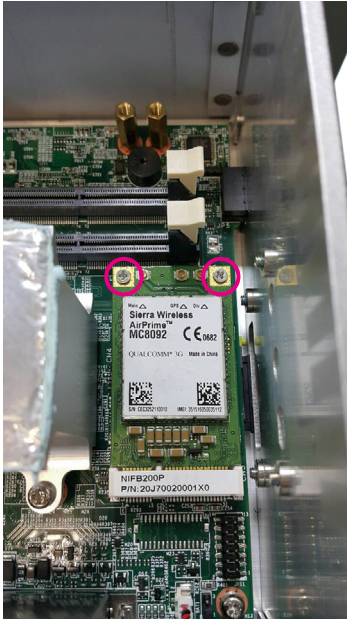
Installing a SD Card or SIM Card

SD Card Installation Instructions

1. Locate the SIM/SD card cover on the top of NIFE 200P2 and loosen the screws on the cover.

SIM/SD card cover

2. Remove the cover.
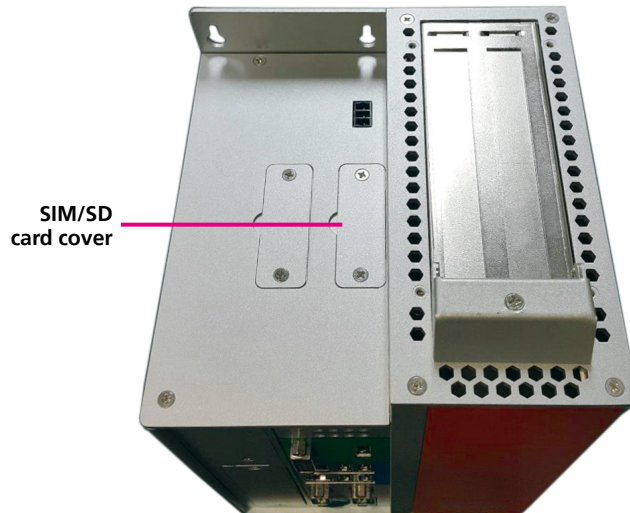
3. Insert the SD card into the SD card socket.

4. Ensure the SD card is correctly secured in position.

5. Press down the SD card until it is fixed into the socket.

SIM Card Installation Instructions

6. Locate the SIM Card socket on the top of NIFE 200P2 and press the yellow button gently to retrieve the SIM card holder.
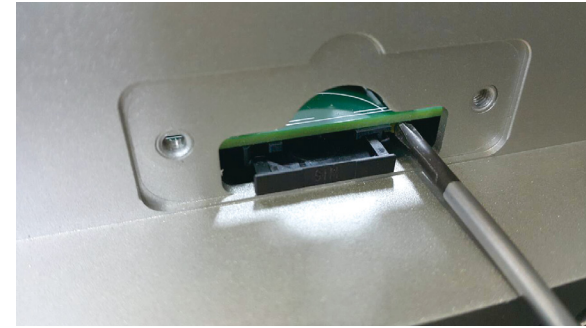
7. Place the SIM card into the holder.

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

Installing an Antenna or Audio Cable

Antenna Installation Instructions

1. Remove the side cover of the chassis first.

2. Remove the antenna hole cover located on the top of NIFE 200P2. (2x Antenna Holes, 1x Audio Cable Hole)

Antenna holes
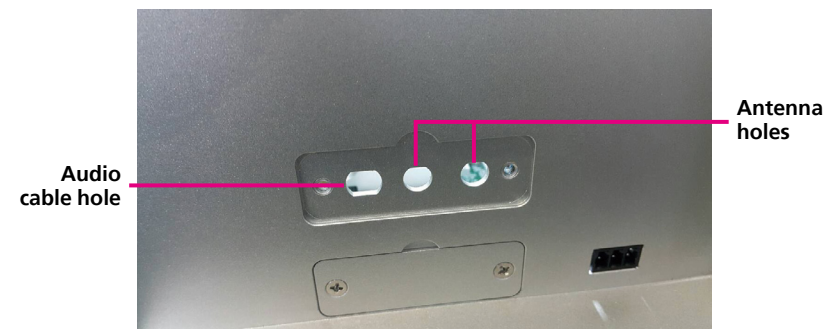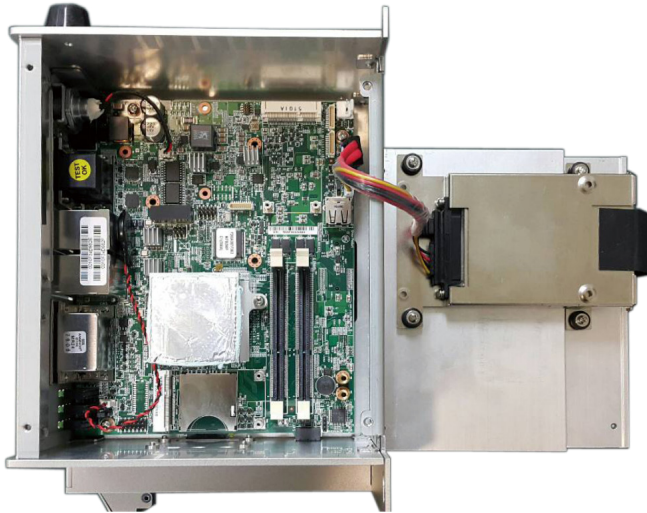
Audio cable hole

3. Seperate the 2 rings (ring 1 and ring 2) from the antenna jack.

4. Insert the antenna jack through the antenna hole, and then install ring 1 and ring 2 onto the antenna jack.

5. Attach the antenna cable end onto the 3G or Wi-Fi mini-PCIe module.

Audio Cable Installation Instructions

6. Seperate ring 3 from the audio cable.
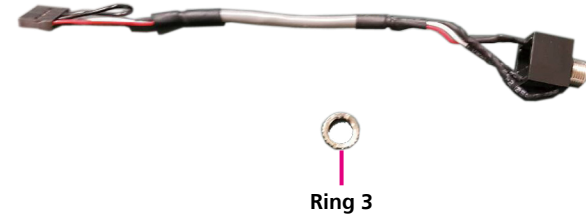
Ring 3

7. Insert the audio cable through the audio cable hole, and then install ring 3 onto the audio jack.

8. Attach the audio cable end to the JP4 connector, which is the audio pin header for the NIFE 200 series.

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NIFE 200 Series User Manual
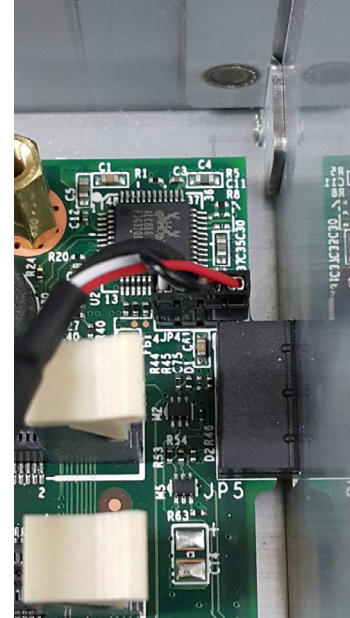
Removing the Side Cover

1. Remove the screw circled below, located on the top of NIFE 200P2.
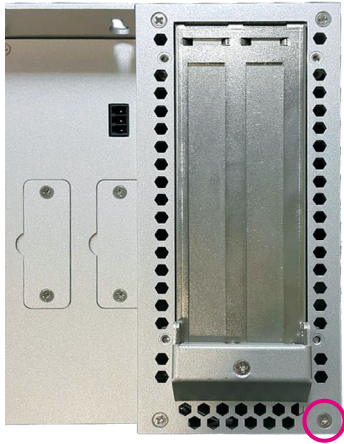
2. Remove the screw circled below, located on the bottom of NIFE 200P2.
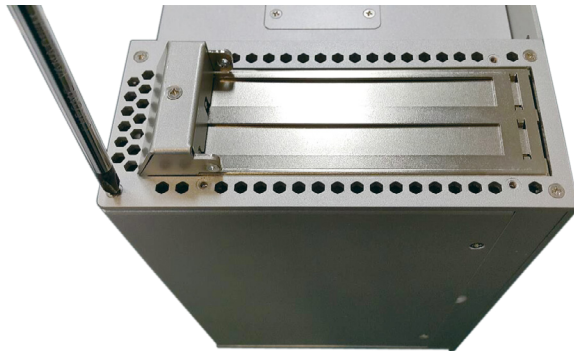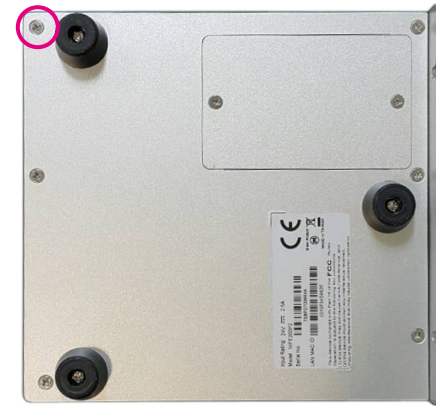
3. Locate the two screws on the side cover of NIFE 200P2.
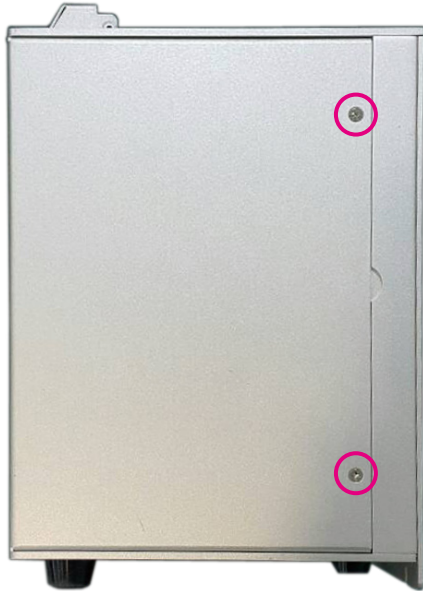
4. Remove the screws and gently lift up the side cover.

Installing a PCI or PCIe Card

Remove the side cover first.
These steps only apply to NIFE 200P2 and NIFE 200P2E

1. Locate and remove the screw on the PCI bracket cover.
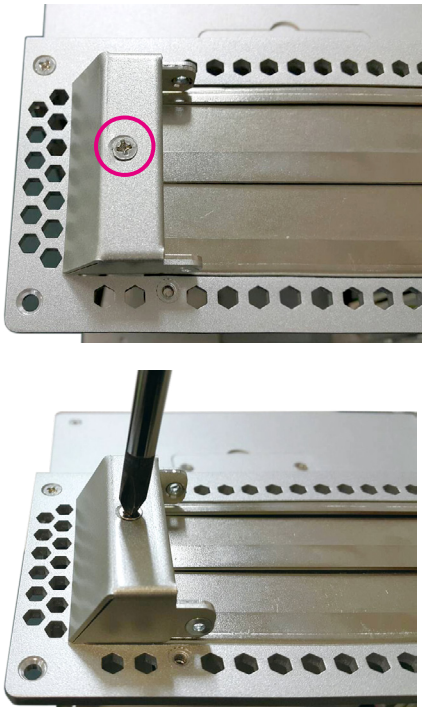
2. Lift up the bracket cover and remove the PCI bracket.
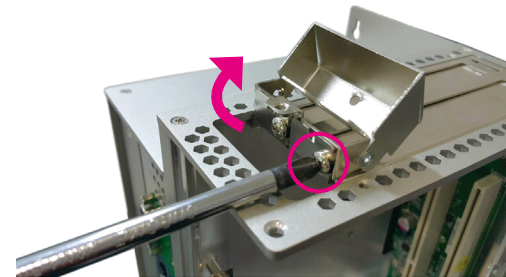
3. Install the PCI or PCIe card into the slot.
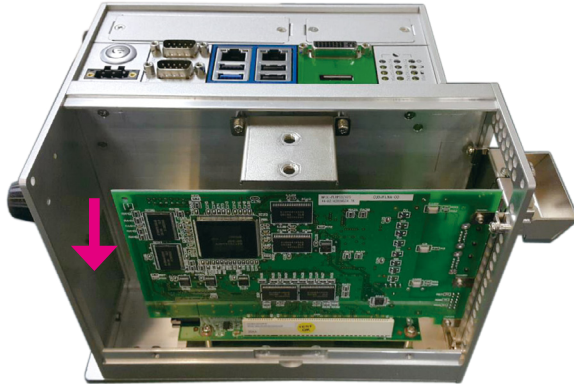
4. Remove the PCI card holder kit.

5. Secure the screw to the PCI bracket to fix the PCI or PCIe card.
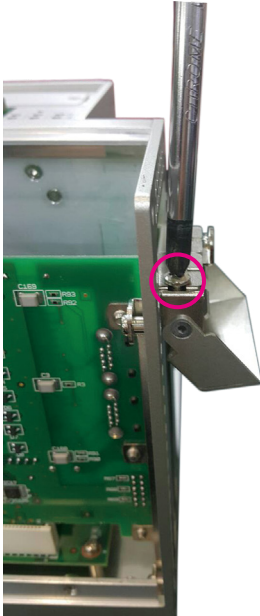
6. Install the plastic screw into the PCI holder kit.
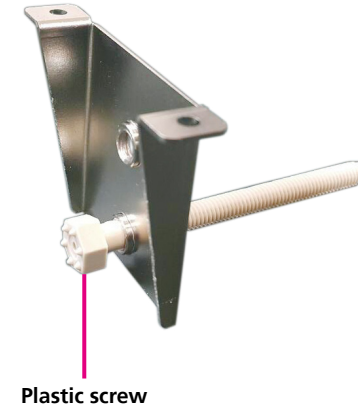
Plastic screw

7. Install the plastic nut into the PCI holder kit.
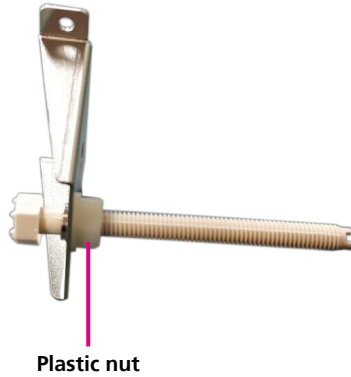
Plastic nut

8. Secure the PCI holder kit with screws to fix the PCI or PCIe card.
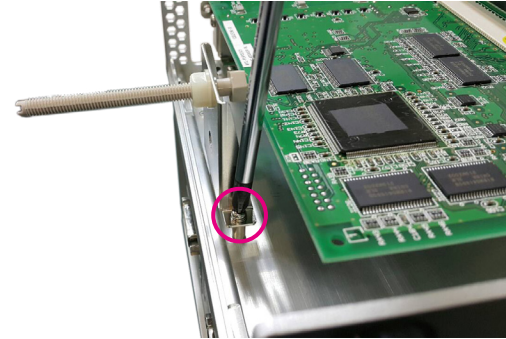
9. Install the plastic screw until it touches the edge of PCI or PCIe card, and fix the plastic nut. Do not squeeze or apply too much force down on the PCI or PCIe card since the purpose of having the plastic screw is to help position the PCI card.

(Check if the plastic screw is fixed correctly to the edge of the PCI or PCIe card. There should be three positioning dots on each side.)
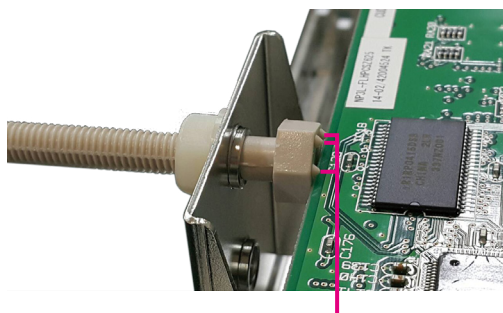
Positioning dots
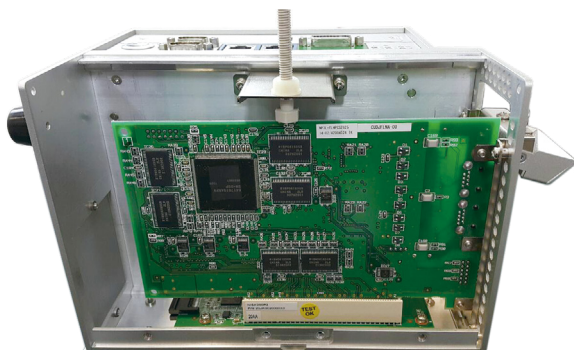
10. Cut off the extra length of the plastic screw. The cutting position should be the same height as the edge of the plastic nut.
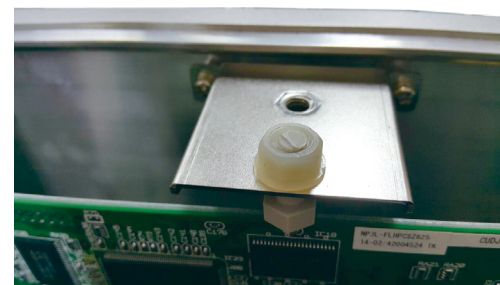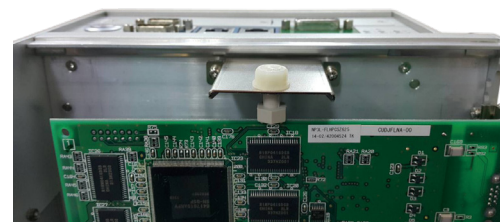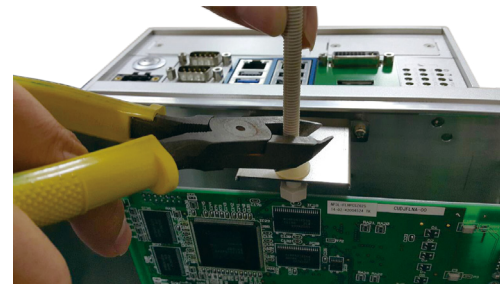
11. Please do a final check to ensure that the PCI or PCIe card is firmly in place and not installed crooked.
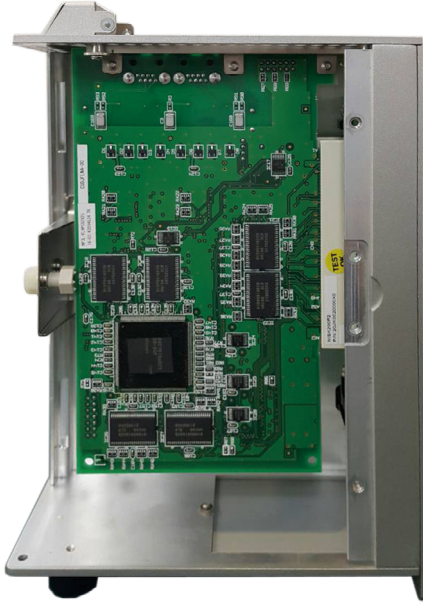
Chapter 4: BIOS Setup

This chapter describes how to use the BIOS setup program for the NIFE 200 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
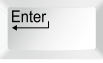
When the system is powered on, the BIOS will enter the Power-On Self Test (POST) routines. These routines perform various diagnostic checks; if an error is encountered, the error will be reported in one of two different ways:

▪ 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 <Del> allows you to enter Setup.

Press the Del 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.
Esc	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.
Tab	Selects a field.
F1	Displays General Help.
F2	Load previous values.
F3	Load optimized default values.
F4	Saves and exits the Setup program.
Enter	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 Enter .

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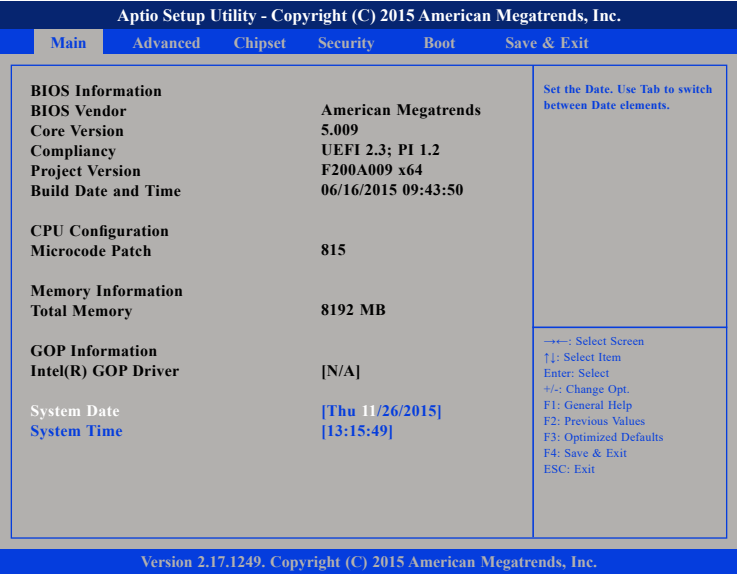
System Date
The date format is <day>, <month>, <date>, <year>. Day displays a day, from Monday to Sunday. Month displays the month, from January to December. Date displays the date, from 1 to 31. Year displays the year, from 1999 to 2099.

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.

```
         Aptio Setup Utility - Copyright (C) 2015 American Megatrends, Inc.
  Main    Advanced   Chipset   Security    Boot    Save & Exit

  BIOS Information                                    Set the Date. Use Tab to switch
  BIOS Vendor            American Megatrends          between Date elements.
  Core Version           5.009
  Compliancy             UEFI 2.3; PI 1.2
  Project Version        F200A009 x64
  Build Date and Time    06/16/2015 09:43:50

  CPU Configuration
  Microcode Patch        815

  Memory Information
  Total Memory           8192 MB

  GOP Information                                     →←: Select Screen
  Intel(R) GOP Driver    [N/A]                        ↑↓: Select Item
                                                      Enter: Select
  System Date            [Thu 11/26/2015]             +/-: Change Opt.
  System Time            [13:15:49]                   F1: General Help
                                                      F2: Previous Values
                                                      F3: Optimized Defaults
                                                      F4: Save & Exit
                                                      ESC: Exit

         Version 2.17.1249. Copyright (C) 2015 American Megatrends, Inc.
```

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.

```
          Aptio Setup Utility - Copyright (C) 2015 American Megatrends, Inc.
  Main      Advanced    Chipset    Security    Boot    Save & Exit

► ACPI Settings                                        System ACPI Parameters.
► IT8786E Super IO Configuration
► Hardware Monitor
► CPU Configuration
► PPM Configuration
► IDE Configuration
► LPSS & SCC Configuration
► CSM Configuration
► USB Configuration

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

          Version 2.17.1249. Copyright (C) 2015 American Megatrends, Inc.
```

ACPI Settings

This section is used to configure ACPI Settings.

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

  ACPI Settings                                        Enables or Disables System
                                                       ability to Hibernate (OS/S4 Sleep
  Enable Hibernation            [Enabled]              State). This option may be not
  ACPI Sleep State              [S3 (Suspend to RAM)]  effective with some OS.

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

          Version 2.17.1249. Copyright (C) 2015 American Megatrends, Inc.
```

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.

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

   IT8786E Super IO Configuration                          Set Parameters of Serial Port
                                                           1 (COMA)
   Super IO Chip                    IT8786E
   ▶ Serial Port 1 Configuration
   ▶ Serial Port 2 Configuration
   ▶ Serial Port 3 Configuration
   ▶ Serial Port 4 Configuration



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


        Version 2.17.1249. Copyright (C) 2015 American Megatrends, Inc.
```

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                             Enable or Disable Serial Port
                                                           (COM)
   Serial Port                      [Enabled]
   Device Settings                  IO=248h; IRQ=5;
   Onboard Serial Port Mode         [RS232]



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


        Version 2.17.1249. Copyright (C) 2015 American Megatrends, Inc.
```

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.

Hardware Monitor

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

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

  Pc Health Status

  CPU temperature(DTS)            :  +43 C
  System temperature             :  +26 C
  Fan Speed                      :  N/A
  VCore                          :  +0.864 V
  VCC12                          :  +11.808 V
  VCC5                           :  +5.100 V
  VCC3                           :  +3.326 V




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



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```

CPU 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.

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

   CPU Configuration                                      Socket specific CPU Information

 ▶ Socket 0 CPU Information

   CPU Speed                        2001 MHz
   64-bit                           Supported

   Active Processor Cores           [All]
   Limit CPUID Maximum              [Disabled]
   Execute Disable Bit              [Enabled]
   Intel Virtualization Technology  [Enabled]

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

             Version 2.17.1249. Copyright (C) 2015 American Megatrends, Inc.
```

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.

PPM Configuration

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

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

Advanced

PPM Configuration

EIST   [Disabled]

Enable/Disable Intel SpeedStep

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

Version 2.17.1249. Copyright (C) 2015 American Megatrends, Inc.

EIST
Enables or disables Intel® SpeedStep.

IDE Configuration

This section is used to configure the SATA drives.

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

    IDE Configuration                                     Enable / Disable Serial ATA

    Serial-ATA (SATA)              [Enabled]
    SATA Mode                      [AHCI Mode]

    Serial-ATA Port 0              [Enabled]
    SATA Port0 HotPlug             [Disabled]

    Serial-ATA Port 1              [Enabled]
    SATA Port1 HotPlug             [Disabled]

    SATA Port0
    Not Present
                                                          →←: Select Screen
    SATA Port1                                            ↑↓: Select Item
    Not Present                                           Enter: Select
                                                          +/-: Change Opt.
                                                          F1: General Help
                                                          F2: Previous Values
                                                          F3: Optimized Defaults
                                                          F4: Save & Exit
                                                          ESC: Exit


            Version 2.17.1249. Copyright (C) 2015 American Megatrends, Inc.
```

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

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

SATA Port0 Hotplug and SATA Port1 Hotplug
Enables or disables hotplug support on SATA port 0 and SATA port 1.

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.

LPSS & SCC Configuration

This section is used to configure LPSS and SCC settings.

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

 LPSS & SCC Devices Mode        [PCI mode]              LPSS & SCC Devices Mode
                                                        Settings
 SCC Configuration
 SCC eMMC Support               [eMMC AUTO MODE]
 SCC SD Card Support            [Enabled]
 SDR25 Support for SDCard       [Disabled]
 DDR50 Support for SDCard       [Enabled]




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


 Version 2.17.1249. Copyright (C) 2015 American Megatrends, Inc.
```

LPSS & SCC Devices Mode
Selects the LPSS and SCC device mode as ACPI mode or PCI mode.

SCC eMMC Support
Enables or disables SCC eMMC support.

SCC SD Card Support
Enables or disables SCC SD card support.

DDR50 Support for SDCard
Enables or disables DDR50 support for SD card.

CSM Configuration

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

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

 Compatibility Support Module Configuration             Enable/Disable CSM Support.

 CSM Support                    [Enabled]

 CSM16 Module Version           07.71

 Option ROM execution order

 Network                        [Enabled]
 Onboard LAN PXE                [Disabled]
 Storage                        [Legacy only]
 Video                          [Legacy only]
 Other PCI devices              [Legacy only]


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


 Version 2.17.1249. Copyright (C) 2015 American Megatrends, Inc.
```

CSM Support
Enables or disables CSM support.

Network
Controls the execution of UEFI and legacy PXE OpROM.

Onboard LAN PXE
Enables or disables onboard LAN PXE ROM.

Storage
Controls the execution of UEFI and legacy storage OpROM.

USB Configuration

This section is used to configure the USB.

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

  USB Configuration                                    Enables Legacy USB support.
                                                       AUTO option disables legacy
  USB Module Version              8.10.27              support if no USB devices are
                                                       connected. DISABLE option will
  USB Devices:                                         keep USB devices available
        2 Keyboards, 2 Hubs                            only for EFI applications.

  Legacy USB Support              [Enabled]
  USB3.0 Support                  [Enabled]
  XHCI Hand-off                   [Enabled]
  EHCI Hand-off                   [Enabled]

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

        Version 2.17.1249. Copyright (C) 2015 American Megatrends, Inc.
```

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.

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

► Azalia HD Audio                                      Azalia HD Audio Options
► USB Configuration
► PCI Express Configuration

  High Precision Timer            [Enabled]
  Restore AC Power Loss           [Power On]

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

        Version 2.17.1249. Copyright (C) 2015 American Megatrends, Inc.
```

High Precision Timer
Enables or disables the high precision event timer.

Restore AC Power Loss
Select the AC power state when power is re-applied after a power failure.

Azalia HD Audio

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

    Audio Configuration                                         Control Detection of the
    Audio Controller              [Enabled]                     Azalia device.
    Azalia HDMI Codec             [Enabled]                     Disabled = Azalia will be
                                                                unconditionally disabled
                                                                Enabled = Azalia will be
                                                                unconditionally Enabled
                                                                Auto = Azalia will be enabled if
                                                                present, disabled otherwise.



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


                Version 2.17.1249. Copyright (C) 2015 American Megatrends, Inc.
```

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

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

    USB Configuration                                           Control the USB EHCI (USB 2.0)
    XHCI Mode                     [Disabled]                    functions.  One EHCI
                                                                controller must always be
    USB 2.0(EHCI) Support         [Enabled]                     enabled.
    USB RMH Mode                  [Enabled]
    USB EHCI debug                [Disabled]



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


                Version 2.17.1249. Copyright (C) 2015 American Megatrends, Inc.
```

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

Aptio Setup Utility - Copyright (C) 2015 American Megatrends, Inc.	
Chipset	
PCI Express Configuration	**Enable or Disable the PCI Express Port 0 in the Chipset.**
PCI Express Port 0 [Enabled]	
PCI Express Port 1 [Enabled]	
PCI Express Port 2 [Enabled]	
PCI Express Port 3 [Enabled]	
	→←: Select Screen
	↑↓: Select Item
	Enter: Select
	+/-: Change Opt.
	F1: General Help
	F2: Previous Values
	F3: Optimized Defaults
	F4: Save & Exit
	ESC: Exit
Version 2.17.1249. Copyright (C) 2015 American Megatrends, Inc.	

PCI Express Port 0 to PCI Express Port 3
Enables or disables the PCI Express ports 0 to 3 on the chipset.

Security

Aptio Setup Utility - Copyright (C) 2015 American Megatrends, Inc.					
Main	Advanced	Chipset	Security	Boot	Save & Exit

Password Description	**Set Administrator Password**
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 length 3	
Maximum length 20	
Administrator Password	→←: Select Screen
User Password	↑↓: 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

```
Aptio Setup Utility - Copyright (C) 2015 American Megatrends, Inc.
  Main      Advanced    Chipset    Security      Boot      Save & Exit

  Boot Configuration                                      Select the keyboard NumLock
  Bootup NumLock State          [On]                      state
  Fast Boot                     [Disabled]


  Boot Option Priorities
  Boot Option #1                [UEFI: Built-in EFI . . .]




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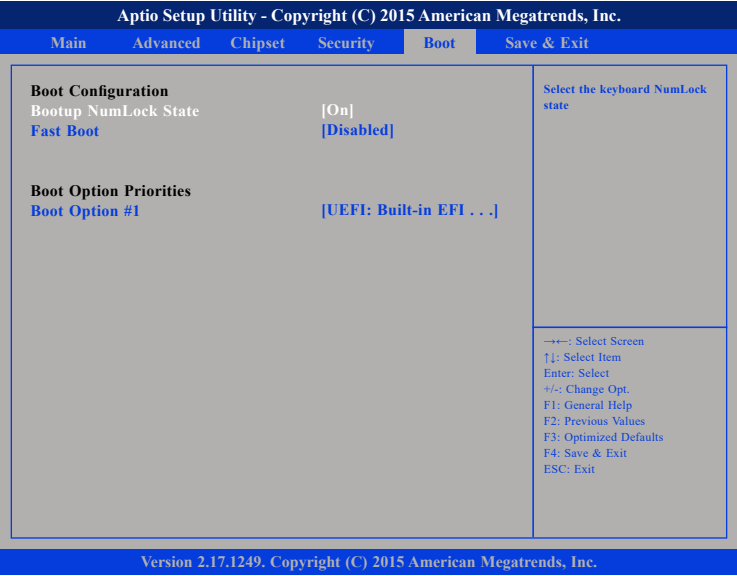
Bootup NumLock State
This allows you to determine the default state of the numeric keypad. By default, the system boots up with NumLock on wherein the function of the numeric keypad is the number keys. When set to Off, the function of the numeric keypad is the arrow keys.

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.

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

```
Aptio Setup Utility - Copyright (C) 2015 American Megatrends, Inc.
  Main      Advanced    Chipset    Security      Boot      Save & Exit

  Save Changes and Reset                                  Reset the system after saving
  Discard Changes and Reset                               the changes.

  Restore Defaults




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


      Version 2.17.1249. Copyright (C) 2015 American Megatrends, Inc.
```

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

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: 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 200 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	Low	A03h (Bit1)
5	GPO1	Low	A02h (Bit5)	6	GPI1	Low	A05h (Bit5)
7	GPO2	Low	A07h (Bit0)	8	GPI2	Low	A05h (Bit4)
9	GPO3	Low	A07h (Bit1)	10	GPI3	Low	A00h (Bit1)

Control the GPO 0/1/2/3 level from I/O port A03h bit6/ A02h bit5 A07h bit0/ A07h bit1.
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
}
```

APPENDIX D: LED PROGRAMMING GUIDE

LEDs are provided for custom system design. This appendix provides definitions and its default setting for the LEDs in the NIFE 200 series. The LED definition is shown in the following table:

Pin	PowerOn Default	Address
GPO-PR0	High	A07h (Bit5)
GPO-PR1	High	A07h (Bit4)
GPO-PR2	High	A07h (Bit3)
GPO-PR3	High	A07h (Bit2)
GPO-PR4	High	A07h (Bit6)

Control the GPO (PR0/PR1/PR2/PR3/PR4) level from I/O port A07h bit (5/4/3/2/6).
The bit is Set/Clear indicated output High/Low.