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PREFACE

Copyright

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Disclaimer

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Acknowledgements

The NDiS B537 series 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 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. 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.

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System Level

- Component fee: NEXCOM will only charge for main components such as SMD chip, BGA chip, etc. Passive components will be repaired for free, ex: resistor, capacitor.

- Items will be replaced with NEXCOM products if the original one cannot be repaired. Ex: motherboard, power supply, etc.

- Replace with 3rd party products if needed.

- If RMA goods can not be repaired, NEXCOM will return it to the customer without any charge.

Board Level

- Component fee: NEXCOM will only charge for main components, such as SMD chip, BGA chip, etc. Passive components will be repaired for free, ex: resistors, capacitors.

- If RMA goods can not be repaired, NEXCOM will return it to the customer without any charge.

Warnings

Read and adhere to all warnings, cautions, and notices in this guide and the documentation supplied with the chassis, power supply, and accessory modules. If the instructions for the chassis and power supply are inconsistent with these instructions or the instructions for accessory modules, contact the supplier to find out how you can ensure that your computer meets safety and regulatory requirements.

Cautions

Electrostatic discharge (ESD) can damage system components. Do the described procedures only at an ESD workstation. If no such station is available, you can provide some ESD protection by wearing an antistatic wrist strap and attaching it to a metal part of the computer chassis.

Safety Information

Before installing and using the device, note the following precautions:

- Read all instructions carefully.

- Do not place the unit on an unstable surface, cart, or stand.

- Follow all warnings and cautions in this manual.

- When replacing parts, ensure that your service technician uses parts specified by the manufacturer.

- Avoid using the system near water, in direct sunlight, or near a heating device.

- The load of the system unit does not solely rely for support from the rackmounts located on the sides. Firm support from the bottom is highly necessary in order to provide balance stability.

- The computer is provided with a battery-powered real-time clock circuit. There is a danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Discard used batteries according to the manufacturer's instructions.

Installation Recommendations

Ensure you have a stable, clean working environment. Dust and dirt can get into components and cause a malfunction. Use containers to keep small components separated.

Adequate lighting and proper tools can prevent you from accidentally damaging the internal components. Most of the procedures that follow require only a few simple tools, including the following:

- A Philips screwdriver

- A flat-tipped screwdriver

- A grounding strap

- An anti-static pad

Using your fingers can disconnect most of the connections. It is recommended that you do not use needle-nose pliers to disconnect connections as these can damage the soft metal or plastic parts of the connectors.

Safety Precautions

1. Read these safety instructions carefully.

2. Keep this User Manual for later reference.

3. Disconnect this equipment from any AC outlet before cleaning. Use a damp cloth. Do not use liquid or spray detergents for cleaning.

4. For plug-in equipment, the power outlet socket must be located near the equipment and must be easily accessible.

5. Keep this equipment away from humidity.

6. Put this equipment on a stable surface during installation. Dropping it or letting it fall may cause damage.

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

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

9. Place the power cord in a way so that people will not step on it. Do not place anything on top of the power cord. Use a power cord that has been approved for use with the product and that it matches the voltage and current marked on the product's electrical range label. The voltage and current rating of the cord must be greater than the voltage and current rating marked on the product.

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

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

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

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

14. If one of the following situations arises, get the equipment checked by service personnel:
    a. The power cord or plug is damaged.
    b. Liquid has penetrated into the equipment.
    c. The equipment has been exposed to moisture.
    d. The equipment does not work well, or you cannot get it to work according to the user's manual.
    e. The equipment has been dropped and damaged.
    f. The equipment has obvious signs of breakage.

15. Do not place heavy objects on the equipment.

16. The unit uses a three-wire ground cable which is equipped with a third pin to ground the unit and prevent electric shock. Do not defeat the purpose of this pin. If your outlet does not support this kind of plug, contact your electrician to replace your obsolete outlet.

17. CAUTION: DANGER OF EXPLOSION IF BATTERY IS INCORRECTLY REPLACED. REPLACE ONLY WITH THE SAME OR EQUIVALENT TYPE RECOMMENDED BY THE MANUFACTURER. DISCARD USED BATTERIES ACCORDING TO THE MANUFACTURER'S INSTRUCTIONS.

Technical Support and Assistance

1. For the most updated information of NEXCOM products, visit NEXCOM's website at www.nexcom.com.

2. For technical issues that require contacting our technical support team or sales representative, please have the following information ready before calling:
   – Product name and serial number
   – Detailed information of the peripheral devices
   – Detailed information of the installed software (operating system, version, application software, etc.)
   – A complete description of the problem
   – The exact wordings of the error messages

Warning!
1. Handling the unit: carry the unit with both hands and handle it with care.

2. Maintenance: to keep the unit clean, use only approved cleaning products or clean with a dry cloth.

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 B537 series package that you received is complete. Your package should have all the items listed in the following table.

Item	Name	Qty
1	Power Adapter	1
2	HDD Bracket	1
3	Wall Mount Kit	1
4	Driver DVD	1

Power Adapter

HDD Bracket

Ordering Information

The following information below provides ordering information for the NDiS B537 series.

- **Barebone**

NDiS B537 (P/N: 10W00B53700X0)
7th Generation Intel® Core™ Processor Slim and Fanless System

NDiS B537-I (P/N: 10W00B53701X0)
7th Generation Intel® Core™ Processor with Q170 Slim and Fanless System

- **Optional**

VESA Mount Kit
- ▪ 1x VESA Mount Bracket
- ▪ 8x Screws

Wall Mount Kit
- ▪ 2x Wall Mount Bracket
- ▪ 4x Screws

VESA Mount Kit

Wall Mount Kit

CHAPTER 1: PRODUCT INTRODUCTION

Overview

Powered by the 7th generation Intel® Core™ processor, the NDiS B537 series of fanless embedded players can handle powerful multimedia content. In addition, the 7th generation Intel® Core™ processor delivers up to two-and-a-half times the performance in graphics, offering stunning visuals for striking 4K entertaining content creation, media playback, and image processing. The NDiS B537 series manages in-store traffic analytics, simultaneously engaging "calls to action" with virtual interactions in order to increase product interest and dwell time.

The NDiS B537 series, supporting multiple HDMI 2.0 displays and USB 3.0 ports, and a RS232 interface, is an ideal high-end embedded player to optimize information visualization, convey brand messages, customer engagement, and smart retail management efficiencies to increase in-store traffic and sales. The slim fanless design with extended durability further covers usages like endless aisles, QSRs, drive-thru kiosks, bus stops, digital transit information signs, and information stands.

Key Features

- 7th Generation Intel® Core™ Processor (Support socket type CPU up to 35W)

- Support HDMI 2.0 Output (4K2K/60Hz support)

- Compact and Slim Design (H: 33mm)

- NGFF/ mini-PCie Slot Support Wi-Fi and 4G Module

- Fanless Design

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Hardware Specifications

CPU Support
- 7th Gen Intel® Core™ Processor (Socket type CPU up to 35W)

Chipset
- Intel® PCH H110 (NDiS B537)
- Intel® PCH Q170 (NDiS B537-I)

Graphics
- Intel® HD Graphics 500 series

Main Memory
- 2x 260-pin SO-DIMM sockets, support DDR4 1866/2133 MHz Non ECC, Un-buffered memory up to 32G (Single Socket Max. 16GB)

I/O Interface-Front
- 1x Power Button with LED
- 1x Power LED/ HDD LED
- 2x USB 3.0
- 1x HDMI 2.0, 1 x HDMI 1.4
- 1x DisplayPort (NDiS B537-I only)
- 1x RJ45 with LEDs for Gigabit LAN (2 x RJ45 for NDiS B537-I only)
- 2x COM Port
- 1x 4pin Mini-Din with Lock

I/O Interface-Rear
- 2x USB 3.0
- 3x Antenna Holes
- 1x Mic-in
- 1x Line-out

Storage
- 1x 2.5" HDD/SSD

Dimensions
- 295mm (W) x 189.9mm (D) x 33mm (H), w/o mounting bracket

Construction
- Top cover made by aluminum for main heat exchange

Power Supply
- 1x External 96W AC/DC power adapter
  Input: 100VAC to 240VAC
  Output: DC+12VDC

API
- NEXCOM Xcare

Expansion
- 1x Mini-PCIe Slot (Full Size)
- 1x NGFF (M.2) 2230 for Optional WLAN
- 1x SIM Slot

Environment
- Operating Temperature: -10°C to 45°C
- Storage Temperature: -20°C to 80°C
- Humidity: 10 to 90% (Non-condensing)

Certifications
- CE approval
- FCC Class B

Operating System
- Windows 10/Linux

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Knowing Your NDiS B537 Series

Front Panel
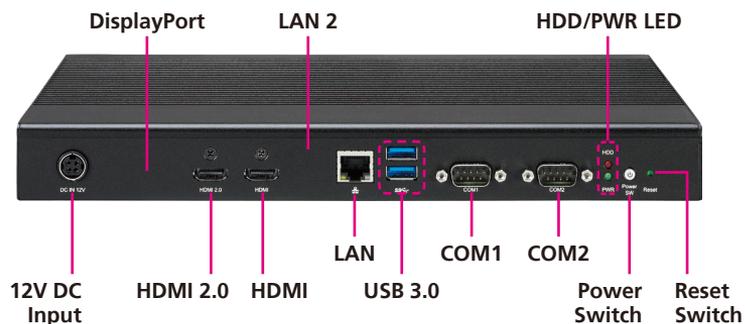
12V DC Input

Used to plug a DC power cord.

HDMI 2.0/HDMI Port

Used to connect an HDMI 2.0/HDMI interface monitor.

DisplayPort (NDiS B537-I Only)
Used to connect a DisplayPort interface monitor.

LAN Port

Used to connect the system to a local area network.

LAN 2 Port (NDiS B537-I Only)

Used to connect the system to a local area network.

Dual USB 3.0

Used to connect USB 3.0/2.0/1.1 devices.

COM1/COM2 Port

The COM ports support RS232 compatible serial devices.

HDD/PWR LED

Displays the HDD activity and power status of the system.

Power Switch Button (LED)

Power switch to power on/off the system and display power status.

Reset Button (LED)

Push button for system reset.

Rear Panel

Antenna Holes   **Mic-in**   **Line-out**   **USB 3.0**

Antenna Holes for Optional Wi-Fi

The external antenna mounting holes are used to mount and connect optional Wi-Fi antennas.

Mic-in

Used to connect an external microphone.

Line-out

Used to connect a headphone or a speaker.

USB 3.0 Ports

Used to connect USB 3.0/2.0/1.1 devices.

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Mechanical Dimensions
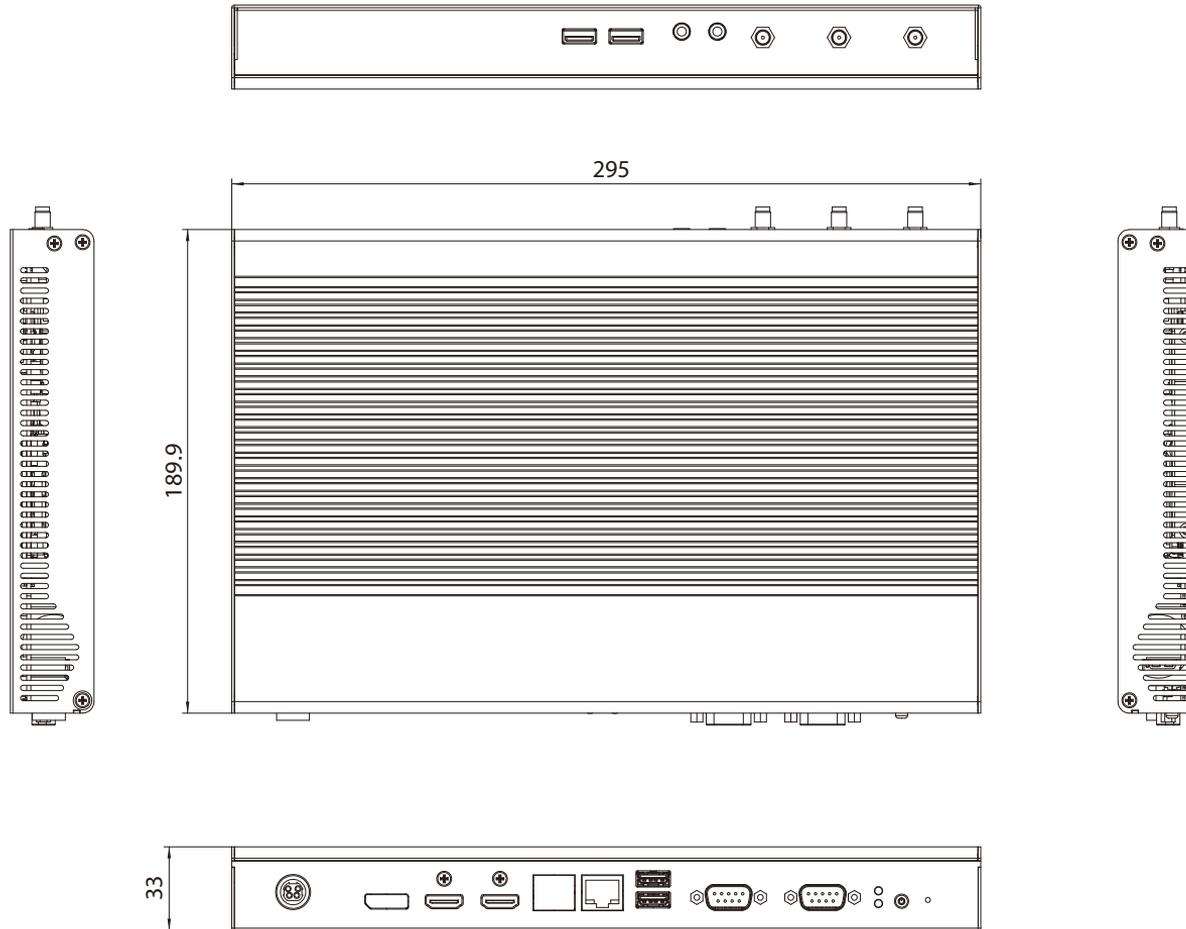
CHAPTER 2: JUMPERS AND CONNECTORS

This chapter lists the locations of the jumpers and connectors for the NDiS B537 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 power is off. Ground yourself before touching any internal components, by touching a metal object. Static electricity can damage many of the electronic components. Humid environments tend to have less static electricity than dry environments. A grounding strap is warranted whenever danger of static electricity exists.

Precautions

Computer components and electronic circuit boards can be damaged by discharges of static electricity. Working on computers that are still connected to a power supply can be extremely dangerous.

Follow the guidelines below to avoid damage to your computer or yourself:
▪ Always disconnect the unit from the power outlet whenever you are working inside the case.

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

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

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

▪ Use correct screws and do not over tighten screws.

Jumper Settings

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

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

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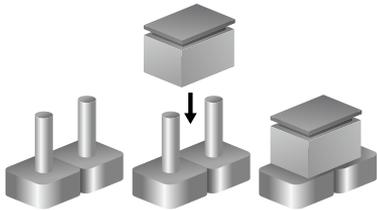
Three-Pin Jumpers: Pins 1 and 2 are Short
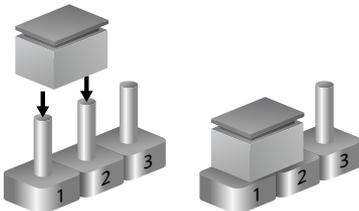
Location of the Jumpers and Connectors

Top View
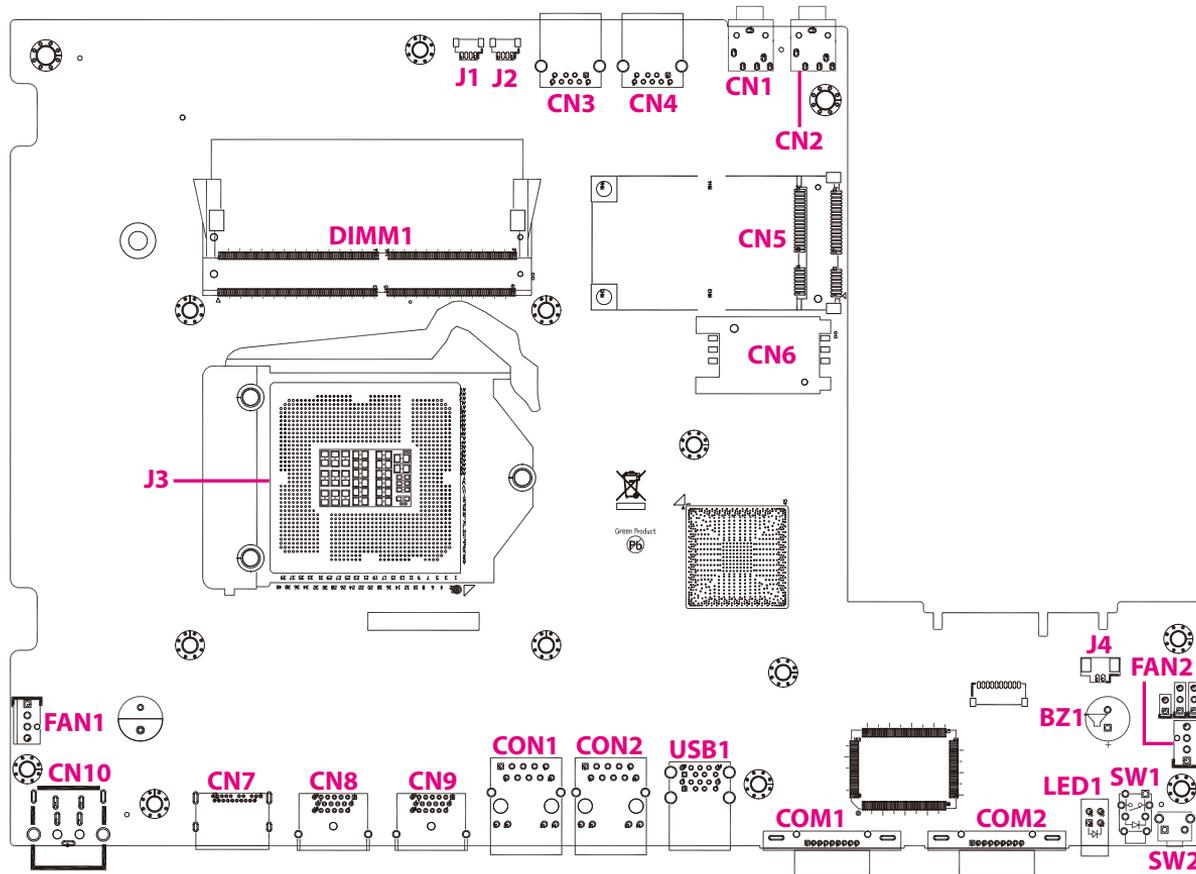
Bottom View
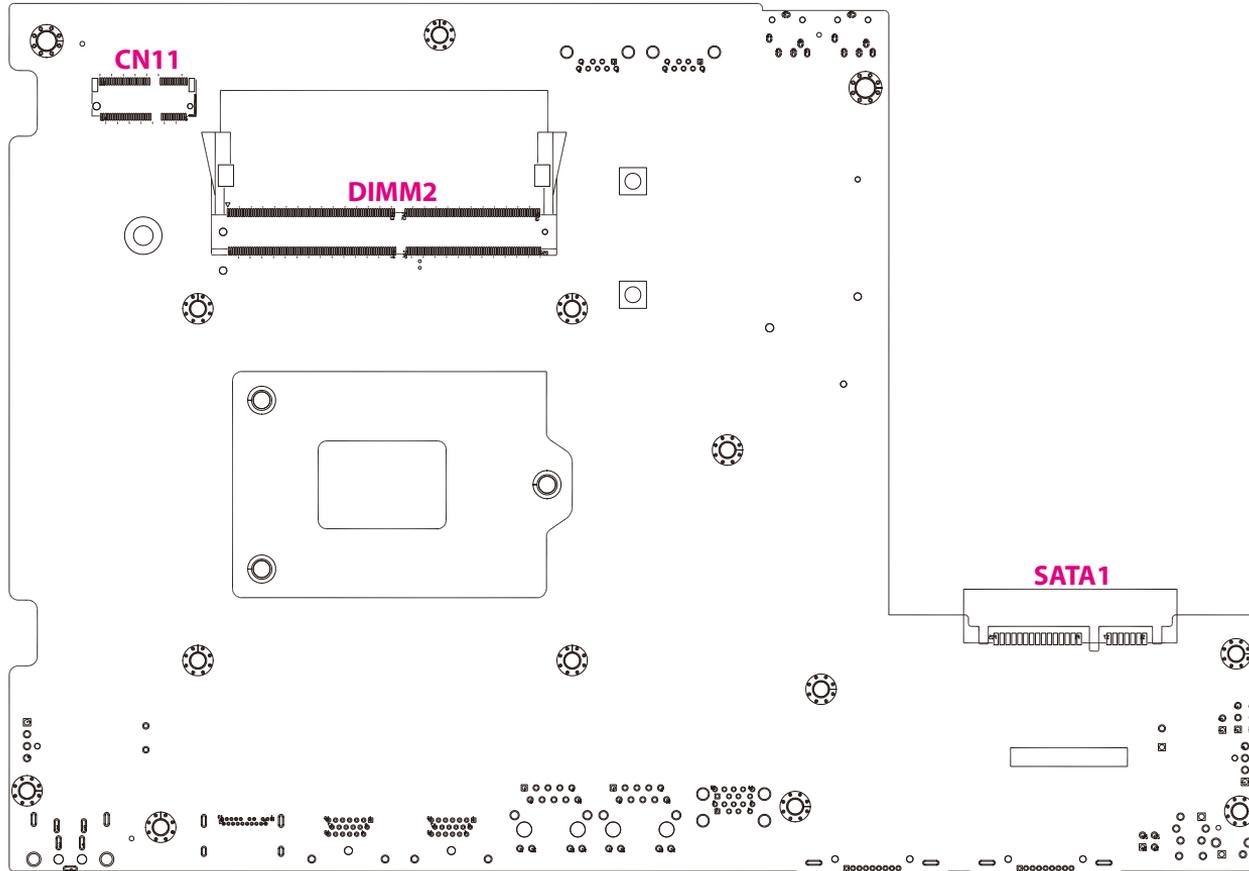
Connector/Button Table

Connector	Name
CN10	DC 12V Power-in Connector
CN7	DisplayPort Connector (NDiS B537-I Only)
CN8	HDMI 2.0 Connector
CN9	HDMI Connector
CON1	RJ45 GbE Connector (NDiS B537-I Only)
CON2	RJ45 GbE Connector
USB1	Dual USB 3.0 Connector
COM1	COM Port Connector 1
COM2	COM Port Connector 2
SW1	Power Button
SW2	Reset Button
SATA1	SATA HDD Connector

Connector	Name
CN6	SIM Card Slot
CN5	Mini-PCIe Slot (Full)
CN11	NGFF M.2 Slot (2230)
J3	LGA1151 CPU Socket
DIMM1	DDR4 SO-DIMM Slot 1
DIMM2	DDR4 SO-DIMM Slot 2
CN2	Microphone Input Connector
CN1	Audio Line-out Connector
CN4	Single USB 3.0 Connector
CN3	Single USB 3.0 Connector

Header/Wafer Table

Connector	Name
LED1	HDD/PWR LED
FAN1	FAN Wafer 1
FAN2	FAN Wafer 2
BZ1	Buzzer
JP1	CMOS Clear Jumper
J1	USB 2.0 Pin Header
J2	USB 2.0 Pin Header
J4	RTC Battery Wafer

CHAPTER 3: SYSTEM SETUP

Installing a SATA HDD

CAUTION! 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. Remove the mounting screws around the chassis cover and then remove the cover.

2. Align the mounting holes that are on the sides of the SATA drive with the mounting holes on the drive bay and then use the provided mounting screws to secure the drive in place.

3. Place the SATA drive in the chassis and connect the SATA data connector, then use screws to secure the drive in the chassis.

Installing a SO-DIMM Memory Module

1. 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 into the socket. The gold-plated connector on the edge of the module will almost completely disappear inside the socket.

2. Push the module down until the clips on both sides of the socket lock into position. You will hear a distinctive "click" sound, indicating the module is correctly locked into position.
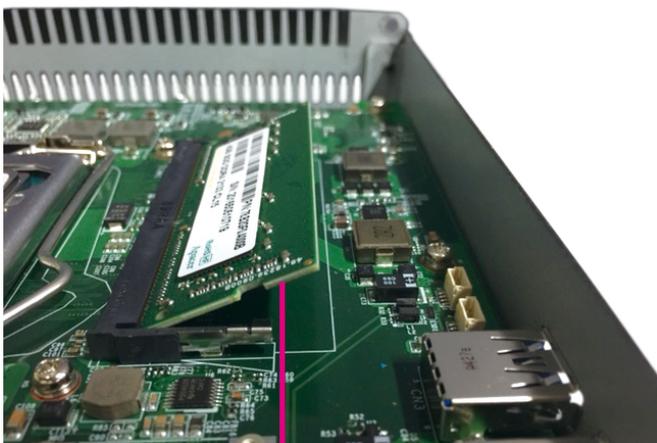
Memory module

3. Open the bottom cover for installing the 2nd SO-DIMM memory module.

Installing the CPU (Socket Type)

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

2. Insert the CPU into the socket. The triangular edge on the CPU must align with the corner of the CPU socket shown on the photo.
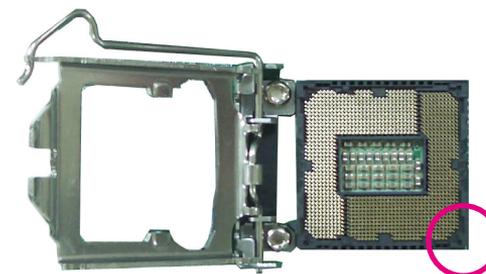
The CPU's notch will at the same time fit into the socket's alignment key.

Alignment key

Alignment key
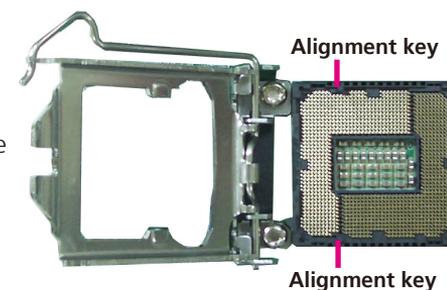
CAUTION!
- Handle the CPU by its edges and avoid touching the pins.
- The CPU will fit in only one orientation and can easily be inserted without exerting any force.

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

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

4. Remove the adhesive film on the thermal pad and place it onto the CPU.

CAUTION! Please install the thermal pad and make sure the adhesive film on the thermal pad is removed before placing it on the heat sink.

5. Remove the adhesive film on the thermal pad and place it onto the Intel chipset.

Installing a NGFF M.2 Wi-Fi Module (Optional)

1. The NGFF M.2 Wi-Fi module package includes the following items.

NGFF M.2 Wi-Fi Module

Antennas

RF Cables

2. Remove the access cover for the NGFF M.2 slot.
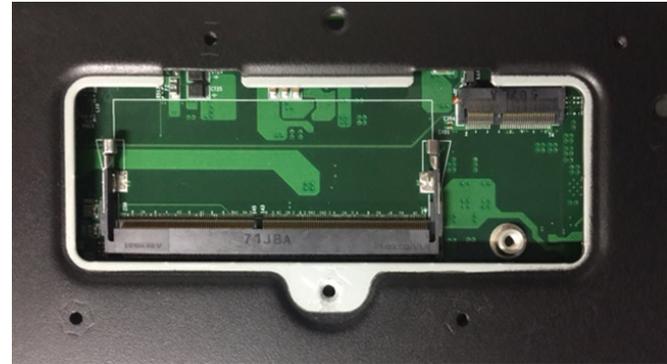
3. Insert the NGFF M.2 Wi-Fi module into the NGFF M.2 slot at a 45 degrees angle until the gold-plated connector on the edge of the module completely disappears inside the slot.

4. Secure the module with mounting screws and attach one end of the RF cables onto the module.

5. Insert the antenna jack end of the cable through the antenna hole.
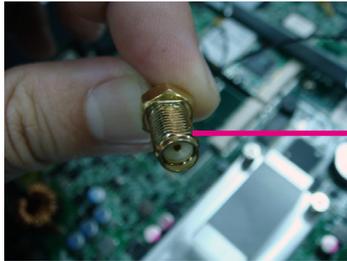
**Antenna jack
end of the cable**

6. Insert the rings onto the antenna jack end of the cable.

Antenna jack

Ring 1   **Ring 2**
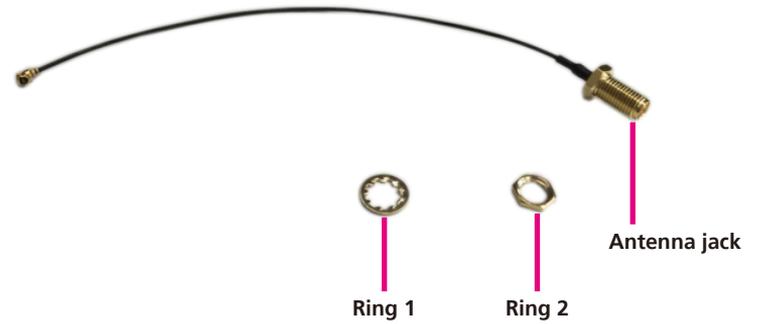
Installing the Wall Mount Kit

1. Align the mounting holes on the wall mount brackets to the mounting holes on both sides of the system, then secure the brackets with screws.
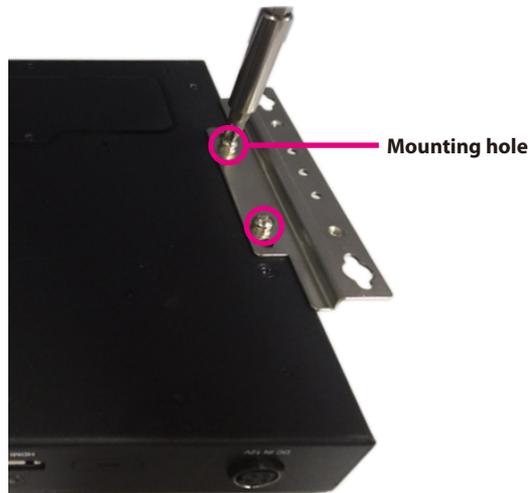
Mounting hole

Installing the VESA Mount Kit

1. Align the mounting holes on the VESA mount kit to the VESA mounting holes on the back of the monitor, then secure the VESA mount kit with screws.

2. Secure the system to the VESA mount bracket with screws.

Mounting hole
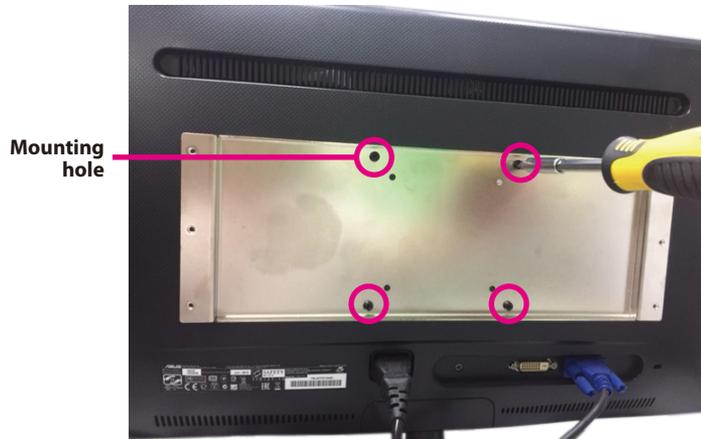
CHAPTER 4: BIOS SETUP

This chapter describes how to use the BIOS setup program for the NDiS B537 series. The BIOS screens provided in this chapter are for reference only and may change if the BIOS is updated in the future.

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

About BIOS Setup

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

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

With easy-to-use pull down menus, you can configure such items as:
- Hard drives, diskette drives, and peripherals
- Video display type and display options
- Password protection from unauthorized use
- Power management features

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

When to Configure the BIOS

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

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

Default Configuration

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

Entering Setup

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

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

- If the error occurs after the display device is initialized, the screen will display the error message.

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

Press the Del key to enter Setup:

Legends

Key	Function
← →	Moves the highlight left or right to select a menu.
↑ ↓	Moves the highlight up or down between sub-menus or fields.
Esc	Exits the BIOS Setup Utility.
+	Scrolls forward through the values or options of the highlighted field.
–	Scrolls backward through the values or options of the highlighted field.
Tab	Selects a field.
F1	Displays General Help.
F2	Load previous values.
F3	Load optimized default values.
F4	Saves and exits the Setup program.
Enter	Press <Enter> to enter the highlighted sub-menu

Scroll Bar

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

Submenu

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

BIOS Setup Utility

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

Main

The Main menu is the first screen that you will see when you enter the BIOS Setup Utility.
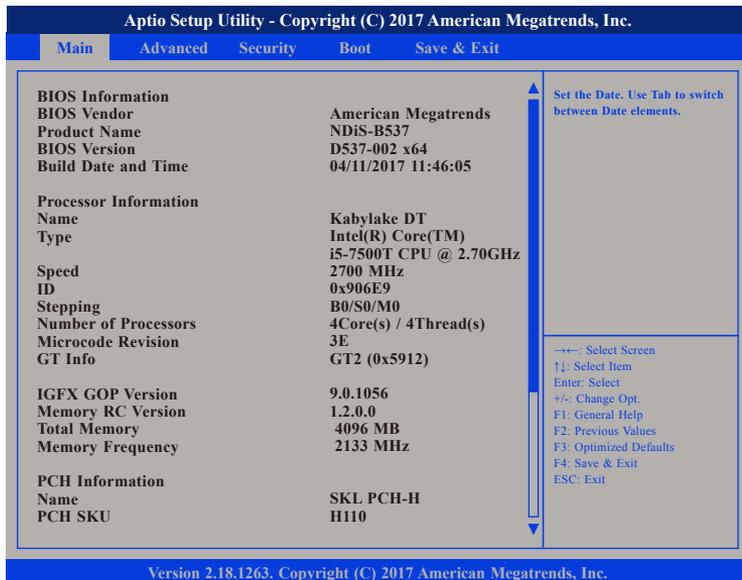
```
              Aptio Setup Utility - Copyright (C) 2017 American Megatrends, Inc.
    Main    Advanced    Security    Boot    Save & Exit

    BIOS Information                                    Set the Date. Use Tab to switch
    BIOS Vendor                  American Megatrends    between Date elements.
    Product Name                 NDiS-B537
    BIOS Version                 D537-002 x64
    Build Date and Time          04/11/2017 11:46:05

    Processor Information
    Name                         Kabylake DT
    Type                         Intel(R) Core(TM)
                                 i5-7500T CPU @ 2.70GHz
    Speed                        2700 MHz
    ID                           0x906E9
    Stepping                     B0/S0/M0
    Number of Processors         4Core(s) / 4Thread(s)
    Microcode Revision           3E
    GT Info                      GT2 (0x5912)                →←: Select Screen
                                                             ↑↓: Select Item
    IGFX GOP Version             9.0.1056                    Enter: Select
    Memory RC Version            1.2.0.0                     +/-: Change Opt.
    Total Memory                  4096 MB                    F1: General Help
    Memory Frequency              2133 MHz                   F2: Previous Values
                                                             F3: Optimized Defaults
    PCH Information                                          F4: Save & Exit
    Name                         SKL PCH-H                   ESC: Exit
    PCH SKU                      H110

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```

System Language
Selects the language of the system.

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

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

Advanced

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

⚠️ Setting incorrect field values may cause the system to malfunction.

```
            Aptio Setup Utility - Copyright (C) 2017 American Megatrends, Inc.
   Main        Advanced      Security      Boot      Save & Exit

 ► CPU Configuration                                    CPU Configuration Parameters
 ► SATA And RST Configuration
 ► ACPI Settings
 ► IT8728F Super IO Configuration
 ► Hardware Monitor
 ► S5 RTC Wake Settings
 ► CSM Configuration
 ► USB Configuration

   State After G3                       [S0 State]


                                                        →←: 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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```

State After G3
Configures which state to enter when power is re-applied after a power failure (G3 state).

CPU Configuration

This section is used to view CPU status and configure CPU parameters.

```
            Aptio Setup Utility - Copyright (C) 2017 American Megatrends, Inc.
      Advanced

   CPU Configuration                                     When enabled, a VMM can
                                                         utilize the additional
   Type                        Intel(R) Core(TM)         hardware capabilities provided
                               i5-7500T CPU @ 2.70GHz    by Vanderpool Technology.
   ID                          0x906E9
   Speed                       2700 MHz
   L1 Data Cache               32 KB x 4
   L1 Instruction Cache        32 KB x 4
   L2 Cache                    256 KB x 4
   L3 Cache                    6 MB
   L4 Cache                    N/A
   VMX                         Supported
   SMX/TXT                     Supported                 →←: Select Screen
                                                         ↑↓: Select Item
   Intel (VMX) Virtualization  [Enabled]                 Enter: Select
   Technology                                            +/-: Change Opt.
   Active Processor Cores      [All]                     F1: General Help
   Intel(R) SpeedStep(tm)      [Enabled]                 F2: Previous Values
      Turbo Mode               [Enabled]                 F3: Optimized Defaults
   C states                    [Enabled]                 F4: Save & Exit
                                                         ESC: Exit


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```

Intel® (VMX) Virtualization Technology
When this field is set to Enabled, the VMM can utilize the additional hardware capabilities provided by Vanderpool Technology.

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

Intel® SpeedStep™
Enables or disables Intel SpeedStep.

Turbo Mode
Enables or disables turbo mode.

CPU C States
Enables or disables CPU C states.

SATA and RST Configuration

This section is used to configure the SATA device option settings.

Aptio Setup Utility - Copyright (C) 2017 American Megatrends, Inc.	
Advanced	

Serial And RST Configuration		Determines how SATA controller(s) operate.
SATA Mode Selection	[AHCI]	
SATA Test Mode	[Disabled]	
Serial ATA Port 0	HGST HTE725050 (500.1GB)	
Software Preserve	SUPPORTED	
Port 0	[Enabled]	
Hot Plug	[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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SATA Mode Selection
Configures the SATA as AHCI mode.

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

SATA Test Mode
Enables or disables SATA test mode.

Port 0
Enables or disables Serial ATA port 0.

Hot Plug
Enables or disables hot plugging feature on Serial ATA port 0.

ACPI Settings

This section is used to configure ACPI settings.

Advanced		
ACPI Settings		Enables or Disables System ability to Hibernate (OS/S4 Sleep State). This option may be not effective with some OS.
Enable Hibernation	[Enabled]	
ACPI Sleep State	[S3 (Suspend to RAM)]	
		→←: Select Screen ↑↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit

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).

IT8728F Super IO Configuration

This section is used to configure serial ports 1 and 2.

Advanced		
IT8728F Super IO Configuration		Set Parameters of Serial Port 1 (COMA)
Super IO Chip	IT8728F	
► **Serial Port 1 Configuration**		
► **Serial Port 2 Configuration**		
		→←: Select Screen ↑↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
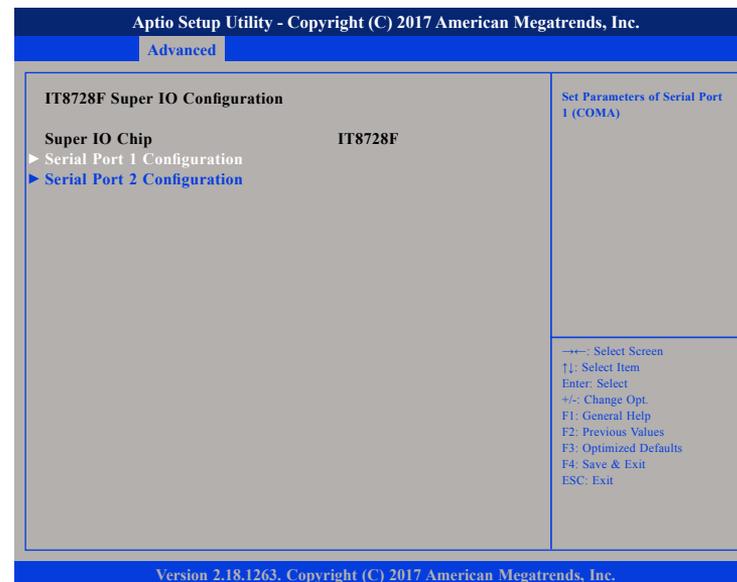
Super IO Chip

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

Serial Port 1 Configuration

```
            Aptio Setup Utility - Copyright (C) 2017 American Megatrends, Inc.
     Advanced

   Serial Port 1 Configuration                            Enable or Disable Serial Port
                                                          (COM)
   Serial Port                    [Enabled]
   Device Settings                IO=3F8h; IRQ=4;

   Change Settings                [IO=3F8h; IRQ=4;]




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



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```

Serial Port
Enables or disables the serial port.

Device Settings
Displays the IO address and IRQ of serial port 1.

Change Settings
Selects an optimal setting for the Super IO device.

Serial Port 2 Configuration

```
            Aptio Setup Utility - Copyright (C) 2017 American Megatrends, Inc.
     Advanced

   Serial Port 2 Configuration                            Enable or Disable Serial Port
                                                          (COM)
   Serial Port                    [Enabled]
   Device Settings                IO=2F8h; IRQ=3;

   Change Settings                [IO=2F8h; IRQ=3;]




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



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```

Serial Port
Enables or disables the serial port.

Device Settings
Displays the IO address and IRQ of serial port 2.

Change Settings
Selects an optimal setting for the Super IO device.

Hardware Monitor

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

```
             Aptio Setup Utility - Copyright (C) 2017 American Megatrends, Inc.
         Advanced

     Pc Health Status

     FAN Setting                      [Always Full Speed]
     System Temperature               : +37 °c
     CPU Temperature                  : +40 °c
     CPU FAN Speed                    : N/A
     System FAN Speed                 : N/A
     CPU:VCORE                        : +0.900 V
     VCC12                            : +11.952 V
     VCC5                             : +5.070 V
     VCC3                             : +3.304 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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```

FAN Setting
Controls the speed of the fan, the options are Always Full Speed and Enable Smart Fan.

System Temperature
Detects and displays the internal temperature of the system.

CPU Temperature
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:VCORE to VCC3
Detects and displays the output voltages.

S5 RTC Wake Settings

This section is used to configure system to wake from S5 using RTC alarm.

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Advanced

Wake system from S5	[Disabled]	Enable or disable System wake on alarm event. Select FixedTime, system will wake on the hr::min::sec specified. Select DynamicTime , System will wake on the current time + Increase minute(s)
		→←: 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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Wake System from S5

Enables or disables system wake on alarm event. When FixedTime is selected, system will wake on the hr::min::sec specified. When DynamicTime is selected, system will wake on the current time + Increase minute(s).

CSM Configuration

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

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Advanced

Compatibility Support Module Configuration		Enable/Disable CSM Support.
CSM Support	[Enabled]	
CSM16 Module Version	07.80	
Boot option filter	[UEFI only]	
Option ROM execution		
Network	[Do not launch]	
Video	[UEFI]	→←: Select Screen ↑↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit

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CSM Support

Enables or disables Compatibility Support Module (CSM).

Boot Option Filter

This option filters which devices system can boot to.

Network

Enables or disables the boot option for legacy network devices.

USB Configuration

This section is used to configure USB parameters.

```
            Aptio Setup Utility - Copyright (C) 2017 American Megatrends, Inc.
          Advanced

  USB Configuration                                    Enables Legacy USB support.
                                                       AUTO option disables legacy
  USB Module Version              16                   support if no USB devices are
                                                       connected. DISABLE option will
  USB Controllers:                                     keep USB devices available
      1 XHCI                                           only for EFI applications.
  USB Devices:
      1 Keyboard, 1 Mouse

  Legacy USB Support              [Enabled]
  XHCI 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

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

XHCI Hand-off

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

Security

Aptio Setup Utility - Copyright (C) 2017 American Megatrends, Inc.
Main **Advanced** **Security** **Boot** **Save & Exit**

Password Description	**Set Administrator Password**
If ONLY the Administrator's password is set, then this only limits access to Setup and is only asked for when entering Setup. If ONLY the User's password is set, then this is a power on password and must be entered to boot or enter Setup. In Setup the User will have Administrator rights. The password length must be in the following range:	
Minimum length 3	
Maximum length 20	
	→←: Select Screen
Administrator Password	↑↓: Select Item
User Password	Enter: Select
	+/-: Change Opt.
	F1: General Help
	F2: Previous Values
	F3: Optimized Defaults
	F4: Save & Exit
	ESC: Exit

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Administrator Password

Select this to reconfigure the administrator's password.

User Password

Select this to reconfigure the user's password.

Boot

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

Boot Configuration	**Select the keyboard NumLock state**
Bootup NumLock State [On]	
Boot Option Priorities	
Boot Option #1 [Windows Boot Manager (P0: HGST HTE725050A7E630)]	
	→←: Select Screen
	↑↓: Select Item
	Enter: Select
	+/-: Change Opt.
	F1: General Help
	F2: Previous Values
	F3: Optimized Defaults
	F4: Save & Exit
	ESC: Exit

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Bootup NumLock State

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

Boot Option Priorities

This allows you to adjust the boot sequence of the system. Boot Option #1 is the first boot device that the system will boot from, next will be #2 and so forth.

Save & Exit

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Main	Advanced	Security	Boot	Save & Exit

Save Options
Save Changes and Reset
Discard Changes and Reset

Default Options
Restore Defaults

Boot Override
Windows Boot Manager (P0: HGST HTE725050A7E630)

Reset the system after saving the changes.

→←: 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 Reset
To save the changes and restart the system, 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 and restart the system, 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.

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

APPENDIX A: WATCHDOG TIMER

The NDiS B537 series 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	**Reserved**
3-2	**Reserved**
1	**Force Time-out** This bit is self-cleared.
0	**WDT Status** 1: WDT value is equal to 0. 0: WDT value is not equal to 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 PWRGD Enable** 1: Enable 0: Disable *During LRESET# this bit is selected by JP2 power-on strapping option.*
3-0	**Interrupt Level Select for WDT** Please refer to Interrupt Level Mapping Table.

Watchdog Timer Time-out Value (LSB) Register (Index=73h, Default=38h)

Bit	Description
7-0	WDT Time-out Value 7-0

Watchdog Timer Time-out Value (MSB) Register (Index=74h, Default=00h)

Bit	Description
7-0	WDT Time-out Value 15-8

SMI# Control Register 2 (Index=F1h, Default=00h)

Bit	Description
7	**Reserved**
6	0: Edge trigger 1: Level trigger
5-3	**Reserved**
2	This bit enables the generation of a SMI# due to WDT's IRQ (EN_WDT).
1	This bit enables the generation of a SMI# due to CIR's IRQ (EN_CIR).
0	This bit enables the generation of a SMI# due to PBD's IRQ (EN_PBD).