CD270-S4051-X2
MS-S381

Server System
User Guide

Contents

Revision
V1.3, 2025/11

Regulatory Notices

WEEE Statement

Under the European Union ("EU") Directive on Waste Electrical and Electronic Equipment, Directive 2012/19/EU, products of "electrical and electronic equipment" cannot be discarded as municipal waste anymore and manufacturers of covered electronic equipment will be obligated to take back such products at the end of their useful life.

CE Conformity

This product has been tested and found to comply with the harmonized standards for Information Technology Equipment published under Directives of Official Journal of the European Union.

FCC-A Radio Frequency Interference Statement

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the 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 instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his own expense.

Notice 1

The changes or modifications not expressly approved by the party responsible for compliance could void the user' s authority to operate the equipment.

Notice 2

Shielded interface cables and AC power cord, if any, must be used in order to comply with the emission limits.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

- This device may not cause harmful interference, and
- This device must accept any interference received, including interference that may cause undesired operation.

Chemical Substances Information

In compliance with chemical substances regulations, such as the EU REACH Regulation (Regulation EC No. 1907/2006 of the European Parliament and the Council), MSI provides the information of chemical substances in products at:

https://csr.msi.com/global/index

Battery Information

Please take special precautions if this product comes with a battery.

- Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer.
- Avoid disposal of a battery into fire or a hot oven, or mechanically crushing or cutting of a battery, which can result in an explosion.
- Avoid leaving a battery in an extremely high temperature or extremely low air pressure environment that can result in an explosion or the leakage of flammable liquid or gas.
- Do not ingest battery. If the coin/button cell battery is swallowed, it can cause severe internal burns and can lead to death. Keep new and used batteries away from children.

European Union:

Batteries, battery packs, and accumulators should not be disposed of as unsorted household waste. Please use the public collection system to return, recycle, or treat them in compliance with the local regulations.

BSMI:

廢電池請回收
For better environmental protection, waste batteries should be collected separately for recycling or special disposal.

California, USA:

The button cell battery may contain perchlorate material and requires special handling when recycled or disposed of in California.
For further information please visit:
http://www.dtsc.ca.gov/hazardouswaste/perchlorate/

Environmental Policy

- The product has been designed to enable proper reuse of parts and recycling and should not be thrown away at its end of life.
- Users should contact the local authorized point of collection for recycling and disposing of their end-of-life products.
- Visit the MSI website <https://csr.msi.com/global/pevn_ewaste> and locate a nearby distributor for further recycling information.
- Please visit <https://us.msi.com/page/recycling> for information regarding the recycling of your product in the US.

Copyright and Trademarks Notice

Technical Support

If a problem arises with your product and no solution can be obtained from the user' s manual, please contact your place of purchase or local distributor. Alternatively, please visit https://eps.msi.com/support for further guidance.

Safety Information

⚠ ***Please read and follow these safety instructions carefully before installing, operating or performing maintenance on the server.***

General Safety Instructions

- Always read the safety instructions carefully.
- Keep this User' s Manual for future reference.
- Keep this equipment away from humidity.
- Lay the equipment on a stable, flat surface before setting it up.
- Do not cover the air openings to prevent overheating.
- Avoid spilling liquids into the equipment to prevent damage or electrical shock.
- Do not leave the equipment in an unconditioned environment. Storage temperatures above 60°C (140°F) may cause damage.

Electrical Safety

Power Setup and Protection

- Ensure the power source matches the equipment voltage before connection.
- Plug the power cord into a grounded (earthed) electrical outlet that is easily accessible at all times. Do not disable the power cord grounding plug, as it is an important safety feature.
- Do not use a power adapter other than the one provided.
- Place the power cord to avoid being stepped on or crushed.
- Protect the server from power fluctuations and outages using a regulated uninterruptible power supply (UPS).

Handling Power Connections

- Unplug the power cord before inserting add-on cards or modules.
- Disconnect all power supplies before maintenance to avoid electrical shock. If the unit has more than one power supply, disconnect all of them.
- Unplug the power cord to fully disconnect the system. The front panel Power On/Standby button does not completely shut off system power. Portions of the power supply and some internal circuitry remain active until AC/DC power is removed.

Installation and Handling
This equipment must be installed in restricted access areas by qualified personnel to comply with safety standards set by the NEC and IEC 62368-1, Third Edition, for Information Technology Equipment.

Lifting and Placement
- Follow occupational health and safety guidelines for manual material handling.
- A minimum of two people is required to lift or install the server. For installations above chest height, a third person may be needed for alignment.
- Exercise caution when installing or removing the server from the rack, as it may become unstable when not fastened to the rails.

Component Handling and Maintenance
Hot Surfaces
- Allow components like drives and power supplies to cool before touching.

Energy Pack Handling
- To reduce the risk of fire or burns after removing the energy pack:
- Do not disassemble, crush, or puncture the energy pack.
- Avoid shorting external contacts.
- Do not dispose of the energy pack in fire or water.

Other Components
- Keep away from hazardous moving parts, such as fan blades, to prevent injury.
- Do not drop or jolt the system, as this may damage internal components or compromise safety.

General Precautions During Operation
- Avoid operating the server with the access panel open or removed for extended periods, as this disrupts airflow and may cause overheating.
- Do not insert incorrect connectors into ports to avoid damage to components or the risk of electrical hazards.
- This equipment is not suitable for use in locations where children are likely to be present.

When to Contact Service Personnel
Seek immediate assistance from qualified personnel if any of the following occurs:
- The power cord or plug is damaged.
- Liquid has entered the equipment.
- The equipment has been exposed to moisture.
- The equipment does not function as described in the User Guide
- The equipment has been dropped or physically damaged.
- The equipment shows visible signs of breakage.

- **Safety: IEC/EN 62368-1**

This equipment is compliant with CB/LVD of Safety: IEC/EN 62368-1：2014.

The elements of the instructional safeguard shall be as follows:

- element 1a:  IEC 60417-6056(2011-05) for moving fan blades or
- IEC 60417-6057(2011-05) for other moving parts
- element 2: “Moving part” or “Moving fan blade” as applicable, or equivalent text
- element 3: optional
- element 4: “Keep body parts away from moving parts” or “Keep body parts away from fan blades” or “Keep body parts out of the motion path” as applicable, or equivalent text

Symbols on Equipment

	**CAUTION.** This symbol indicates a potential hazard. The potential for injury exists if cautions are not observed. Consult equipment documentation for specific details.
	**CAUTION.** Slide-mounted equipment is not to be used as a shelf or a work space.
	**Warning.** This symbol indicates the presence of hazardous energy circuits or electric shock hazards. Refer all servicing to qualified personnel.
	**Warning.** This symbol indicates the presence of a hot surface or hot component. If this surface is contacted, the potential for injury exists. To reduce risk of injury from a hot component, allow the surface to cool before touching.
	**CAUTION:** Risk of Explosion if Battery is replaced by an Incorrect Type. Dispose of Used Batteries According to the Instructions. **ATTENTION:** Risque d'explosion si la batterie est remplacée par un type incorrect. Mettre au rebus les batteries usagées selon les instructions.
	**Multiple power connections.** Prior to servicing, disconnect all power cords. **Raccordements de puissance multiples.** Avant l’ entretien, vous devez débranchez tous les cordons d’ alimentation.

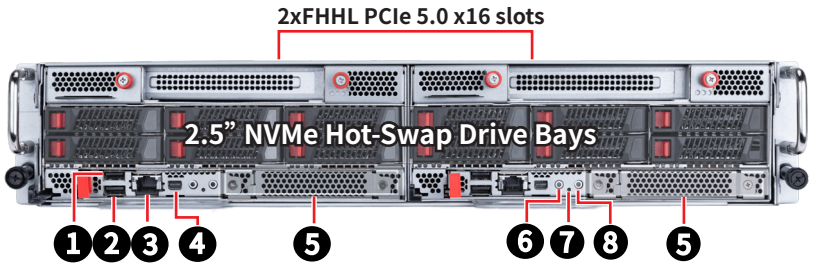
System Specifications

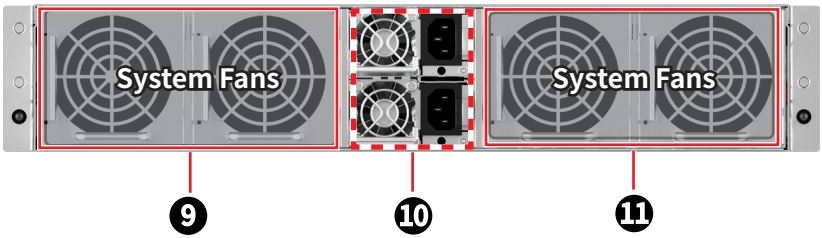
Model	CD270-S4051-X2
SKUs	S4051D270RAU6-X2
Form factor	· 2U2N
Dimensions	· 448mm(17.2”) Wx87mm(3.4”) Hx745mm(29.3”)
Processor	· Single AMD EPYC™ 9004 Series Processor and EPYC™ 9005 Series processors, up to TDP 500W, per node
Socket	· 1 x LGA6096 (Socket SP5) per node
Networking	· 1 x PCIe 5.0 x16 OCP3.0 slot (NCSI supported) per node
Memory	· 12 x DDR5 DIMM Slots, 12 channels(1DPC), RDIMM/RIMM-3DS, per node · Max. Frequency 6400MT/s · Max. Capacity per DIMM: 256GB
Drive Bays	· 6 x Front hot-swap 2.5” U.2 PCIe 5.0 x4 NVMe drive bays per node
Internal Storage	· 2 x 2280/22110 PCIe 3.0 x2 NVMe M.2 ports per node
Expansion Slots	· 1 x FHHL PCIe 5.0 x16 slot per node
Front Panel	- Per node: · 6 x Hot-swap 2.5” drive bays · 1 x 1000Base-T Dedicated Server Management Port · 1 x COM USB Type A port · 1 x USB 2.0 Type-A Port · 1 x Mini Display port · 1 x Power LED(Green) Button · 1 x UID LED(Blue) Button · 1 x Status LEDs: Green/Red
Rear Panel	· N/A
Security	· Node present detection · TPM2.0 module supported (optional) · ASPEED AST1060 Hardware Root of Trust module supported (optional)
Server Management	- Per node: · 1 x 1000Base-T Dedicated Server Management Port · ASPEED AST2600 with AMI MegaRAC based firmware supporting IPMI 2.0 and DMTF Redfish API · Dual BIOS and dual BMC, · eMMC for local BMC storage media

Continued on next column

Model	CD270-S4051-X2
SKUs	S4051D270RAU6-X2
Cooling	· 1 x EVAC air cooling modules for max. 500W CPU per node · 4 x Rear 8080 Hot-swap FANs per system
Environment	· System Operating Temperature: 0°C ~ 35°C (50°F ~ 95°F) · Non-operating Temperature: -20°C ~ 70°C (-4°F to 158°F) · Non-operating Relative Humidity: 5% to 85% (non-condensing)
Power Supply	· (1+1) 2400W CRPS 80+ Titanium per system
Certification	· CE, FCC (Class A)

System Overview





1 **COM USB Type A port**

2

USB 2.0 Type-A Port

This connector is provided for USB peripheral devices. (Speed up to 480 Mbps)

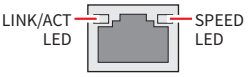
Important

Low-speed devices, such as mouse or keyboard, are suggested to be plugged into the USB 2.0 ports.

3

GbE RJ45 Port (mgmt.) Dedicated IPMI Port

The standard RJ45 LAN jack is provided for connection to the Local Area Network (LAN). You can connect a network cable to it.



LED	Status	Description
Link/ Activity LED	Off	No link
	Green	Linked
	Blinking	Data activity
Speed LED	Off	10 Mbps
	Orange	100 Mbps
	Green	1 Gbps

4 **Mini Display Port**

5 **Dummy bracket for install OCP 3.0 Card**

6 **UID Button/ LED**

7

System Status LED

The System Status LED is provided for indicators for system.

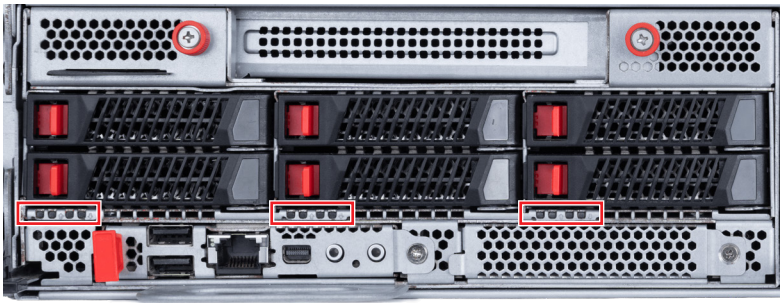
	Status	Description
System Status LED	Off	System is running/normal operation
	Red	BMC anomaly detected. Check BMC log for details.
	Green	BMC initialization

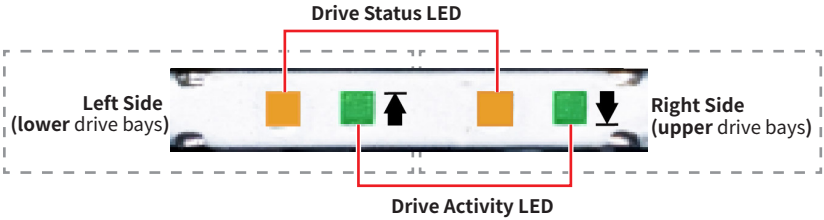
8 **System Power Button/ LED**

Continued on next column

❾	System Fan1 & System Fan2（from left to right）
❿	Power Supply Unit
⓫	System Fan3 & System Fan4（from left to right）

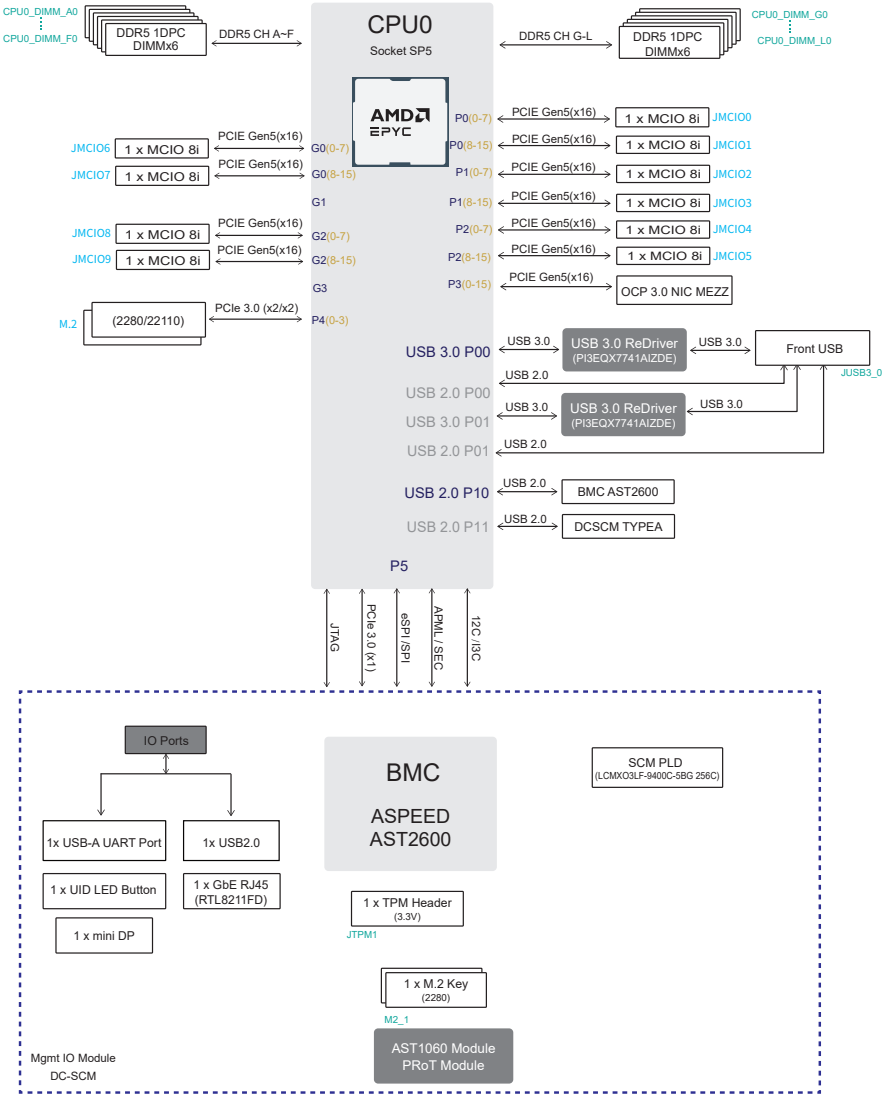
System LED Indicators



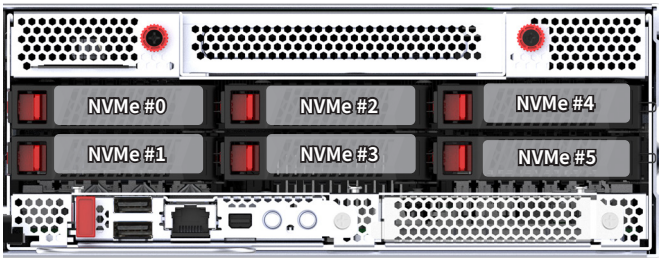


LED	LED State	Description
Drive Activity LED	Green	Drive present, no activity
	4Hz Blinking (4 blinks per second)	Drive present, activity ocurring
	Off	Drive not present
Drive Status LED	Orange	Driver failure, swap the drive immediately
	1Hz Blinking (1 Blink per second)	Raid rebuilding
	4Hz Blinking (4 Blink per second)	Locate the drive
	Off	Drive not present

Block Diagram

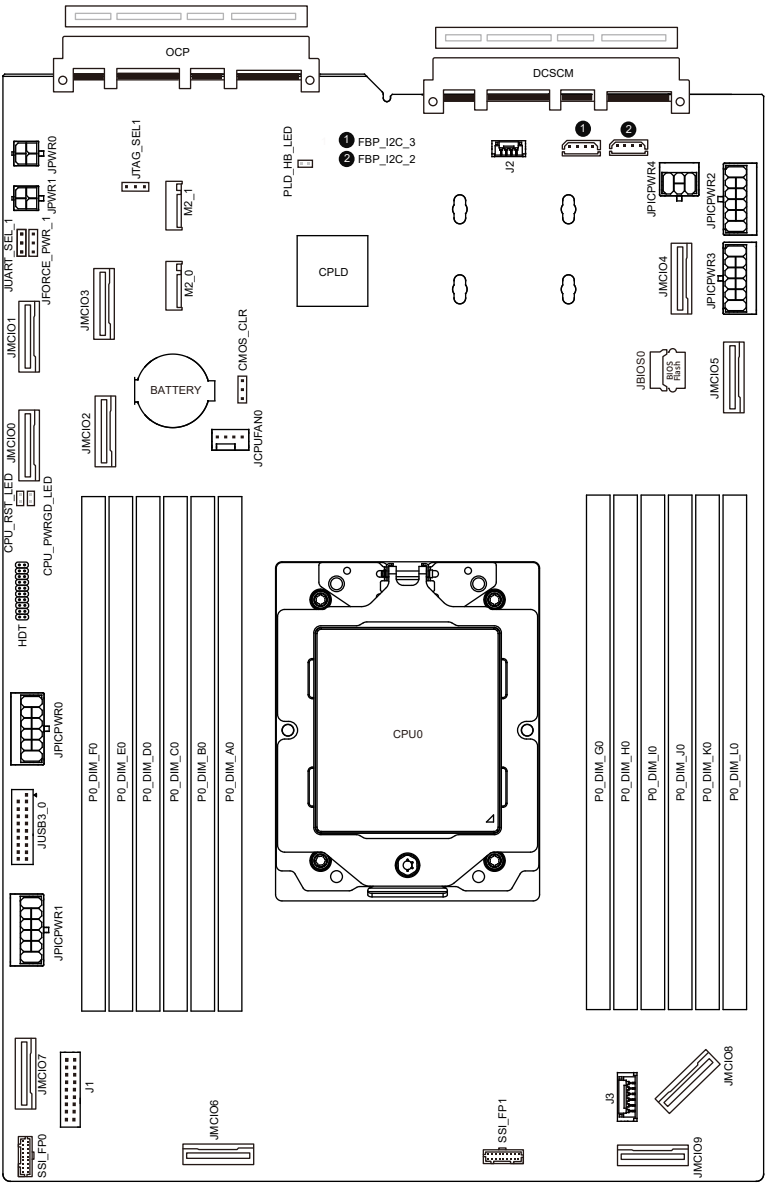


System Storage Topology



6 x 2.5”NVMe Hot-Swap Drive Bays		
NVMe #0	**NVMe #2**	**NVMe #4**
Lane: 0-7		Lane: 8-15
P2	P1	
NVMe #1	**NVMe #3**	**NVMe #5**
Lane: 0-7	Lane: 8-15	
P2	P1	

Overview of Components



MGT1 DC-SCM Module

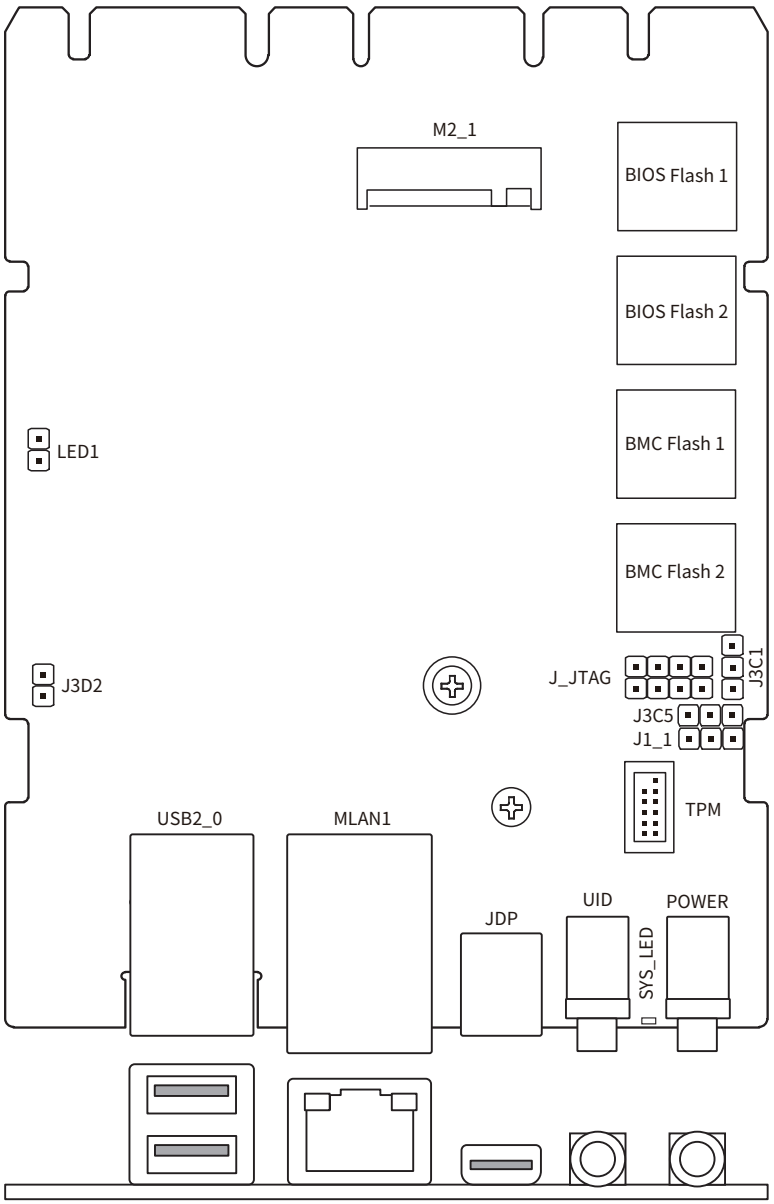
Specifications

Model	MGT1
Form factor	DC-SCM v2.0
Dimensions	120mm (4.72") x 420mm (3.54")
Chipset	ASPEED AST2600
Networking	1 x 1000Base-T dedicated server management port
Graphics	1 x mini DisplayPort
System Connectors	· 1 x USB 2.0 Type-A port (480 Mbps) · 1 x 1000Base-T dedicated server management port · 1 x COM USB Type-A port · 1 x mini DisplayPort · 1 x Power LED button header (green) · 1 x UID button header (blue) · 1 x status LEDs: green/red
Security	· TPM 2.0 module (optional) · ASPEED AST1060 Hardware Root-of-Trust module (optional)
Server Management	· 1 x 1000Base-T dedicated server management port · ASPEED AST2600 with AMI MegaRAC based firmware - Supports IPMI 2.0 and DMTF Redfish® API · Dual BIOS and BMC, with eMMC for local BMC storage media
Environment	· Operating Temperature: 0°C to 35°C (50°F to 95°F) · Non-operating Temperature: -20°C to 70°C (-4°F to 158°F) · Non-operating Relative Humidity: 5% to 85% (non-condensing)

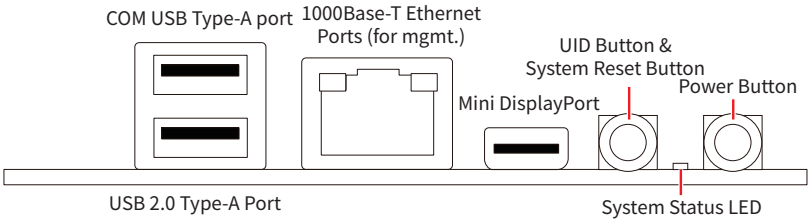
Optional modules

Model	TPM20-IRS	ROT1
Form factor	Proprietary	
Dimensions	20mm (0.78") x 21.5mm (0.84") (Right-angle type)	30mm (1.81") x 60mm (2.36")
Chipset	OPTIGA™ TPM SLB 9672	ASPEED AST1060
Security	TPM 2.0 module	Hardware Root-of-Trust module
Environment	· Operating Temperature: 0°C to 35°C (50°F to 95°F) · Non-operating Temperature: -20°C to 70°C (-4°F to 158°F) · Non-operating Relative Humidity: 5% to 85% (non-condensing)	

Overview of Components



Rear I/O Panel



COM USB Type-A port

This port allows for serial data transmission over a USB connection, enabling remote or direct console access.

USB 2.0 Type-A Port

This connector is provided for USB peripheral devices. (Speed up to 480 Mbps)

Important

High-speed devices are recommended for USB 3.2 ports whereas low-speed devices, such as mouse or keyboard, are suggested to be plugged into the USB 2.0 ports.

1000Base-T Ethernet Port (for mgmt.)

The 1000Base-T Ethernet Port is for connection to the Local Area Network (LAN). You can connect a network cable to it.

Mini-DisplayPort

This port is a compact version of DisplayPort, used for connecting displays. With an appropriate adapter, it supports connections to VGA, DVI, or HDMI displays.

UID LED Button & System Reset Button

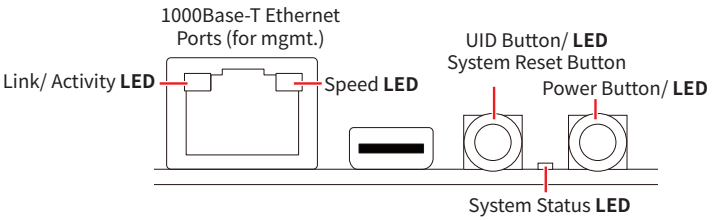
In the default setting, this button is configured as a UID button. By using the **J1_1** jumper, users can set it as a System Reset Button.

System Status LED

Power Button LED

Press the button to turn the system on or off. Power LED lit green when the system is turned on.

System LED Indicators



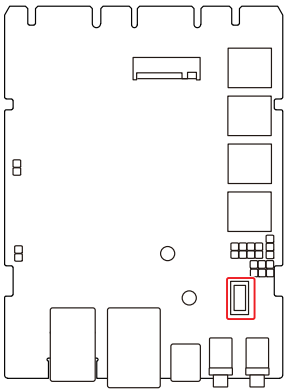
LED	LED State	Description
Power LED	Green	System power is on
		System power is on ACPI S0 state
	Blinking	System is sleeping
	Off	System power is off
		System power is on ACPI S4, S5 state
UID LED	Blue	Identify active via command or button
	Off	No identification
System Status LED	Green	BMC initialization
	Red	BMC anomaly detected. Check BMC log for details.
	Off	System is running/ normal operation
LAN Link/ Activity LED	Green	Linked
	Blinking	Data activity
	Off	No link
LAN Speed LED	Green	1GbE
	Orange	100M
	Off	10M

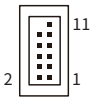
Component Contents

Connectors and Components

TPM: SPI TPM Header (for TPM20-IRS)

This header connects to a TPM (Trusted Platform Module) module (optional). Please refer to the TPM security platform manual for more details.





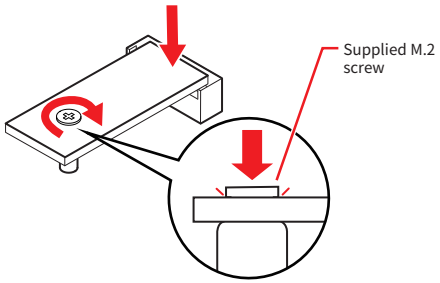
TPM

1	PRSNT#	2	RST#
3	MOSI	4	PIRQ
5	MISO	6	CLK
7	PP/Reserved	8	GND
9	Vcc	10	CS3
11	Vcc	12	N/A

Installing TPM module

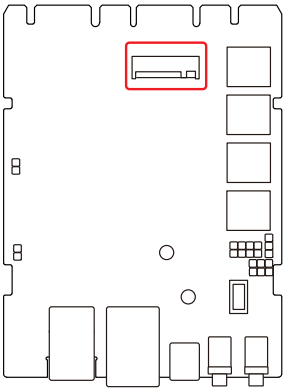
1. Place the TPM20-IRS module atop the SPI TPM header.

2. Secure the module in place with the supplied M.2 screw.



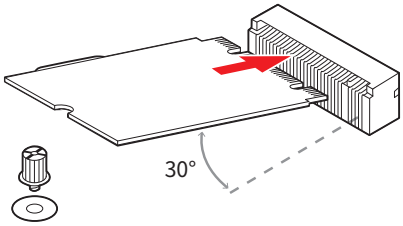
M2_1: M.2 Slot (M Key, for ROT1)

Please install the M.2 3060 module into the M.2 slot as shown below.

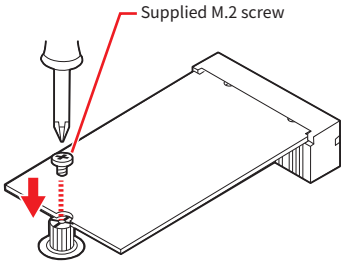


Installing M.2 3060 module

1. Insert your M.2 module into the M.2 slot at a 30-degree angle.

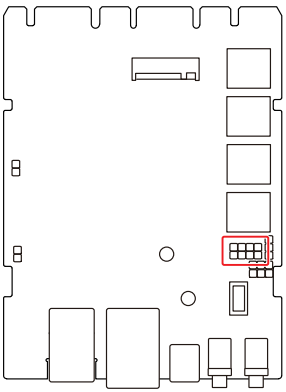


2. Secure the M.2 module in place with the supplied M.2 screw.



J_JTAG: Manual Programming Header (Debug Use)

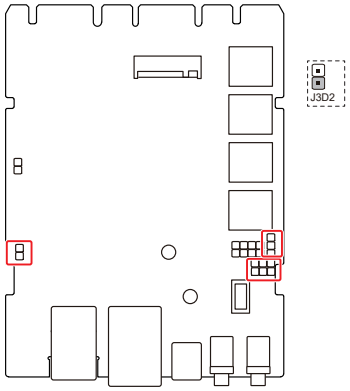
J_JTAG and J3C5 are used to manually debug and update CPLD firmware with programming tool.



Jumpers

Important

Avoid adjusting jumpers when the system is on; it will damage the motherboard.

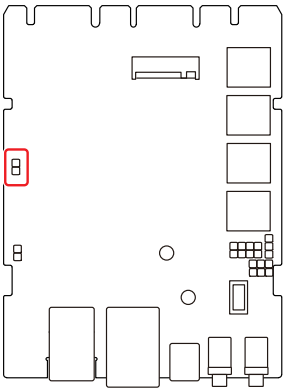


Jumper Name	Default Setting	Description
J3D2	1	**Force BMC Update Jumper** 1-X: Normal (default) 1-2: BMC Force Update
J3C1	1	**FRU Jumper** 1-2: FRU Write Protected 2-3: FRU Normal Operated (default)
J3C5	1	**JTAG SW Jumper** 1-2: JTAG SW disable 2-3: JTAG SW enable (default)
J1_1	1	**ID/ Reset Button Select Jumper** 1-2: ID Button (default) 2-3: Reset Button

Onboard LED

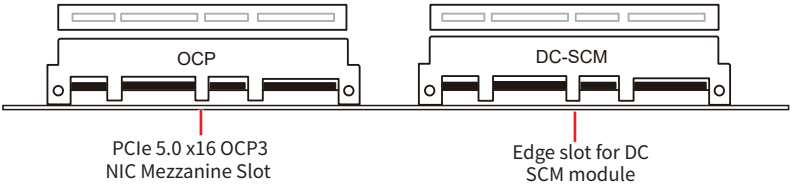
LED1: BMC Heartbeat LED

This LED indicates the BMC (Baseboard Management Controller) status.



Status	Description
Off	BMC is not activated
Blinking	BMC is functioning normally

Rear I/O Panel



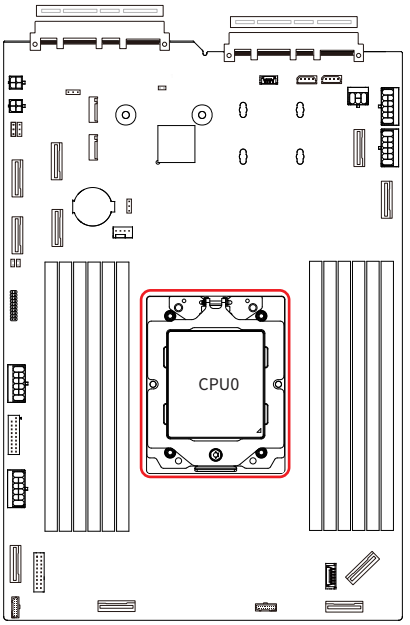
OCP 3.0 NIC Mezzanine Slot

OCP NIC 3.0 is an upgrade of OCP Mezz 2.0. It supports two sizes, SFF and LFF. The maximum power of SFF is 80W, and LFF can reach 150W, It is compatible with PCIe Gen 4 and Gen 5.

DC-SCM

The DC-SCI slot（Datacenter Serial Comunication Interface) used for connecting DCSCM cards which include LANs, Mini display Ports, USB ports or other compatible peripherals.

CPU Socket



Important

- *Overheating will seriously damage the CPU and system. Always make sure the cooling fan can work properly to protect the CPU from overheating. Make sure that you apply an even layer of thermal paste (or thermal tape) between the CPU and the heatsink to enhance heat dissipation.*
- *While replacing the CPU, always turn off the power supply or unplug the power supply' s power cord from the grounded outlet first to ensure the safety of CPU.*
- *Do not touch the CPU socket content to avoid damage.*
- *Whenever CPU is not installed, always protect your CPU socket pins with the plastic cap covered.*
- *Please refer to the documentation in the CPU cooler package for more details about the CPU cooler installation.*
- *Read the CPU status in BIOS.*

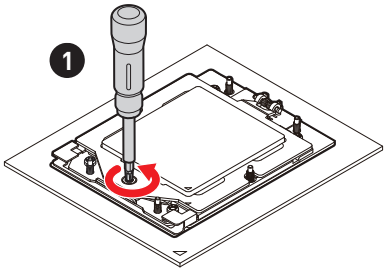
CPU Installation

Use appropriate ground straps, gloves and ESD mats to protect yourself from electrostatic discharge (ESD) while installing the processor.

Important

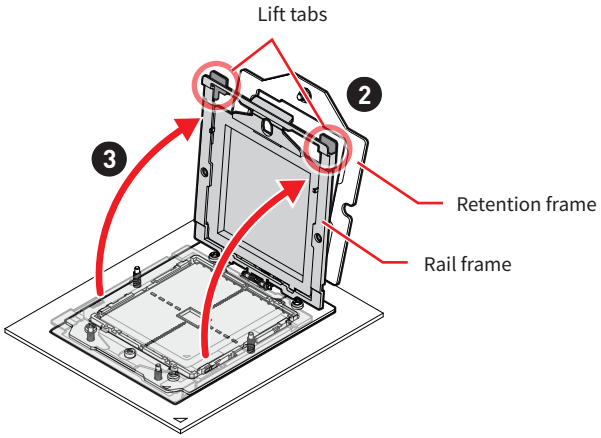
Images are for illustration purposes only; actual parts may vary.

1. Remove the screw on the top of the retention frame.



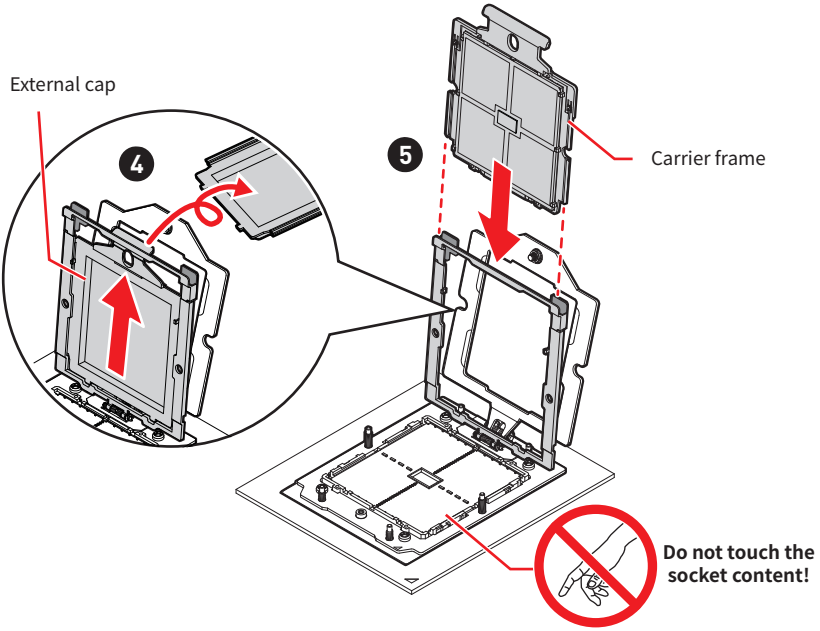
2. After removing the top screw, the **spring-loaded retention frame** will rise up. Hold it gently until it is fully open.
3. Lift the **rail frame** by gripping the lift tabs near the front edge of the rail frame.

- ***As both frames are spring-loaded, keep a tight grip on them while lifting to avoid an abrupt swinging motion.***

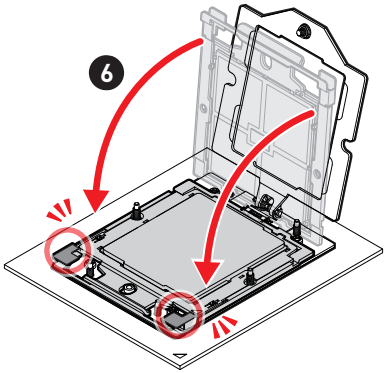


4. Pull the **external cap** upward through the rail guides on the rail frame to remove it.
5. Grip the handle of the **carrier frame** and slide it downward with the flanges and the rail guides aligned.

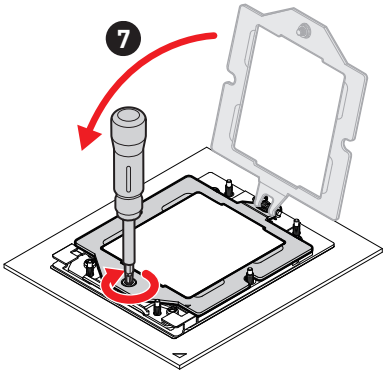
- ***CPUs are shipped from the factory with pre-assembled carrier frames.***
- ***Make sure the flanges of the carrier frame are firmly loaded on the rails before closing the rail frame.***



6. Grip the **lift tabs at the front edge of the rail frame** with the carrier frame loaded, then gently lower it to engage the carrier' s latching mechanism to the socket housing.



7. Push the **retention frame** downward and use a torque screwdriver to tighten the screw in the middle.



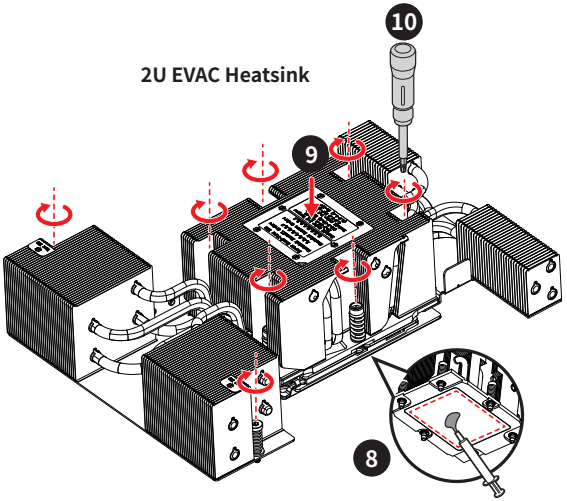
Torque Screwdriver Settings

Screw Head: Torx T20

Torque: 12.5-15 kgf·cm*
*12.5-15 kgf·cm
= 1.23~1.47 N·m
= 10.9~13 lbf·in

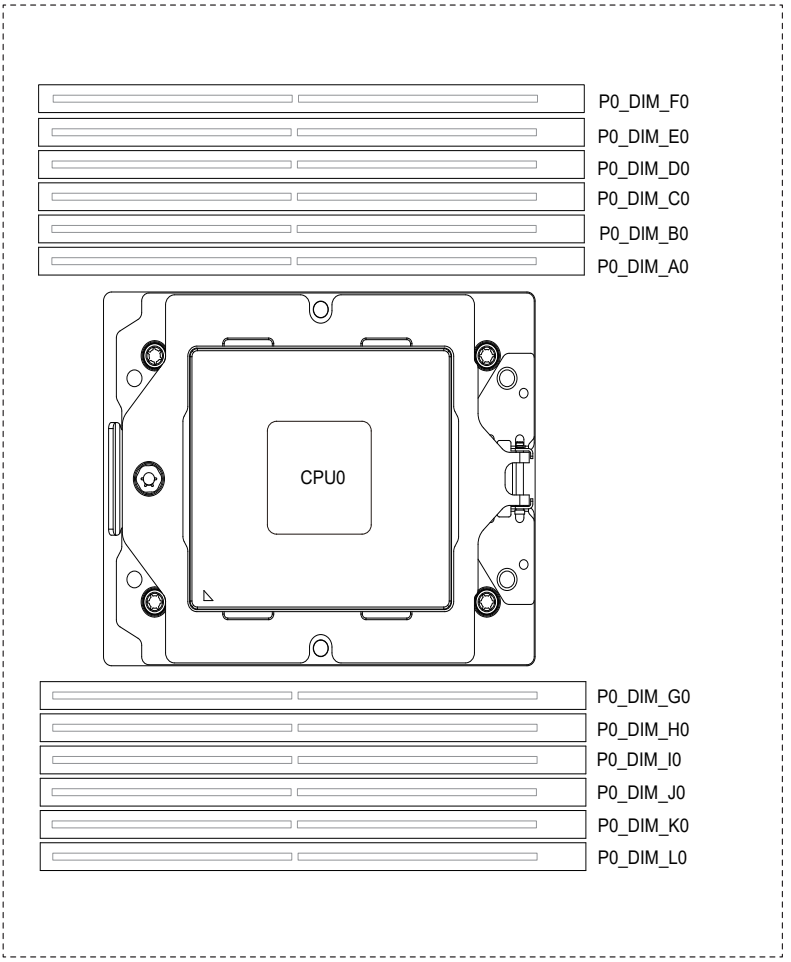
8. For peak thermal performance, apply proper amount of **thermal paste** to the bottom center of the heatsink. (Skip this step if there is pre-applied thermal paste.)
9. Lower the heatsink until it rests firmly in place after aligning the eight screw holes on its bottom with the motherboard' s studs.
10. Tighten all screws in **diagonal sequence** with a torque screwdriver.

- ***To avoid damaging the fins of the heatsink, always grip the heatsink along the axis of the fins. Holding a heatsink along the side might damage its fins or solder.***
- ***To avoid distributing uneven pressure on the CPU, it is recommended to secure the heatsink in two steps: first, loosely attach the screws at six points and then gradually tighten them.***
- ***Confirm if your heatsink is firmly installed before turning on your system.***

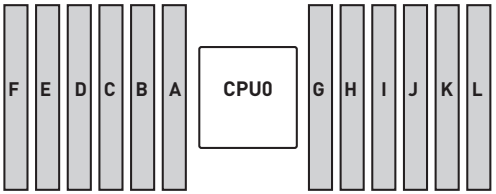


Memory Slots

P0_DIM_A0~L0: DDR5 DIMM Slots



Recommended Memory Population



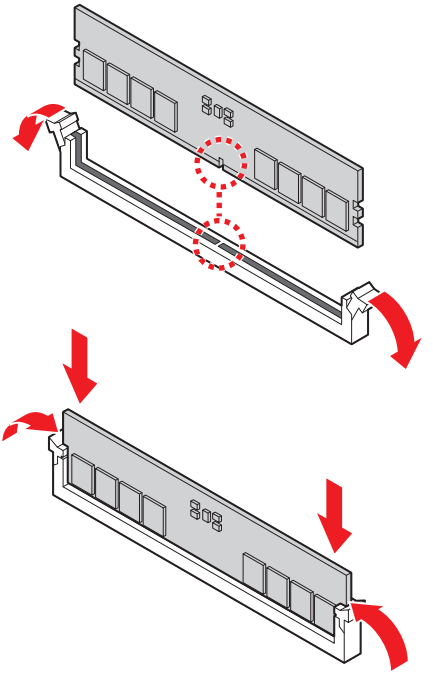
1 CPU													
Channel / Qty. of DDR5	F	E	D	C	B	A	CPU	G	H	I	J	K	L
12	V	V	V	V	V	V		V	V	V	V	V	V
10		V	V	V	V	V		V	V	V	V	V	
8		V		V	V	V		V	V	V		V	
6				V	V	V		V	V	V			
4				V		V		V		V			
2						V		V					
1						V							
"V" indicates DIMMs are populated with **DDR5**.													

Important

There should be at least one DDR5 DIMM populated.

Installing Memory Modules

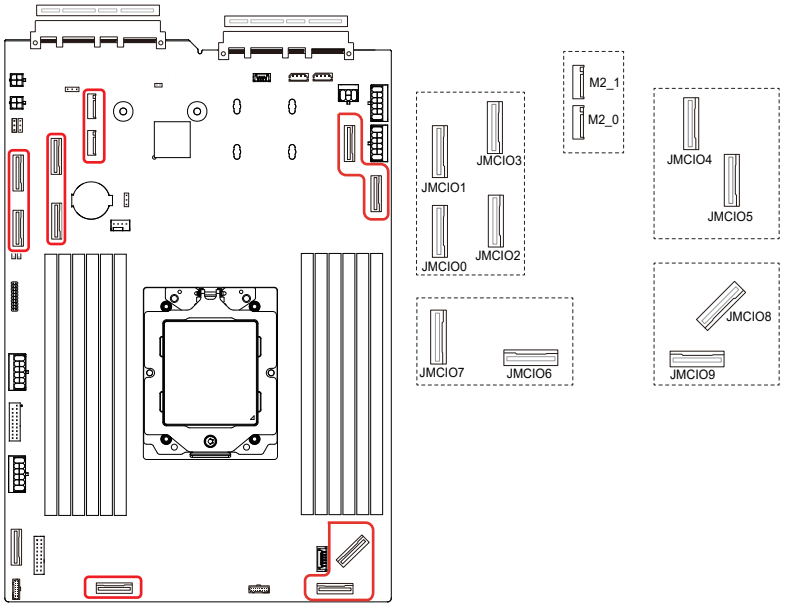
1. Open the side clips to unlock the DIMM slot.
2. Insert the DIMM vertically into the slot, ensuring that the off-center notch at the bottom aligns with the slot.
3. Push the DIMM firmly into the slot until it clicks and the side clips automatically close.
4. Verify that the side clips have securely locked the DIMM in place.



Important

You can barely see the golden finger if the memory module is properly inserted in the DIMM slot.

Storage Connectors

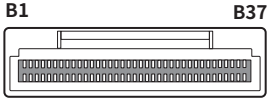


Name	Description
JMCIO0~9	PCIe 5.0 x8, 32GT/s
M2_0~1	PCIe 3.0 x2, 8GT/s

JMCIO0~9: MCIO 8i Connectors

These are vertical 74-pin Mini Cool Edge IO (MCIO) connectors, which support PCIe 5.0 x8 32GT/s interface.

JMCIO0~9



A1	GND	B1	GND
A2	P5E_CPU_PE_NVME_RX_D+	B2	P5E_CPU_PE_NVME_TX_D+
A3	P5E_CPU_PE_NVME_RX_D-	B3	P5E_CPU_PE_NVME_TX_D
A4	GND	B4	GND
A5	P5E_CPU_PE_NVME_RX_D+	B5	P5E_CPU_PE4_NVME_TX_D+

A6	P5E_CPU_PE_NVME_RX_D-	B6	P5E_CPU_PE_NVME_TX_D
A7	GND	B7	GND
A8	P3V3_AUX	B8	JMCIO_BMC_SCL
A9	FM_SMB_PEHPCPU_MCIO_LVC3_ALERT_N	B9	JMCIO_BMC_SDA
A10	GND	B10	GND
A11	CLK_100M_CPU_MCIO_R_D+	B11	PCIe_RST_N
A12	CLK_100M_CPU_MCIO_R_D-	B12	FM_MCIO_CPU_PESTI_CBL_PRES_N
A13	GND	B13	GND
A14	P5E_CPU_PE_NVME_RX_D+	B14	P5E_CPU_PE_NVME_TX_D+
A15	P5E_CPU_PE_NVME_RX_D-	B15	P5E_CPU_PE_NVME_TX_D
A16	GND	B16	GND
A17	P5E_CPU_PE_NVME_RX_D+	B17	P5E_CPU_PE_NVME_TX_D+
A18	P5E_CPU_PE_NVME_RX_D-	B18	P5E_CPU_PE_NVME_TX_D
A19	GND	B19	GND
A20	P5E_CPU_PE_NVME_RX_D+	B20	P5E_CPU_PE_NVME_TX_D+
A21	P5E_CPU_PE_NVME_RX_D-	B21	P5E_CPU_PE_NVME_TX_D
A22	GND	B22	GND
A23	P5E_CPU_PE_RX_D+	B23	P5E_CPU_PE_NVME_TX_D+
A24	P5E_CPU_PE_RX_D-	B24	P5E_CPU_PE_NVME_TX_D+
A25	GND	B25	GND
A26	SMB_MCIOP_CPU_SCL	B26	FM_MCIO_CPU_FPGA_FLEXIO_3A
A27	SMB_MCIOP_CPU_SDA	B27	FM_MCIO_CPU_FPGA_FLEXIO_4A
A28	GND	B28	GND
A29	USB_HUB_MCIO_CPU_PE_D+	B29	FM_MCIO_CPU_FPGA_FLEXIO_1A
A30	USB_HUB_MCIO_CPU_PE_D-	B30	FM_MCIO_CPU_FPGA_FLEXIO_2A
A31	GND	B31	GND
A32	P5E_CPU_PE_RX_D+	B32	P5E_CPU_PE_NVME_TX_D+
A33	P5E_CPU_PE_RX_D-	B33	P5E_CPU_PE_NVME_TX_D
A34	GND	B34	GND
A35	P5E_CPU_PE_RX_D+	B35	P5E_CPU_PE_NVME_TX_D+
A36	P5E_CPU_PE_RX_D-	B36	P5E_CPU_PE_NVME_TX_D
A37	GND	B37	GND

M2_0~1: M.2 Slots (M Key, PCIe 3.0 x2, 2280)

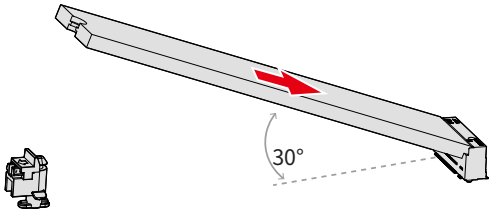
Please install the M.2 solid-state drive (SSD) into the M.2 slot as shown below.

Installing M.2 SSD

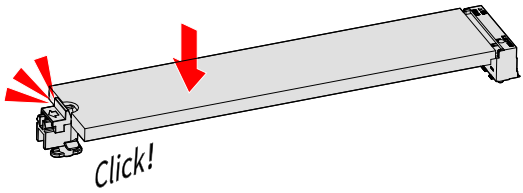
Video Demonstration

Watch the video to learn how to Install M.2 SSD.

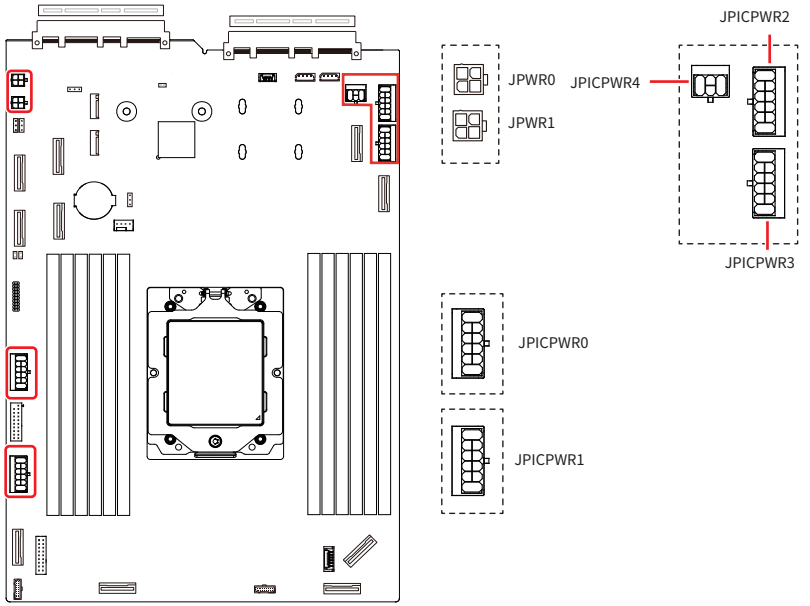
1. Insert your M.2 SSD into the M.2 slot at a 30-degree angle.



2. Secure the M.2 SSD in place with the M.2 latch.



Power Connectors



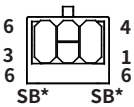
JPICPWR0~4: PIC Power Connectors

The PICPWR(Platform Infrastructure Connectivity Power) connector enables the HPM(Host Processor Module) to supply power and manage sideband signals to peripherals,including the GPU Cards (JPICPWR2~3), the HDD backplane Board(JPICPWR4)and 12V Power in connector(JPICPWR0~1).

JPICPWR4:6-Pin HDD BP Power Connectors

These connectors provide power output to HDDs.

JPICPWR4

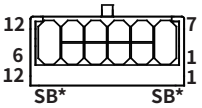


Power Signals			
1	GND	4	P12V
2	GND	5	P12V
3	GND	6	P12V
Sideband Management Signals			
S1	FM_HPM_PICPWR4_SB1	S4	FM_HPM_PICPWR4_SB4
S2	FM_HPM_PICPWR4_SB2	S5	SMB_PICPWR_4_LVC3_SCL
S3	FM_HPM_PICPWR4_SB3	S6	SMB_PICPWR_4_LVC3_SDA

JPICPWR2~3: 12-Pin GPU Power Connectors

These connectors provide power output to GPUs.

JPICPWR2/JPICPWR3



Power Signals				
1	GND	7	P12V	
2	GND	8	P12V	
3	GND	9	P12V	
4	GND	10	P12V	
5	GND	11	P12V	
6	GND	12	P12V	
Sideband Management Signals				
S1	FM_HPM_PICPWR3_B_SB1/ FM_HPM_PICPWR4_B_SB1	S7	FM_HPM_PICPWR3_A_SB1/ FM_HPM_PICPWR4_A_SB1	
S2	FM_HPM_PICPWR3_B_SB2/ FM_HPM_PICPWR4_B_SB2	S8	FM_HPM_PICPWR3_A_SB2/ FM_HPM_PICPWR4_A_SB2	
S3	FM_HPM_PICPWR3_B_SB3/ FM_HPM_PICPWR4_B_SB3	S9	FM_HPM_PICPWR3_A_SB3/ FM_HPM_PICPWR4_A_SB3	
S4	FM_HPM_PICPWR3_B_SB4/ FM_HPM_PICPWR4_B_SB4	S10	FM_HPM_PICPWR3_A_SB4/ FM_HPM_PICPWR4_A_SB4	
S5	SMB_PICPWR_3B_LVC3_SCL/ SMB_PICPWR_4B_LVC3_SCL	S11	SMB_PICPWR_3A_LVC3_SCL/ SMB_PICPWR_4A_LVC3_SCL	
S6	SMB_PICPWR_3B_LVC3_SDA/ SMB_PICPWR_4B_LVC3_SDA	S12	SMB_PICPWR_3A_LVC3_SDA/ SMB_PICPWR_4A_LVC3_SDA	

***SB: The term" SB" stands for sideband.**

JPWR0-1: 4-Pin Power Connectors for riser

This connector provides power output to risers on rear side.

JPWR0~1

1	P12V	2	P3V3
3	GND	4	GND

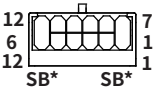
Important

Make sure that all power connectors are securely connected to the power supply to ensure stable operation of the motherboard.

JPICPWR0~1: 12-Pin 12V Power in Connectors

These connectors provide power output to GPUs.

JPICPWR0/JPICPWR1



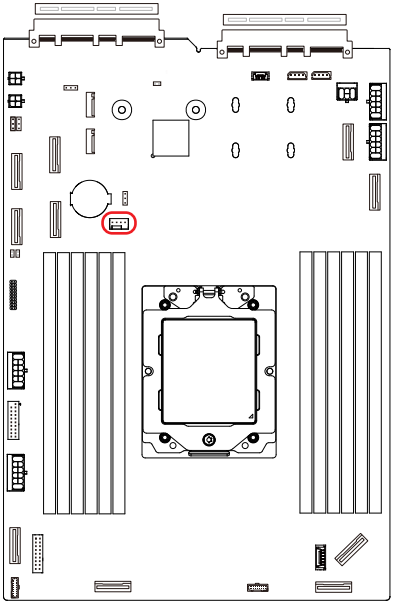
Power Signals			
1	GND	7	P12V
2	GND	8	P12V
3	GND	9	P12V
4	GND	10	P12V
5	GND	11	P12V
6	GND	12	P12V
Sideband Management Signals			
S1	FM_HPM_PICPWR1_B_SB1/ FM_HPM_PICPWR2_B_SB1	S7	FM_HPM_PICPWR1_A_SB1/ FM_HPM_PICPWR2_A_SB1
S2	FM_HPM_PICPWR1_B_SB2/ FM_HPM_PICPWR2_B_SB2	S8	FM_HPM_PICPWR1_A_SB2/ FM_HPM_PICPWR2_A_SB2
S3	FM_HPM_PICPWR1_B_SB3/ FM_HPM_PICPWR2_B_SB3	S9	FM_HPM_PICPWR1_A_SB3/ FM_HPM_PICPWR2_A_SB3
S4	FM_HPM_PICPWR1_B_SB4/ FM_HPM_PICPWR2_B_SB4	S10	FM_HPM_PICPWR1_A_SB4/ FM_HPM_PICPWR2_A_SB4
S5	SMB_IPMB1_SCL/ SMB_IPMB2_SCL	S11	SMB_PICPWR_1A_LVC3_SCL/ SMB_PICPWR_1A_LVC3_SDA
S6	SMB_IPMB1_SDA/ SMB_IPMB2_SDA	S12	SMB_PICPWR_2A_LVC3_SCL/ SMB_PICPWR_2A_LVC3_SDA

***SB: The term" SB" stands for sideband.**

Important

Make sure that all power connectors are securely connected to the power supply to ensure stable operation of the motherboard.

Cooling Connectors

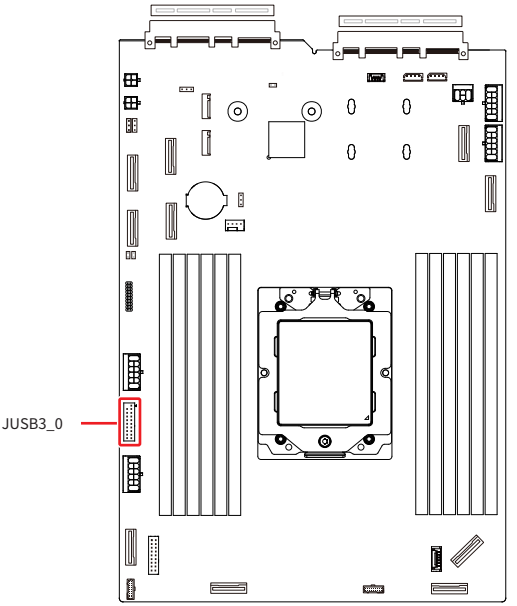


JCPUFAN0: CPU Fan Connectors

The fan power connectors support CPU cooling fans.

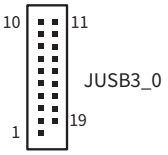
JCPUFAN0 1 4				
	1	GND	3	NC
	2	P12V	4	NC

USB Header



JUSB3_0: USB 3.0 Connector

This port is backward-compatible with USB 3.0 devices and supports data transfer rate up to **5 Gbps.**

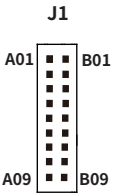


1	P5V_USB_1	11	USB2_P3_ESD_DP
2	USB3_P2_ESD_RXN	12	USB2_P3_ESD_DN
3	USB3_P2_ESD_RXP	13	GND
4	GND	14	USB3_P3_ESD_TXP
5	USB3_P2_ESD_TXN	15	USB3_P3_ESD_TXN
6	USB3_P2_ESD_TXP	16	GND
7	GND	17	USB3_P3_ESD_RXP
8	USB2_P2_ESD_DN	18	USB3_P3_ESD_RXN
9	USB2_P2_ESD_DP	19	P5V_USB_2
10	NC		

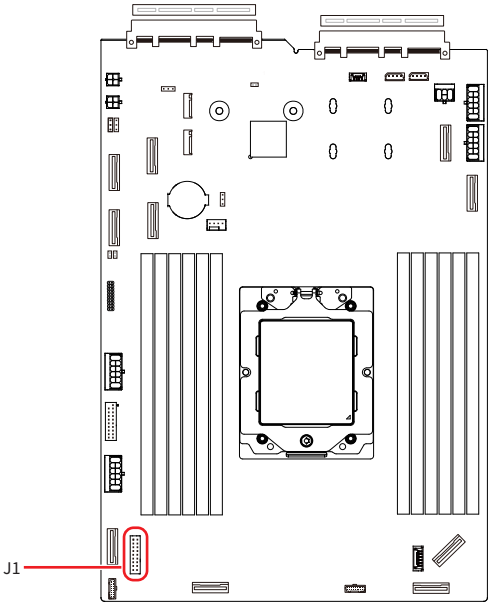
Other Connectors and Component

J1: PDB Management Connector

The PDB Management header connects to the power distribution board (PDB).



	A01	P12V_STBY	B01	P12V_STBY
	A02	NC	B02	NC
	A03	P12V_STBY	B03	P12V_STBY
	A04	GND	B04	GND
	A05	SGPIO_LOAD	B05	SGPIO_CLK
	A06	SGPIO_DATAOUT	B06	GND
	A07	GND	B07	SGPIO_DATAIN
	A08	SMB_PSU_SCL	B08	GND
	A09	SMB_PSU_SDA	B09	NC



J2: Liquid Leakage Detect Connector

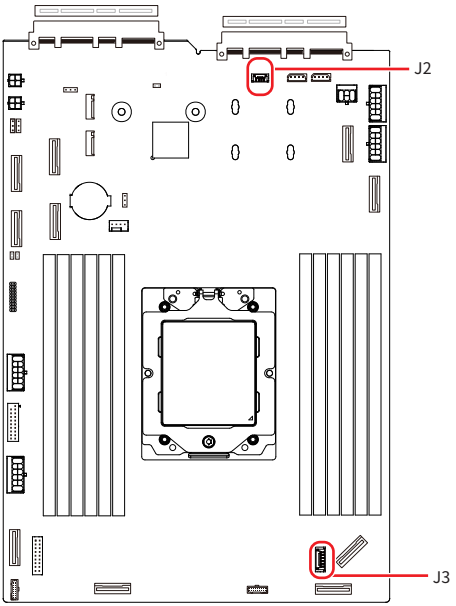
This header is to header for liquid cooler leaking sensor.

J2 1 4	1	GND	2	P12V_AUX
	3	LIQUID_INT	4	CBL_PRSNT

J3: Pump Driver Connector

This header is to pump driver.

J3 1 6	1	P12V	2	GND
	3	PUMP1_TACH	4	PUMP1_PWM
	5	PUMP2_TACH	6	PUMP2_PWM

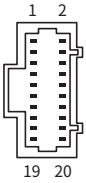


SSI_FP0~1: DC-MHS Control Panel Header

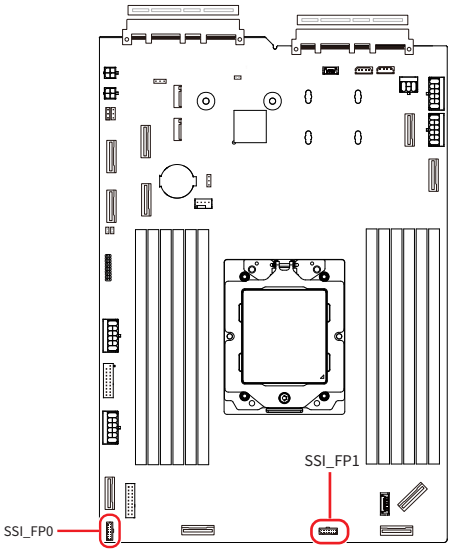
The DC-MHS control panel header for M-PESTI connects the HPM to the server' sfront panel, enabling essential controls such as power, LED indicators, buttons, and sideband signals for management and monitoring.

- DC-MHS (**Data Center Modular Hardware System**) is a modular framework for data center hardware, promoting interoperability across components.
- M-PESTI (**Modular Hardware System Peripheral Sideband Tunneling Interface**)standardizes communication for peripheral components, allowing automatic discovery and configuration.
- HPM (**Host Processor Module**) is the main processing module in a server, responsible for managing power, control signals, and peripheral interfaces.

SSI_FP0~1

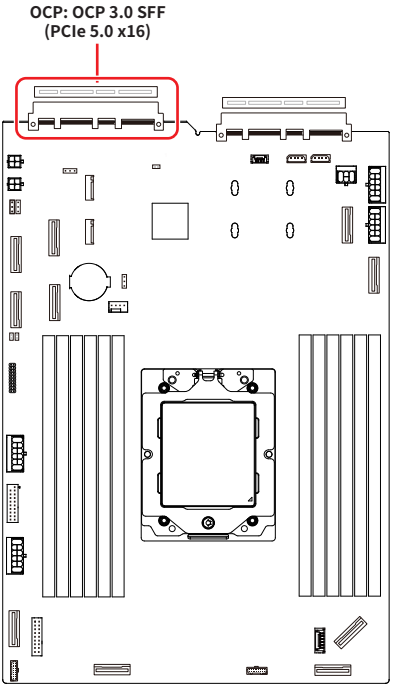


	1	P12V_AUX	2	GND
	3	P12V_AUX	4	BMC_SMB_LVC3_PESTI1_SDA
	5	NC	6	BMC_SMB_LVC3_PESTI1_SCL
	7	GND	8	GND
	9	USB2_BMC_PCP_ESD_D+	10	FM_FP_HPM_PCP_SB4
	11	USB2_BMC_PCP_ESD_D-	12	FM_FP_HPM_PCP_SB3
	13	GND	14	FM_FP_HPM_PCP_SB2
	15	SPI_BMC_FP_MISO_R	16	FM_FP_HPM_PCP_SB1
	17	SPI_BMC_FP_CS0_R	18	GND
	19	SPI_BMC_FP_MOSI_R	20	SPI_BMC_FP_CK_R



OCP: OCP 3.0 Mezzanine Slot

This slot enables the deployment of a wide variety of additional options through OCP(Open Compute Project) network interface cards (NICs) or other expansion Cards.



Top Side (B Pins)		Bottom Side (A Pins)	
OB1	PWRGD_OCP0_NIC1_PWRGD_R	OA1	RST_CPU0_PE0_OCP0_PERST2_N
OB2	FM_OCP0_NIC_MAIN_PWR_EN	OA2	RST_CPU0_PE0_OCP0_PERST3_N
OB3	SGPIO_OCP0_R_LD_N	OA3	IRQ_WAKE_CPU0_PE0_OCP0_LVC3_N
OB4	SGPIO_OCP0_R_DIN	OA4	OCP0_RBT_ARB_IN
OB5	SGPIO_OCP0_R_DOUT	OA5	OCP0_RBT_ARB_OUT
OB6	SGPIO_OCP0_R_CLK	OA6	PUD_OCP0_SLOT_ID1_N
OB7	PUD_OCP0_SLOT_ID0_N	OA7	RMII_OCP0_TX_EN
OB8	RMII_OCP0_RXD1	OA8	RMII_OCP0_TXD1
OB9	RMII_OCP0_RXD0	OA9	RMII_OCP0_TXD0
OB10	GND	OA10	GND

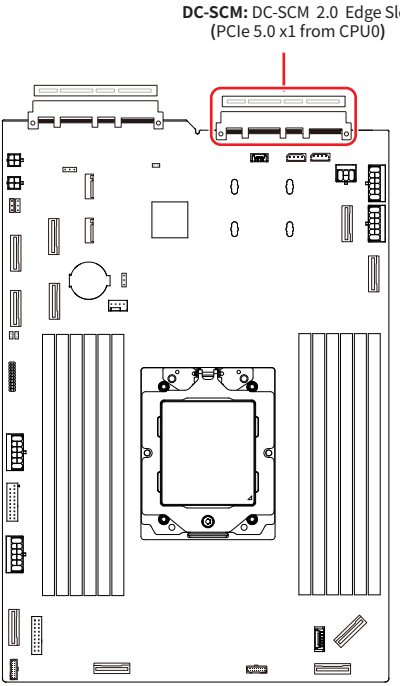
Top Side (B Pins)		Bottom Side (A Pins)	
OB11	CLK_100M_CPU0_OCP0_3_DN/DP	OA11	RST_CPU0_PE0_OCP0_PERST2_N
OB12	CLK_100M_CPU0_OCP0_2_DN/DP	OA12	RST_CPU0_PE0_OCP0_PERST3_N
OB13	GND	OA13	IRQ_WAKE_CPU0_PE0_OCP0_LVC3_N
OB14	RMII_OCP0_CSDV	OA14	OCP0_RBT_ARB_IN
Mechanical Key			
B1	P12V_AUX_OCP0	A1	GND
B2	P12V_AUX_OCP0	A2	GND
B3	P12V_AUX_OCP0	A3	GND
B4	P12V_AUX_OCP0	A4	GND
B5	P12V_AUX_OCP0	A5	GND
B6	P12V_AUX_OCP0	A6	GND
B7	PD_OCP0_NIC_BIF0_N	A7	SMB_CPU0_PE2_OCP0_LVC3_SCL
B8	PD_OCP0_NIC_BIF1_N	A8	SMB_CPU0_PE2_OCP0_LVC3_SDA
B9	PD_OCP0_NIC_BIF2_N	A9	RST_BMC_PCIE_MUX_R_LVC3_N
B10	RST_CPU0_PE7_OCP0_PERST0_N	A10	PD_CPU0_OCP0_NIC_PRSNTA_N
B11	P3V3_AUX_OCP0	A11	RST_CPU0_PE7_OCP0_PERST1_N
B12	FM_OCP0_NIC_AUX_PWR_LVC3_R_EN	A12	FM_CPU_PE_OCP0_NIC_PRSTN2_N
B13	GND	A13	GND
B14	CLK_100M_CPU0_OCP0_0_DN	A14	CLK_100M_CPU0_OCP0_1_DN
B15	CLK_100M_CPU0_OCP0_0_DP	A15	CLK_100M_CPU0_OCP0_1_DP
B16	GND	A16	GND
B17	P5E_CPU0_PE2_OCP_TX_DN0	A17	P5E_CPU0_PE2_OCP_RX_DN0
B18	P5E_CPU0_PE2_OCP_TX_DP0	A18	P5E_CPU0_PE2_OCP_RX_DP0
B19	GND	A19	GND
B20	P5E_CPU0_PE2_OCP_TX_DN1	A20	P5E_CPU0_PE2_OCP_RX_DN1
B21	P5E_CPU0_PE2_OCP_TX_DP1	A21	P5E_CPU0_PE2_OCP_RX_DP1
B22	GND	A22	GND
B23	P5E_CPU0_PE2_OCP_TX_DN2	A23	P5E_CPU0_PE2_OCP_RX_DN2
B24	P5E_CPU0_PE2_OCP_TX_DP2	A24	P5E_CPU0_PE2_OCP_RX_DP2
B25	GND	A25	GND
B26	P5E_CPU0_PE2_OCP_TX_DN3	A26	P5E_CPU0_PE2_OCP_RX_DN3
B27	P5E_CPU0_PE2_OCP_TX_DP3	A27	P5E_CPU0_PE2_OCP_RX_DP3

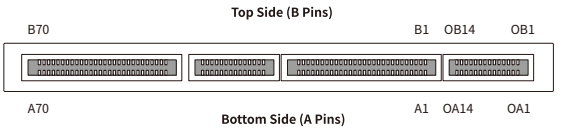
B28	GND	A28	GND
Mechanical Key			
B29	GND	A29	GND
B30	P5E_CPU0_PE2_OCP_TX_DN4	A30	P5E_CPU0_PE2_OCP_RX_DN4
B31	P5E_CPU0_PE2_OCP_TX_DP4	A31	P5E_CPU0_PE2_OCP_RX_DP4
B32	GND	A32	GND
B33	P5E_CPU0_PE2_OCP_TX_DN5	A33	P5E_CPU0_PE2_OCP_RX_DN5
B34	P5E_CPU0_PE2_OCP_TX_DP5	A34	P5E_CPU0_PE2_OCP_RX_DP5
B35	GND	A35	GND
B36	P5E_CPU0_PE2_OCP_TX_DN6	A36	P5E_CPU0_PE2_OCP_RX_DN6
B37	P5E_CPU0_PE2_OCP_TX_DP6	A37	P5E_CPU0_PE2_OCP_RX_DP6
B38	GND	A38	GND
B39	P5E_CPU0_PE2_OCP_TX_DN7	A39	P5E_CPU0_PE2_OCP_RX_DN7
B40	P5E_CPU0_PE2_OCP_TX_DP7	A40	P5E_CPU0_PE2_OCP_RX_DP7
B41	GND	A41	GND
Top Side (B Pins)		Bottom Side (A Pins)	
B42	FM_CPU0_OCP0_NIC_PRSTN0_N	A42	FM_CPU_OCP0_NIC_PRSTN1_N
Mechanical Key			
B43	GND	A43	GND
B44	P5E_CPU0_PE2_OCP_TX_DN8	A44	P5E_CPU0_PE2_OCP_RX_DN8
B45	P5E_CPU0_PE2_OCP_TX_DP8	A45	P5E_CPU0_PE2_OCP_RX_DP8
B46	GND	A46	GND
B47	P5E_CPU0_PE2_OCP_TX_DN9	A47	P5E_CPU0_PE2_OCP_RX_DN9
B48	P5E_CPU0_PE2_OCP_TX_DN9	A48	P5E_CPU0_PE2_OCP_RX_DP9
B49	GND	A49	GND
B50	P5E_CPU0_PE2_OCP_TX_DN10	A50	P5E_CPU0_PE2_OCP_RX_DN10
B51	P5E_CPU0_PE2_OCP_TX_DP10	A51	P5E_CPU0_PE2_OCP_RX_DP10
B52	GND	A52	GND
B53	P5E_CPU0_PE2_OCP_TX_DN11	A53	P5E_CPU0_PE2_OCP_RX_DN11
B54	P5E_CPU0_PE2_OCP_TX_DP11	A54	P5E_CPU0_PE2_OCP_RX_DP11
B55	GND	A55	GND

B56	P5E_CPU0_PE2_OCP_TX_DN12	A56	P5E_CPU0_PE2_OCP_RX_DN12
B57	P5E_CPU0_PE2_OCP_TX_DP12	A57	P5E_CPU0_PE2_OCP_RX_DP12
B58	GND	A58	GND
B59	P5E_CPU0_PE2_OCP_TX_DN13	A59	P5E_CPU0_PE2_OCP_RX_DN13
B60	P5E_CPU0_PE2_OCP_TX_DP13	A60	P5E_CPU0_PE2_OCP_RX_DP13
B61	GND	A61	GND
B62	P5E_CPU0_PE2_OCP_TX_DN14	A62	P5E_CPU0_PE2_OCP_RX_DN14
B63	P5E_CPU0_PE2_OCP_TX_DP14	A63	P5E_CPU0_PE2_OCP_RX_DP14
B64	GND	A64	GND
B65	P5E_CPU0_PE2_OCP_TX_DN15	A65	P5E_CPU0_PE2_OCP_RX_DN15
B66	P5E_CPU0_PE2_OCP_TX_DP15	A66	P5E_CPU0_PE2_OCP_RX_DP15
B67	GND	A67	GND
B68	FM_CPU0_PE0_OCP0_PRSTN3_QS_N	A68	USB2_OCP_NIC_DN
B69	NC	A69	USB2_OCP_NIC_DP
B70	FM_CPU_PE_OCP0_NIC_PRSNTB3_N	A70	FM_PWRBRK_CPU0_PE2_OCP0_ LVC3_N

DC-SCM: DC-SCM 2.0 Edge Slot

The slot links the Datacenter Secure Control Module (DC-SCM) to the motherboard, enabling centralized power, management, and security control across server hardware. This standardized interface allows easy upgrades and compatibility across various platforms.





Top Side (B Pins)		Bottom Side (A Pins)	
OB1	GND	OA1	GND
OB2	NC	OA2	NC
OB3	NC	OA3	NC
OB4	GND	OA4	GND
OB5	NC	OA5	NC
OB6	NC	OA6	NC
OB7	GND	OA7	GND

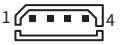
OB8	NC	OA8	NC
OB9	NC	OA9	NC
OB10	GND	OA10	GND
Top Side (B Pins)		Bottom Side (A Pins)	
OB11	USB2_BMC_HUB_DN	OA11	NC
OB12	USB2_BMC_HUB_DP	OA12	NC
OB13	GND	OA13	GND
OB14	P1V0_AUX	OA14	PECI_SCM
Mechanical Key			
B1	CLK_66M_ESPI_CPU0_LVC18	A1	P12V_AUX_SCM
B2	ESPI_CPU0_CS0_SCM_N	A2	P12V_AUX_SCM
B3	RST_ESPI_CPU0_LVC18_N	A3	P12V_AUX_SCM
B4	ESPI_CPU0_IO0_LVC18	A4	P12V_AUX_SCM
B5	ESPI_CPU0_IO1_LVC18	A5	GND
B6	ESPI_CPU0_IO2_LVC18	A6	GND
B7	ESPI_CPU0_IO3_LVC18	A7	GND
B8	IRQ_ESPI_CPU0_ALERT0_FPGA_ LVC18_N	A8	BMC_JTAG_LVC3_TCK
B9	NC	A9	BMC_JTAG_LVC3_TDI
B10	NC	A10	BMC_JTAG_LVC3_TDO
B11	GND	A11	BMC_JTAG_LVC3_TMS
B12	SPI_CPU0_CLK_DCSCM_LVC18_R1	A12	NC
B13	SPI_CPU0_CS0_DCSCM_LVC18_R1_N	A13	FM_HPM_STBY_RST_N
B14	SPI_CPU0_IO0_DCSCM_LVC18_R1	A14	FM_HPM_STBY_EN
B15	SPI_CPU0_IO1_DCSCM_LVC18_R1	A15	SMB_CHASSIS_SENSOR_STBY_LVC3_SCL
B16	SPI_CPU0_IO2_DCSCM_LVC18_R1	A16	SMB_CHASSIS_SENSOR_STBY_LVC3_SDA
B17	SPI_CPU0_IO3_DCSCM_LVC18_R1	A17	SMB_HSBP_SCM_LVC3_R_SCL
B18	SPI_CPU0_CS1_DCSCM_LVC18_R1_N	A18	SMB_HSBP_SCM_LVC3_R_SDA
B19	GND	A19	GND
B20	LVDS_LVC18_TX_DN	A20	LVDS_LVC18_RX_DN
B21	LVDS_LVC18_TX_DP	A21	LVDS_LVC18_RX_DP
B22	GND	A22	GND
B23	LVDS_LVC18_CLK_TX_DN	A23	LVDS_LVC18_CLK_RX_DN
B24	LVDS_LVC18_CLK_TX_DP	A24	LVDS_LVC18_CLK_RX_DP

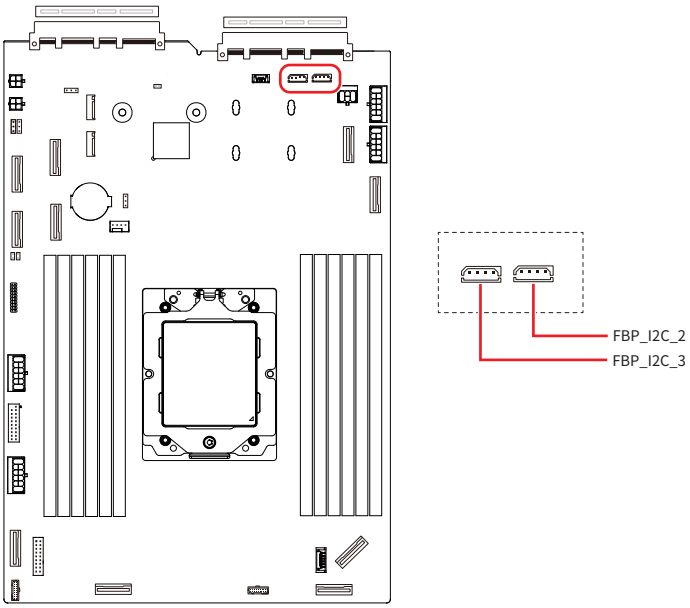
B25	GND	A25	GND
B26	FM_HPM_STBY_RDY	A26	SMB_PMBUS2_LVC3_SCL
B27	FM_INTRUDER_HDR_BMC_N	A27	SMB_PMBUS2_LVC3_SDA
B28	P3V_BAT_CPU0	A28	RST_PLD_PCIE_CPU0_DEV_PERST_N
Mechanical Key			
B29	GND	A29	GND
B30	P5E_CPU0_PE1_TX_DN2	A30	P5E_CPU0_PE1_RX_DN2
B31	P5E_CPU0_PE1_TX_DP2	A31	P5E_CPU0_PE1_RX_DP2
B32	GND	A32	GND
B33	HUB_SSTX4N	A33	HUB_SSRX4N
B34	HUB_SSTX4P	A34	HUB_SSRX4P
B35	GND	A35	GND
B36	BMC_TYPEA_DN	A36	CLK_100M_SCM_DN
B37	BMC_TYPEA_DP	A37	CLK_100M_SCM_DP
B38	GND	A38	GND
B39	I3C_DBG_SCM_LVC18_R_SCL	A39	I3C_SPD_SCM_R_LVC1_SCL
B40	I3C_DBG_SCM_LVC18_R_SDA	A40	I3C_SPD_SCM_R_LVC1_SDA
B41	NC	A41	I3C_MNG_SCM_LVC1_R_SCL
Top Side (B Pins)		Bottom Side (A Pins)	
B42	NC	A42	I3C_MNG_SCM_LVC1_R_SDA
Mechanical Key			
B43	CLK3_50M_SCM_RMII_CLK	A43	SMB_PCIE_SCM_LVC3_R_SCL
B44	RMII3_SCM_CRS_DV_R	A44	SMB_PCIE_SCM_LVC3_R_SDA
B45	RMII3_SCM_TX_EN_R	A45	SMB_IPMB_LVC3_CLK
B46	RMII3_SCM_TXD0	A46	SMB_IPMB_LVC3_DAT
B47	RMII3_SCM_TXD1	A47	SMB_CPLD_UPDATE_SCM_LVC3_R_SCL
B48	RMII3_SCM_RXD0	A48	SMB_CPLD_UPDATE_SCM_LVC3_R_SDA
B49	RMII3_SCM_RXD1	A49	SMB_PMBUS1_LVC3_SCL
B50	VCC3_FRU_SCM	A50	SMB_PMBUS1_LVC3_SDA
B51	UART0_TX_SCM_HPM_DATA	A51	BMC_SMB_LVC18_CLK1
B52	SMB_HOST_STBY_LVC3_SCL	A52	BMC_SMB_LVC18_DAT1
B53	SMB_HOST_STBY_LVC3_SDA	A53	GND-31

B54	DBP_ASD_SCM_PREQ_LVC3_R_N	A54	SPI_CPU0_TPM_CLK_LVC18_MUX_R1
B55	DBP_ASD_SCM_PRDY_LVC3_R_N	A55	SPI_CPU0_TPM_CS_LVC18_MUX_R1_N
B56	SMB16_IPMB_LVC3_SCL	A56	SPI_CPU0_TPM_MOSI_LVC18_MUX_R1
B57	SMB16_IPMB_LVC3_SDA	A57	SPI_CPU0_TPM_MISO_LVC18_MUX_R1
B58	FM_SCM_PRSNT0_LVC3_N	A58	NC
B59	SCM_GPIO	A59	NC
B60	SPI_BMC_FP_CK_R	A60	SPI_IRQ_SCM_TPM_N
B61	SPI_BMC_FP_MISO_R	A61	NC
B62	SPI_BMC_FP_MOSI_R	A62	NC
B63	SPI_BMC_FP_CS0_R	A63	UART0_RX_HPM_SCM_DATA
B64	GND	A64	GND
B65	NC	A65	NC
B66	NC	A66	NC
B67	GND	A67	GND
B68	BMC_USB2A_DN	A68	NC
B69	BMC_USB2A_DP	A69	NC
B70	GND	A70	GND

FBP_I2C_2, FBP_I2C_3: I2C Headers

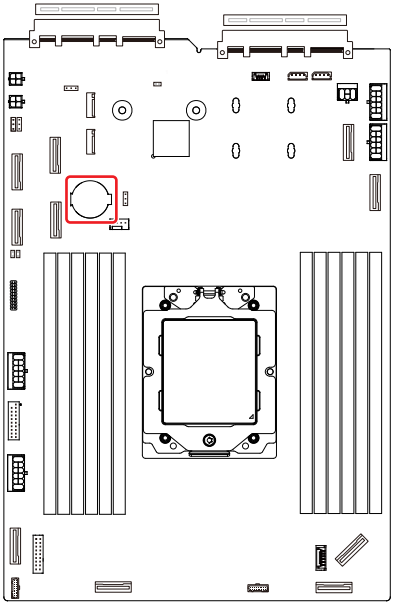
I2C headers are used to connect to the System Management Bus (SMBus).
FBP_I2C_2-3 is for HDD backplane.

FBP_I2C_2 FBP_I2C_3 	1	P3V3_AUX	3	BP_I2C_CLK2/BP_I2C_DAT3
	2	BP_I2C_DAT2/BP_I2C_DAT3	4	GND



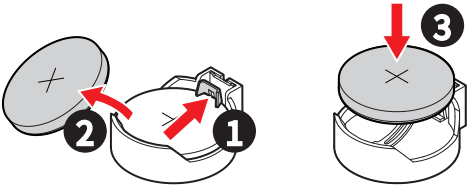
BAT1: CMOS Battery

If the CMOS battery is out of charge, the time in the BIOS will be reset and the data of system configuration will be lost. In this case, you need to replace the CMOS battery.



Replacing CMOS battery

1. Push the retainer clip to free the battery.
2. Remove the battery from the socket.
3. Install the new CR2032 coin-cell battery with the **+** sign facing up. Ensure that the retainer holds the battery securely.



WARNING

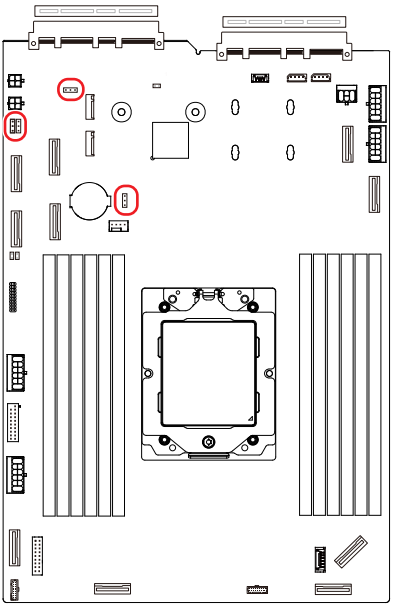
KEEP OUT OF REACH OF CHILDREN

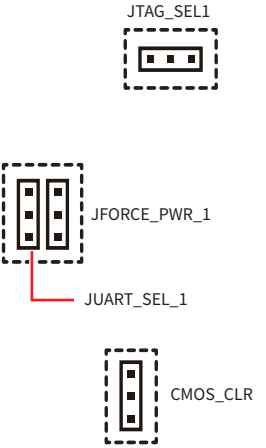
- ***Swallowing can lead to chemical burns, perforation of soft tissue, can death.***
- ***Severe burns can occur within 2 hours of ingestion.***
- ***If you think batteries might have been swallowed or placed inside any part of the body, seek immediate medical attention.***

Jumpers

Important

Avoid adjusting jumpers when the system is on; it will damage the motherboard.



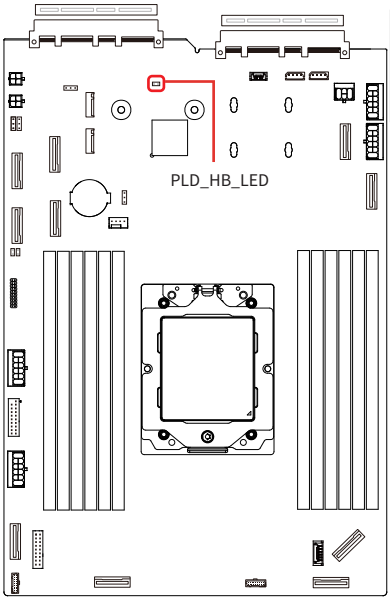


Jumper Name	Default Setting	Description
JFORCE_PWR_1		1-2: Disable force power on (Default) 2-3: Enable
JUART_SEL_1		1-2: CPU to BMC 2-3: UART CPLD TO CPU (Default)
JTAG_SEL1		1-2: BMC TO CPLD (Default) 2-3: BMC TO CPU
CMOS_CLR		1-2: Normal (Default) 2-3: CMOS Clear

Onboard LEDs

PLD_HB_LED: CPLD Heartbeat LED

This LED indicates the CPLD (Complex Programmable Logic Device) status.

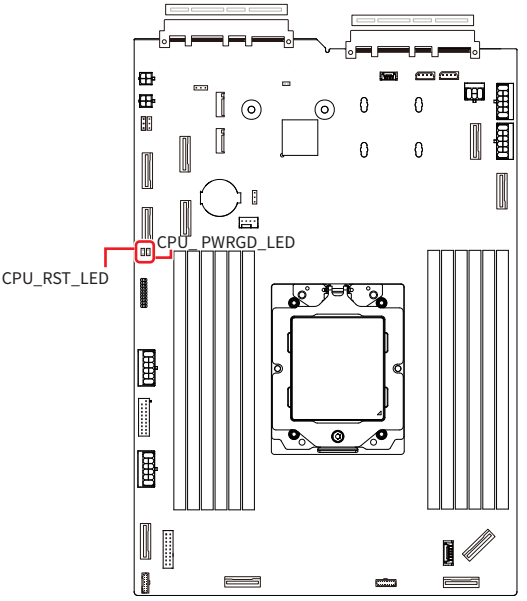


Status	Description
Off	CPLD is not activated
Blinking	CPLD is functioning normally

Onboard LEDs

CPU_RST_LED: CPU Power Reset LED
CPU_PWRGD_LED: CPU PowerGood LED

The PWR_RST_LED display Red light on when CPU reset assert.The PWR_GD_ LED display Green light on when CPU Power is ready.



	Status	Description
CPU_ RST_LED	Off	CPU Power reset not active
	On	CPU reset assert
CPU_PWRGD_LED	Off	CPU Power has issue
	On	CPU Power ready

Getting Started

Important

- ***All information is subject to change without prior notice.***
- ***The system photos are provided for demonstration purposes only. The appearance and internal view of your system may vary depending on the model you purchased.***

Necessary Tools

Screwdriver

Pliers

Tweezers

Anti-Static Gloves

Safety Precautions

The following precautions should be observed while handling the system:

- **Place the system on a flat and stable surface.**
- **Do not place the system in environments subject to mist, smoke, vibration, excessive dust, salty or greasy air, or other corrosive gases and fumes.**
- **Do not drop or jolt the system.**
- **Do not use a power adapter other than the one enclosed with the system.**
- **Disconnect the power cord before performing any installation procedures on the system.**
- **Do not perform any maintenance with wet hands.**
- **Prevent foreign substances, such as water, other liquids or chemicals, from entering the system while performing installation procedures.**
- **Use a grounded wrist strap before handling system components such as CPU, Memory, HDD, expansion cards, etc.**
- **Place system components on a grounded antistatic pad or on the bed that came with the components whenever the components are separated from the system.**

System Setup

Important

Before removing or installing any components, make sure the system is not turned on or connected to the power.

System Node

Removing the Server Node from the chassis

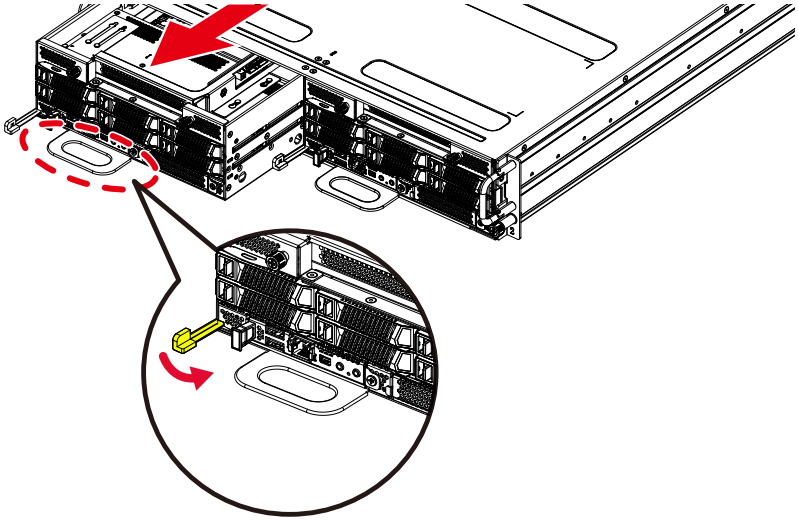
Important

- **Power off Node first!** Remove a power-on node will cause immediate power loss.
- **Each node is independently powered.** Turn off the node will affect the other.

Removal Precedure

1. Pull the node thumb latch to the right side to release the node.
2. Grasp the handle at the lower left side of the node to the slide the node out of its slot.

- Support the weight of the node while removing it to prevent accidental drops.



System Front Handle

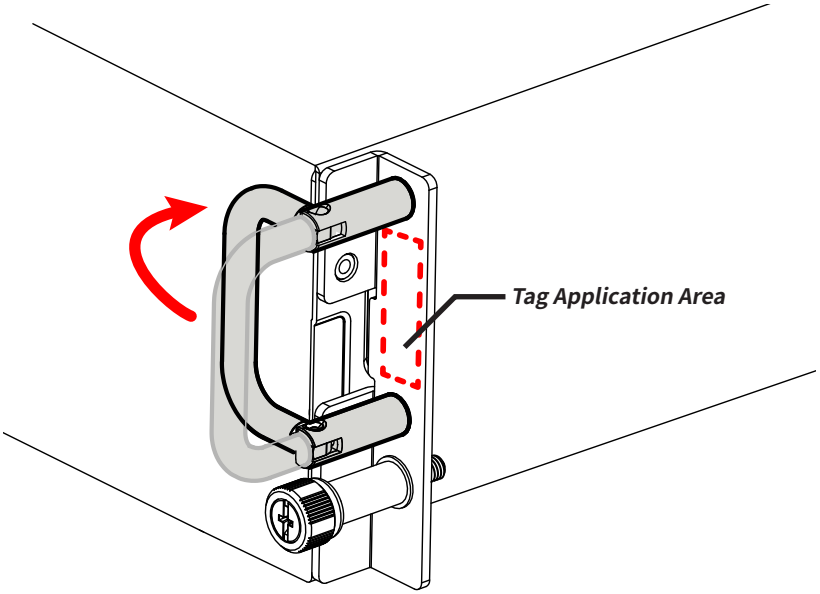
The chassis handle is normally un-bent and remains flush with the front of the server. Its 90-degree position is for a single purpose: to provide clearance for an information tag.

Operating System Front Handle

1. To affix a tag, gently **pIvot the handle Inward to a 90 degree angle**, then attach the tag to the designated spot.
2. After the tag is secured, return the handle to its original un-bent position by pivoting it back until it rests flush with the chassis.

Important

*The handle is **NOT designed to remain at a 90-degree angle** during normal operation. Always return it to its original position after use to prevent damage and ensures the handle does not obstruct other components.*



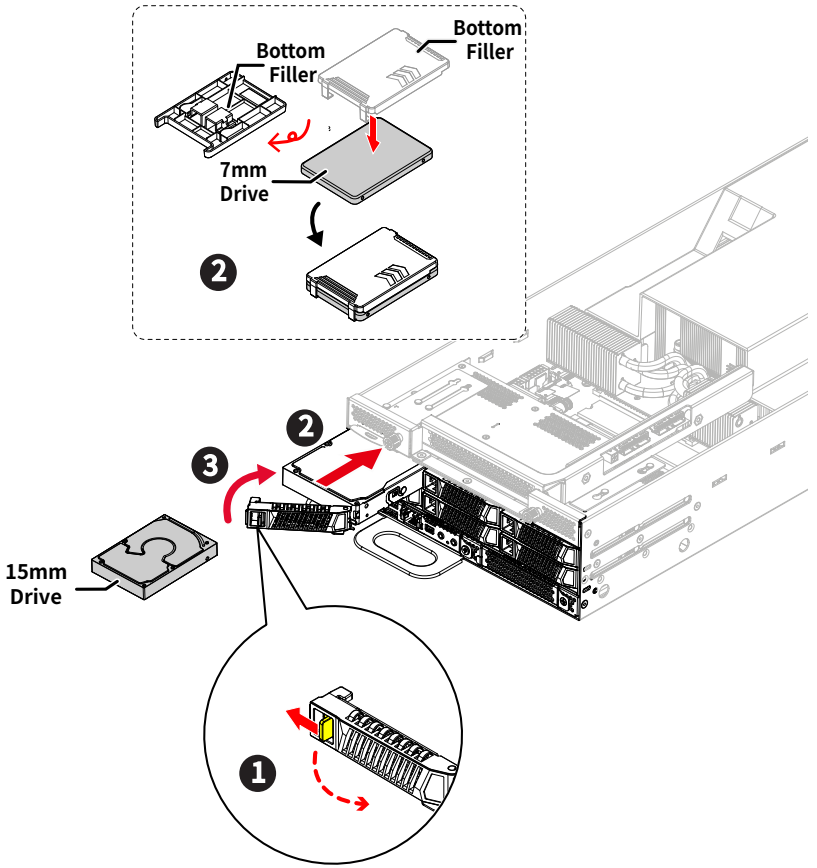
Drive Bay

Installing 2.5" Drives (15mm/ 7mm)

1. Push the **tray button** to release the lever.
2. With the drive carrier rail fully extended, insert the 2.5"drive into the bay.

- For **15mm drives**, remove the entire filler; for **7mm drives**, remove the bottom piece and leave the top piece engaged as a spacer.

3. Push the drive carrier lever back until it locks.

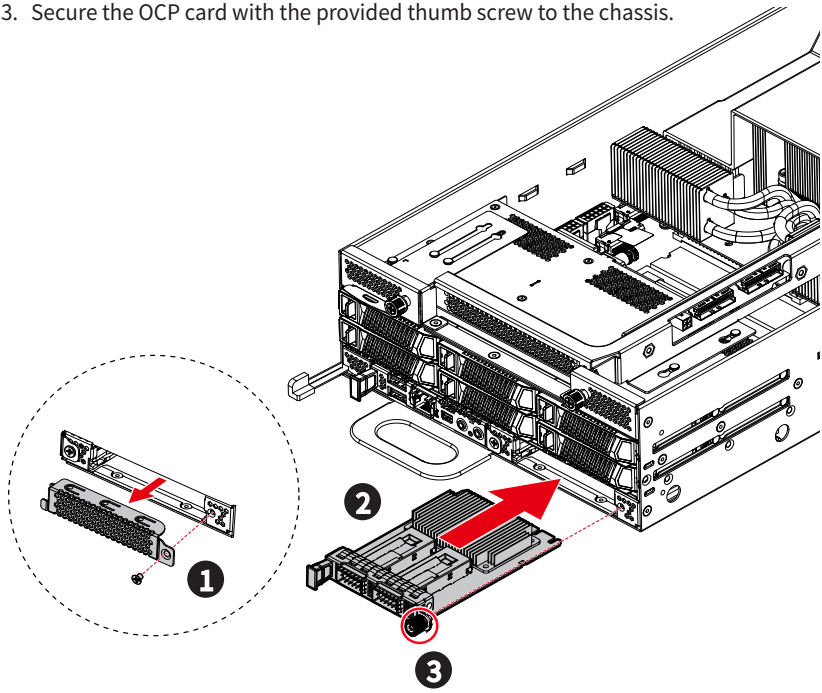


OCP Card

Installing OCP Card

Follow the steps below:

1. Remove the **filler panel**.
2. Slide the OCP card into the slot in the chassis, then push until the OCP card is **connected to the connector** on the system board.
3. Secure the OCP card with the provided thumb screw to the chassis.

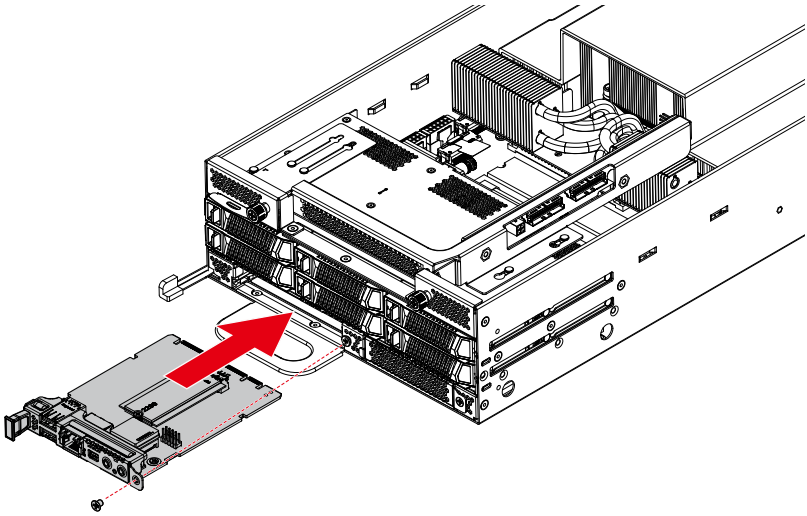


DC-SCM Module

Installing DC-SCM Module

Follow the steps below:

1. Slide the DC-SCM module into the slot, then puch until the module is **connected to the connector** on the system board.
2. Secure the DC-SCM module with the provided screw to the chassis.



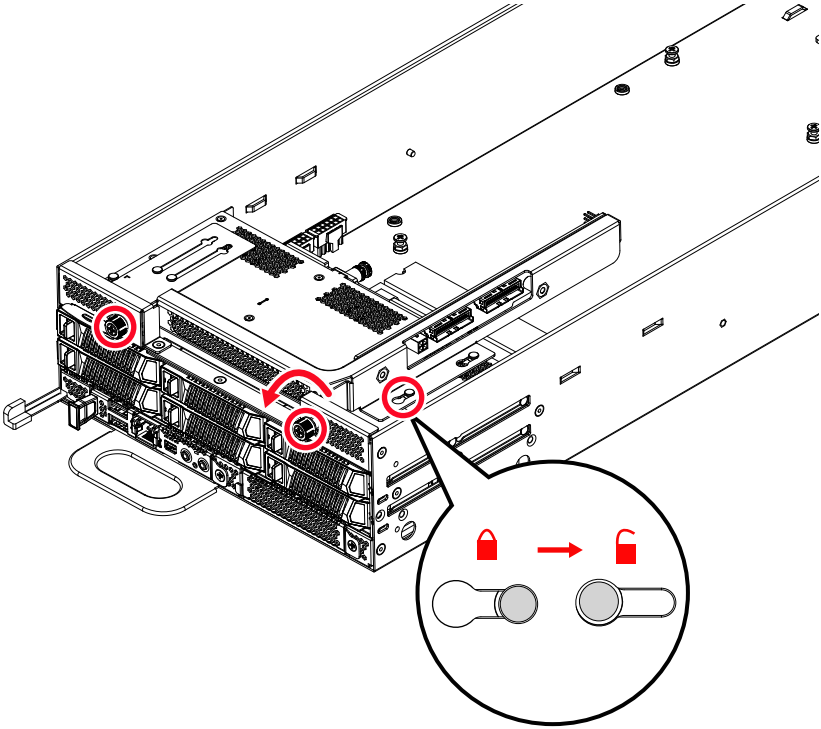
PCIe Add-in Card

Installing PCIe Add-in Card

1. Unscrew the thumb screw counterclockwise and release the hook towards the arrows (indicated by the red circle in the image below).
2. Set the hook to the unlock position to release the riser bracket.
3. Loosen the screws on the riser bracket to remove the filler panels.
4. Align the PCIe add-in card with the connector on the riser card, and insert it until it is fully seated.
5. Tighten the screws to securely fix the PCIe add-in card in place.

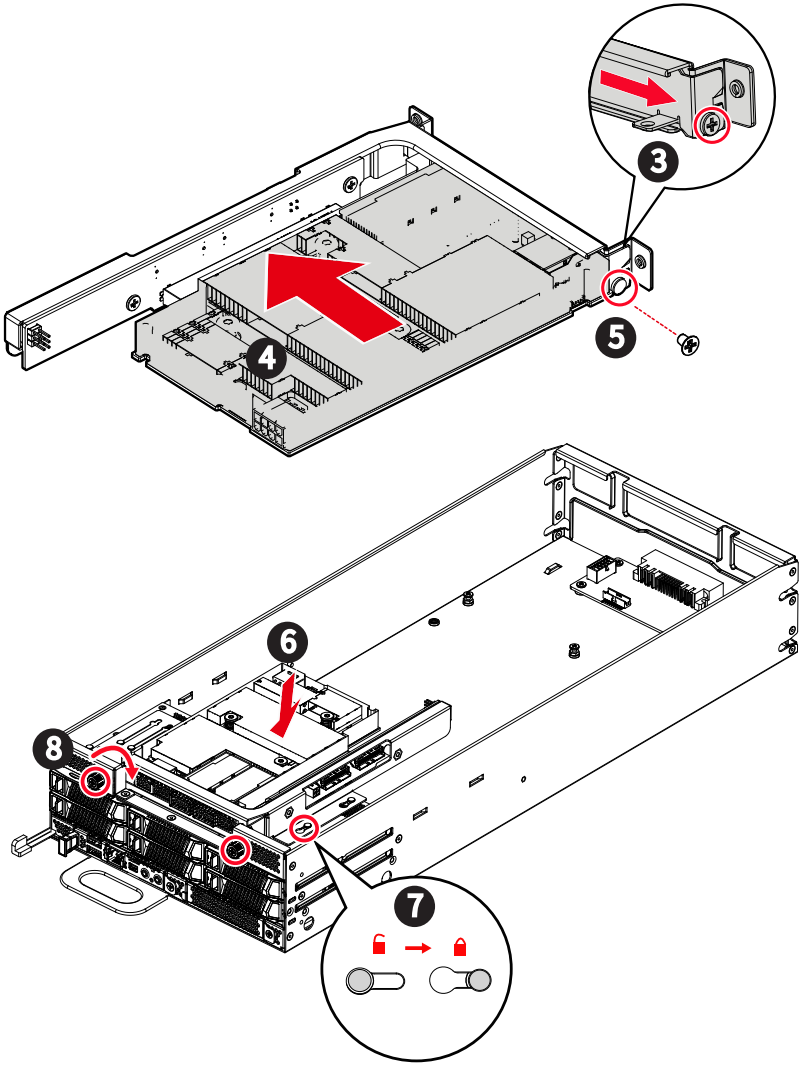
Important

Release the two thumb screws with a torque of 4.5-5kgf.cm.



Installing Riser Card Assembly

6. Insert the riser card assembly into the PCIe location above the HDD cage .
7. Pull **riser card** assembly towards the arrow to secure the hook (indicated by the red circle in the image below).
8. Tighten the **thumb screws** on the front side of the system to secure the riser card assembly (indicated by the red circle in the image below).



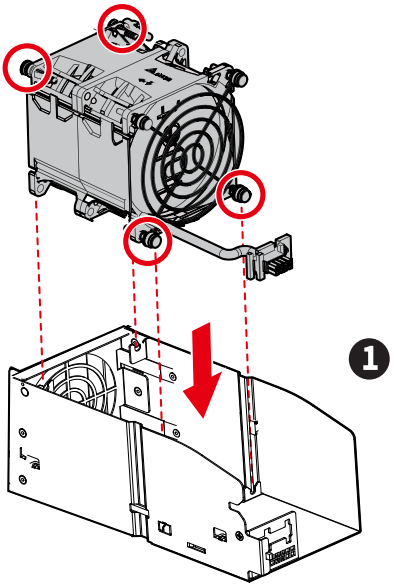
System Fan

Installing 8080 System Fan Assembly

Install Fan into Fan Cage

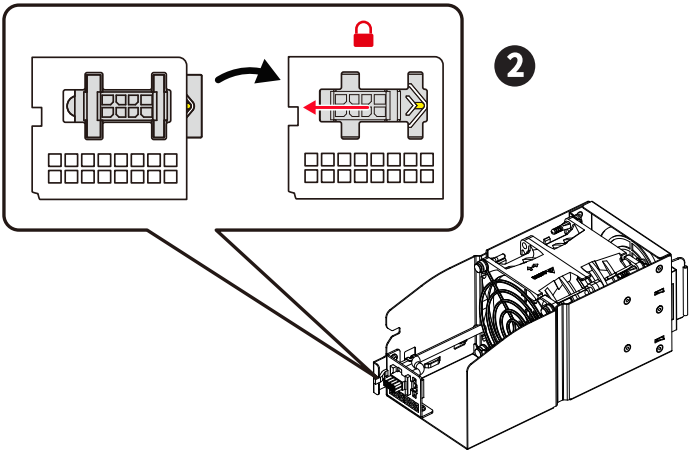
1. With the fan aligned, place the fan securely into the fan cage.

- Ensure the fan' s **rubber parts** are engaged with the **metal hooks**.



Secure Fan Connector

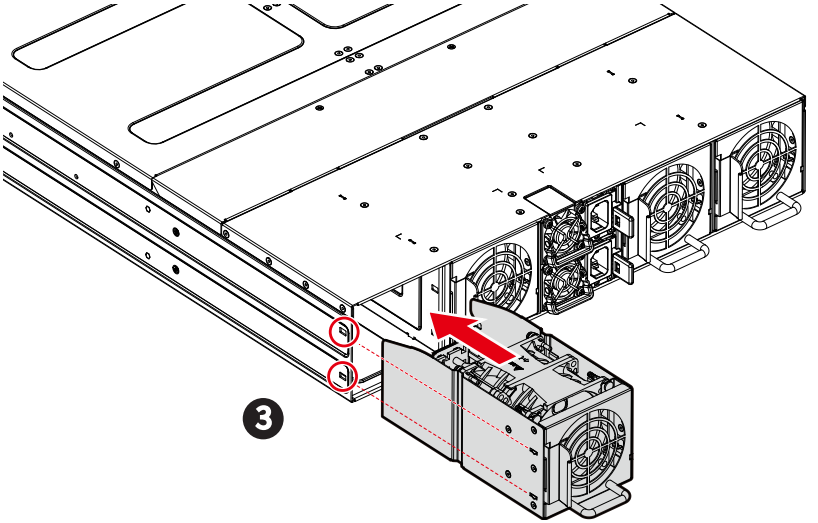
2. Align the fan connector with the designated notch, then slide the connector to the left to lock the plastic buckle onto the metal part, securing the connection.



Install Fan Assembly into Chassis

3. Push the fan assembly into the chassis until it locks into place.

- Ensure the fan module hooks into the chassis' s grooves on the side of the chassis.

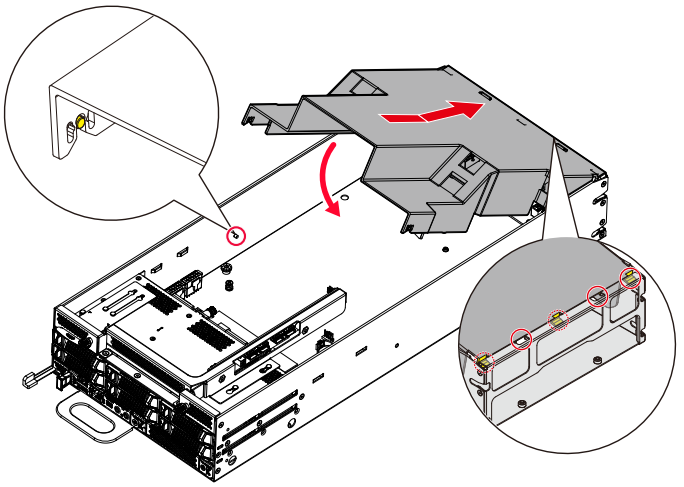


Air Duct

Installing Air Duct

To install the air duct, follow these steps:

1. Insert the **front edge** of the air duct in the system node.
2. Ensure the **two stops** (**red-dotted circles**) on the air duct are properly aligned with the corresponding stops on the node, and the **three hooks** (**red circle**) snap securely into place.
3. Rotate the air duct downward until it hooks to the pins on both sides of the chassis.



Power Supply Unit (PSU)

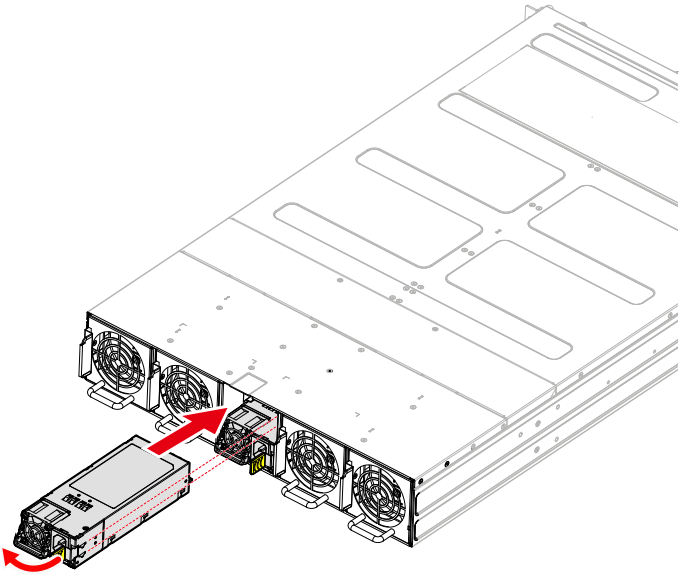
The server system supports two power supplies that can be easily inserted and removed from the rear side of the system without the need for tools.

Important

- ***Both power supplies must be identical and both power cords should be connected.***
- ***Failing to connect both power supplies could result in CPU throttling.***

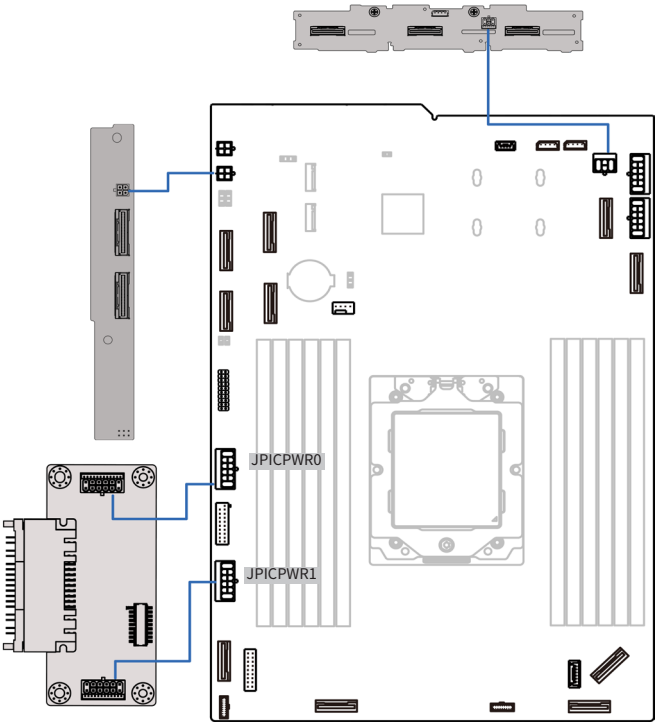
Installing PSU

1. Press the tab and hold the latch to pull out the power.
2. Slide the PSU into the chassis bay until the release latch snaps into place.
3. Connect the power cable to the PSU power outlet.

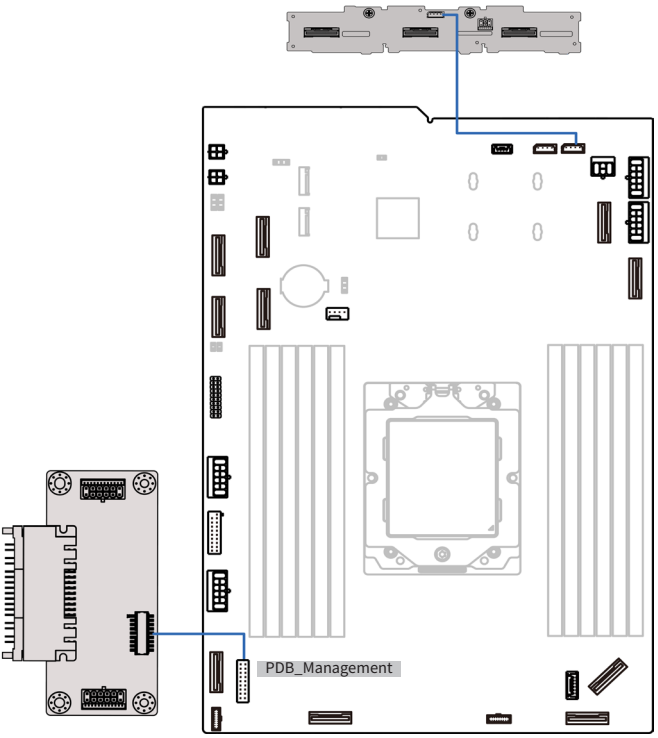


Cable Routing

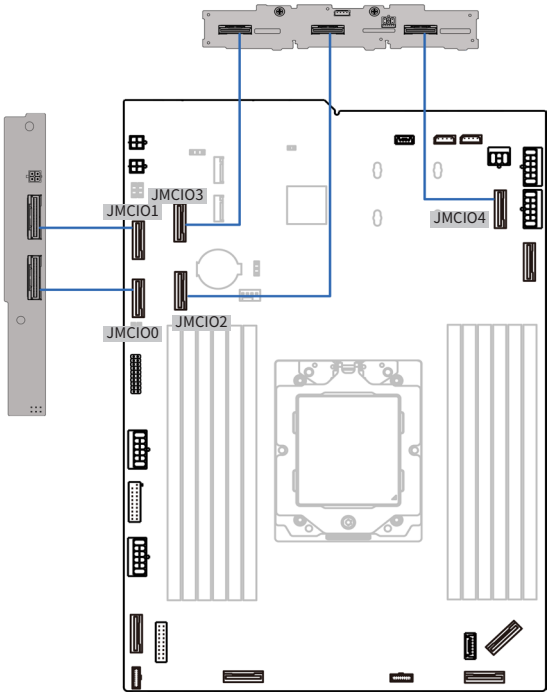
Power Cables



I2C & PDB Management Cables



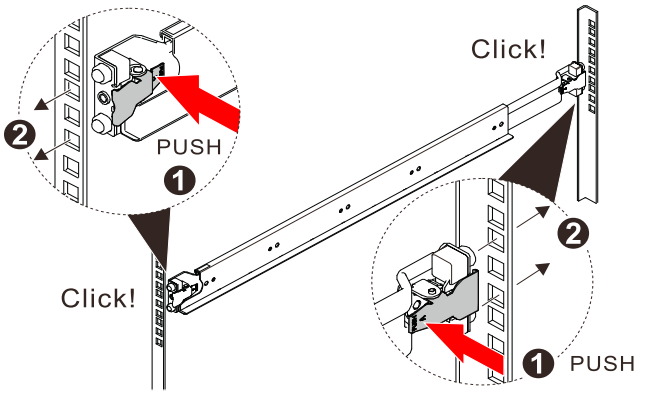
Storage Cables



Slide Rail & Rack

Attaching the Slide Rail to a Rack

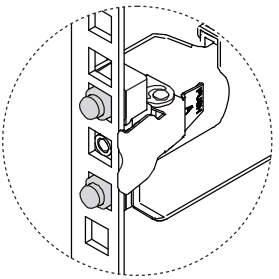
1. While pressing the **release tab**, firmly insert the slide rails studs into the rack' s mounting holes.
2. Release the tab and listen for a "**click**" to confirm secure attachment.



- Follow the above procedures in reverse to detach the slide rail from a rack.

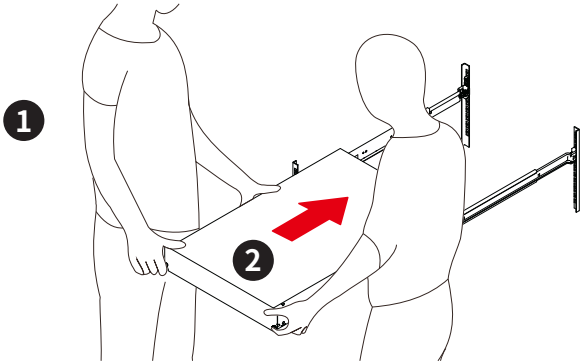
Important

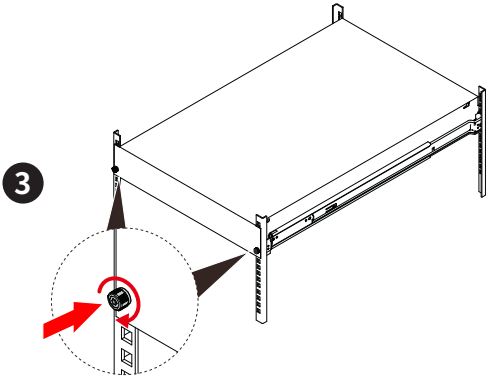
For square hole post,square stud must be fully attached through square hole on the rack. A partially inserted stud may result in instability.



Installing the chassis into a Rack

1. With at least two people, carefully lift the chassis and align the chassis with the L-shaped shelf on the rails.
2. Slowly slide the chassis into place, ensuring even alignment on both sides.
3. Tighten the thumb screws on both sides of the front brackets to secure the chassis.





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