GreenBase®

NEXCOM International Co., Ltd.

Intelligent Digital Security

Video Intelligent Surveillance

NViS 6712

User Manual

NEXCOM International Co., Ltd.
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Contents

Preface

Copyright iv
Disclaimer iv
Acknowledgements iv
Regulatory Compliance Statements iv
Declaration of Conformity iv
RoHS Compliance v
Warranty and RMA vi
Safety Information viii
Installation Recommendations viii
Safety Precautions ix
Technical Support and Assistance xi
Conventions Used in this Manual xi
Global Service Contact Information xii
Package Contents xiv
Ordering Information xiv

Chapter 1: Product Introduction

Product Overview 1
  Key Features 1
Hardware Specifications 2
Physical Appearance 3
Mechanical Dimensions 5

Chapter 2: Jumpers and Connectors

Before You Begin 6
Precautions 6
Jumper Settings 7
System Main Motherboard Overview 8
  Location of Jumpers and Connectors on the Main Motherboard 8
  External I/O Interfaces 9
  Internal I/O Interfaces 14
  Block Diagram 29

Chapter 3: System Setup

Removing the Chassis Cover 30
Installing SO-DIMM Memory Modules 33
Installing a CPU 35
Installing a CPU Cooler 37
Installing an M.2 Module (Key M 2280) 41
Installing an M.2 Module (Key B 2242) 43
Installing 3.5” HDD Device(s) 45
Removing 3.5” HDD Device(s) 47
Installing an Add-On Card 49
Reassembling the Chassis 54

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Chapter 4: BIOS Setup

About BIOS Setup 55
When to Configure the BIOS 55
Default Configuration 56
Entering Setup 56
Legends 56
BIOS Setup Utility 57
Main 57
Advanced 58
Chipset 69
Security 73
Boot 76
Save & Exit 77
MEBx 78

Appendix A: Intel AMT Configuration

Appendix B: GPIO Instruction (Optional)

Locating the GPIO Connector 81
Understanding GPIO Pin Definitions 81
ISO GPIO 4in_2out Block Diagram 82
Installing GPIO SDK 83
Basic Configuration 85

Appendix C: RAID Configuration

Appendix D: Installing the System in a Rack

For Racks with a Depth Between 600~800mm 90
Outer Sliding Rail Installation 90
Inner Sliding Rail Installation 93
System Installation on Rack 94
For Racks with a Depth Over 800~1000mm 95
Outer Sliding Rail Installation 95
Inner Sliding Rail Installation and Detachment 98
System Installation on Rack 100

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PREFACE

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Acknowledgements

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Regulatory Compliance Statements

This section provides the FCC compliance statement for Class B devices and describes how to keep the system CE compliant, and provides the HDMI® compliance statement.

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.

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HDMI®

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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.

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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.

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.

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- 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.

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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.

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

18. The unit uses a three-wire ground cable which is equipped with a third pin to ground the unit and prevent electric shock.

19. CAUTION: Risk of explosion if the battery is replaced by an incorrect type.

    ATTENTION: Risque d'explosion si la batterie est remplacée par un type incorrect. Mettre au rebus les batteries usagées selon les instructions.

20. This equipment is not suitable for use in locations where children are likely to be present.

    Cet équipement ne convient pas à une utilisation dans des lieux pouvant accueillir des enfants.

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21. Suitable for installation in Information Technology Rooms in accordance with Article 645 of the National Electrical Code and NFPA 75.

    Peut être installé dans des salles de matériel de traitement de l'information conformément à l'article 645 du National Electrical Code et à la NFPA 75.

22. GPIO (optional): The Relay for GPIO port only suitable for connecting to ES1/SELV and PS2/LPS circuits with available power less than 100 VA.

    Le relais pour port GPIO convient uniquement à la connexion aux circuits ES1/SELV et PS2/LPS avec une puissance disponible inférieure à 100 VA.

23. Rackmount rails (optional):
    Element 2: Warning Stability hazard.
    Element 3: The rack may tip over causing serious personal injury.
    Element 4: Before extending the rack to the installation position, read the installation instructions.
    Do not put any load on the slide-rail mounted equipment in the installation position.
    Do not leave the slide-rail mounted equipment in the installation position.

    Élément 2: Avertissement Risque de stabilité.
    Élément 3: Le rack peut basculer, provoquant des blessures graves.
    Élément 4: Avant d'étendre le rack jusqu'à la position d'installation, lisez les instructions d'installation.
    N'exercez aucune charge sur l'équipement monté sur rail coulissant en position d'installation.
    Ne laissez pas l'équipement monté sur glissière en position d'installation.

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Technical Support and Assistance

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

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

Warning!

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

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

3. CompactFlash: Turn off the unit's power before inserting or removing a CompactFlash storage card.

4. The ITE is to be connected only to PoE networks without routing to the outside plant.

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.	Item	Details
1	System	
2	CPU Cooler Box	Box
		CPU Cooler
3	Accessories	Box
		PE Zipper Bag #3
		Flat Head Screw:F6#32Tx5mmNylok NIGP *24pcs
		PCI-E 8Pin to 6Pin+2Pin x2 Cable
4	EPE Top*2pcs	
5	EPE Bottom*2pcs	

Ordering Information

The following provides ordering information.

NViS 6712 (P/N: 10C00671200X0)
2U rack workstation NVR

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Chapter 1: Product Introduction

Product Overview

Front



Rear



Key Features

- System 2U Rackmount
- Intel® Core™ processor (Series 2)
- HDD 12 Bays 3.5”
- 2 x NVMe SSD, 1 x M.2 2242 SATA SSD
- Display DP1.4 x1, HDMI® 2.0b x1, HDMI® 1.4 x1
- DDR5 up to 64GB
- 2 X 2.5GbE Intel® Ethernet
- Audio in/out/Mic
- PCIe x 16

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Hardware Specifications

Processor

- Intel® Core™ processor (Series 2)
- Intel® Core™ Gen 14th/13th/12th

Memory

- 2 x DDR5 SO-DIMM, ECC/Non-ECC support, up to 64G
  - Memory bus with data transfer rates 5600 MT/s (Core 7~9 series) and 4800 MT/s (Core 3~5 series)
  - Support OOB ECC

Chipset

- Intel® R680E

I/O Interface Front

- 12 x Hot swappable 3.5” HDD bay
- 2 x USB 2.0 Type-A (per port output max. 500mA)

I/O Interface Rear

- 4 x USB 3.2, Type-A (per port output max. 900mA)
- 1 x DP 1.4
- 1 x HDMI® 2.0b
- 1 x HDMI® 1.4
- 1 x Audio port (Line in/ Line out/ Mic)
- 2 x 2.5GbE RJ45 port
- 1 x GPIO 4in/2out (optional)

Expansion Slot

- 1 x PCIe 5.0 1 x16 slot
- 1 x PCIe 4.0 1 x16 slot or 2 x8 (optional)

Storage

- 12 x Hot swappable 3.5” HDD, supports up to 26TB
- 2 x M.2 Key M 2280, supports PCIe 4.0 (NVMe)
- 1 x M.2 Key B 2242, supports SATA 3.0

Power Supply

- Single PSU 600W

Mechanical

- 479.4mm (W) x 88mm (H) x 560mm (D)

Environment

- Operating temperature:
  - Ambient with air flow: 0°C~40°C
  - Storage temperature: -20°C~70°C
- Relative humidity: 0%~90% (non-condensing)

Certifications

- CE approval
- FCC Class A
- CB/UL Option

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Physical Appearance

Front Panel



1. **LED Indicator**

   Light up when the system is powered on
   Light up when the hard disk drives are active

2. **Power button**

   Power the system on or off

3. **Reset button**

   Reset the system

4. **Swappable 3.5” HDD Bays**

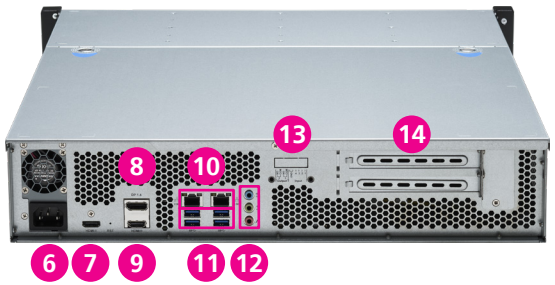
   Connect 3.5” hard disk drives. The HDD bays are equipped with two individual LED indicators that display the HDD status (refer to the circled section in the left image). When the HDD is powered on, one LED ( ) on the HDD tray lights up blue, and the other LED ( ) turns green when the drive is active.

5. **Dual USB 2.0 Ports**

   Connect to USB 2.0 peripherals

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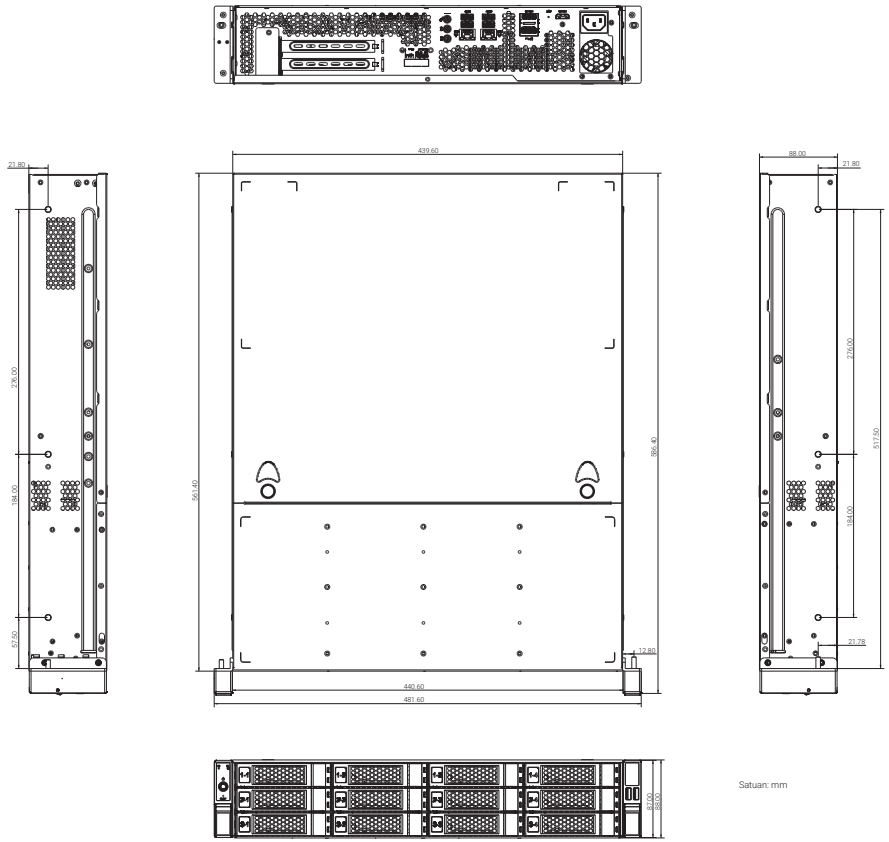
Rear Panel



6. **ATX Power Connector**
   Connect to the power cord.
7. **HDMI® 1.4 Connector**
   Support HDMI® 1.4 or lower displays.
8. **DisplayPort 1.4 Connector**
   Support DP 1.4 or lower displays
9. **HDMI® 2.0b Connector**
   Support HDMI® 2.0b or lower displays.
10. **RJ45 LAN Ports**
    Connect the system to a local area network at speeds of up to 2.5Gbps.
11. **USB 3.2 Gen 2 Ports**
    Support USB peripherals up to USB 3.2, with a maximum output of 900mA per port
12. **Audio Jacks (Line in/Line out/Mic in)**
    Connect to audio equipment, these jacks include line in (light blue), line out (lime), and mic in (pink).
13. **GPIO Terminal Block (optional)**
    Connect to an external device with a maximum load of 24V, 1.0A.
14. **PCIe Slots**
    Support PCIe 5.0 x16 (default), or PCIe 4.0 x16 / 2 × PCIe x8 via an expansion card (optional, configurable in BIOS).

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Mechanical Dimensions



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Chapter 2: Jumpers and Connectors

This chapter describes how to set the jumpers and connectors on the NViS 6712 motherboard.

Before You Begin

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

Precautions

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

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

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

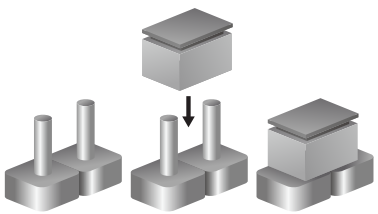
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Jumper Settings

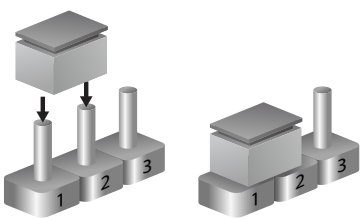
A jumper is the simplest kind of electric switch. It consists of two metal pins and a cap. When setting the jumpers, ensure that the jumper caps are placed on the correct pins. When the jumper cap is placed on both pins, the jumper is short. If you remove the jumper cap, or place the jumper cap on just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

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

Two-Pin Jumpers: Open (Left) and Short (Right)



Three-Pin Jumpers: Pins 1 and 2 are Short

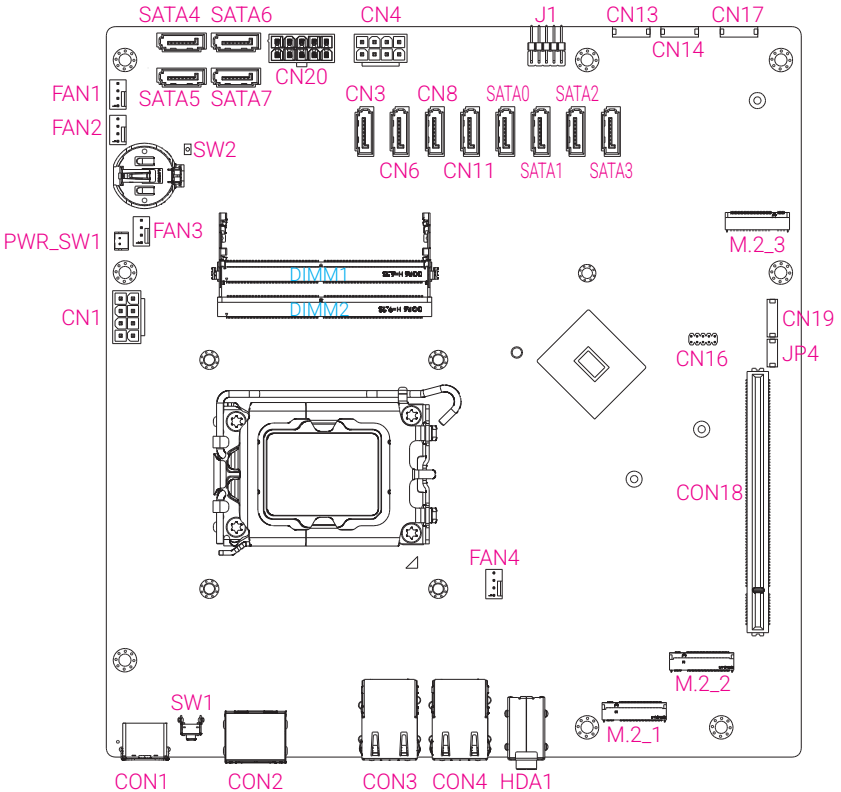


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System Main Motherboard Overview

This section 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 Main Motherboard

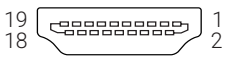


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External I/O Interfaces

HDMI 1.4 Connector

Connector location: CON1

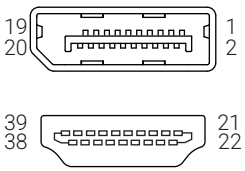


Pin	Definition	Pin	Definition
1	HDMI14_CM_DP2	3	HDMI14_CM_DN2
2	GND	4	HDMI14_CM_DP1
6	HDMI14_CM_DN1	5	GND
7	HDMI14_CM_DP0	9	HDMI14_CM_DN0
8	GND	10	HDMI14_CM_CKP
12	HDMI14_CM_CKN	11	GND
13	CEC	14	NC
15	HDMI14_SCL	16	HDMI14_SDA
17	GND	18	V5P0_HDMI0
19	HDMI14_HPD		

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DisplayPort 1.4 and HDMI 2.0b Connectors

Connector location: CON2



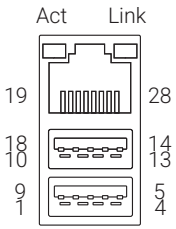
Pin	Definition	Pin	Definition
1	DP14_TX_CM_P0	2	GND1
3	DP14_TX_CM_N0	4	DP14_TX_CM_P1
5	GND2	6	DP14_TX_CM_N1
7	DP14_TX_CM_P2	8	GND3
9	DP14_TX_CM_N2	10	DP14_TX_CM_P3
11	GND4	12	DP14_TX_CM_N3
13	DP14_OB_AUX_EN	14	GND
15	DP14_AUXP_SNK	16	GND5
17	DP14_AUXN_SNK	18	DP14_HPD_SNK
19	GND	20	V3P3_DP14

Pin	Definition	Pin	Definition
21	HDMI20_CRLS_DP2	23	HDMI20_CRLS_DN2
22	GND	24	HDMI20_CRLS_DP1
26	HDMI20_CRLS_DN1	25	GND
27	HDMI20_CRLS_DP0	29	HDMI20_CRLS_DN0
28	GND	30	HDMI20_CRLS_CKP
32	HDMI20_CRLS_CKN	31	GND
33	CEC	34	NC
35	HDMI20_CRLS_SCL	36	HDMI20_CRLS_SDA
37	GND	38	V5P0_HDMI1
39	HDMI20_RT_HPD_SNK		

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LAN1 Connector and USB 3.2 Ports

Connector type: RJ45 port with LEDs
Dual USB 3.2 Gen 2 Type-A ports
Connector location: CON3



Pin	Definition	Pin	Definition
1	V5P0_USB3_P12	2	USB2_1_DN_CM
3	USB2_1_DP_CM	4	GND9
5	USB31_1_RXN_CM	6	USB31_1_RXP_CM
7	GND11	8	USB31_1_TXN_CM
9	USB31_1_TXP_CM	10	V5P0_USB3_P12
11	USB2_2_DN_CM	12	USB2_2_DP_CM
13	GND10	14	USB31_2_RXN_CM
15	USB31_2_RXP_CM	16	GND12
17	USB31_2_TXN_CM	18	USB31_2_TXP_CM
19	GND	20	LAN1_PHY_P0
21	LAN1_PHY_N0	22	LAN1_PHY_P1
23	LAN1_PHY_N1	24	LAN1_PHY_P2
25	LAN1_PHY_N2	26	LAN1_PHY_P3
27	LAN1_PHY_N3	28	GND13
29	V3P3A_LAN1	30	LAN1_PHY_LED_ACT_N_R
31	LAN1_PHY_ LED_1000_N_R	32	LAN1_PHY_ LED_2500_N_R

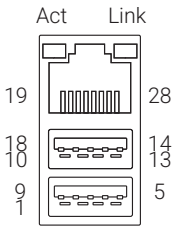
Act	Status
Blinking Yellow	Data activity
Off	No activity

Link	Status
Steady Green	2.5Gbp/s network link
Steady Orange	1Gbp/s network link
Off	100Mbps or no link

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LAN2 Connector and USB 3.2 Ports

Connector type: RJ45 port with LEDs
Dual USB 3.2 Gen 2 Type-A ports
Connector location: CON4



Pin	Definition	Pin	Definition
1	V5P0_USB3_P34	2	USB2_3_DN_CM
3	USB2_3_DP_CM	4	GND9
5	USB31_3_RXN_CM	6	USB31_3_RXP_CM
7	GND11	8	USB31_3_TXN_CM
9	USB31_3_TXP_CM	10	V5P0_USB3_P34
11	USB2_4_DN_CM	12	USB2_4_DP_CM
13	GND10	14	USB31_4_RXN_CM
15	USB31_4_RXP_CM	16	GND12
17	USB31_4_TXN_CM	18	USB31_4_TXP_CM
19	GND	20	LAN2_PHY_P0
21	LAN2_PHY_N0	22	LAN2_PHY_P1
23	LAN2_PHY_N1	24	LAN2_PHY_P2
25	LAN2_PHY_N2	26	LAN2_PHY_P3
27	LAN2_PHY_N3	28	GND13
29	V3P3A_LAN2	30	LAN2_PHY_LED_ACT_N_R
31	LAN2_PHY_ LED_1000_N_R	32	LAN2_PHY_ LED_2500_N_R

Act	Status
Blinking Yellow	Data activity
Off	No activity

Link	Status
Steady Green	2.5Gbp/s network link
Steady Orange	1Gbp/s network link
Off	100Mbps or no link

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Audio Jacks

Connector type: Line In, Line Out, Mic
Connector location: HDA1

Line In

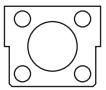
LIne Out

Mic

Pin	Definition	Pin	Definition
1	AGND_P	2	MIC_OUT_L_C
3	AGND_P	4	MIC1_JD
5	MIC_OUT_R_C		
22	LINE_OUT_L_C	23	AGND_G
24	FRONT_JD	25	LINE_OUT_R_C
32	LINE-L_C	33	AGND_B
34	LINEIN1_JD	35	LINE-R_C

Reset Button

Connector location: SW1



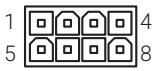
States	Definition	States	Definition
Open	Normal	Push	Reset

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Internal I/O Interfaces

12V Power In Connector (Outside)

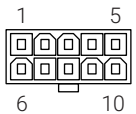
Connector location: CN1, CN4



Pin	Definition	Pin	Definition
1	GND1	2	GND2
3	GND3	4	GND4
5	V12P0A_2_1	6	V12P0A_2_2
7	V12P0A_2_3	8	V12P0A_2_4

SATA Power Connectors

Connector location: CN20
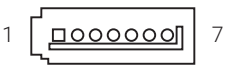


Pin	Definition	Pin	Definition
1	GND1	2	GND2
3	GND3	4	GND4
5	GND5	6	V5P0_HDD_1
7	V5P0_HDD_2	8	V12P0_HDD_1
9	V12P0_HDD_2	10	V12P0_HDD_3

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RAID SATA Connectors

Connector location: CN3, CN6, CN8, CN11



CN3 (Port0)

Pin	Definition	Pin	Definition
1	GND1	2	RSATA_CON0_TXP
3	RSATA_CON0_TXN	4	GND2
5	RSATA_CON0_RXN	6	RSATA_CON0_RXP
7	GND3		

CN6 (Port1)

Pin	Definition	Pin	Definition
1	GND1	2	RSATA_CON1_TXP
3	RSATA_CON1_TXN	4	GND2
5	RSATA_CON1_RXN	6	RSATA_CON1_RXP
7	GND3		

CN8 (Port2)

Pin	Definition	Pin	Definition
1	GND1	2	RSATA_CON2_TXP
3	RSATA_CON2_TXN	4	GND2
5	RSATA_CON2_RXN	6	RSATA_CON2_RXP
7	GND3		
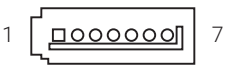
CN11 (Port3)

Pin	Definition	Pin	Definition
1	GND1	2	RSATA_CON3_TXP
3	RSATA_CON3_TXN	4	GND2
5	RSATA_CON3_RXN	6	RSATA_CON3_RXP
7	GND3		

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RAID SATA Connectors

Connector location: SATA0, SATA1, SATA2, SATA3



SATA0 (Port4)

Pin	Definition	Pin	Definition
1	GND1	2	RSATA_CON3_TXP
3	RSATA_CON3_TXN	4	GND2
5	RSATA_CON3_RXN	6	RSATA_CON3_RXP
7	GND3		

SATA1 (Port5)

Pin	Definition	Pin	Definition
1	GND1	2	RSATA_CON3_TXP
3	RSATA_CON3_TXN	4	GND2
5	RSATA_CON3_RXN	6	RSATA_CON3_RXP
7	GND3		

SATA2 (Port6)

Pin	Definition	Pin	Definition
1	GND1	2	RSATA_CON3_TXP
3	RSATA_CON3_TXN	4	GND2
5	RSATA_CON3_RXN	6	RSATA_CON3_RXP
7	GND3		
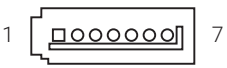
SATA3 (Port7)

Pin	Definition	Pin	Definition
1	GND1	2	RSATA_CON3_TXP
3	RSATA_CON3_TXN	4	GND2
5	RSATA_CON3_RXN	6	RSATA_CON3_RXP
7	GND3		

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RAID SATA Connectors

Connector location: SATA4, SATA5, SATA6, SATA7



SATA4 (Port8)

Pin	Definition	Pin	Definition
1	GND1	2	RSATA_CON3_TXP
3	RSATA_CON3_TXN	4	GND2
5	RSATA_CON3_RXN	6	RSATA_CON3_RXP
7	GND3		

SATA5 (Port9)

Pin	Definition	Pin	Definition
1	GND1	2	RSATA_CON3_TXP
3	RSATA_CON3_TXN	4	GND2
5	RSATA_CON3_RXN	6	RSATA_CON3_RXP
7	GND3		

SATA6 (Port10)

Pin	Definition	Pin	Definition
1	GND1	2	RSATA_CON3_TXP
3	RSATA_CON3_TXN	4	GND2
5	RSATA_CON3_RXN	6	RSATA_CON3_RXP
7	GND3		

SATA7 (Port11)

Pin	Definition	Pin	Definition
1	GND1	2	RSATA_CON3_TXP
3	RSATA_CON3_TXN	4	GND2
5	RSATA_CON3_RXN	6	RSATA_CON3_RXP
7	GND3		

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Front Panel Connector

Connector location: CN13



Pin	Definition	Pin	Definition
1	V3P3A	2	V3P3_DSW
3	GND	4	RSTBTN_N
5	PWRBTN_N_S2	6	GND
7	LED_HDD_PU	8	LED_HDD_LOGIC_N
9	LED_PWR_PU	10	LED_PWR_LOGIC_N

DB9 Output Connector

Connector location: CN14

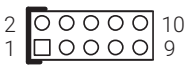


Pin	Definition	Pin	Definition
1	GND	2	HDR_RI_N
3	HDR_CTS_N	4	HDR_RTS_N
5	HDR_DSR_N	6	GND
7	HDR_DTR_N	8	HDR_TXD
9	HDR_RXD	10	HDR_DCD_N

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GPIO HDR Connector

Connector location: CN16



Pin	Definition	Pin	Definition
1	V5P0_4I4O	2	GND
3	PIO_IN_80	4	PIO_OUT_84
5	PIO_IN_81	6	PIO_OUT_85
7	PIO_IN_82	8	PIO_OUT_86
9	PIO_IN_83	10	PIO_OUT_87

DBG UART SGPIO

Connector location: CN17



Pin	Definition	Pin	Definition
1	GND	2	SATA_SGPIO_DOUT1
3	SATA_SGPIO_DOUT0	4	SATA_SGPIO_LOAD
5	SATA_SGPIO_CLK	6	DUG_SDA
7	DUG_SCLK	8	DUG_RXD
9	DUG_TXD	10	V3P3A

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Debug Connector

Connector location: CN19



Pin	Definition	Pin	Definition
1	V3P3A	2	DBG_ESPI_RST0_N
3	DBG_ESPI_IO0	4	DBG_ESPI_IO1
5	DBG_ESPI_IO2	6	DBG_ESPI_IO3
7	DBG_ESPI_CS0_N	8	DBG_ESPI_CLK
9	DBG_PLTRST_N	10	GND

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PCIe Slot

Connector type: PCIe x16
Connector location: CON18



Pin	Definition	Pin	Definition
A1	GND	A2	V12P0_SLOT_1
A3	V12P0_SLOT_2	A4	GND_1
A5	TCK	A6	TDI
A7	TDO	A8	TMS
A9	V3P3S_SLOT_1	A10	V3P3S_SLOT_2
A11	PEG_RST_N	A12	GND_2
A13	PEG_SLOT_CLKP	A14	PEG_SLOT_CLKN
A15	GND_3	A16	CPU_PEG_RXP0
A17	CPU_PEG_RXN0	A18	GND_4
A19	PEG_PWR_EN	A20	GND_5
A21	CPU_PEG_RXP1	A22	CPU_PEG_RXN1
A23	GND_6	A24	GND_7
A25	CPU_PEG_RXP2	A26	CPU_PEG_RXN2
A27	GND_8	A28	GND_9
A29	CPU_PEG_RXP3	A30	CPU_PEG_RXN3
A31	GND_10	A32	PEG_PWR_OK
A33	RSVD3	A34	GND_11
A35	CPU_PEG_RXP4	A36	CPU_PEG_RXN4
A37	GND_12	A38	GND_13
A39	CPU_PEG_RXP5	A40	CPU_PEG_RXN5
A41	GND_14	A42	GND_15

Pin	Definition	Pin	Definition
A43	CPU_PEG_RXP6	A44	CPU_PEG_RXN6
A45	GND_16	A46	GND_17
A47	CPU_PEG_RXP7	A48	CPU_PEG_RXN7
A49	GND_18	A50	RSVD4
A51	GND_19	A52	CPU_PEG_RXP8
A53	CPU_PEG_RXN8	A54	GND_20
A55	GND_21	A56	CPU_PEG_RXP9
A57	CPU_PEG_RXN9	A58	GND_22
A59	GMD_23	A60	CPU_PEG_RXP10
A61	CPU_PEG_RXN10	A62	_GND_24
A63	GND_25	A64	CPU_PEG_RXP11
A65	CPU_PEG_RXN11	A66	GND_26
A67	GND_27	A68	CPU_PEG_RXP12
A69	CPU_PEG_RXN12	A70	GND_28
A71	GND_29	A72	CPU_PEG_RXP13
A73	CPU_PEG_RXN13	A74	GND_30
A75	GND_31	A76	CPU_PEG_RXP14
A77	CPU_PEG_RXN14	A78	GND_32
A79	GND_33	A80	CPU_PEG_RXP15
A81	CPU_PEG_RXN15	A82	GND_34

Continued on the next page

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Pin	Definition	Pin	Definition
B1	V12P0_SLOT_3	B2	V12P0_SLOT_4
B3	V12P0_SLOT	B4	GND_35
B5	SLOT1_SMCLK	B6	SLOT1_SMSDA
B7	GND_36	B8	V3P3S_SLOT_3
B9	TRST#	B10	V3P3A_SLOT
B11	PEG_WAKE_N	B12	PEG_B12
B13	GND_37	B14	PEG_TXP0
B15	PEG_TXN0	B16	GND_38
B17	PEG_PRSNT2_N	B18	GND_39
B19	PEG_TXP1	B20	PEG_TXN1
B21	GND_40	B22	GND_41
B23	PEG_TXP2	B24	PEG_TXN2
B25	GND_42	B26	GND_43
B27	PEG_TXP3	B28	PEG_TXN3
B29	GND_44	B30	PEG_SEL_N
B31	PEG_PRSNT2_N	B32	GND_45
B33	PEG_TXP4	B34	PEG_TXN4
B35	GND_46	B36	GND_47
B37	PEG_TXP5	B38	PEG_TXN5
B39	GND_48	B40	GND_49
B41	PEG_TXP6	B42	PEG_TXN6

Pin	Definition	Pin	Definition
B43	GND_50	B44	GND_51
B45	PEG_TXP7	B46	PEG_TXN7
B47	GND_52	B48	PEG_PRSNT2_N
B49	GND_53	B50	PEG_TXP8
B51	PEG_TXN8	B52	GND_54
B53	GND_55	B54	PEG_TXP9
B55	PEG_TXN9	B56	GND_56
B57	GND_57	B58	PEG_TXP10
B59	PEG_TXN10	B60	GND_58
B61	GND_59	B62	PEG_TXP11
B63	PEG_TXN11	B64	GND_60
B65	GND_61	B66	PEG_TXP12
B67	PEG_TXN12	B68	GND_62
B69	GND_63	B70	PEG_TXP13
B71	PEG_TXN13	B72	GND_64
B73	GND_65	B74	PEG_TXP14
B75	PEG_TXN14	B76	GND_66
B77	GND_67	B78	PEG_TXP15
B79	PEG_TXN15	B80	GND_68
B81	PEG_PRSNT2_2nd_Slot_N	B82	PEG_SEL_X8_X16

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Fan Connectors

Connector location: FAN1, FAN2, FAN3, FAN4



FAN1

Pin	Definition	Pin	Definition
1	GND	2	V12P0_FANG1
3	SYS2_FAN_TACO	4	SYS2_FAN_PWM

FAN2

Pin	Definition	Pin	Definition
1	GND	2	V12P0_FANG1
3	SYS2_FAN_TACO	4	SYS2_FAN_PWM

FAN3

Pin	Definition	Pin	Definition
1	GND	2	V12P0_FANG1
3	SYS2_FAN_TACO	4	SYS2_FAN_PWM

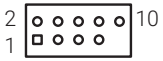
FAN4

Pin	Definition	Pin	Definition
1	GND	2	V12P0_FANG1
3	SYS2_FAN_TACO	4	SYS2_FAN_PWM

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USB 2.0 Header

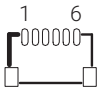
Connector location: J1



Pin	Definition	Pin	Definition
1	V5P0_USB2_HDR	2	V5P0_USB2_HDR
3	USB2_5_DN_CM	4	USB2_6_DN_CM
5	USB2_5_DP_CM	6	USB2_6_DP_CM
7	GND	8	GND
9	X	10	N/C

FW Update

Connector location: JP4

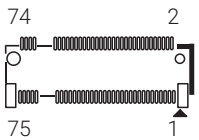


Pin	Definition	Pin	Definition
1	BIOS_SPI_IO0	2	BIOS_SPI_IO1
3	BIOS_SPI_CLK	4	BIOS_SPI_CS_N
5	GND	6	VCC

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M.2 Key M Slot

Connector type: M.2 Key M 2280 (PCIe Gen 4 x4)
Connector location: M.2_1



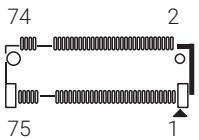
Pin	Definition	Pin	Definition
1	GND1	2	V3P3A_M2M_1
3	GND2	4	V3P3A_M2M_2
5	NVME_RXN3	6	M2M_FULL_PWROFF_N
7	NVME_RXP3	8	M2M_PLN_N
9	GND3	10	M2M_LED_OC
11	NVME_TXN3	12	V3P3A_M2M_6
13	NVME_TXP3	14	V3P3A_M2M_7
15	GND4	16	V3P3A_M2M_8
17	NVME_RXN2	18	V3P3A_M2M_9
19	NVME_RXP2	20	NC2
21	GND5	22	NC3
23	NVME_TXN2	24	NC4
25	NVME_TXP2	26	NC5
27	GND6	28	NC6
29	NVME_RXN1	30	NC7
31	NVME_RXP1	32	NC8
33	GND7	34	NC9

Pin	Definition	Pin	Definition
35	NVME_TXN1	36	NC10
37	NVME_TXP1	38	M2M_DEVSLP
39	GND8	40	M2M_SMBCLK_V1P8
41	NVME_RXN0	42	M2M_SMBDAT_V1P8
43	NVME_RXP0	44	M2M_ALERT_N_V1P8
45	GND9	46	NC14
47	NVME_TXN0	48	NC15
49	NVME_TXP0	50	M2M_PERST_N
51	GND10	52	M2M_NVME_PCH_CLKREQ_N
53	NVME_CLKN	54	M2M_WAKE_N
55	NVME_CLKP	56	NC16
57	GND11	58	NC17
67	NC26	68	M2M_SUSCLK
69	M2M_SSD_DETECT	70	V3P3A_M2M_3
71	GND12	72	V3P3A_M2M_4
73	GND13	74	V3P3A_M2M_5
75	M2M_Mount_Detect		

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M.2 Key M Slot

Connector type: M.2 Key M 2280 (PCIe Gen 4 x4)
Connector location: M.2_2



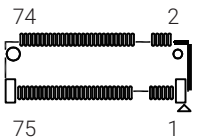
Pin	Definition	Pin	Definition
1	GND1	2	V3P3A_M2M2_1
3	GND2	4	V3P3A_M2M2_2
5	NVME2_RXN8	6	M2M2_FULL_PWROFF_N
7	NVME2_RXP8	8	M2M2_PLN_N
9	GND3	10	M2M2_LED_OC
11	NVME2_TXN8	12	V3P3A_M2M2_6
13	NVME2_TXP8	14	V3P3A_M2M2_7
15	GND4	16	V3P3A_M2M2_8
17	NVME2_RXN7	18	V3P3A_M2M2_9
19	NVME2_RXP7	20	NC2
21	GND5	22	NC3
23	NVME2_TXN7	24	NC4
25	NVME2_TXP7	26	NC5
27	GND6	28	NC6
29	NVME2_RXN6	30	NC7
31	NVME2_RXP6	32	NC8
33	GND7	34	NC9

Pin	Definition	Pin	Definition
35	NVME2_TXN6	36	NC10
37	NVME2_TXP6	38	M2M2_DEVSLP
39	GND8	40	M2M2_SMBCLK_V1P8
41	NVME2_RXN5	42	M2M2_SMBDAT_V1P8
43	NVME2_RXP5	44	M2M2_ALERT_N_V1P8
45	GND9	46	NC14
47	NVME2_TXN5	48	NC15
49	NVME2_TXP5	50	M2M2_PERST_N
51	GND10	52	M2M2_NVME_PCH_CLKREQ_N
53	NVME2_CLKN	54	M2M2_WAKE_N
55	NVME2_CLKP	56	NC16
57	GND11	58	NC17
67	NC26	68	M2M2_SUSCLK
69	M2M2_SSD_DETECT	70	V3P3A_M2M2_3
71	GND12	72	V3P3A_M2M2_4
73	GND13	74	V3P3A_M2M2_5
75	M2M2_Mount_Detect		

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M.2 Key B Slot

Connector type: M.2 Key B 2242 (SATA)
Connector location: M.2_3



Pin	Definition	Pin	Definition
1	M2B_CONFIG_3	2	V3P3_M2B_1
3	GND1	4	V3P3_M2B_2
5	GND2	6	M2B_SSD_FULL_PWR_OFF_N
7	M2B_USB2_DP	8	M2B_PLN_N
9	M2B_USB2_DN	10	M2B_SATA_LED_N
11	GND3	20	GPIO_5/RFU_1.8V
21	M2B_CONFIG_0	22	GPIO_6/RFU_1.8V
23	WAKE_ON_WWA#_1.8V	24	GPIO_7/RFU_1.8V
25	DPR_1.8V	26	W_DISABLE2#_1.8V
27	GND4	28	GPIO_8/RFU_1.8V
29	M2B_PER1N	30	UIM-RESET
31	M2B_PER1P	32	UIM-CLK
33	GND5	34	UIM-DATA
35	M2B_PET1N	36	UIM-PWR
37	M2B_PET1P	38	DEVSLP
39	GND6	40	GPIO_0
41	M2B_PER0P	42	GPIO_1

Pin	Definition	Pin	Definition
43	M2B_PER0N	44	GPIO_2
45	GND7	46	GPIO_3
47	M2B_PET0N	48	GPIO_4
49	M2B_PET0P	50	M2B_PCI_RST_N
51	GND8	52	CLKREQ#
53	REFCLKn	54	PCIE_WAKE#
55	REFCLKp	56	M2B_SMDAT
57	GND9	58	M2B_SMCLK
59	ANTCTL0_1.8V	60	COEX3_1.8V
61	ANTCTL1_1.8V	62	COEX_TXD_1.8V
63	ANTCTL2_1.8V	64	COEX_RXD_1.8V
65	ANTCTL3_1.8V	66	SIM_DETECT
67	LTE_RST#_1.8V	68	M2B_SUSCLK
67	M2B_CONFIG_1	70	V3P3_M2B_3
71	GND10	72	V3P3_M2B_4
73	GND11	74	V3P3_M2B_5
75	M2B_CONFIG_2		

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PWR_SW Connector

Connector location: PWR_SW1



Pin	Definition	Pin	Definition
1	GND	2	PWRBTN_N

Clear CMOS Switch

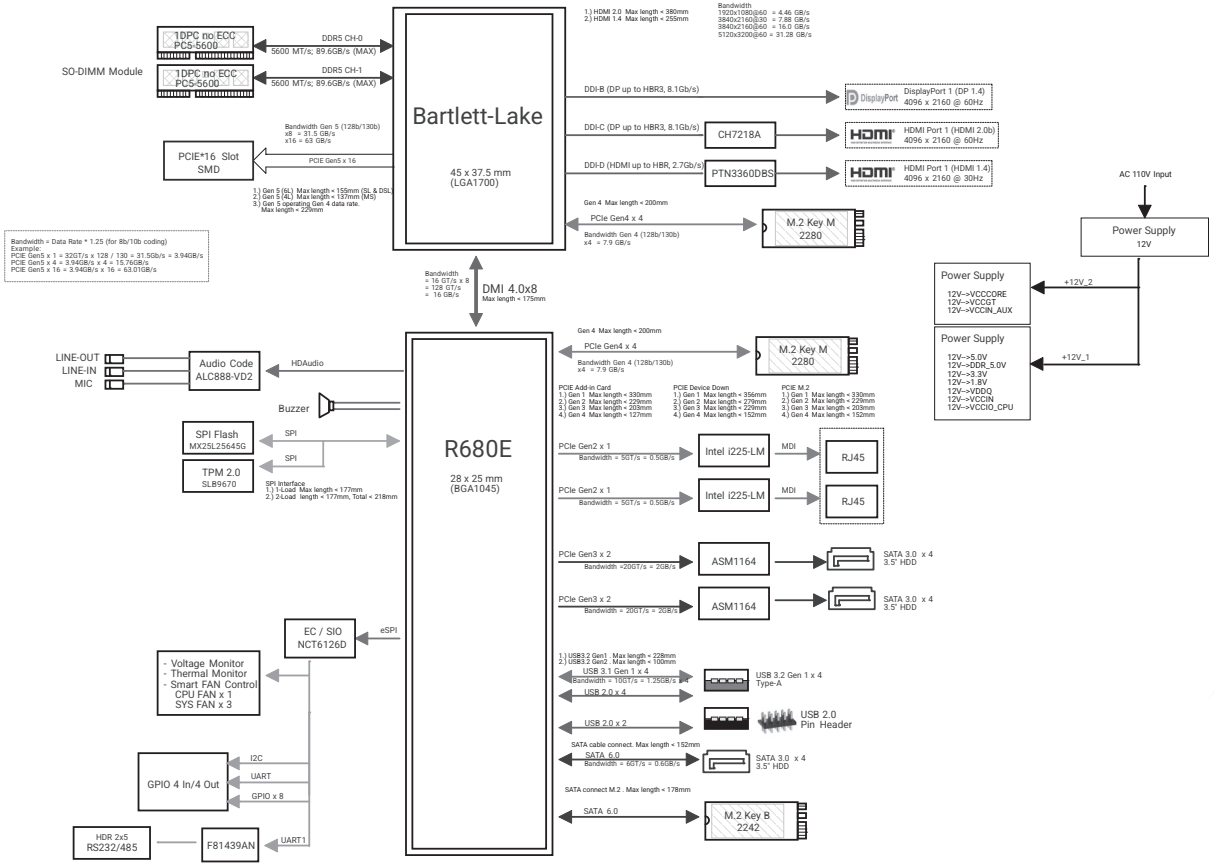
Connector location: SW2



States	Definition	States	Definition
Open	Normal	Push	Clear CMOS

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Block Diagram



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Chapter 3: System Setup

Removing the Chassis Cover



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

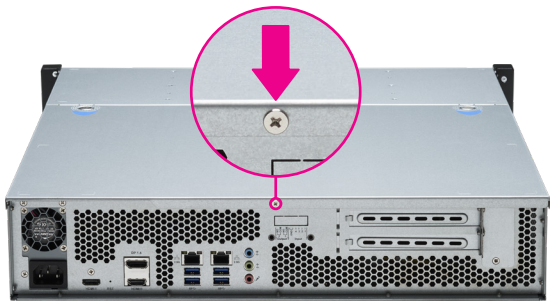
1. Unscrew the F#6-32 screws on both side panels (refer to the images below for their locations).





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2. Unscrew the I#6-32 screw on the rear panel.



3. Press the buttons indicated below, then slide the top cover outward and lift it up to fully open the chassis.



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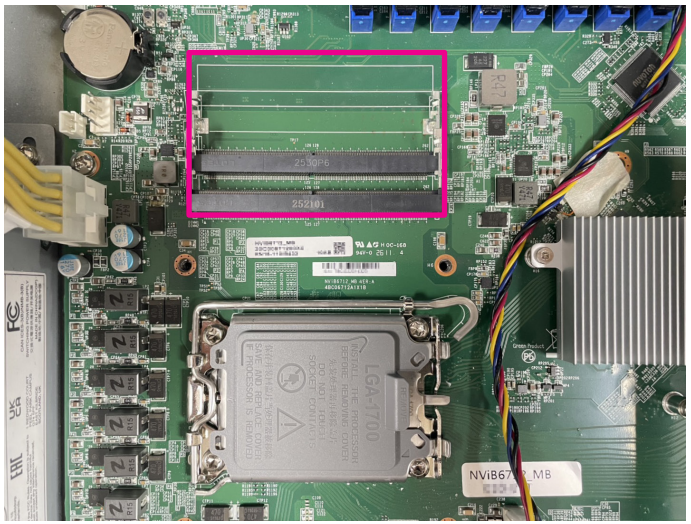
4. Once the top cover is removed, it will look like the image below.



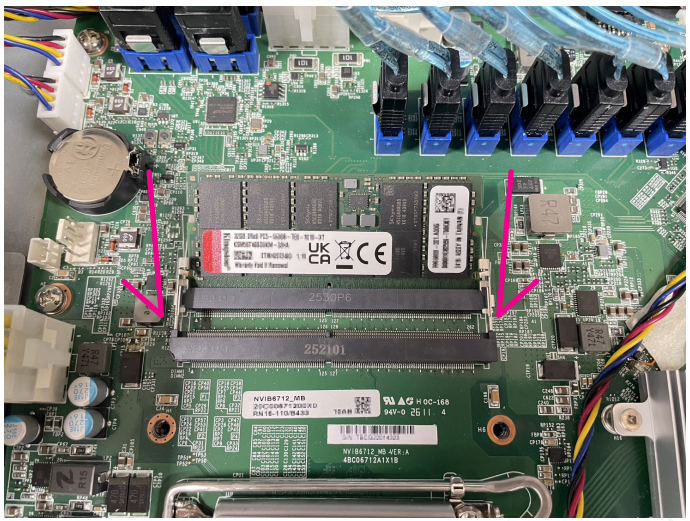
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Installing SO-DIMM Memory Modules

1. Locate the SO-DIMM sockets on the mainboard.



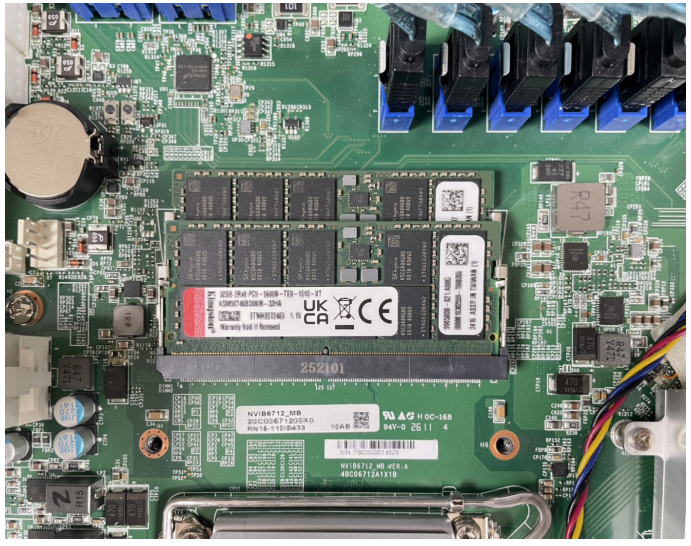
2. Insert the memory module into the socket at an approximately 30 degrees angle. The ejector tabs at the ends of the socket will automatically snap into the locked position to hold the module in place. Repeatedly follow the step above to insert the second memory module if required.



1. There is no specific installation order when inserting the memory module. Users can install the memory in either DIMM 1 or DIMM 2 according to their requirements.
2. Note that the memory sockets are designed with fool-proof measures. Do not force-plug the memory module(s) if they are not oriented correctly.

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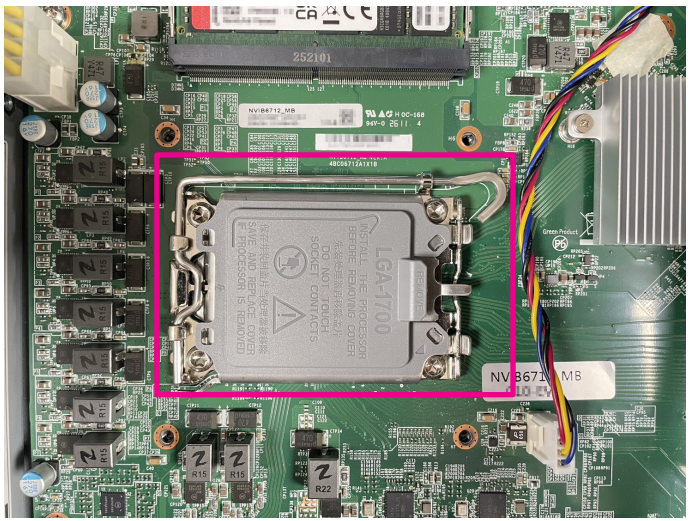
3. The assembly steps are completed.



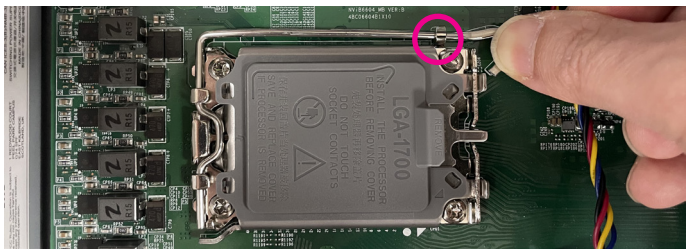
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Installing a CPU

1. Locate the CPU sockets on the mainboard.

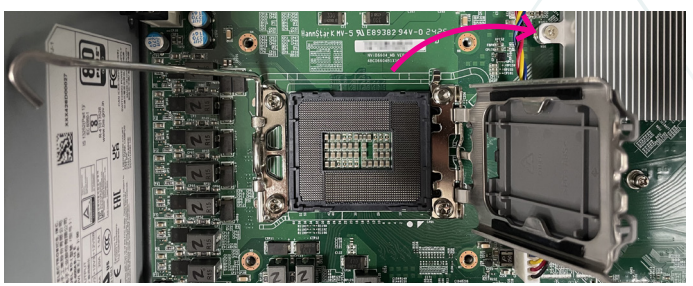


2. Release the load lever by pushing it down from the retention tab, then pull it up.



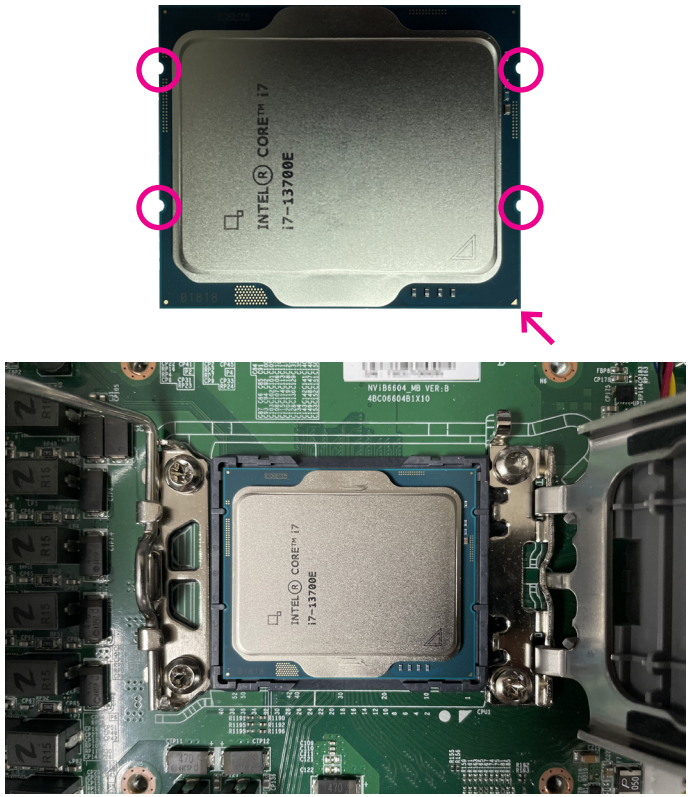


3. Lift the CPU load plate up to open the socket completely.

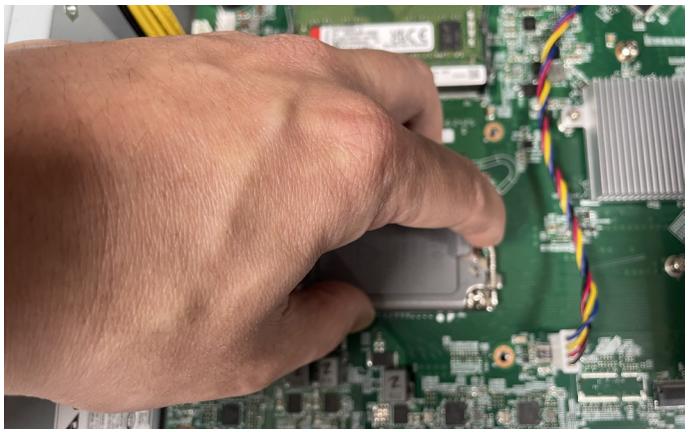


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4. Insert the CPU into the CPU load bracket, ensuring that you align the triangle and notches on the CPU with the corresponding triangle marker and notches on the CPU load bracket.



5. Slightly close the load plate and remove the plastic cover from the load plate.



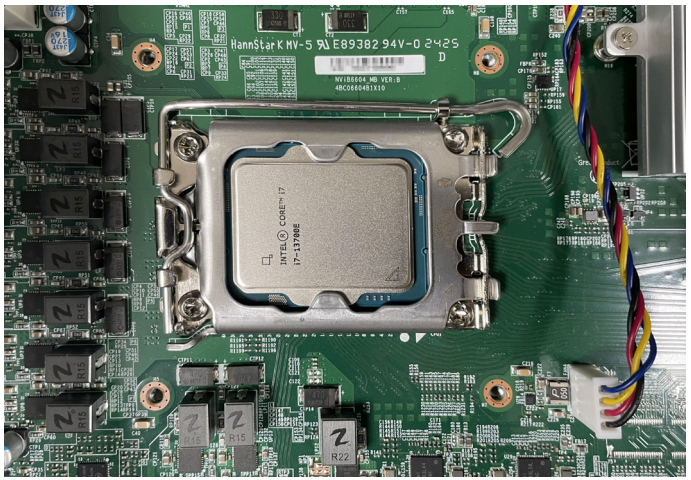
6. Gently push the load lever down until it locks under the retention tab.



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Installing a CPU Cooler

1. Refer to the previous section for CPU installation, and make sure the CPU is installed properly.

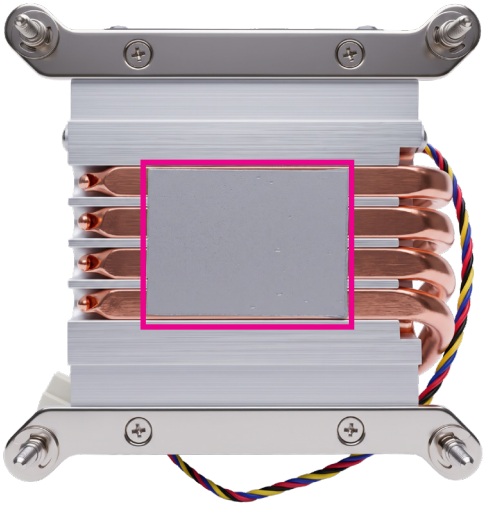


2. Retrieve the CPU cooler from the accessory box, which includes a heatsink module and thermal paste.

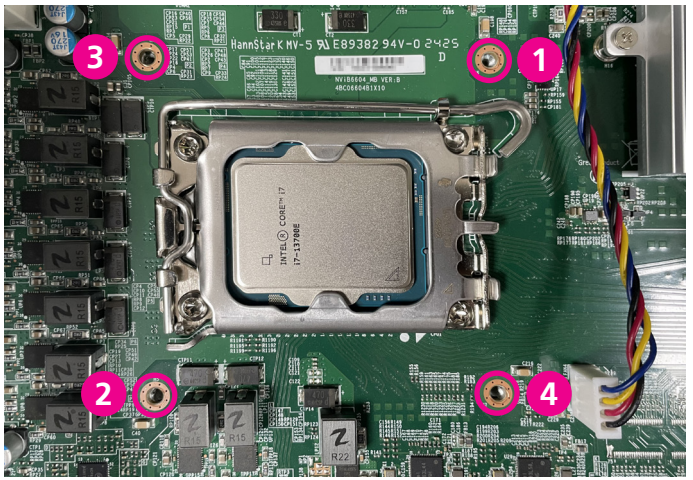


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3. Verify that thermal grease is properly applied to the CPU contact surface of the heatsink

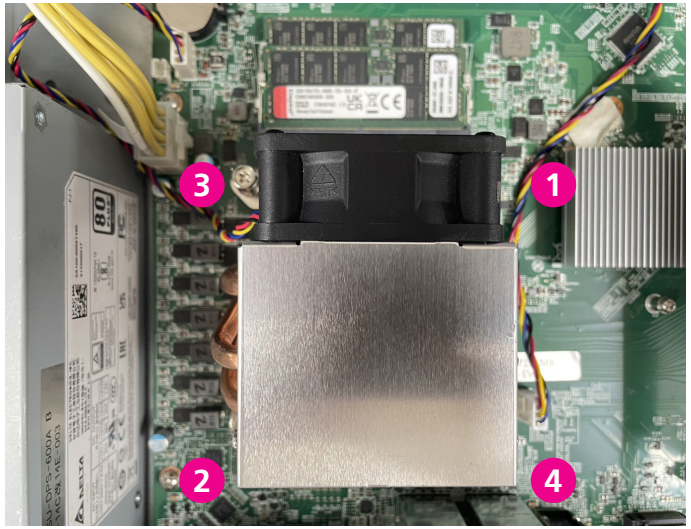


4. Identify the screw holes around the CPU socket and note the numbers indicated in the image for reference in the next step.

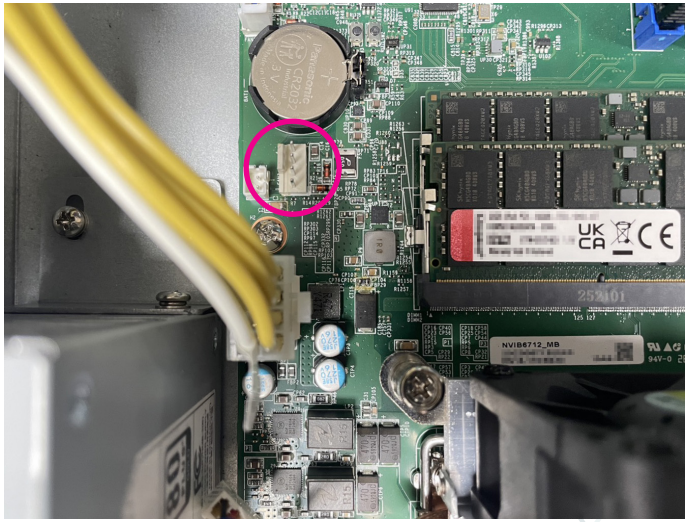


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5. Install the CPU cooler onto the CPU and tighten the screws in the sequence shown below.



6. Plug the heatsink module power connector into CPU fan header (FAN3) on the motherboard. Ensure the connector is fully inserted into the fan header.



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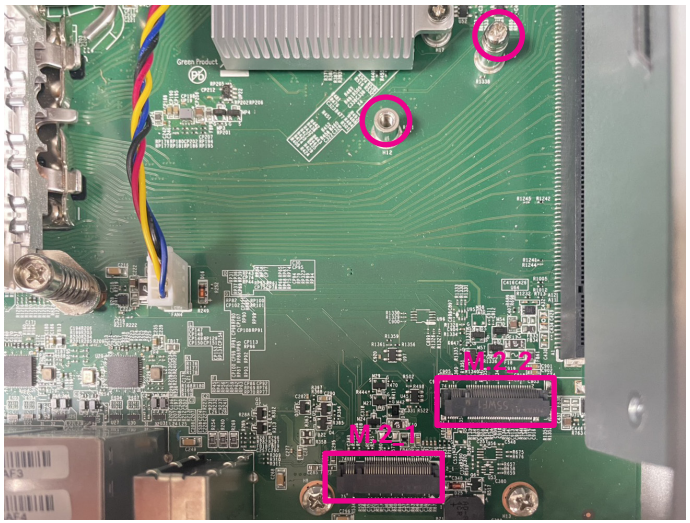
7. The installation is complete.



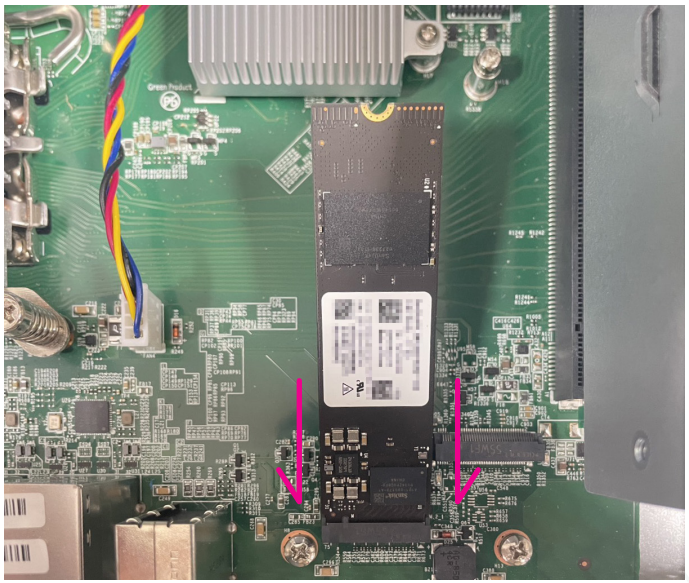
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Installing an M.2 Module (Key M 2280)

1. Identify the M.2 slots on the motherboard. This system supports up to two M.2 Key M storage modules. Remove the preinstalled retaining screw from the M.2 2280 mounting hole and set it aside for later use.

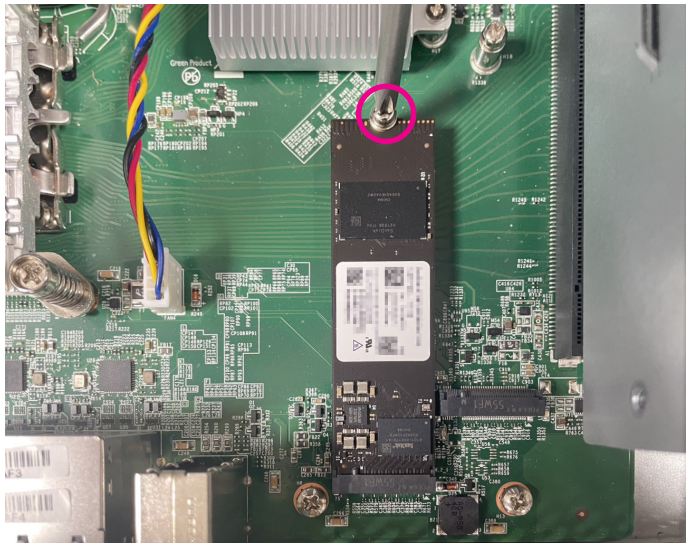


2. Insert the M.2 module into the M.2 Key M slot at a 45-degree angle until the gold-plated connector on the edge of the module completely disappears into the slot.

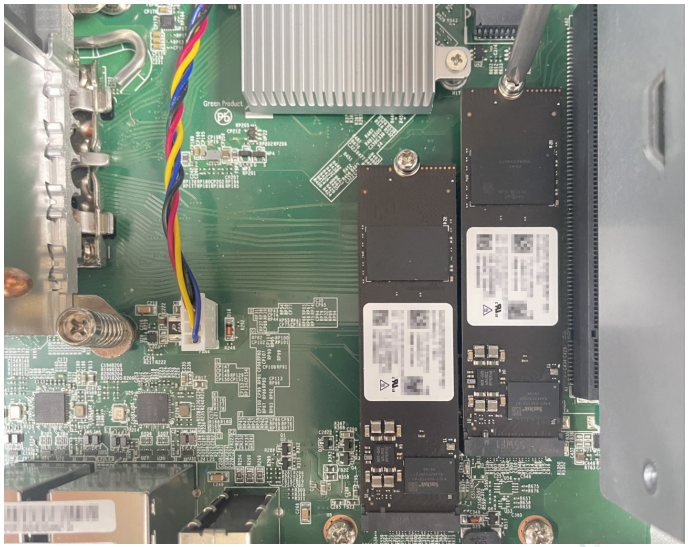


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3. Push the M.2 module down and secure it with the screw that was removed from step 1.



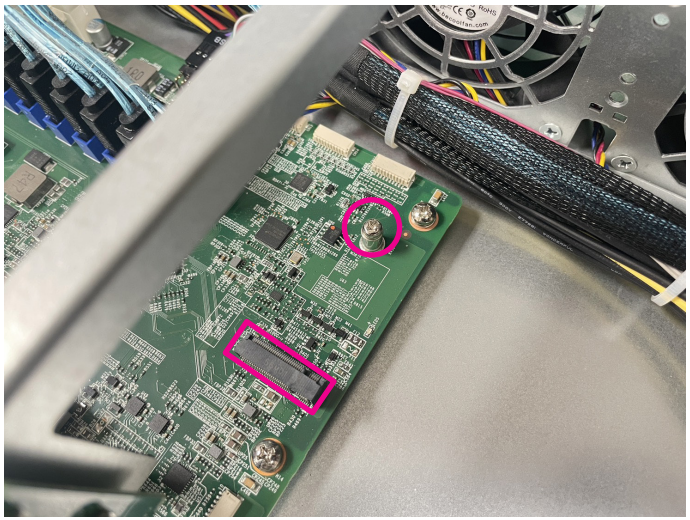
4. Repeat the previous steps to install the second M.2 Key M storage module, if required.



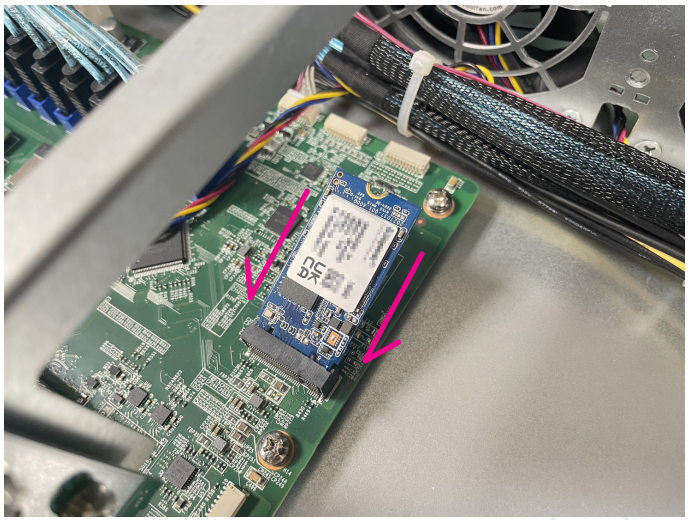
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Installing an M.2 Module (Key B 2242)

1. Loosen the screw on the motherboard and set it aside for later use.

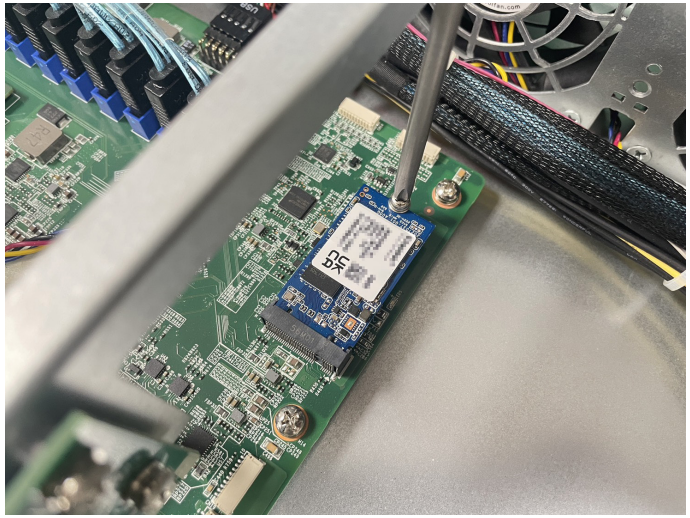


2. Insert the M.2 module into the M.2 Key B slot at a 45-degree angle until the gold-plated connector on the edge of the module completely disappears into the slot.



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3. Push the M.2 module down and secure it with the screw that was removed from step 1.

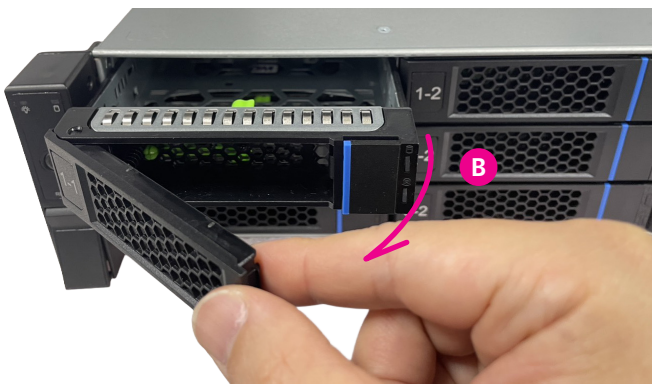


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Installing 3.5” HDD Device(s)

1. Press the release button (A) next to the HDD bay tray to withdraw the HDD tray (B) .





2. Insert an HDD following the orientation shown below into the HDD tray (C), then push the HDD forward until it clicks into place (D).





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3. Secure the HDD using F#6-32 screws with a clockwise orientation on both sides of the HDD tray.



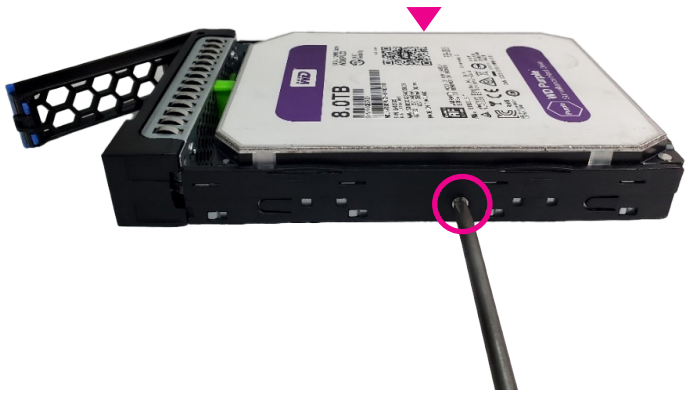
4. Insert the HDD tray with the installed HDD back into the HDD bay of the system, repeating the steps to install additional HDDs if needed.



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Removing 3.5” HDD Device(s)

1. Loosen the F#6-32 screws on both sides of the panels using a screwdriver with a counterclockwise orientation.



2. Push the latch upward until it reaches 90 degrees using your fingers.



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3. Push the 3.5” HDD forward (A), then lift it upwards with your fingers to remove it (B).

4.

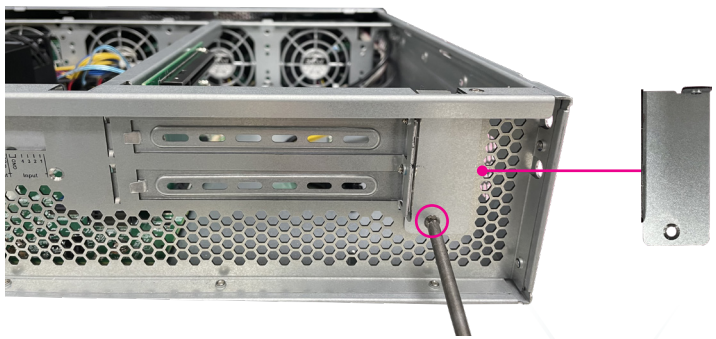


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Installing an Add-On Card

1. Remove the PCIe cover by loosening the screws on the chassis, then set the screws aside for later use.

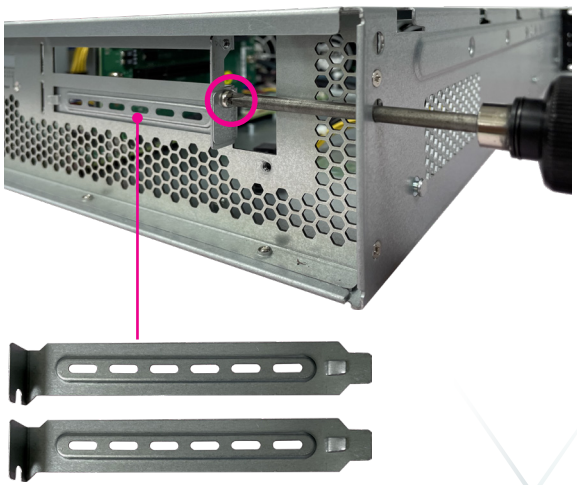




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2. Remove the PCIe brackets by loosening the screws on the chassis, then set the screws aside for later use.





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3. Pick up the PCIe 8P to 6 + 2P*2 power cable from the accessory box, depending on the add-on card installation requirements.

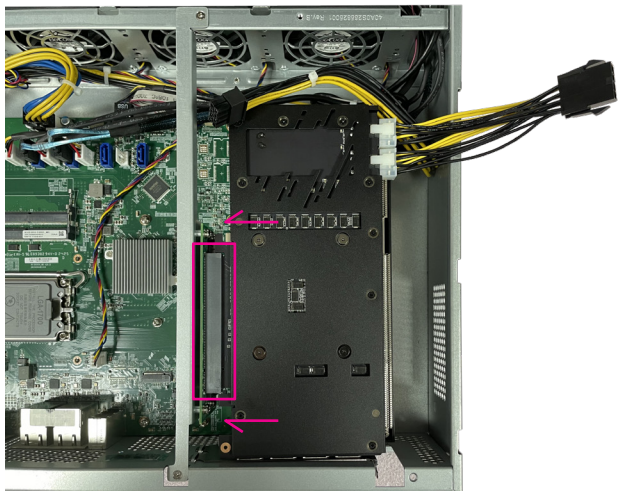


4. Plug the power cable into the add-on card.

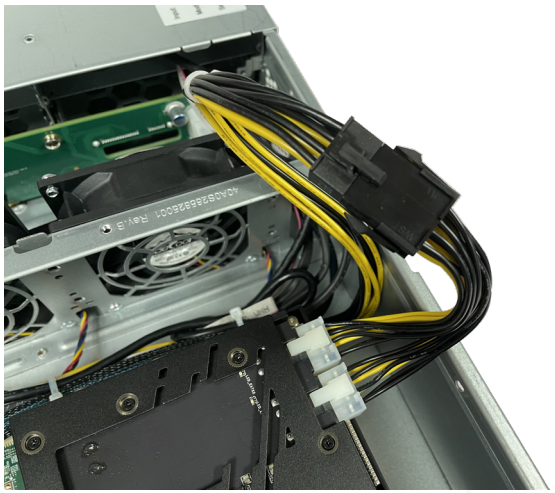


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5. Plug the add-on card into the motherboard.

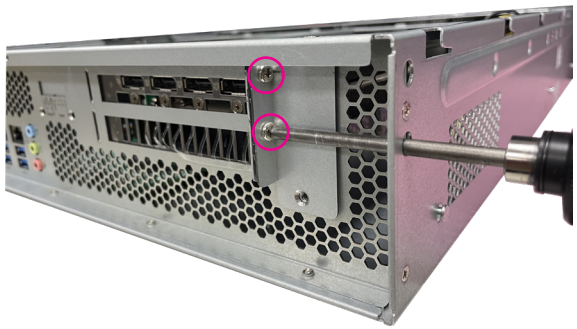


6. Insert the power cable into the system's power supply and organize the cable.

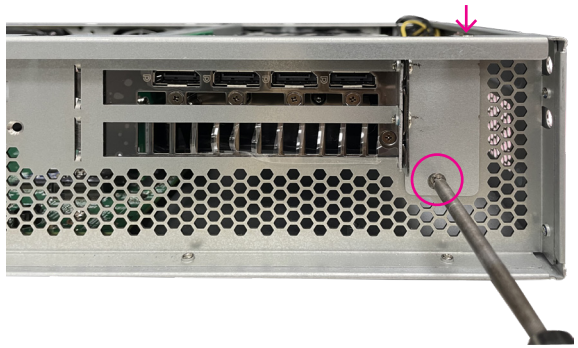


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7. Secure the add-on card with the screws removed in step 2.



8. Follow step 1 to reassemble the PCIe cover.



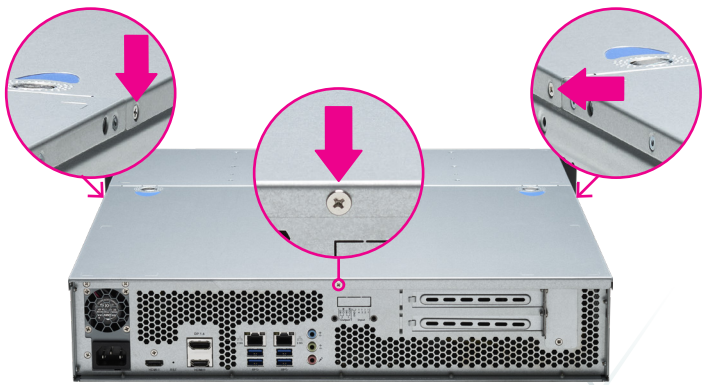
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Reassembling the Chassis

1. Reinstall the top cover in its original position.



2. Reinstall and tighten the screws in their original positions to secure the top cover.



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Chapter 4: BIOS Setup

This chapter explains how to use the BIOS setup program for the system and focuses on specific configuration parts of the BIOS contents, rather than providing details for every item. 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.

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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.

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.

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

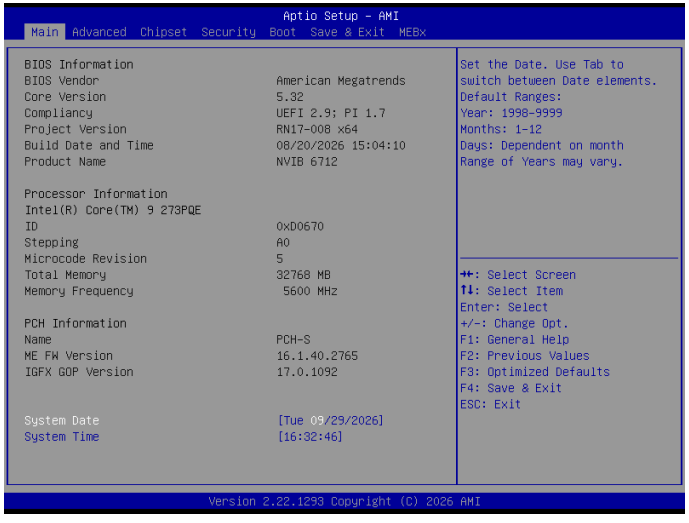
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BIOS Setup Utility

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

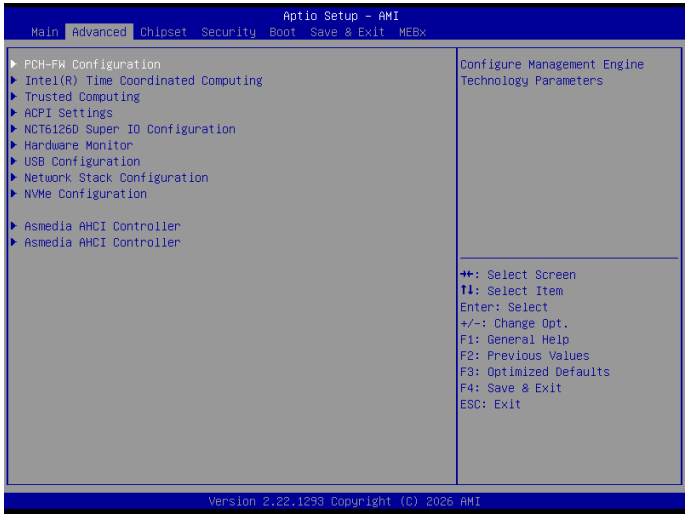
The time format is <hour>, <minute>, <second>. The time is based on the 24-hour military-time clock. For example, 1 p.m. is 13:00:00. Hour displays hours from 00 to 23. Minute displays minutes from 00 to 59. Second displays seconds from 00 to 59.

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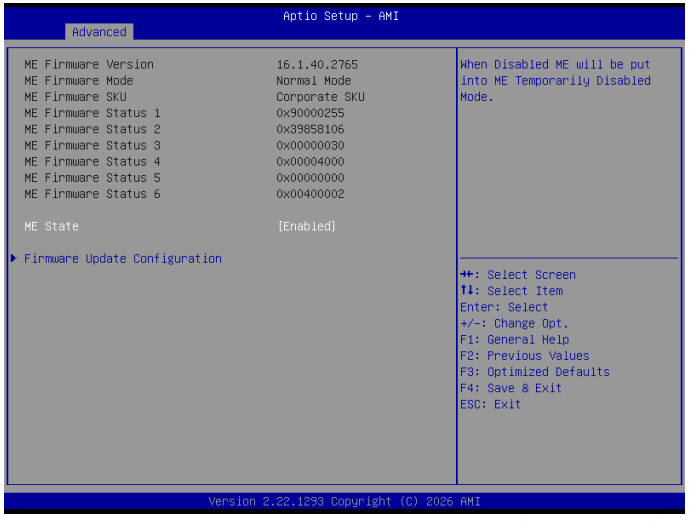
Advanced

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.



PCH-FW Configuration



ME State

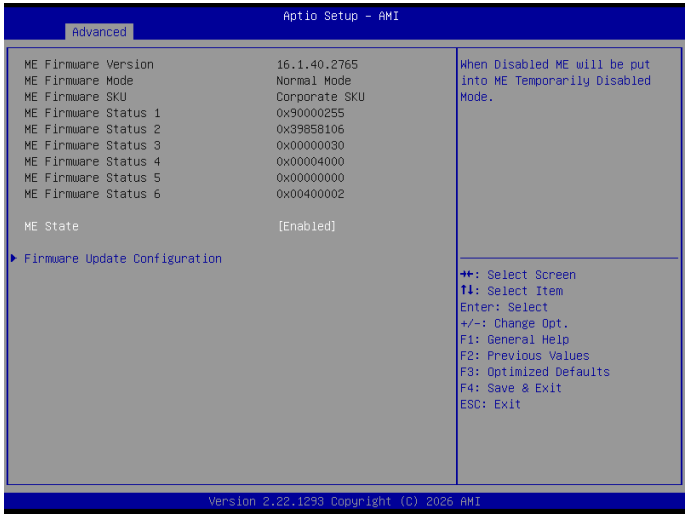
When disabled ME will be put into ME Temporarily Disabled Mode.

Firmware Update Configuration

Press <Enter> to open the submenu.

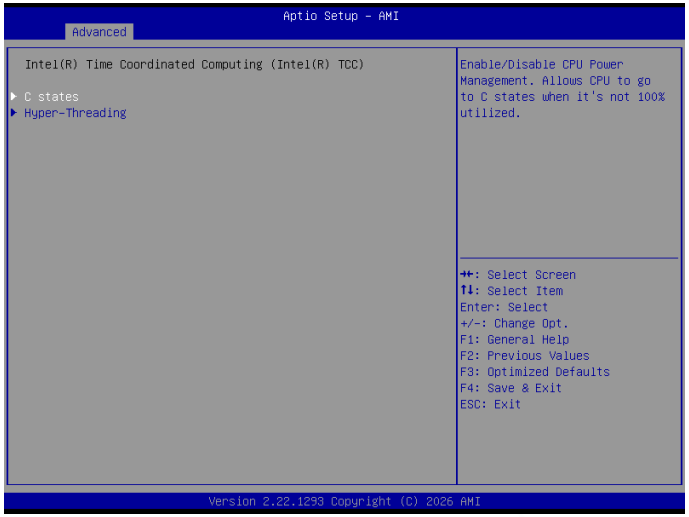
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PCH-FW Configuration > Firmware Update Configuration



Me FW Image Re-Flash
Enable or disable Me FW Image Re-Flash function.

Intel(R) Time Coordinated Computing

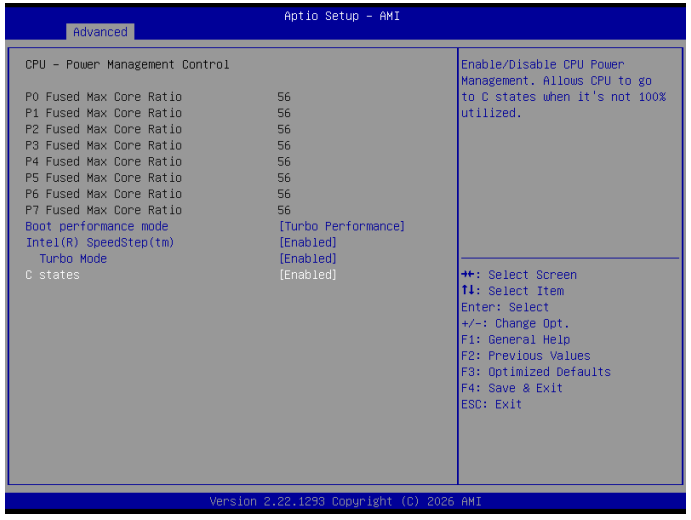


C states
Press <Enter> to open the submenu.

Hyper-Threading
Press <Enter> to open the submenu.

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Intel(R) Time Coordinated Computing > CPU - Power Management Control



Boot performance mode
Enable or disable CPU Power Management. Allows CPU to go to C states when it's not 100% utilized. Press <Enter> to open the submenu.

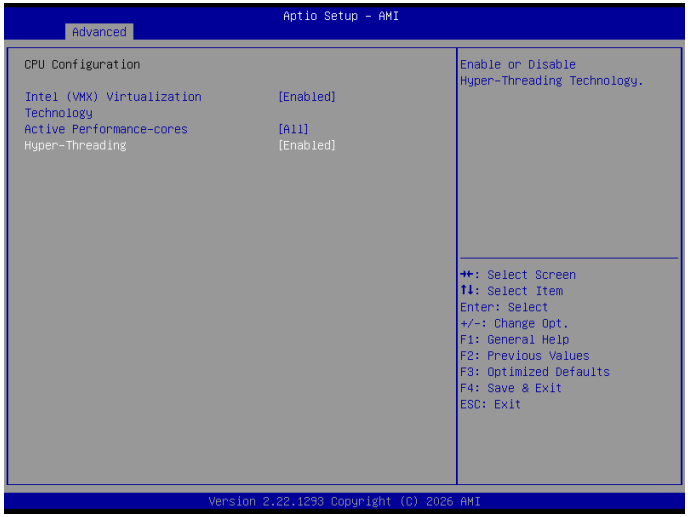
Intel(R) SpeedStep(tm)
Enable or disable Intel SpeedStep.

Turbo Mode
Enable or disable turbo mode.

C states
Enable or disable CPU Power Management. Allows CPU to go to C states when it's not 100% utilized.

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Intel(R) Time Coordinated Computing > CPU Configuration



Intel (VMX) Virtualization Technology
When set to Enabled, the VMM can use the additional hardware capabilities provided by Vanderpool Technology.

Active Performance-cores
Number of cores to enable in each processor package.

Hyper-threading
Enable or disable hyper-threading technology.

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.

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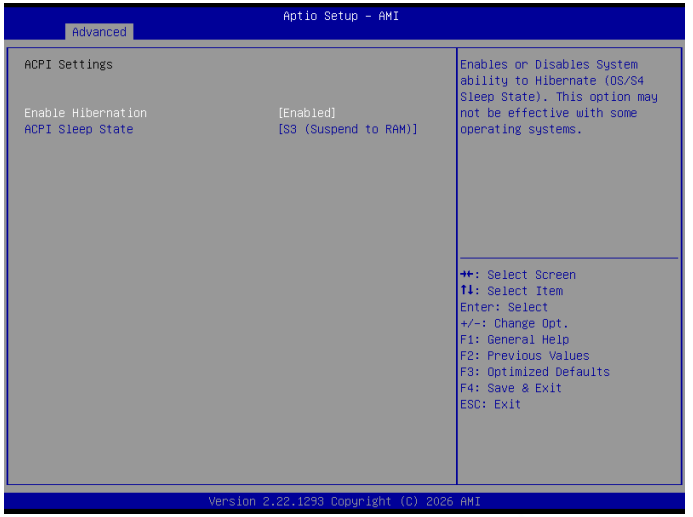
Storage Hierarchy
Enable or disable storage hierarchy.

Endorsement Hierarchy
Enable or disable endorsement hierarchy.

Physical Presence Spec Version
Configure the physical presence spec version.

Device Select
TPM 1.2 will restrict support to TPM 1.2 devices. TPM 2.0 will restrict support to TPM 2.0 devices. Auto will support both TPM 1.2 and 2.0 devices with the default set to TPM 2.0 devices if not found, and TPM 1.2 devices will be enumerated.

ACPI Settings

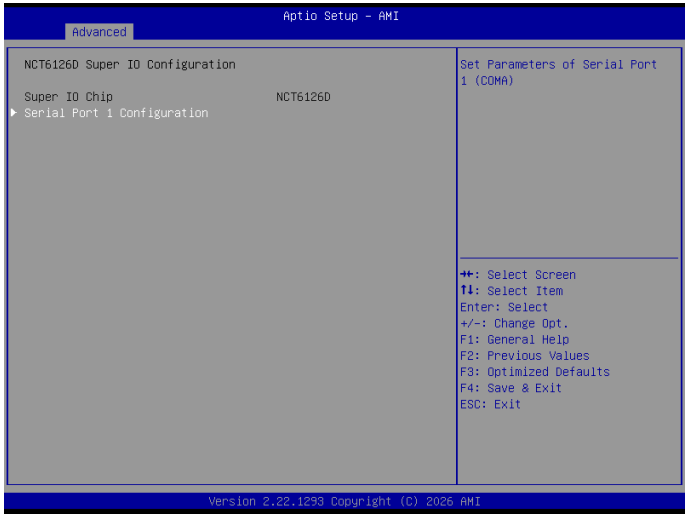


Enable Hibernation
Enable or disable system ability to hibernation (OS/S4 Sleep State). This option may not be effective with some operating systems.

ACPI Sleep State
Select the highest ACPI sleep state the system will enter when the suspend button is pressed.

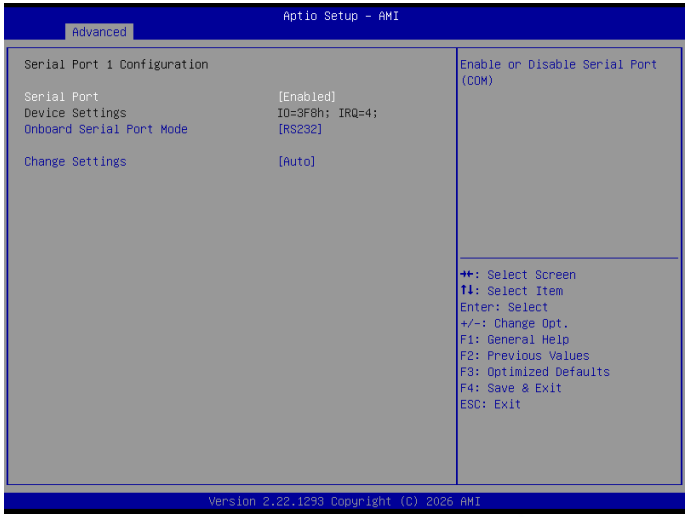
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NCT6126D Super IO Configuration



Serial Port 1 Configuration
Press <Enter> to open the submenu.

NCT6126D Super IO Configuration > Serial Port 1 Configuration



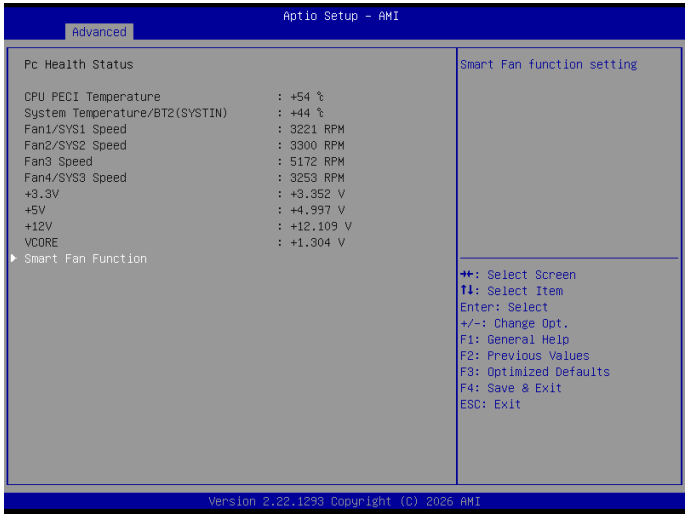
Serial Port
Enable or disable serial port (COM).

Onboard Serial Port Mode
Configure the serial port mode to RS232 or RS485 Auto.

Changes Settings
Select an optimal setting for the Super IO device.

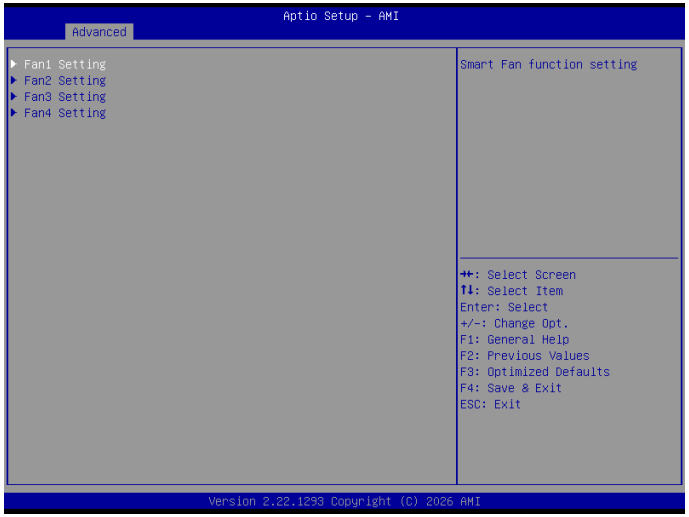
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Hardware Monitor



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

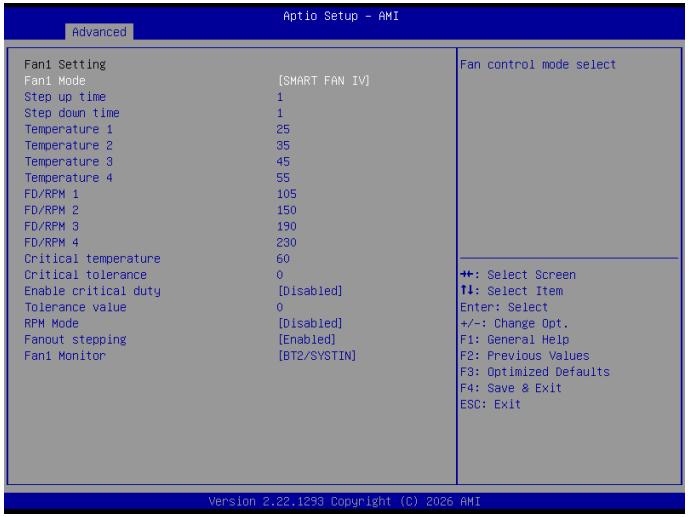
Hardware Monitor > Smart Fan Function



Fan 1/2/3/4 Setting
Press <Enter> to access each submenu.

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Hardware Monitor > Smart Fan Function



Fan1/2/3/4 Mode
Configure the fan mode.

Step up time
The amount of time fan takes to increase its value by one step.

Step down time
The amount of time fan takes to decrease its value by one step.

Temperature 1/2/3/4 (Fan1/2/3/4)
Configure the temperature setting.

FD/RPM 1/2/3/4 (Fan1/2/3/4)
The value of Fan Duty/RPM when temperature is T1 to T4.

Critical temperature (Fan1/2/3/4)
Configure the time that fan out requires for reducing its value by one step.

Critical tolerance (Fan1/2/3/4)
Configure the tolerance of critical temperature.

Enable critical duty (Fan1/2/3/4)
Enables critical duty, if enabled, it will use critical duty value for fan out. If not will use full speed for fan out.

Tolerance value

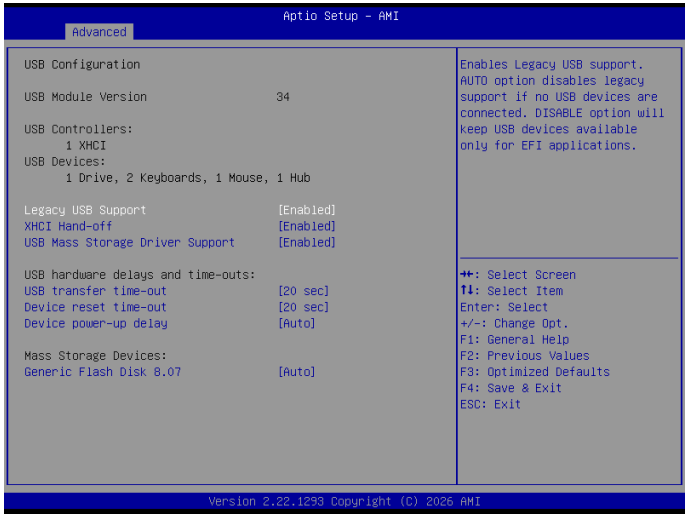
RPM Mode (Fan1/2/3/4)
Enable or disable Smart Fan IV close loop fan control RPM Mode.

Fanout stepping (Fan1/2/3)
Enable or disable Smart Fan IV stepping.

Fan1/2/3/4 Monitor (Fan1/2/3/4)
Select a mode for fan monitor.

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USB Configuration



Legacy USB Support
Enabled Enable legacy USB. Auto Disable support for legacy when no USB devices are connected. Disabled Keep 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.

USB Mass Storage Driver Support
Enable or disable USB mass storage driver support.

USB transfer time-out
The time-out value for control, bulk, and Interrupt transfers.

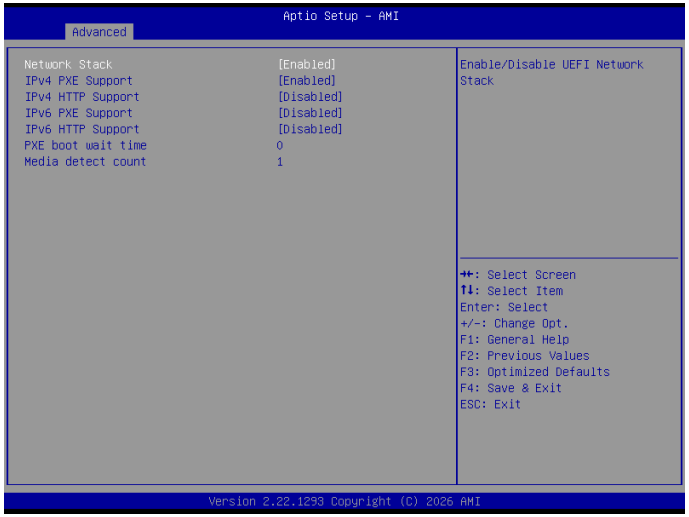
Device reset time-out
Selects the USB mass storage device's start unit command timeout.

Device power-up delay
Maximum time the value will take before it properly reports itself to the Host Controller. "Auto" uses default value: for a Root port it is 100 ms, for a Hub port the delay is taken from Hub descriptor.

Mass Storage Devices
Configure the mass storage device emulation type. AUTO enumerates devices according to their media format. Optical drives are emulated as CDROM, drives with no media will be emulated according to a drive type.

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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 HTTP boot option will not be available.

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

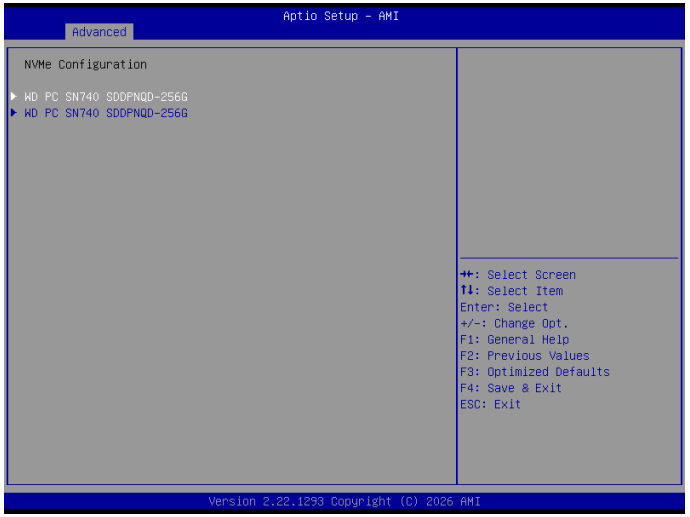
Ipv6 HTTP Support
Enable or disable Ipv6 HTTP support. If disabled, the IPv6 HTTP boot option will not be available.

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

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

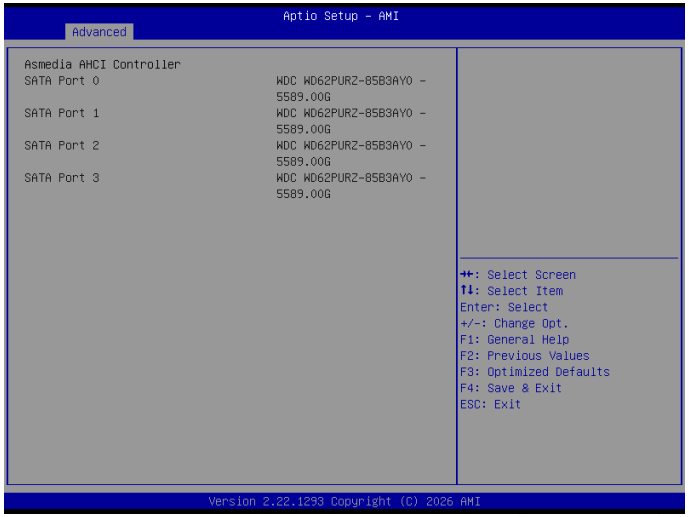
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NVMe Configuration



When any NVMe device is plugged in, press <Enter> to open each submenu and view detailed information about the corresponding device. The screenshot above may vary depending on the device plugged in.

Asmedia AHCI Controller



View information about the AHCI device(s) connected to this system.

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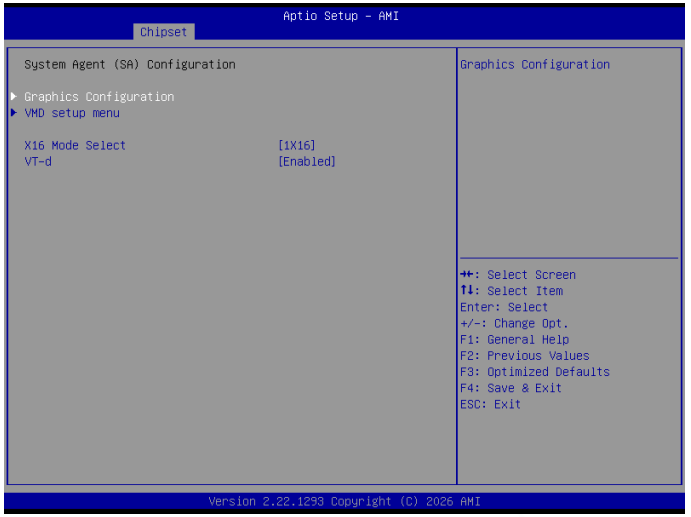
Chipset



System Agent (SA) Configuration
Press <Enter> to open the submenu.

PCH-IO Configuration
Press <Enter> to open the submenu.

System Agent (SA) Configuration



Graphics Configuration
Press <Enter> to open the submenu.

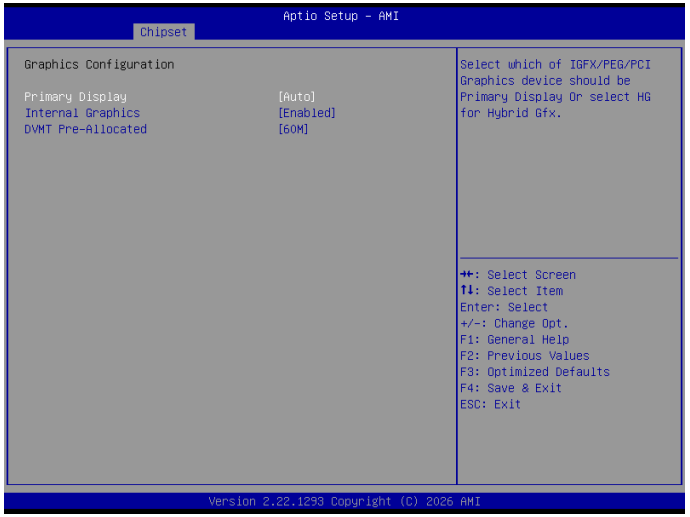
VMD setup menu
Press <Enter> to open the submenu.

X16 Mode Select
Select a PCIe mode.

VT-d
Enable or disable Intel® VT-d technology.

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System Agent (SA) Configuration > Graphics Configuration

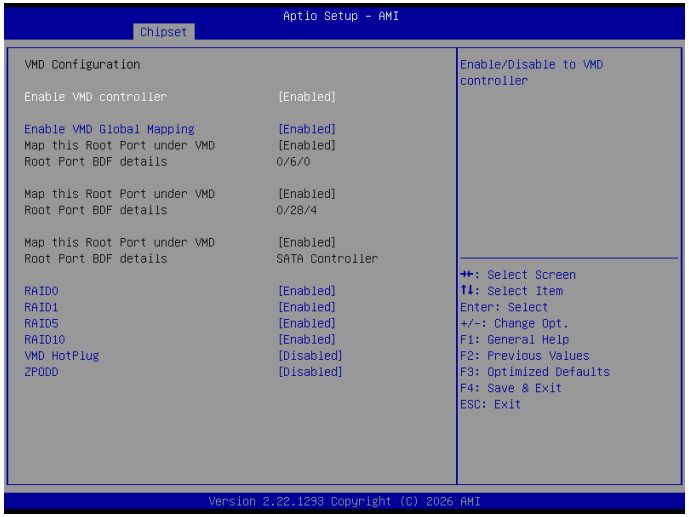


Primary Display
Select which of IGFX/PEG/PCI graphics device should be primary display or select HG for hybrid Gfx.

Internal Graphics
Keep IGFX enabled based on the setup options.

DVMT Pre-Allocated
Select DVMT 5.0 Pre-Allocated (Fixed) Graphics Memory size used by the Internal Graphics Device.

System Agent (SA) Configuration > VMD Configuration



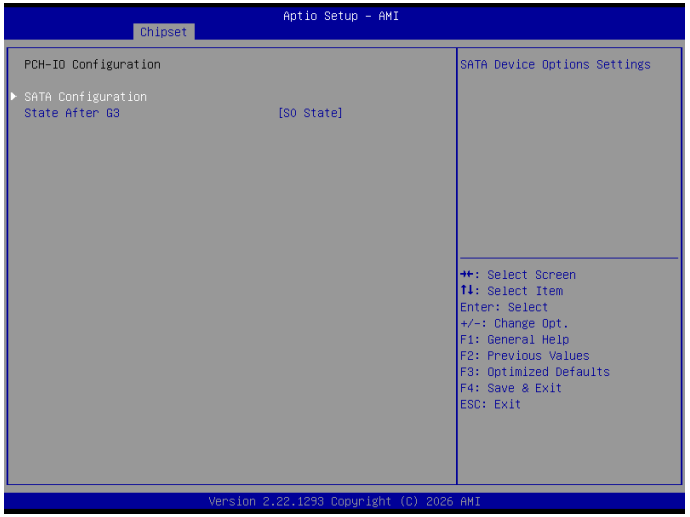
Enabled VMD controller
Enable or disable the VMD controller. Once enabled, more options will be available for configuration.

Enabled VMD Global Mapping / RAID0 / RAID1 / RAID5 / RAID10 / VMD Hotplug / ZP0DD
Enable or disable each option as needed.

For more detailed RAID configuration instructions, refer to Appendix C: RAID Configuration.

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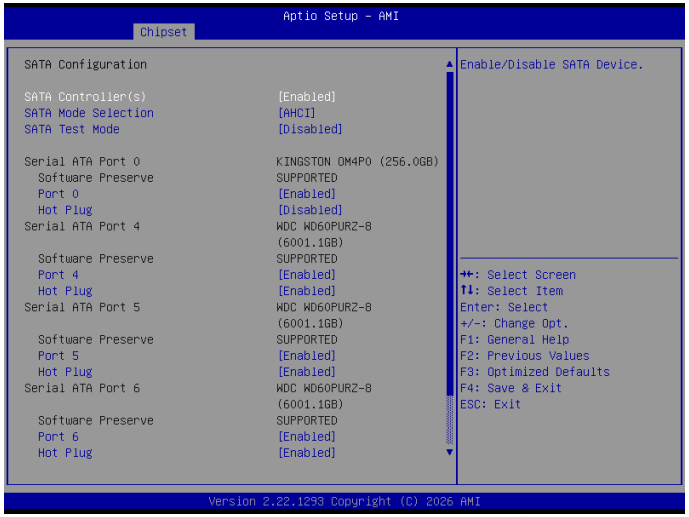
PCH-IO Configuration



SATA Configuration
Press <Enter> to open the submenu.

State After G3
Configure the power state when power is re-applied after a power failure (G3 state).

PCH-IO Configuration > SATA Configuration



SATA Controller(s)
Enable or disable the SATA device.

SATA Mode Selection
Configure the SATA 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.

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SATA Test Mode
Enable or disable SATA test mode.

Port 0~X / Hot Plug
Enable or disable the corresponding option as needed. X represents the port number, which depends on the connected SATA device.

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Security



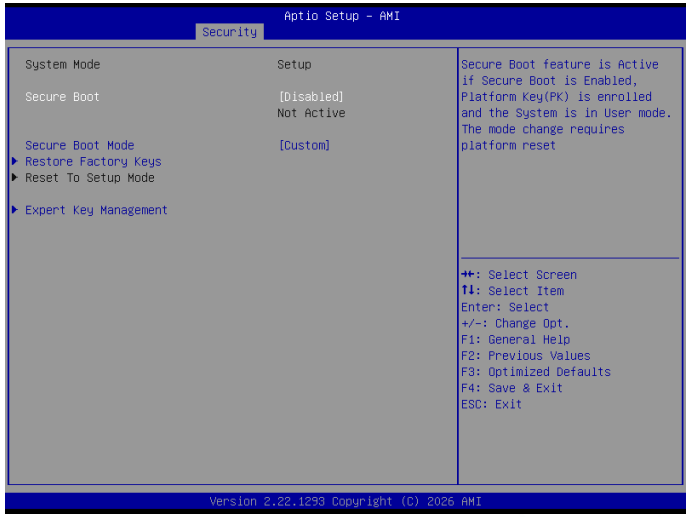
Disable Block and Freeze Lock
Override to allow SID authentication of TCG Storage device and to skip freeze lock command for SAT3 device. Modified value will be applicable only for next boot.

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

Secure Boot
Press <Enter> to open the submenu.

TCG Storage Security Configuration
Press <Enter> to open the submenu.

Secure Boot



Secure Boot
Secure boot feature is active if secure boot is enabled. Platform Key (PK) is enrolled and the system is in user mode. The mode change requires platform reset.

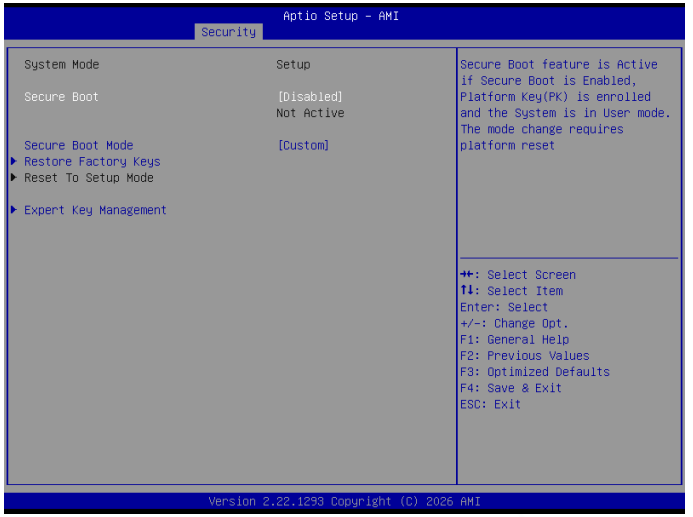
Secure Boot Mode
Select to configure the secure boot mode.
Standard: Fixed secure boot policy.
Custom: Changeable Image Execution policy and Secure Boot key databases.

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Restore Factory Keys
Press <Enter> to open the submenu.

Expert Key Management
Press <Enter> to open the submenu.

Secure Boot > Restore Factory Keys



Factory Key Provision
Install factory default secure boot keys after the platform reset and while the system is in Setup mode.

Restore Factory Keys
Force system into User Mode. Install factory default Secure Boot Key databases.

Reset To Setup Mode
Delete all Secure Boot key databases from NVRAM.

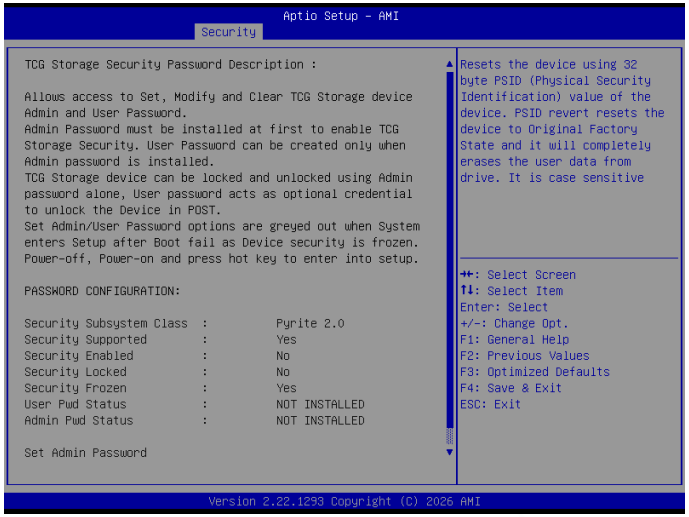
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Enroll Efi Image
Run the image in Secure Boot Mode.

Export Secure Boot Variables
Copy NVRAM content of Secure Boot variables to files in a root folder on a file system device.

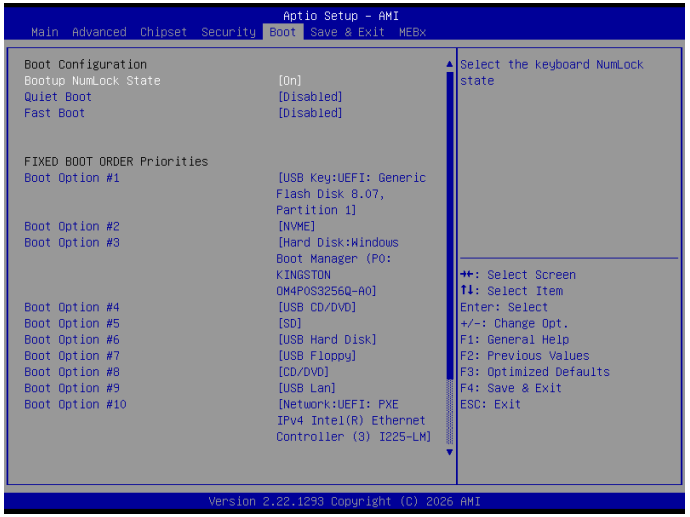
Platform Key (PK) / Key Exchange Keys (KEK) / Authorized Signatures (db) / Forbidden Signatures (dbx) / Authorized TimeStamps (dbt) / OsRecovery Signatures (dbr)
Enroll factory defaults or load the keys from a file.

TCG Storage Security Configuration



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Boot



Bootup NumLock State
Select the keyboard NumLock state.

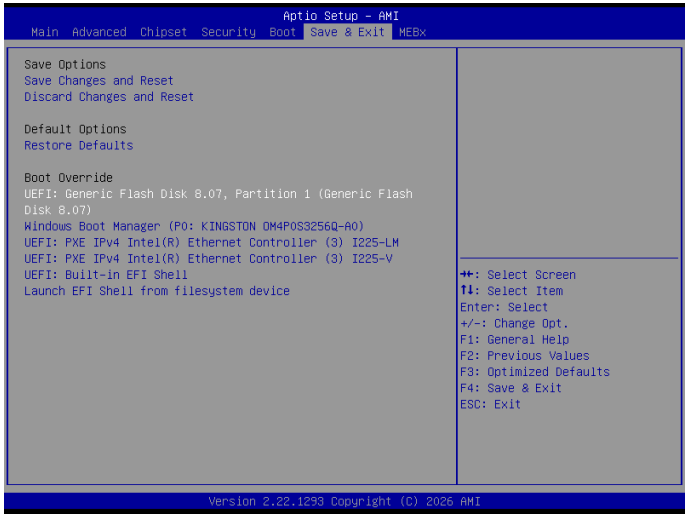
Quiet Boot
Enable or disable the quiet boot function.

Fast Boot
Enable or disable boot with initialization of a minimal set of devices required to launch active boot option. This doesn't affect the BBS boot options.

FIXED BOOT ORDER PRIORITIES
Boot Option 1~X
Adjust the boot sequence of the system. Boot Option #1 is the first boot device that the system will boot from, next will be Boot Option #2 and so forth. X represents the number of connected devices.

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Save & Exit



Save Changes and Reset
To save the changes and reset, select this field then press <Enter>. A dialog box will appear. Confirm by selecting Yes.

Discard Changes and Reset
To exit the Setup utility and reset without saving the changes, select this field then press <Enter>. You may be prompted to confirm again before exiting.

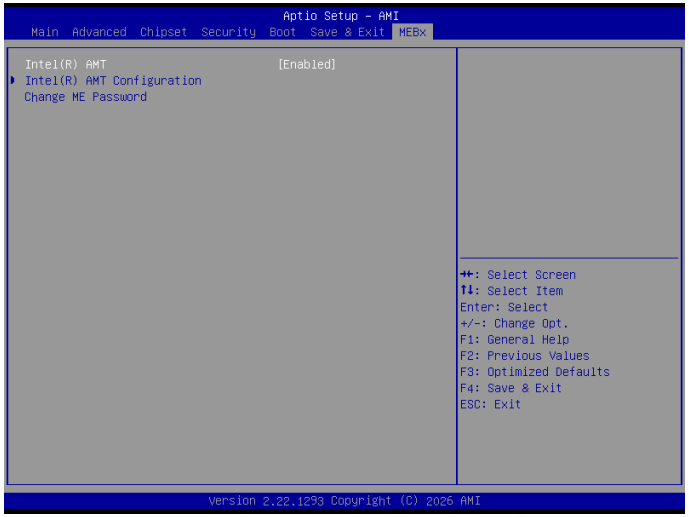
Restore Defaults
To restore the BIOS to default settings, select this field then press <Enter>. A dialog box will appear. Confirm by selecting Yes.

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>

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MEBx





Intel(R) ME Password
Press <Enter> to login. By default, the password is “admin.“

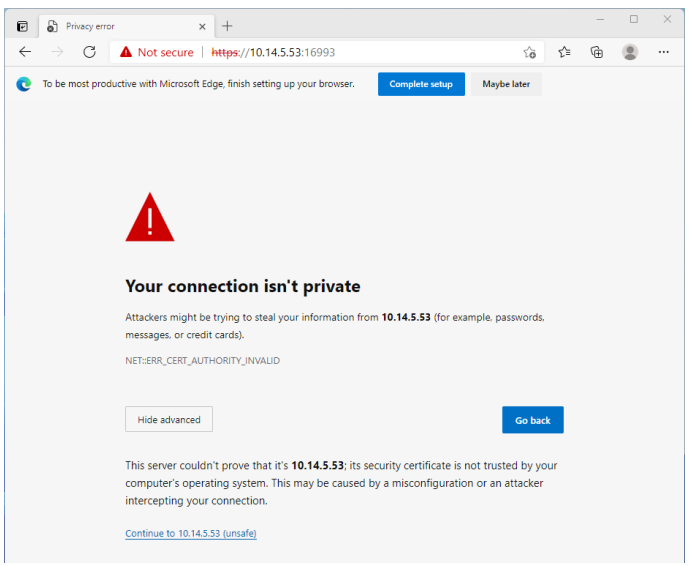
Intel(R) AMT.
Enable or disable Intel(R) AMT.

Intel(R) AMT Configuration Change ME Password.
Change the password. The password must be at least 8 characters long and include a combination of uppercase letters, lowercase letters, numbers, and symbols. For example, !QAZ1qaz.

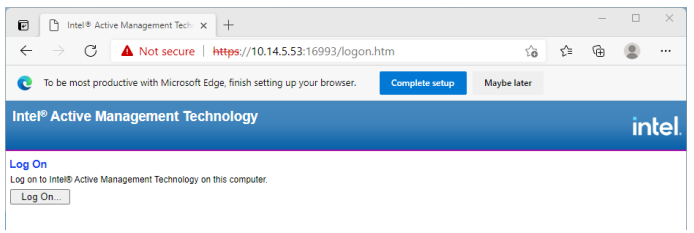
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Appendix A: Intel AMT Configuration

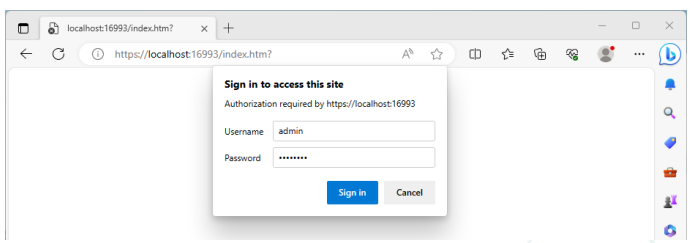
1. Enter the operating system and log in to the IAMT configuration web page using https://ipaddress_of_PC:16993
   For example:
   1-1. https://10.14.5.53:16993



Click the **Continue** if a warning message appears to remind you that the connection isn't private.



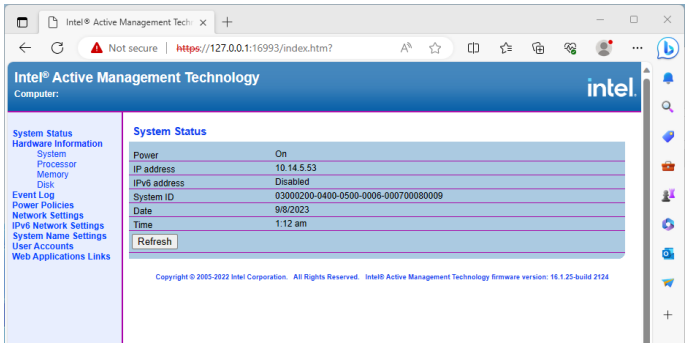
1-2. Account: adimin
1-3. Password: The password you have changed in step 1.



Alternatively, you can access IAMT configuration page by https://127.0.0.1:16993 or https://localhost:16993 on local side.

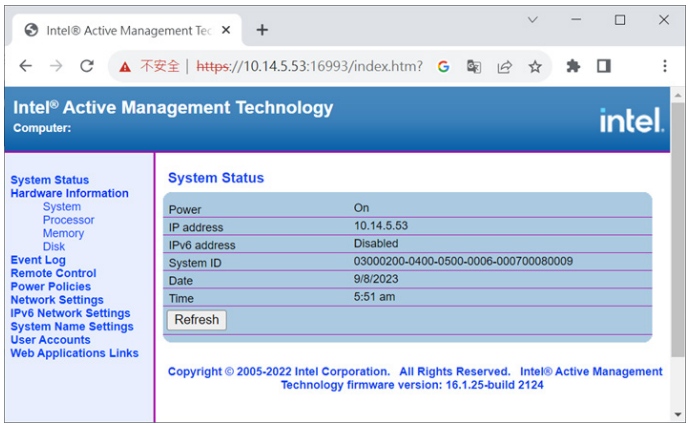
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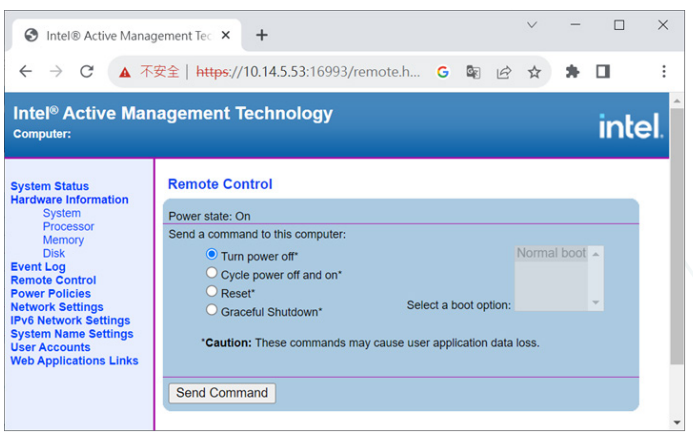
2. The screen should look like the image shown below after a successful login.



3. Follow the same login procedure as outlined in step 1 using the same address, account, and password. Ensure that the remote control system is in the same network segment as the target system.

4. Once logged in successfully, you will see the remote control page shown below.





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Appendix B: GPIO Instruction (Optional)

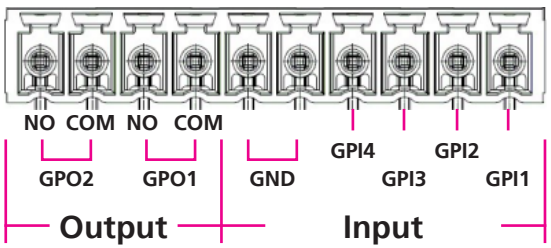
The GPIO function is an optional feature. If available, the GPIO expansion board comes pre-installed on the system by default.

Locating the GPIO Connector

- This device boasts a 10-pin GPIO pin conveniently located on its rear panel. This versatile digital pin, controlled by software, can function as an input, output, or both, allowing you to customize its behavior and connect with various external devices.

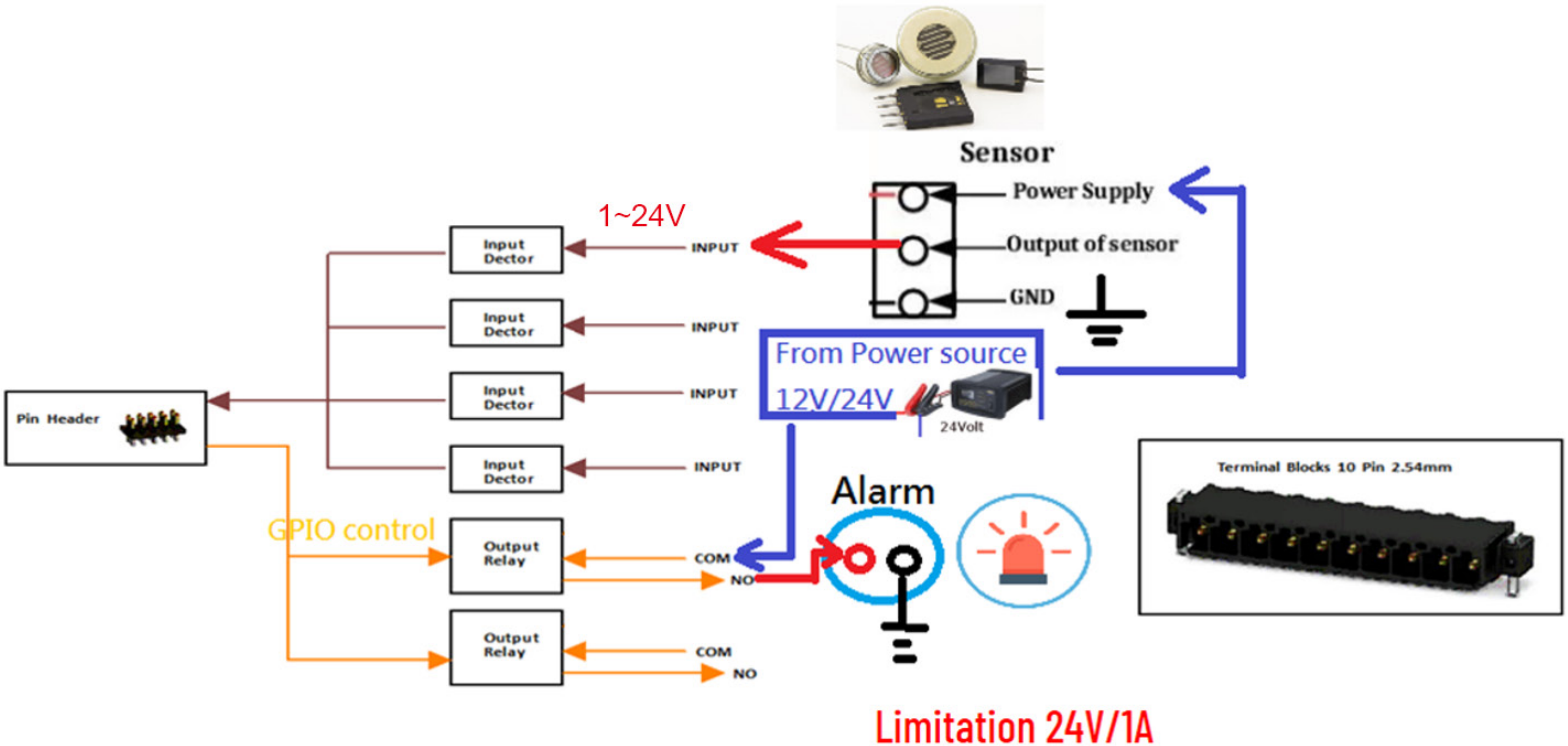


Understanding GPIO Pin Definitions



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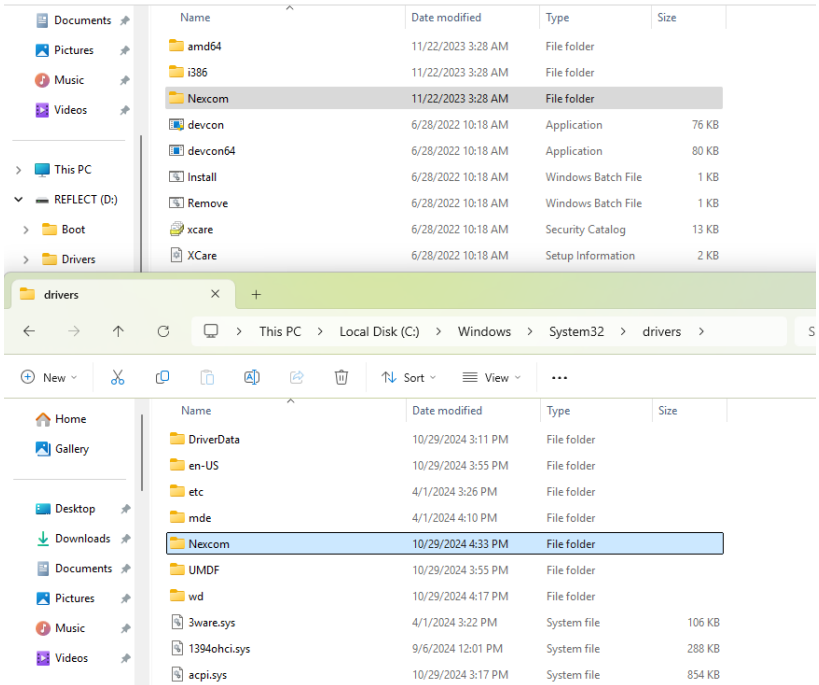
ISO GPIO 4in_2out Block Diagram



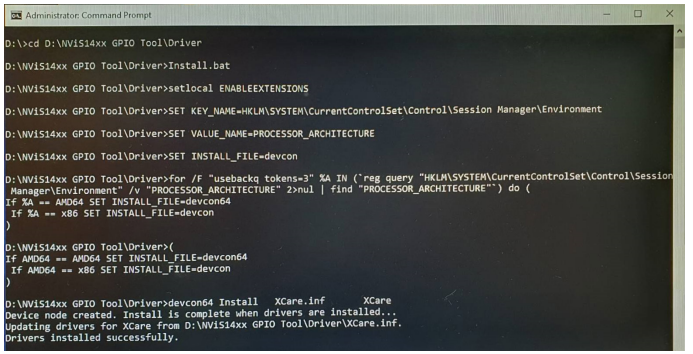
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Installing GPIO SDK

1. Unzip the file and then copy the Nexcom folder from the Driver folder into: C:\Windows\System32\drivers.

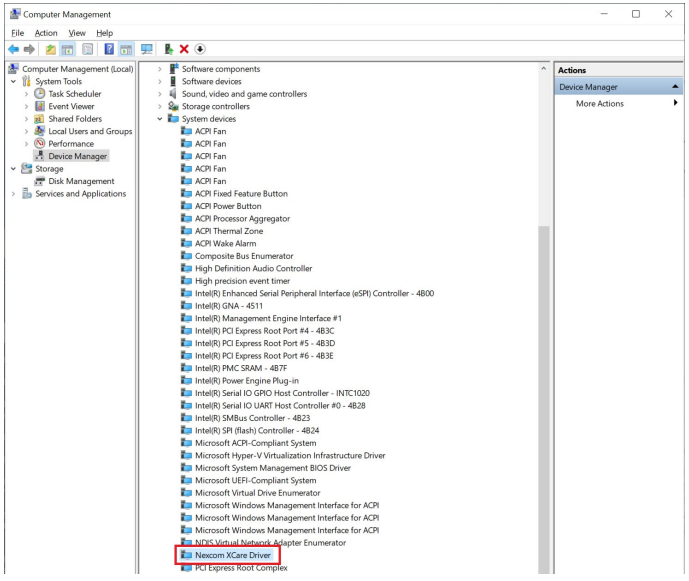


2. Execute the Command Prompt selecting “run as administrator” and then run “Driver\install.bat.” When the installation is successful, the screen will shown “Drivers installed successfully”.



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3. Open Computer Management and check Device Manager to see whether the **Nexcom XCare Driver** driver is enabled.



4. Once enabled, refer to the next section for basic configurations.

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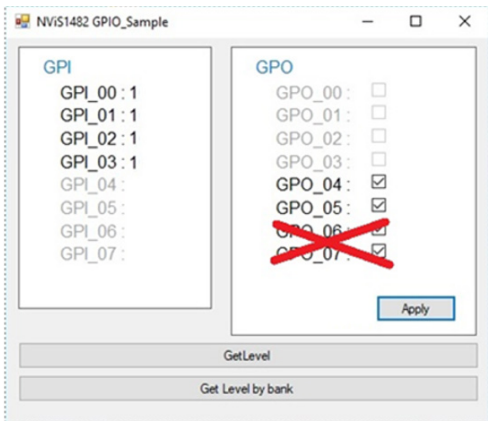
Basic Configuration

1. Run the **RN15_GPIO_Sample.exe** file.

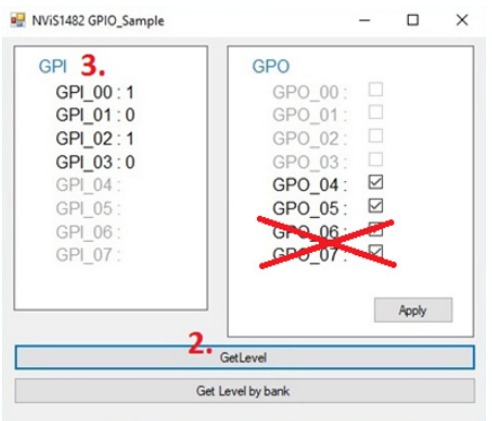
2. Follow the images below for configuring the GPIO.

GPI (4 IN)
Default GPI Off=1

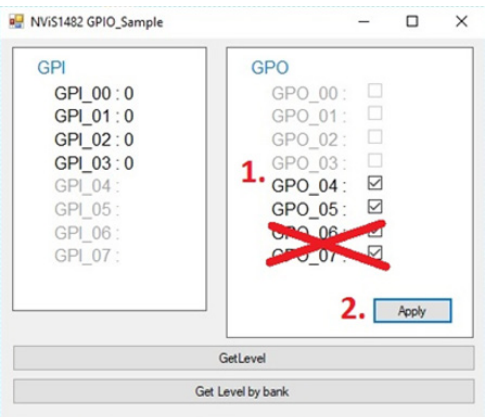
GPO (2 OUT)
Default GPO Off=V



GPI (4 IN)



GPO (2 OUT)



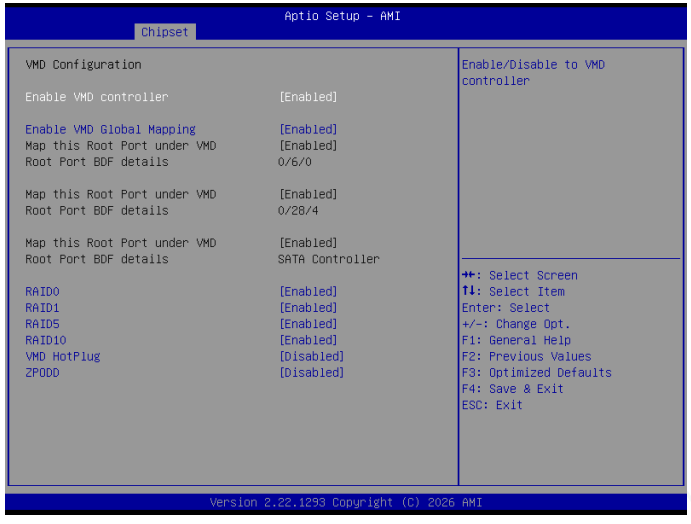
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APPENDIX C: RAID CONFIGURATION

1. Press the <Delete> button during the boot-up process to enter the BIOS. Once in the BIOS, navigate to **Chipset** > **System Agent (SA) Configuration** > **VMD setup menu**.

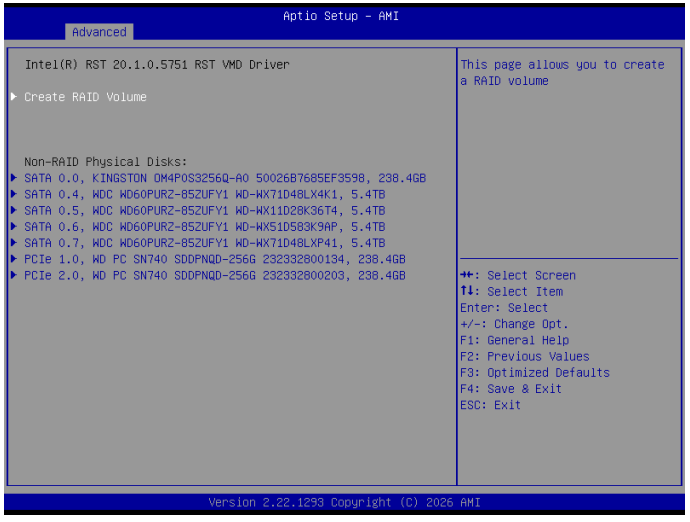


2. Enable **Enable VMD controller**, then go to **Save & Exit** > **Save Changes and Reset** to save and apply the VMD setting.

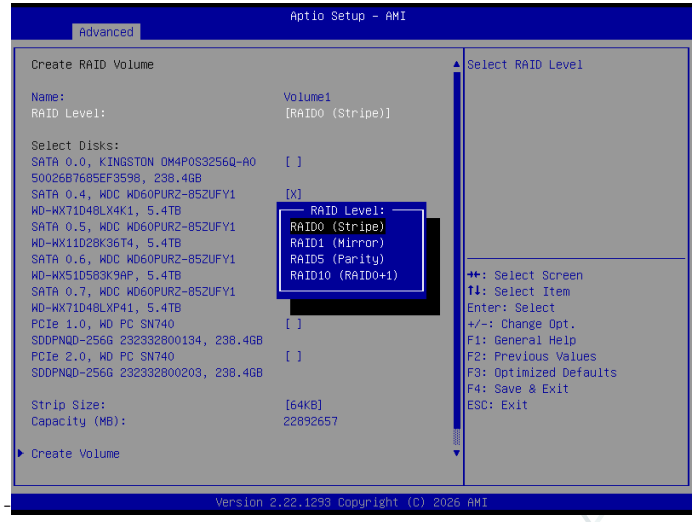


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3. Once the system has reset, follow the previous steps to return to the **VMD setup menu**. The **Intel(R) Rapid Storage Technology** option should now be available. Select it to configure the desired setting.

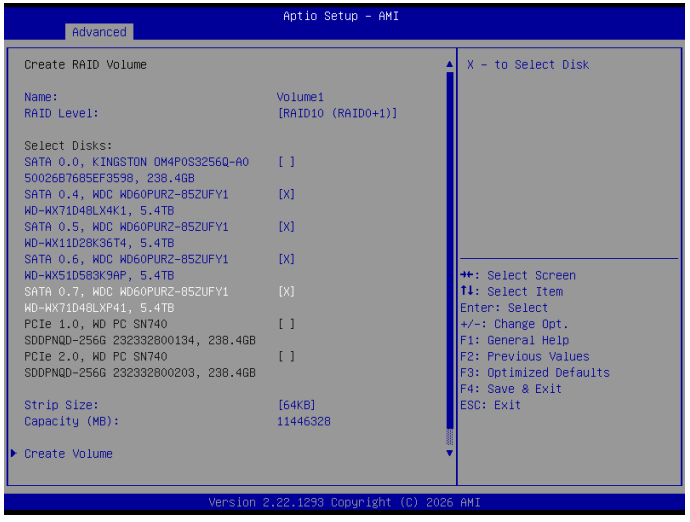


4. Enter the **Create RAID Volume** page and select the desired RAID level under **RAID Level**.

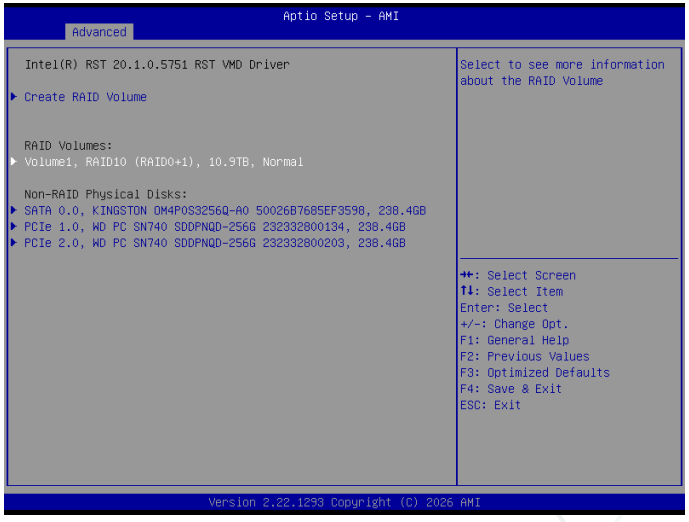


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5. Select the desired disks using <Space>. Once selected, press <Enter> on **Create Volume** to create the RAID volume.

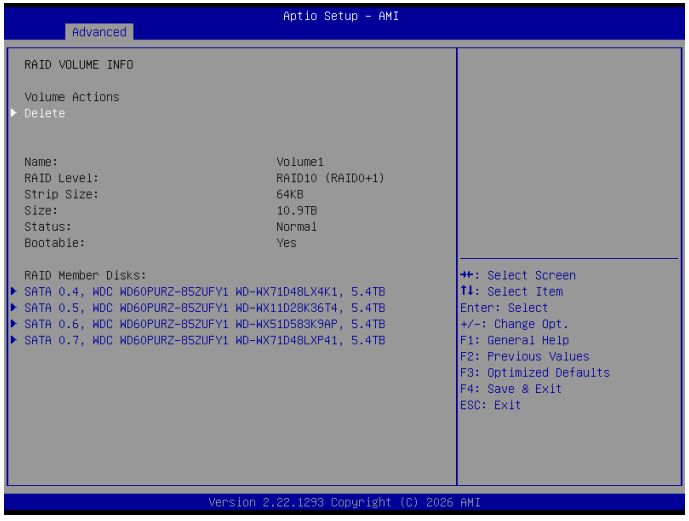


6. After the RAID volume is successfully created, the Volume1 option will be displayed.



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7. Press <Enter> to access the Volume1 settings to view detailed Volume1 status or delete Volume1.



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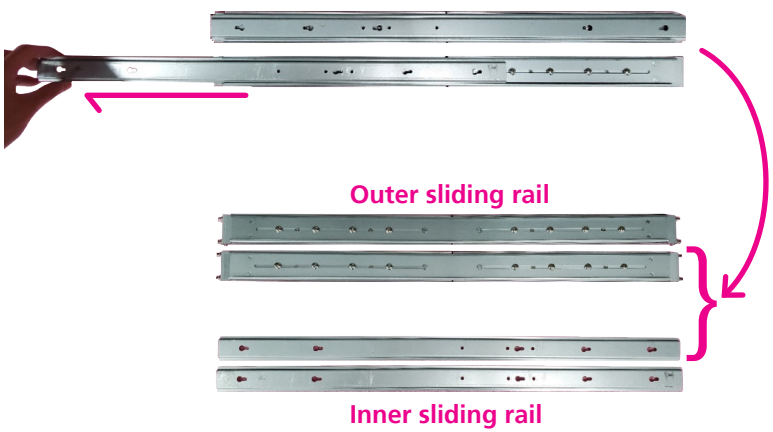
Appendix D: Installing the System in a Rack

For Racks with a Depth Between 600~800mm

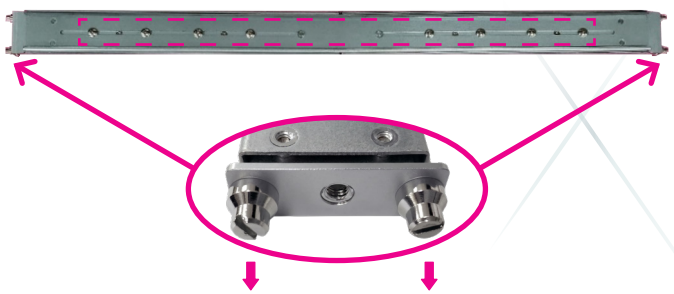
Before starting the installation procedure, check the package contents of the slide rails; it should contain:
4 x M4*6mm, 2 x M5*15mm, and 6 x M5*10mm screws

Outer Sliding Rail Installation

1. The slide rail kit consists of an inner and outer rail. Before starting the installation, detach the inner sliding rail from the outer one, and separate the inner and outer sliding rails.

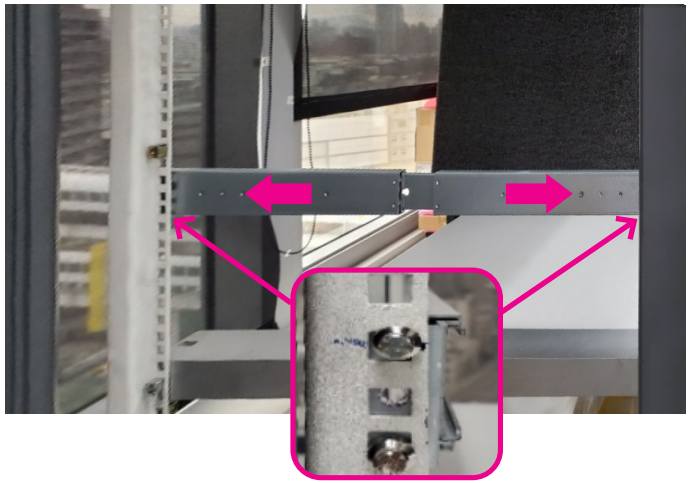


2. Loosen the screws marked in the red dashed square in the image below on the outer sliding rails, but do not completely remove them. Then, remove the screws on both sides. (left and right sides).

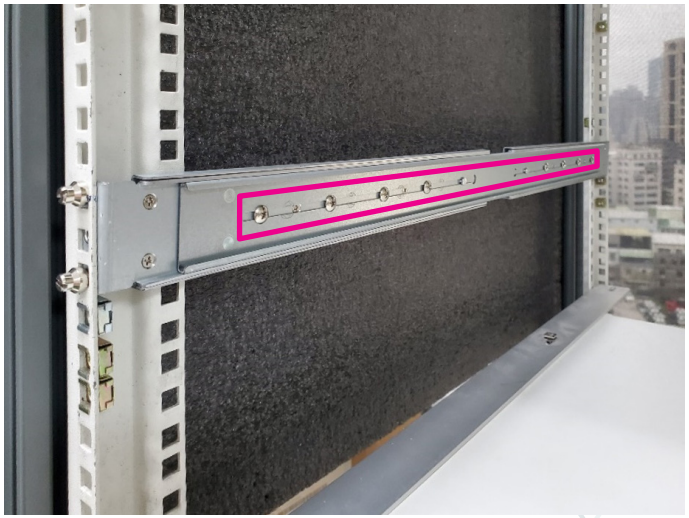


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3. Pull the outer sliding rails apart and extend them to match the depth of the rack, then lock the front and rear screws.



4. Tighten the screws that were loosened in step 2 to complete the installation, then repeat the same step to install the outer sliding rail on the other side.



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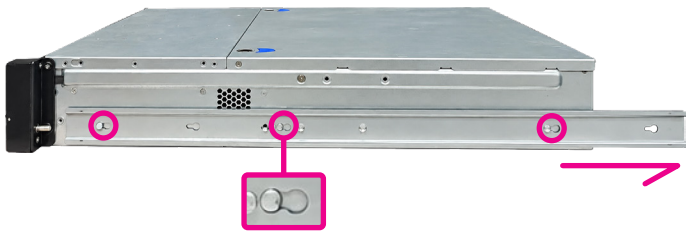
5. The outer sliding rail installation is complete.



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Inner Sliding Rail Installation

1. Attach the inner sliding rail by aligning it with the three flush rivets on the system and inserting it through the larger mounting holes, then pull the rail backward until it clicks into place in the smaller holes.



2. Tighten the inner sliding rail using M4 screws, then repeat the same step to install the inner sliding rail on the other side.



3. The inner sliding rail installation is completed.



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System Installation on Rack

1. Align the inner sliding rails installed on both sides of the system with the outer sliding rails installed on both sides of the rack, then gently slide the system into the rack.



2. Ensure that the system is fully inserted into the rack..



3. Open the plastic covers on both sides, then secure the system to the rack using screws. Ensure that all screws are tightened securely to complete the rack installation.



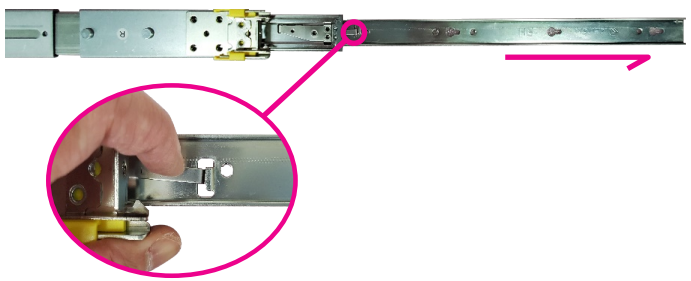
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For Racks with a Depth Over 800~1000mm

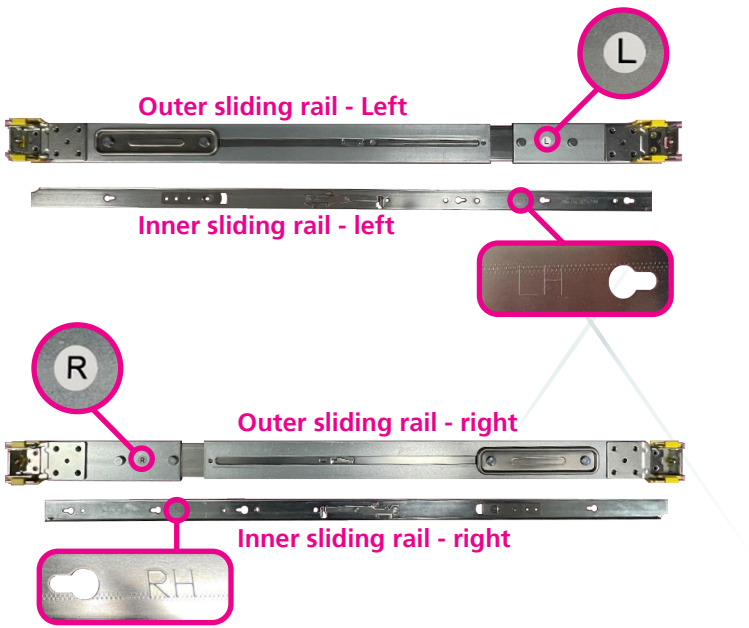
Before starting the installation procedure, check the package contents of the slide rails; it should contain:
2 x M4*11mm, 4 x M5*18mm

Outer Sliding Rail Installation

1. The slide rail kit consists of an inner and outer rail. Before starting the installation, detach the inner sliding rail from the outer one by pressing the release button on the outer rail and pulling it out.

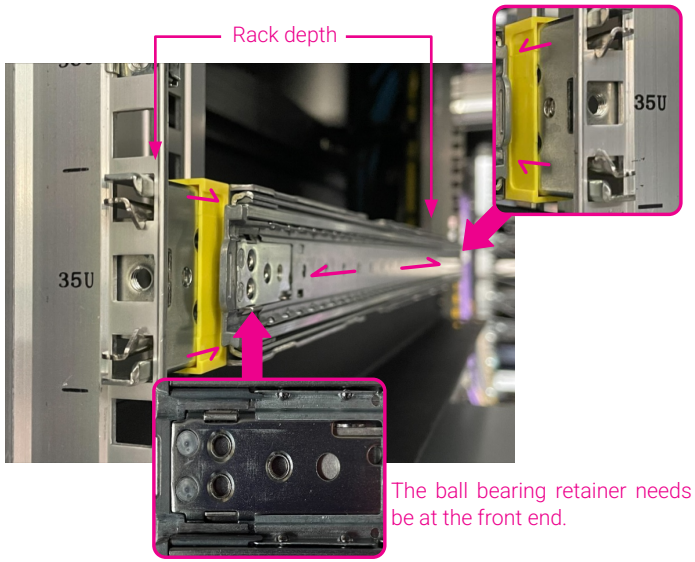


2. See the image below for inner vs. outer rails differences.

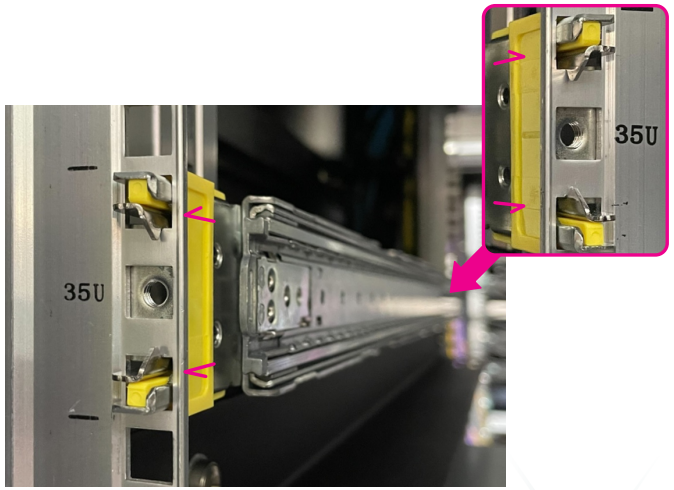


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3. Install the left outer rail: Extend the left rail to match the rack depth, push the yellow safety clips at the front and rear ends inwards, align the tabs with the rack square holes, and insert it.



4. Push the yellow safety clips at the front and rear ends outward until they lock in place.



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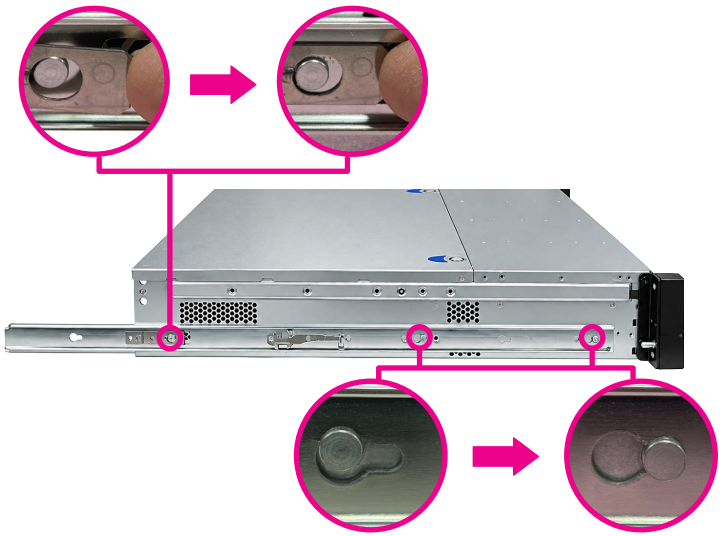
5. The outer rail installation is complete.



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Inner Sliding Rail Installation and Detachment

1. Install the inner sliding rail by aligning it with the three flush rivets on the system and inserting it through the mounting holes. Before aligning the flush rivet at the rear side of the system, use your finger to press the spring clip on the inner rail, as demonstrated below (left top circle), to release the latch and engage the rear flush rivet. Pull the rail backward until it clicks into place in the smaller holes.

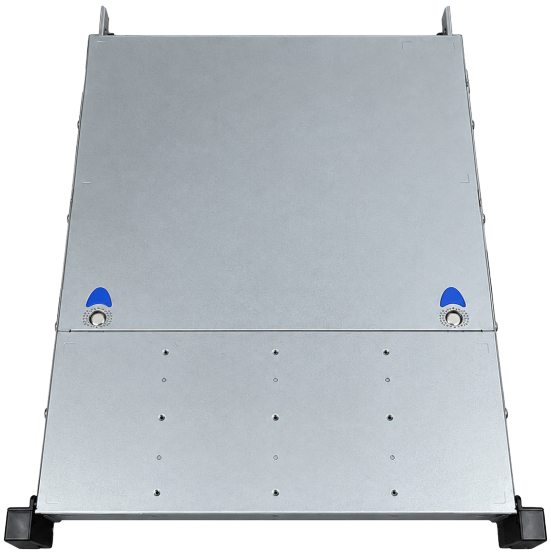


2. Tighten the inner sliding rail using M4*11mm screws, then repeat the same step to install the inner sliding rail on the other side.



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3. The inner sliding rail installation is completed.



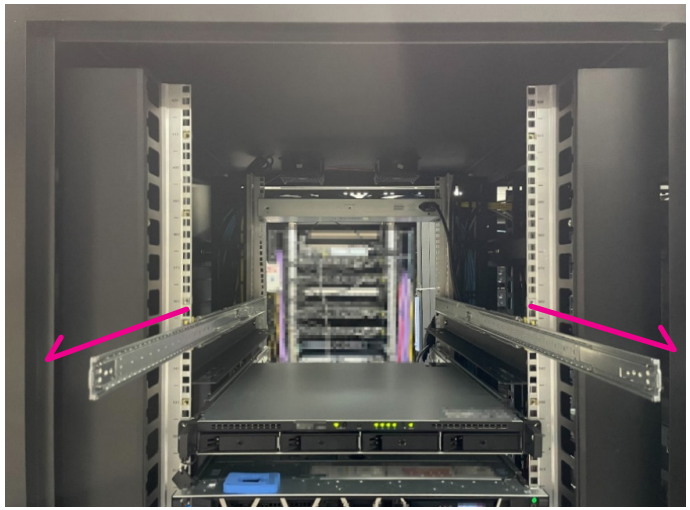
4. To remove the installed inner rail from system, push the spring clip outward (1) and then pull it inward (2) to detach it.



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System Installation on Rack

1. Pull out the installed outer rail from the server rack



2. Align the system with both the installed inner rail and the outer rail within the server rack on both sides, then insert the system into the outer rail.



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3. Toggle the latches on both sides of the outer rails.

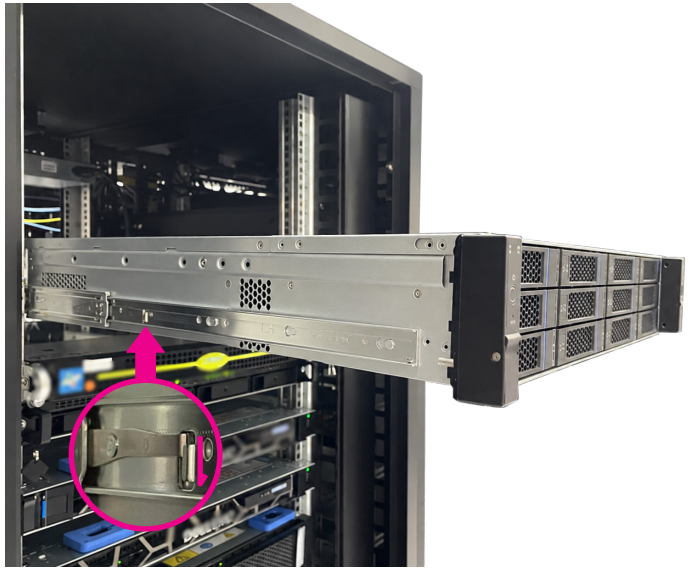


4. Insert the system into the rack until it can no longer be pushed in.



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5. Press the latches on both sides of the inner rails, then push the system that was not completely inserted into the rack in the previous step until it is fully inserted.





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6. Ensure that the system is fully inserted into the rack.



7. Open the plastic covers on both sides, then secure the system to the rack using screws. Ensure that all screws are tightened securely to complete the rack installation.



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