NEXCOM International Co., Ltd.

Intelligent Digital Security

Video Intelligent Surveillance

NViS 6708

User Manual

NEXCOM International Co., Ltd.
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www.nexcom.com

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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.

HDMI®

The terms HDMI, HDMI High-Definition Multimedia Interface, HDMI Trade dress and the HDMI Logos are trademarks or registered trademarks of HDMI Licensing Administrator, Inc.

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

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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, verify that the NViS 6708 package that you received is complete. Your package should have all the items listed in the following table.

No.	Item	Details
1	System	
2	CPU Cooler Box	Box
		CPU Cooler
		Thermal Grease
3	Accessories	Box
		PE Zipper Bag #3
		Flat Head Screw:F6#32Tx5mmNylok NIGP *16pcs
		PCI-E 8Pin to 6Pin+2Pin x2 Cable
4	EPE Top*2pcs	
5	EPE Bottom*2pcs	

Ordering Information

The following information below provides ordering information for the NViS 6708.

NViS 6708 (P/N: 10C00670800X0)
1U rack workstation NVR

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Chapter 1: Product Introduction

NViS 6708 Overview



Key Features

- System 2U Rackmount
- 14th/13th Gen Intel® Core™
- HDD 8 Bays 3.5”(Supports 2 group 4 HDDs in RAID 5,10)
- 1 x NVMe SSD, 1 x M.2 2242 SATA SSD
- Display DP1.4, HDMI® 2.0b x 1, HDMI® 1.4 x 1
- DDR4, up to 64GB
- 2 X 2.5GbE Intel Ethernet
- Audio in/out, Mic
- 1 x PCIe x16

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Hardware Specifications

CPU Support

- 14th/13th Gen Intel® Core™

Main Memory

- 2 x DDR4 SO-DIMM non-ECC, supports up to 64G
- Support OOB ECC

Platform Control Hub

- Intel® R680E

I/O Interface-Front

- 8 x Hot swappable 3.5" HDD bay
- 8 HDDs support 2 group 4 HDDs in RAID 5,10
- 2 x USB 2.0 Type-A (output Max 500mA per port)

I/O Interface-Rear

- 4 x USB 3.2 Gen2, Type-A (output Max 900mA per port)
- 1 x DP 1.4a (8K30)
- 1 x HDMI® 2.0b (4K60)
- 1 x HDMI® 1.4 (4K24)
- 1 x Audio port (Line in / Line out / MIC)
- 2 x RJ45 LAN port (2 x 2.5Gps)
- 1 x GPIO 4in/2out

Expansions

- 1 x PCIe x16

Storage

- 8 x Hot swappable 3.5" HDD, supports up to 22TB
- M.2 Key M 2280, supports NVMe Gen4
- M.2 Key B 2242, supports SATA3

Power Input

- Single PSU 600W

Dimensions

- 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)

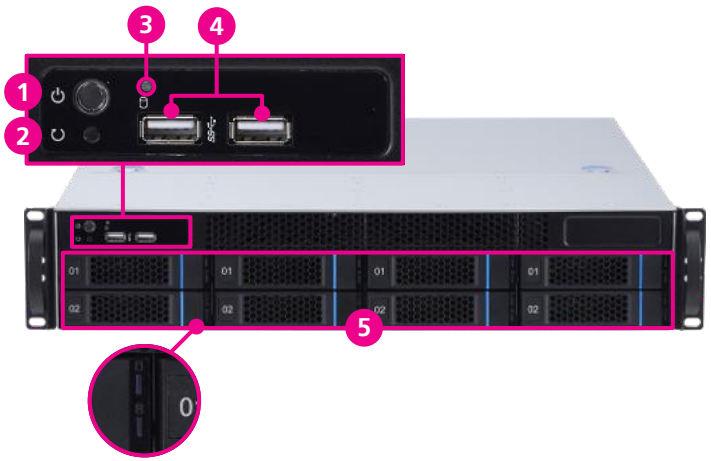
Certifications

- CE approval
- FCC Class A
- UL compliance

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Knowing Your NViS 6708

Front Panel



1. Power Button

Press to power on/off the system.

2. Reset Button

Reset the system by pushing this button.

3. Hard Disk Drive LED Indicator

Lights up when the hard disk drives are activated.

4. Dual USB 2.0 Ports

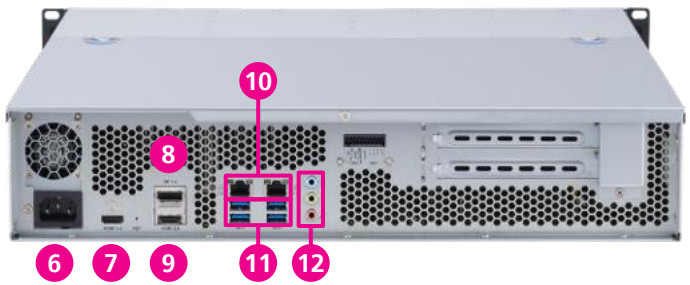
Used to connect USB 2.0 peripherals.

5. Swappable 3.5" HDD Bays

Used to 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.

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Rear Panel



6. ATX Power Connector

Used to plug the power cord.

7. HDMI® 1.4 Connector

Connect to an HDMI® 1.4 display.

8. DisplayPort 1.4 Connector

Connect to a DP1.4 display.

9. HDMI® 2.0b Connector

Connect to a HDMI® 2.0b display.

10. RJ45 LAN Ports

Connect the system to a local area network with speeds of up to 2.5Gbps.

11. USB 3.2 Gen 2 Ports

Used to connect USB 3.2 Gen 2 peripherals, it supports 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).

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13. GPIO Terminal Block (Optional)

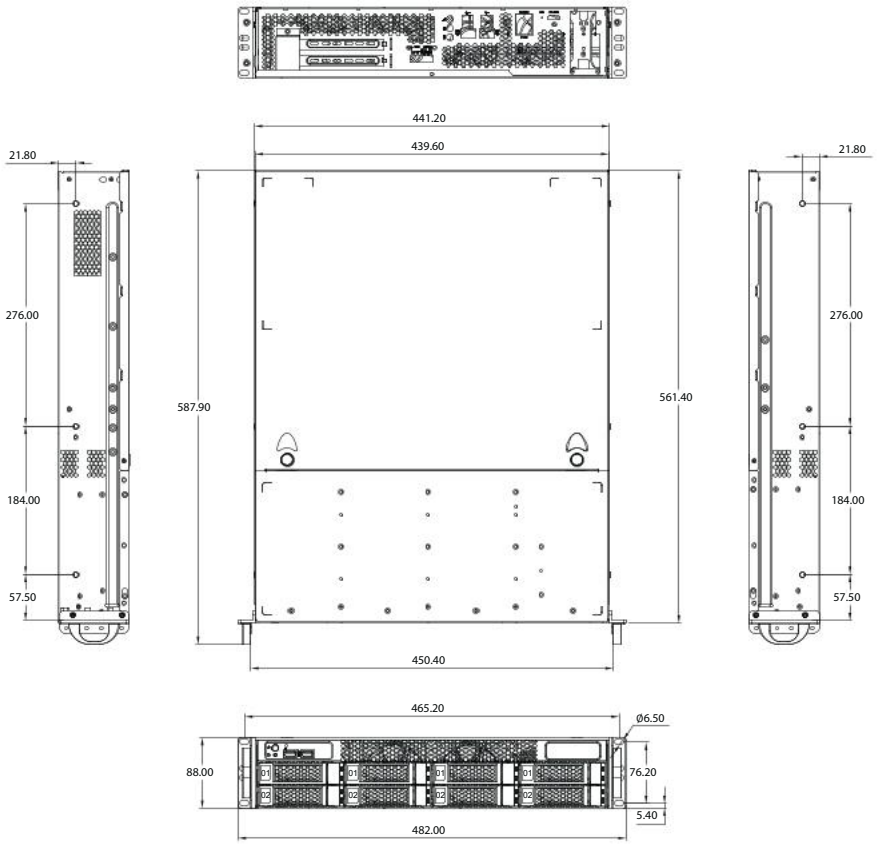
Connect to an external device with a maximum load of 24V, 1.0A.

14. PCIe Slots

Used to connect PCIe expansion cards, supporting PCIe Gen 4 1x16 or PCIe Gen 3 2x8, configured 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 6708 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.

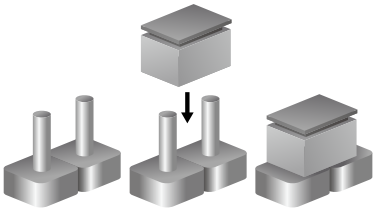
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Jumper Settings

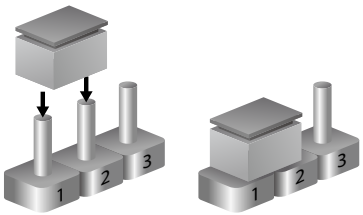
A jumper is the simplest kind of electric switch. It consists of two metal pins and a cap. When setting the jumpers, ensure that the jumper caps are placed on the correct pins. When the jumper cap is placed on both pins, the jumper is short. If you remove the jumper cap, or place the jumper cap on just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



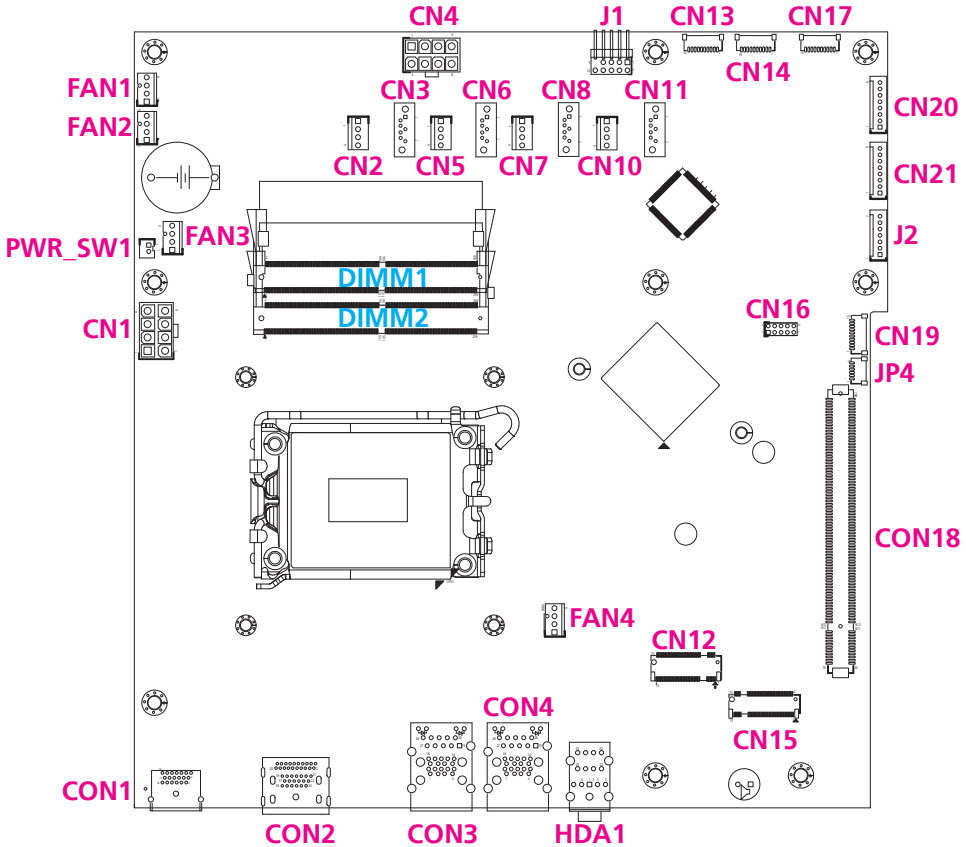
Three-Pin Jumpers: Pins 1 and 2 are Short



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Locations of the Mainboard Jumpers and Connectors

The figure below shows the locations of the NViS 6708 mainboard jumpers and connectors. Refer to the figure below for detailed information on pin settings and definitions marked in pink.

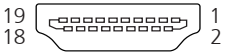


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External I/O Interfaces

HDMI 1.4 Connector

Connector location: CON1

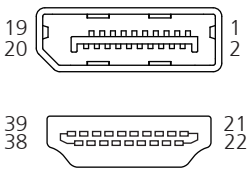


Pin	Definition	Pin	Definition
1	HDMI14_CM_DP2	3	HDMI14_CM_DN2
2	GND	4	HDMI14_CM_DP1
6	HDMI14_CM_DN1	5	GND
7	HDMI14_CM_DP0	9	HDMI14_CM_DN0
8	GND	10	HDMI14_CM_CKP
12	HDMI14_CM_CKN	11	GND
13	CEC	14	NC
15	HDMI14_SCL	16	HDMI14_SDA
17	GND	18	V5P0_HDMI0
19	HDMI14_HPD		

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DisplayPort 1.4a and HDMI 2.0b Connectors

Connector location: CON2



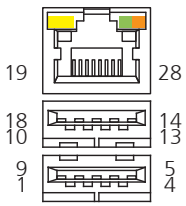
Pin	Definition	Pin	Definition
1	DP14_TX_CM_P0	2	GND1
3	DP14_TX_CM_N0	4	DP14_TX_CM_P1
5	GND2	6	DP14_TX_CM_N1
7	DP14_TX_CM_P2	8	GND3
9	DP14_TX_CM_N2	10	DP14_TX_CM_P3
11	GND4	12	DP14_TX_CM_N3
13	DP14_OB_AUX_EN	14	GND
15	DP14_AUXP_SNK	16	GND5
17	DP14_AUXN_SNK	18	DP14_HPD_SNK
19	GND	20	V3P3_DP14

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	NC	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

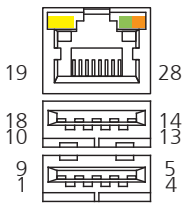
Act	Status
Blinking Yellow	Data activity
Off	No activity

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	NC	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

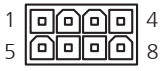
Pin	Definition	Pin	Definition
1	AGND_P	2	MIC_OUT_L_C
3	AGND_P	4	MIC1_JD
5	MIC_OUT_R_C		
22	LINE_OUT_L_C	23	AGND_G
24	FRONT_JD	25	LINE_OUT_R_C
32	LINE-L_C	33	AGND_B
34	LINEIN1_JD	35	LINE-R_C

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Internal I/O Interfaces

12V Power In Connector

Connector location: CN1



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: CN2, CN5, CN7, CN10



CN2

Pin	Definition	Pin	Definition
1	V12P0_HDD0	2	GND
3	GND	4	V5P0_HDD0

CN5

Pin	Definition	Pin	Definition
1	V12P0_HDD1	2	GND
3	GND	4	V5P0_HDD1

CN7

Pin	Definition	Pin	Definition
1	V12P0_HDD2	2	GND
3	GND	4	V5P0_HDD2

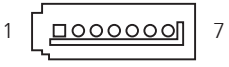
CN10

Pin	Definition	Pin	Definition
1	V12P0_HDD3	2	GND
3	GND	4	V5P0_HDD3

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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		

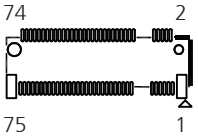
CN11 (Port3)

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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M.2 Key B Slot

Connector type: M.2 Key B 2280 (SATA)
Connector location: CN12



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	NC
21	M2B_CONFIG_0	22	NC
23	NC	24	NC
25	NC	26	NC
27	GND4	28	NC
29	M2B_PER1N	30	NC
31	M2B_PER1P	32	NC
33	GND5	34	NC
35	M2B_PET1N	36	NC
37	M2B_PET1P	38	DEVSLP
39	GND6	40	NC
41	M2B_PER0P	42	NC

Pin	Definition	Pin	Definition
43	M2B_PER0N	44	NC
45	GND7	46	NC
47	M2B_PET0N	48	NC
49	M2B_PET0P	50	M2B_PCI_RST_N
51	GND8	52	NC
53	NC	54	NC
55	NC	56	M2B_SMDAT
57	GND9	58	M2B_SMCLK
59	NC	60	NC
61	NC	62	NC
63	NC	64	NC
65	NC	66	NC
67	NC	68	M2B_SUSCLK
69	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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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 location: CN14

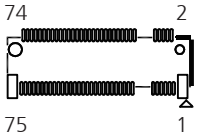


Pin	Definition	Pin	Definition
1	GND	2	HDR_RI_N
3	HDR_CTS_N	4	HDR_RTS_N
5	HDR_DSR_N	6	GND
7	HDR_DTR_N	8	HDR_TXD
9	HDR_RXD	10	HDR_DCD_N

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M.2 Key M Slot

Connector type: M.2 Key M 2280 (PCIe Gen 4 x4)
Connector location: CN15



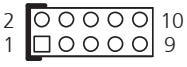
Pin	Definition	Pin	Definition
1	GND1	2	V3P3A_M2M_1
3	GND2	4	V3P3A_M2M_2
5	NVME_RXN3	6	M2M_FULL_PWROFF_N
7	NVME_RXP3	8	M2M_PLN_N
9	GND3	10	M2M_LED_OC
11	NVME_TXN3	12	V3P3A_M2M_6
13	NVME_TXP3	14	V3P3A_M2M_7
15	GND4	16	V3P3A_M2M_8
17	NVME_RXN2	18	V3P3A_M2M_9
19	NVME_RXP2	20	NC2
21	GND5	22	NC3
23	NVME_TXN2	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	GND14		

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GPIO 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	NC		NC
A7	NC		NC
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

Pin	Definition	Pin	Definition
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

Continued on the next page

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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

Pin	Definition	Pin	Definition
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_5	B4	GND_35
B5	SLOT1_SMCLK	B6	SLOT1_SMSDA
B7	GND_36	B8	V3P3S_SLOT_3
B9	NC	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

Pin	Definition	Pin	Definition
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

Continued on the next page

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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

Pin	Definition	Pin	Definition
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	SYS1_FAN_TACO	4	SYS1_FAN_PWM

FAN3

Pin	Definition	Pin	Definition
1	GND	2	V12P0S
3	CPU_FAN_TACO	4	CPU_FAN_PWM

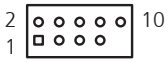
FAN4

Pin	Definition	Pin	Definition
1	GND	2	V12P0_FANG2
3	SYS3_FAN_TACO	4	SYS3_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	GND

POE Connector

Connector location: J2



Pin	Definition	Pin	Definition
1	V12POE	2	V12POE
3	POE_RXD_IN	4	POE_TXD_OUT
5	POE_RST_OUT	6	GND
7	GND		

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PWR_SW Connector

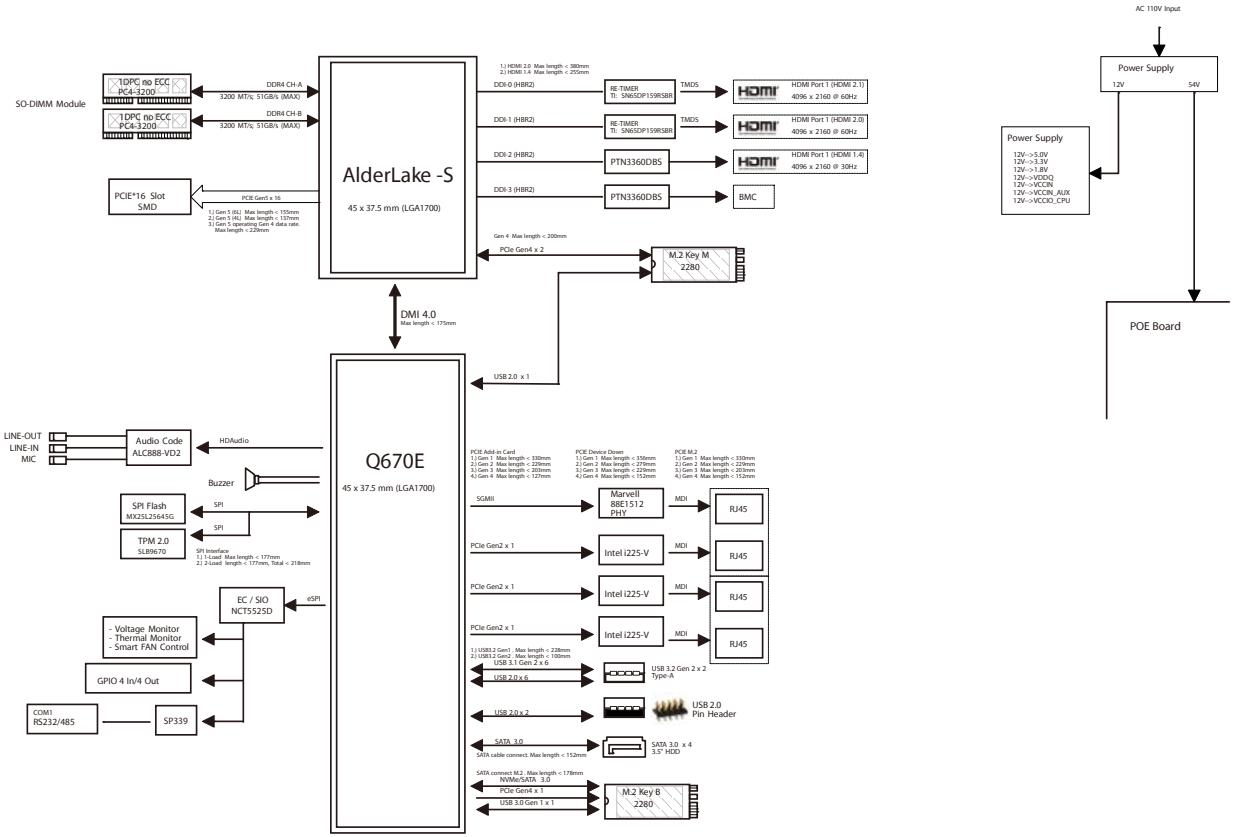
Connector type: Wire to BD connector
Connector location: PWR_SW1



Pin	Definition	Pin	Definition
1	GND	2	PWRBTN_N

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Block Diagram



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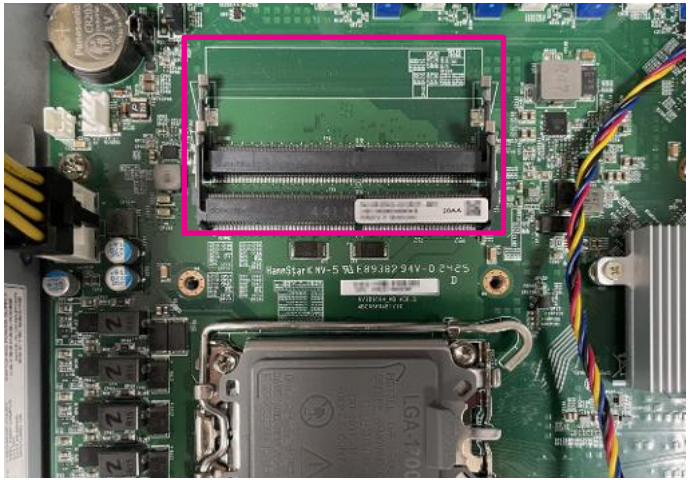
4. Once the top cover is removed, it will look like the image below.



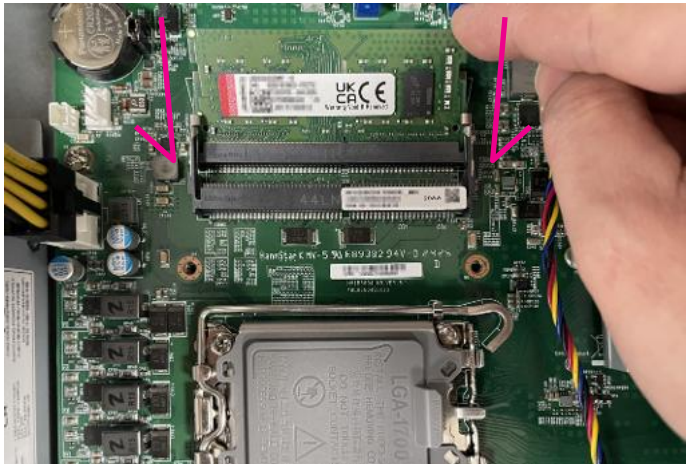
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Installing SO-DIMM DDR4 Memory Modules

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.

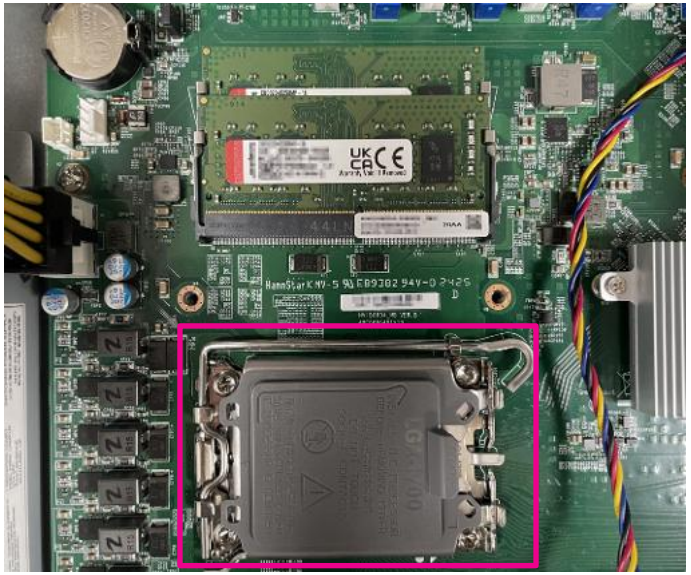
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3. The assembly steps are completed.



Installing a CPU

1. Locate the CPU sockets on the mainboard.

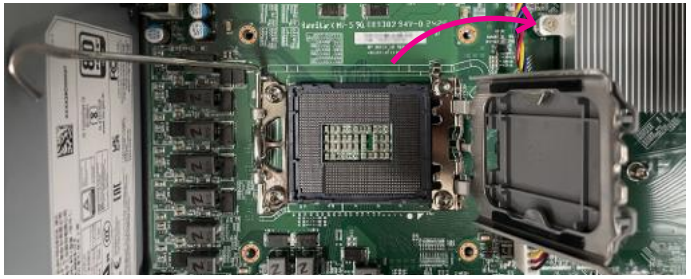


2. Release the load lever by pushing it down from the retention tab, then pull it up.





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.



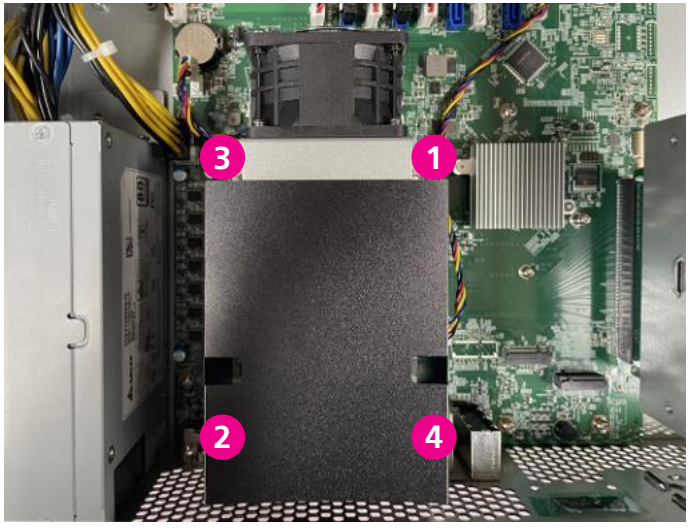


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3. Apply an appropriate quantity of thermal grease to the CPU and take note of the mounting holes around the CPU socket.

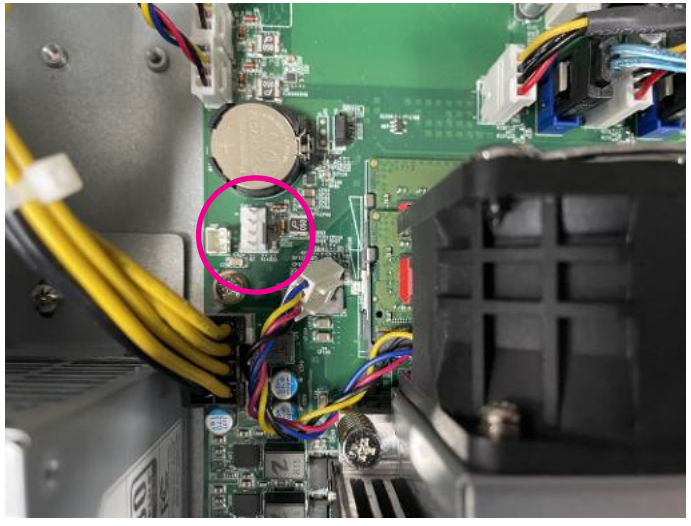


4. Place the heatsink module in position, aligning it with the mounting holes mentioned in the previous step on the mainboard. Tighten the screws following the order marked in the image below.

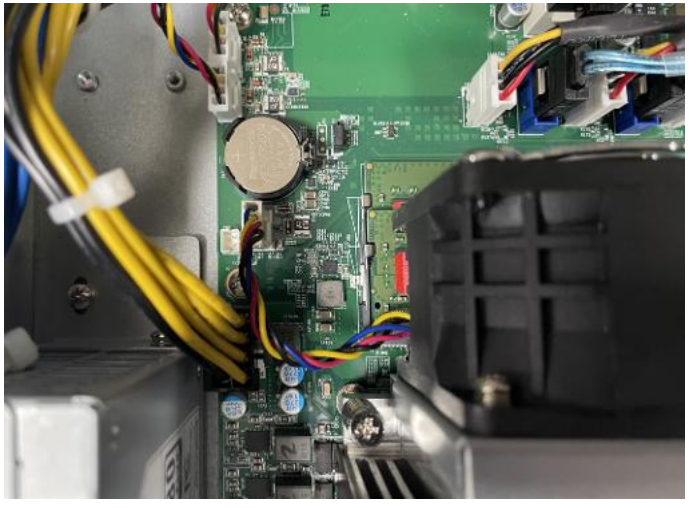


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5. Plug the heatsink module power connector into CPU fan header (FAN3) on the mainboard. Ensure the connector is fully inserted into the fan header.



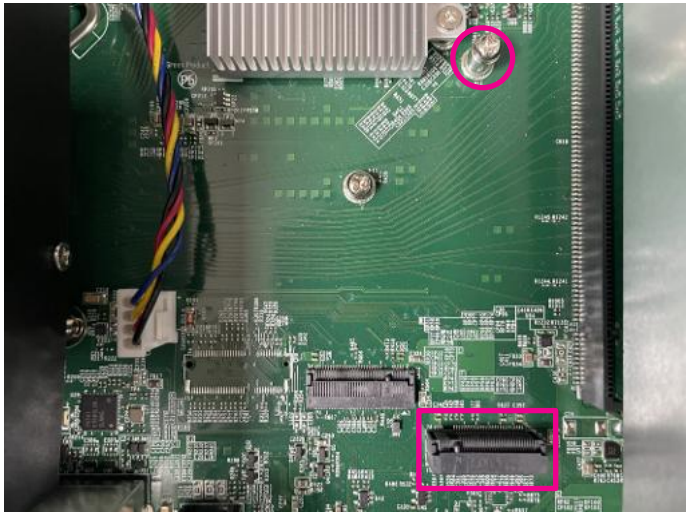
6. The installation is complete.



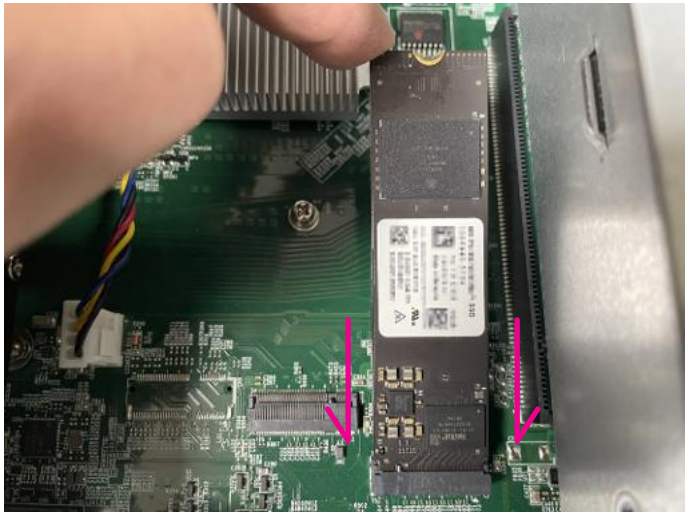
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Installing an M.2 Module (Key M 2280)

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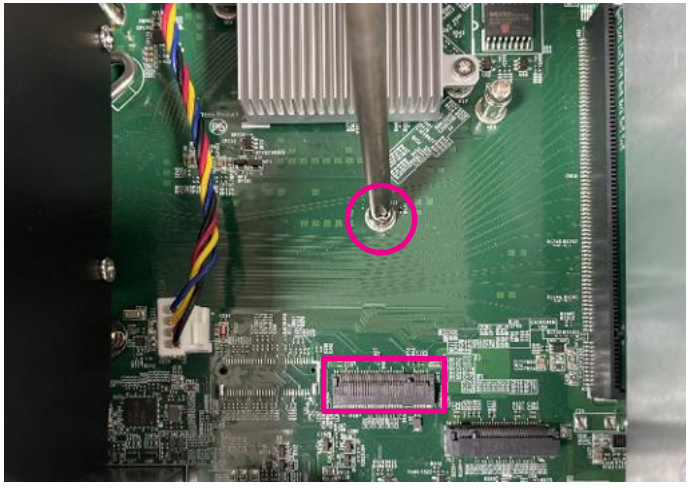
3. Push the M.2 module down and secure it with the screw that was removed from step 1.



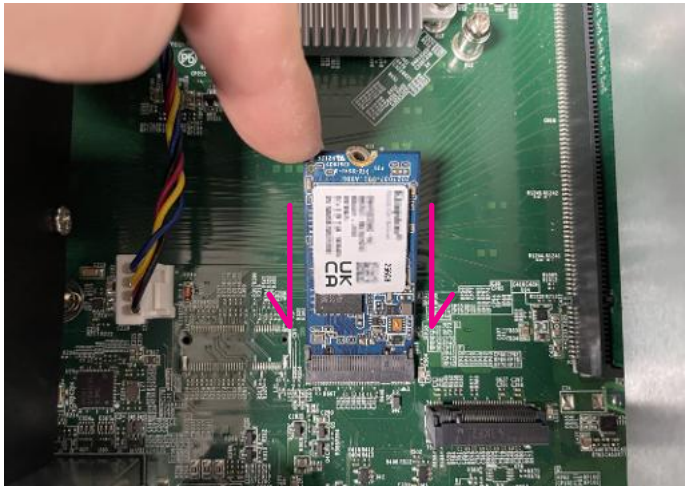
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Installing an M.2 Module (Key M 2242)

1. Loosen the screw on the mainboard 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.

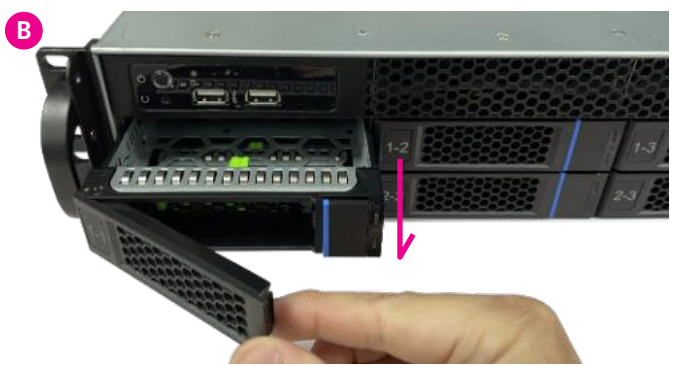


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Installing 3.5” HDD Device(s)

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.

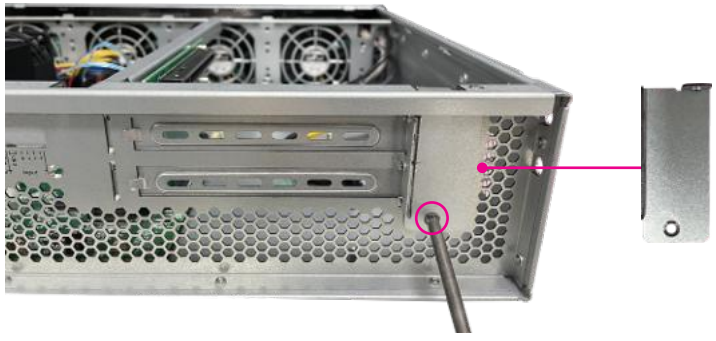


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Installing an Add-On Card

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

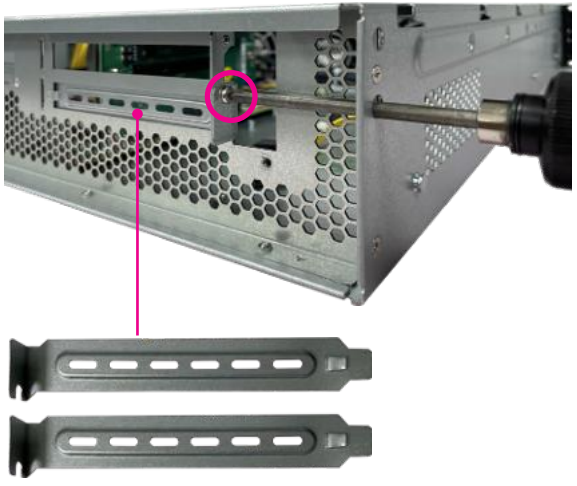




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2. Remove the PCIe brackets by loosening the screws on the chassis, then set the screws aside for later use.





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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.

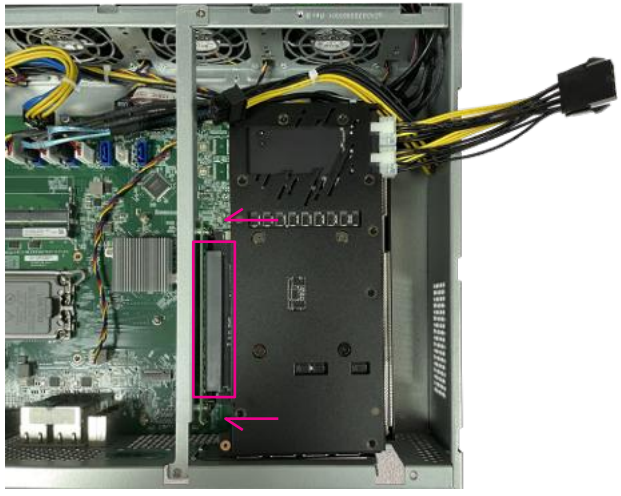


4. Plug the power cable into the add-on card.

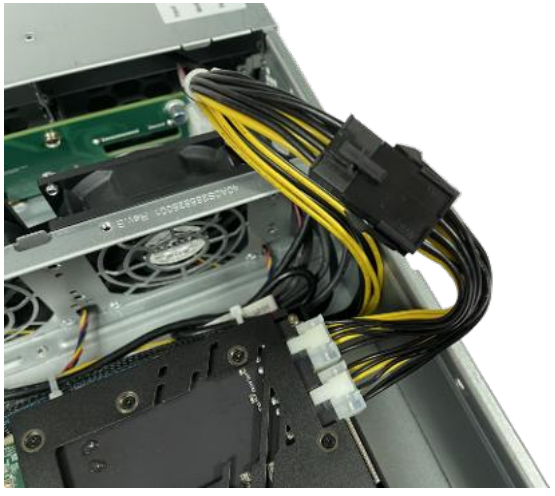


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5. Plug the add-on card into the motherboard.

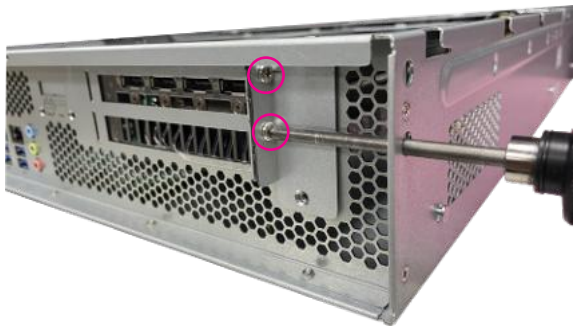


6. Insert the power cable into the system's power supply and organize the cable.

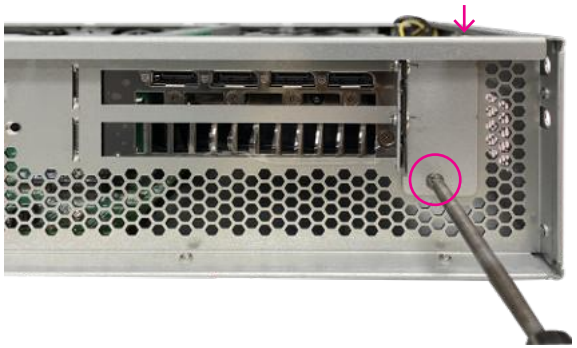


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7. Secure the add-on card with the screws removed in step 2.



8. Follow step 1 to reassemble the PCIe cover.



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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:

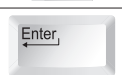
- If the error occurs before the display device is initialized, a series of beeps will be transmitted.
- If the error occurs after the display device is initialized, the screen will display the error message.

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

Press the 

key to enter Setup:

Legends

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

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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.

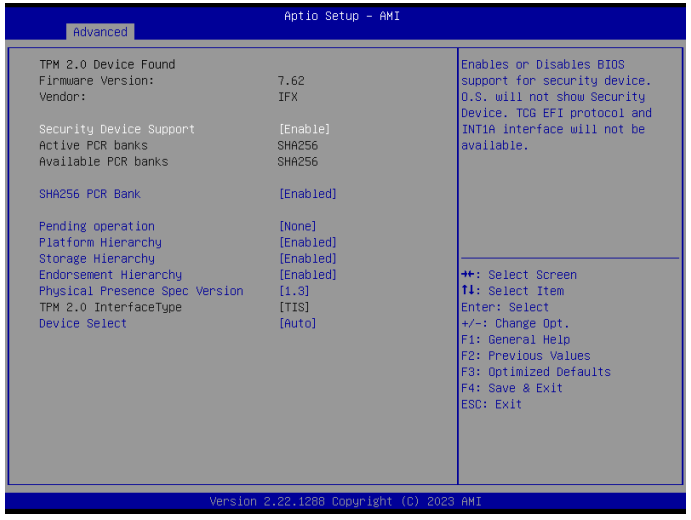
Submenu

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.

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TPM Configuration

Navigate to the **Advanced** tab within the BIOS menu, then go to **Trust Computing**.



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

SHA256 PCR Bank
Enable or disable SHA256 PCR Bank.

Pending operation
Schedule an operation for the security device.

Platform Hierarchy
Enable or disable platform hierarchy.

Storage Hierarchy
Enable or disable storage hierarchy.

Endorsement Hierarchy
Enable or disable endorsement hierarchy.

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.

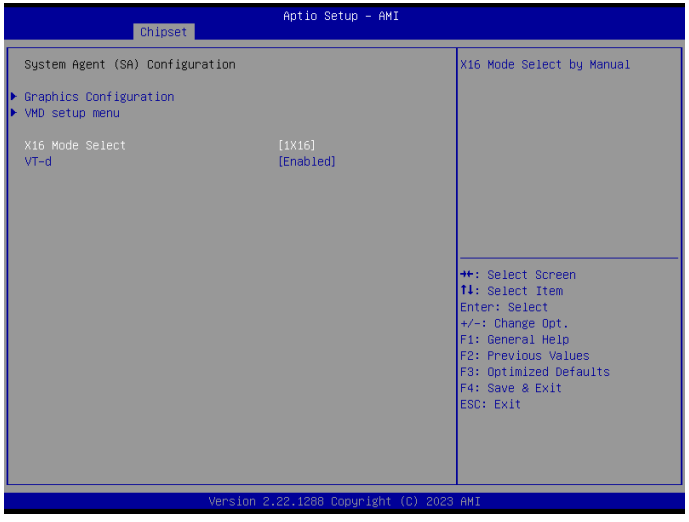
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PCIe BUS Configuration

1. Navigate to the **Clipset** tab within the BIOS menu.

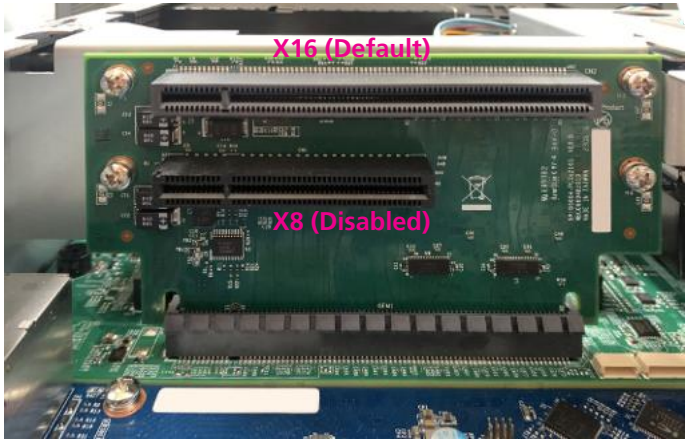


2. Go to **System Agent (SA) Configuration**, and then find the setting for PCIe slots (X16 Mode Select).

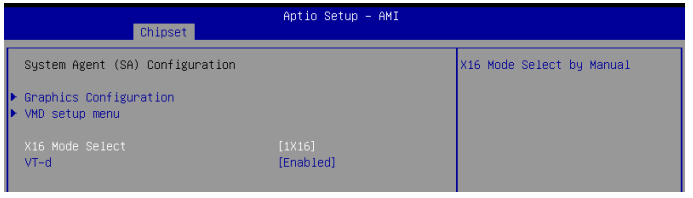


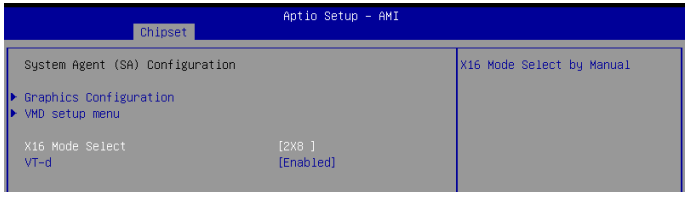
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3. You will encounter two PCIe slots on the riser card. The upper slot is designed in x16 mode, while the lower slot is in x8 mode.



4. The usage mode for these two slots depends on the settings configured in the BIOS. If the BIOS is in 1x16 mode, the upper slot will operate in x16 mode, while the lower slot will not be available. Conversely, both slots will operate in x8 mode when selecting 2x8 in the BIOS, and the bandwidth of the upper slot (x16) will be split and shared with the lower slot. By default, the BIOS is set to x16 mode.



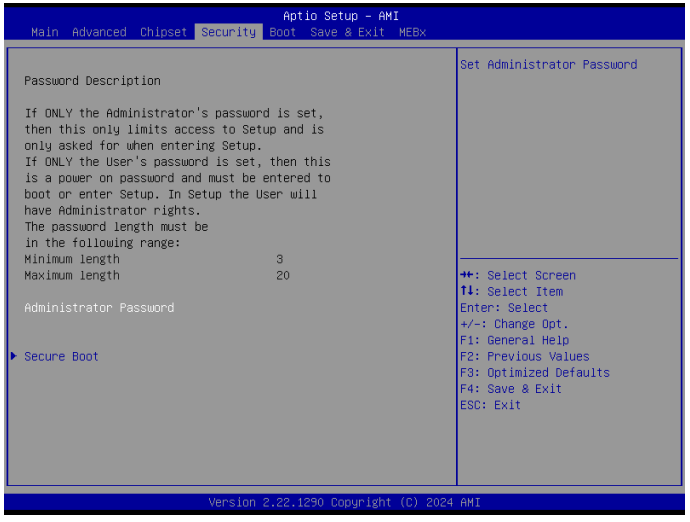


5. Once you have configured the desired mode, save the changes and exit the BIOS. Restart your system to apply the new PCIe slot configuration.

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Password Configuration

Navigate to the **Security** tab within the BIOS menu, and go to **Administrator Password**.



Administrator Password

Select this to reconfigure the administrator's password.

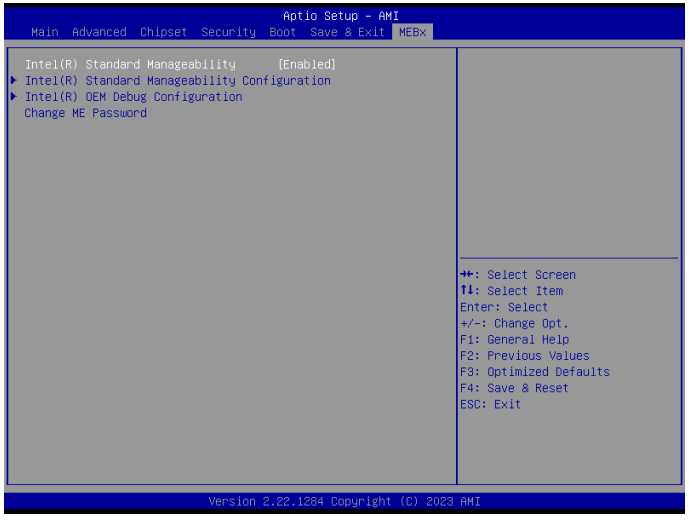
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Intel AMT Configuration

1. Navigate to the **MEBx** tab within the BIOS menu. Press <Enter> button to access this feature. By default, the password is "admin."

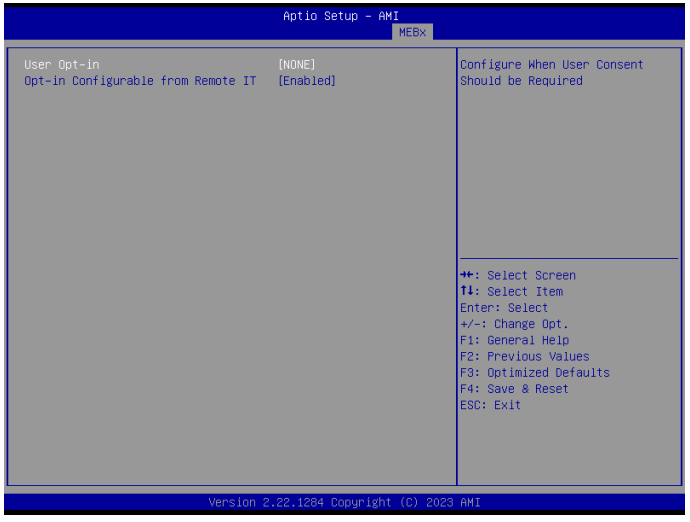


2. You may change the password by going to **Change ME Password**. The password must be at least 8 characters long and include a combination of uppercase letters, lowercase letters, numbers, and symbols. For example, !QAZ1qaz

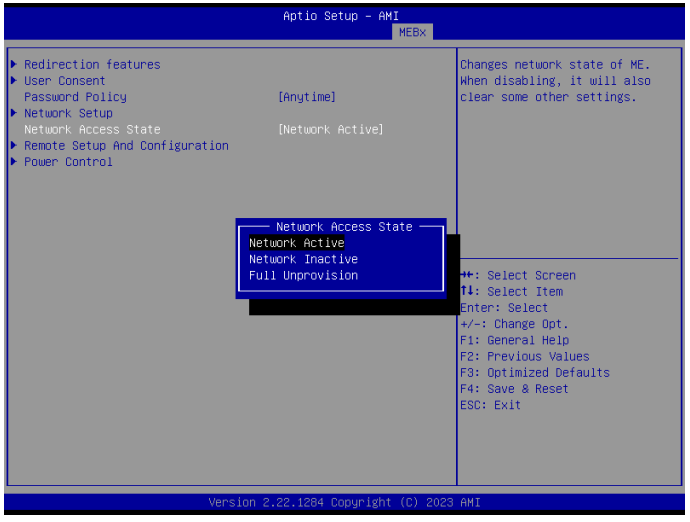


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3. Follow these steps to navigate the configuration items: **Intel(R) Standard Manageability Configuation** > **User Consent** > **User Opt-in**, then select **All**.



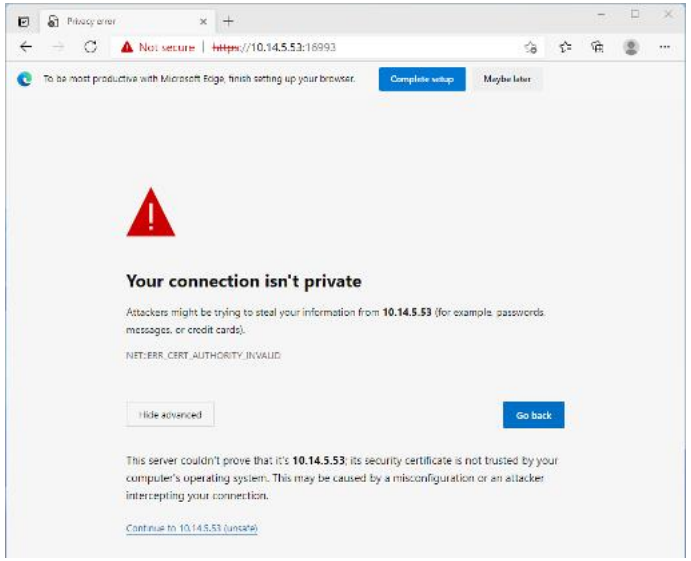
4. Follow these steps to navigate the configuration items: **Intel(R) Intel (R) Standard Manageability Configuation** > **Network Access State**, then change the option to **Network Active**.



5. Return to the BIOS main menu, navigate to the **Save & Exit** tab, and click **Save Changes and Reset** to apply the settings.

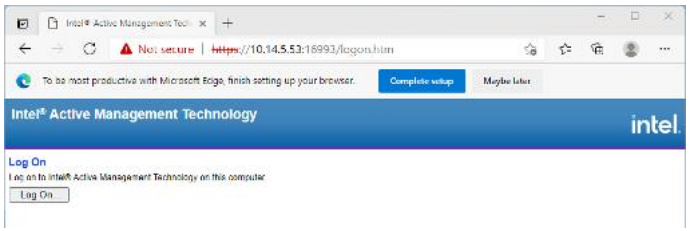
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6. Enter the operating system and log in to the IAMT configuration web page using https://ipaddress_of_PC:16993
   For example:
   6-1. https://10.14.5.53:16993

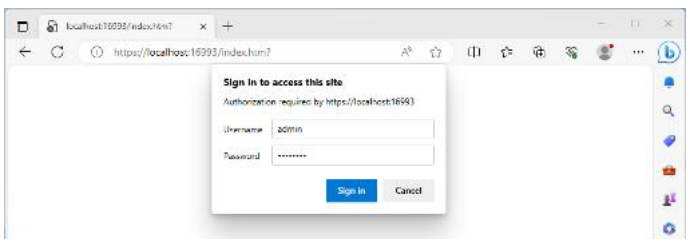


Click the **Continue** if a warning message appears to remind you that the connection isn't private.

6-2. Click **Log On**.



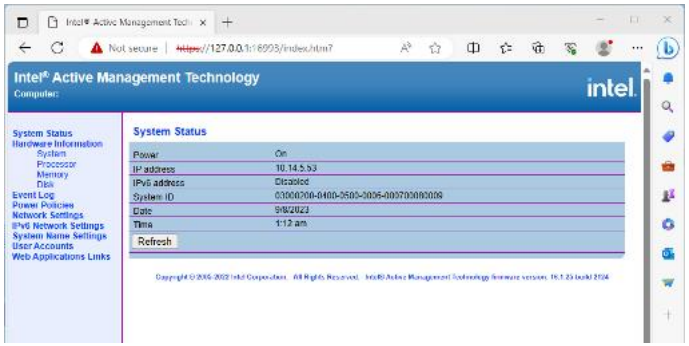
6-3. Account: admin
6-4. Password: The password you have changed in step 2.



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

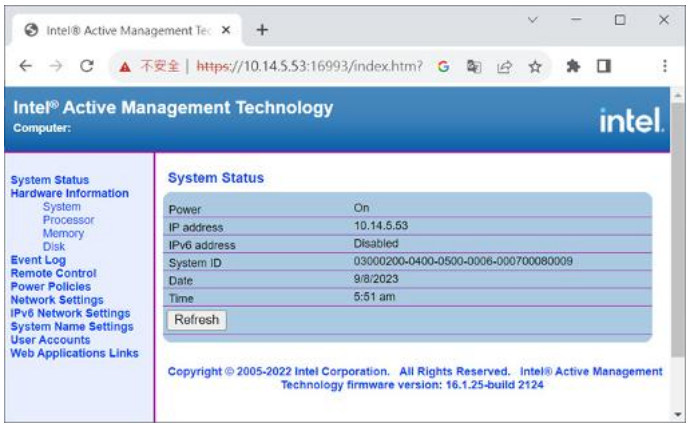
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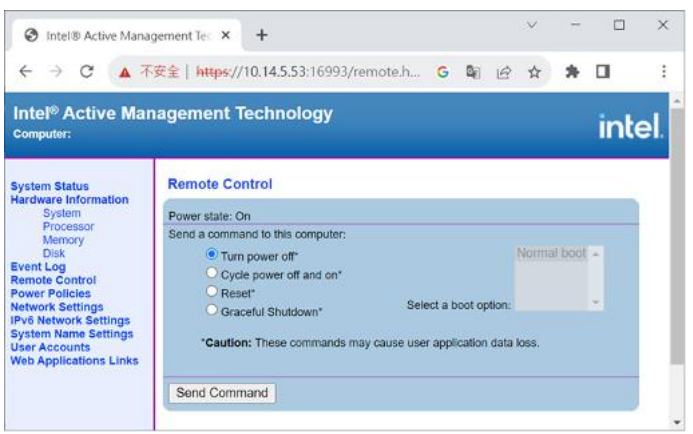
7. The screen should look like the image shown below after a successful login.



8. Follow the same login procedure as outlined in step 6 using the same address, account, and password. Ensure that the remote control system is in the same network segment as the target system.

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





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Appendix A: GPIO Instruction

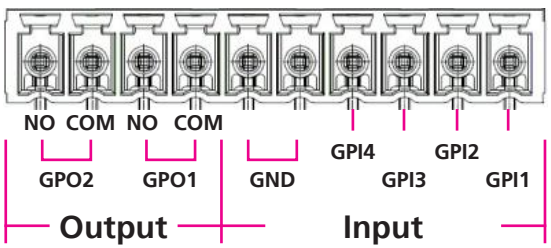
Locating the GPIO Connector

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

- 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.

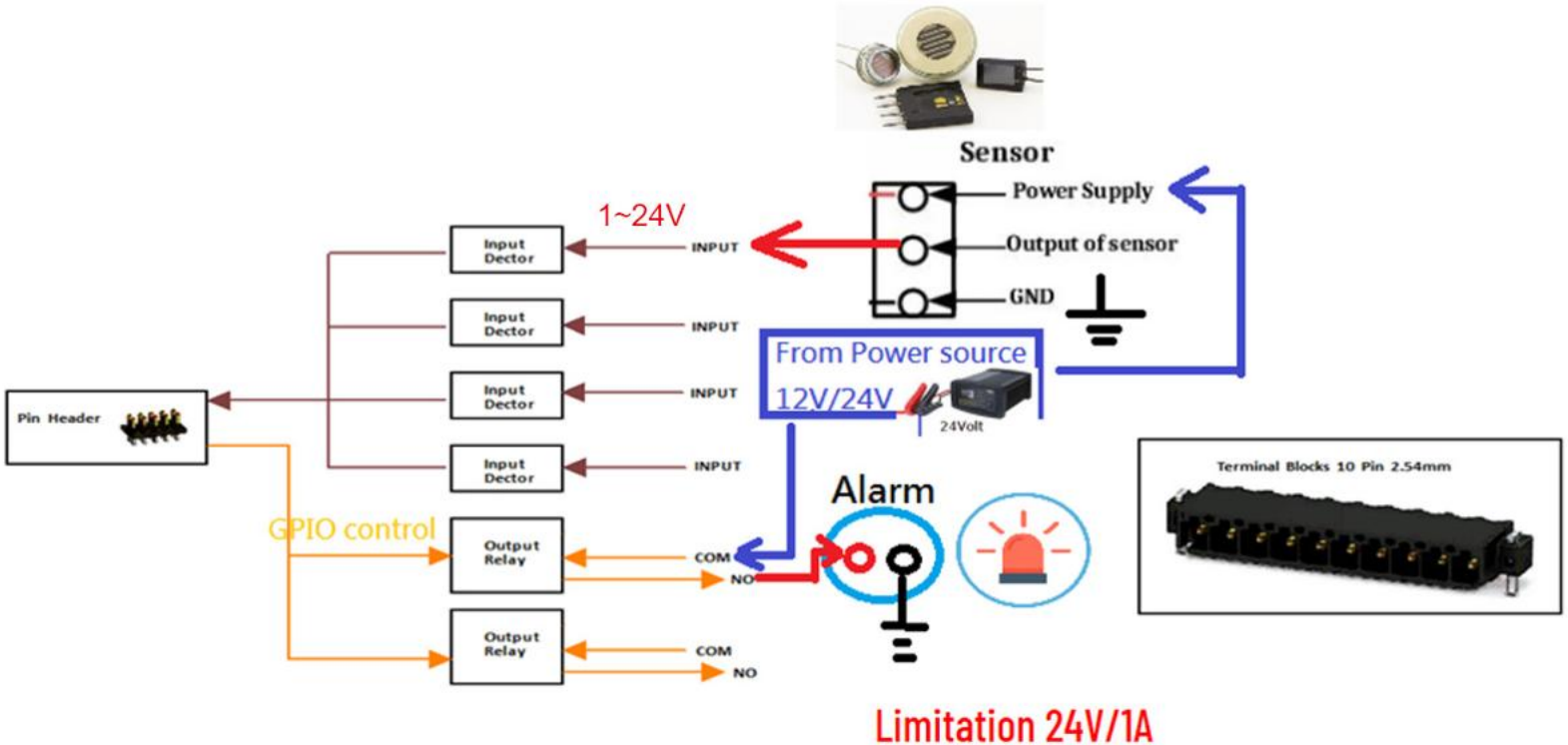


Understanding GPIO Pin Definitions



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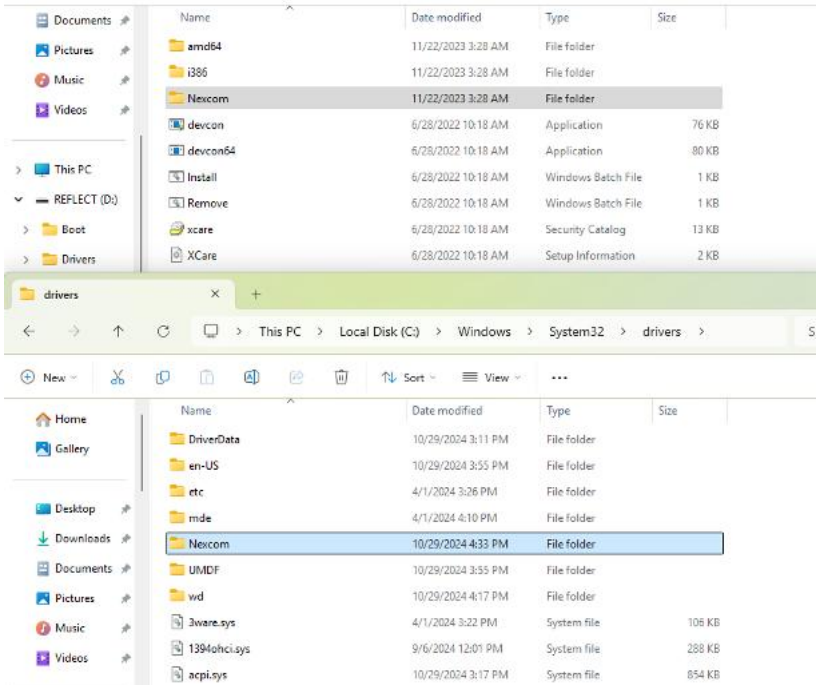
ISO GPIO 4in_2out Block Diagram



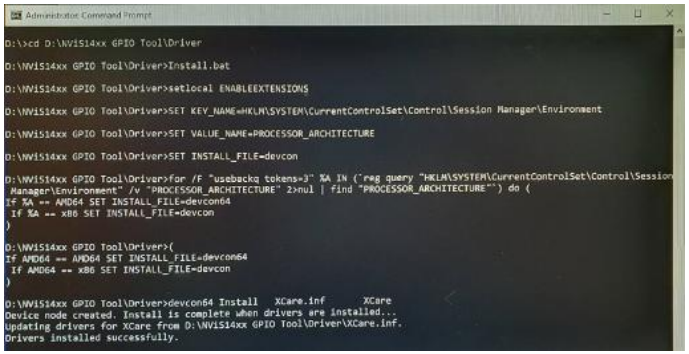
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Installing GPIO SDK

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

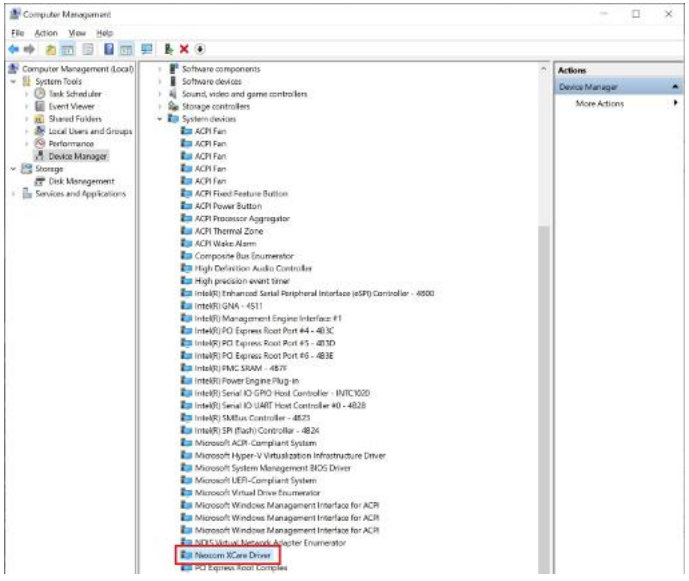


2. Execute the Command Prompt selecting "run as administrator" and then run "Driver\install.bat." When the installation is successful, the screen will shown "Drivers installed successfully".



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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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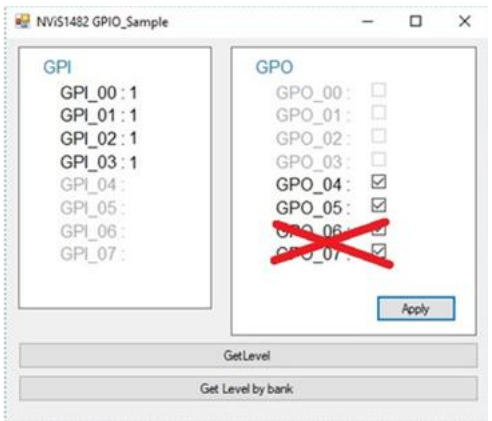
Basic Configuration

1. Download the software from the official website, unzip the file and run the **RN15_GPIO_Sample.exe** file.

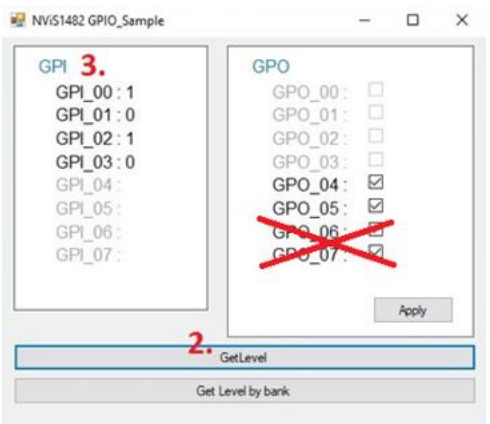
2. Follow the images below for configuring the GPIO.

GPI (4 IN)
Default GPI Off=1

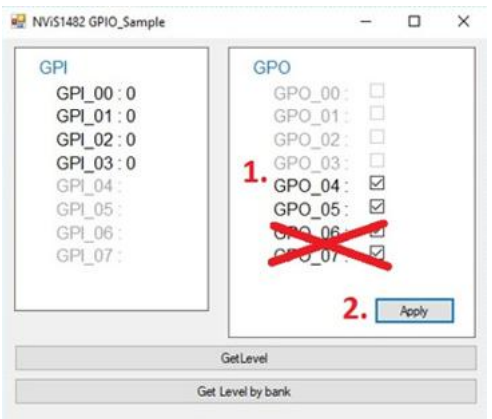
GPO (2 OUT)
Default GPO Off=V



GPI (4 IN)



GPO (2 OUT)



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Appendix B: NViS 6708 RAID Configuration

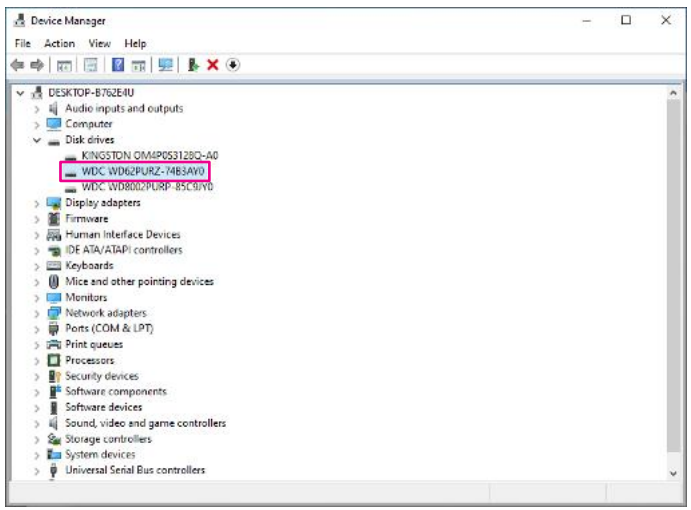
This system supports RAID functionality, and both Windows and Linux operating system versions are available for users to choose from, depending on the requirement. Follow the step-by-step instructions in this chapter to install and configure the RAID function.

Installing the Application on Windows

1. Extract the 39xRAIDManagerWin_JMicron_0.09.79.zip file and execute the setup.exe.



2. Due to a limitation from Intel, the Windows Device Manager will display only one disk per JM39x controller.



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Managing Basic Mode in RAID Application

Once the application is launched, the default mode will be Basic. The user may switch between Basic and Advanced modes by clicking the tabs in the left side panel (1). The Basic mode is designed to allow users to navigate the disk and RAID information, view the event log, and perform basic configuration on the connected disks. The user may click the tab (2) directly as per your requirements.



RAID and Disk Information

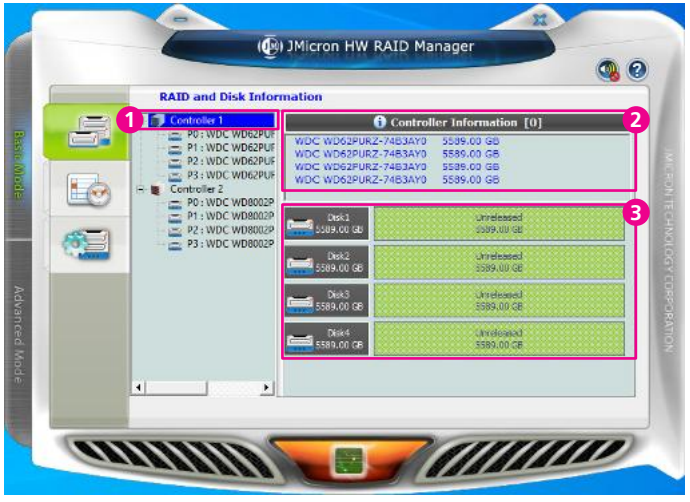
On this tab (1), the user interface is separated into two windows. The left window (2) shows all the controllers with the connected RAIDs and disks in a hierarchical view. The right window (3) is subject to change depending on what the user selects in the left window. All the disk and RAID information will be updated in real-time, allowing users to monitor the status intuitively.



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- **Controller Information**

Select the desired controller (1) in the left window to show the model name and capacity of the RAID (2). For RAID member disks, the disk charts will be drawn in different colors according to the various RAIDs (3).



- **RAID Information**

Select the desired RAID in the left window (1) to show the detailed information of the specified RAID (2). The RAID member disk charts will be shown in the bottom right window (3).



If the selected RAID is in a rebuilding state, it will be highlighted in green in the tree view. Additionally, the rebuilding animation will play at the bottom left and right areas. The rebuilding percentage will be displayed at the bottom center area as well.

The user may simply click the **RAID Information** label (4) to identify the member disks of the specified RAID, with all disk LEDs flashing simultaneously.

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- **Disk Information**

Select the desired disk in the left window (1) to show the detailed information of the disk (2). The disk pie will be shown in the bottom right window (3). The user may simply click the **Disk Information** label (4) to identify the specified RAID with the disk LEDs flashing.



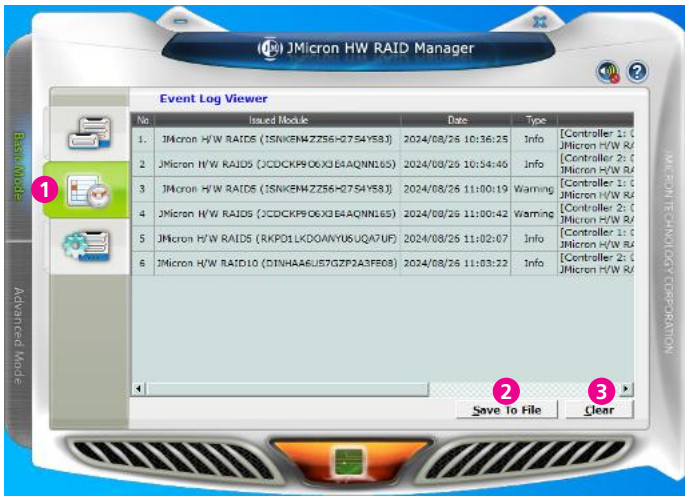
If the disk is a RAID member disk, the **Advanced** button (5) will appear in the right corner. The user can click it (5) to browse the SMART information of the specified disk.



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Event Log Viewer

On this tab (1), the user can monitor the status of all connected disks and RAID, recording the occurrence of events. By pressing the **Save To File** (2) button, the user can save the logs to a profile. Follow the pop-up windows to complete the procedure. Meanwhile, the user can also clear all logs by simply pressing the **Clear** (3) button.



Basic RAID Configuration

On this tab (1), it offers basic configuration the connected disks. The user can configure the desired RAID type based on the requirement.

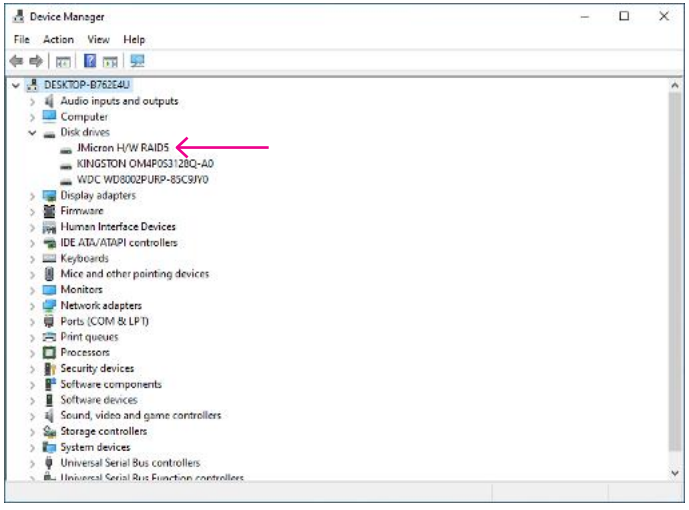


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1. Select the desired RAID type (1) based on the number and capacity of the connected disks. Once selected, the JMicron HW RAID Manager will automatically select the available disks to build the RAID and calculate the RAID capacity. The selected disks charts will be drawn in the cross pattern on the right corner (2).



2. The disk name will become JMicron H/W RAIDxx in the Windows Device Manager after creating RAID on controller 1.



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3. Repeat the previous steps to build the Controller 2 if necessary.

4. To delay the RAID volume, simple click the **DELETE ALL RAID** in the desired controller window. If multiple controllers have been created and you want to delete them all, each one must be deleted individually.



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Managing Advanced Mode in RAID Application

The advanced mode is designed to provide enhanced functionalities, such as email notification settings, advanced RAID configuration, and firmware updates. Click the tabs in the left-side panel to switch between basic and advanced modes.



Email Notification and Event Settings

On this tab (1), the user can set up email notifications for specified events. Fill in the relevant data in the rows below (2). Note that the correct username and password must be entered if the specified mail server requires authentication of the sender's credentials. Once the settings above are completed, click the **Apply** button (3) to activate them.



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Firmware Information

On this tab (1), the user can browser the firmware information and update the firmware if necessary. Follow the procedures below to update the firmware.



1. Click the **Browser** button to select the firmware file.



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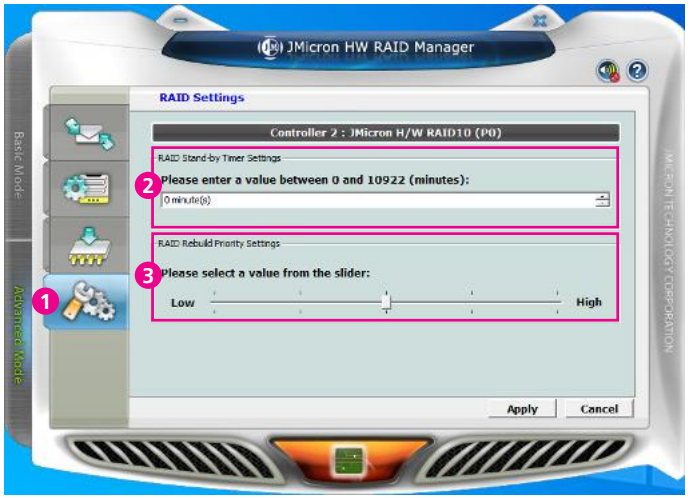
2. Click the **Update** button. After clicked, a progress bar will appear at the button and show the per-centage of the update process.



3. Once the firmware update is completed, a dialog will be popped up and ask to restart the controller to take effect.

RAID Settings

On this tab (1), the users can adjust the RAID Stand-by Timer and set the Rebuild Priority.



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- **RAID Stand-by Timer Settings**

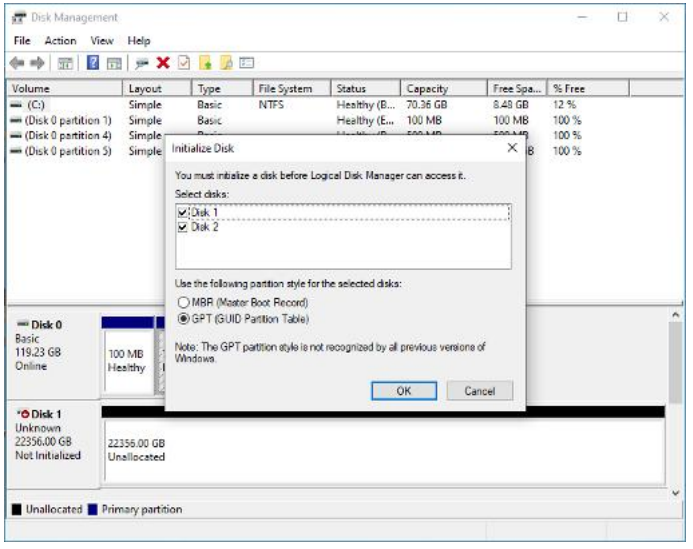
Use this option to set the time, in minutes, before the RAID enters standby mode. If there is no host access to the RAID after the preset time, it will transition to standby mode.

- **RAID Rebuild Priority Settings**

Use this option to set the RAID Rebuild Priority, which determines the amount of system resources allocated to the rebuilding process. Low priority means the rebuilding process will use fewer system resources and take more time to complete, while high priority means the rebuilding process will be completed faster but may result in slower access to the RAID.

Notification

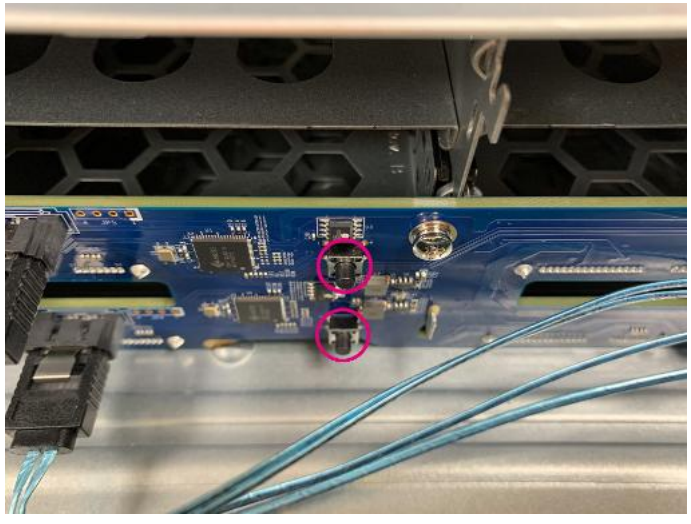
1. After creating the RAID volume, ensure you go to Windows Disk Management to initialize the disks.



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2. The hardware force reset button can help clear all RAID configurations from the disks. The user should power off the system first, hold the reset button, then power on the system. Wait until the system boots into the OS, and then release the reset button.

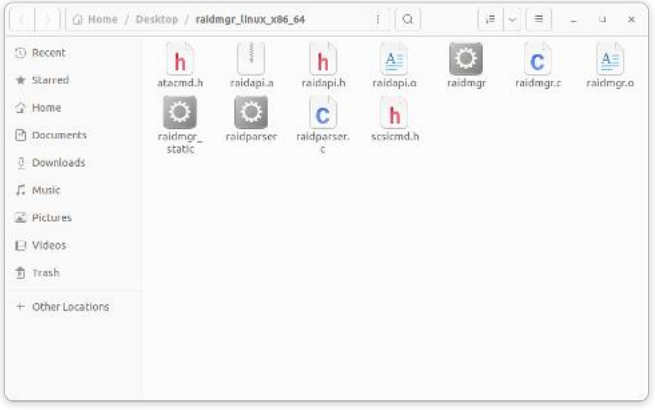
   There are two reset buttons located at the rear of the bay tray within the chassis. Press the corresponding reset button based on the desired RAID.

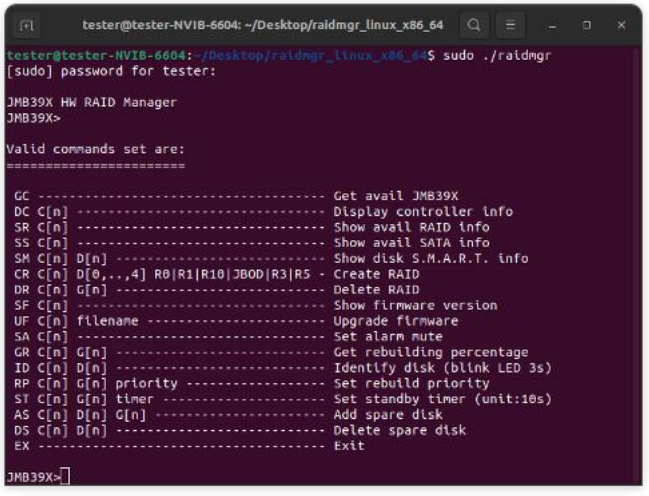


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Installing the Application on Linux

- Extract the raidmgr_linux_x86_64.zip file and execute raidmgr with sudo privillege in terminal.





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Command guide

The following sections guide users through the commands supported by this application, which allow users to manipulate the JMB39X hardware RAID controller as needed.

- **GC Command**

Description

GC – Get Avail JMB39X.

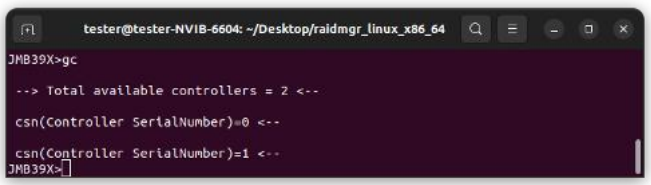
Parameter

N/A

Example:

1. $ GC

Use this command to get all available JMB39X controllers.



- **DC Command**

Description

DC C[n] – Display controller info.

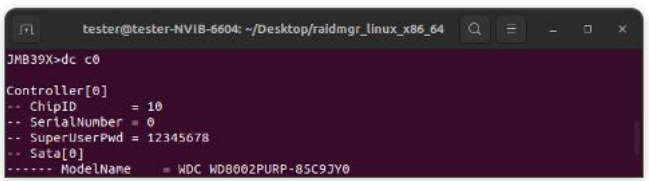
Parameter

C[n]: Controller Number n

Example:

1. $ DC C0

Use this command to display corresponding info. For controller 0.



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- **SR Command**

Description

SR C[n] – Show avail RAID info.

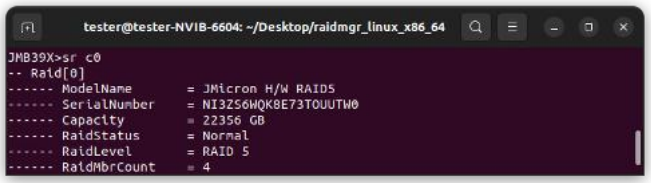
Description

C[n]: Controller Number n

Example:

1. $ SR C0

Use this command to show available RAID info. For controller 0.



- **SS Command**

Description

SS C[n] – Show avail SATA info.

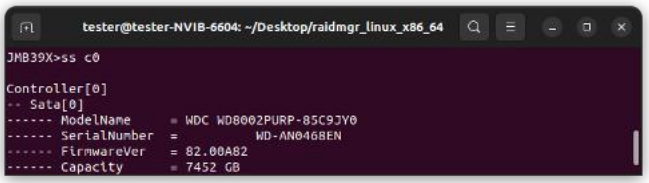
Description

C[n]: Controller Number n

Example:

1. $ SS C0

Use this command to show available SATA info. For controller 0.



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- **SM Command**

Description

SM C[n] D[n] – Show disk S.M.AR.T. info.

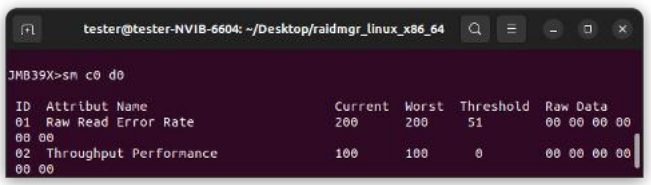
Description

C[n]: Controller Number n
D[n]: Disk Number n

Example:

1. $ SM C0 D0

Use this command to show the S.M.A.R.T. info. For disk 0 on controller 0.



- **CR Command**

Description

CR C[n] D[0, ..,4] R0|R1|R10|JBOD|R3|R5 – Create RAID.

Description

C[n]: Controller Number n
D[0, ..,4]: Disk Number 0…4
R0|R1|R10|JBOD|R3|R5: RAID Level, R0, R1,R10,JBOD,R3, and R5

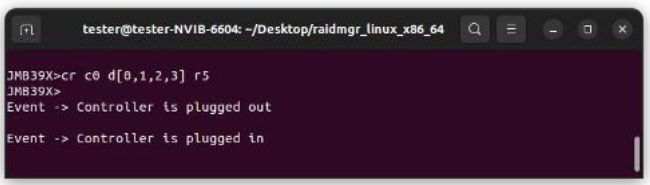
Example:

1. $ CR C0 D[0,1,2,3] R5

Use this command to create RAID 5 using disk 0, 1, 2, 3 on controller 0.

2. $ CR C0 D[0,1,2,3,4] R5

Use this command to create RAID 5 using disk 0, 1, 2, 3, 4 on controller 0.



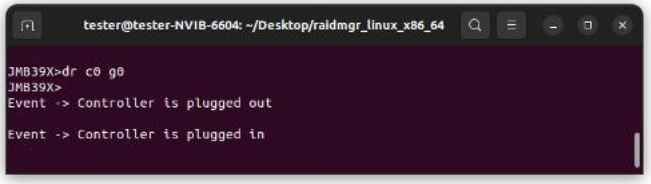
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- **DR Command**

Description
DR C[n] G[n] – Delete RAID group.

Description
C[n]: Controller Number n
G[n]: RAID Group Number n

Example:
1. $ DR C0 G0
Use this command to delete RAID group 0 on controller 0.

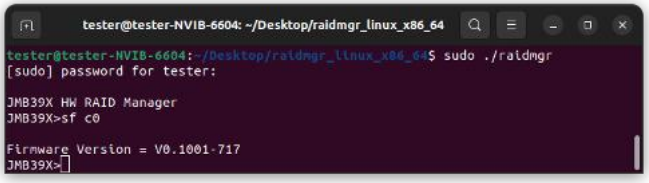


- **SF Command**

Description
SF C[n] – Show firmware version.

Description
C[n]: Controller Number n

Example:
1. $ SF C0
Use this command to show the firmware version for controller 0.



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- **UF Command**

Description

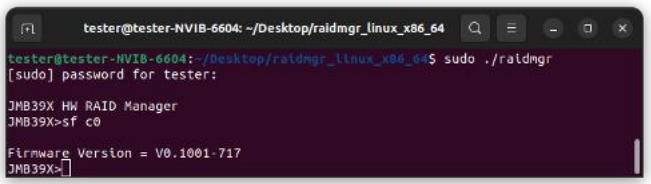
UF C[n] filename – .Upgrade Firmware.

Description

C[n]: Controller Number n
filename: firmware file name

Example:

1. $ UF C0 DB393_AES_09580510.BIN
Use this command to upgrade firmware with bin file "DB393_AES_09580510.BIN" on controller 0.



- **SA Command**

Description

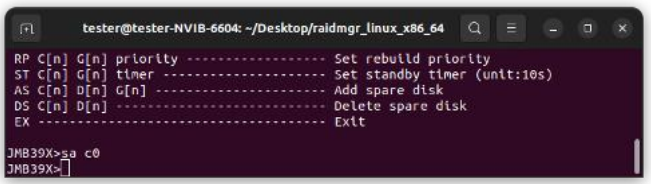
SA C[n] – Set alarm mute.

Description

C[n]: Controller Number n

Example:

1. $ SA C0
Use this command to set alarm mute for controller 0.



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- **GR Command**

Description

GR C[n] G[n] – Get the rebuilding percentage.

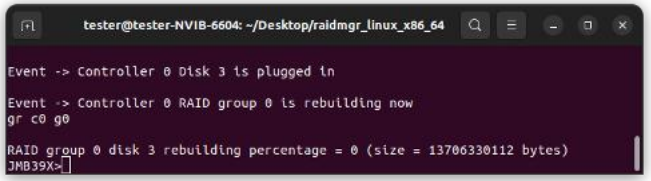
Description

C[n]: Controller Number n
G[n]: RAID Group Number n

Example:

1. $ GR C0 G0

Use this command to get the rebuilding percentage of RAID group 0 on controller 0.



- **ID Command**

Description

ID C[n] D[n] – Blink LED 3 seconds to identify disk.

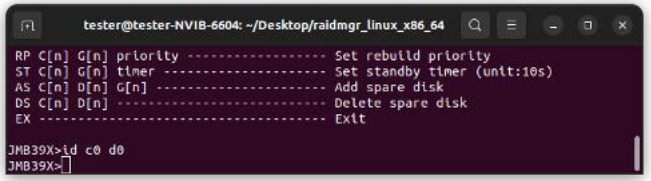
Description

C[n]: Controller Number n
D[n]: Disk Number n

Example:

1. $ ID C0 D0

Use this command to identify disk 0 on controller 0.



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- **RP Command**

Description

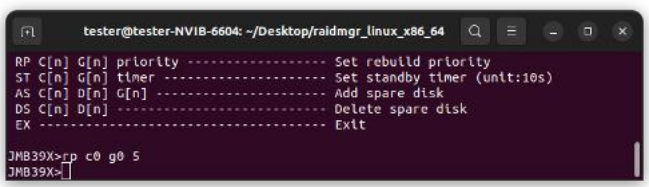
RP C[n] G[n] priority – Set rebuild priority.

Description

C[n]: Controller Number n
G[n]: RAID Group Number n
priority: RAID rebuild priority value
This priority value is defined in the following [1-5].
LOWEST 1
MEDIAN 3 (default value)
HIGHEST 5

Example:

1. $ RP C0 G0 1
Use this command to set the priority value to 1 for RAID group 0 on controller 0.
2. $ RP C0 G0 5
Use this command to set the priority value to 5 for RAID group 0 on controller 0.



- **ST Command**

Description

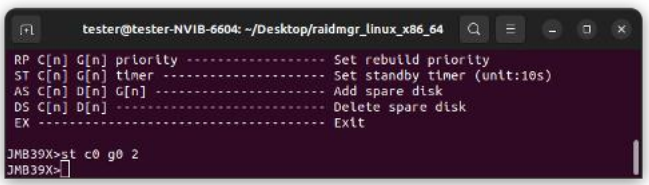
ST C[n] G[n] timer – Set standby timer. (You can see the current standby timer in DC or SR command).

Description

C[n]: Controller Number n
G[n]: RAID Group Number n
timer: Standby timer value (1 unit = 10 seconds)

Example:

1. $ ST C0 G0 2
Use this command to set the standby timer value to 2 (2 unit = 20 seconds) for RAID group 0 on controller 0.



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- **AS Command**

Description

AS C[n] D[n] G[n] – Add spare disk.

Description

C[n]: Controller Number n
D[n]: Disk Number n
G[n]: RAID Group Number n

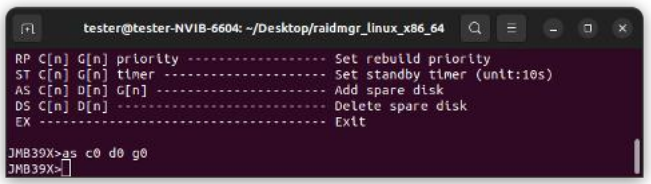
Example:

1. $ AS C0 D0 G0

Use this command to add spare disk 0 to RAID group 0 on controller 0.

2. $ AS C0 D1 G0

Use this command to add spare disk 1 to RAID group 0 on controller 0.



- **DS Command**

Description

DS C[n] D[n] – Delete spare disk.

Description

C[n]: Controller Number n
D[n]: Disk Number n

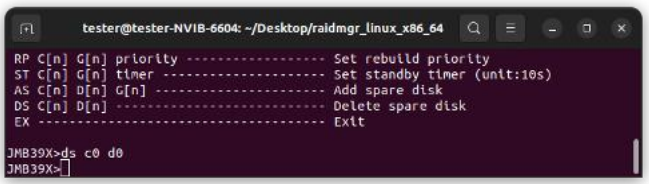
Example:

1. $ DS C0 D0 G0

Use this command to delete spare disk 0 from RAID group 0 on controller 0.

2. $ DS C0 D1 G0

Use this command to delete spare disk 1 from RAID group 0 on controller 0.



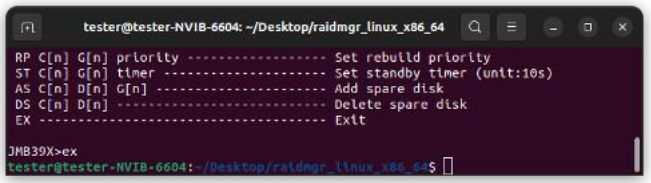
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- **EX Command**

Description
EX – Exit.

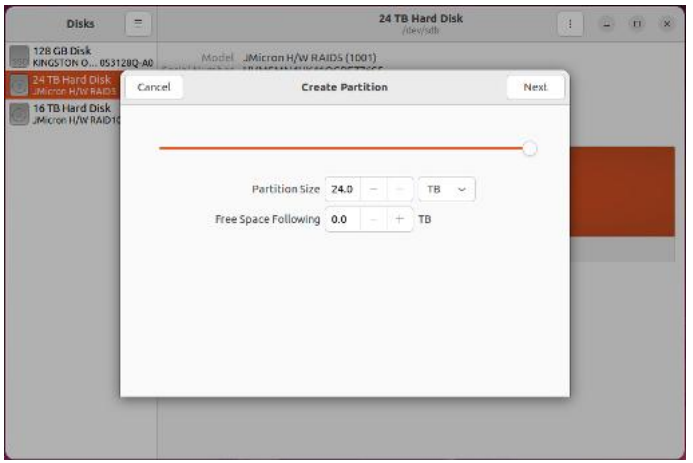
Description
N/A

Example:
1. $ EX
Use this command exit the program.



Notification

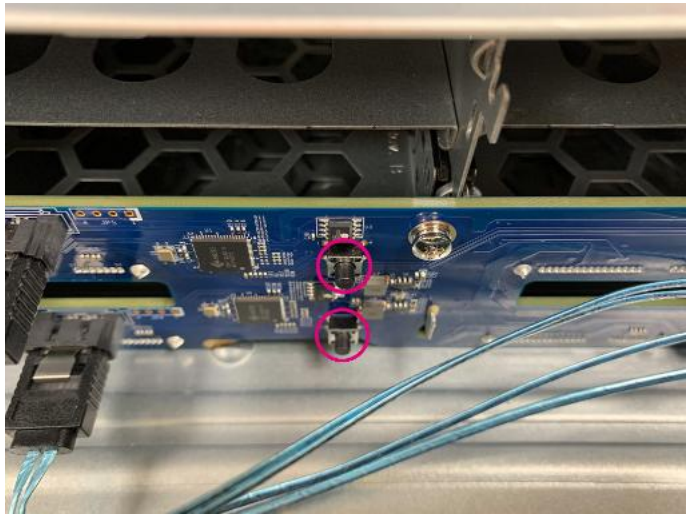
1. When a RAID is created, you still need to go to Disks to create a partition and mount it to the OS.



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2. The hardware force reset button can help clear all RAID configurations from the disks. The user should power off the system first, hold the reset button, then power on the system. Wait until the system boots into the OS, and then release the reset button.

   There are two reset buttons located at the rear of the bay tray within the chassis. Press the corresponding reset button based on the desired RAID.



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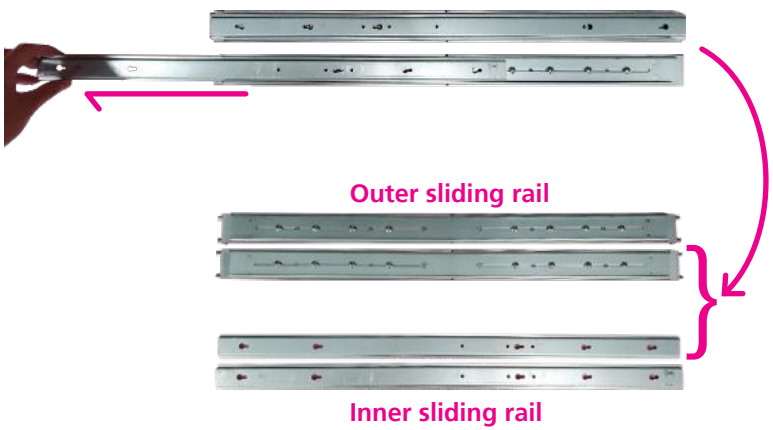
Appendix C: Installing the System in a Rack

For Racks with a Depth Between 600~800mm

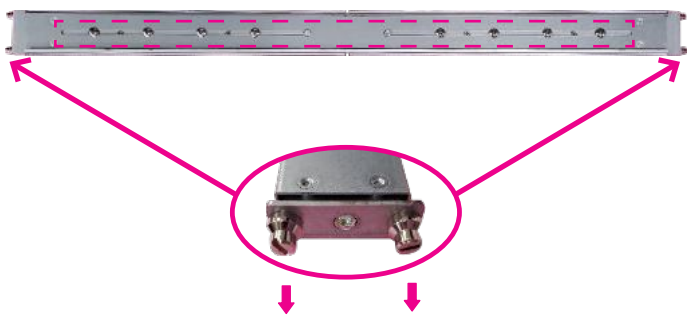
Before starting the installation procedure, check the package contents of the slide rails; it should contain:
4 x M4*6mm, 2 x M5*15mm, and 6 x M5*10mm screws

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.

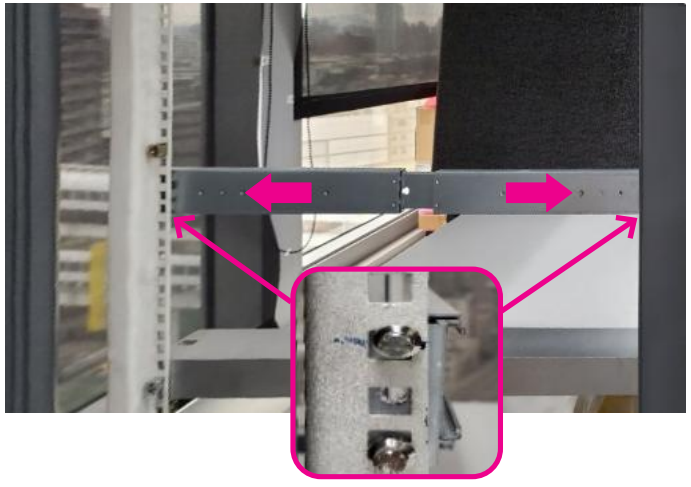


2. Loosen the screws marked in the red dashed square in the image below on the outer sliding rails, but do not completely remove them. Then, remove the screws on both sides. (left and right sides).

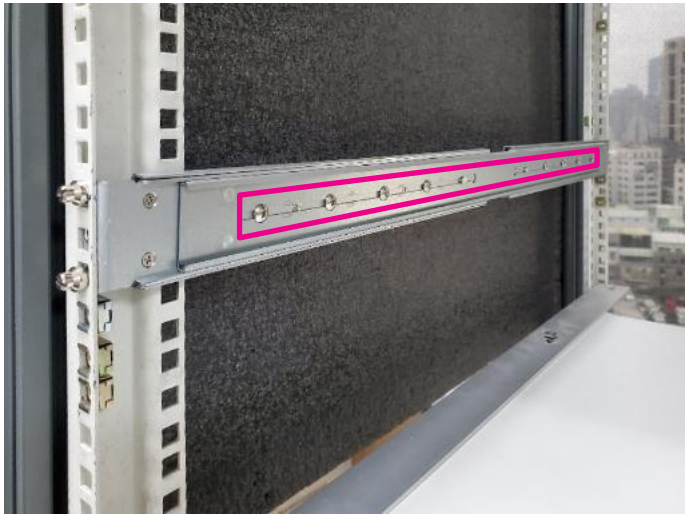


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3. Pull the outer sliding rails apart and extend them to match the depth of the rack, then lock the front and rear screws.

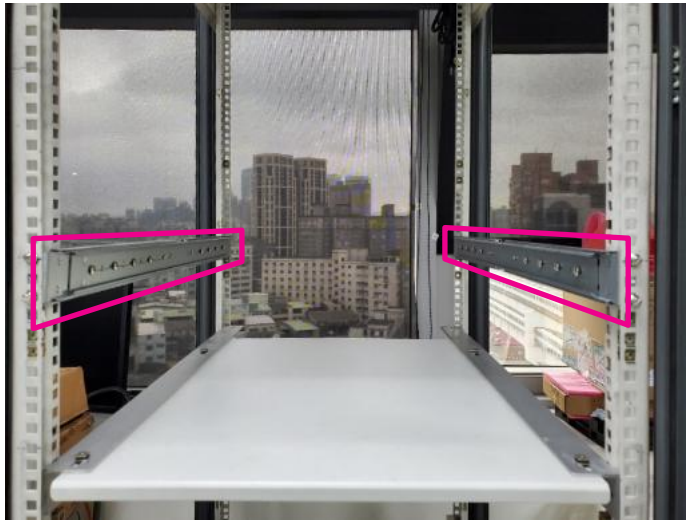


4. Tighten the screws that were loosened in step 2 to complete the installation, then repeat the same step to install the outer sliding rail on the other side.



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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. The system installation on rack is completed.



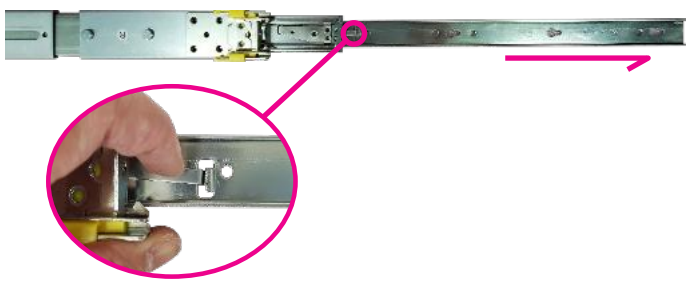
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For Racks with a Depth Over 800~1000mm

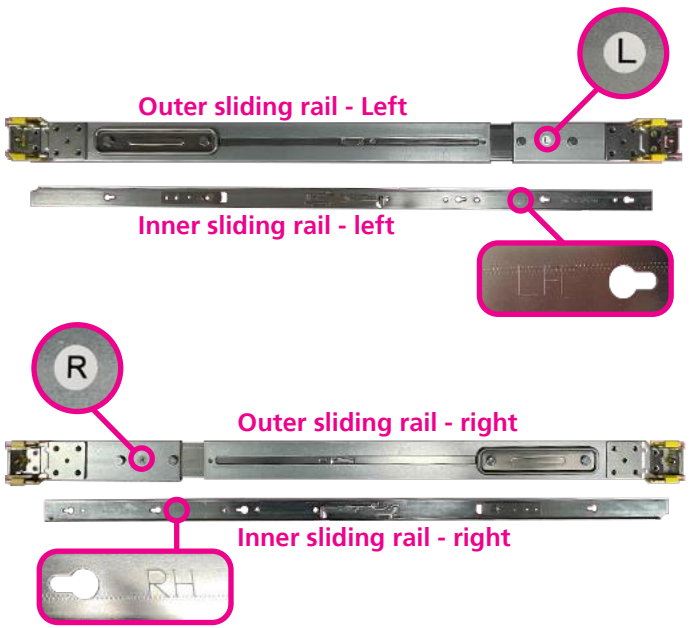
Before starting the installation procedure, check the package contents of the slide rails; it should contain:
2 x M4*11mm, 4 x M5*18mm

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.

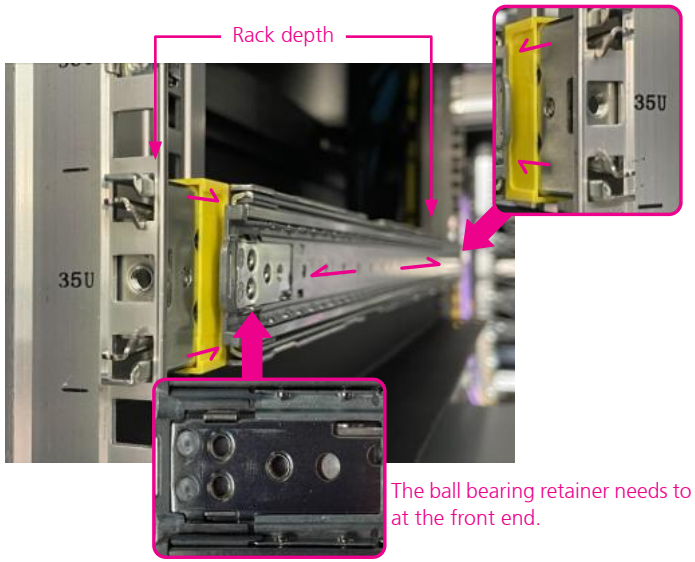


2. See the image below for inner vs. outer rails differences.

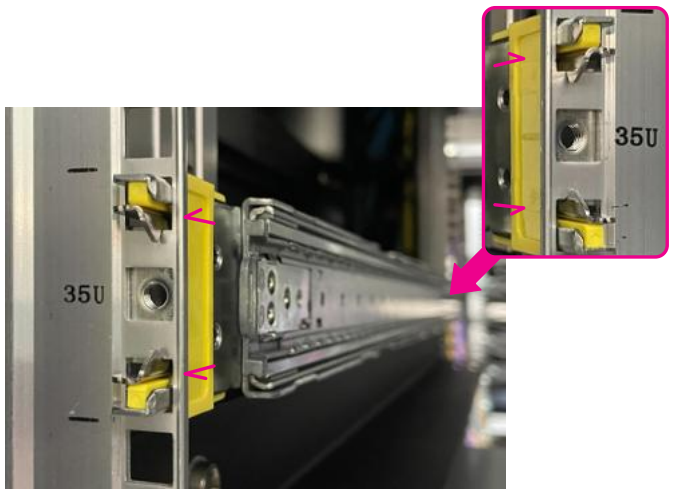


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3. Install the left outer rail: Extend the left rail to match the rack depth, push the yellow safety clips at the front and rear ends inwards, align the tabs with the rack square holes, and insert it.

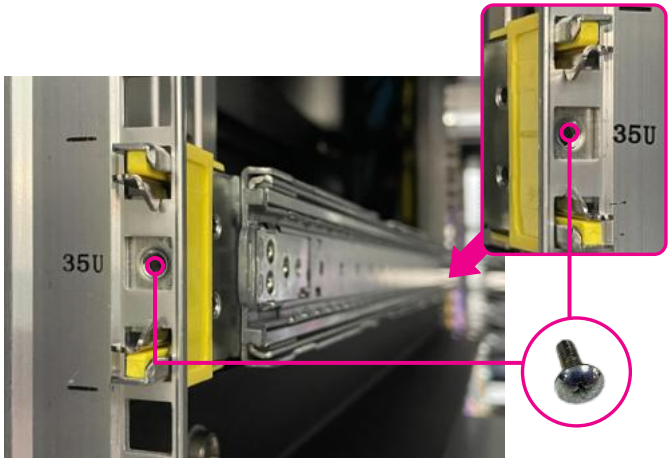


4. Push the yellow safety clips at the front and rear ends outward until they lock in place.



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5. Secure the outer rail at the front and rear with M5*18mm screws. Once you have completed securing the left outer rail, repeat the same procedure to lock the right outer rail.



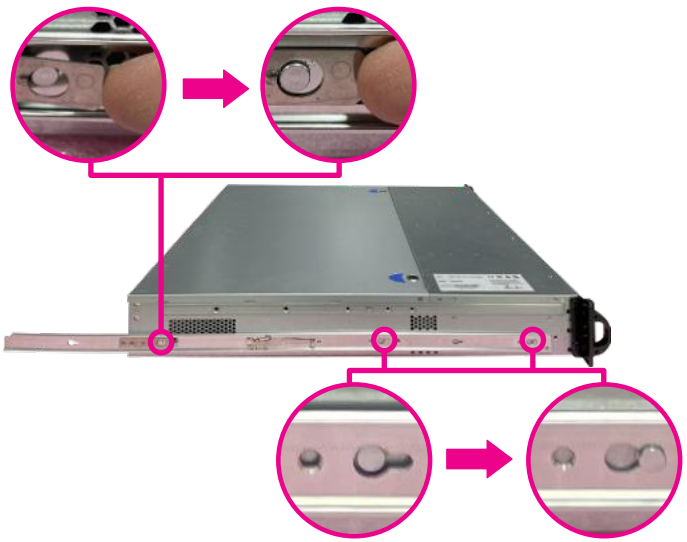
6. The outer rail installation is complete.



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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.

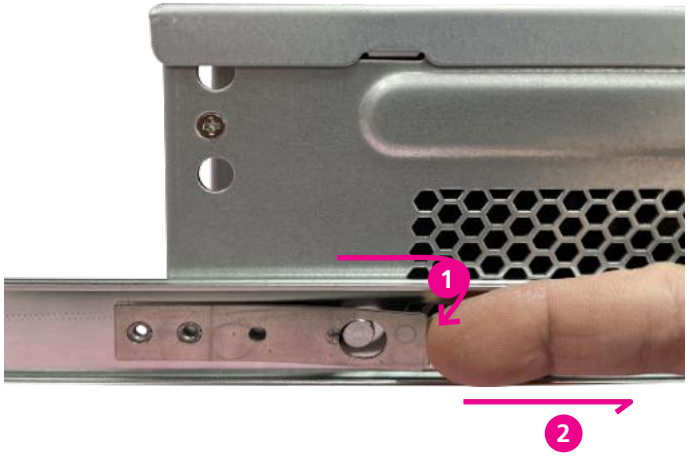


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3. The inner sliding rail installation is completed.



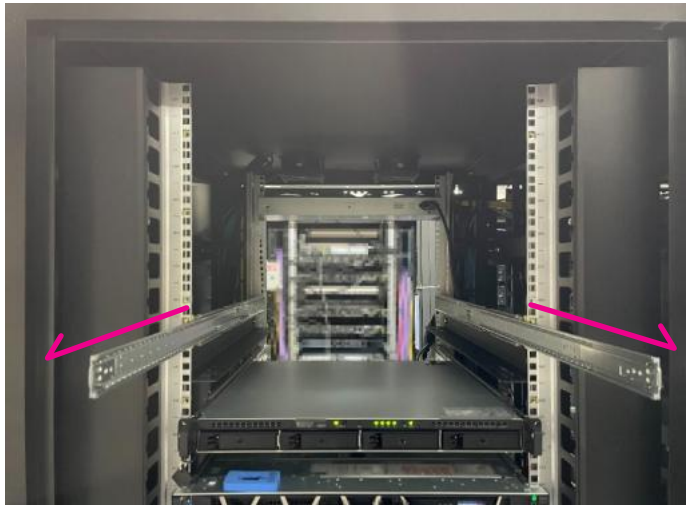
4. To remove the installed inner rail from system, push the spring clip outward (1) and then pull it inward (2) to detach it.



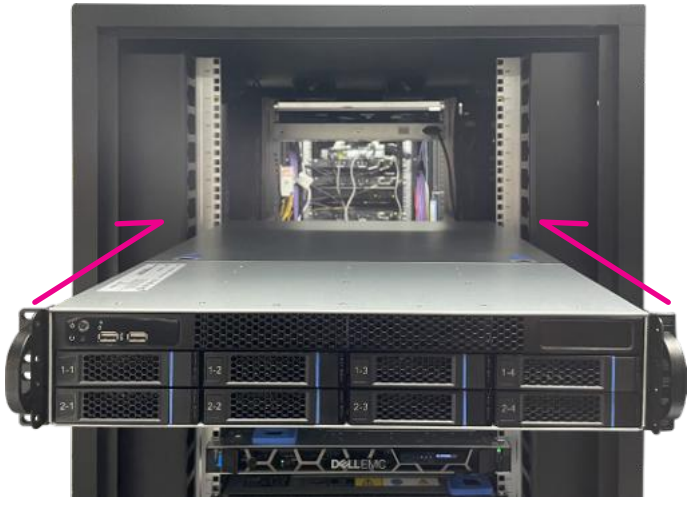
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System Installation on Rack

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

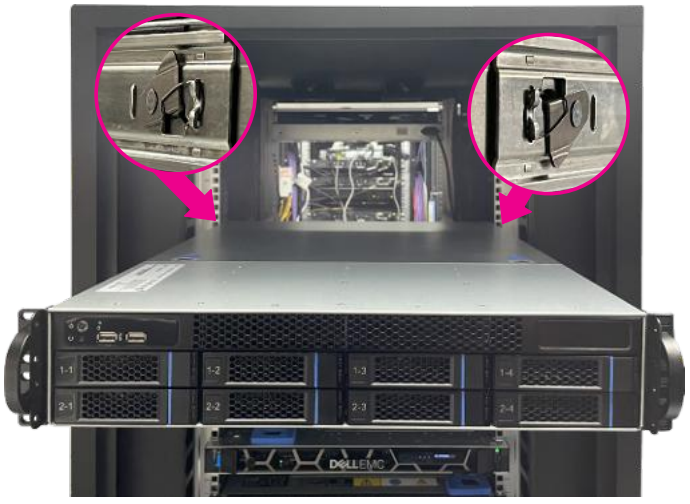


2. Align the system with both the installed inner rail and the outer rail within the server rack on both sides, then insert the system into the outer rail.



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

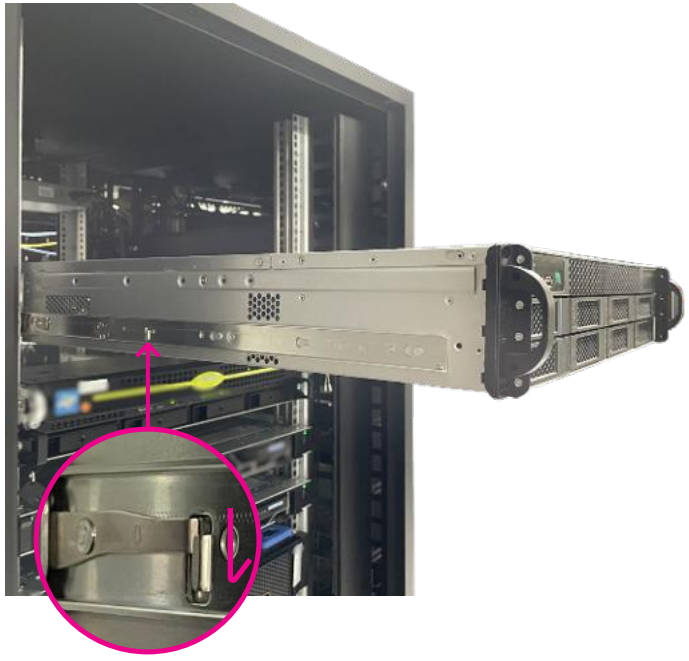


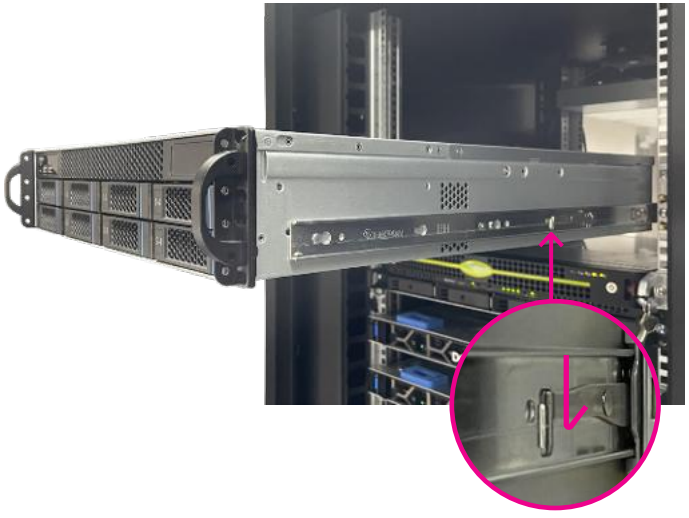
4. Insert the system into the rack until it can no longer be pushed in.



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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. The system installation on rack is completed.



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