NE**X**COM

NEXCOM International Co., Ltd.

Multi-Media Solutions
Digital Signage Platform
NDiS 126

User Manual

www.nexcom.com

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Preface

Copyright

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Acknowledgements

NDiS 126 is a trademark 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 2002/95/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 in 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 2006 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.

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 needlenose 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. Do not leave this equipment in either an unconditioned environment or in a above 40°C storage temperature as this may damage the equipment.

8. The openings on the enclosure are for air convection to protect the equipment from overheating. DO NOT COVER THE OPENINGS.

9. Make sure the voltage of the power source is correct before connecting the equipment to the power outlet.

10. 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.

11. All cautions and warnings on the equipment should be noted.

12. If the equipment is not used for a long time, disconnect it from the power source to avoid damage by transient overvoltage.

13. Never pour any liquid into an opening. This may cause fire or electrical shock.

14. Never open the equipment. For safety reasons, the equipment should be opened only by qualified service personnel.

15. 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.

16. Do not place heavy objects on the equipment.

17. 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.

18. 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.

19. The computer is provided with CD drives that comply with the appropriate safety standards including IEC 60825.

Technical Support and Assistance

1. For the most updated information of NEXCOM products, visit NEX-COM'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 NDiS 126 package that you received is complete. Your NDiS 126 package should have all the items listed in the following table.

Item	P/N	Name	Specification	Qty
1	50311F0119X00	I HEAD BOLTS SCREW LONG FEI:I3*12.5ISO NIGP	I3x12.5 AXISx8.5mm SCREWx4mm	4
2	5044440031X00	RUBBER FOOT KANG YANG:RF20-5-4P	19.8x18x5.0mm	4
3	601111A156X00	CARTON FOR NDiS126 YI GIA	316x212x120mm(INSIDE) B FLUTE	1
4	6012200049X00	ASG110 PE BAG 24x38cm	240x380x0.08mm	1
5	6012200052X00	PE ZIPPER BAG #8	170x240mm,W/China RoHS SYMBOL	1
6	6012200053X00	PE ZIPPER BAG #3	100x70mm,W/China RoHS SYMBOL	1
7	6013300311X00	EPE FOR NDiS126 SENTENEL	316x212x74mm	2
8	60233ATA13X00	SATA CABLE 90° TO 180° BEST:109-0707-070R	L:70mm 90° TO 180° CONNECTOR	1
9	60233PW197X00	SATA POWER CABLE BEST:900-0415-070R	FEMALE CONNCTOR 15P TO HOUSING 4P PIT:2.54mm L:70mm	1
10	602DCD0430X00	NDiS126 CD DRIVER MANUAL VER:1.0	JCL	1
11	7400050001X00	POWER ADAPTER L.T.E.:LTE50E-S2-208	50W 12V/4.17A	1

Ordering Information

The following provides ordering information for NDiS 126.

- **NDiS 126 (P/N: 10W00012600X0)**
  - Intel® Atom™ processor D2700
  - Intel® NM10 Express chipset

- **NDiS 126V (P/N: 10W00126V00X0)**
  - Intel® Atom™ processor D2700
  - Intel® NM10 Express chipset
  - Additional VGA output

- **NDiS 126H (P/N: 10W00126H00X0)**
  - Intel® Atom™ processor D2700
  - Intel® NM10 Express chipset
  - Additional HDMI output

Chapter 1: Product Introduction

Overview

Powered by Intel® Atom™ processor D2700, NDiS 126 has enhanced graphics capabilities to playback HD video with low power consumption. NDiS 126provides various options of video and audio outputs, dual GbE Ethernet with optional wireless connectivity, SIM Card slot for 3.5G radio connectivity.

Compact and fanless design makes the NDiS 126 an ideal choice for digital signage platforms adapted to almost any environment. NDiS 126 works

perfectly for advertising, brand promotion and digital menu board application.

Key Features

- Intel® Atom™ processor D2700
- Low power consumption
- Compact and fanless
- Dual GbE LAN
- Hyper-threading support
- IntelR GMA 3650 integrated graphic engine
- Compact and Fan-Less Design

Physical Features

Front panel

Power
LED

Power
Button

HDD
LED

SIM Card
Slot

USB

COM

Rear panel

HDMI

USB

LAN

12V DC-in
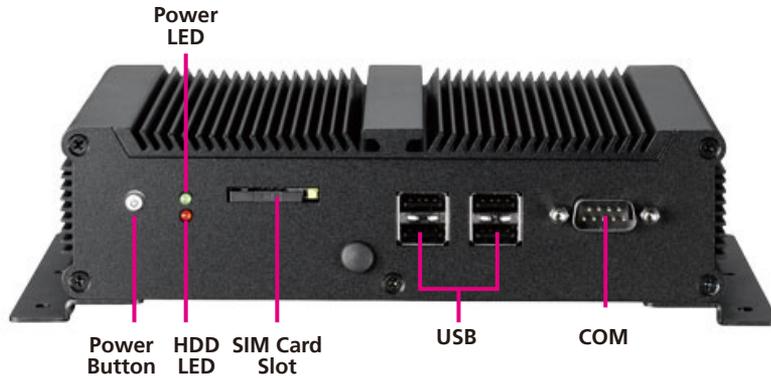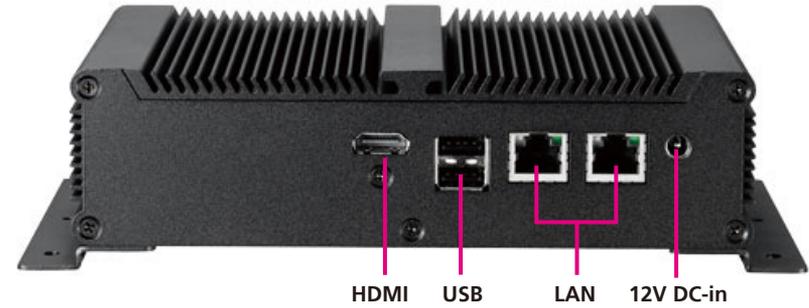
Hardware Specifications

System

Processor

- Intel® Atom™ processor D2700 2.16GHz onboard

Chipset

- Intel® NM10 Express chipset

Main Memory

- One 200pin SO-DIMM socket, support
- DDR3 800/1067MHz SO-DIMM SDRAM with un-buffered and Non-ECC memory module
- Support up to 4GB memory

Graphics

- Graphics chip
  - Intel® GMA 3650 integrated graphic engine
  - Intel® Dynamic Video Memory Technology
  - Image Rotate by driver support
- HDMI
  Integrated HDMI (iHDMI)
  - Video support for CEA modes 480i/p, 576i/p, 720p, 1080i/p and PC modes though dot clock

- Intel® HD Audio support
- Integrated Intel® HD Audio codec
- Dolby* AC3 compress, Dolby* Digital, Dolby* DTS (full support)
- PCM audio support
- Dual Display (Additional)
  - Dual independent display: HDMI+VGA
  - Dual independent display: HDMI+HDMI

Network

- 2 x Intel® WG82583V GbE controller
- PXE LAN boot ROM for Ethernet Boot up.
- Support WOL
- 2 x RJ45 connector with LAN speed and Link/active LEDs

Storage

- One 2.5" HDD Bracket
- One 7-pin SATA connector
- One 2-pin power connector for SATA DOM
- One 4-Pin power connector for SATA HDD

Audio

- ALC 886-GR HD codec
- HDMI for PCM audio output

I/O Interfaces

- Serial
  - DB9 COM 1 (RS232) connector at the front panel
- USB
  - USB 2.0 ports 1~2 at the rear panel
  - USB 2.0 ports 3~6 at the front panel
  - USB 2.0 Port 7 reserved, JST
  - USB 2.0 Port 8 to mini-PCIe

- GPIO
  - 8 GPIO lines (GPI 0~3 and GPO 0~3); TTL Level (0/5V)
  - 2x5 pin header, 2.54mm
- SIM Slot
  - 1 x External accessible SIM card slot for WWAN
- Others
  - OnBoard buzzer
  - RTC reset: 1x3 pin header, 2.54mm
  - IR interface: 1x5 pin header, 2.54mm
  - Reset: 1x2 pin header, 2.54mm

Power Supply

- Onboard DC to DC
  - Power range design: +12V +/-10% DC input
  - 2.5mm DC-In power jack
  - ATX power mode
  - Supports wake up alarm
  - Supports WOL
  - Support power on after failure
  - Support soft off
- External adapter
  - +12V DC output 50W

RTC Battery

- On chip RTC with battery back up / One External Li-ion Battery
- RTC tolerance less than 2sec (24 hours) under 25°C environment

BIOS

- AMI system BIOS
- 16Mbits SPI flash ROM

System Management

- Monitoring
  - Super IO built-in function (IT8783)
  - Monitoring of 4 voltages, 3 temperature
    4 voltage (For +3.3V, +5V, +12V, Vcore)
    3 Temperatures (CPU, RAM, external Temperature Sensor)
- Watchdog
  - Watchdog timeout is programmable by software from 1 second to 255 seconds and from 1 minute to 255 minutes
  - Tolerance: 15% under room temperature 25°C

Operating System Support

- Microsoft Windows 7 / WES7

Main Board

External I/O

- Front I/O
  - Power Button
  - Power LED (Green)
  - HDD LED (Red)
  - 1 x External accessible SIM card slot
  - 1 x SMA type antenna hole
  - 1 x RS232 COM port
  - 4 x USB 2.0 ports

- Rear I/O
  - 1 x HDMI port
  - 2 x USB 2.0 ports
  - 2 x RJ45 Gigabit LAN ports
  - +12V DC-in jack

Physical Characteristics

- Dimensions (W x D x H)
  - 185mm (W) x 147mm (D) x 48.4mm (H)
  - (7.3"x 5.8"x 1.9") w/o wall mount bracket
- Color
  - Black
- Mounting
  - Wall mount bracket
  - VESA 75x75 / 100x100 mounting bracket
- Cooling system
  - Fanless

Expansion

- One Mini-PCIe slots
- Supports Wireless LAN module & DVB-T TV-tuner module
- Support wake on WLAN feature
- Additional at AV I/O expansion
  - NTK-AV01: 1 x VGA port + 1 x Line out port + 1 x Line in port
  - NTK-AV02: 1 x HDMI port + 1x Line out port

Environment

- Operating temperature: 100% CPU loading and component thermal profile: 0 ~ 40 °C
- Storage temperature: -40°C ~ 80°C
- Relative humidity (non-condensing): 95%

Certificate

- CE
- FCC Class A

Mechanical Dimensions (NDiS126)

185

215.4

147

48.4

55

Mechanical Dimensions (NDiS126-V)

185

215.4

147

48.4

55
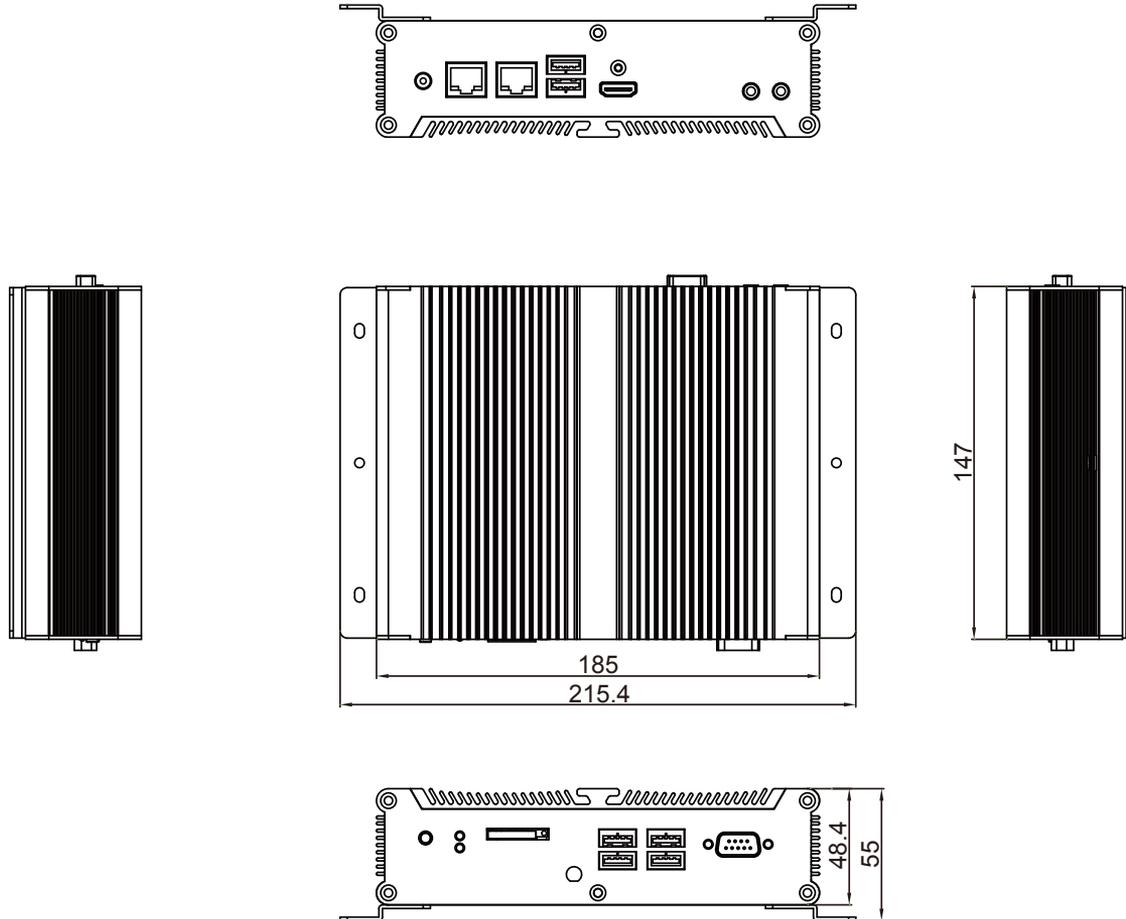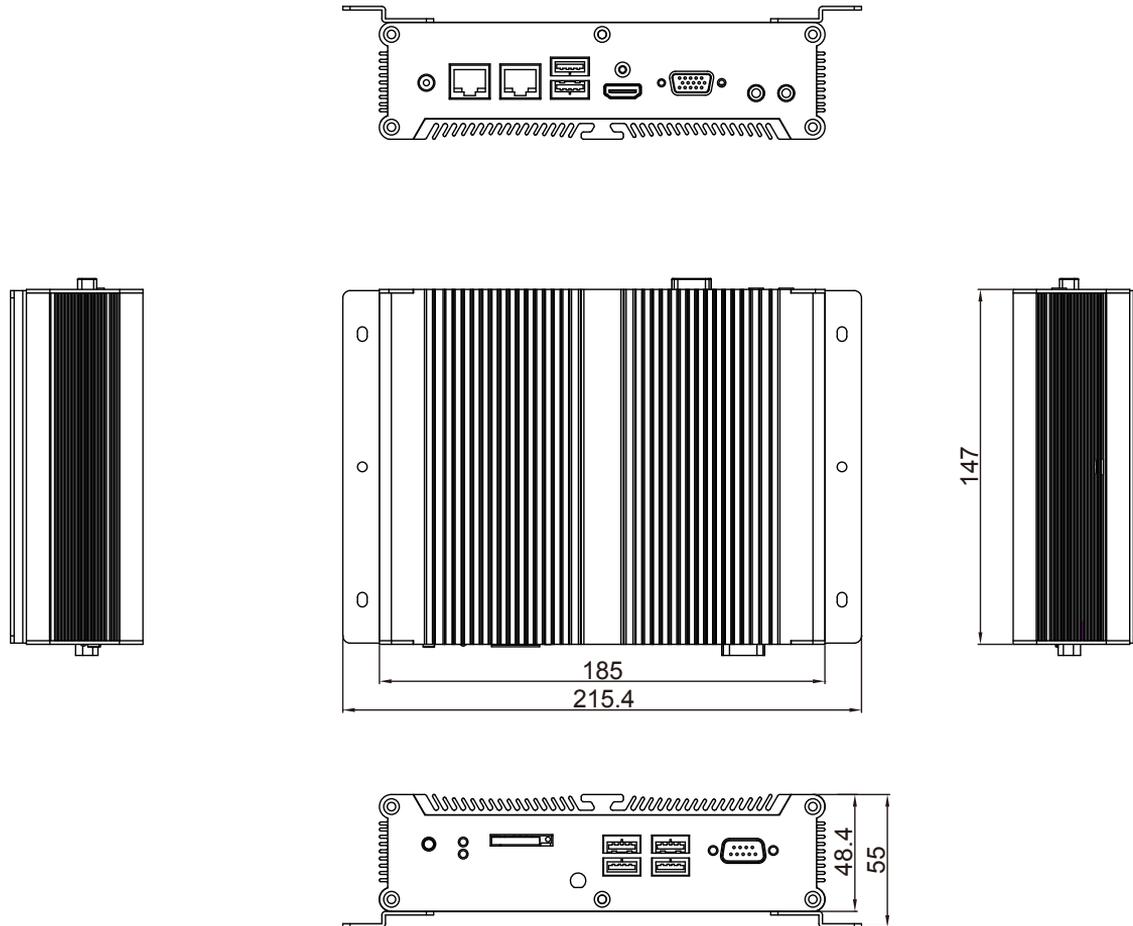
Mechanical Dimensions (NDiS126-H)

185

215.4

147

48.4

55
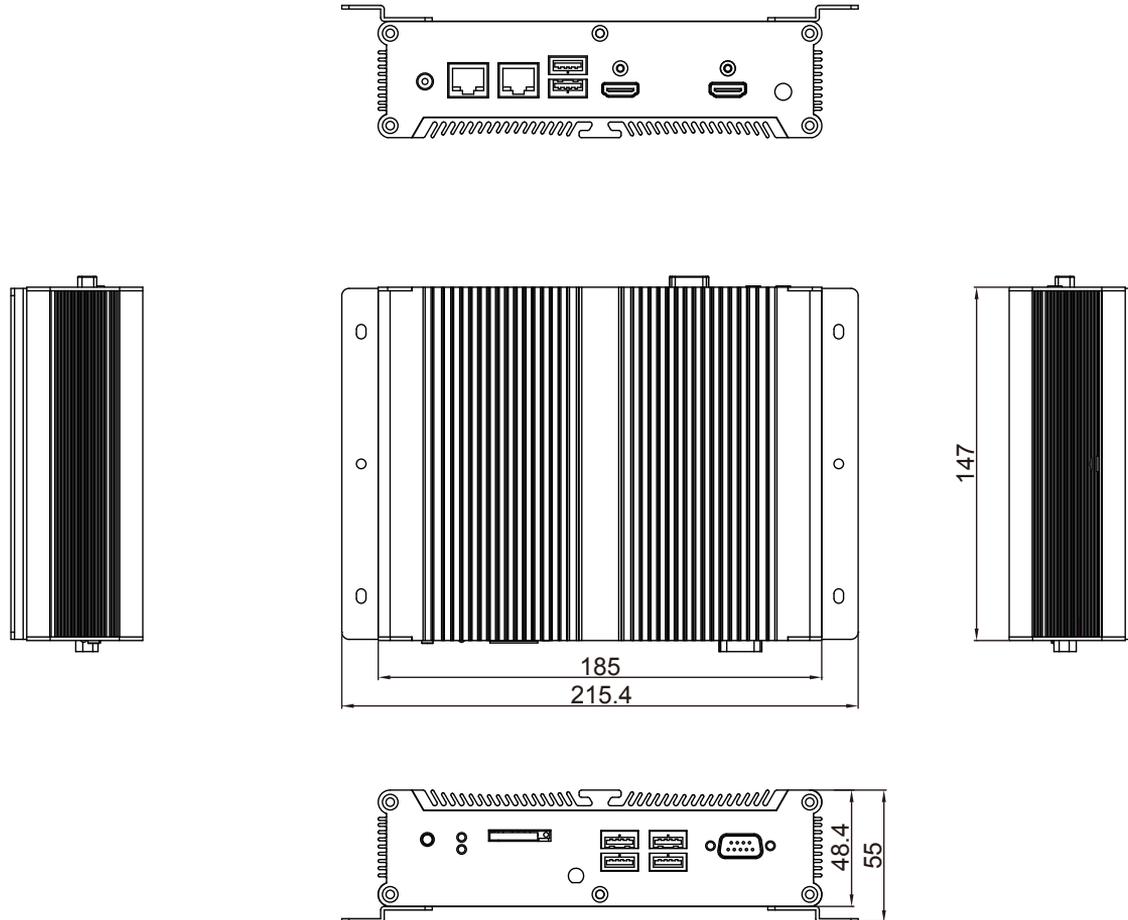
Chapter 2: Jumpers and Connectors

This chapter describes how to set the jumpers on the motherboard. Note that the following procedures are generic for all NDiS 126 series.

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 poweris off. Ground yourself before touching any internal components, by touching a metal object. Static electricity can damage many of the electronic components. Humid environment 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 the computers that are still connected to a power supply can be extremely dangerous.

Follow the guidelines below to avoid damage to your computer or yourself:

▪ Always disconnect the unit from the power outlet whenever you are working inside the case.

▪ If possible, wear a grounded wrist strap when you are working inside the computer case. Alternatively, discharge any static electricity by touching the bare metal chassis of the unit case, or the bare metal body of any other grounded appliance.

▪ Hold electronic circuit boards by the edges only. Do not touch the components on the board unless it is necessary to do so. Don't flex or stress the circuit board.

▪ Leave all components inside the static-proof packaging that they shipped with until they are ready for installation.

▪ Use correct screws and do not over tighten screws.

Jumper Settings

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

Refer to the illustrations below for examples of what the 2-pin and 3-pin jumpers look like when they are short (on) and open (off).

Two-Pin Jumpers: Open (Left) and Short (Right)
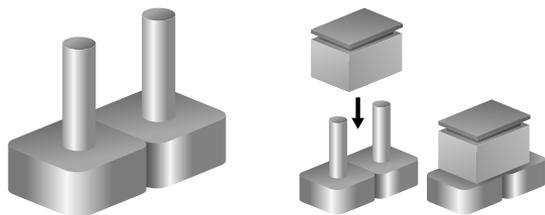
Three-Pin Jumpers: Pins 1 and 2 Are Short
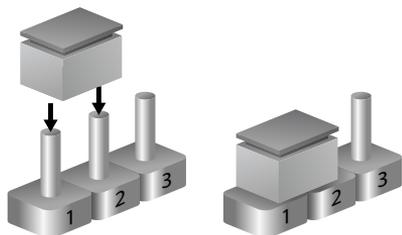
Locations of the Jumpers and Connectors

NDiB 126

The figure on the right is the NDiB 126 motherboard which is the motherboard used in the NDiS 126 system. It shows the locations of the jumpers and connectors.

External Connectors Pin Definitions

This section provides descriptions, illustrations and pin definitions of the external connectors.

Connector Specification

Power Input Connector

CN1 (DC Power Jack 3P 90D)

DC-JACK-3P-90

Pin	Definition
1	DC-IN (+12VSB)
2	GND
3	GND

ATX Power Switch

SW1 (push button with LED and without lock)

SW1
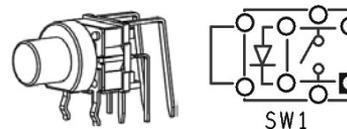
Status	LED Color
Standby / Off	Red
Operation	Blue

LAN Connector

CN2 / CN3

Pin	Definition	Pin	Definition
1	TCT	2	TD4-
3	TD4+	4	TD3-
5	TD3+	6	TD2-
7	TD2+	8	TD1-
9	TD1+	10	TCTG
11	LED_ACT+	12	LED_ACT-
13	LED_100/1G+	14	LED_100/1G-

USB Port

USB1 / USB2 / USB3
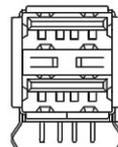
Pin	Definition	Pin	Definition
1	VCC (VCC5)	2	DATA1-
3	DATA1+	4	GND
5	VCC (VCC5)	6	DATA-
7	DATA+	8	GND

HDMI Connector

J1
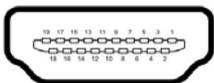
Pin	Definition	Pin	Definition
1	HDMI D2+	2	GND
3	HDMI D2−	4	HDMI D1+
5	GND	6	HDMI D1−
7	HDMI D0+	8	GND
9	HDMI D0−	10	HDMI CLK+
11	TMDS Clock Shield	12	HDMI CLK−
13	NC	14	NC
15	HDMI_DDC_SCL	16	HDMI_DDC_SDA
17	GND	18	Power (VCC5)
19	HDMI_HPD		

SIM Card Slot

CN7 / CN6

CN7

CN6
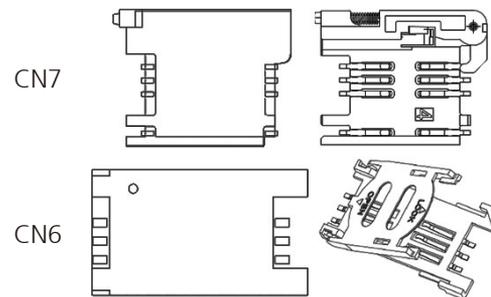
Pin	Definition	Pin	Definition
1	UIM_PWR	2	UIM_RST
3	UIM_CLK	5	GND
6	NC	7	UIM_DAT

LED HDD/PWR

LED1

HDD

PWR

LED No.	Function Description
T1	HDD LED (Red)
B1	Power LED (Green)

RS232 Port

CN8
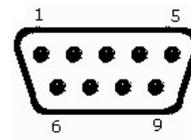
Pin	Definition	Pin	Definition
1	DCD	2	RXD
3	TXD	4	DTR
5	GND	6	DSR
7	RTS	8	CTS
9	RI		

Internal Connectors Pin Definitions

This section provides descriptions, illustrations and pin definitions of the internal connectors.

Serial-ATA Connector

J6
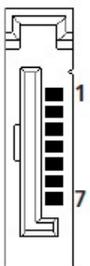
Pin	Definition	Pin	Definition
1	GND	2	SATA_TXP
3	SATA_TXN	4	GND
5	SATA_RXN	6	SATA_RXP
7	GND		

Serial-ATA Power Connector

CN4
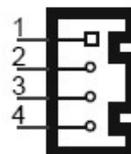
Pin	Definition	Pin	Definition
1	VCC12	2	GND
3	GND	4	VCC5

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USB Connector

JP2

1 2 3 4
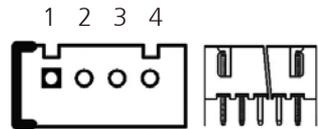
Pin	Definition	Pin	Definition
1	VCC	2	USB_N
3	USB_P	4	GND

Serial-ATA DOM Power

J7
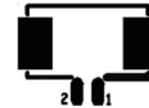
Pin	Definition	Pin	Definition
1	VCC5	2	GND

Mini-PCIe

CN5
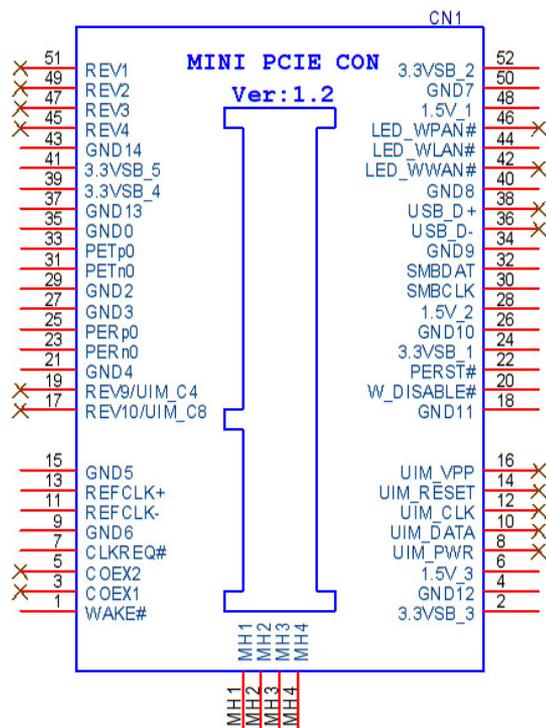
Pin	Definition	Pin	Definition	Pin	Definition	Pin	Definition
1	WAKE#	2	3.3VSB	27	GND	28	1.5V
3	NC	4	GND	29	GND	30	SMBCLK
5	NC	6	1.5V	31	PCIE_TX_N	32	SMBDAT
7	CLKREQ#	8	UIM_PWR	33	PCIE_TX_P	34	GND
9	GND	10	UIM_DAT	35	GND	36	USB_N
11	PCIE_CLK#	12	UIM_CLK	37	GND	38	USB_P
13	PCIE_CLK	14	UIM_SRT	39	3.3VSB	40	GND
15	GND	16	NC	41	3.3VSB	42	NC
17	NC	18	GND	43	GND	44	NC
19	NC	20	WLAN_DIS#	45	NC	46	NC
21	GND	22	RESET#	47	NC	48	1.5V
23	PCIE_RX_N	24	3.3VSB	49	NC	50	GND
25	PCIE_RX_P	26	GND	51	NC	52	3.3VSB

RTC Battery Connector

J4
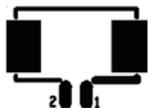
Pin	Definition	Pin	Definition
1	GND	2	3V

IR Connector

JP4

Pin	Definition	Pin	Definition
1	VCC5	2	CIRRX
3	IRRX	4	GND
5	IRTX		

RTC Clear Jump

JP2
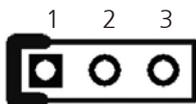
Pin	Definition	Pin	Definition
1-2	NORMAL	2-3	CLR CMOS

System Reset

JP5
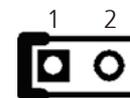
Pin	Definition	Pin	Definition
1-2	System Reset		

System Temp Sensor

JP6
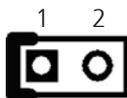
Pin	Definition	Pin	Definition
1	TEMP-IN	2	HW_AGND

GPIO

JP3
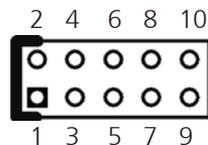
Pin	Definition	Pin	Definition
1	GPI1	2	GPO1
3	GPI2	4	GPO2
5	GPI3	6	GPO3
7	GPI4	8	GPO4
9	GND	10	VCC5

NTK-AV Board Connector

U3

Pin	Definition	Pin	Definition
A1	LINE_L	B1	FRONT_OUT_L
A2	LINE_R	B2	FRONT_OUT_R
A3	MIC_JD	B3	MIC_L
A4	LINE_JD	B4	MIC_R
A5	FRONT_JD	B5	AGND
A6	GND	B6	AGND
A7	GND	B7	GND
A8	GND	B8	GND
A9	NC	B9	NC
A10	NC	B10	NC

A11	GND	B11	GND
A12	GND	B12	GND
A13	DDI1_TX1N	B13	DDI1_TX0N
A14	DDI1_TX1P	B14	DDI1_TX0P
A15	GND	B15	GND
A16	DDI1_TX3N	B16	DDI1_TX2N
A17	DDI1_TX3P	B17	DDI1_TX2P
A18	GND	B18	GND
A19	DDI1_HPD	B19	DDI1_DDC_SCL
A20	NC	B20	DDI1_DDC_SDA
A21	GND	B21	GND
A22	NC	B22	VCC5
A23	NDIK_DET#	B23	VCC5
A24	GND	B24	GND
A25	NC	B25	VCC3
A26	NC	B26	VCC3
A27	GND	B27	GND
A28	CRT_HSYNC	B28	GND
A29	CRT_VSYNC	B29	CRT_RED
A30	CRT_DDC_CLK	B30	CRT_GREEN
A31	CRT_DDC_DAT	B31	CRT_BLUE
A32	GND	B32	GND

NTK-AV01 / NTK-AV02 Connectors Pin Definitions

This section provides descriptions, illustrations and pin definitions of the NTK-AV01 / NTK-AV02 external connectors.

Connector Specification

PCIE 4x 64pin Connector

JP1

Top

Bottom

Pin	Definition	Pin	Definition
A1	LINE_L	B1	FRONT_OUT_L
A2	LINE_R	B2	FRONT_OUT_R
A3	MIC_JD	B3	MIC_L
A4	LINE_JD	B4	MIC_R
A5	FRONT_JD	B5	AGND
A6	GND	B6	AGND
A7	GND	B7	GND
A8	GND	B8	GND
A9	NC	B9	NC
A10	NC	B10	NC

A11	GND	B11	GND
A12	GND	B12	GND
A13	DDI1_TX1N	B13	DDI1_TX0N
A14	DDI1_TX1P	B14	DDI1_TX0P
A15	GND	B15	GND
A16	DDI1_TX3N	B16	DDI1_TX2N
A17	DDI1_TX3P	B17	DDI1_TX2P
A18	GND	B18	GND
A19	DDI1_HPD	B19	DDI1_DDC_SCL
A20	NC	B20	DDI1_DDC_SDA
A21	GND	B21	GND
A22	NC	B22	VCC5
A23	NDIK_DET#	B23	VCC5
A24	GND	B24	GND
A25	NC	B25	VCC3
A26	NC	B26	VCC3
A27	GND	B27	GND
A28	CRT_HSYNC	B28	GND
A29	CRT_VSYNC	B29	CRT_RED
A30	CRT_DDC_CLK	B30	CRT_GREEN
A31	CRT_DDC_DAT	B31	CRT_BLUE
A32	GND	B32	GND

VGA Connector (NTK-AV01)

VGA1
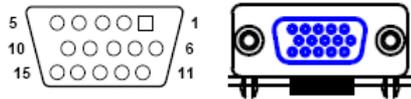
Pin	Definition	Pin	Definition
1	CRT_RED	2	CRT_GREEN
3	CRT_BLUE	4	NC
5	GND	6	GND
7	GND	8	GND
9	VCC5	10	GND
11	NC	12	CRT_DDC_DAT
13	CRT_HSYNC	14	CRT_VSYNC
15	CRT_DDC_CLK		

HDMI Connector (NTK-AV02)

J1
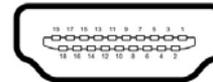
Pin	Definition	Pin	Definition
1	HDMI_D2+	2	GND
3	HDMI_D2-	4	HDMI_D1+
5	GND	6	HDMI_D1-
7	HDMI_D0+	8	GND
9	HDMI_D0-	10	HDMI_CLK+
11	GND	12	HDMI_CLK-
13	NC	14	NC
15	HDMI_DDC_SCL	16	HDMI_DDC_SDA
17	GND	18	VCC5
19	HDMI_HPD		

Audio Line Out Connector (NTK-AV01 / NTK-AV02)

CN1
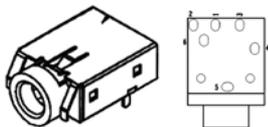
Pin	Definition	Pin	Definition
1	FRONT_R	2	FRONT_JD
3	NC	4	FRONT_L
5	GND	6	GND

Audio Line In Connector (NTK-AV01)

CN2
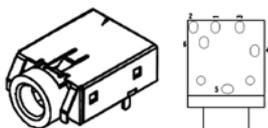
Pin	Definition	Pin	Definition
1	LINE_R	2	LINE_JD
3	NC	4	LINE_L
5	GND	6	GND

Mic-in Pin Header (NTK-AV02)

J1

Pin	Definition	Pin	Definition
1	MIC_L	2	GND
3	MIC_JD	4	MIC_R

Chapter 3: System Setup

Removing the Chassis Cover

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

1. The screws on cover are used to secure the cover to the chassis. Remove these screws and put them in a safe place for later use.

Installing a DIMM

1. Locate for the SO-DIMM socket on the board.
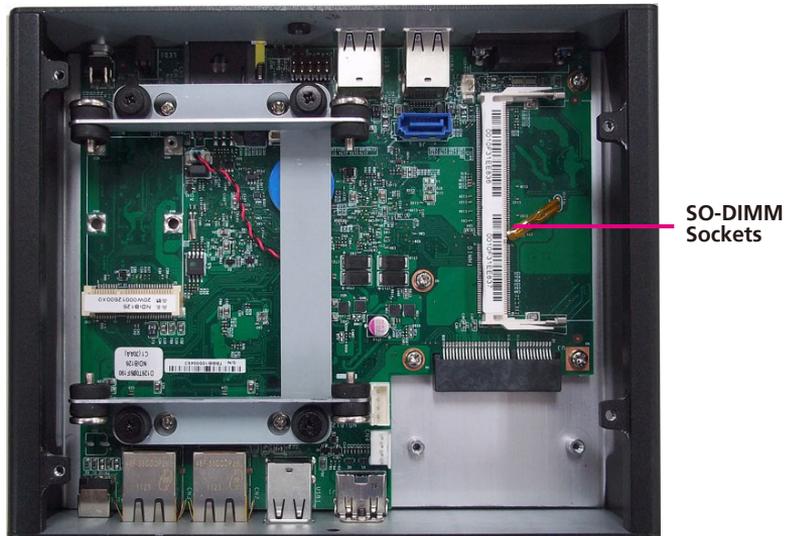
2. Push the ejector tabs which are at the ends of the socket outward. This indicates that the socket is unlocked.

Ejector tab

SO-DIMM Sockets
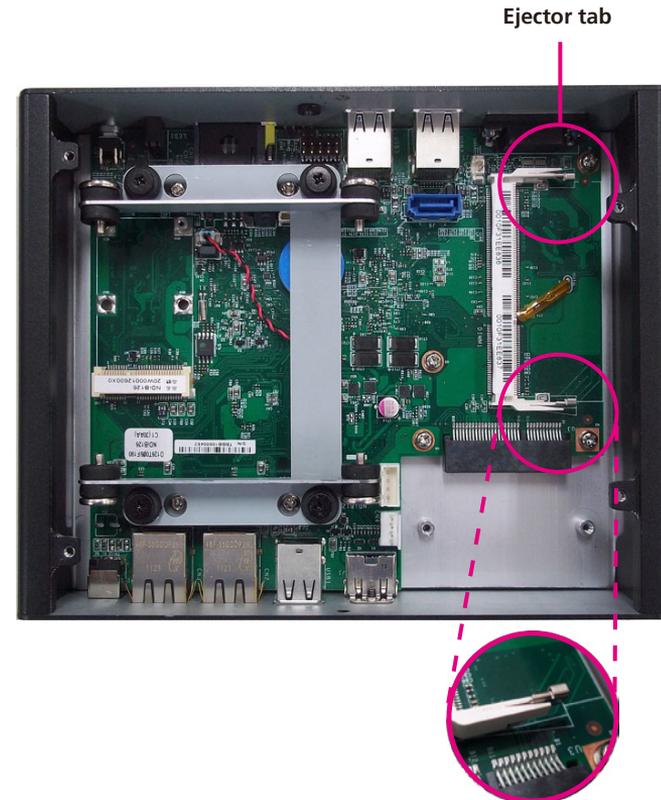
3. Note how the module is keyed to the socket. Grasping the module by its edges, align the module with the socket so that the "notch" on the module is aligned with the "key" on the socket. The key ensures the module can be plugged into the socket in only one direction.

Key

Notch
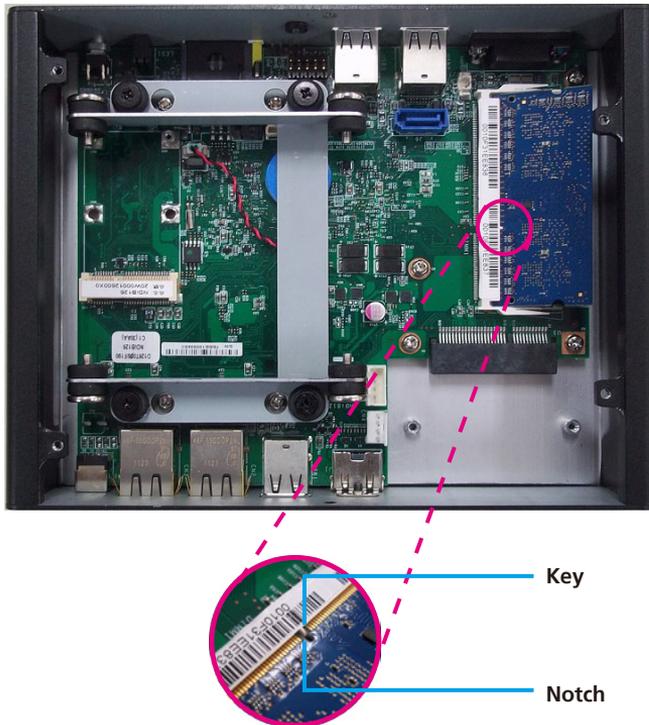
4. Insert the module into the socket at an approximately 30 degrees angle. Apply firm even pressure to each end of the module until it slips down into the socket. The contact fingers on the edge of the module will almost completely disappear inside the socket.

The ejector tabs at the ends of the socket will automatically snap into the locked position to hold the module in place.
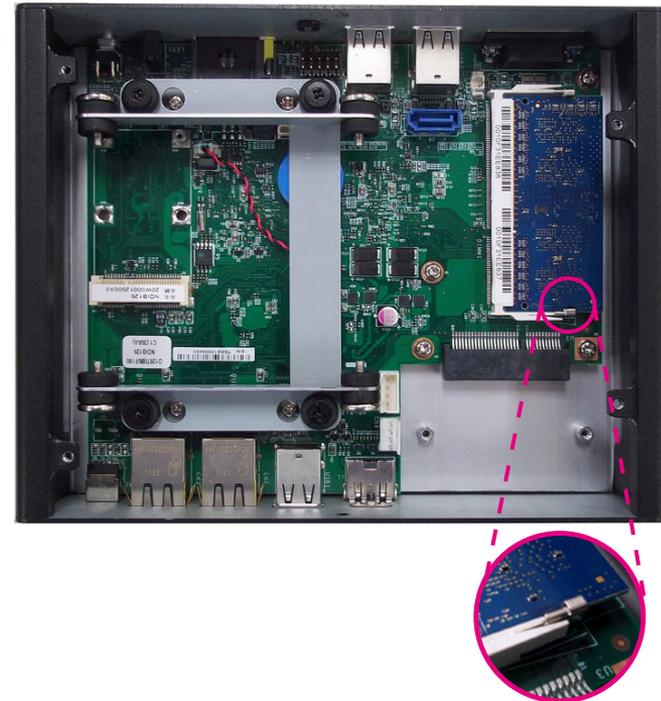
Installing a SATA Hard Drive

1. The drive bracket included in the chassis is used to hold a SATA hard drive. Disassembly HDD bracket from system to install SATA Hard Drive.
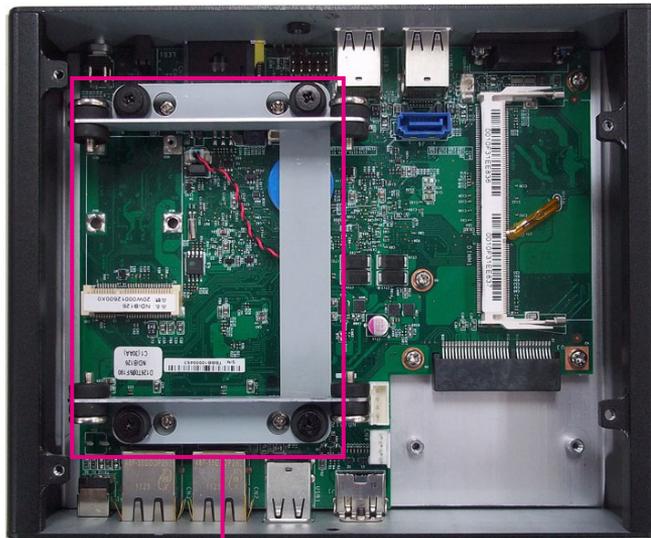
HDD Bracket

2. Place the SATA hard drive onto the drive bracket. Align the mounting holes that are on the sides of the SATA drive with the mounting holes on the drive bracket.

SATA Hard Drive

Drive Bracket

3. Use the provided screws to secure the SATA drive in place.

4. Locate for the mounting studs on the board.

Mounting Screw

Mounting Studs

5. Align the mounting holes of the HDD bracket with the mounting studs on the board then use the provided mounting screws to secure the HDD bracket in place.

6. Connect the SATA data cable and SATA power cable to the connector on mainboard.
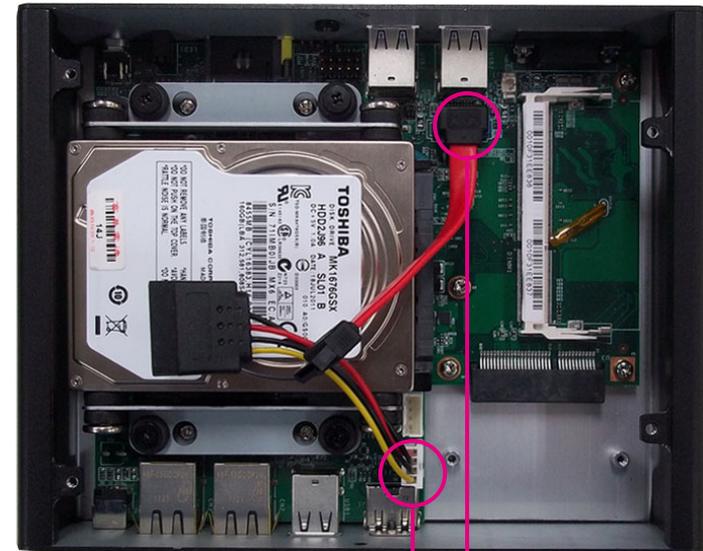
SATA Power Connector
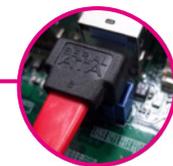
SATA Data Connector

7. Connect the SATA data cable and SATA power cable to the connector on Harddrive.
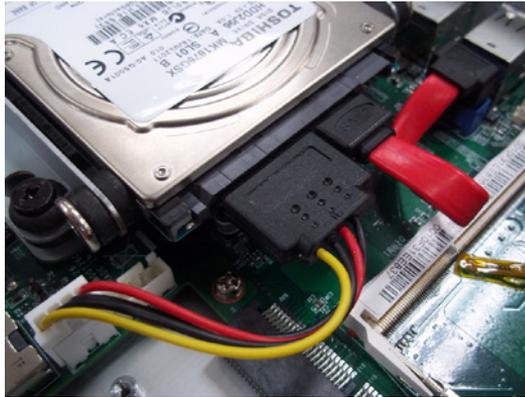
Installing a Wireless LAN Module

1. Remove HDD Bracket and locate for the Mini PCI Express slot on the mainboard.
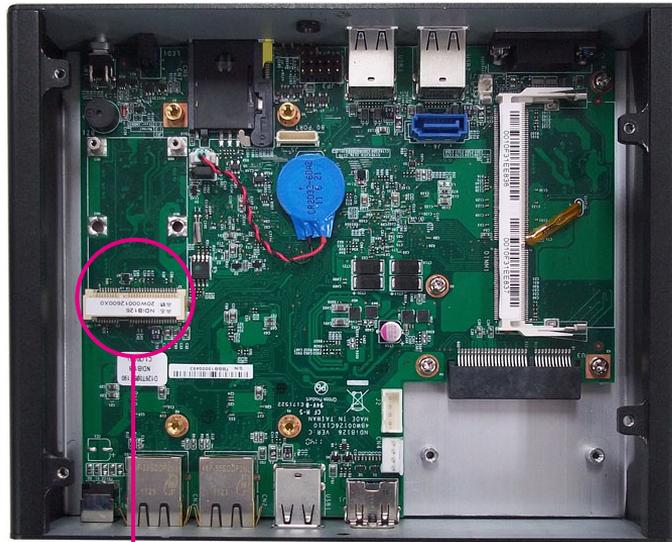
Mini PCI Express Slot

2. Insert the wireless LAN module into the Mini PCI Express slot at a 45 degrees angle until the gold-plated connector on the edge of the module completely disappears inside the slot.

Wireless LAN Module

3. Push the module down then secure it with mounting screws.
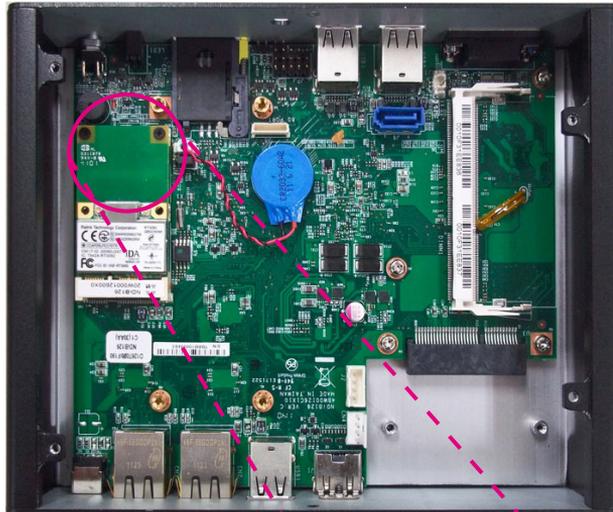
Mounting Screw
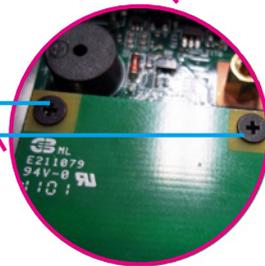
4. Attach one end of the RF cable onto the WiFi module.
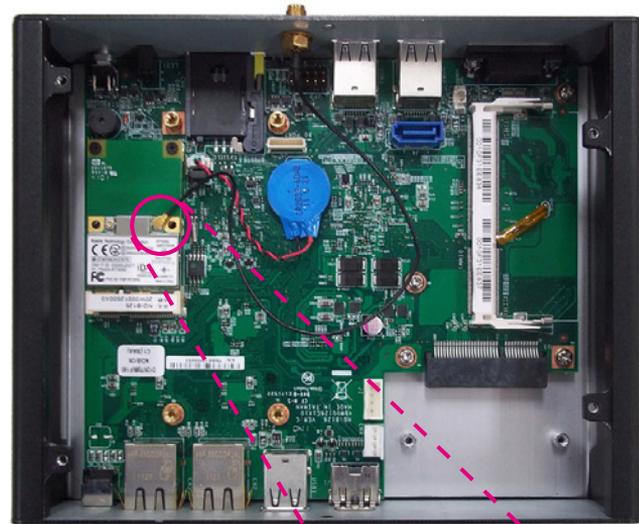
5. Insert the 2 rings (ring 1 then ring 2) into the WiFi antenna jack.

Ring2 **Ring1**
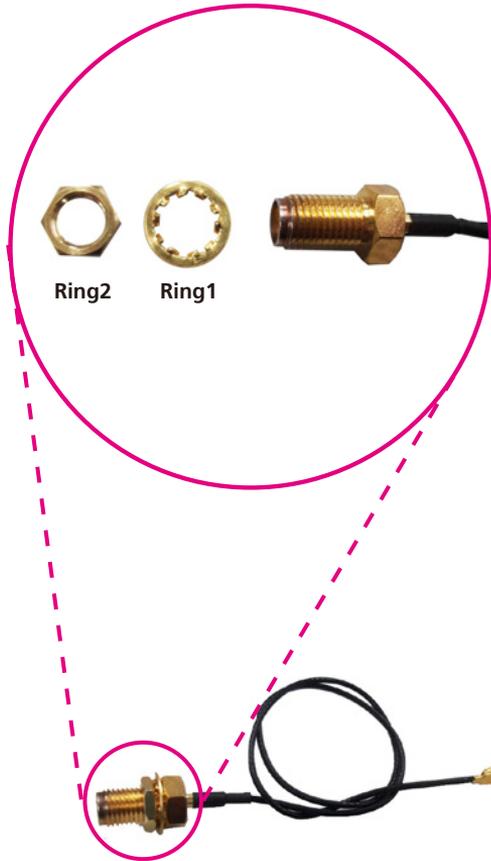
6. Now mount the WiFi antenna jack to the WiFi antenna hole located at the rear panel of the chassis then tighten the rings.

7. The photo below shows the WiFi antenna jack attached at the rear panel of the chassis.

8. Connect an external antenna to the WiFi antenna jack.

Antenna

Installing a TV Tuner Module

1. Locate for the Mini PCI Express slot on the board.

Mini PCI Express Slot

2. Insert the TV Tuner module into the Mini PCI Express slot at a 45 degrees angle until the gold-plated connector on the edge of the module completely disappears inside the slot.
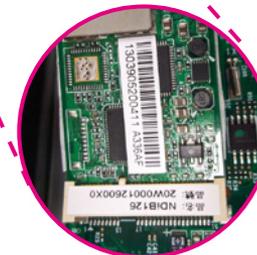
3. Push the module down then secure it with mounting screws.
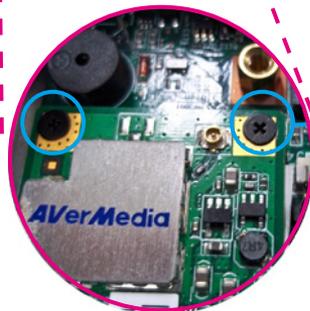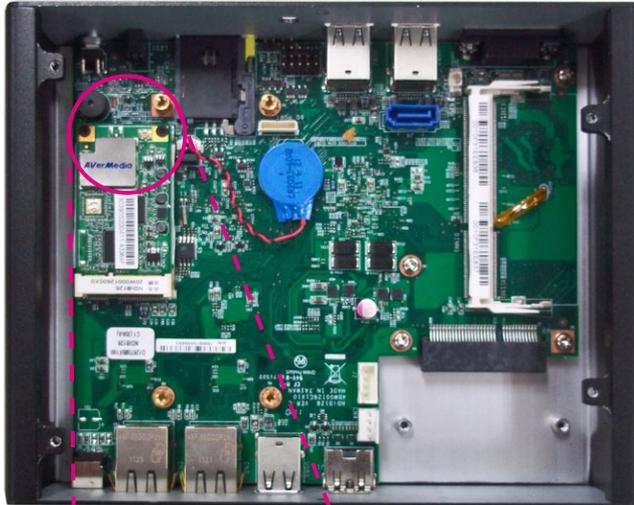
Mounting Screw

4. Attach one end of the RF cable onto the module.
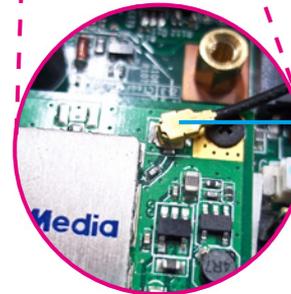
RF cable attached to the module

5. Insert the 2 rings (ring 1 then ring 2) into the TV antenna jack.
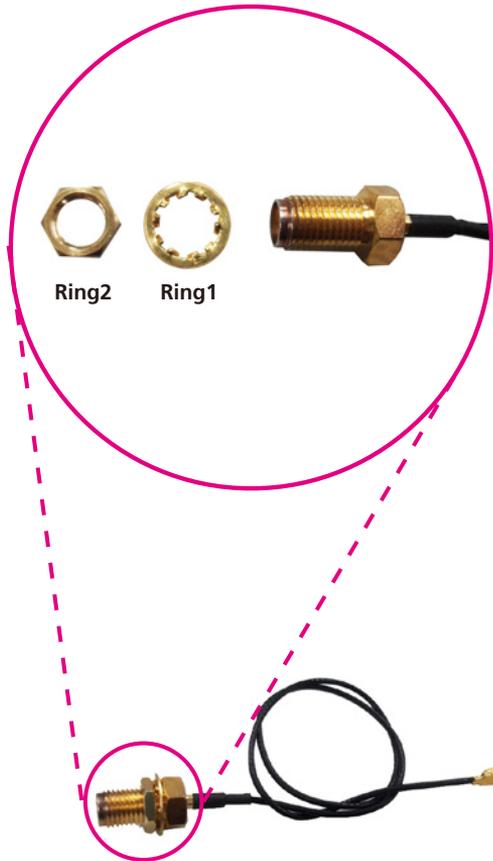
6. Now mount the TV antenna jack to the TV antenna hole located at the front panel of the chassis then tighten the rings.

Ring2   Ring1

7. Connect an external TV antenna to the antenna jack.

Antenna

Installing Wallmount Brackets

The wallmount brackets provide a convenient and economical way of mounting the system on the wall.

1. The mounting holes are located at the bottom of the system. Secure the brackets on each side of the system using the provided mounting screws.

Wallmount Bracket

Secure the bracket to the system
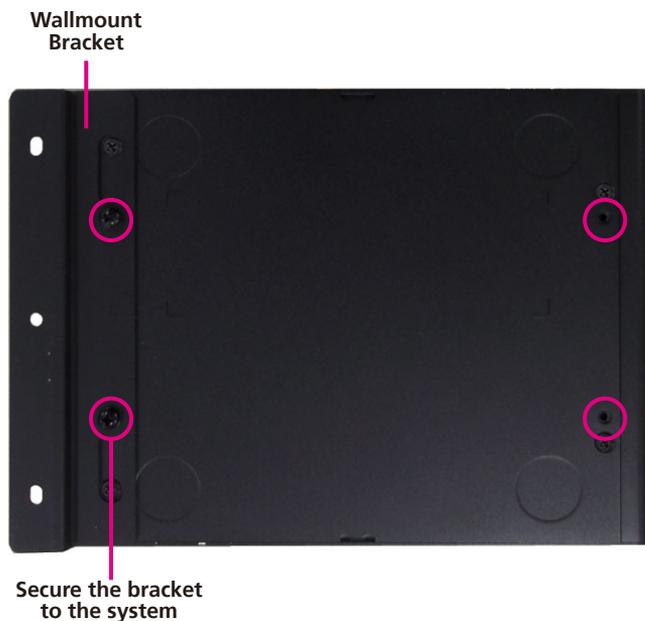
2. Now mount the system on the wall by fastening screws through the bracket's mounting holes.

Fasten screws to mount the system to the wall
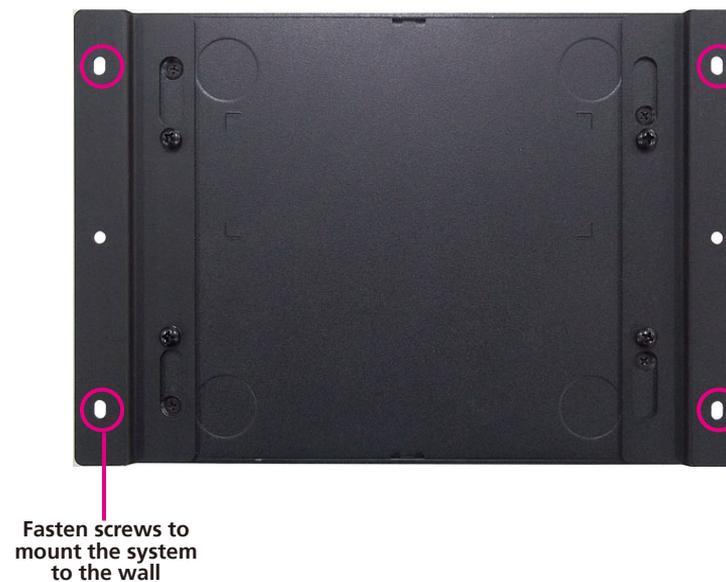
Chapter 4: BIOS Setup

This chapter describes how to use the BIOS setup program for NDiS 126 Series. The BIOS screens 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 intimately 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. Another way to enter Setup is to power on the computer and wait for the following message during the POST:

TO ENTER SETUP BEFORE BOOT

PRESS <CTRL-ALT-ESC>

Press the <Del>or<F2> key to enter Setup

Legends

Key	Function
Right and Left arrows	Moves the highlight left or right to select a menu.
Up and Down arrows	Moves the highlight up or down between sub-menus or fields.
<Esc>	Exits to the BIOS Setup Utility.
+ (plus key)	Scrolls forward through the values or options of the highlighted field.
- (minus key)	Scrolls backward through the values or options of the highlighted field.
<F1>	Displays General Help.
<F2>	Previous Value
<F3>	Load optimized default setting
<F4>	Saves and exits the Setup program.
<Enter>	Press <Enter> to enter the highlighted submenu.

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 six setup functions and one exit choices. 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.

```
               Aptio Setup Utility - Copyright (C) 2011 America Megatrends, Inc.
    Main     Advanced    Chipset     Boot     Security     Save & Exit

    BIOS Information                                              Set the Date. Use Tab to
    Production Name              NDiS-126 Series                  Switch between Data elements.
    BIOS Vendor                 American Megatrends
    Core Version                4.6.4.0
    Compliency                  UEFI 2.1
    Bios Version                D126-019
    Build Date and Time         12/06/2011  10:03:47

    ******* Memory Informaiton *******   1067Mhz(DDR3)
    Memory Frequency            2048 MB
    Total Memory

    ******* Intel RC Version *******
    INTEL MRC                   0.9.1                             →←: Select Screen
    INTEL P-UNIT                012                               ↑↓: Select Item
    INTEL IGFX VBIOS            1054                              Enter: Select
                                                                  +/-: Change Opt.
                                                                  F1: General Help
    System Date                 [Thu 12/06/2011]                 F2: Previous Values
    System Time                 [11:26:01]                       F3: Optimized Defaults
                                                                  F4: Save & Exit
    Access Level                Administator                      ESC: Exit


               Version 2.13.1216. Copyright (C) 2011 American Megatrends, Inc.
```

BIOS Information

Displays the detected BIOS information.

Memory Information

Displays the detected system memory information.

Intel® RC Version Information

Displays the detected Intel® RC Version information.

System Date

The date format is <day>, <month>, <date>, <year>. Day displays a day, from Sunday to Saturday. 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.

```
            Aptio Setup Utility - Copyright (C) 2011 America Megatrends, Inc.
     Main     Advanced     Boot     Security     Save & Exit

 ▶ ACPI Settings                               System ACPI Parameters.
 ▶ RTC Wake Settings
 ▶ CPU Configuration
 ▶ Intel IGD Configuration
 ▶ IDE Configuration
 ▶ Intel Fast Flash Standby
 ▶ USB Configuration
 ▶ Super IO Configuration
 ▶ H/W Monitor
 ▶ PPM Configuration

                                               →←: 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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```

ACPI Settings

Enables or disables the System ACPI parameters.

RTC Wake Settings

This section is used to Enables or disables system to wake from S5 state using RTC alarm.

CPU Configuration

This section is used to configure the CPU. It will also display detected CPU information.

Intel® IGD Configuration

This section is used to configure Intel® IGD settings.

IDE Configuration

This section is used to configure the IDE devices.

Intel® Fast Flash Standby Configuration

This section is used to configure Intel® Fast Flash Standby Configuration.

USB Configuration

Configures the USB devices.

Super IO Configuration

This section is used to configure the I/O functions supported by the on-board Super I/O chip.

H/W Monitor

This section is used to configure the hardware monitoring events such as temperature and voltages.

PPM Configuration

This section is used to configure the Intel® PPM Configuration.

ACPI Settings

This section is used to configure RTC Wake up settings.

```
            Aptio Setup Utility - Copyright (C) 2011 America Megatrends, Inc.
       Advanced

  ACPI Settings                                    Enable or disable system wake on
                                                   alarm event. When enabled, sys-
  Enable Hibernation           [Disabled]          tem will wake on the Hr:Min:Sec
  ACPI Sleep State             [S3 (Suspend to RAM)]   specified.
  Restore AC Power Loss        [Power Off]




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


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```

Enable Hibernation

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

ACPI Sleep State

Select the highlight ACPI sleep state the system will enter when the SUSPEND button is pressed.

Option:
 - Suspend Disabled
 - S1 (CPU Stop Clock)
 - S3 (Suspend to RAM)

Restore AC Power Loss

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

Option:
 - Power On
 - Power Off

RTC Wake Settings

This section is used to configure RTC Wake up settings.

Wake system with fixed time

Enable or disable system wake on alarm event. When enabled, system will wake on the Hr:Min:Sec specified.

```
              Aptio Setup Utility - Copyright (C) 2011 America Megatrends, Inc.
     Advanced

 Wake system with fixed Time        [Disabled]           Enable or disable system wake on
                                                         alarm event. When enabled, sys-
                                                         tem will wake on the Hr:Min:Sec
                                                         specified.

                                                         →←: 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 Configuration

This section is used to configure the CPU. It will also display detected CPU information.

```
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    Advanced

    CPU Configuration                                     Enabled for Windows XP and
                                                          Linux (OS optimized for
    Processor Type          Intel (R) Atom(TM) CPU        Hyper-Threading Technology)
    EMT64                   Supported                     and Disabled for other OS (OS
    Processor Speed         2132  MHz                     not optimized for
    System Bus Speed        533 MHz                       Hyper-Threading Technology).
    Radio Status            16                            When Disabled only one thread
    Actual Ratio            16                            poer enabled core is enabled.
    Processor Setpping      30061
    Microcode Revision      262
    L1 Cache RAM            2x56k
    L2 Cache RAM            2x512k
    Processor Cores         Dual
    Hyper-Threading         Support
                                                          →←: Select Screen
    Hyper-threading         [Enabled]                     ↑↓: Select Item
    Execute Disable Bit     [Enabled]                     Enter: Select
    Limit CPUID Maximum     [Disabled]                    +/-: Change Opt.
                                                          F1: General Help
                                                          F2: Previous Values
                                                          F3: Optimized Defaults
                                                          F4: Save & Exit
                                                          ESC: Exit


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```

Hyper-Threading

Enable this field for Windows XP and Linux which are optimized for Hyper-Threading technology. Select disabled for other OSes not optimized for Hyper-Threading technology. When disabled, only one thread per enabled core is enabled.

Execute Disable Bit

XD can present certain classes of malicious buffer overflow attacts when combined with a supporting OS (Windows Server 2003 SP1, Windows XP SP2, SuSE Linux 9.2, Redhat Enterprise 3 update 3.)

Limit CPUID Maximum

Enable or Disable limit CPUID Maximum for Windwos XP

Intel IGD Configuration

This section is used to configure the Intel® IGD Graphic configurations.

```
              Aptio Setup Utility - Copyright (C) 2011 America Megatrends, Inc.
         Advanced

     Intel IGD Configuraiton                          Select the video device which will
                                                      be activated during POST. This
     IGFX Boot Type                 [CRT+HDMI]        has no effect if external graphics
                                                      present.




                                                      →←: 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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```

IGFX Boot Type

Select the video device which will be activated during POST. This has no effect if external graphics present.

Option:
- CRT
- CRT + HDMI

IDE Configuration

This section is used to configure the IDE and SATA devices.

```
              Aptio Setup Utility - Copyright (C) 2011 America Megatrends, Inc.
    Advanced

    SATA Port 0                    Not Present           SATA ports (0-3) Device Names if
    SATA Port 1                    Not Present           present and Enabled.

      SATA Controller(s)           [Enable]

      Configure SATA as            [AHCI]
        Port 0 Speed Limit         [No Limit]
        Port 1 Speed Limit         [No Limit]

      SATA Port 0                  [Enabled]
      SATA Port 0 Hot Plug         [Enabled]
      SATA Port 1                  [Enabled]
      SATA Port 1 Hot Plug         [Enabled]           →←: Select Screen
                                                        ↑↓: Select Item
    MISC Configuration for hrad disk                    Enter: Select
                                                        +/-: Change Opt.
                                                        F1: General Help
                                                        F2: Previous Values
                                                        F3: Optimized Defaults
                                                        F4: Save & Exit
                                                        ESC: Exit




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```

SATA Controller(s)

SATA ports (0-3) Device Names if present and Enabled.

Configure SATA as

Select a configuration for SATA controller

IDE Mode

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

AHCI Mode

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

⚠ Please set SATA Mode to **IDE Mode** before installing Windows XP. Setting AHCI mode could not initial Windows XP installation.

Port Speed Limit

This option configures the Port ACHI Speed Limit.

SATA Port

This option Enables or Disable the SATA Port.

SATA Port Hotplug

This option Enables or Disable the SATA Port as Hot pluggable.

Intel Fast Flash Standby

Configures the Intel® Fast Standby Technology function.

```
         Aptio Setup Utility - Copyright (C) 2011 America Megatrends, Inc.
   Advanced

   iFFS Support                      [Disabled]          Enable or Disable iFFS












                                                         →←: 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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```

iFFS Support

Enables or disables Intel® Fast Flash Standby Technology function in BIOS.
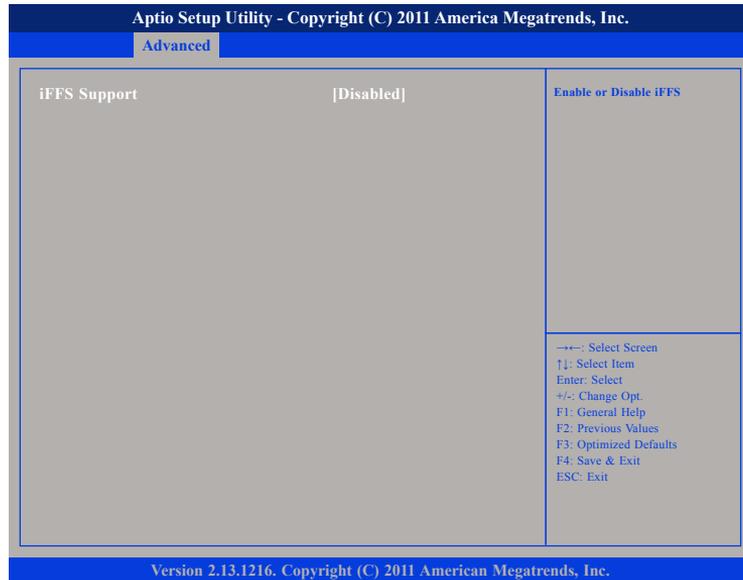
USB Configuration

This section is used to configure USB devices.

```
         Aptio Setup Utility - Copyright (C) 2011 America Megatrends, Inc.
  Advanced

  USB Configuration                               Enables Legacy USB support.
                                                  AUTO option disables legacy
  USB Devices:                                    support if no USB devices are
      1 Keyboard                                  connected. DISABLE option will
                                                  keep USB devices available
  Legacy USB Support           [Enabled]          only for EFI applications.
  EHCI Hand-off                [Disabled]




                                                  →←: 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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```

Legacy USB Support

Enabled - Enables legacy USB.

Disabled - Keeps USB devices available only for EFI applications.

Auto - Disables support for legacy when no USB devices are connected.

EHCI Hand-off

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

Super IO Configuration

This section is used to configure the I/O functions supported by the on-board Super I/O chip.

```
              Aptio Setup Utility - Copyright (C) 2011 America Megatrends, Inc.
    Advanced

    Super IO Configuration                          Set Parameters of Serial Port
                                                    0 (COMA)
    ▶ Serial Port 0 Configuration
    ▶ CIR Controller Configuration




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



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```

Serial Port 0 Configuration

Selects the IO/IRQ setting of the I/O devices.

CIR Configuration

Set Parameters for CIR Controller (CIR)

H/W Monitor

This section is used to configure the hardware monitoring events such as temperature, fan speed and voltages.
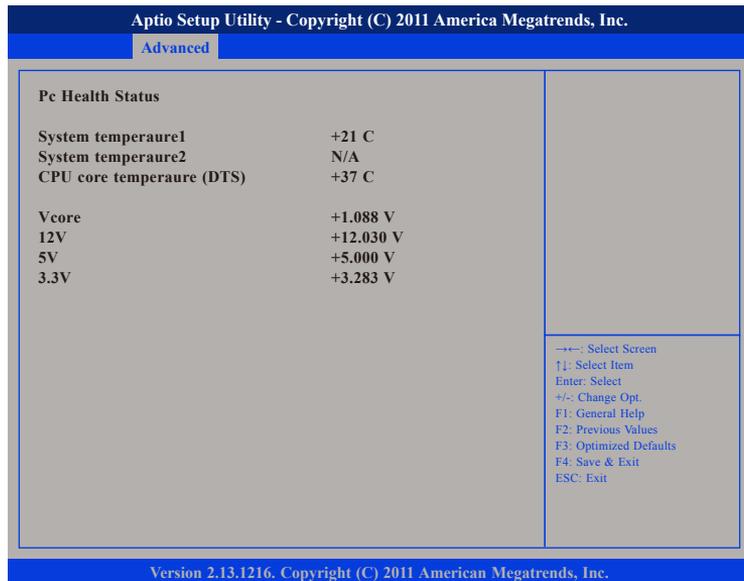
```
            Aptio Setup Utility - Copyright (C) 2011 America Megatrends, Inc.
              Advanced

    Pc Health Status

    System temperaure1              +21 C
    System temperaure2              N/A
    CPU core temperaure (DTS)       +37 C

    Vcore                           +1.088 V
    12V                             +12.030 V
    5V                              +5.000 V
    3.3V                            +3.283 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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```

System Temperature 1 to System Temperature 2
Detects and displays the internal temperature of the system.

CPU Core Temperature (DTS)
Displays the CPU core temperature detects from DTS (Digital Thermal Sensor).

Vcore to 3.3V
Detects and displays the output voltages.

PPM Configuration

This section is used to configure the Intel® PPM Configuration.

```
            Aptio Setup Utility - Copyright (C) 2011 America Megatrends, Inc.
      Advanced

   PPM Configuration                                On enabled, SB observes bus
                                                    master request, will take system
   EIST                         [Enabled]           from a c3/c4 state to a C2 state
   CPU C State report           [Enabled]           and auto enables bus masters.
     Enhanced C State           [Enabled]
     CPU Hard C4E               [Enabled]
     CPU C6 State               [Enabled]
   C4 Exit Timing               [Fast]
   C-state POPDOWN              [Enabled]
   C-state POPUP                [Enabled]


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



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```

EIST

This section is used to enable or disable Intel® SppedStep.

C4 Exit Timing

This option controls a programmable time for the CPU voltage to stabilize when exiting from C4 state.

C-State Report

Enable or Disable CPU C-State report to OS.

Enhanced C State

Enable or Disable enhanced C-State.

CPU Hrad C4E

Enable or Disable CPU hard C4E function.

CPU C6 State

Enable or Disable CPU C6 State.

C-State POPDOWN

Disabling this option, prevents automatic return to previous C3 or C4 state.

C-State POPUP

On enabled, SB observes bus master request, will take system from a c3/c4 state to a C2 state and auto enables bus masters.

Boot

```
              Aptio Setup Utility - Copyright (C) 2011 America Megatrends, Inc.
     Main      Advanced      Boot      Security     Save & Exit

     Boot Configuration                                      Select keyboard NumLock state

     Boot NumLock State          [On]
     Launch PXE OpROM            [Disabled]
     Launch Storage OpROM        [Enabled]

     Boot Option Priorities      [SATA: Hitachi HTS7...]




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



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```

Boot NumLock State

Select keyboard NumLock state..

Launch PXE OpROM

This section is used to enable or disable boot option for legacy network devices.

Launch Storage OpROM

This section is used to enable or disable boot option for legacy storage devices.

BBS Option Priorities

Set the order of the legacy devices in this group.

Security

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Main	**Advanced**	**Chipset**	**Boot**	**Security**	**Save & Exit**

Password Description

If ONLY the Adm;inistrator'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 passwrd and must be entered to
boot or enter Setup. In Setup the User will
have Administrator rights.
Minimum Length   3
Maximum Length   20

Administrator Password
User Password

Set Setup Administrator
Passwrod

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

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Administrator Password

Sets the administrator password.

User Password

Sets the user password.

Save & Exit

```
        Aptio Setup Utility - Copyright (C) 2011 America Megatrends, Inc.
   Main      Advanced    Chipset    Boot     Security    Save & Exit

  Save Changes and Reset                       Exit system after saving changes
  Discard Changes and Reset

  Restore default

  Boot Override
  Launch EDI Shell from filesystem device



                                               →←: 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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```

Save Changes and Exit

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

Discard Changes and Exit

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

Restore Default

To restore / lead default all values for all the setup options. Confirm by selecting Yes to apply default settings.

Launch EDI Shell from filesystem device

Attempts to launch EFI shell application (Shellx64.efi) from one of the available file system devices

Appendix A: Watchdog Timer

NDiS 126 features a watchdog timer that resets the CPU or generates an interrupt if the processor stops operating for any reason. This feature ensures system reliability in industrial standalone or unmanned environments.

Watchdog Timer Control Register
(Index=71h, Default=00h)

Bit	Description
7	WDT is reset upon a CIR interrupt.
6	WDT is reset upon a KBC (mouse) interrupt.
5	WDT is reset upon a KBC (keyboard) interrupt.
4	WDT is reset upon a read or a write to the Game Port base address.
3-2	Reserved
1	Force Time-out. This bit is self-clearing.
	WDT Status
0	1: WDT value reaches 0.
	0: WDT value is not 0.

Watchdog Timer Configuration Register (Index=72h, Default=001s0000b)

Bit	Description
7	**WDT Time-out value select 1** 1: Second 0:Minute
6	**WDT output through KRST (pulse) Enable** 1: Enable 0: Disable
5	**WDT Time-Out Value Extra Select** 1: 64ms x WDT Timer-out value (default=4s) 0: Determined by WDT Time-out value select 1 (bit 7 of this register)
4	**WDT Output through PWEGD Enable** 1: Enable 0: Disable During LRESET# this bit is selected by JP2 power-on strapping option.
3-0	**Interrupt level Select for WDT.**

Watch Dog Timer Time-out value (LSB) Register (Index=73h, default=38h)

Bit	Description
7-0	**WDT Time-out value 7-0**

Watch Dog Timer Time-out value (MSB) Register (Index=74h, default=00h)

Bit	Description
7-0	**WDT Time-out value 15-8**

Appendix B: GPI/O Programming Guide

This appendix provides definitions for the GPI/O pins in NDiS 126. GPI/O (General Purpose Input/Output) pins are provided for custom system design. The pin programmed as input mode (GPI) or output mode (GPO) depends on the configuration.

GPIO Configuration

Address: A06

DATA	Bit7	Bit6	Bit5	Bit4	Bit3	Bit2	Bit1	Bit0
GPIO mapping	GPO4	GPO3	GPO2	GPO1	GPI4	GPI3	GPI2	GPI1

Example:

Output data (1010) through GPO
Step1: At Debug mode
Step2: Set Data at address A06

C:\debug
-o A06 AX

Read data from GPI
Step1: At Debug mode
Step2: Read Data at A06 (Input data is 1010)

C:\debug
-i A06
-XA