NEXCOM International Co., Ltd.

Intelligent Platform & Services Business Unit

Duro Edge Computer
NDiS B562 Series/NDiS B562-Q Series

User Manual

NEXCOM International Co., Ltd.
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PREFACE

Copyright

Disclaimer

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Acknowledgements

NDiS B562 and its series are trademarks of NEXCOM International Co., Ltd. All other product names mentioned herein are registered trademarks of their respective owners.

Regulatory Compliance Statements

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

Declaration of Conformity

FCC

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

CE

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

RoHS Compliance

NEXCOM RoHS Environmental Policy and Status Update

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

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

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

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

How to recognize NEXCOM RoHS Products?

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

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

Warranty and RMA

NEXCOM Warranty Period

NEXCOM manufactures products that are new or equivalent to new in accordance with industry standard. NEXCOM warrants that products will be free from defect in material and workmanship for 2 years, beginning on the date of invoice by NEXCOM.

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.
- Proper grounding is essential to protect against electrical surges and ensure stable operation. Always connect the grounding wire.

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. 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, please verify the contents of the product package. The items included are listed in the table below.

No.	Part Number	Description	Qty
1*	10W00B56200X0	NDiS B562	1
	10W00B56204X0	NDiS B562-R16F	1
2*	10W00B56203X0	NDiS B562-Q or	1
	10W00B56201X0	NDiS B562-Q-2R8	1
	10W00B56205X0	NDiS B562-Q-2S	1
3	5060201053X00	60x20x4.5 mm for RAM (bottom side)	1
	5060200706X00	60x20x2 mm thermal pad for RAM (top side)	1
4	5060200719X00	65x20x1 mm thermal pad for SSD	1
5	5060200721X00	30x30x3 mm thermal pad for LTE module	1
6	5060200242X00	17x17x31 mm for Wi-Fi module	1
7	5090000001X00	THERMAL GREASE apply to top of CPU	1
8	4NCPF00510X00	TERMINAL BLOCKS 5P PHOENIX CONTACT	1

* Items 1 and 2 list all models in the series for reference; however, only one specific model is provided per shipment.

Refer to the images below for the appearance of thermal pads and thermal grease designed for different requirements. Note that these images do not represent the actual size, and the packaging may vary depending on the destination of shipment.

Thermal grease
For CPU

Bottom side memory
thermal pad (4.5mm)

Top side memory
thermal pad (2mm)

SSD
thermal pad (1mm)

5G/LTE module
thermal pad

Wi-Fi module
thermal pad

Ordering Information

The following provides ordering information.

NDiS B562 (P/N: 10W00B56200X0)

Duro Edge computer, Intel® Core™ processor (Series 2) / Intel® Core™ i processor, Intel® PCH H610E, 1 x HDMI® 2.0, 2 x DP 1.2

NDiS B562-R16F (P/N: 10W00B56204X0)

Duro Edge computer, Intel® Core™ processor (Series 2) / Intel® Core™ i processor, Intel® PCH H610E, 1 x HDMI® 2.0, 2 x DP 1.2, w/ one PCIe x16 expansion kit, fan and ventilation holes (DockInfinity-R16F)

DockInfinity-R16F (P/N: 10W00DOCK00X0)

One PCIe x16 expansion kit with dual-slot space for Duro Edge computer, w/ fan and ventilation holes

NDiS B562-Q (P/N: 10W00B56203X0)

Duro Edge computer, Intel® Core™ processor (Series 2) / Intel® Core™ i processor, Intel® PCH Q670E, 1 x HDMI® 2.0, 2 x DP 1.2

NDiS B562-Q-2R8 (P/N: 10W00B56201X0)

Duro Edge computer, Intel® Core™ processor (Series 2) / Intel® Core™ i processor, Intel® PCH Q670E, 1 x HDMI® 2.0, 2 x DP 1.2, w/ dual PCIe x8 expansion kit (DockInfinity-2R8)

NDiS B562-Q-2S (P/N: 10W00B56205X0)

Duro Edge computer, Intel® Core™ processor (Series 2) / Intel® Core™ i processor, Intel® PCH Q670E, 1 x HDMI® 2.0, 2 x DP 1.2, w/ dual SSD bay kit (DockInfinity-2S)

DockInfinity-2R8 (P/N: 10W00DOCK02X0)

Dual PCIe x8 expansion kit for Duro Edge computer

DockInfinity-2S (P/N: 10W00DOCK03X0)

Dual SSD bay kit for Duro Edge computer

Chapter 1: Product Introduction

NDiS B560 Series

Overview

The NDiS B562 is compatible with Intel® Core™ processor (Series 2) and 14/13/12th Gen Intel® Core™ i processor. When connected to the DockInfinity, it creates two half-height card spaces that can accommodate both graphics cards and other PCIe expansion cards to enhance functionality of system.

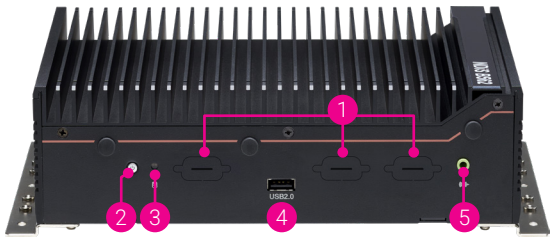
The device features a wide-range 12V to 24V power input, ensuring stable operation even in environments with unstable power supply. This versatility makes it ideal for a variety of applications, including the self-service industry and smart parking systems. With three USB 3.2 ports and two COM ports (supporting RS-232/422/485), the NDiS B562 connects effortlessly to peripherals like AI cameras and sensors. For multi-display setups, the external I/O includes one HDMI® 2.0 port and two DisplayPort 1.2 ports, with support for additional displays via an external graphics card. Zero waste upgrade, no parts will be used up or thrown away during the expansion kit installation.

Key Features

- Intel® Core™ processor (Series 2)/ 14/13/12th Gen Intel® Core™ i processor
- Support Intel® AMT technology
- 2 x DDR5 SO-DIMM, up to 96GB
- 1 x HDMI® 2.0 output, up to 4096 x2160@60Hz
- 3 x Intel® LAN port
- 3 x USB 3.2 Gen 1x1, 1 x USB 2.0, 2 x DP 1.2
- Support PCIe 4.0 1x16 (w/ optional dock)
- 1 x M.2 Key B 3052 for an optional 5G/LTE module
- 1 x M.2 Key E 2230 for an optional Wi-Fi module
- 1 x M.2 Key M 2280 for an optional SSD
- TPM 2.0 for security
- Support DC +12V~24V power input

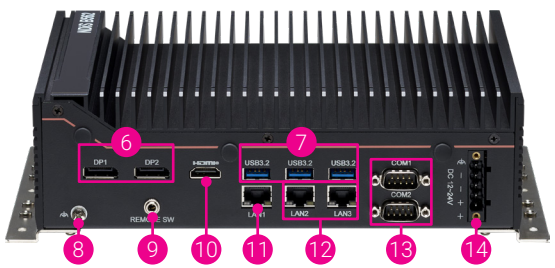
Physical Appearance

Front Panel



1. Antenna holes
2. Power button
3. HDD LED
4. USB 2.0 Type-A
5. Line out
6. DisplayPort 1.2, resolution up to 4096x2160@60Hz
7. USB 3.2 Type-A
8. Grounding screw
9. Remote switch cable connector
10. HDMI® 2.0, resolution up to 4096x2160@60Hz
11. 1GbE RJ45 LAN port (LAN1)
12. 2.5GbE RJ45 LAN ports (LAN2/3)
13. COM ports
14. Power module (DC 12~24V input)

Rear Panel



Hardware Specifications

CPU Support

- Intel® Core™ processor (Series 2)
  - Intel® Core™ 7 processor 251TE, TDP 45W
  - Intel® Core™ 5 processor 221TE, TDP 45W
  - Intel® Core™ 5 processor 211TE, TDP 45W
  - Intel® Core™ 3 processor 201TE, TDP 45W
- 14th Gen Intel® Core™ i processor
  - Intel® Core™ i9 processor 14900T, PBP 35W
  - Intel® Core™ i7 processor 14700T, PBP 35W
  - Intel® Core™ i5 processor 14500T, PBP 35W
  - Intel® Core™ i3 processor 14100T, PBP 35W

Chipset

- Intel® PCH H610E

Memory

- 2 x DDR5 5200 SO-DIMM, non-ECC, unbuffered, up to 96GB

Display Interface

- Intel® UHD Graphics architecture
  - 1 x HDMI® 2.0, up to 4096x2160@60Hz
  - 2 x DP 1.2, up to 4096x2160@60Hz

Storage

- 1 x M.2 Key M 2280 (PCIe 3.0 x4)

Expansion

- 1 x M.2 Key E 2230 for an optional Wi-Fi module (PCIe 3.0 x1, USB 2.0)
- 1 x M.2 Key B 3052 for an optional 5G/LTE module (PCIe 3.0 x1, USB 3.2)
- 1 x SIM slot

I/O Interface Front

- 1 x Power button with LED
- 1 x HDD LED
- 1 x USB 2.0 onboard
- 1 x Line out
- 3 x Antenna hole

I/O Interface Rear

- 3 x USB 3.2 Gen 1x1, Type-A
- 1 x 1GbE RJ45 port, Intel® I219-LM (LAN 1)
- 2 x 2.5GbE RJ45 port, Intel® I226-IT (LAN2/3)
- 1 x HDMI® 2.0 output, up to 4096x2160@60Hz
- 2 x DP 1.2 output, up to 4096x2160@60Hz
- 2 x COM port, supports RS-232/422/485
- 1 x 5-pin thermal block for 180W DC input
- 3 x Antenna hole

I/O Interface Internal

- 2 x 6-pin header for four USB 2.0 ports (PCH Q670E)
- 1 x 6-pin header for two USB 2.0 ports (PCH H610E)
- 1 x 4-pin header for speaker out, amplifier 2.5W/4Ω
- 1 x 9-pin header for mic in
- 4 x COM port (COM3~COM6, RS-232, reserved)
- 2 x SATA 3.0 connector, 2 x SATA 3.0 power connector
- 8 x GPIO
  - 4 x DI, 4 x DO

Environment

- Operating temperature: -20°C~60°C
- Operating temperature w/ graphics card: 0°C~45°C
- Storage temperature: -20°C~80°C
- Humidity: 10%~95% (non-condensing)

System Capabilities

- TPM 2.0

Mechanical

- TPM 2.0
- Dimensions:
  - NDiS B562: 268mm (W) x 190.6mm (D) x 75.4mm (H) (w/ bracket)
  - NDiS B562 w/ DockInfinity: 388.3mm (W) x 190.6mm (D) x 75.4mm (H) (w/ bracket)
- Weight:
  - NDiS B562: 3kg
  - NDiS B562 w/ DockInfinity-2R8/R16F: 3.73kg
  - NDiS B562 w/ DockInfinity-2S: 4.05kg

Package Information

- Dimensions: 476mm (W) x 355mm (D) x 206mm (H)
- Gross weight (1 unit per carton):
  - NDiS B562: 4.01kg
  - NDiS B562 w/ DockInfinity-2R8/R16F: 4.79kg
  - NDiS B562 w/ DockInfinity-2S: 5.11kg

Power Supply

- Nominal voltage: DC +12V~24V, 180W Certifications

Certification

- CE approval (EN 50035 + EN 50032)
- FCC Class A (Part 15B)
- LVD (EN 62368-1)

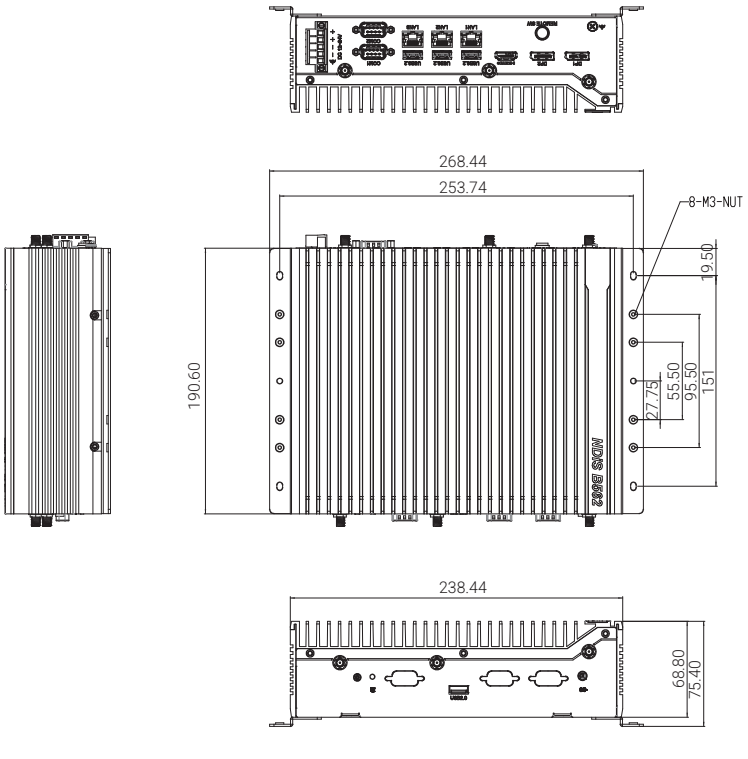
Dimensions

- 238mm (W) x 190mm (D) x 39mm (H)

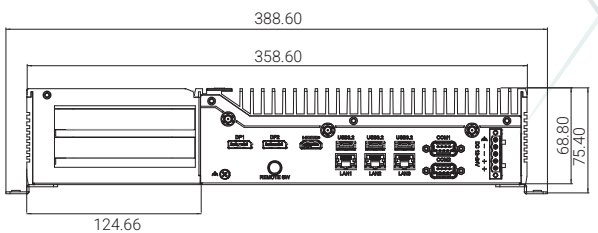
Operating System

- Windows 11
- Windows 10, 64bit
- Linux

Mechanical Dimensions

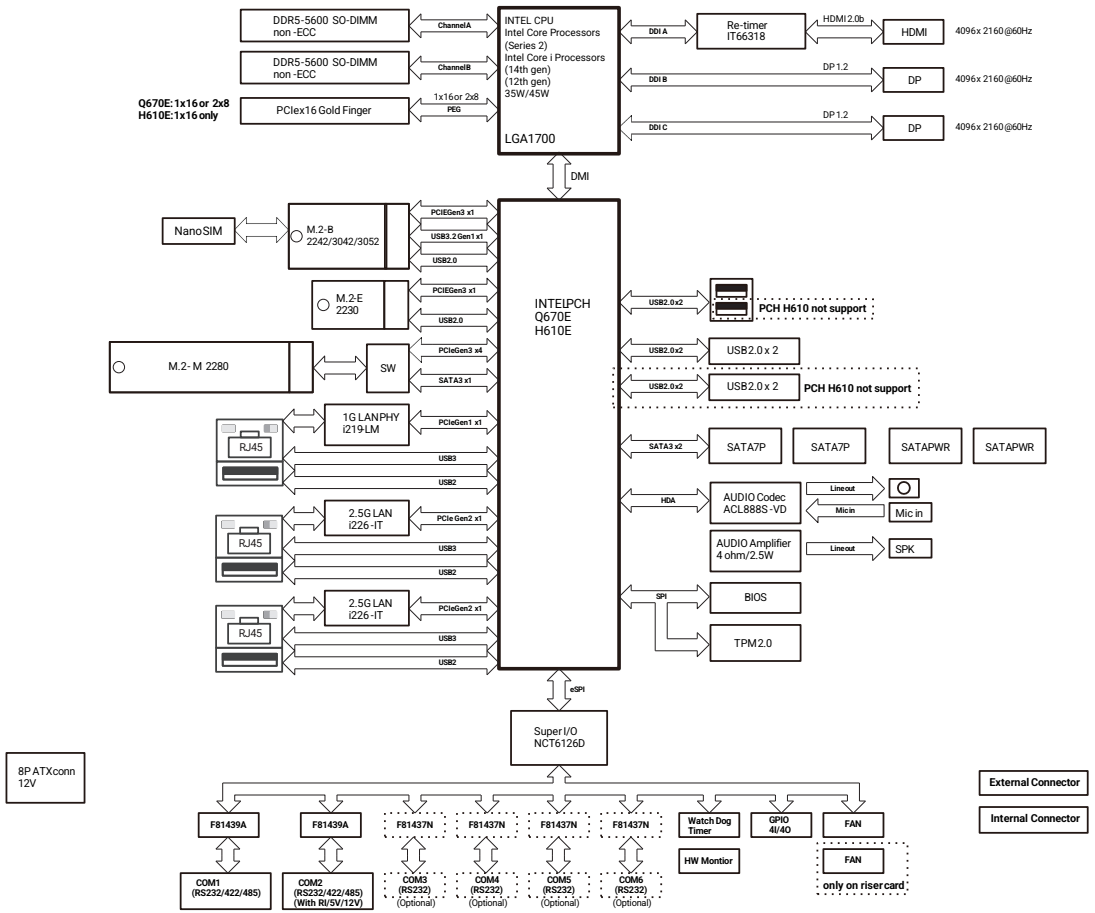


NDiS B562



NDiS B562-R16F

Block Diagram



NDiS B560-Q Series

Overview

The NDiS B562-Q is compatible with Intel® Core™ processor (Series 2) and 14/13/12th Gen Intel® Core™ i processor. When connected to the DockInfinity, it creates two half-height card spaces that can accommodate both graphics cards and other PCIe expansion cards to enhance functionality of system. Furthermore, the unit supports RAID 0 and RAID 1 configurations, which can be achieved by installing two 2.5-inch SATA SSDs.

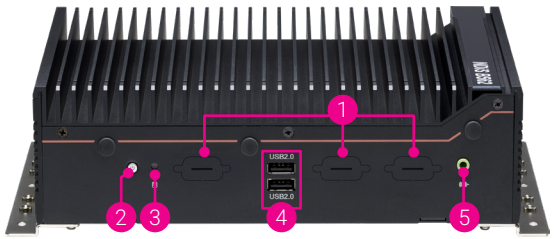
The device features a wide-range 12V to 24V power input, ensuring stable operation even in environments with unstable power supply. This versatility makes it ideal for a variety of applications, including the self-service industry and smart parking systems. With three USB 3.2 ports and two COM ports (supporting RS-232/422/485), the NDiS B562-Q connects effortlessly to peripherals like AI cameras and sensors. For multi-display setups, the external I/O includes one HDMI® 2.0 port and two DisplayPort 1.2 ports, with support for additional displays via an external graphics card. Zero waste upgrade, no parts will be used up or thrown away during the expansion kit installation.

Key Features

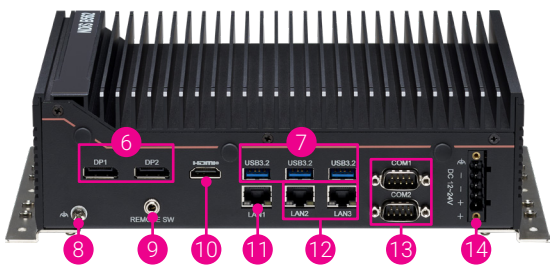
- Intel® Core™ processor (Series 2)/ 14/13/12th Gen Intel® Core™ i processor
- Support Intel® AMT technology
- 2 x DDR5 SO-DIMM, up to 96GB
- 1 x HDMI® 2.0 output, up to 4096 x2160@60Hz
- 3 x Intel® LAN port
- 3 x USB 3.2 Gen 1x1, 2 x USB 2.0, 2 x DP 1.2
- Support PCIe 4.0 2x8 expansion card/2 x 2.5” SSD swap bay (w/ optional dock)
- 1 x M.2 Key B 3052 for an optional 5G/LTE module
- 1 x M.2 Key E 2230 for an optional Wi-Fi module
- 1 x M.2 Key M 2280 for an optional SSD
- TPM 2.0 for security
- Support DC +12V~24V power input

Physical Appearance

Front Panel



Rear Panel



1. Antenna holes
2. Power button
3. HDD LED
4. USB 2.0 Type-A
5. Line out
6. DisplayPort 1.2, resolution up to 4096x2160@60Hz
7. USB 3.2 Type-A
8. Grounding screw
9. Remote switch cable connector
10. HDMI® 2.0, resolution up to 4096x2160@60Hz
11. 1GbE RJ45 LAN port (LAN1)
12. 2.5GbE RJ45 LAN ports (LAN2/3)
13. COM ports
14. Power module (DC 12~24V input)

Hardware Specifications

CPU Support

- Intel® Core™ processor (Series 2)
  - Intel® Core™ 7 processor 251TE, TDP 45W
  - Intel® Core™ 5 processor 221TE, TDP 45W
  - Intel® Core™ 5 processor 211TE, TDP 45W
  - Intel® Core™ 3 processor 201TE, TDP 45W
- 14th Gen Intel® Core™ i processor
  - Intel® Core™ i9 processor 14900T, PBP 35W
  - Intel® Core™ i7 processor 14700T, PBP 35W
  - Intel® Core™ i5 processor 14500T, PBP 35W
  - Intel® Core™ i3 processor 14100T, PBP 35W

Chipset

- Intel® PCH Q670E

Memory

- 2 x DDR5 5200 SO-DIMM, non-ECC, unbuffered, up to 96GB

Display Interface

- Intel® UHD Graphics architecture
  - 1 x HDMI® 2.0, up to 4096x2160@60Hz
  - 2 x DP 1.2, up to 4096x2160@60Hz

Storage

- 1 x M.2 Key M 2280 (PCIe 3.0 x4)

Expansion

- 1 x M.2 Key E 2230 for an optional Wi-Fi module (PCIe 3.0 x1, USB 2.0)
- 1 x M.2 Key B 3052 for an optional 5G/LTE module (PCIe 3.0 x1, USB 3.2)
- 1 x SIM slot

I/O Interface Front

- 1 x Power button with LED
- 1 x HDD LED
- 2 x USB 2.0 onboard
- 1 x Line out
- 3 x Antenna hole

I/O Interface Rear

- 3 x USB 3.2 Gen 1x1, Type-A
- 1 x 1GbE RJ45 port, Intel® I219-LM (LAN 1)
- 2 x 2.5GbE RJ45 port, Intel® I226-IT (LAN2/3)
- 1 x HDMI® 2.0 output, up to 4096x2160@60Hz
- 2 x DP 1.2 output, up to 4096x2160@60Hz
- 2 x COM port, supports RS-232/422/485
- 1 x 5-pin thermal block for 180W DC input
- 3 x Antenna hole

I/O Interface Internal

- 2 x 6-pin header for four USB 2.0 ports (PCH Q670E)
- 1 x 6-pin header for two USB 2.0 ports (PCH H610E)
- 1 x 4-pin header for speaker out, amplifier 2.5W/4Ω
- 1 x 9-pin header for mic in
- 4 x COM port (COM3~COM6, RS-232, reserved)
- 2 x SATA 3.0 connector, 2 x SATA 3.0 power connector
- 8 x GPIO
  - 4 x DI, 4 x DO

Environment

- Operating temperature: -20°C~60°C
- Operating temperature w/ graphics card: 0°C~45°C
- Storage temperature: -20°C~80°C
- Humidity: 10%~95% (non-condensing)

System Capabilities

- TPM 2.0

Mechanical

- TPM 2.0
- Dimensions:
  - NDiS B562: 268mm (W) x 190.6mm (D) x 75.4mm (H) (w/ bracket)
  - NDiS B562 w/ DockInfinity: 388.3mm (W) x 190.6mm (D) x 75.4mm (H) (w/ bracket)
- Weight:
  - NDiS B562: 3kg
  - NDiS B562 w/ DockInfinity-2R8/R16F: 3.73kg
  - NDiS B562 w/ DockInfinity-2S: 4.05kg

Package Information

- Dimensions: 476mm (W) x 355mm (D) x 206mm (H)
- Gross weight (1 unit per carton):
  - NDiS B562: 4.01kg
  - NDiS B562 w/ DockInfinity-2R8/R16F: 4.79kg
  - NDiS B562 w/ DockInfinity-2S: 5.11kg

Power Supply

- Nominal voltage: DC +12V~24V, 180W Certifications

Certification

- CE approval (EN 50035 + EN 50032)
- FCC Class A (Part 15B)
- LVD (EN 62368-1)

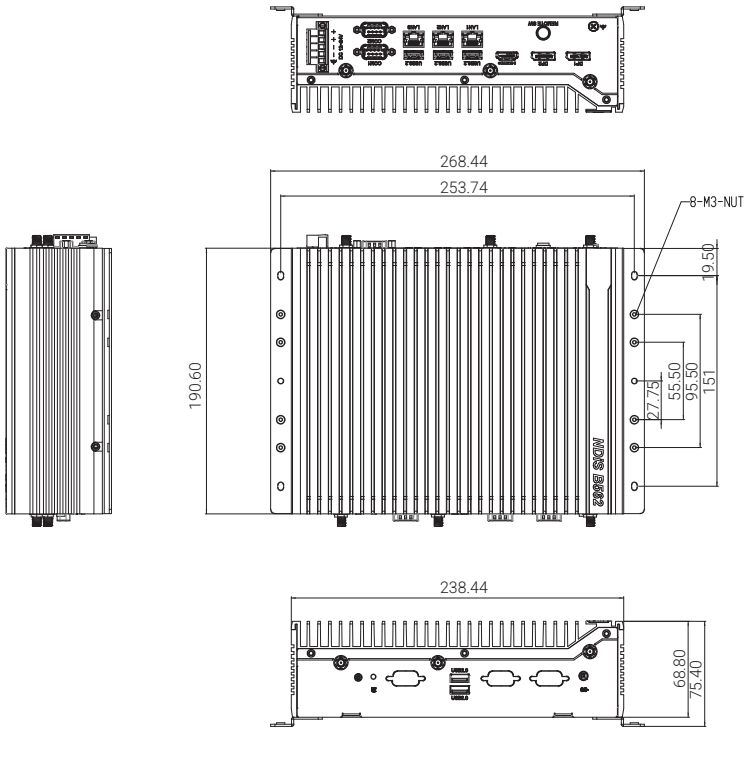
Dimensions

- 238mm (W) x 190mm (D) x 39mm (H)

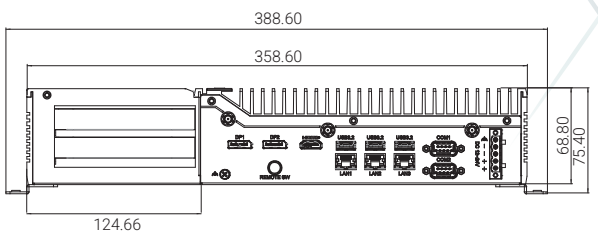
Operating System

- Windows 11
- Windows 10, 64bit
- Linux

Mechanical Dimensions

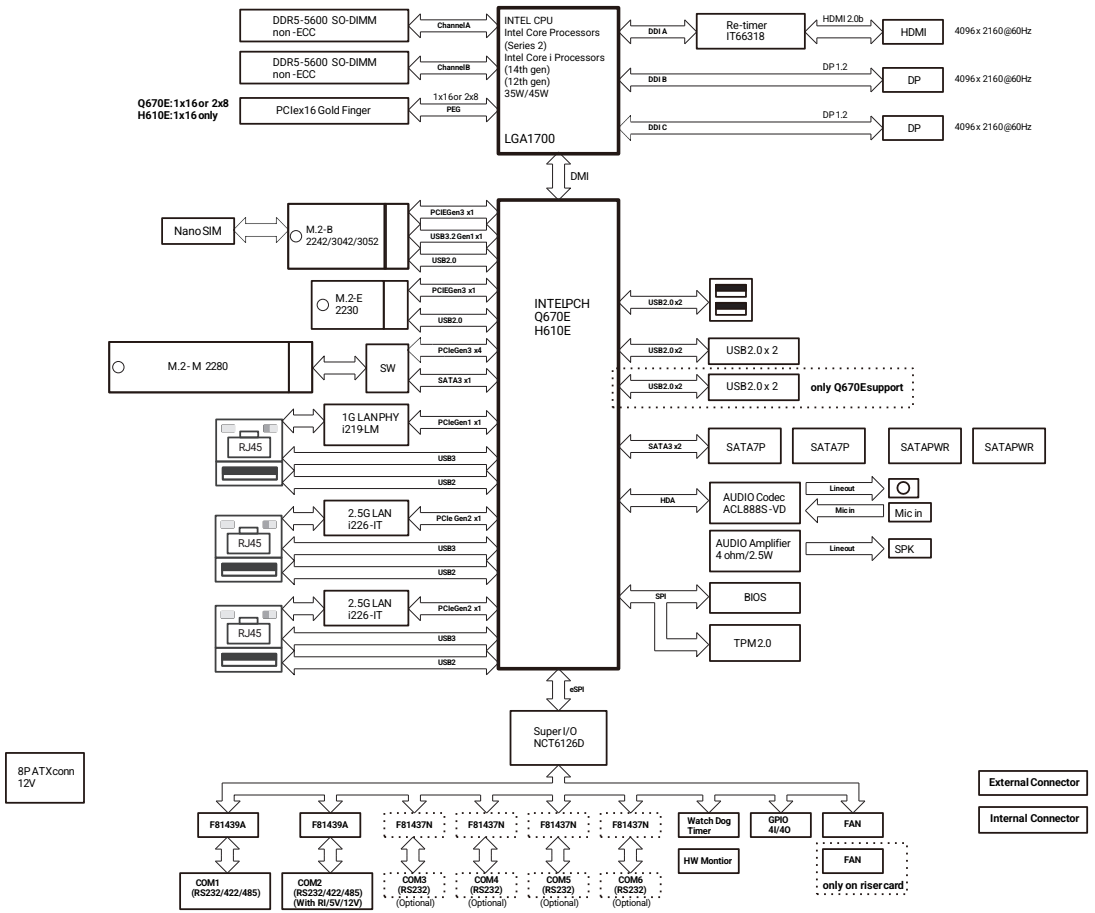


NDiS B562-Q



NDiS B562-Q-2R8

Block Diagram



Chapter 2: Jumpers and Connectors

This chapter describes how to set the jumpers and connectors on the NDiS B562 series motherboard.

Before You Begin

- Ensure you have a stable, clean working environment. Dust and dirt can get into components and cause a malfunction. Use containers to keep small components separated.
- Adequate lighting and proper tools can prevent you from accidentally damaging the internal components. Most of the procedures that follow require only a few simple tools, including the following:
  - A Philips screwdriver
  - A flat-tipped screwdriver
  - A set of jewelers screwdrivers
  - A grounding strap
  - An anti-static pad
- Using your fingers can disconnect most of the connections. It is recommended that you do not use needle-nosed pliers to disconnect connections as these can damage the soft metal or plastic parts of the connectors.
- Before working on internal components, make sure that the power is off. Ground yourself before touching any internal components, by touching a metal object. Static electricity can damage many of the electronic components. Humid environments tend to have less static electricity than dry environments. A grounding strap is warranted whenever danger of static electricity exists.

Precautions

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

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

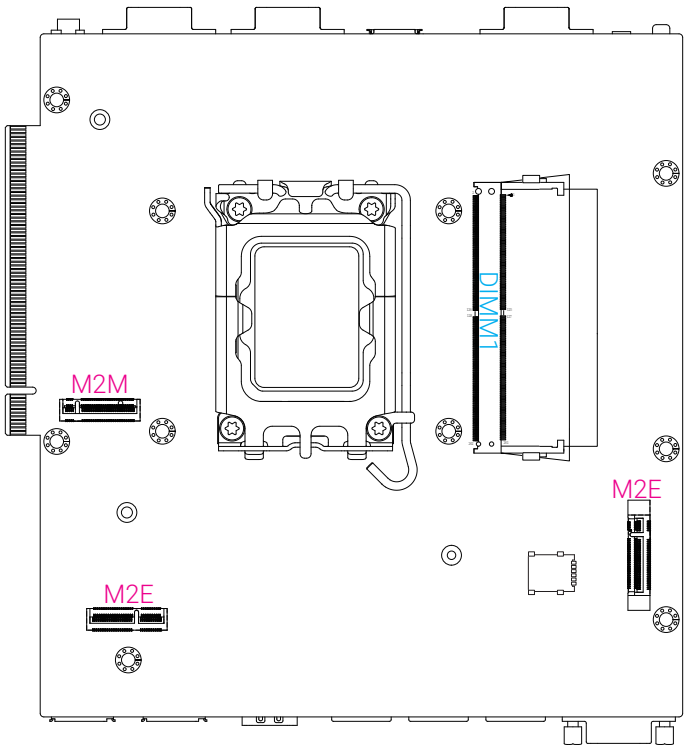
- Always disconnect the unit from the power outlet whenever you are working inside the case.
- If possible, wear a grounded wrist strap when you are working inside the computer case. Alternatively, discharge any static electricity by touching the bare metal chassis of the unit case, or the bare metal body of any other grounded appliance.
- Hold electronic circuit boards by the edges only. Do not touch the components on the board unless it is necessary to do so. Don't flex or stress the circuit board.
- Leave all components inside the static-proof packaging that they shipped with until they are ready for installation.
- Use correct screws and do not over tighten screws.

System Motherboard Overview

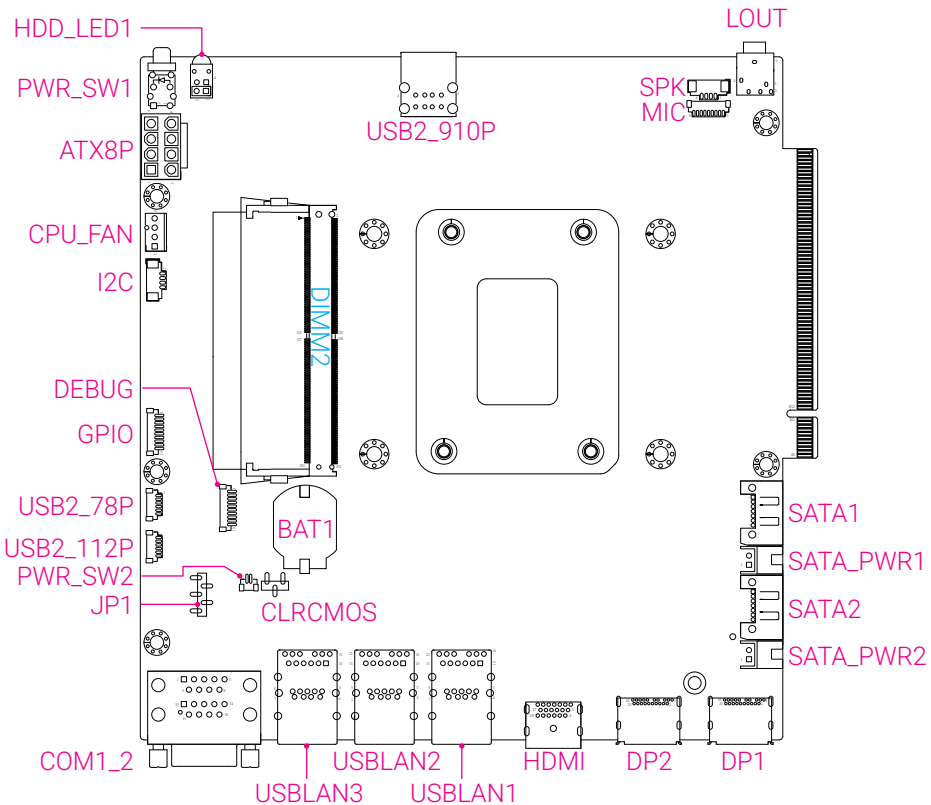
This chapter outlines the location and pin assignments of jumpers and connectors, with reference illustrations (not to scale) and pink-marked pin definitions to aid understanding.

Location of Jumpers and Connectors on the Motherboard

Top View



Bottom View

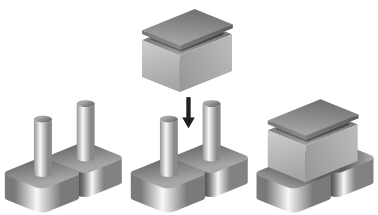


Jumper Settings

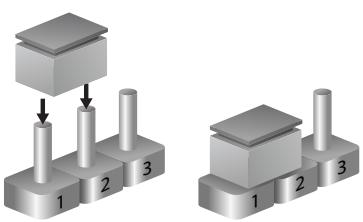
A jumper is the simplest kind of electric switch. It consists of two metal pins and a cap. When setting the jumpers, ensure that the jumper caps are placed on the correct pins. When the jumper cap is placed on both pins, the jumper is short. If you remove the jumper cap, or place the jumper cap on just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

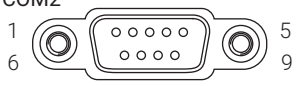


External I/O Interfaces

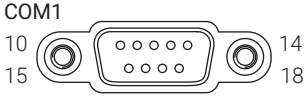
COM Port 1/2

Connector location: COM1_2

COM2



COM1



Pin	RS-232	RS422	RS485
1	DCD2#	TX-	D-
2	RXD2	TX+	D+
3	TXD2	RX+	
4	DTR2#	RX-	
5	GND		
6	DSR2#		
7	RTS2#		
8	CTS2#		
9	RI2#		
10	DCD1#	TX-	D-
11	RXD1	TX+	D+
12	TXD1	RX+	
13	DTR1#	RX-	

Pin	RS-232	RS-422	RS-485
14	GND		
15	DSR1#		
16	RTS1#		
17	CTS1#		
18	RI1#		
MH1	CGND		
MH2	CGND		
NH1	N.C.		
NH2	N.C.		

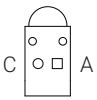
DisplayPort 1/2

Connector location: DP1, DP2

Pin	Definition	Pin	Definition
1	TX0P	2	GND
3	TX0N	4	TX1P
5	GND	6	TX1N
7	TX2P	8	GND
9	TX2N	10	TX3P
11	GND	12	TX3N
13	CONFIG1	14	CONFIG2
15	AUX_P	16	GND
17	AUX_N	18	HPD
19	GND	20	+3.3V
MH1	CGND	MH2	CGND
MH3	CGND	MH4	CGND

HDD LED

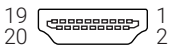
Connector location: HDD_LED1



Pin	Definition
A	LED+
C	LED-

HDMI® 2.0

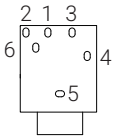
Connector location: HDMI



Pin	Definition	Pin	Definition
1	TX2P	2	GND
3	TX2N	4	TX1P
5	GND	6	TX1N
7	TX0P	8	GND
9	TX0N	10	CLK_P
11	GND	12	CLK_N
13	NC	14	NC
15	SCL	16	SDA
17	GND	18	+5V
19	HPD		
MH1	CGND	MH2	CGND
MH3	CGND	MH4	CGND
NH1	N.C.	NH2	N.C.

Audio Line Out

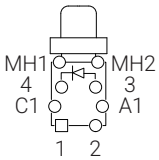
Connector location: LOUT



Pin	Definition
1	LINE_OUT_R
2	LINE_JD
3	AGND
4	LINE_OUT_L
5	AGND
6	AGND

System Power Button

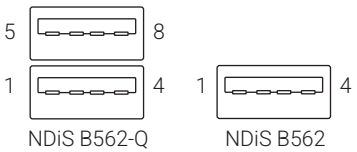
Connector location: PWR_SW1



Pin	Definition
1	SWITCH_NODE_A
2	SWITCH_NODE_B
3	SWITCH_NODE_B
4	SWITCH_NODE_A
C1	LED-
A1	LED+
MH1	N.C.
MH2	N.C.

USB 2.0 Port(s)

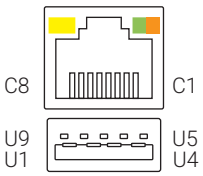
Connector form factor: USB Type-A
Connector location: USB2_910P



Pin	Definition	Pin	Definition
1	+5V	2	USB2_D1-
3	USB2_D1+	4	GND
5	+5V	6	USB2_D2-
7	USB2_D2+	8	GND
MH1	CGND	MH2	CGND
MH3	CGND	MH4	CGND

LAN1 + USB 3.2

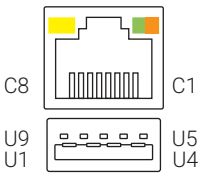
Connector form factor: RJ45 + USB 3.2 Type-A
Connector location: USBLAN1



Pin	Definition	Pin	Definition
U1	+5V	U2	USB2_D0-
U3	USB2_D0+	U4	GND
U5	USB3_RX-	U6	USB3_RX+
U7	GND	U8	USB3_TX-
U9	USB3_TX+		
C1	MDI_0+	C2	MDI_0-
C3	MDI_1+	C4	MDI_1-
C5	MDI_2+	C6	MDI_2-
C7	MDI_3+	C8	MDI_3-

LAN2/3 + USB 3.2

Connector form factor: RJ45 + USB 3.2 Type-A
Connector location: USBLAN2, USBLAN3



Pin	Definition	Pin	Definition
U1	+5V	U2	USB2_D0-
U3	USB2_D0+	U4	GND
U5	USB3_RX-	U6	USB3_RX+
U7	GND	U8	USB3_TX-
U9	USB3_TX+		
C1	MDI_0+	C2	MDI_0-
C3	MDI_1+	C4	MDI_1-
C5	MDI_2+	C6	MDI_2-
C7	MDI_3+	C8	MDI_3-

Jumper Settings

Clear CMOS

Connector location: CLRCMOS

Pin	Definition
1-2 on	Normal (default)
2-3 on	Clear CMOS

COM2 RI Ring Pin9 Function

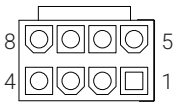
Connector location: CLRCMOS

Pin	Definition
1-2 on	COM2 RI Pin9 is Ring (default)
2-3 on	COM2 RI Pin9 is +5V
4-5 on	COM2 RI Pin9 is +12V

Internal I/O Interfaces

+12V DC Input

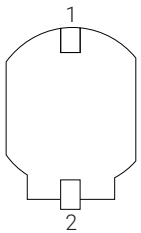
Connector location: ATX8P



Pin	Definition	Pin	Definition
1	GND	5	+12V
2	GND	6	+12V
3	GND	7	+12V
4	GND	8	+12V

RTC Coin Cell Battery

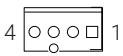
Connector location: BAT1



Pin	Definition
1	+VBAT
2	GND

CPU Fan

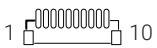
Connector location: CPU_FAN



Pin	Definition
1	GND
2	+12V
3	FAN SPEED DETECT
4	FAN SPEED CONTROL

Port 80 for Debug

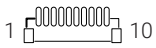
Connector location: DEBUG



Pin	Definition
1	GND
2	PLTRST#
3	ESPI_CLK
4	ESPI_CS#
5	ESPI_IO3
6	ESPI_IO2
7	ESPI_IO1
8	ESPI_IO0
9	ESPI_RST#
10	+3.3VSB

GPIO

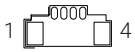
Connector location: GPIO



Pin	Definition
1	+5V
2	GND
3	GPO0
4	GPO1
5	GPO2
6	GPO3
7	GPI0
8	GPI1
9	GPI2
10	GPI3

I2C

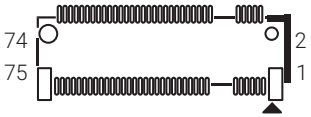
Connector location: I2C



Pin	Definition
1	GND
2	I2C_DAT
3	I2C_CLK
4	+5V

M.2 Key B

Connector form factor: M.2 Key B 3042/3052
Connector location: M2B

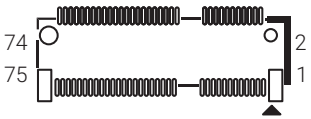


Pin	Definition	Pin	Definition
1	CONFIG3	2	3.3V
3	GND	4	3.3V
5	GND	6	POWER_OFF#
7	USB2_P	8	W_DISABLE1#
9	USB2_N	10	LED#
11	GND		
Key			
		20	PCIe/USB Select Pin
21	CONFIG0	22	NC
23	NC	24	NC
25	NC	26	W_DISABLE2#
27	GND	28	NC
29	USB3_RXN	30	UIM_RESET
31	USB3_RXP	32	UIM_CLK
33	GND	34	UIM_DATA
35	USB3_TXN	36	UIM_PWR
37	USB3_TXP	38	NC
39	GND	40	NC

Pin	Definition	Pin	Definition
41	PCIE_RXN	42	NC
43	PCIE_RXP	44	NC
45	GND	46	NC
47	PCIE_TXN	48	NC
49	PCIE_TXP	50	PCIE_RST# (3.3V)
51	GND	52	PCIE_CLKREQ#
53	REFCLKN	54	PCIE_WAKE#
55	REFCLKP	56	NC
57	GND	58	NC
59	NC	60	NC
61	NC	62	NC
63	NC	64	NC
65	NC	66	NC
67	LTE_RST# (1.8V)	68	SUS_CLK
69	CONFIG1	70	3.3V
71	GND	72	3.3V
73	GND	74	3.3V
75	CONFIG2		

M.2 Key E

Connector form factor: M.2 Key E 2230
Connector location: M2B

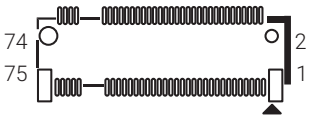


Pin	Definition	Pin	Definition
1	GND	2	3.3V_1
3	USB_D+	4	3.3V_2
5	USB_D-	6	LED1#
7	GND2	8	PCM_CLK
9	SDIO_CLK	10	PCM_SYNC
11	SDIO_CMD	12	PCM_IN
13	SDIO_DATA0	14	PCM_OUT
15	SDIO_DATA1	16	LED2#
17	SDIO_DATA2	18	GND3
19	SDIO_DATA3	20	UART_WAKE#
21	SDIO_WAKE#	22	UART_RXD
23	SDIO_RESET#		
Key			
		32	UART_TXD
33	GND4	34	UART_CTS
35	PETP0	36	UART_RTS
37	PETN0	38	RESERVED_1
39	GND5	40	RESERVED_2

Pin	Definition	Pin	Definition
41	PERP0	42	RESERVED_3
43	PERN0	44	COEX3
45	GND6	46	COEX2
47	REFCLKP0	48	COEX1
49	REFCLKN0	50	SUSCLK
51	GND7	52	PERST0#
53	CLKREQ0#	54	W_DISABLE2#
55	PEWAKE0#	56	W_DISABLE1#
57	GND8	58	I2C_DATA
59	PETP1	60	I2C_CLK
61	PETN1	62	ALERT#
63	GND9	64	RESERVED
65	PERP1	66	UIM_SWP
67	PERN1	68	UIM_POWER_SNK
69	GND10	70	UIM_POWER_SRC
71	PEFCLKP1	72	3.3V_3
73	PEFCLKN1	74	3.3V_4
75	GND11		

M.2 Key M

Connector form factor: M.2 Key M 2280
Connector location: M2B

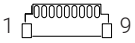


Pin	Definition	Pin	Definition
1	GND	2	VCC3
3	GND	4	VCC3
5	PCIE_RX3N	6	NC
7	PCIE_RX3P	8	NC
9	GND	10	LED#
11	PCIE_TX3N	12	VCC3
13	PCIE_TX3P	14	VCC3
15	GND	16	VCC3
17	PCIE_RX2N	18	VCC3
19	PCIE_RX2P	20	NC
21	GND	22	NC
23	PCIE_TX2N	24	NC
25	PCIE_TX2P	26	NC
27	GND	28	NC
29	PCIE_RX1N	30	NC
31	PCIE_RX1P	32	NC
33	GND	34	NC
35	PCIE_TX1N	36	NC

Pin	Definition	Pin	Definition
37	PCIE_TX1P	38	DEVSLP
39	GND	40	NC
41	SATA_RXP (PCIE_RX0P)	42	NC
43	SATA_RXN (PCIE_RX0N)	44	NC
45	GND	46	NC
47	SATA_TXN (PCIE_TX0N)	48	NC
49	SATA_TXP (PCIE_TX0P)	50	PERST#
51	GND	52	PECLKREQ#
53	REFCLKN	54	PEWAKE#
55	REFCLKP	56	NC
57	GND	58	NC
Key			
67	NC	68	SUSCLK
69	PEDET	70	VCC3
71	GND	72	VCC3
73	GND	74	VCC3
75	GND		

Audio

Connector application: Mic in, Speaker out
Connector location: MIC



Pin	Definition
1	SURR_OUT_R
2	SURR_JD
3	AGND
4	SURR_OUT_L
5	AGND
6	MIC_IN_R
7	MIC_JD
8	MIC_IN_L
9	AGND

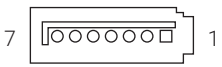
System Power Button 2

Connector location: PWR_SW2

Pin	Definition
1	GND
2	PWRBTN#

SATA

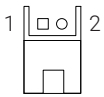
Connector location: SATA, SATA2



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

SATA Power

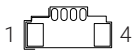
Connector location: SATA_PWR1, SATA_PWR2



Pin	Definition
1	+5V
2	GND

Internal Speaker with Audio Amplifier

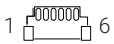
Connector location: SPK



Pin	Definition
1	L+
2	L-
3	R+
4	R-

USB 2.0 (2 Ports)

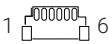
Connector location: USB2_112P



Pin	Definition
1	GND
2	USB_A-
3	USB_A+
4	USB_B-
5	USB_B+
6	+5V

USB 2.0 (2 Ports)

Connector location: USB2_78P



Pin	Definition
1	GND
2	USB_A-
3	USB_A+
4	USB_B-
5	USB_B+
6	+5V

Chapter 3: System Setup

- The expansion modules mentioned in this chapter are foolproof and can only be installed in one direction. If you encounter difficulty, try reversing the module's orientation and avoid using force to prevent damage.
- While the images in this chapter may vary, the features and functionalities described remain the same.
- All the thermal pads mentioned and used in this chapter are covered with protective films on both sides. The film colors may vary depending on the shipment, but this does not affect the adhesion to the module. Either side of the thermal pad can be applied to the module.
- It is recommended to use a PH0 screwdriver when loosening or securing screws (spec: I HEAD SCREW LONG FEI M2x4mm ISO NI) on M.2 peripherals, such as storage, Wi-Fi, or mobile network modules.
- The images shown in this chapter use the NDiS B562-Q. For other models in the same series, the installation procedures remain the same.

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.

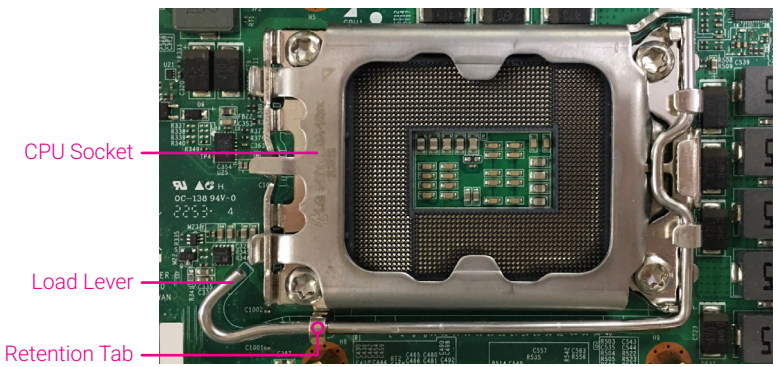
Removing the Chassis Cover

- To install the memory or expansion modules, refer to the following images to locate and remove the screws on both the front and rear panels. Then, take apart the top cover. Remove the screws and place them in a safe location for later use.

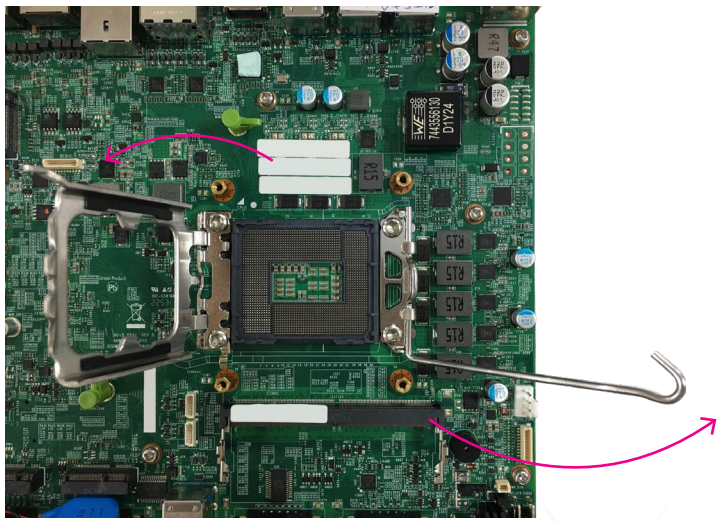
Installing a CPU

Note that the main board shown in this section may differ, but the CPU installation remains the same.

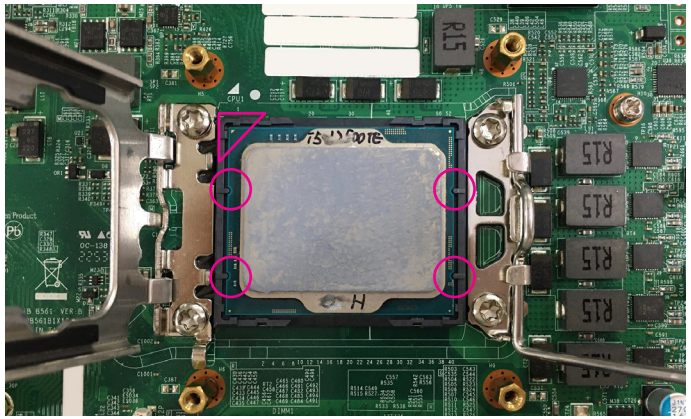
1. When the chassis top cover is removed, locate the CPU socket on the board. Unlock the socket by pressing the load lever down and moving it sideways until it is released from the retention tab.



2. Lift the load lever up to open the CPU retention bracket.



3. Insert the CPU into the socket. The triangular edge (◸) on the CPU must align with the corner of the CPU socket shown in the photo. The CPU's notch will at the same time fit into the socket's alignment key (○).



CAUTION!

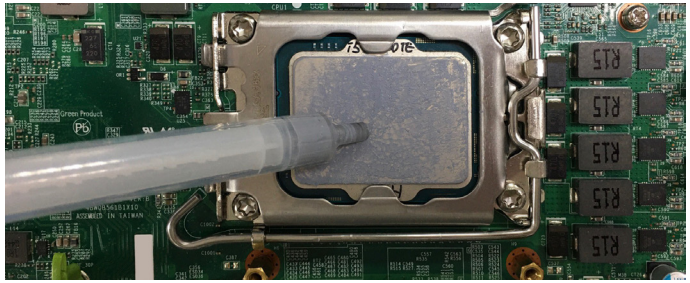
1. Handle the CPU by its edges and avoid touching the pins.
2. The CPU will fit only in one orientation and can easily be inserted without exerting any force.

4. With the CPU installed, close the retention bracket and then hook the load lever under the retention tab.

CAUTION!

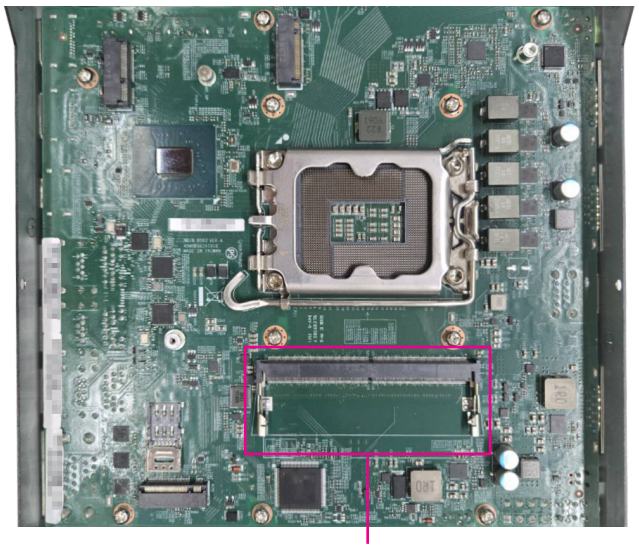
Do not force the CPU into the socket. Forcing the CPU into the socket may bend the pins and damage the CPU.

5. Applying thermal paste before assembling the heatsink to ensure proper heat transfer between the CPU and the heatsink.



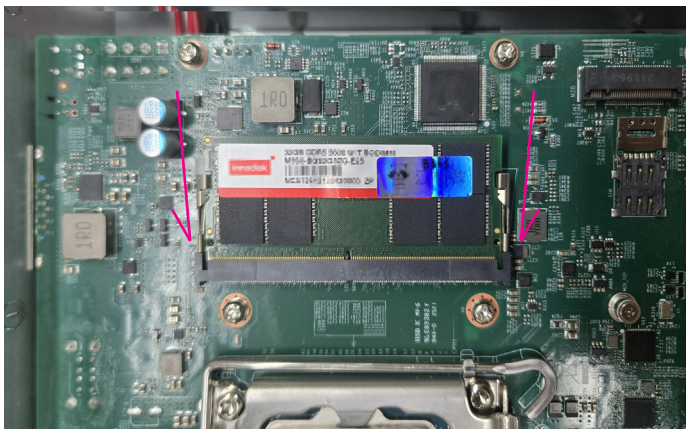
Installing a SO-DIMM (DIMM1)

1. Locate the SO-DIMM socket on the board.

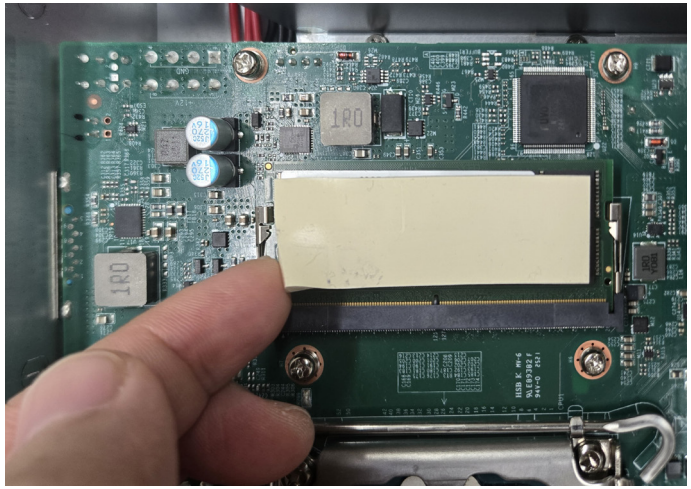


This motherboard supports two memory SO-DIMM sockets. Install the memory into DIMM 2 if only one module is required. It is recommended to use memory of the same capacity, brand, speed, and chip type for optimal performance and stability when two modules are installed.

2. Insert the module into the socket the an approximately 30 degrees angle. The ejector tabs at the ends of the socket will automatically snap into the locked position to hold the module in place.



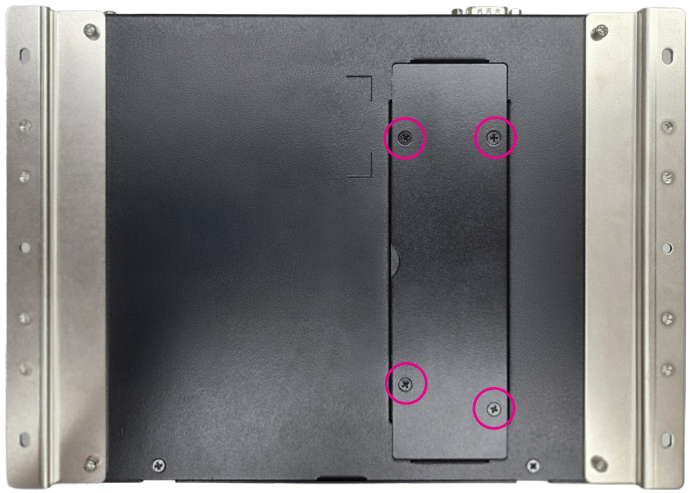
3. Peel off the film on one side of the thermal pad and attach it to the top of the memory module.



4. Peel off the film from the other side of the thermal pad once the thermal pad is applied to the module properly.

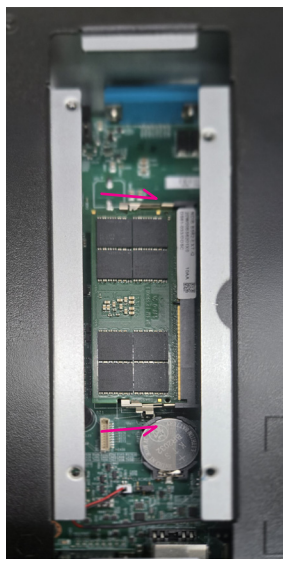
Installing a SO-DIMM (DIMM2)

1. Loosen the four screws on the SO-DIMM cover at the bottom of the chassis, then remove the cover.



This motherboard supports two memory SO-DIMM sockets. Install the memory into DIMM 2 if only one module is required. It is recommended to use memory of the same capacity, brand, speed, and chip type for optimal performance and stability when two modules are installed.

2. Insert the module into the socket at an approximately 30 degrees angle. The ejector tabs at the ends of the socket will automatically snap into the locked position, holding the module in place. Then peel off the film and attach the thermal pad to the cover facing the memory module. Peel off the film from the other side of the thermal pad once the pad has been properly applied to the cover.

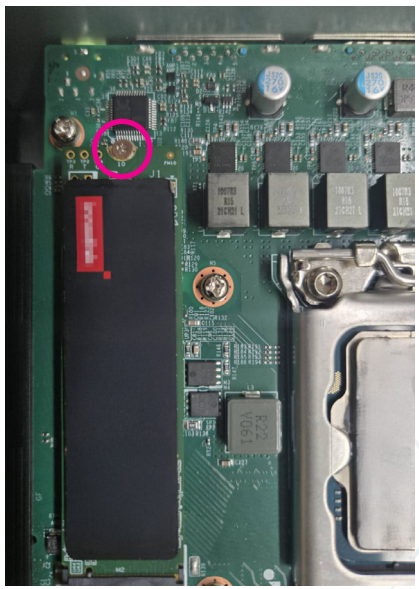


3. Refer to step 1 to secure the SO-DIMM cover back in place using the screws.

Installing a M.2 Storage Module

1. Locate the M.2 2280 Key M slot and remove the screw.

2. Insert the M.2 module into the M.2 slot at a 45-degree angle until the gold-plated connector on the edge of the module completely disappears into the slot. Then secure the M.2 module with the screw removed in step 1.

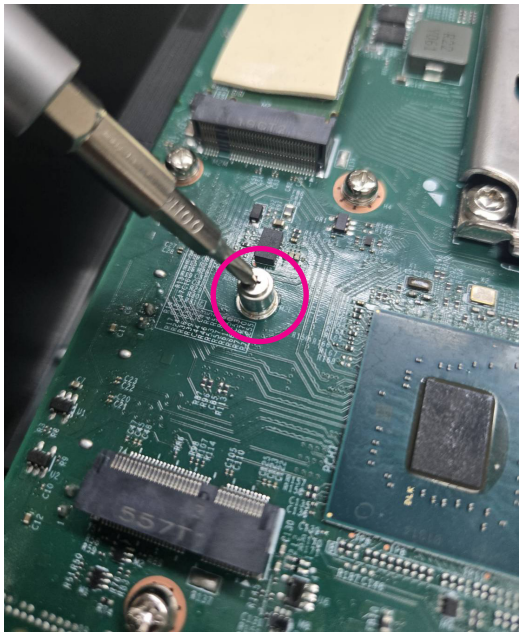


3. Peel off the film on one side of the thermal pad and attach it to the top of the module.

4. Peel off the film from the other side of the thermal pad once the pad has been properly applied to the module.

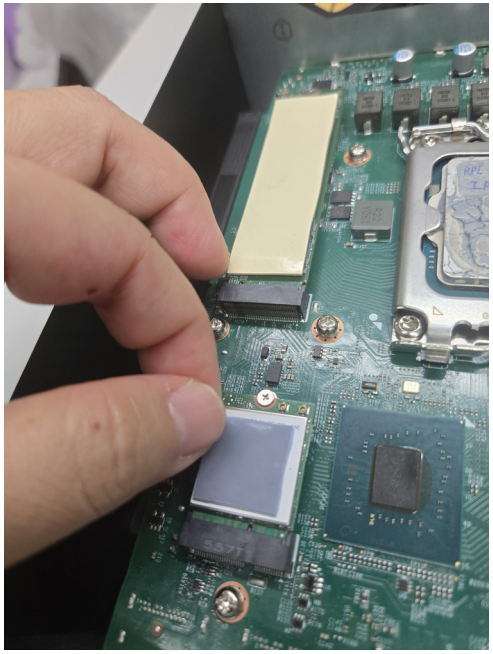
Installing a M.2 W-iFi Module (Key E 2230)

1. Locate the M.2 Key E slot on the motherboard and remove the screw.



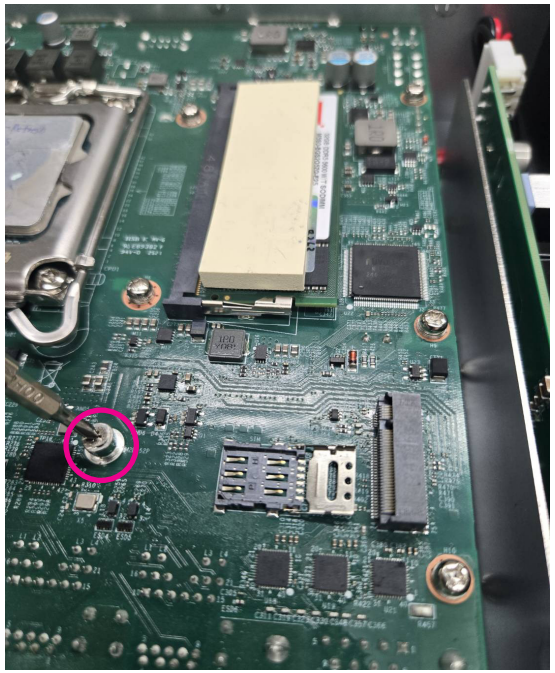
2. Insert the Wi-Fi module into the M.2 Key E slot at a 45-degree angle until the gold-plated connector on the edge of the module completely disappears into the slot. Then secure the M.2 module with the screw removed in step 1.

3. Peel off the film on one side of the thermal pad and attach it to the top of the module. Then peel off the film from the other side of the thermal pad once the pad has been properly applied to the module.

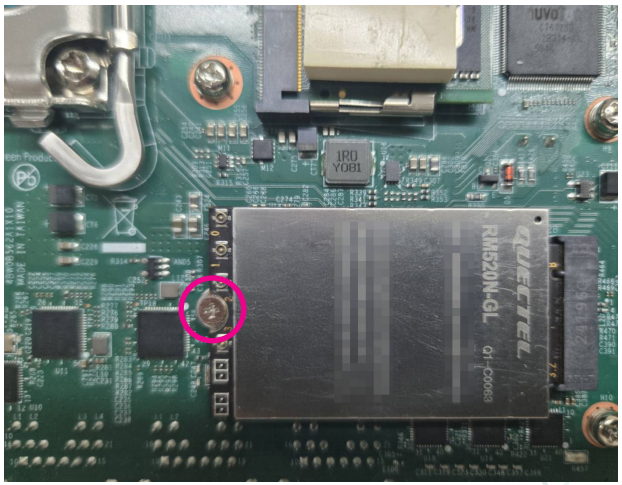


Installing a M.2 Mobile Network Module (Key B 3052)

1. Locate the M.2 Key E slot on the motherboard and remove the screw.



2. Insert the mobile network module into the M.2 Key B slot at a 45-degree angle until the gold-plated connector on the edge of the module completely disappears into the slot. Then secure the M.2 module with the screw removed in step 1.



To enable cellular/mobile network functionality, ensure the SIM card is properly inserted into the SIM slot located beneath the network module.

3. Peel off the film on one side of the thermal pad and attach it to the top of the module. Then peel off the film from the other side of the thermal pad once the pad has been properly applied to the module.

Installing the DockInfinity (Optional)

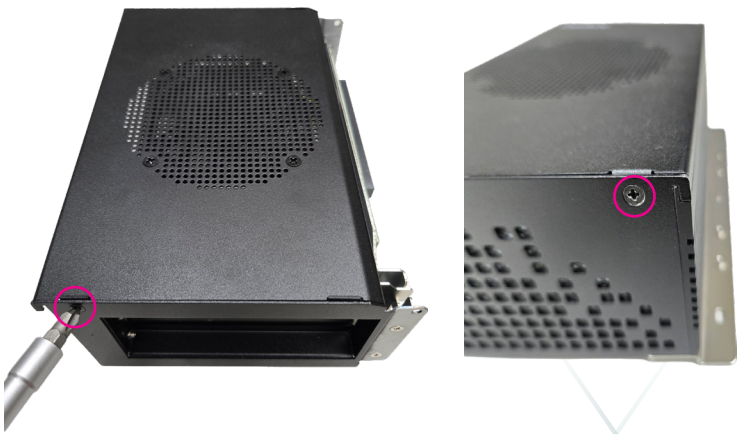
There are three types of DockInfinity Expansion kits available for the host system. Users may select the appropriate dock based on their specific requirements:

- PCIe x16: Provides one PCIe x16 slot for high-bandwidth expansion.
- Dual PCIe x8: Provides two PCIe x8 slots for flexible expansion.
- Dual SATA : Provides two SATA ports for storage expansion.

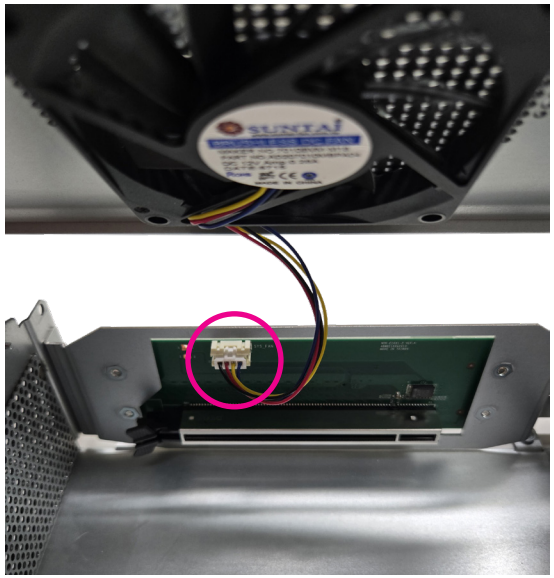
PCIe Expansion Kit

The following description and installation steps apply to both the 1x16 and 2x8 PCIe Expansion Kits

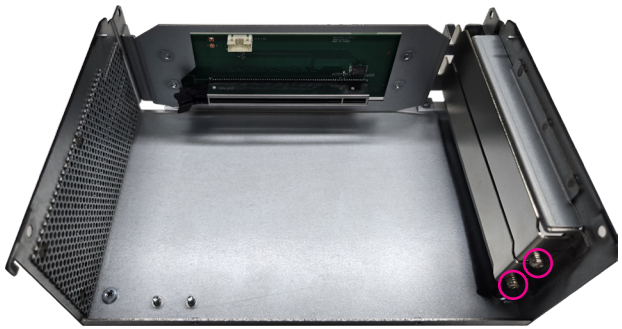
1. Remove the screws from the front and rear DockInfinity covers.



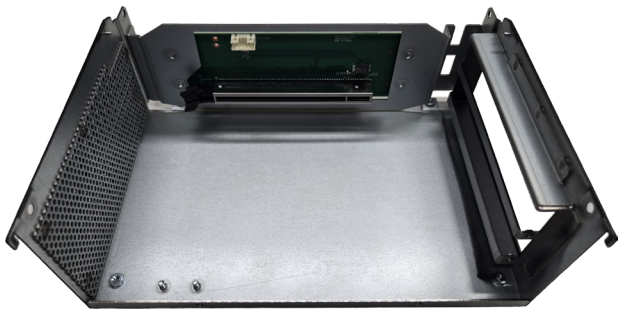
2. Open the top cover and unplug the fan connector from the PCB, then place the top cover nearby.



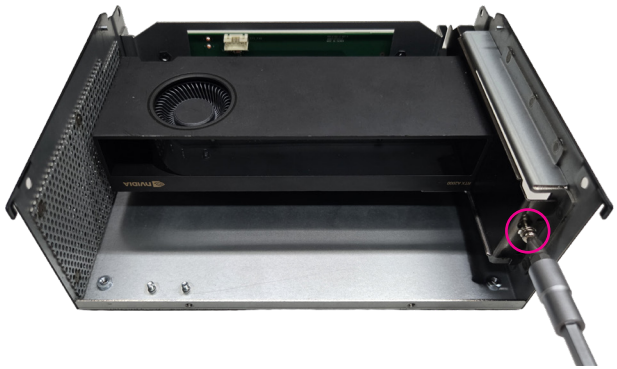
3. Remove the screw(s) and bracket(s) from the DockInfinity, depending on how much space is occupied by the graphics card.



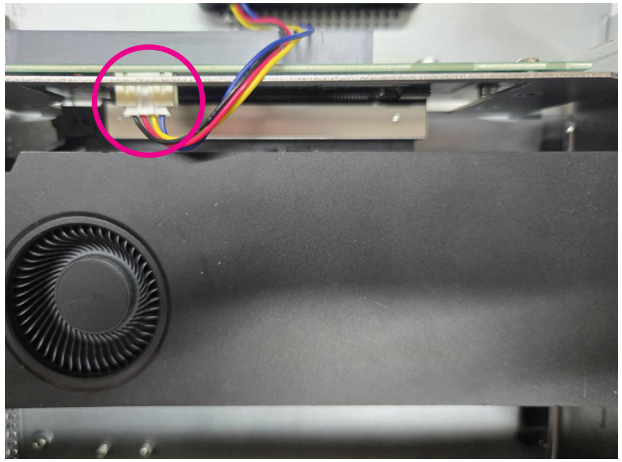
4. Once removed, it should look like the image below.



5. Install the graphics card into the PCIe slot on the DockInfinity PCB and then secure it with the screw(s).



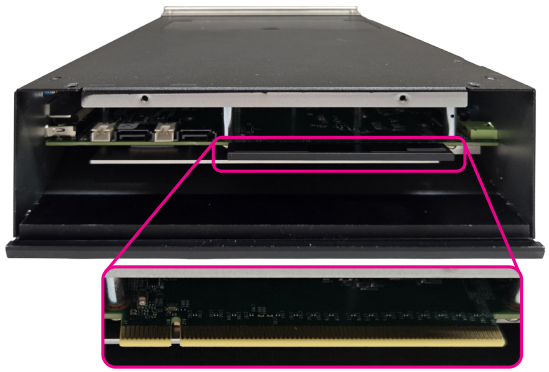
6. Plug the fan connector back into the PCB.



7. Put the top cover back and secure it with the screws, referring to step 1 for their location.

8. Loosen the screws on the NDiS B562 to remove the wall-mount bracket on the bottom side and the chassis side panel, then retain both components for future reassembly.

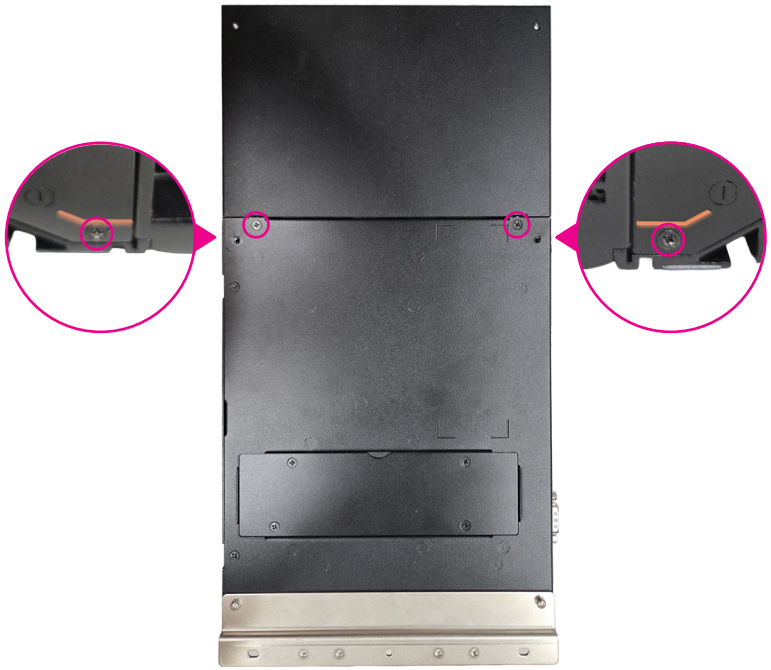
9. Remove the protective shield from the golden finger on the main board.



10. Remove the screws indicated below.

11. Assemble the NDiS B562 and the DockInfinity firmly.

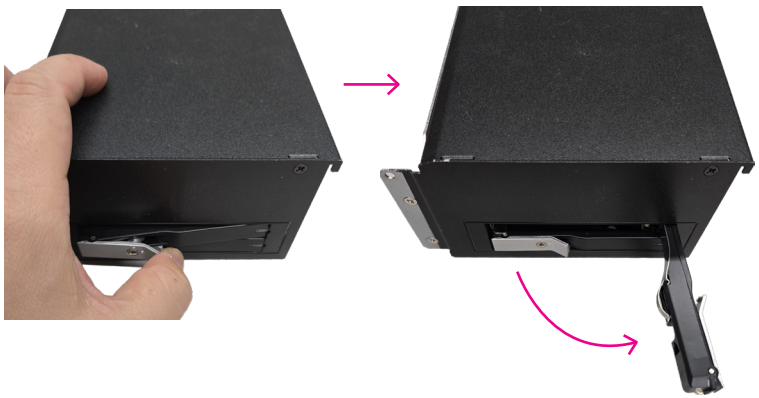
12. Secure both chassis using the screw locations indicated below.



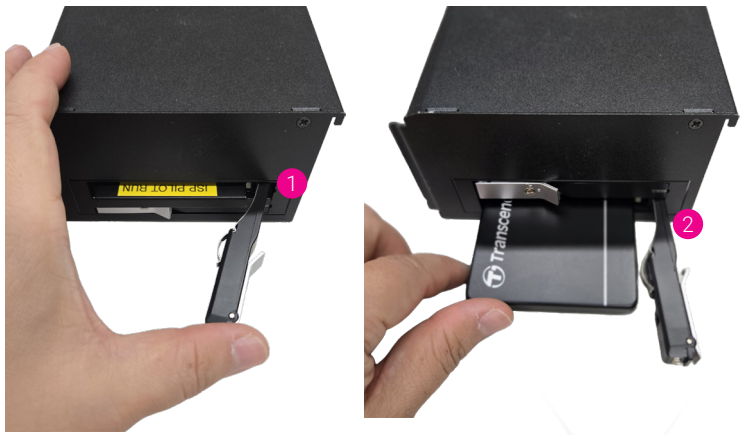
13. Refer to the images below to reassemble the side panel and wall-mount bracket removed in step 8 using a screwdriver.

SATA Expansion Kit

1. Release the latch by using your finger.



2. Insert the SATA peripheral directly into the slot, then push the latch back to its original location. Repeat the previous step to install the second SATA peripheral if necessary.

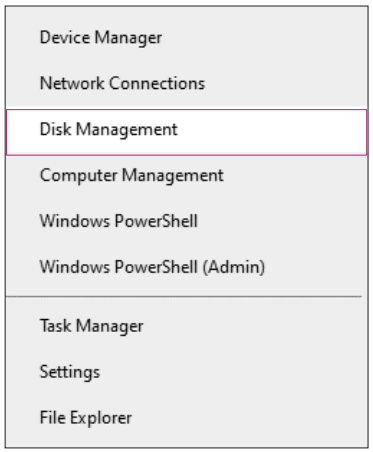


3. Connect the SATA and SATA power cables to the NDiS main board. Note that two power cables and two SATA cables must be connected if two SATA peripherals are installed.

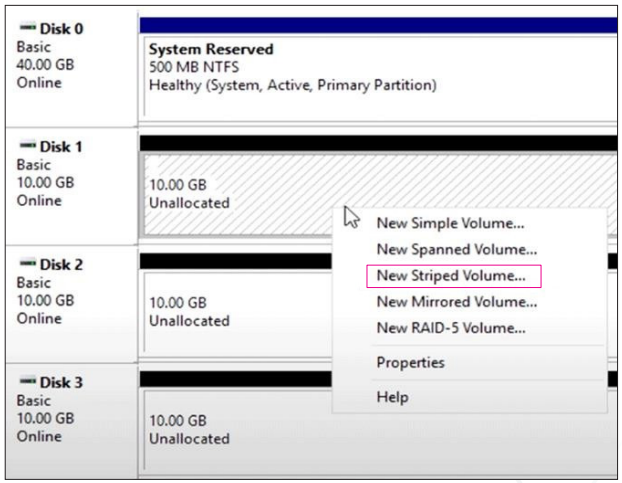
4. Refer to the previous section for instructions on assembling the expansion kit to the NDiS B562. Although the functionality of these expansion kits differs, the assembly process is similar.

RAID Configuration

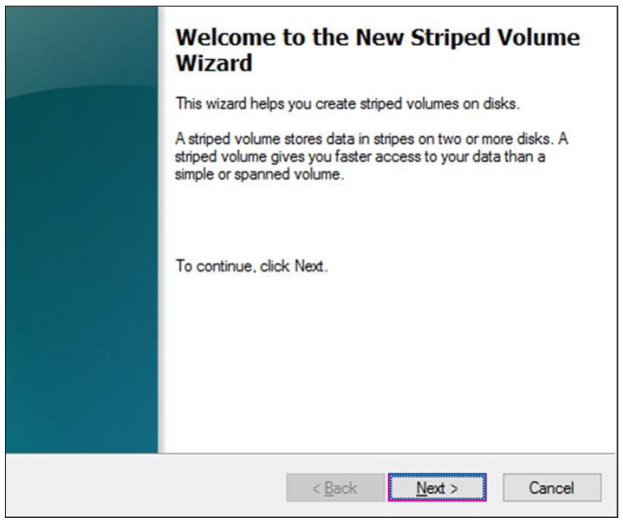
1. Right-click **Start** to open the menu, then select **Disk Management** on the Windows operating system.



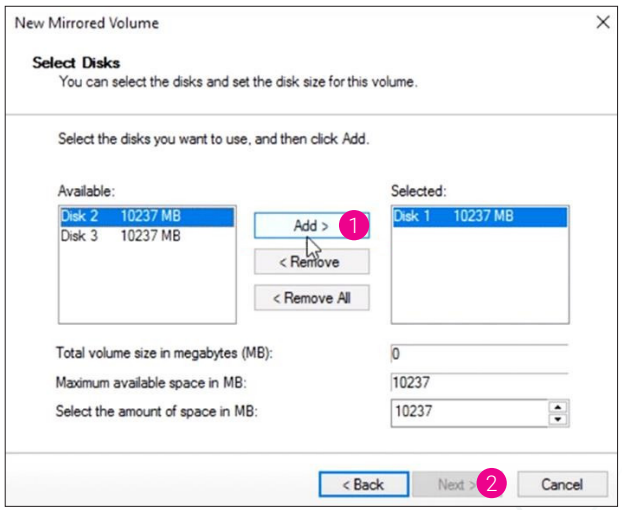
2. Right-click in the **Disk Management** window and select **New Striped Volume** (Striped = RAID 0).



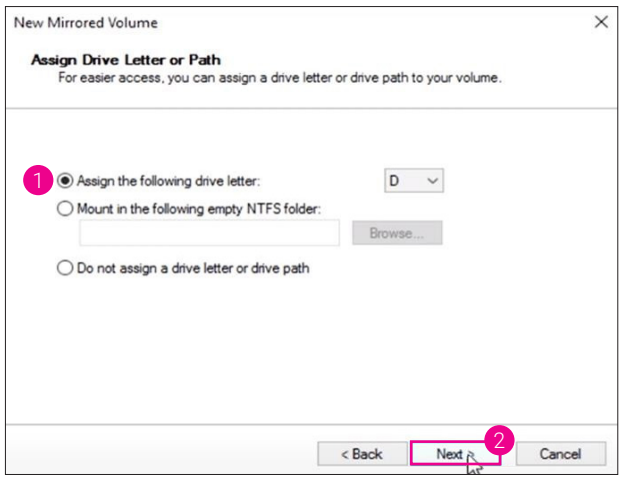
3. Once the previous option is selected, the **New Striped Volume Wizard** will launch. Click **Next** to continue.



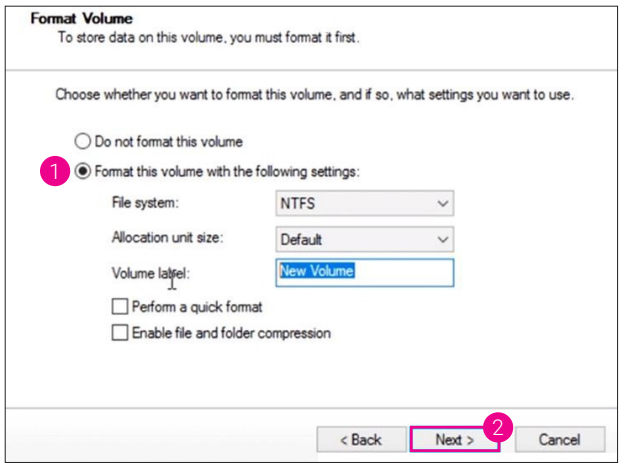
4. Select the drives you would like to add to RAID 0 in the left pane, then click **Add** (1). Once all the disks you want are added, click **Next** (2).



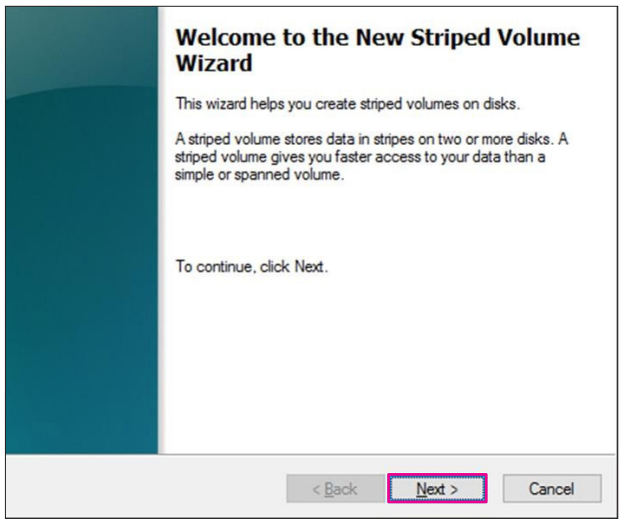
5. Assign a drive letter to the array by choosing one from the list (1). (The letter is set automatically, so you may leave it as suggested by the wizard.) Click **Next** (2) to continue.



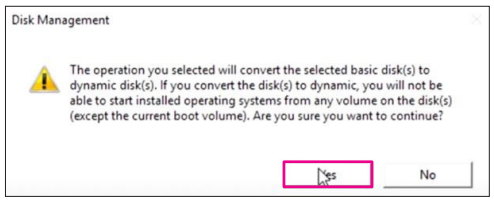
6. Select the file system (1) for the new stripe. Choose **NTFS** and click **Next** (2).



7. Review the settings. If there are no further concerns, click **Finish**.



8. A warning message will appear stating that the selected disks will be converted to dynamic disks and that all existing information will be erased. Click **Yes** to proceed.



9. The system will begin formatting and synchronizing the disks. Once this process is complete, the RAID 0 array will be created.

Chapter 4: BIOS Setup

This chapter describes how to use the BIOS setup program for the NDiS B562. The BIOS screens provided in this chapter are for reference only and may change if the BIOS is updated in the future.

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

About BIOS Setup

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

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

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

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

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

When to Configure the BIOS

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

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

Default Configuration

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

Entering Setup

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

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

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

Press the 

key to enter Setup:

Legends

Key	Function
	Moves the highlight left or right to select a menu.
	Moves the highlight up or down between sub¬menus or fields.

Exits the BIOS Setup Utility.

Scrolls forward through the values or options of the highlighted field.

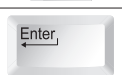
Scrolls backward through the values or options of the highlighted field.

Selects a field.

Displays General Help.

Load previous values.

Load optimized default values.

Saves and exits the Setup program.

Press <Enter> to enter the highlighted sub¬menu

Scroll Bar

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

Submenu

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

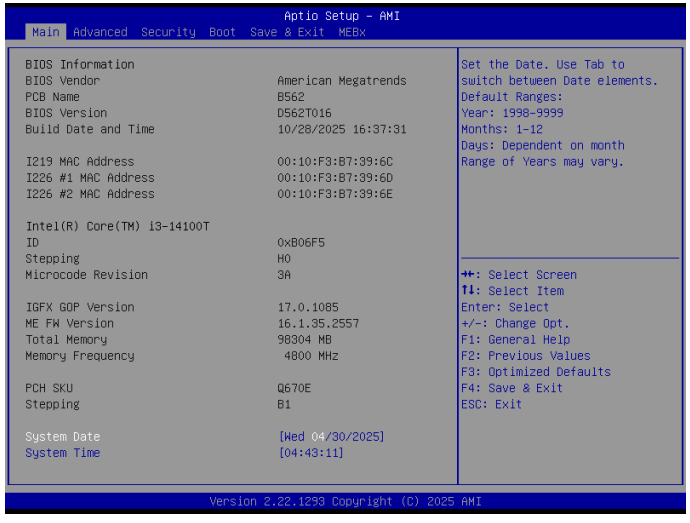
.

BIOS Setup Utility

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

Main

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



System Date

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

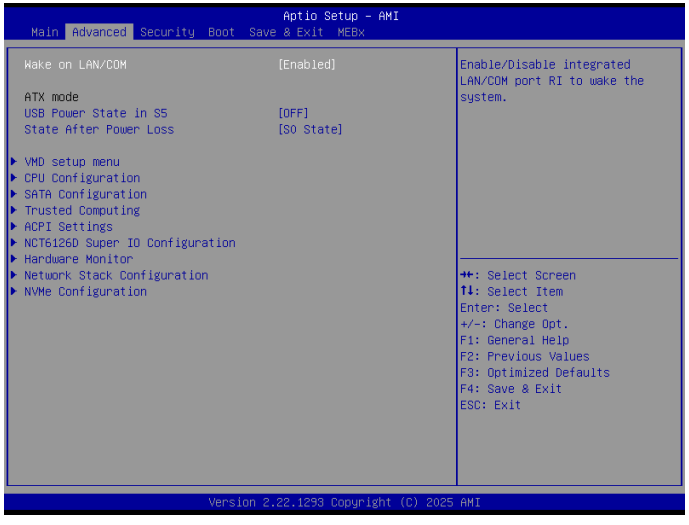
System Time

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

Advanced

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

Setting incorrect field values may cause the system to malfunction.



Wake on LAN/COM

Enable or disable the integrated LAN/COM to wake the system.

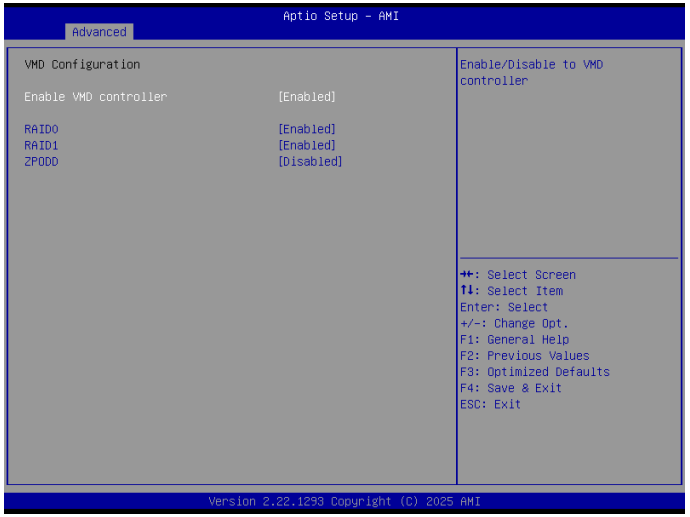
USB Power State in S5

Configure the USB power state in S5.

State After Power Loss

Specify what state to go to when power is re-applied after a power failure (G3 state).

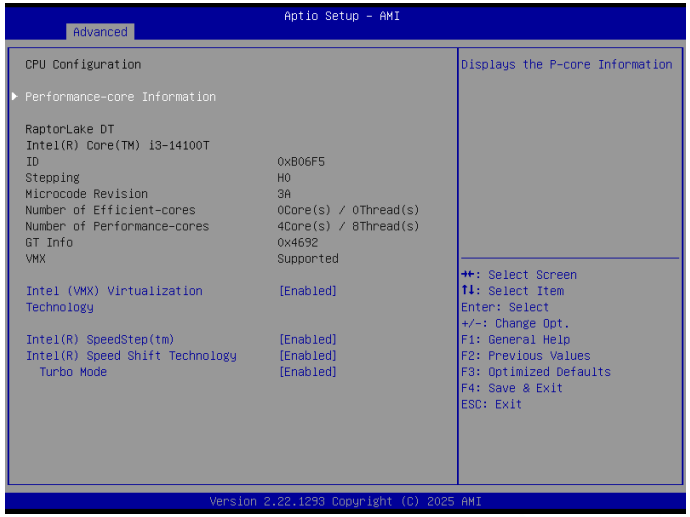
VMD Configuration



Enable VMD controller
Enable or disable to VMD controller.

RAID0/RAID1/ZP0DD
Enable or disable the feature of RAID0/RAID1/ZP0DD.

CPU Configuration



Performance-core Information
Press to display the P-core information.

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

Intel® SpeedStep(tm)
Enable or disable Intel SpeedStep.

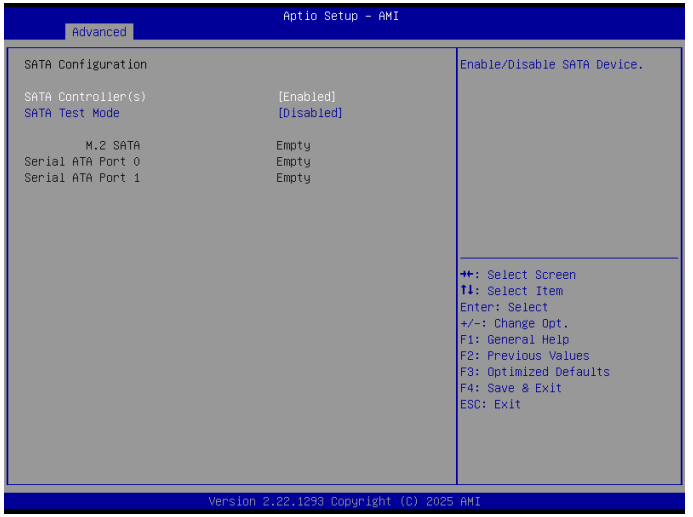
Intel® Speed Shift Technology

Enable or disable Intel Speed Shift Technology support. Enabling it will expose the CPPC v2 interface to allow hardware controlled P-states.

Turbo Mode

Enable or disable turbo mode.

SATA Configuration



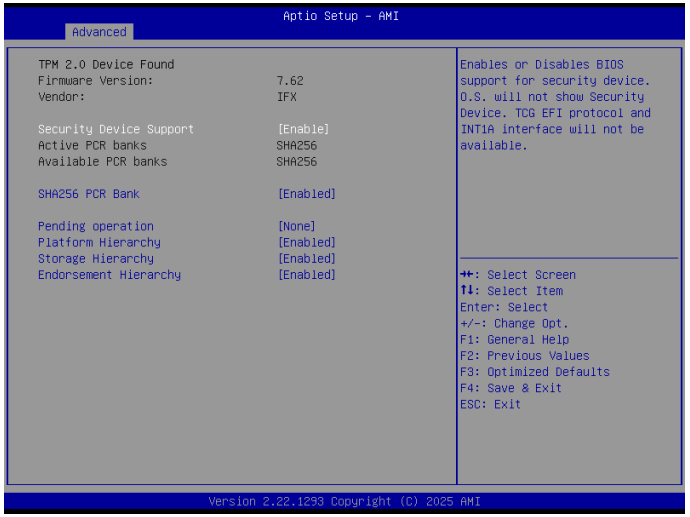
SATA Controller(s)

Enable or disable SATA device.

SATA Test Mode

Enable or disable SATA test mode.

Trusted Computing



Security Device Support
Enable or disable BIOS support for security device. O.S. will not show security device. TCG EFI protocol and INT1A interface will not be available.

SHA256 PCR Bank
Enable or disable SHA256 PCR Bank.

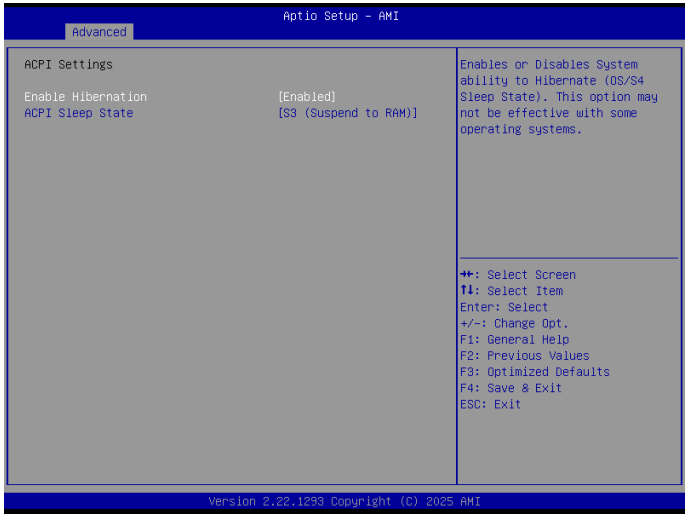
Pending operation
Schedule an operation for the security device.

Platform Hierarchy
Enable or disable platform hierarchy.

Storage Hierarchy
Enable or disable storage hierarchy.

Endorsement Hierarchy
Enable or disable endorsement hierarchy

ACPI Settings



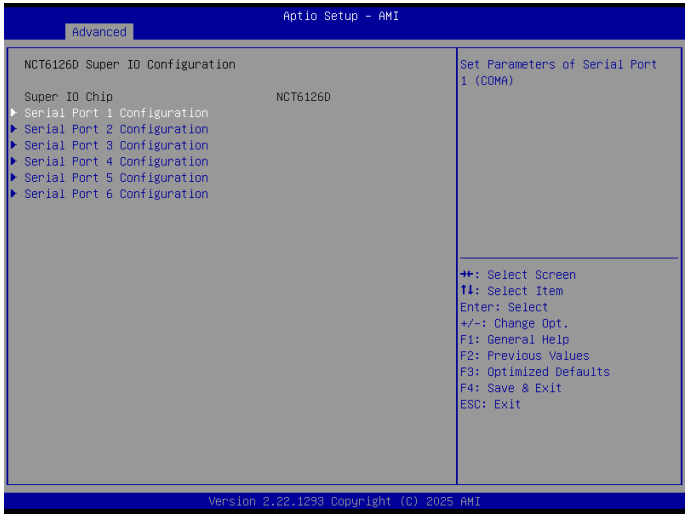
Enable Hibernation

Enable or disable system ability to hibernate (OS/S4 Sleep State). This option may not be effective with some operating systems.

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).

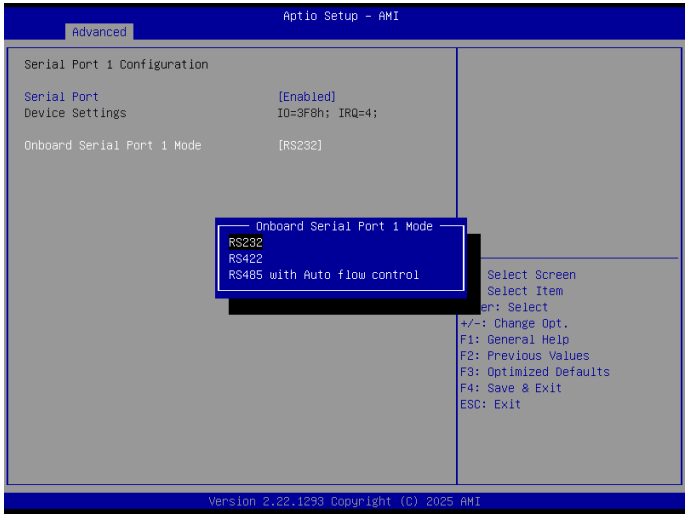
NCT6126D Super IO Configuration



Serial Port 1~6 Configuration

Press <Enter> to open each submenu.

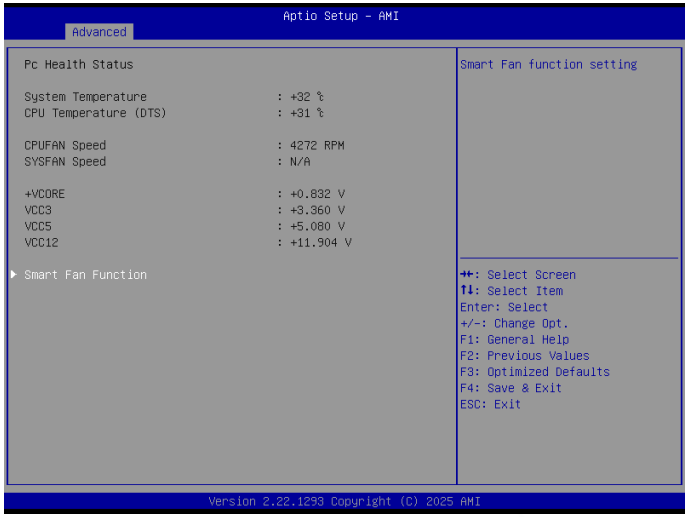
Serial Port 1~6 Configuration



Serial Port
Enable or disable the serial port.

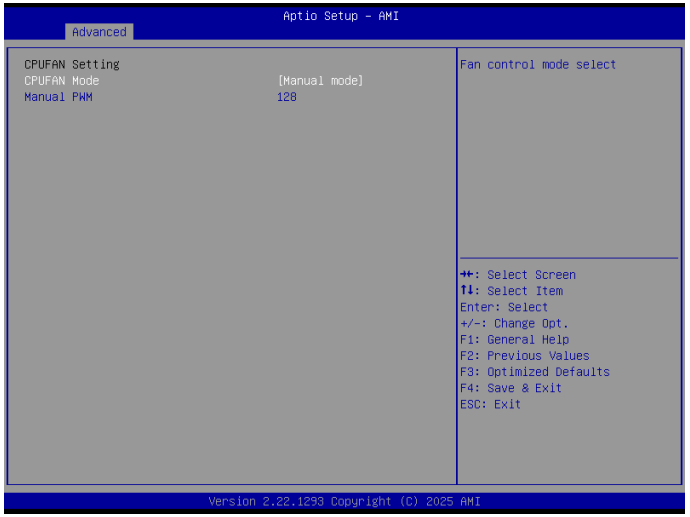
Onboard Serial 1(~6) Port Mode
Select this to change the serial port mode to RS-232, RS-422, or RS-485.

Hardware Monitor



Smart Fan Function
Press <Enter> to open the submenu.

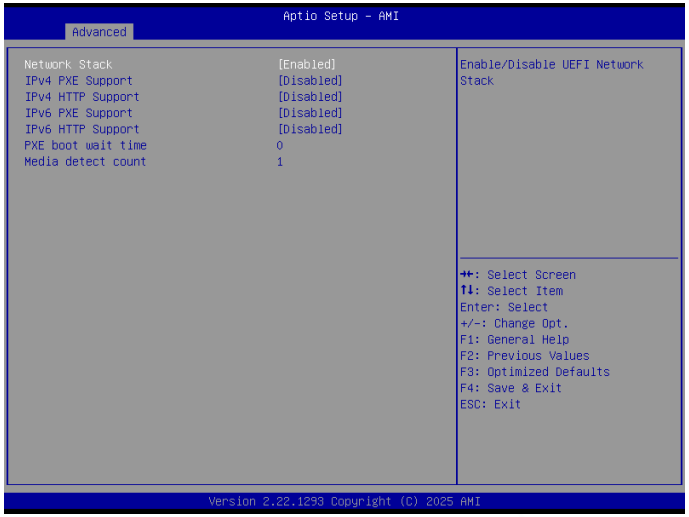
Smart Fan Function



CPUFAN Mode
Select fan control mode.

Manual PWM
Configure the fan speed manually when the fan mode is set to Manual mode.

Network Stack Configuration



Network Stack
Enable or disable UEFI network stack.

IPv4 PXE Support
Enable or disable IPv4 PXE support. If disabled, the IPv4 boot option will not be created.

IPv4 HTTP Support
Enable or disable IPv4 HTTP support. If disabled, the IPv4 boot option will not be created.

IPv6 PXE Support
Enable or disable IPv6 PXE support. If disabled, the IPv6 boot option will not be created.

Ipv6 HTTP Support
Enable or disable IPv6 HTTP support. If disabled, the IPv6 boot option will not be created.

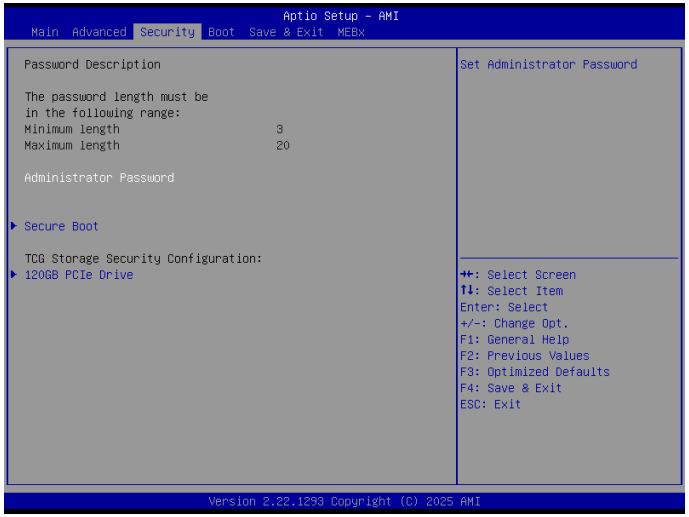
PXE boot wait time
Wait time in seconds tp press ESC key to abort the PXE boot. Use either +/- or numeric keys to set the value.

Media detect count
Number of times presence of media will be checked. Use either +/- or numeric keys to set the value.

NVMe Configuration

When an NVMe device is plugged in, press <Enter> to open the submenu and view detailed information about the device.

Security

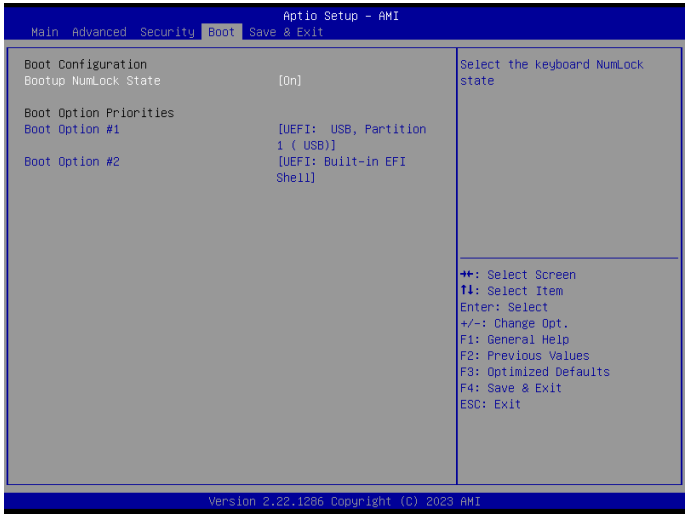


Administrator Password
Select this to configure the administrator's password.

Secure Boot
Press <Enter> to open the submenu.

TCG Storage Security Configuration
Configure the TCG storage security. The item shown here depends on the storage device you have connected.

Boot



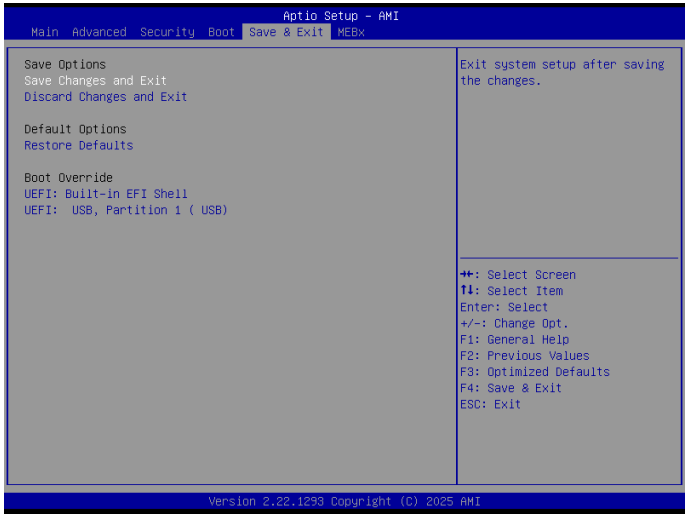
Bootup NumLock State

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

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

Save & Exit



Save Changes and Exit

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

Discard Changes and Exit

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

Restore Defaults

To restore the BIOS to default settings, select this field then press <Enter>. A dialog box will appear. Confirm it 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: NCT6126D WatchDog Programming Guide

NDiS B561S 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.

```
#define SUPERIO_PORT    0x2E
#define WDT_SET         0xF0
#define WDT_VALUE 0xF1


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

  # Set LDN
        outportb(SUPERIO_PORT, 0x07);
        outportb(SUPERIO_PORT+1 ,0x08);

  # Set WDT setting
        outportb(SUPERIO_PORT, WDT_SET);
        outportb(SUPERIO_PORT+1, 0x00);         # Use the second
# Use the minute, change value to 0x08
  # Set WDT sec/min
        outportb(SUPERIO_PORT, WDT_VALUE);
        outportb(SUPERIO_PORT+1, 0x05);         #Set 5 seconds
}
```