



NEXCOM International Co., Ltd.

Intelligent Platform & Services Business Unit

Digital Signage Platform

NDiS B533

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 B 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 B 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.
- The instructions shall require connection of the equipment protective earthing conductor to the installation protective earthing conductor (for example, by means of a power cord connected to a socket-outlet with earthing connection).

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. This equipment is not suitable for use in locations where children are likely to be present.
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. ATTENTION: Risque d'explosion si la batterie est remplacée par un type incorrect. Mettre au rebus les batteries usagées selon les instructions.

CAUTION: Risk of explosion if battery is replaced by an incorrect type. Dispose of used batteries according to the instructions.
19. This product is intended to be supplied by a Listed (Certificate) power adapter, output rated 12Vdc, 8A or 8.33A minimum, Tma 40 degree C minimum and altitude 2000m. If further assistance is needed, please contact NEXCOM for further information.

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.

Global Service Contact Information

Headquarters

NEXCOM International Co., Ltd.

9F, No. 920, Chung-Cheng Rd.,
ZhongHe District, New Taipei City, 23586,
Taiwan, R.O.C.

Tel: +886-2-8226-7786

Fax: +886-2-8226-7782

www.nexcom.com

Asia

Taiwan

NexAIoT Co., Ltd.

Taipei Office

13F, No.920, Chung-Cheng Rd.,
ZhongHe District,
New Taipei City, 23586, Taiwan, R.O.C.

Tel: +886-2-8226-7796

Fax: +886-2-8226-7792

Email: sales@nexcom.com.tw

www.nexcom.com.tw

NexAIoT Co., Ltd.

Taichung Office

16F, No.250, Sec. 2, Chongde Rd.,
Beitun Dist.,

Taichung City 406, R.O.C.

Tel: +886-4-2249-1179

Fax: +886-4-2249-1172

Email: sales@nexcom.com.tw

www.nexcom.com.tw

NexCOBOT Taiwan Co., Ltd.

13F, No.916, Chung-Cheng Rd.,
ZhongHe District,
New Taipei City, 23586, Taiwan, R.O.C.

Tel: +886-2-8226-7796

Fax: +886-2-8226-7792

Email: sales@nexcom.com.tw

www.nexcom.com.tw

GreenBase Technology Corp.

13F, No.922, Chung-Cheng Rd.,
Zhonghe Dist.,
New Taipei City, 23586, Taiwan, R.O.C.

Tel: +886-2-8226-7786

Fax: +886-2-8226-7900

Email: sales@nexcom.com.tw

www.nexcom.com.tw

China

NEXSEC Incorporated

Floor 5, No.4, No.7 fengxian middle Rd.,
(Beike Industrial Park), Haidian District,
Beijing, 100094, China

Tel: +86-10-5704-2680

Fax: +86-10-5704-2681

Email: sales@nexcom.cn

www.nexcom.cn

NEXCOM Shanghai

Room 603/604, Huiyinmingzun Plaza Bldg., 1,
No. 609, Yunlin East Rd.,
Shanghai, 200062, China
Tel: +86-21-5278-5868
Fax: +86-21-3251-6358
Email: sales@nexcom.cn
www.nexcom.cn

NEXCOM Surveillance Technology Corp.

Floor 5, Building C, ZhenHan Industrial Zone,
GanKeng Community, Buji Street,
LongGang District,
ShenZhen, 518112, China
Tel: +86-755-8364-7768
Fax: +86-755-8364-7738
Email: steveyang@nexcom.com.tw
www.nexcom.cn

NEXCOM United System Service

Room 603/604, Huiyinmingzun Plaza Bldg. 1,
No. 609, Yunlin East Rd.,
Shanghai, 200062, China
Tel: +86-21-5278-5868
Fax: +86-21-3251-6358
Email: renwang@nexcom.com.tw
www.nexcom.cn

NEXGOL

1st Floor, Building B4, Electronic 2nd Area,
(Phoenix Lake Industrial Park), Yongchuan Dist.,
Chongqing City, 402160, China
Tel: +86-23-4960-9080
Fax: +86-23-4966-5855
Email: sales@nexcobot.com
www.nexgol.com/NexGoL

Beijing NexGemo Technology Co.,Ltd.

5th Floor, Gemotech Building, No.1, Development Rd.,
Changping International Information Industry Base,
Changping District,
Beijing, 102206, China
Tel: +86-10-8190-9399
Fax: +86-10-8190-9456

Japan**NEXCOM Japan**

9F, Tamachi Hara Bldg.,
4-11-5, Shiba Minato-ku,
Tokyo, 108-0014, Japan
Tel: +81-3-5419-7830
Fax: +81-3-5419-7832
Email: sales@nexcom-jp.com
www.nexcom-jp.com

Europe**United Kingdom****NEXCOM EUROPE**

10 Vincent Avenue,
Crownhill Business Centre,
Milton Keynes, Buckinghamshire
MK8 0AB, United Kingdom
Tel: +44-1908-267121
Fax: +44-1908-262042
Email: sales.uk@nexcom.eu
www.nexcom.eu

America**USA****NEXCOM USA**

2883 Bayview Drive,
Fremont CA 94538, USA
Tel: +1-510-656-2248
Fax: +1-510-656-2158
Email: sales@nexcom.com
www.nexcom.com

Package Contents

Before continuing, verify that the NDIS B533 package that you received is complete. Your package should have all the items listed in the following table.

Item	Part Number	Name	Description	Qty
1	50222A0438X00	NDiS 166 HDD-Bracket VER:A CHYUAN-JYH	95x9.8x8.0mm 0.8T SPCC+NI	1
2	5044440031X00	Rubber Foot Kang Yang:RF20-5-4P	19.8x18x5.0mm	4
3	5060900226X00	Mini PCIe Bracket CHYUAN-JYH	29x30x2.1mm SPCC t=1.0mm NI	1
4	50311F0294X00	I Head Screw Long FEI:I2x4 NYLOK NIGP	I2x4 NI NYLOK	4
5	50311F0295X00	Flat Head Screw Long FEI:F2x4 NYLOK NIGP	F2x4 NIGP NYLOK	1
6	7400080005X00	Power Adapter w/C6 Socket L.T.E.:LTE90E-S2-210	80W 12V/6.67A MINI DIN 4PIN Male Plug	1
7	50311F0100X00	Round Head Screw w/Spring+Flat Washer Long FEI:P3x6L	P3x6 iso/SW6x0.5 NI	4
8	50311F0016X00	Flat Head Screw Long FEI:F3x4ISO	F3x4L BLACK	2
9	5044440479X00	Thermal Pad E-LIN	80x50x0.5mm S3S	1
10	5044440192X00	Thermal Pad EAPUS:XR-Pe	10x10x1.5mm K=11 w/mk	1
11	5060200082X00	Thermal Pad NDiS B533 VER:A EAPUS	25x25x0.2mm	1

Ordering Information

The following information below provides ordering information for NDiS B533.

NDiS B533 (P/N: 10W00B53300X0)

- 4th generation Intel® Core™ processor (up to 35W) fanless system
- Intel® Q87 chipset

NDiS B533F (P/N: 10W00B53301X0)

- 4th generation Intel® Core™ processor (up to 45W) system
- Intel® Q87 chipset

NDiS-WALL Mount Kit for NDiS B532/B533/B535 (P/N: 10W00NDIS00X0)

Chapter 1: Product Introduction

Overview



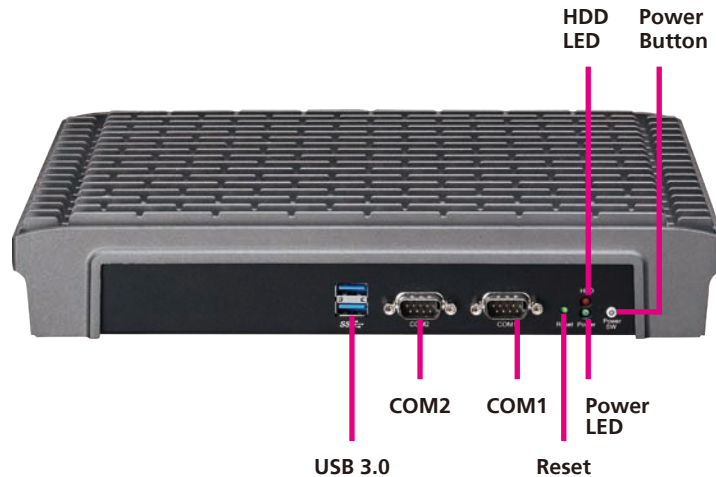
NDiS B533 is a powerful digital signage player which is built around the superb technology of 4th generation Intel® Core™ processor family series and Q87 integrated graphics controller. The digital signage player can offer impressive system performance and full HD videos. With support for smooth 1080P video playback on three independent displays, the 1080P signage player can fully satisfy customer's expectation and therefore be used in applications such as advertising, hospitality, brand promotion and digital menu board.

Key Features

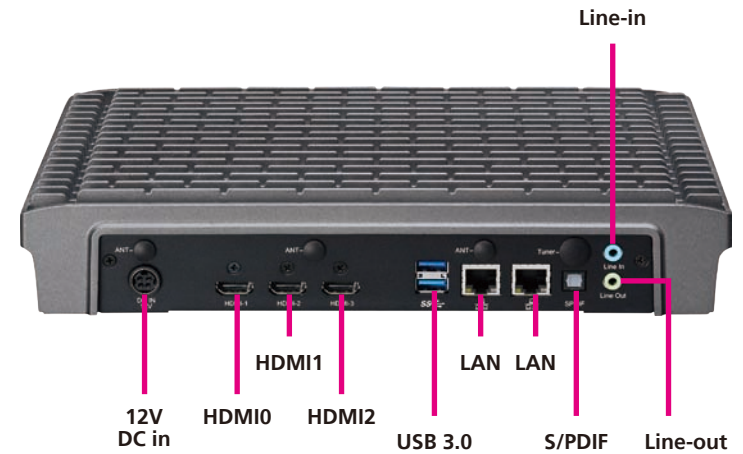
- 4th Generation Intel® Core™ processor
- Intel® integrated HD 4600 graphic engine
- Compact and slim design
- 3 independent display
- USB 3.0, dual GbE LAN support
- WLAN/ TV tuner support
- DirectX 11.1 support

Physical Features

Front Panel



Rear Panel



Hardware Specifications

CPU Support

- 4th generation Intel® Core™ LGA socket type processor

Chipset

- Intel® Q87
- Intel® integrated HD 4600 graphic engine

Main Memory

- 2x 204-pin SO-DIMM sockets, supports DDR3 1600/1333MHz non-ECC, un-buffered memory up to 16GB (single socket max. 8GB)

I/O Interface-Front

- 1x power status LED
- 1x HDD status LED
- 1x power switch
- 1x reset switch
- 2x USB 3.0
- 2x DB9 for RS-232

I/O Interface-Rear

- +12V DC-in
- 3x HDMI
- 2x USB3.0
- 2x RJ45 with LED for 10/100/1000Mbps Ethernet
- 1x SPDIF
- 1x Line-in/ 1x Line-out
- 3x antenna hole for Wi-Fi and TV tuner

Storage

- 1x SATA 2.5" HDD
- 1x SATA DOM

Expansion

- 1x Mini-PCIe for optional WLAN module
- 1x Mini-PCIe for optional TV tuner module

Data Protection

- 1x Wafer onboard for TPM module (ver. 1.2), support Intel Trusted Execution Technology

Construction

- Top cover made by aluminum for main heat exchange
- Chassis made by steel in black

Dimensions

- 294 mm (W) x 198 mm (D) x 52 mm(H) (11.6" x 7.8" x 2.0")

Power Supply

- 1x External 80W AC/ DC adapter
Input: 100~240VAC
Output: +12VDC

Environment

- Operating temperature: 0°C to 40°C
- Storage temperature: -20°C to 80°C
- Humidity: 10 to 90% (non-condensing)

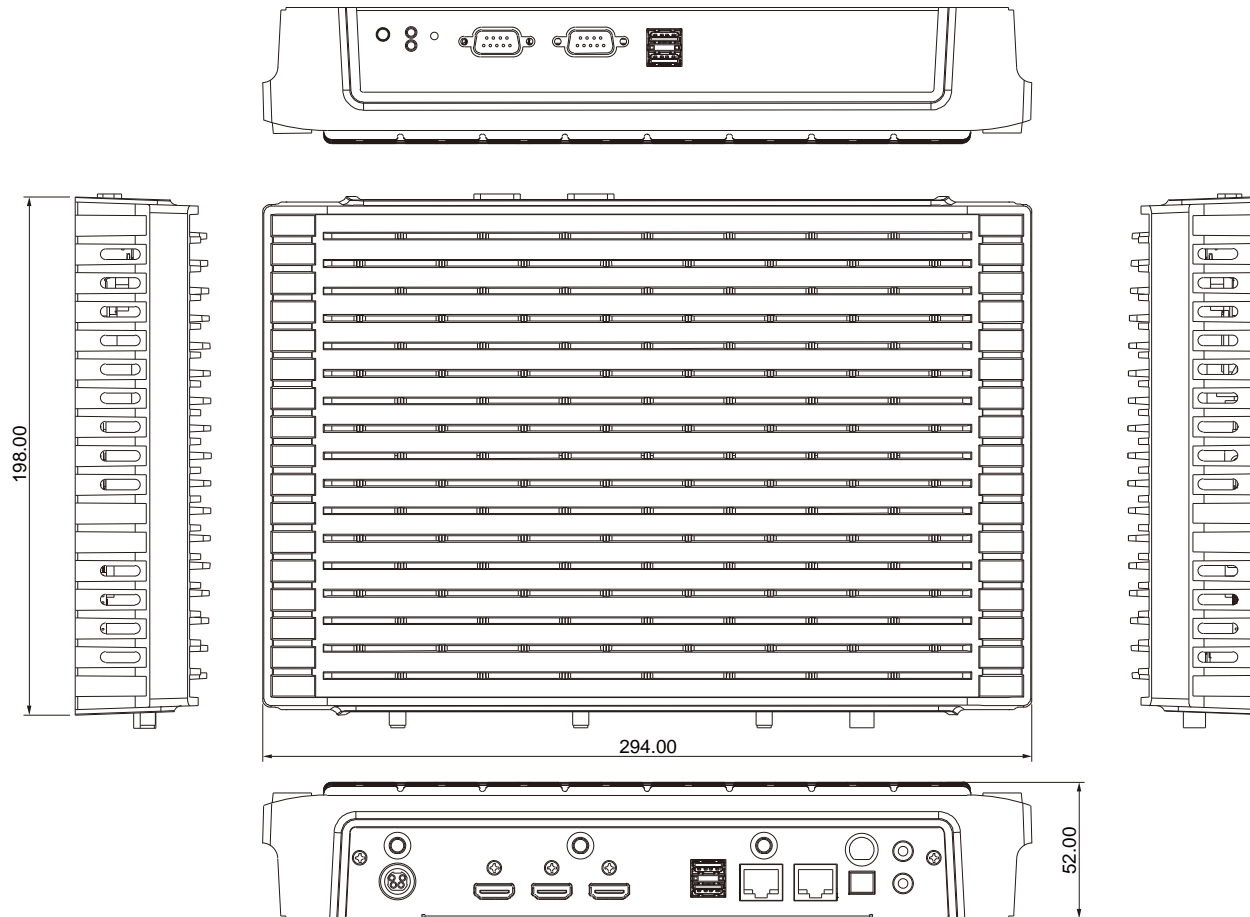
Certification

- CE approval
- FCC Class A

Operating System

- Windows 7 / Windows 8

Mechanical Dimensions



Chapter 2: Jumpers and Connectors

This chapter describes how to set the jumpers and connectors on the NDiS B533 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.

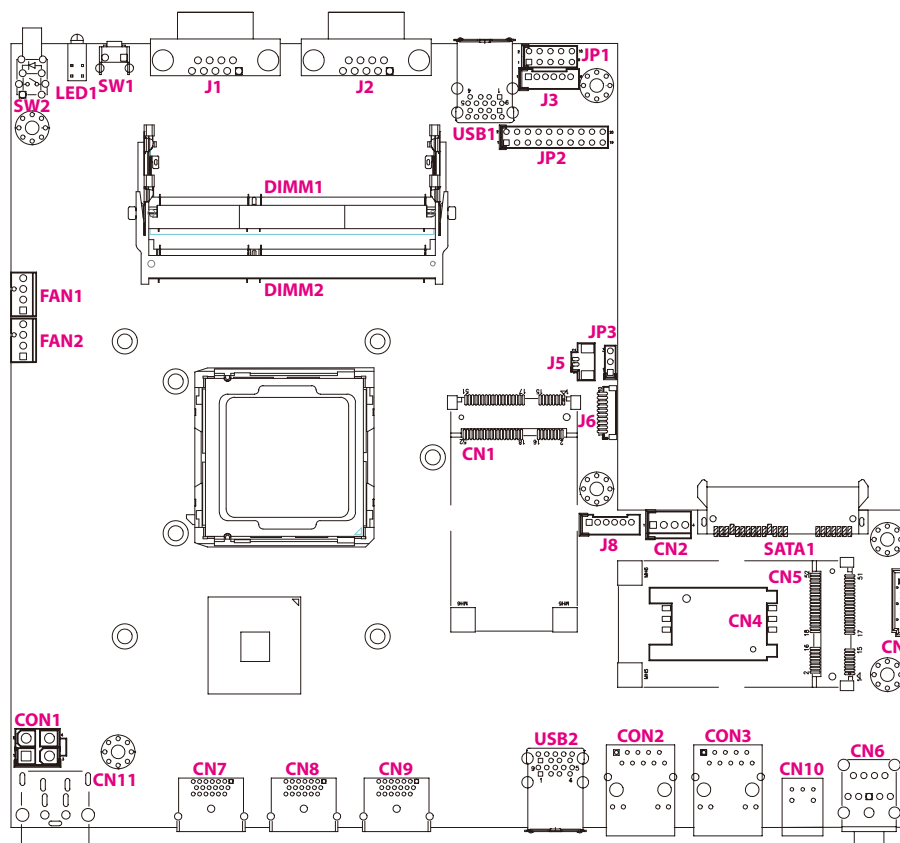
Follow the guidelines below to avoid damage to your computer or yourself:

- 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.

Locations of the Jumpers and Connectors for NDiB B533

NDiB B533

The figure below is the top view of the NDiB B533, which is the mainboard used in the NDiS B533. It shows the locations of the jumpers and connectors.

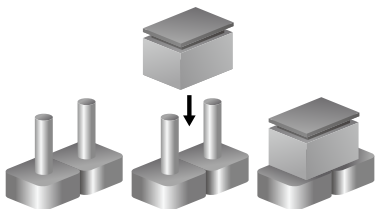


Jumper Settings

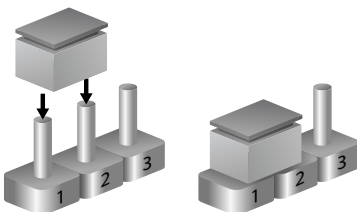
A jumper is the simplest kind of electric switch. It consists of two metal pins and a cap. When setting the jumpers, ensure that the jumper caps are placed on the correct pins. When the jumper cap is placed on both pins, the jumper is short. If you remove the jumper cap, or place the jumper cap on just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





Jumpers

RTC Clear Jump

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



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

1-2 On: default





Connector Pin Definitions

External I/O Interfaces - Front Panel

Power Button

Connector location: SW2



Power	LED Definition
ON	Blue
OFF	Red

LED Connector

Connector location: LED1

HDD



Power

LEDs	LED Definition
HDD	Red
Power	Green



Reset Button

Connector location: SW1

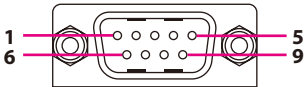


Pin	Definition
1-2	System Reset

COM1 and COM2 Connectors

Connector type: DB-9 port

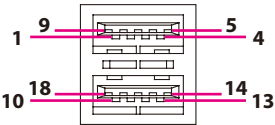
Connector location: J1 and J2



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

USB 3.0 Ports

Connector type: Dual USB 3.0 ports
Connector location: USB1



Pin	Definition	Pin	Definition
1	VCC	2	USB0_N
3	USB0_P	4	GND
5	USB3_RX0_N	6	USB3_RX0_P
7	GND	8	USB3_TX0_N
9	USB3_TX0_P	10	VCC
11	USB1_N	12	USB1_P
13	GND	14	USB3_RX1_N
15	USB3_RX1_P	16	GND
17	USB3_TX1_N	18	USB3_TX1_P

External I/O Interfaces - Rear Panel

DC Jack Connector

Connector location: CN11



Pin	Definition	Pin	Definition
1	12V DC_IN	2	12V DC_IN
3	GND	4	GND
5	GND		

HDMI

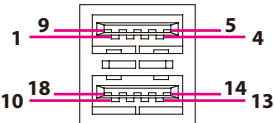
Connector type: HDMI port
Connector location: CN7, CN8 and CN9



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		

USB 3.0 Ports

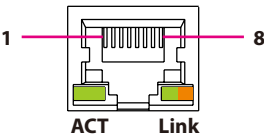
Connector type: Dual USB 3.0 ports
Connector location: USB2



Pin	Definition	Pin	Definition
1	VCC	2	USB0_N
3	USB0_P	4	GND
5	USB3_RX0_N	6	USB3_RX0_P
7	GND	8	USB3_TX0_N
9	USB3_TX0_P	10	VCC
11	USB1_N	12	USB1_P
13	GND	14	USB3_RX1_N
15	USB3_RX1_P	16	GND
17	USB3_TX1_N	18	USB3_TX1_P

LAN Connectors

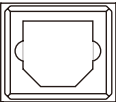
Connector type: RJ45 port with LEDs
Connector location: CON2 and CON3



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	Left_LED+	12	Left_LED-
13	Right_LED+	14	Right_LED-

S/PDIF Connector

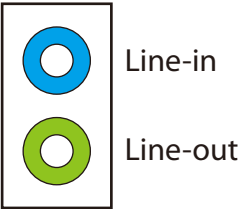
Connector type: S/PDIF Connector
Connector location: CN10



Pin	Definition	Pin	Definition
1	GND	2	VCC
3	SPDIF OUT		

Audio Connectors

Connector type: 2x 3.5mm TRS
Connector location: CN6



Pin	Definition	Pin	Definition
1	GND	2	FRONT-L
3	GND	4	FRONT-JD
5	FRONT-R	N/A	N/A
22	LINE-L	23	GND
24	LINE-JD	25	LINE-R

Internal Connectors

USB Connectors

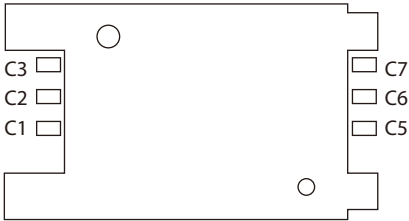
Connector type: 1x6 6-pin header JST, 2.0mm pitch
Connector location: J3 and J8



Pin	Definition	Pin	Definition
1	VCC	2	USB0_N
3	USB0_P	4	USB1_N
5	USB1_P	6	GND

SIM Card Slot

Connector location: CN4



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

Debug 80 Port Connector

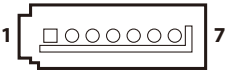
Connector type: 1x10 10-pin header, 1.0mm pitch
Connector location: J6



Pin	Definition	Pin	Definition
1	GND	2	PCIRST#
3	33M_CLK	4	LPC_FRAME#
5	LPC_AD3	6	LPC_AD2
7	LPC_AD1	8	LPC_AD0
9	3.3V	10	3.3V

SATA Connector

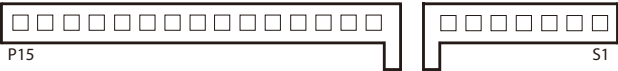
Connector type: Standard Serial ATAll 7P (1.27mm, SATA-M-180)
Connector location: CN3



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

SATA Connector (7-pin and 15-pin)

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



Pin	Definition	Pin	Definition
S1	GND	S2	SATA_TXP
S3	SATA_TXN	S4	GND
S5	SATA_RXN	S6	SATA_RXP
S7	GND		
P1-3	NC	P4-6	GND
P7-9	VCC5	P10,12	GND
P11	NC	P13-15	VCC12

SATA DOM Power Connector

Connector type: 1x4 4-pin header, 2.54mm pitch
Connector location: CN2



Pin	Definition	Pin	Definition
1	+12V	2	GND
3	GND	4	+5V

Battery Connector

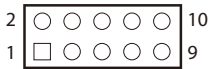
Connector type: 1x2 2-pin header JST, 1.25mm pitch
Connector location: J5



Pin	Definition
1	GND
2	3V

GPIO

Connector type: 2x5 10-pin header
Connector location: JP1



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



FAN Connectors

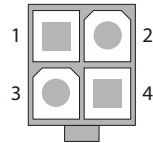
Connector type: 1x4 4-pin header, 2.54mm pitch
Connector location: FAN1 and FAN2



Pin	Definition	Pin	Definition
1	GND	2	VCC
3	SPEED	4	CONTROL

DC-in Power Connector

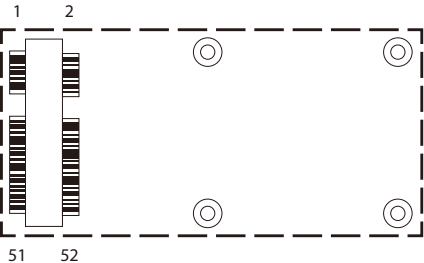
Connector type: 2x2 4-pin header
Connector location: CON1



Pin	Definition	Pin	Definition
1	GND	2	GND
3	12V DC_IN	4	12V DC_IN

Mini-PCIe Connector

Connector location: CN1

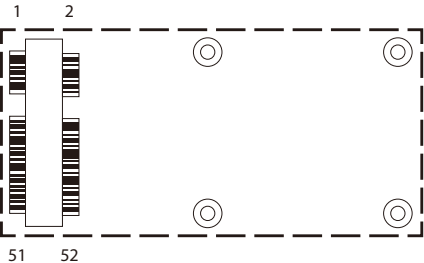


Pin	Definition	Pin	Definition
1	WAKE#	2	3.3VSB
3	NC	4	GND
5	NC	6	1.5V
7	CLK_REQ#	8	NC
9	GND	10	NC
11	PCIE_CLK#	12	NC
13	PCIE_CLK	14	NC
15	GND	16	NC
17	NC	18	GND
19	NC	20	WLAN_DIS#
21	GND	22	RESET#
23	PCIE_RX_N	24	3.3VSB
25	PCIE_RX_P	26	GND

Pin	Definition	Pin	Definition
27	GND	28	1.5V
29	GND	30	SMBCLK
31	PCIE_TX_N	32	SMBDAT
33	PCIE_TX_P	34	GND
35	GND	36	USB_N
37	GND	38	USB_P
39	3.3VSB	40	GND
41	3.3VSB	42	NC
43	GND	44	NC
45	NC	46	NC
47	NC	48	1.5V
49	NC	50	GND
51	NC	52	3.3VSB

Mini-PCIe Connector

Connector location: CN5



Pin	Definition	Pin	Definition
1	WAKE#	2	3.3VSB
3	NC	4	GND
5	NC	6	1.5V
7	CLK_REQ#	8	UIM_PWR
9	GND	10	UIM_DAT
11	PCIE_CLK#	12	UIM_CLK
13	PCIE_CLK	14	UIM_RST
15	GND	16	NC
17	NC	18	GND
19	NC	20	WLAN_DIS#
21	GND	22	RESET#
23	PCIE_RX_N	24	3.3VSB
25	PCIE_RX_P	26	GND

Pin	Definition	Pin	Definition
27	GND	28	1.5V
29	GND	30	SMBCLK
31	PCIE_TX_N	32	SMBDAT
33	PCIE_TX_P	34	GND
35	GND	36	USB_N
37	GND	38	USB_P
39	3.3VSB	40	GND
41	3.3VSB	42	NC
43	GND	44	NC
45	NC	46	NC
47	NC	48	1.5V
49	NC	50	GND
51	NC	52	3.3VSB

Chapter 3: System Setup

Removing the Chassis Cover



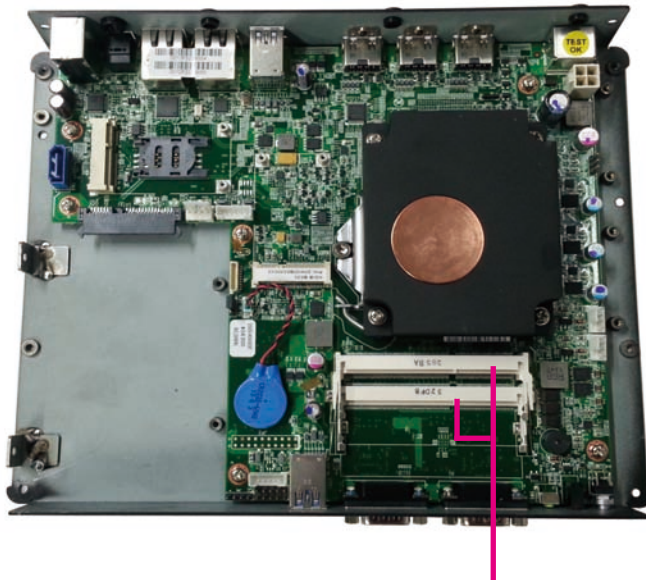
Prior to removing the chassis cover, make sure the unit's power is off and disconnected from the power sources to prevent electric shock or system damage.

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



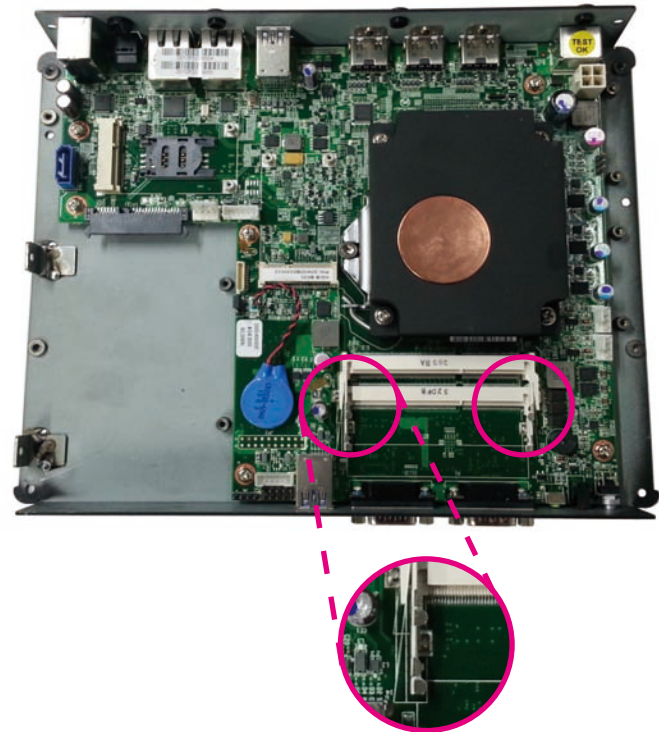
Installing a SO-DIMM

1. Locate the DIMM socket on the board.

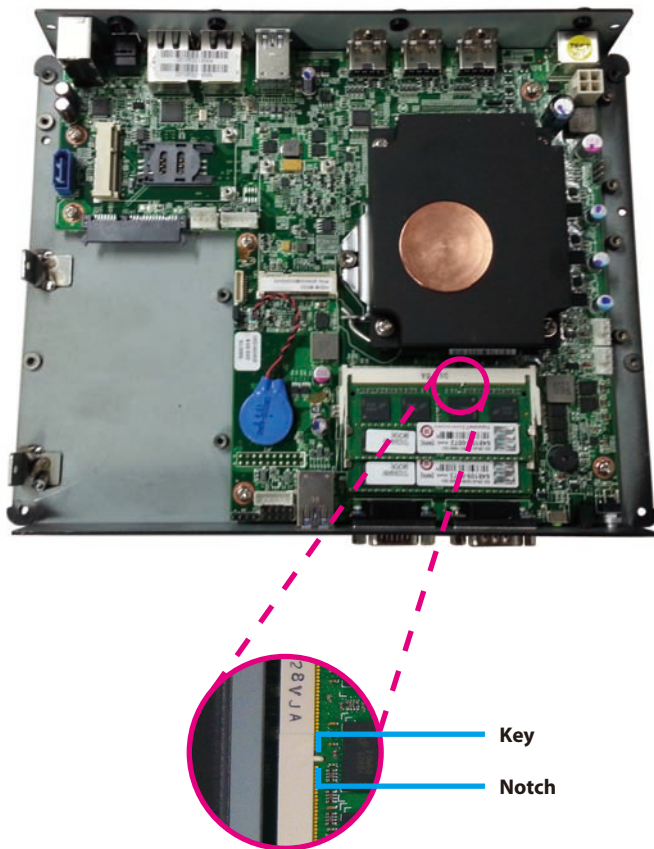


DIMM sockets

2. Push the ejector tabs which are at the ends of the socket outward. This indicates that the socket is unlocked.



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.



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.



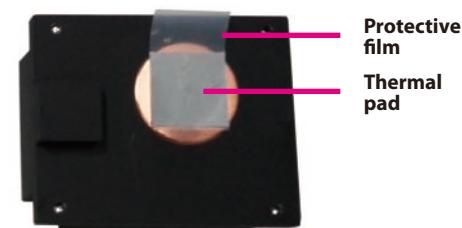
Installing the CPU

1. Loosen the mounting screws that secure the heat sink to the chassis.



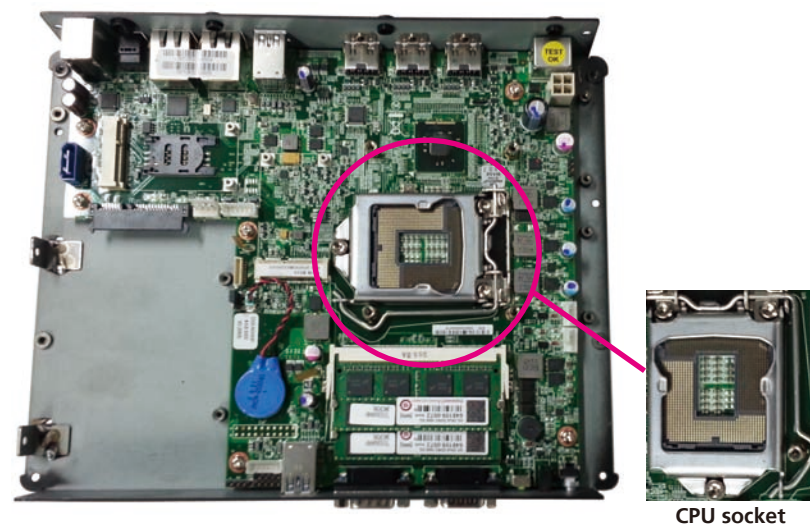
- Make sure all power cables are unplugged before you install the CPU.
- The CPU socket must not come in contact with anything other than the CPU. Avoid unnecessary exposure.

2. Now remove the heat sink to access the CPU socket, and remove the protective film on the thermal pad. Make sure this film is removed before reinstalling the heat sink. The thermal pad can only be used once and cannot be used repeatedly.

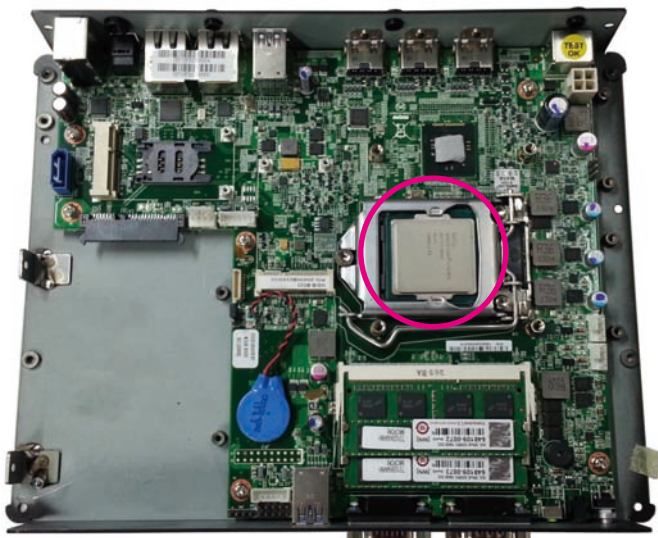


Bottom Side of the Heat Sink

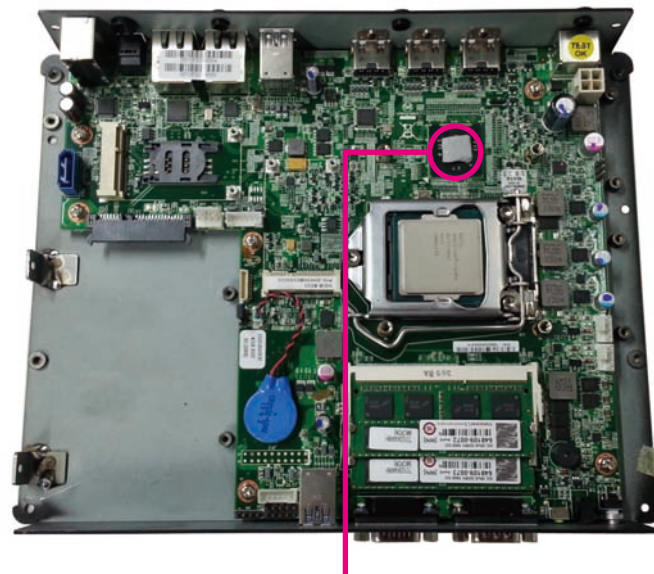
3. The CPU socket is readily accessible after you have removed the heatsink.



4. Press down the lever that is attached to the CPU socket. While holding the lever down, pull it sideways to disengage the lever from the hook. Fully open the lever.
5. Lift the load plate to open. The load plate is the metal cover that protects the CPU socket.
6. Place the CPU in the socket with the CPU cutouts matching the socket notches.

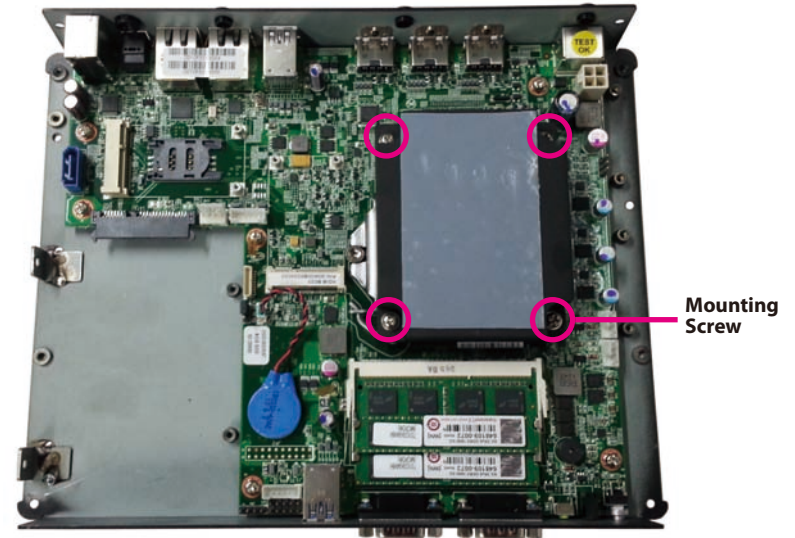
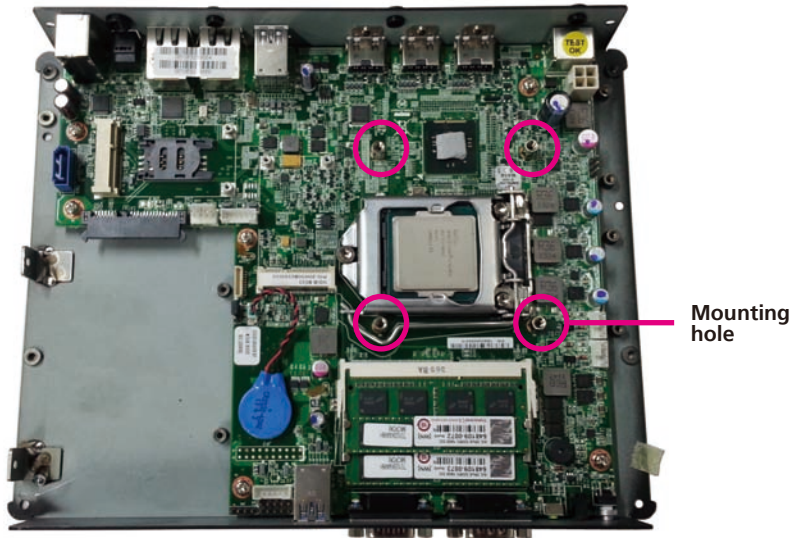


7. Close the load plate.
8. Push down the socket lever while pushing it toward the center of the CPU socket to lock the load plate.
9. Attach the thermal pad onto the chipset.

**Thermal Pad**

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

8. Align the mounting screws of the heat sink with the mounting holes on the board then tighten the screws to secure the heat sink in place.



Installing a SATA Hard Drive



Please correctly follow the below instructions and noted items to avoid making unnecessary damages.

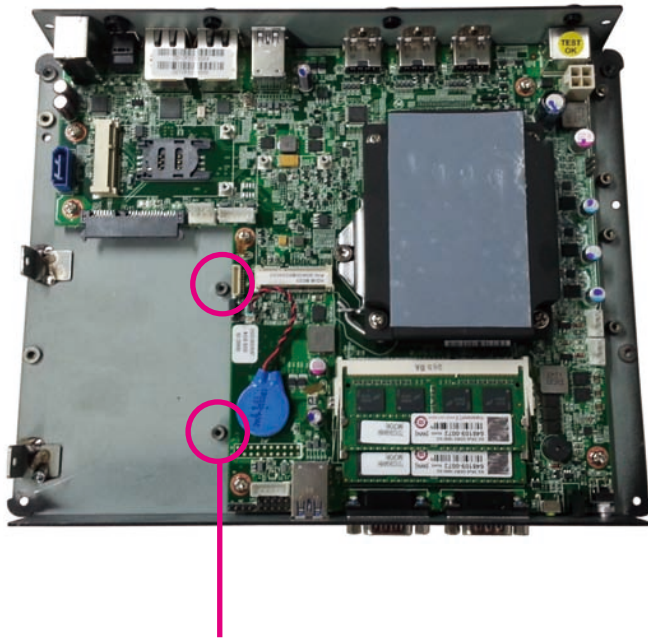
1. The drive bracket included in the package is used to hold a SATA hard drive.



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. Then secure the SATA drive with screws.

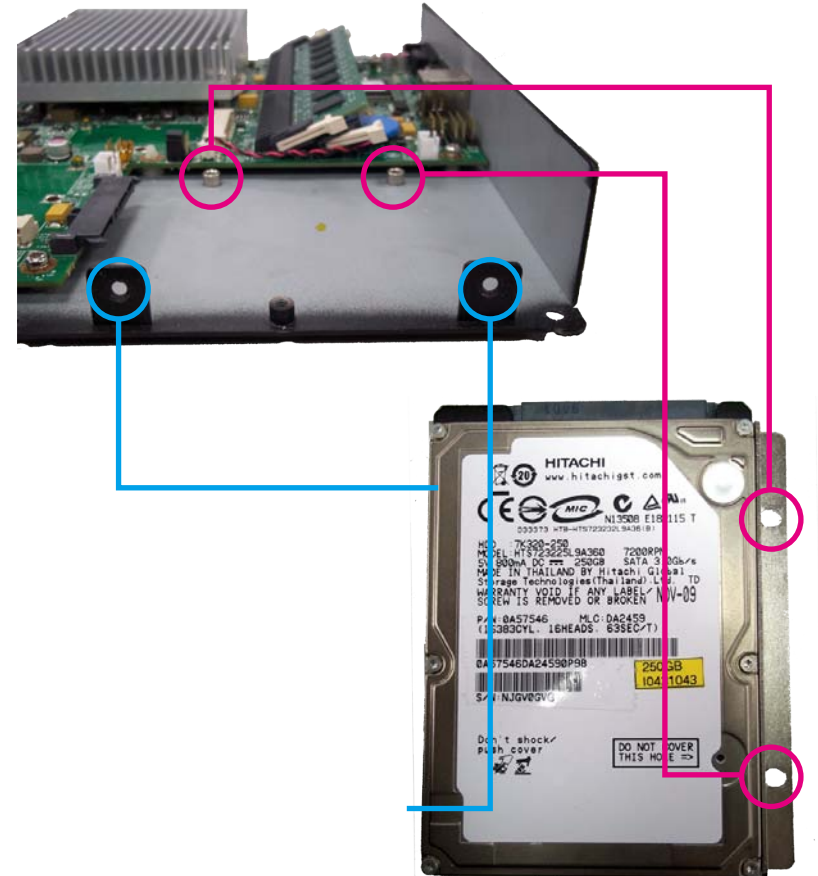


4. Secure the SATA Drive with the provided mounting screw.

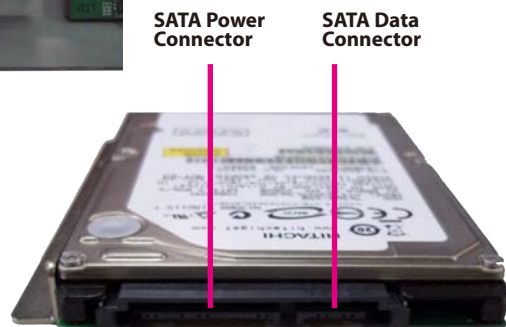
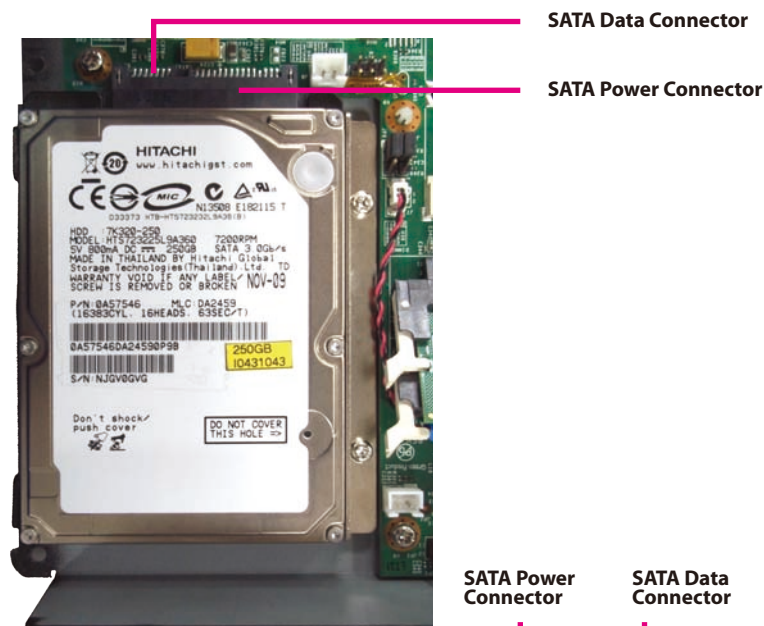


Mounting Studs

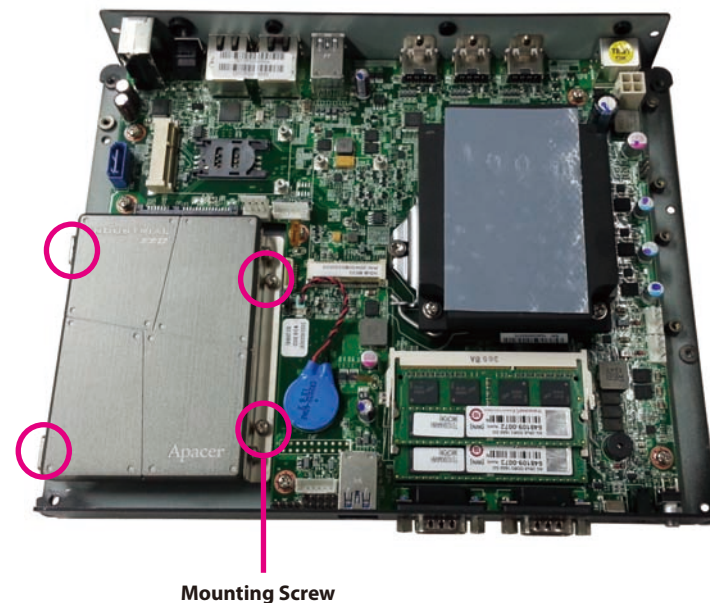
5. The mounting holes on the drive bracket and chassis are used to secure hard drive to the chassis.



6. Locate the SATA connector and the SATA power connector on the SATA drive.

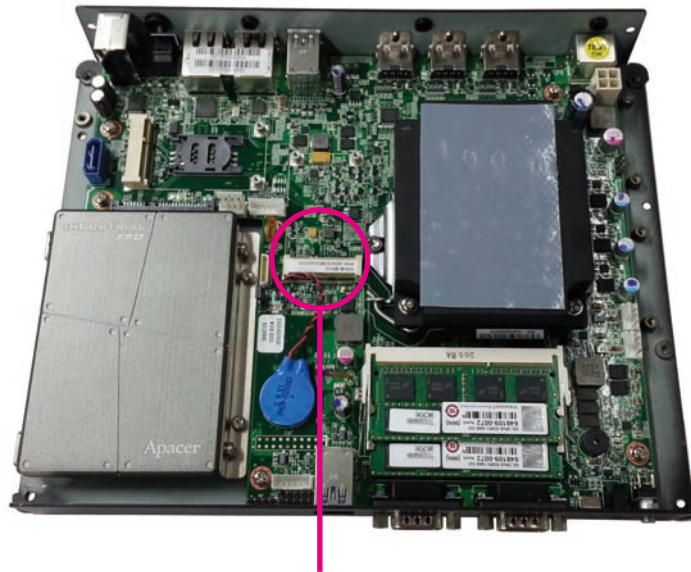


7. Align the mounting holes of the drive bracket with the mounting studs on the board then use the provided mounting screws to secure the hard drive in place.



Installing a Wireless LAN Module

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



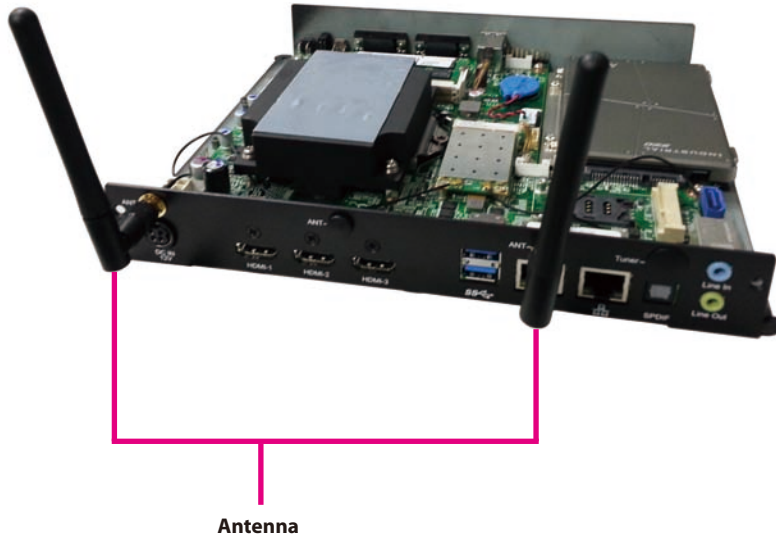
Mini PCI Express Slot

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.



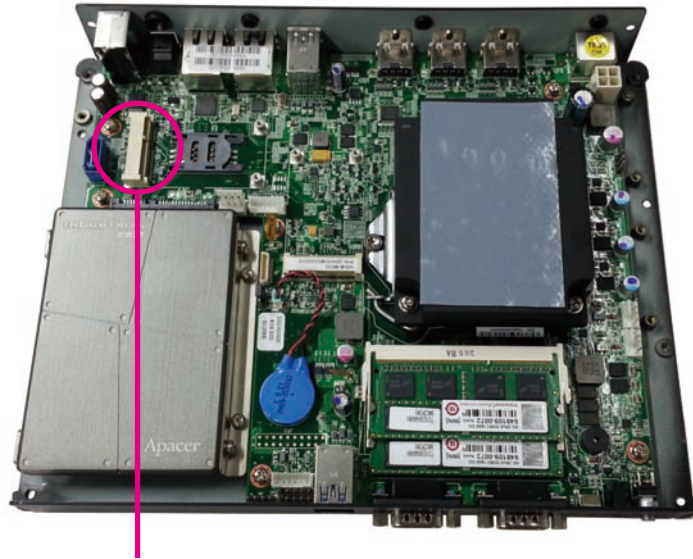
3. Push the module down then secure it with mounting screws.

3. Attach the RF cables onto the Wi-Fi module, then mount the antenna jacks to the antenna holes located at the rear panel of the chassis. Then connect the external antennas to the antenna jacks.



Installing a TV Tuner Module

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



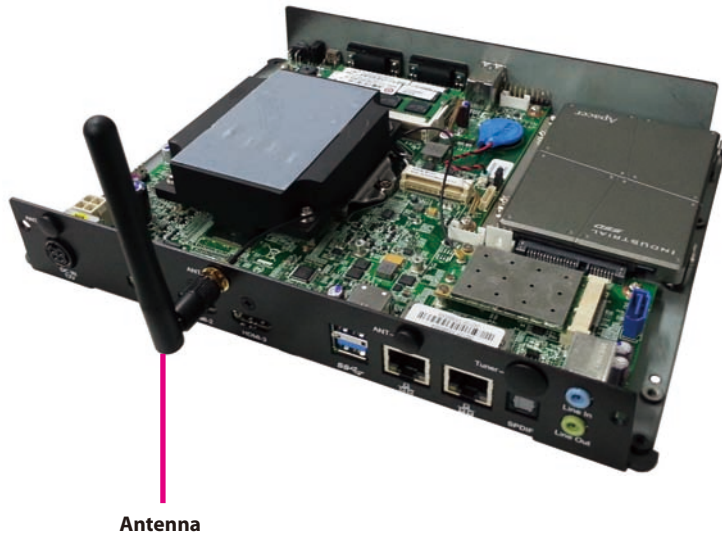
Mini PCI Express Slot

2. Insert the TV 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.

3. Attach the RF cables onto the TV tuner module, then mount the antenna jacks to the antenna holes located at the rear panel of the chassis. Then connect the external antennas to the antenna jacks.



Wall Mounting Instructions

To mount the system on to a wall or some other surface using the two mounting brackets, please follow the steps below.

1. Turn the system over, then remove the two screws.



2. Align the two retention screw holes in each bracket with the retention screw holes on the sides of the bottom surface. Secure the brackets to the system by inserting two retention screws into each bracket.



Wall Mount Bracket



Specification of the wall mount screw:
Round Head Screw w/Spring+Flat Washer Long Fei
6#32*min. 5.7mm-8mm_w/Spring+Flat

3. Drill holes in the intended installation surface.
4. Align the mounting holes on the sides of the mounting brackets with the predrilled holes on the mounting surface.
5. Insert four retention screws, two in each bracket, to secure the system to the wall.

Chapter 4: BIOS Setup

This chapter describes how to use the BIOS setup program for the NDiS B533. The BIOS screens provided in this chapter are for reference only and may change if the BIOS is updated in the future.

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

About BIOS Setup

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

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

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

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

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

When to Configure the BIOS

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

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

Default Configuration

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

Entering Setup














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

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

Powering on the computer and immediately pressing allows you to enter Setup.

Press the  key to enter Setup:


Legends

Key	Function
 	Moves the highlight left or right to select a menu.
 	Moves the highlight up or down between sub-menus or fields.
	Exits the BIOS Setup Utility.
	Scrolls forward through the values or options of the highlighted field.
	Scrolls backward through the values or options of the highlighted field.
	Selects a field.
	Displays General Help.
	Load previous values.
	Load optimized default values.
	Saves and exits the Setup program.
	Press <Enter> to enter the highlighted sub-menu


Scroll Bar

When a scroll bar appears to the right of the setup screen, it indicates that there are more available fields not shown on the screen. Use the up and down arrow keys to scroll through all the available fields.

Submenu

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

BIOS Setup Utility

Once you enter the AMI BIOS Setup Utility, the Main Menu will appear on the screen. The main menu allows you to select from several setup functions and one exit. Use arrow keys to select among the items and press  to accept or enter the submenu.

Main

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

Aptio Setup Utility - Copyright (C) 2012 American Megatrends, Inc.

MainAdvancedBootSecuritySave & Exit

BIOS Information

BIOS Vendor

Project Version

Build Date and Time

Memory Information

Memory Frequency

Total Memory

DIMM#0

DIMM#1

Processor Information

Brand String

Frequency

Processor ID

Stepping

GT Info

IGFX VBIOS Version

ME FW Version

ME Firmware SKU

System Date

System Time

American Megatrends

NDiS-B533

09/10/2013 11:23:11

1600 Mhz

8192 MB (DDR3)

4096 MB (DDR3)

4096 MB (DDR3)

Intel(R) Core(TM) i7-477

2700 MHz

306c3

C0

GT2 (700 MHz)

2173

9.0.3.1347

5MB

[Fri 10/18/2013]

[14:46:01]

Set the Time. Use Tab to switch between Time elements.

-----: Select Screen

F1: Select Item

Enter: Select

+/-: Change Opt.

F1: General Help

F2: Previous Values

F3: Optimized Defaults

F4: Save & Exit

ESC: Exit

Version 2.15.1236. Copyright (C) 2012 American Megatrends, Inc.

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.

NEXCOM

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NDiS B533 User Manual

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.

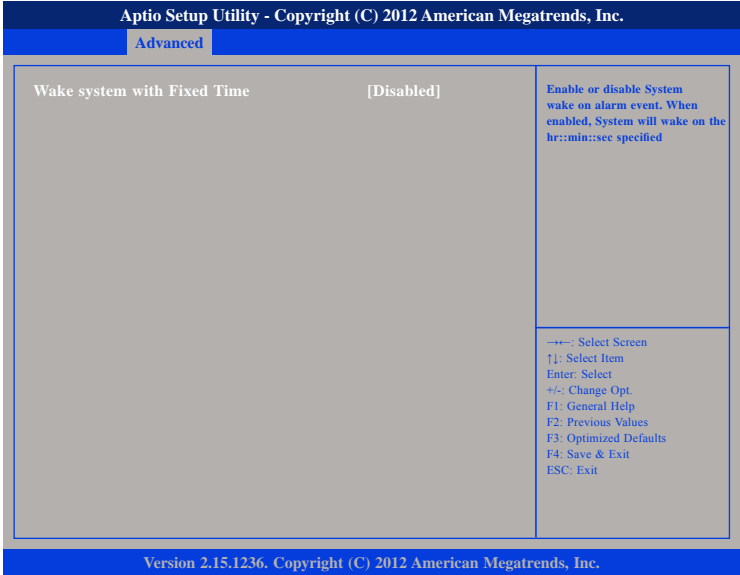


Setting incorrect field values may cause the system to malfunction.



RTC Wake Settings

This section is used to configure RTC Wake settings.



Wake System with Fixed Time

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

ACPI Settings

This section is used to configure ACPI Settings.

Aptio Setup Utility - Copyright (C) 2012 American Megatrends, Inc.	
Advanced	
ACPI Settings	
Enable ACPI Auto Configuration	[Disabled]
Enable Hibernation	[Enabled]
ACPI Sleep State	[S3 only(Suspend to...)]
<small> →←: Select Screen ↑↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit </small>	
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Enable ACPI Auto Configuration

Enables or disables BIOS ACPI auto configuration.

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).

CPU Configuration

This section is used to configure the CPU.

Aptio Setup Utility - Copyright (C) 2012 American Megatrends, Inc.	
Advanced	
CPU Configuration	
Intel(R) Core(TM) i7-4770TE CPU @ 2.30GHz	
CPU Signature	306c3
Processor Family	6
Microcode Patch	12
FSB Speed	100 MHz
CPU Speed	2700 MHz
Processor Cores	2
Intel HT Technology	Supported
Intel VT-x Technology	Supported
Intel SMX Technology	Supported
EIST Technology	Supported
Hyper-threading	[Enabled]
Intel Virtualization Technology	[Enabled]
EIST	[Enabled]
Turbo Mode	[Enabled]
CPU C states	[Enabled]
Enhanced C1 state	[Enabled]
CPU C3 Report	[Enabled]
CPU C6 report	[Enabled]
C6 Latency	[Short]
CPU C7 report	[CPU C7s]
C7 Latency	[Long]
<small> →←: Select Screen ↑↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit </small>	
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Hyper-Threading

This field is used to enable or disable hyper-threading.

Intel® Virtualization Technology

When this field is set to Enabled, the VMM can utilize the additional hardware capabilities provided by Vanderpool Technology.

EIST

Enables or disables Intel® SpeedStep.

Turbo Mode

Enables or disables turbo mode.

CPU C states

Enable CPU C States Support for power saving. It is recommended to keep C3, C6 and C7 all enabled for better power saving.

Enhanced C1 State

Enables or disables Enhanced C1 state.

CPU C3 Report

Enables or disables C3 report to the operating system.

CPU C6 Report

Enables or disables C6 report to the operating system.

C6 Latency

Configures the latency for C6. The options are Short and Long.

CPU C7 Report

Enables or disables C7 report to the operating system.

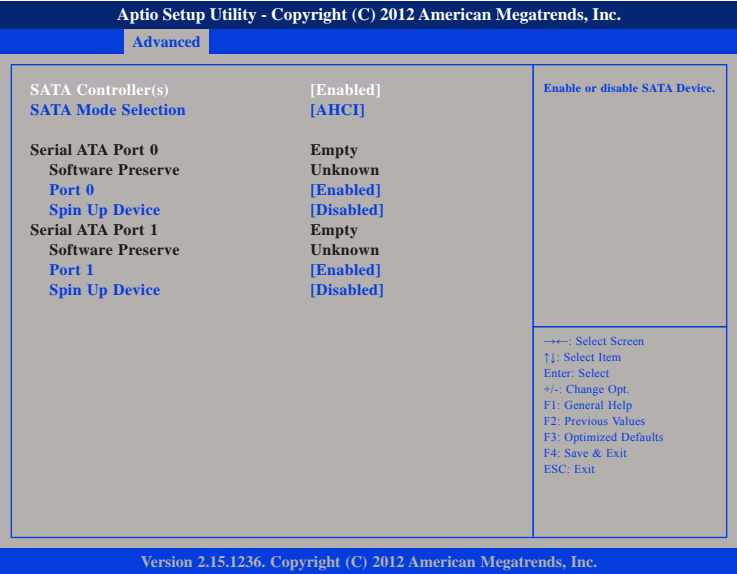
C7 Latency

Configures the latency for C7. The options are Short and Long.



SATA Configuration

This section is used to configure the SATA drives.



SATA Controller(s)

Enables or disables the SATA controller.

SATA Mode Selection

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.

Port 0 and Port 1

Enables or disables Serial ATA port 0 to port 2.

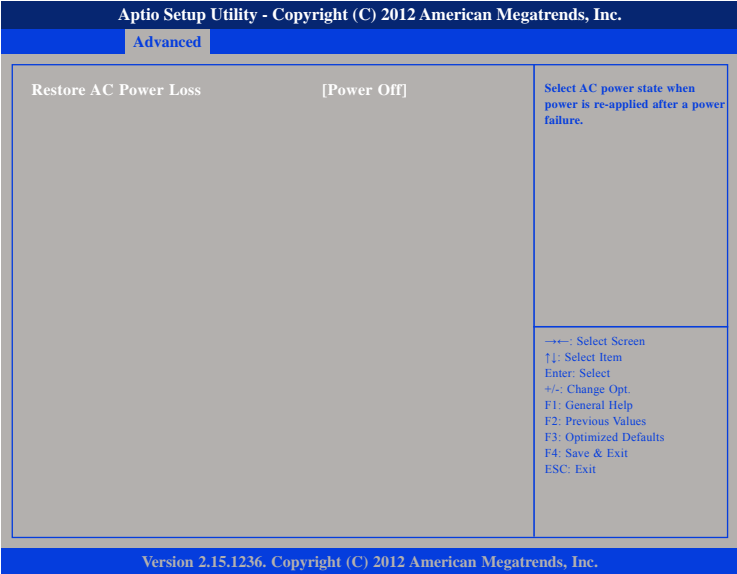
Spin Up Device

Enables or disables staggered spin up on devices connected to Serial ATA port 0 to port 2.



Power Configuration

This section is used to configure power state settings.



Restore on AC Power Loss

- Power Off When power returns after an AC power failure, the system’s power is off. You must press the Power button to power-on the system.
- Power On When power returns after an AC power failure, the system will automatically power-on.

BIOS Security Configuration

This section is used to configure BIOS security.



BIOS Lock

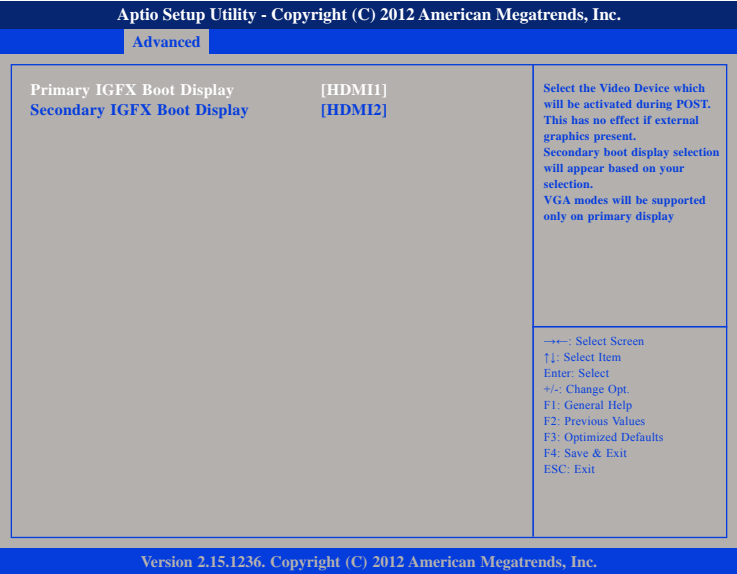
Enables or disables BIOS lock enable (BLE) bit.

RTC RAM Lock

Enables or disables RTC RAM lock.

Graphics Configuration

This section is used to configure the graphics parameters.



Primary IGFX Boot Display

Select the Video Device which will be activated during POST. This has no effect if external graphics present. Secondary boot display selection will appear based on your selection. VGA modes will be supported only on primary display. The options are VBIOS Default, HDMI1, HDMI2 and HDMI3.

Secondary IGFX Boot Display

Select the secondary display device, the options are Disabled, HDMI1, HDMI2 and HDMI3.

AMT Configuration

This section is used to configure Active Management Technology (AMT) options.



Intel® AMT

Enables or disables Intel® Active Management Technology.

BIOS Hotkey Pressed

Enables or disables BIOS hotkey press.

MEBx Selection Screen

Enables or disables MEBx selection screen.



USB Configuration

This section is used to configure the USB.



Legacy USB Support

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

USB 3.0 Support

Enables or disables the USB 3.0 controller.

XHCI Hand-off

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

EHCI Hand-off

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

USB Mass Storage Driver Support

Enables or disables USB mass storage driver support.





Super IO Configuration

This section is used to configure serial ports 0 and 1.



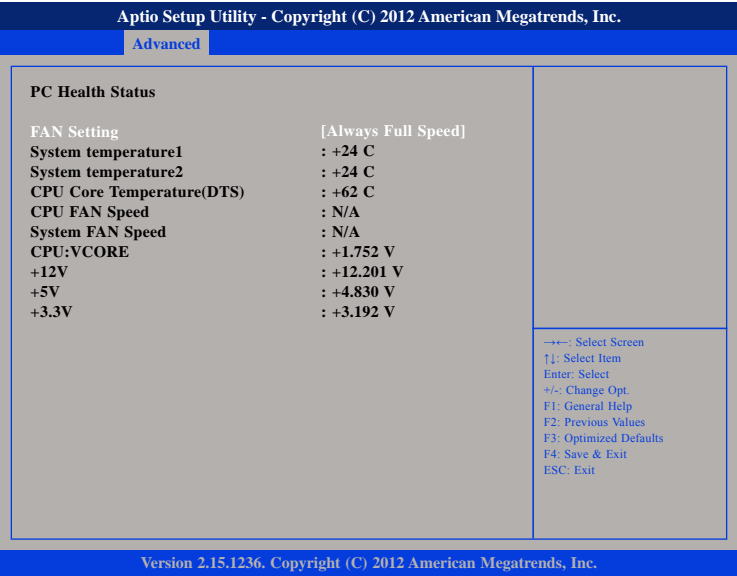
Super IO Chip

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



H/W Monitor

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



FAN Setting

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

System Temperature1 to System Temperature2

Detects and displays the internal temperature of the system.

Core CPU Temperature(DTS)

Detects and displays the current CPU temperature.

CPU FAN Speed

Detects and displays the current CPU fan speed.

System FAN Speed

Detects and displays the current system fan speed.

CPU:V CORE

Detects and displays the Vcore CPU voltage.

+12V

Detects and displays 12V voltage.

+5V

Detects and displays 5V voltage.

+3.3V

Detects and displays 3.3V voltage.

Boot

This section is used to configure the boot features.

Aptio Setup Utility - Copyright (C) 2012 American Megatrends, Inc.		
Main	Advanced	Boot
Launch PXE OpROM policy [Do not launch]		Controls the execution of UEFI and Legacy PXE OpROM
Boot Option Priorities		←→: Select Screen ↑↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit

Launch PXE OpROM Policy

Controls the execution of UEFI and legacy PXE OpROM.

Boot Option Priorities

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

Security

Aptio Setup Utility - Copyright (C) 2012 American Megatrends, Inc.							
Main	Advanced	Boot	Security				
		Save & Exit					
<p>Password Description</p> <p>If ONLY the Administrator's password is set, then this only limits access to Setup and is only asked for when entering Setup.</p> <p>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.</p> <p>The password length must be in the following range:</p> <table> <tr> <td>Minimum length</td> <td>3</td> </tr> <tr> <td>Maximum length</td> <td>20</td> </tr> </table> <p>Administrator Password User Password</p>		Minimum length	3	Maximum length	20	<p>Set Administrator Password</p> <hr/> <p>→←: Select Screen ↑↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit</p>	
Minimum length	3						
Maximum length	20						
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Administrator Password

Select this to reconfigure the administrator's password.

User Password

Select this to reconfigure the user's password.



Save & Exit



Save Changes and Reset

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 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. You can also press <ESC> to exit without saving the changes.

Restore Defaults

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

Save as User Defaults

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



Appendix A: Watchdog Timer

NDiS B533 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 PWECD 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 select 7-0

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

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

Appendix B: GPI/O Programming Guide

GPIO Configuration

Address: A02

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

Address: A00

DATA	Bit7	Bit6	Bit5	Bit4	Bit3	Bit2	Bit1	Bit0	10
GPIO mapping	X	X	X	GPO3	X	GPO2	GPO1	X	GPI3

Example:

Output data (1010) through GPO

Step1: At Debug mode

Step2: Set Data at address A02 and A00

C:\debug

-o A02 F1

-o A00 ED

Read data from GPI

Step1: At Debug mode

Step2: Read Data at A02 (Input data is 1010)

C:\debug

-i A02

-AF

Appendix C: Triple Display Settings

NDiS B533 is capable of driving three displays from DisplayPort, HDMI, and DVI simultaneously. However, the default setting of Active Display in Intel® Graphic and Media Control Panel is two. To use triple displays, please change it to three in Active Display.

